



**FOOD AND AGRICULTURE
ORGANIZATION**

of **THE UNITED NATIONS**

Food
for
all

FAO's work and initiatives supporting Article 10c, targets and indicators

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Meeting on Article 10, with Focus on 10c
31 May – 03 June 2011



FAO and biodiversity

“The conservation and sustainable use of biodiversity for food and agriculture play a critical role in the fight against hunger, by ensuring environmental sustainability while increasing food production”





FAO's mandate and biodiversity

- To help build a food-secure world for present and future generations
- Recognising the fundamental role of biodiversity FAO fulfils its mandate through three interrelated global goals, two of which are:
 - The continued contribution of sustainable agriculture and rural development, including fisheries and forestry, to economic and social progress and the well-being of all
 - The conservation, improvement and sustainable utilization of natural resources, including land, water, forest, fisheries and genetic resources for food and agriculture

FAO Instruments

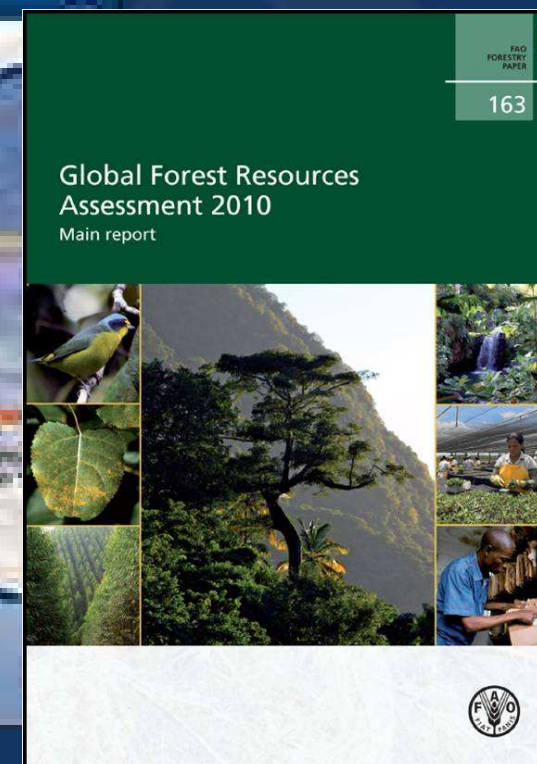
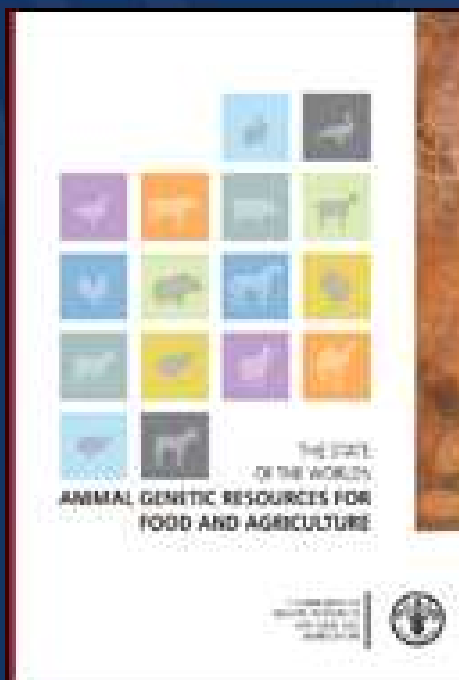
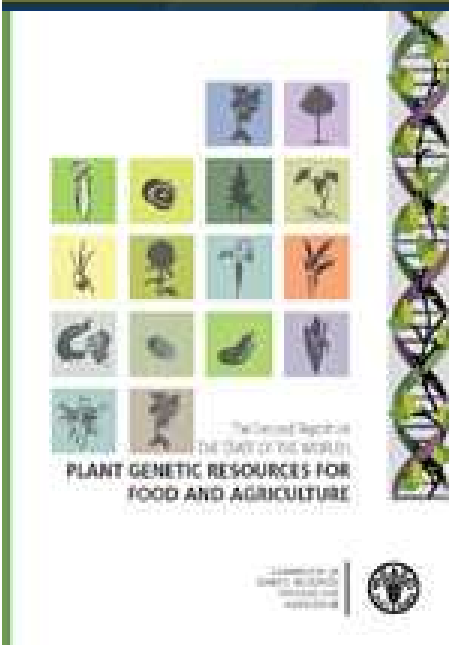


