

LADA

Land degradation assessment in drylands

Hubert George

Land and Plant Nutrition Management Service
Land and Water Development Division, FAO



Food for all

FOOD AND AGRICULTURE ORGANIZATION
of THE UNITED NATIONS



Outline

- Overview of LADA
- What is land degradation ?
- The importance of land degradation in dryland areas
- Previous global assessments of land degradation
- Development of LADA methodologies
- Current status of LADA
- Conclusions

Overview of LADA project

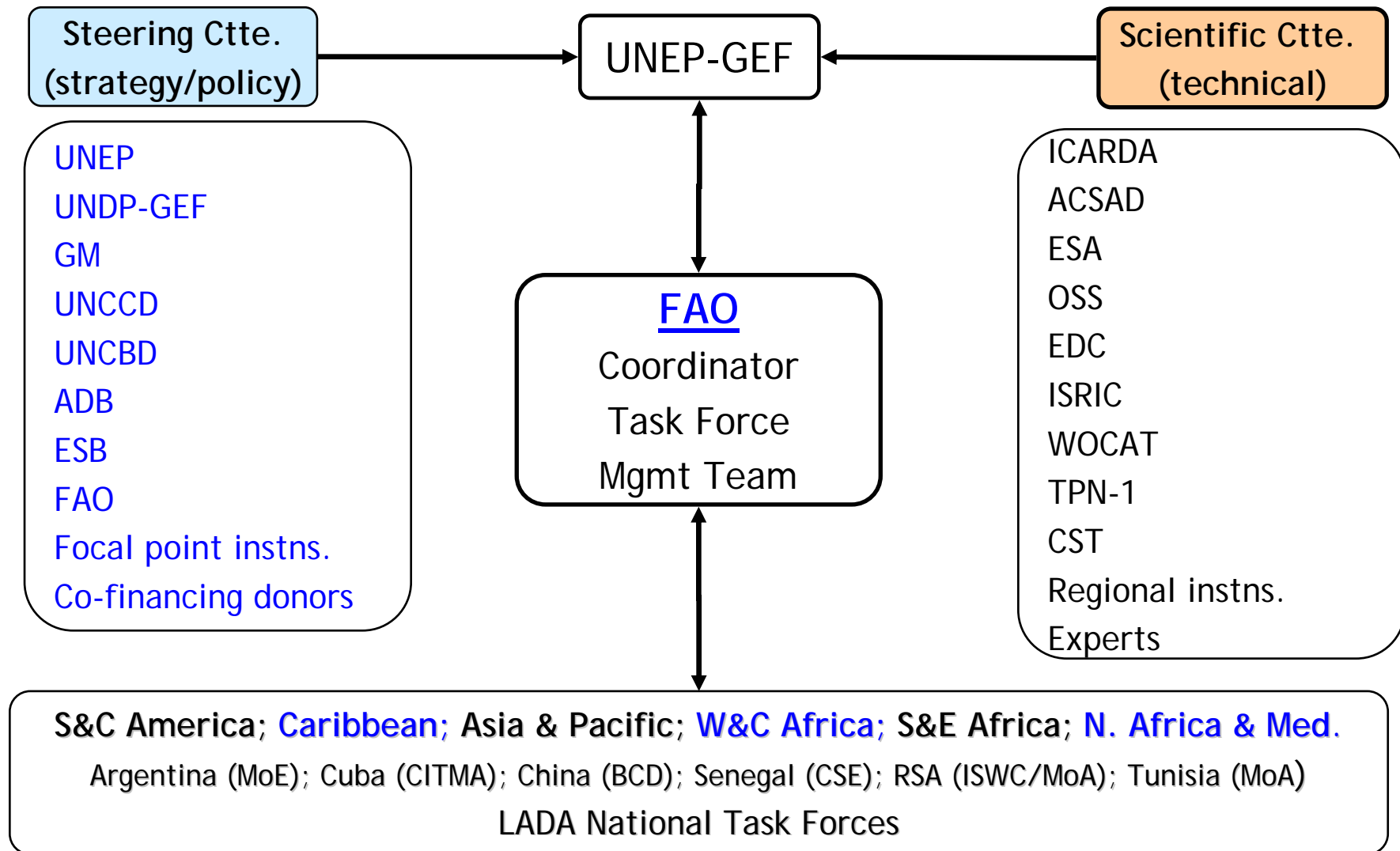
inadequate information on the status of land
degradation needed for program
implementation: UNCCD, UNCBD, ..!

Aim: Standardized information & methodologies
at national, regional & global scales