A number of instruments for the sustainable use and the monitoring of the state of resources

- Commission on Genetic Resources for Food and Agriculture
- International Treaty on Plant Genetic Resources for Food and Agriculture
- Global Plan of Action on Genetic Resources for Food and Agriculture (1996, updating stage)
- State of the World's Plant Genetic Resources (1996, 2008)
- State of the World's Animal Genetic Resources (2006)
- Global Forest Resources Assessments (interval of 5-10 yrs)
- State of World's Forest (every 2 yrs)
- Global Information System on Forest Genetic Resources
- International Plant Protection Convention
- Code of Conduct for Responsible Fisheries
- **Voluntary Guidelines to improve the governance of tenure of land and other natural resources (on-going, to be presented to the 37th session CFS October 2011)**



FAO's Assessments/Reports



SOLAW

State of the World's Land and Water Resources

DAD-IS



FAO's work on targets and indicators



- Extent of forest and forest types
- Extent of marine habitats
- Genetic diversity of terrestrial domesticated animals
- Area of forest under sustainable management (degradation and deforestation)
- Area of agricultural ecosystems under sustainable management
- Nutritional status of biodiversity (in collaboration with Bioversity International)

for consultation/presentation to the CGRFA member states, 13th Regular Session, July 2011

Relevant Indicators



Land cover vs Land use

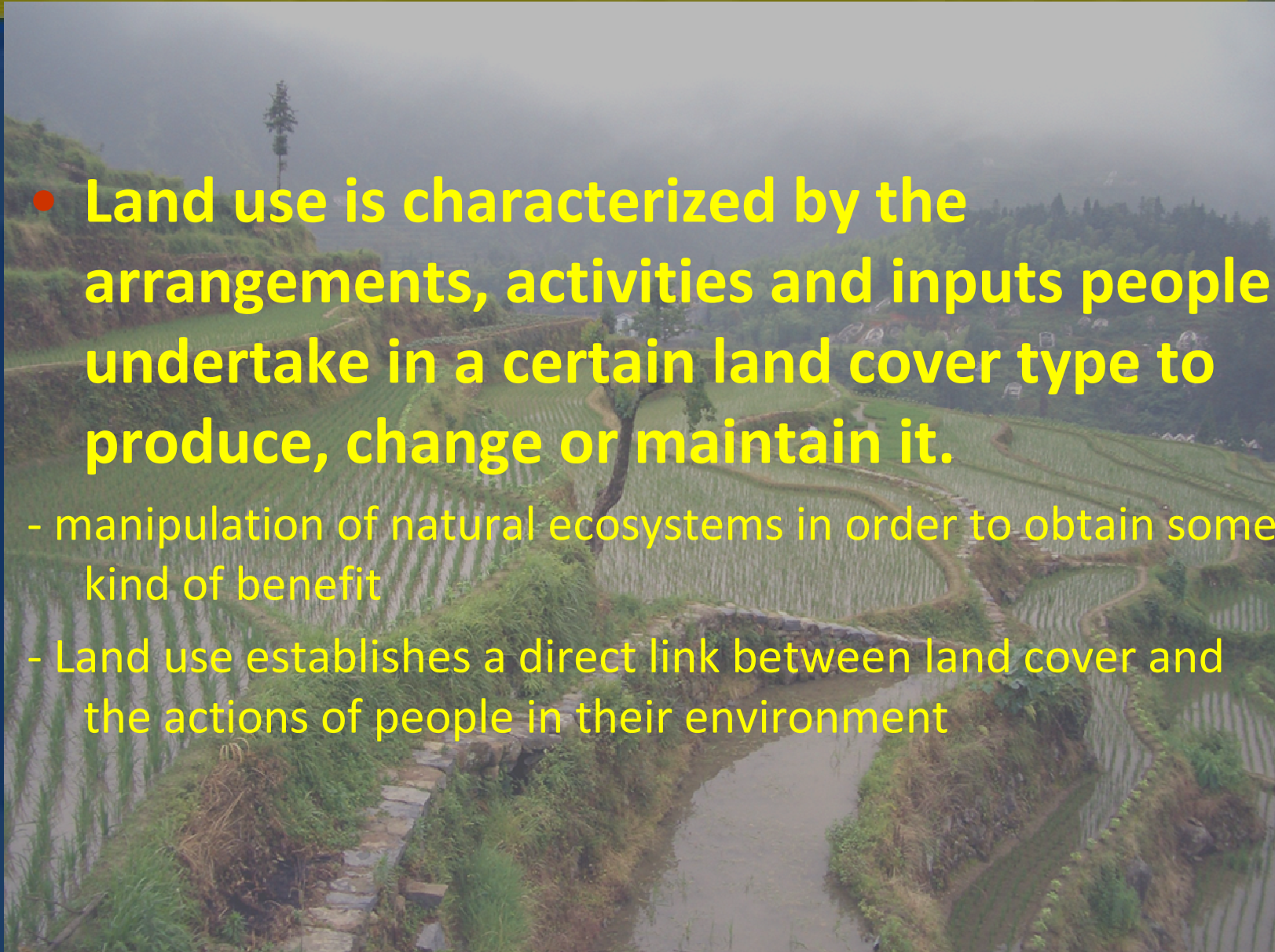
- Land cover is the observed (bio)physical cover on the earth's surface.
 - one the most important elements for description and study of the environment
 - one the easiest detectable indicators of human interventions



LAND USE



- **Land use is characterized by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it.**
 - manipulation of natural ecosystems in order to obtain some kind of benefit
 - Land use establishes a direct link between land cover and the actions of people in their environment





LAND USE and LAND COVER

- **Some basic facts:**
 - Understanding the differences between the two is fundamental
 - Land cover is a pre-requisite to characterizing Land use





LAND USE and LAND COVER

- Why are they important?
 - Used to make environmental quality assessments: i.e. what has changed in a given area over time and what are the consequences of such change?
 - As a result, we are better informed about how to respond
 - Efficient assessment of land cover and land use are thus fundamental to sustainable management of natural resources, environmental protection, food security and successful humanitarian and development programmes



What needs to be done?

- Importance of standardization: land cover and land use information is often missing or lacks the required level of accuracy and homogeneity
- Without a homogeneous system one cannot make any meaningful comparisons over space and time



FAO's WORK: LAND COVER

- **GLCN and LCCS**

- harmonizing land cover information and mapping at national, regional and global levels
- The **Global Land Cover Network (GLCN)** www.glcn.org/
 - joint effort between FAO and UNEP
 - overall objective: increase the availability of reliable and standardized information on land cover and its changes at the global level
 - based on the **Land Cover Classification System (LCCS)**

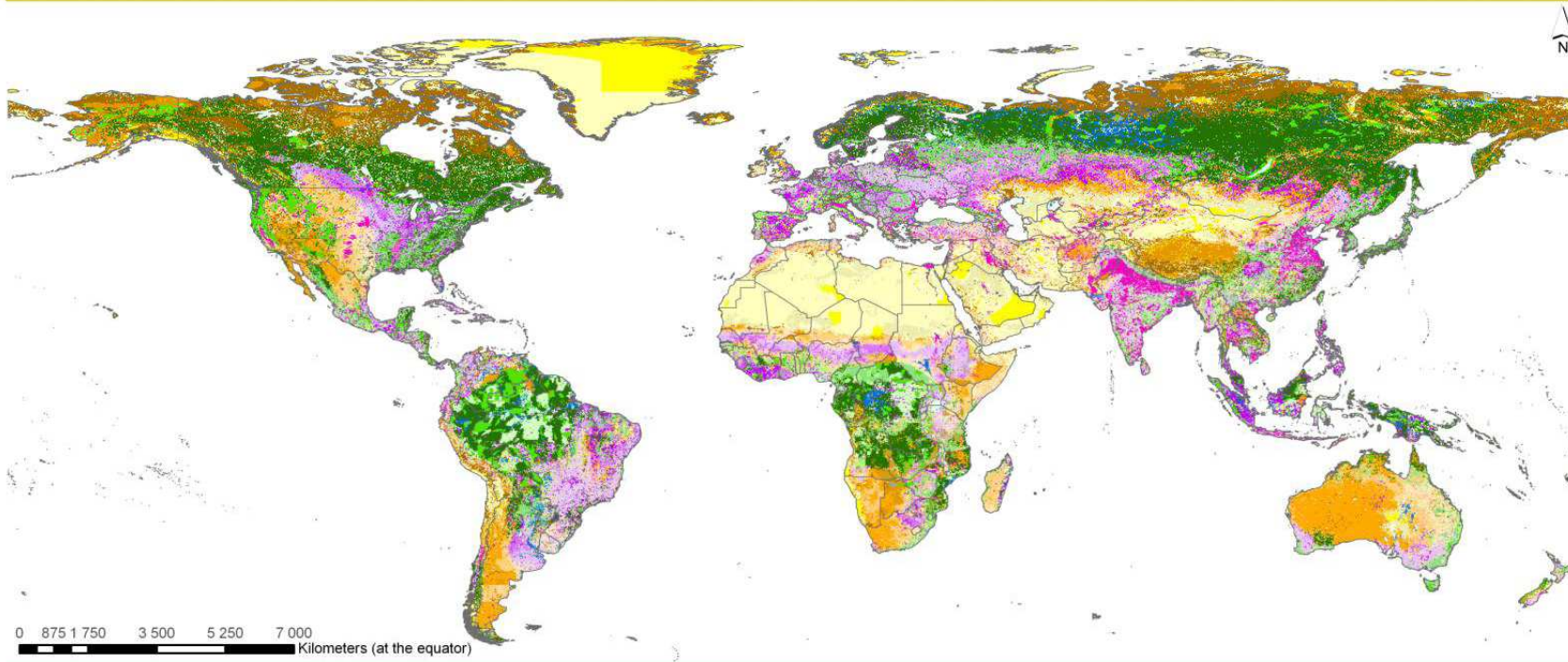


FAO's WORK: LAND USE