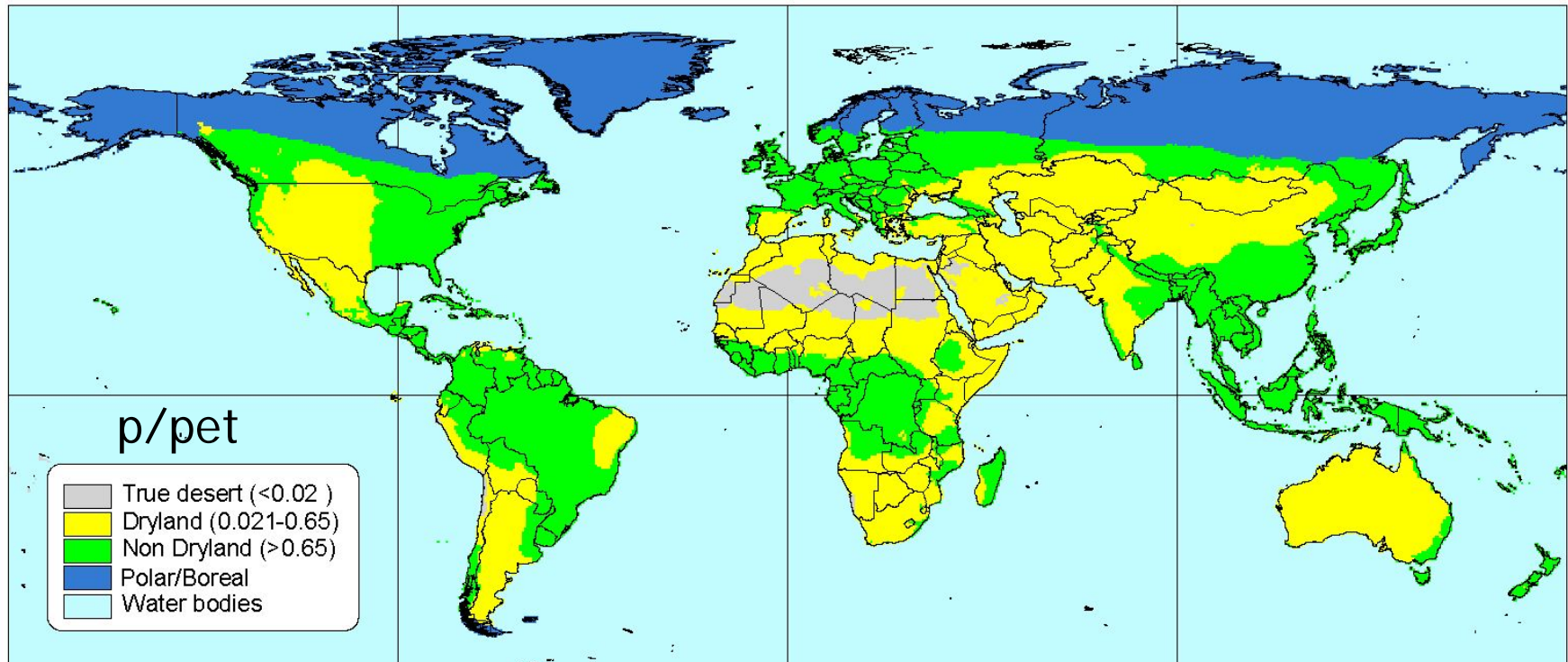
- Exploratory stakeholders workshop (Dec. 2000)
- Method Development (2002-2004; PDF-B) - USD \$0.7m
- Global Assessment (2005 - 2008) - USD \$7m

Funding:	GEF (via UNEP): OP1, OP12, OP15 FAO, countries (in-kind)
Execution:	FAO & numerous partners

LADA management



Land degradation in drylands



- Home & livelihood for > 2 b people (37%)
- Rural poor > 1 b; indigenous knowledge
- Habitat for plant & animal species uniquely adapted to variable/ extreme conditions: thermal, arid, saline
- Important carbon sink potential

Population in drylands (millions)		%
Asia	1400	42
Africa	268	41
South America	87	30

What is land degradation ?

Degraded land

Land which due to natural processes or human activity is no longer able to sustain properly an economic function and/or the original ecological function (ISO, 1996)

Vegetation degradation

Implies reduction in biomass, decrease in species diversity, or decline in quality in terms of the nutritional value for livestock and wildlife (Eswaran et al, 2000)

What is land degradation ?

“Soil” degradation

Decline in soil qualities commonly caused through improper use by humans (ISSS, 1996). This includes physical, chemical and/or biological deterioration.

- loss of organic matter; decline in soil fertility,
- decline in structural conditions; erosion
- adverse changes in salinity, acidity or alkalinity
- the effects of toxic chemicals, pollutants or excessive flooding

What is **land** degradation ?

.... encompasses the whole environment but includes individual factors

- Soils
- Water resources (*surface, ground*)
- Forests (*woodlands*)
- Grasslands (*rangelands*)
- Croplands (*rainfed, irrigated*)
- Biodiversity (*animal, vegetative cover, soil*)

What is land degradation ?



water erosion



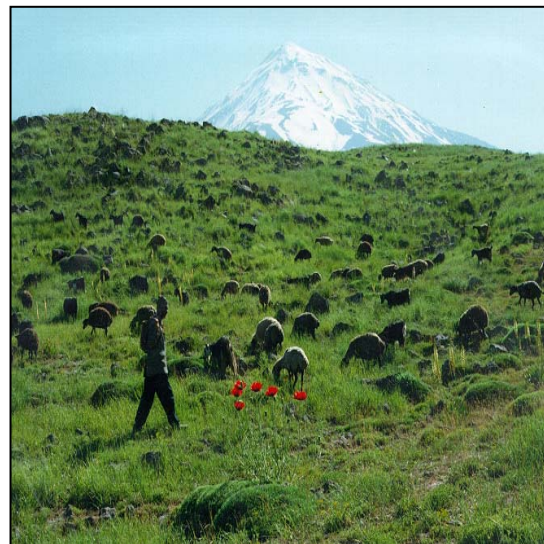
salinization



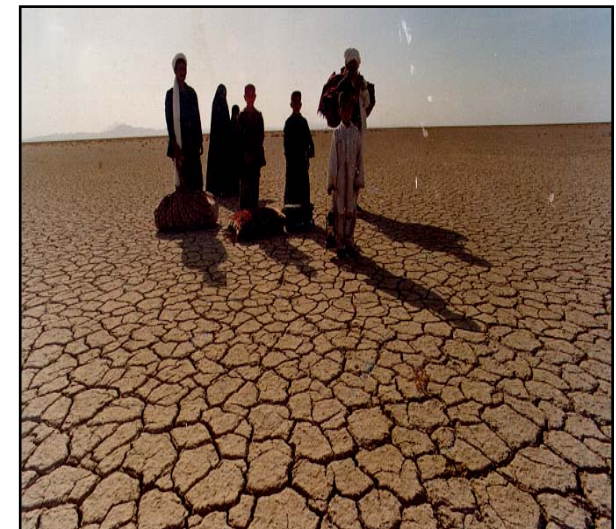
rangeland degradation



sand dune encroachment



loss of biodiversity



outmigration

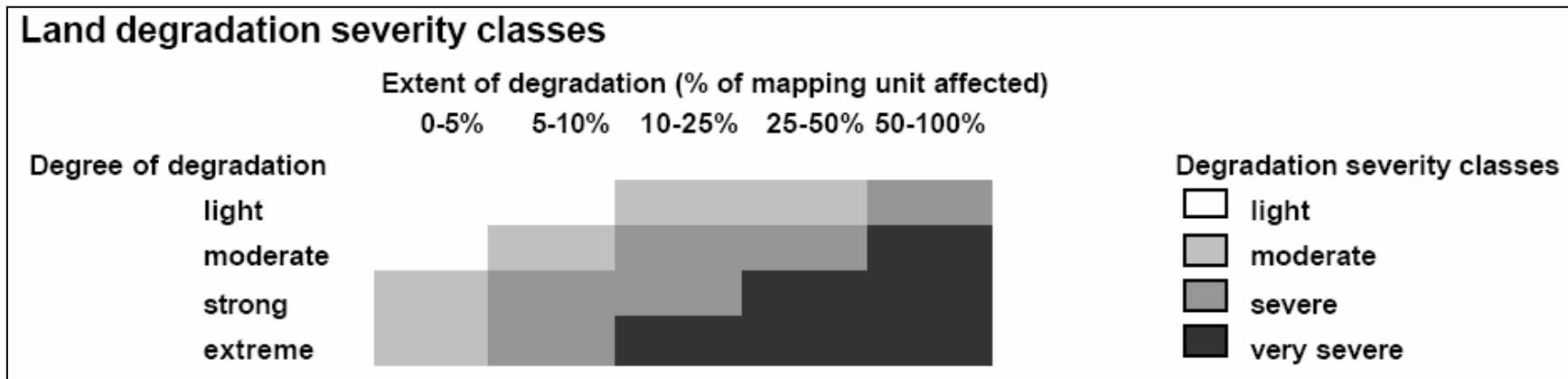
Previous global assessments

- GLASOD - only usable source of global data despite known limitations
 - ISRIC (commissioned by UNEP IN 1988; in preparation for UNCED 1992; extent of human-induced soil degradation; published in 1990)
- Expert judgement of degradation status (type, extent, degree, rate and cause) for individual polygons on a national/sub-national level
- Regional data: ASSOD (1997); SOVEUR (2000)
 - more detailed than GLASOD