- Agro-MAPS Database: a global overview of selected agricultural statistics and their spatial variation at sub-national level
- LADA Project: Land Degradation Assessment in Drylands
 - different land use maps have been produced to give an overview of land use systems found in a given area (one global map, nine regional maps)
 - for example.....



Land use systems of the world



Geographic Projection

Land use systems

1 Forestry no use / not managed (Natural)	7 Herbaceous no use / not managed (Natural)	13 Rainfed Agriculture (Subsistence / commercial)	19 Urban areas	24 Bare areas no use / not managed (Natural)	28 Water Coastal or no use / not managed (Natural)
2 Forestry Protected areas	8 Herbaceous Protected areas	14 Agro-pastoralism Mod. intensive	20 Wetlands no use / not managed (Natural)	25 Bare areas Protected areas	29 Water Protected areas
4 Forestry Pastoralism moderate or higher	9 Herbaceous Extensive pastoralism	15 Agro-pastoralism Intensive	21 Wetlands Protected areas	26 Bare areas Extensive pastoralism	30 Water Inland Fisheries
5 Forestry Pastoralism moderate or higher with scattered plantations	10 Herbaceous Mod. Intensive pastoralism	16 Agro-pastoralism mod. intensive or higher with Large scale irrigation	22 Wetlands Mangroves	27 Bare areas Mod. Intensive pastoralism or higher	Country boundaries
6 Forestry Scattered Plantations	11 Herbaceous Intensive pastoralism	17 Agriculture Large scale irrigation (> 25% pixel size)	23 Wetlands Agro-pastoralism		
		18 Agriculture Protected areas			

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Reference: LADA, 2008. "Mapping Land Use Systems at global and regional scales for Land Degradation Assessment Analysis". Nachtergaele F. & Petri M. (under publication).