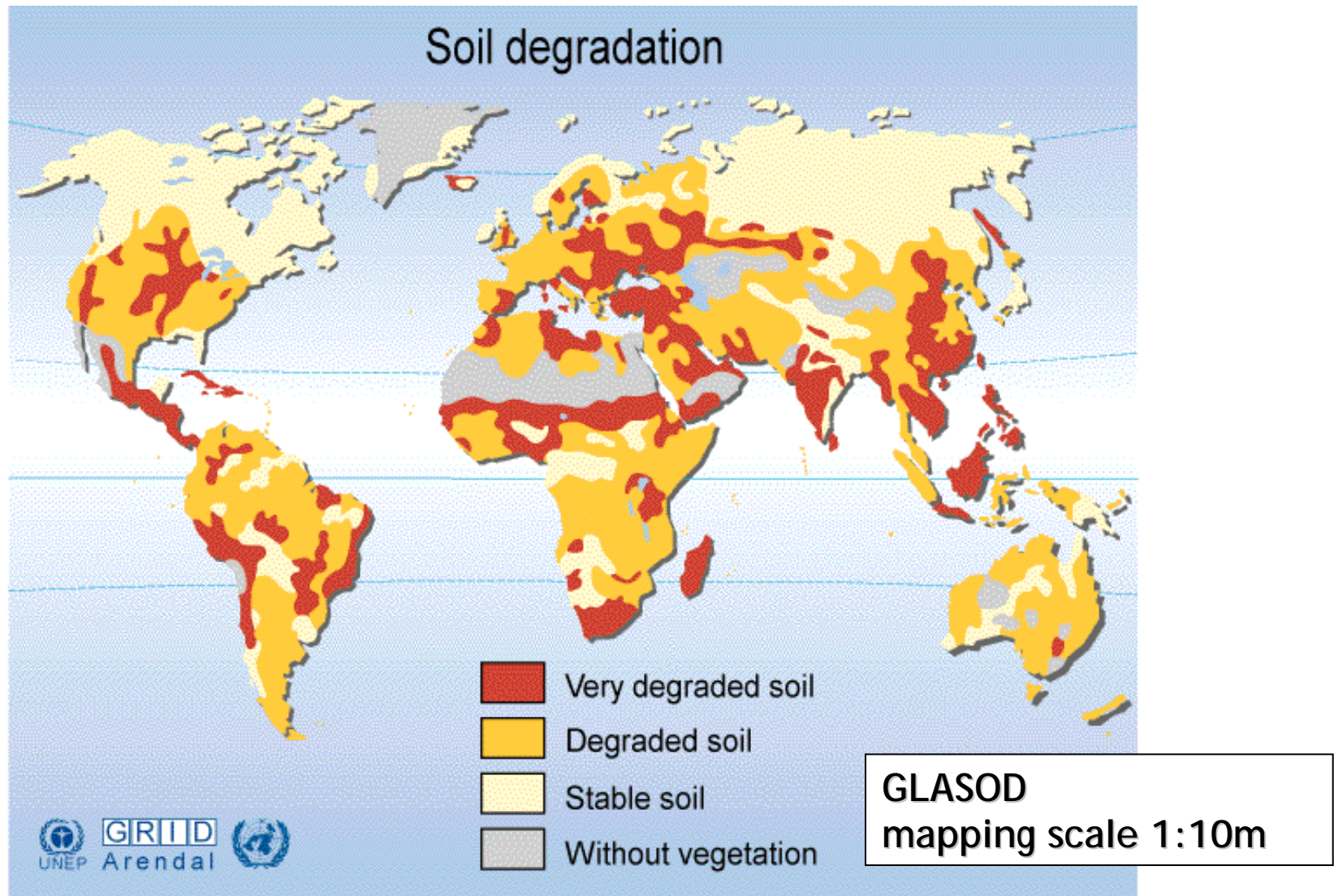
Previous global assessments

Estimate for each physically-homogeneous mapping unit

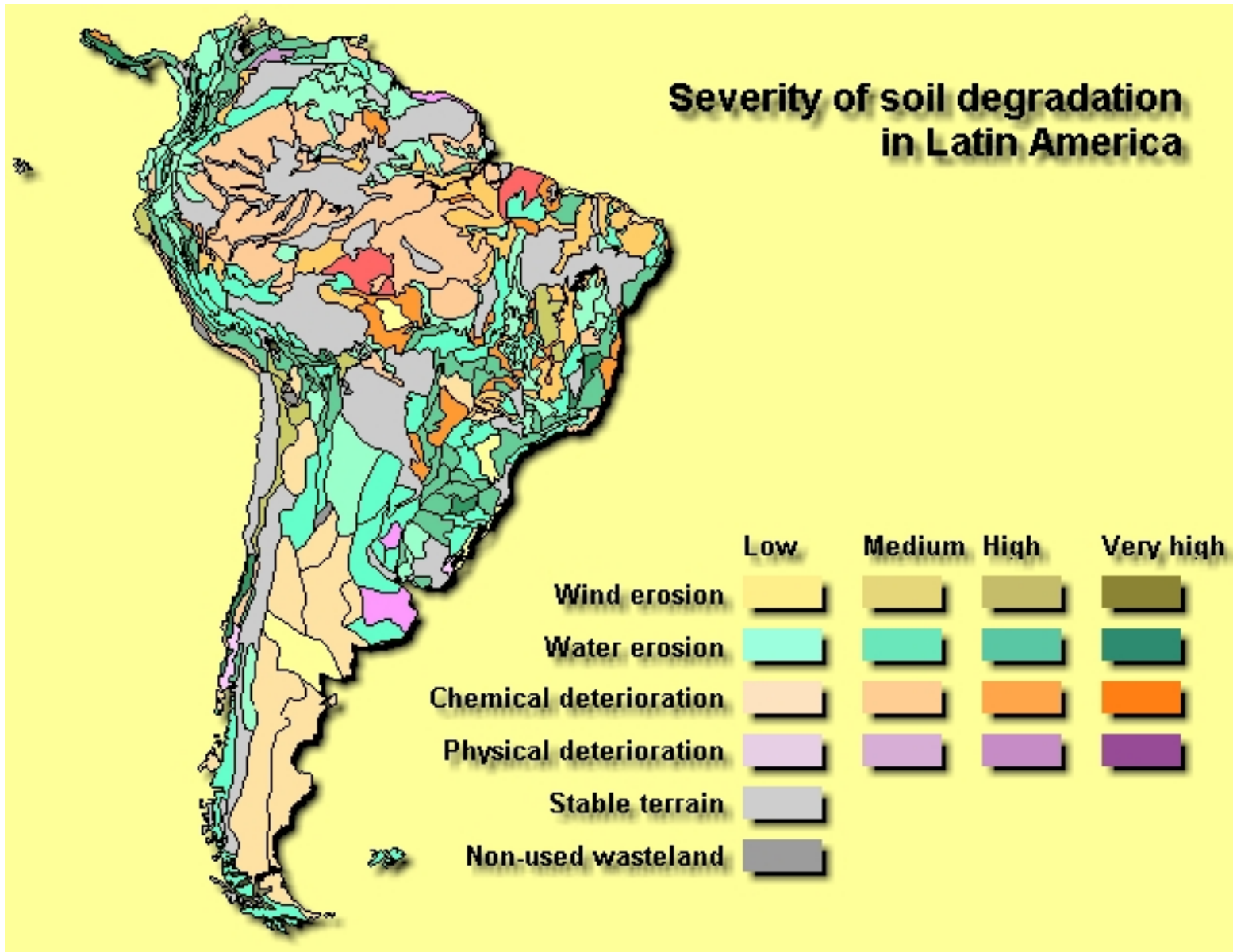
- **Type of degradation**: (water/ wind erosion; chemical/ physical deterioration)
- **Degree of degradation**: (light, moderate, strong, extreme)
- **Relative extent of degradation** (% of mapping unit affected)
- **Causes**: (deforestation, overgrazing, agricultural activities, over-exploitation of vegetation, industrial activities)



Previous global assessments

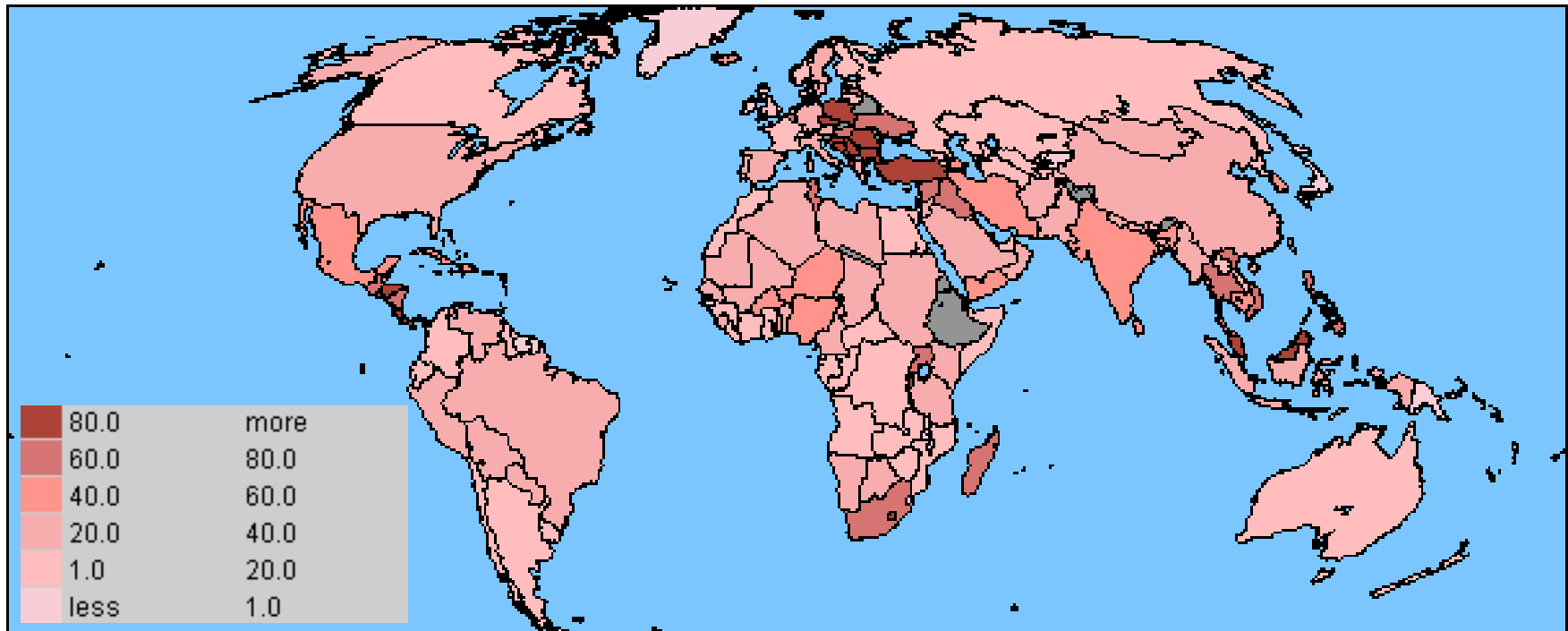


Previous global assessments



Previous global assessments

Total human-induced degraded area (%)