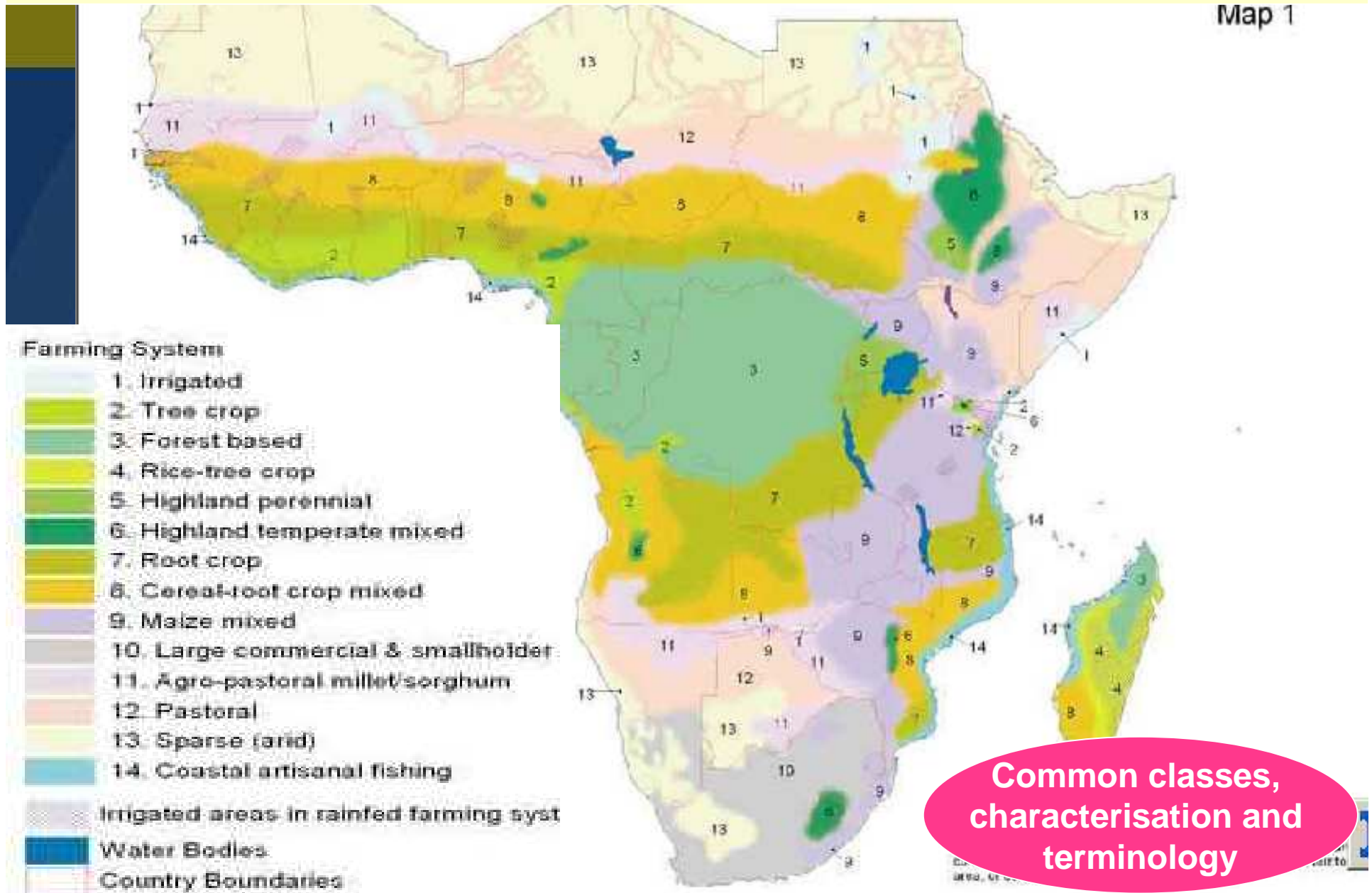
The Land Use Database of the world was developed as part of the project Land Degradation Assessment in Drylands (LADA), a four-year project funded by the Global Environment Facility (GEF). The project is implemented by the United Nations Environment Programme (UNEP) and executed by the Food and Agriculture Organization of the United Nations (FAO).