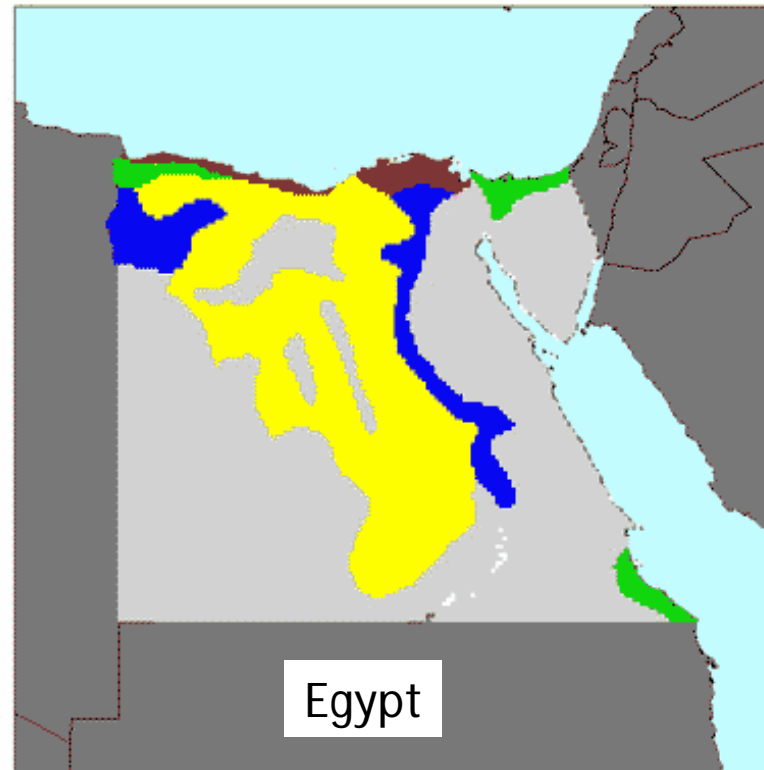


Area of land with severe and very severe human-induced land degradation.

Previous global assessments



Actual Extent Affected Legend	
Extent	Percentage
Infrequent	0 - 5
Common	5 - 10
Frequent	10 - 25
Very Frequent	25 - 50
Dominant	> 50



Severity	Mapped	Mapped (km ²)	Population	Population %	Population density	Wasteland (km ²)	Infrequent (km ²)	Common (km ²)	Frequent (km ²)	Very frequent (km ²)	Dominant (km ²)	Degraded (km ²)	Degraded %
None	61.8	617,113	3,262,300	4.9	5.29	617,113	-	--	-	-	-	0	0.00
Light	27.1	270,171	4,068,660	6.1	15.06	-	6,754	--	-	-	-	6,754	0.68
Moderate	2.5	25,364	421,468	0.6	16.62	-	-	690	3,012	-	-	3,702	0.37
Severe	6.5	64,739	45,467,704	68.2	702.33	-	-	--	11,653	-	-	11,653	1.17
Very Severe	1.8	17,860	13,026,000	19.6	729.32	-	-	--	-	-	13,395	13,395	1.34
Not Classified	0.3	3,008	391,348	0.6	130.11	3,008	-	--	-	-	-	0	0.00
TOTALS	100.0	998,255	66,637,480	100.0	66.75	620,121	6,754	690	14,665	0	13,395	35,504	3.56

Previous global assessments

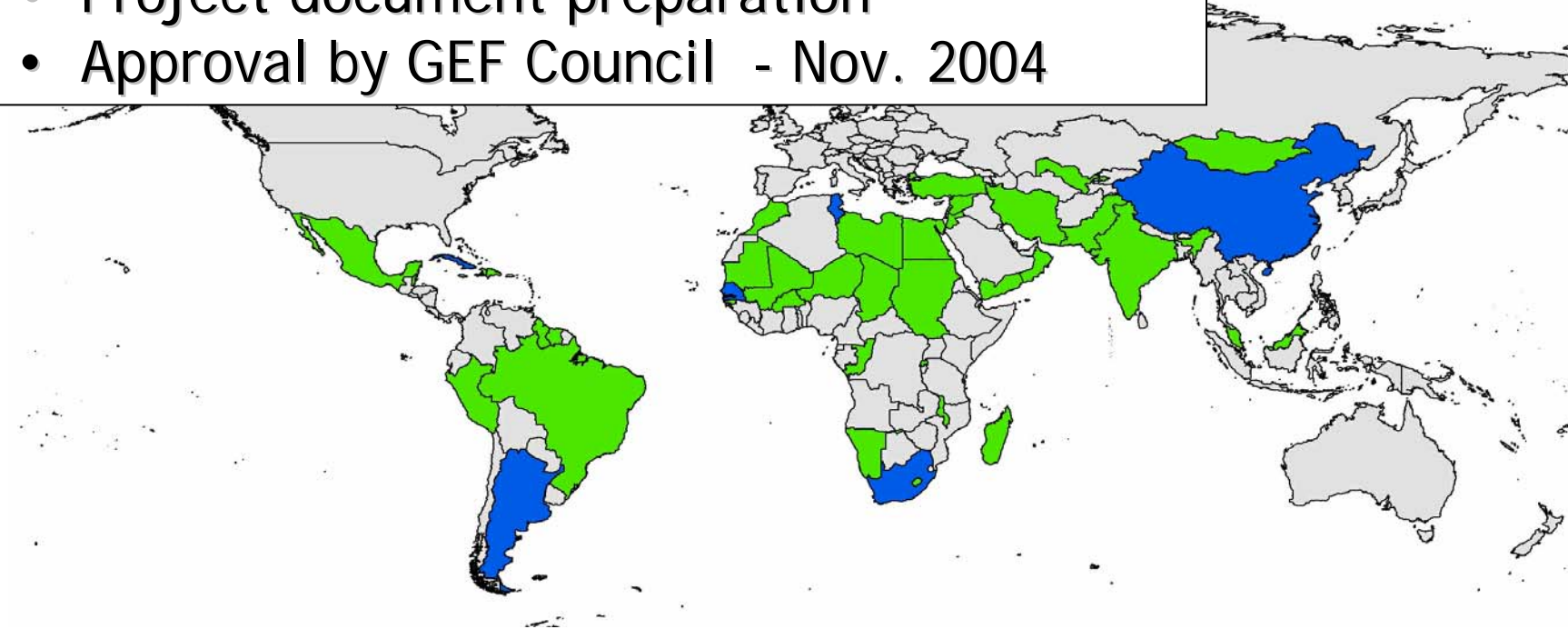
GLASOD limitations

- Small scale: not appropriate for national breakdowns
- Expert judgement: qualitative & subjective
- Visual exaggeration: entire mapping unit is classified, even if only a minor % is actually affected
- Extent classes (5) rather than percentages
- Complex legend: combined extent and degree (severity) for four major degradation types (water and wind erosion, physical and chemical deterioration)
- Only “dominant” main type of degradation is shown in colour; Degradation sub-types only shown by codes

Source: GLASOD <http://lime.isric.nl/index.cfm?contentid=158>

LADA - Achievements - (2002-2004)

- Steering & Technical Advisory Committees
- Pilot countries; partners
- Project document preparation
- Approval by GEF Council - Nov. 2004



 *country reports*

- **Argentina; China; Senegal**
- Cuba; South Africa, Tunisia

LADA - Achievements - PDF-A ('02-04')

Reviews/ reports

- Assessment Indicators (*biodiversity, land condition*)
- Biodiversity issues within drylands
- Quantitative assessment of soil degradation
- National reports: provisional LD status & assessment capacity (51 countries)
- Pilot studies (Argentina, China, Senegal)

Methods

- [LADA methodological framework](#)
- Use of remote sensing for LD assessment
- Decision support tools for LADA

Information exchange

- Web sites - global & 3 national (pilot countries)
- ..

LADA: Major objectives - '05-'08

1. **Develop & implement strategies, tools & methods** to assess, quantify and analyse the nature, extent, severity and impacts of land degradation on ecosystems, watersheds, and river basins, and in drylands at a range of spatial & temporal scales
2. **Build national, regional & global assessment capacities** to enable the analysis, design, planning and implementation of interventions to mitigate LD and establish sustainable land use & management practices

LADA: Workplan

Activities & Sub- Activities	YEAR 1				YEAR 2				YEAR 2				YEAR 4			
The LADA Approach development																
Review of Data sources, Methods and Frameworks at different scales	█	█	█													
Development of integrated information systems at national level for LD data	█	█	█	█	█	█	█									
HOT SPOT identification and national analysis					█	█	█	█								
Development and Dissemination of guidelines for an enhanced need-based and process driven approach to dryland degradation									█	█	█	█				
Baseline Ecosystem Regional and Global approach	█	█	█	█	█	█	█	█	█	█	█	█				
Local Assessments of Land Degradation, Impacts in Hot Spots and Bright Spots					█	█	█	█	█	█	█	█	█	█	█	
Major Analysis and Follow up for Global action									█	█	█	█	█	█	█	█

Regional and Global Assessments

- Compilation of regional/ global data (biophysical & socioeconomic)
- International Workshop to review data & methods
- Global 'hot spots' - (5' X 5') - "GLADA"
 - land cover / NDVI changes (1970-2000)
 - soil erosion risk; updated GLASOD
 - socioeconomic drivers
- Regional 'hot spots' (1km X 1km) & training
 - WANA (ACSAD/ICARDA); SADC (South Africa RSC); Sahel (OSS)
 - LAC (Embrapa); Europe (JRC); NA (EDC)
- Workshops:
 - Regional & International Workshops
 - feedback on global & regional studies

Local Assessments

- **Local scale; Impacts in Hot & Bright spots**
- **Stakeholder workshop (National LADA Task Force)**
 - user needs;
 - field sites (NB - biodiversity, climate change, local knowledge used for mitigating LD impacts)
- **Training in local LD assessment techniques**
 - VSA, WOCAT, ... + U. of Norwich/ Bern, ..)
- **Local surveys (Hot & Bright spots)**
 - Cuba & Tunisia - 2 ; Senegal - 3 ; Argentina & South Africa - 4
 - China - 6
- **Local workshops - feedback on findings**
- **Development of policy guidelines**
 - policy makers & national planners
- **National/regional workshops - feedback on findings**

Follow up for Global action

- Modeling Framework developed allowing analysis of critical components of land degradation (DPSIR)
- Modeling Framework tested in pilot countries
- 'Best practices' report prepared including policy and resource needs for implementation.
- Linkages to UNCCD, UNCBD - SRAP and NAP, NEPAD, MA, ..
- Global action plan prepared
- Final Steering Committee meeting (GEF, UNEP, FAO)

Conclusions

Expected major LADA project outcomes

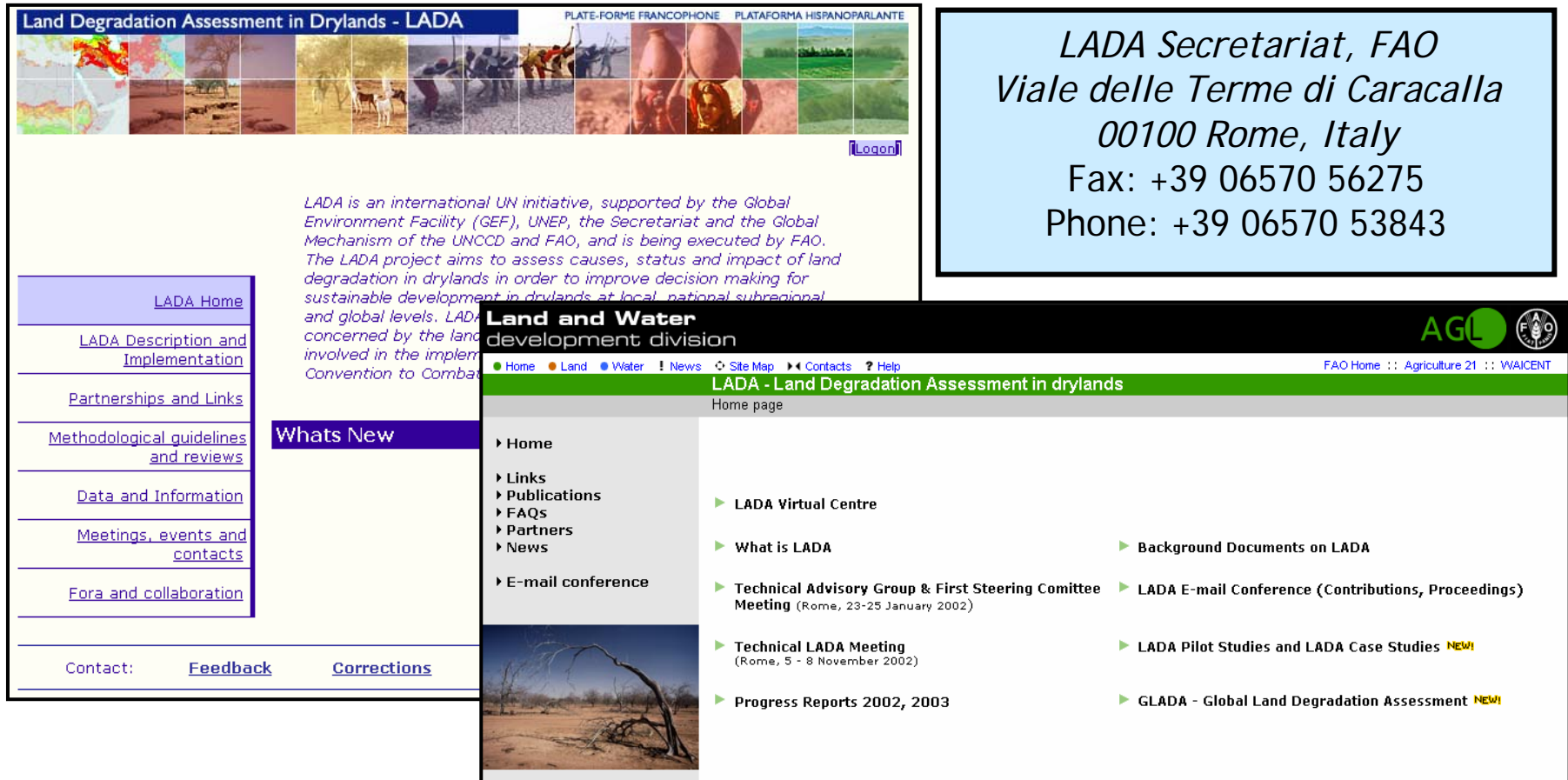
- Improved approach to LD assessment (strategies, methods & tools)
- Baseline regional & global assessments of LD in drylands
- Detailed local assessments & analysis of LD in hot & bright spots with linkages to policy formulation
- Promotion of action & decision making for the control of LD

LADA

..catalyzing widespread adoption of validated techniques of LD assessment & trained people to deliver improvements ...

For more information

<http://lada.virtualcentre.org/pagedisplay/display.asp>



Land Degradation Assessment in Drylands - LADA

PLATE-FORME FRANCOPHONE PLATAFORMA HISPANOPARLANTE

[LADA Home](#)

[LADA Description and Implementation](#)

[Partnerships and Links](#)

[Methodological guidelines and reviews](#)

[Data and Information](#)

[Meetings, events and contacts](#)

[Fora and collaboration](#)

What's New

Land and Water development division

AGL

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LADA - Land Degradation Assessment in drylands

Home page

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- ▶ E-mail conference

- ▶ LADA Virtual Centre
- ▶ What is LADA
- ▶ Technical Advisory Group & First Steering Committee Meeting (Rome, 23-25 January 2002)
- ▶ Technical LADA Meeting (Rome, 5 - 8 November 2002)
- ▶ Progress Reports 2002, 2003
- ▶ Background Documents on LADA
- ▶ LADA E-mail Conference (Contributions, Proceedings)
- ▶ LADA Pilot Studies and LADA Case Studies **NEW!**
- ▶ GLADA - Global Land Degradation Assessment **NEW!**

Contact: [Feedback](#) [Corrections](#)

*LADA Secretariat, FAO
Viale delle Terme di Caracalla
00100 Rome, Italy
Fax: +39 06570 56275
Phone: +39 06570 53843*

<http://www.fao.org/ag/agl/agll/lada/default.stm>