The geographic representation employed on this map do not imply of any opinion whatsoever concerning the legal status of any county, territory, or concerning the delineation of its boundaries.

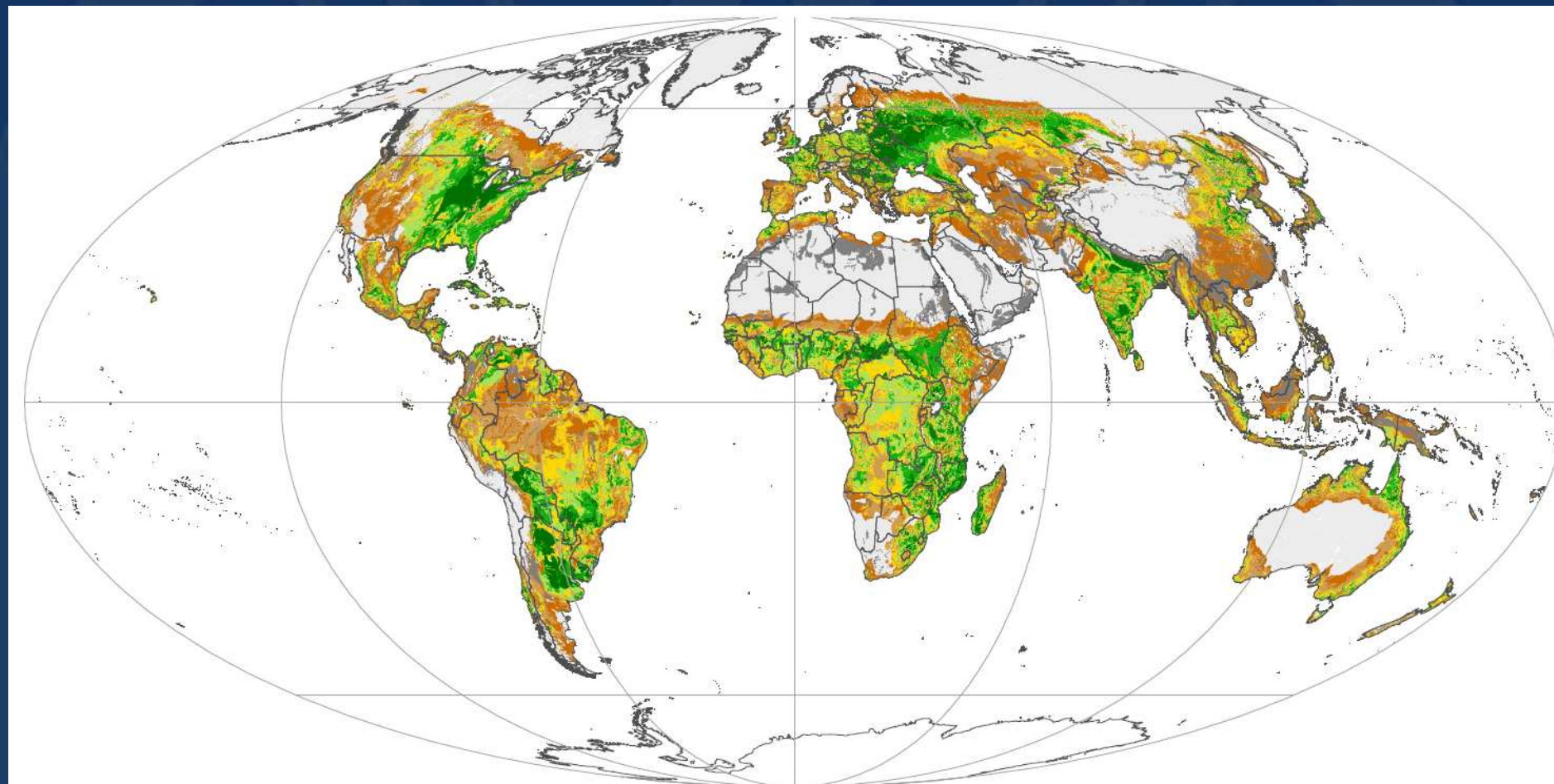


Major Farming Systems: Sub-Saharan Africa

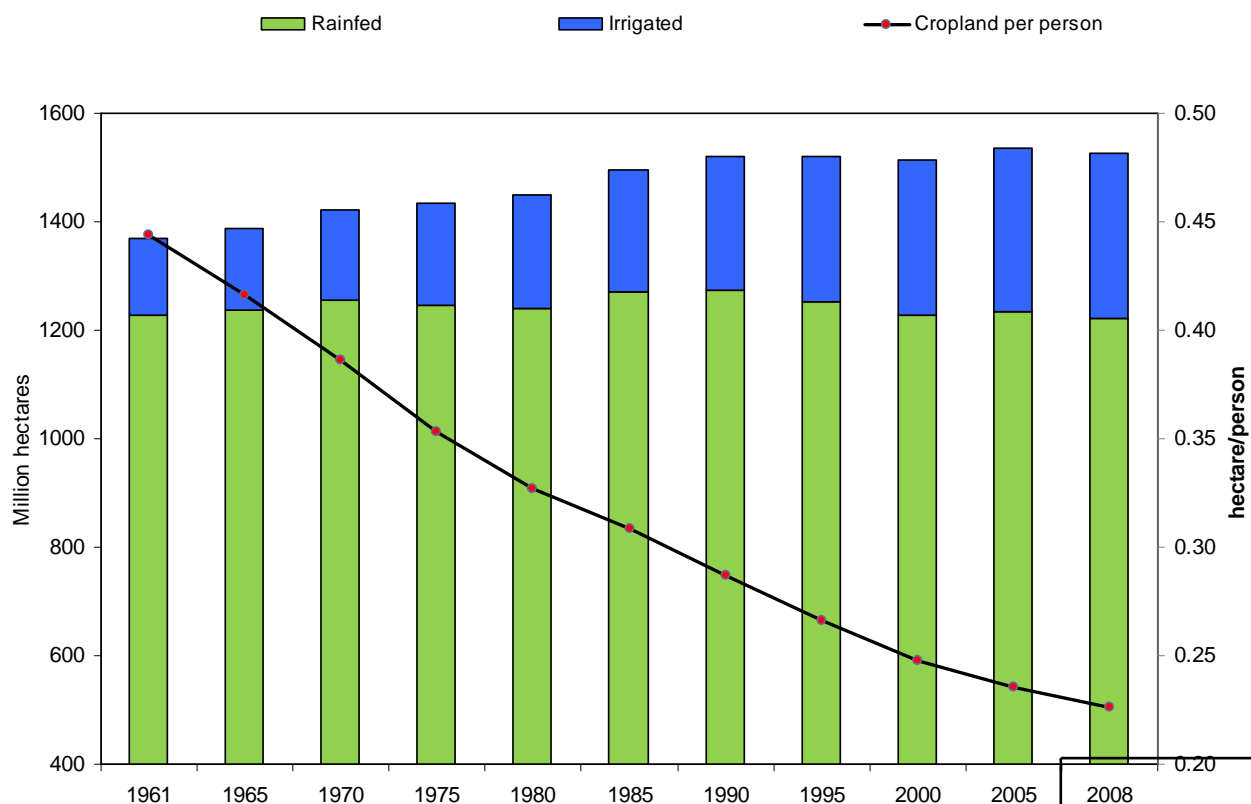
Map 1



Land suitability for cereals



Trends in land use

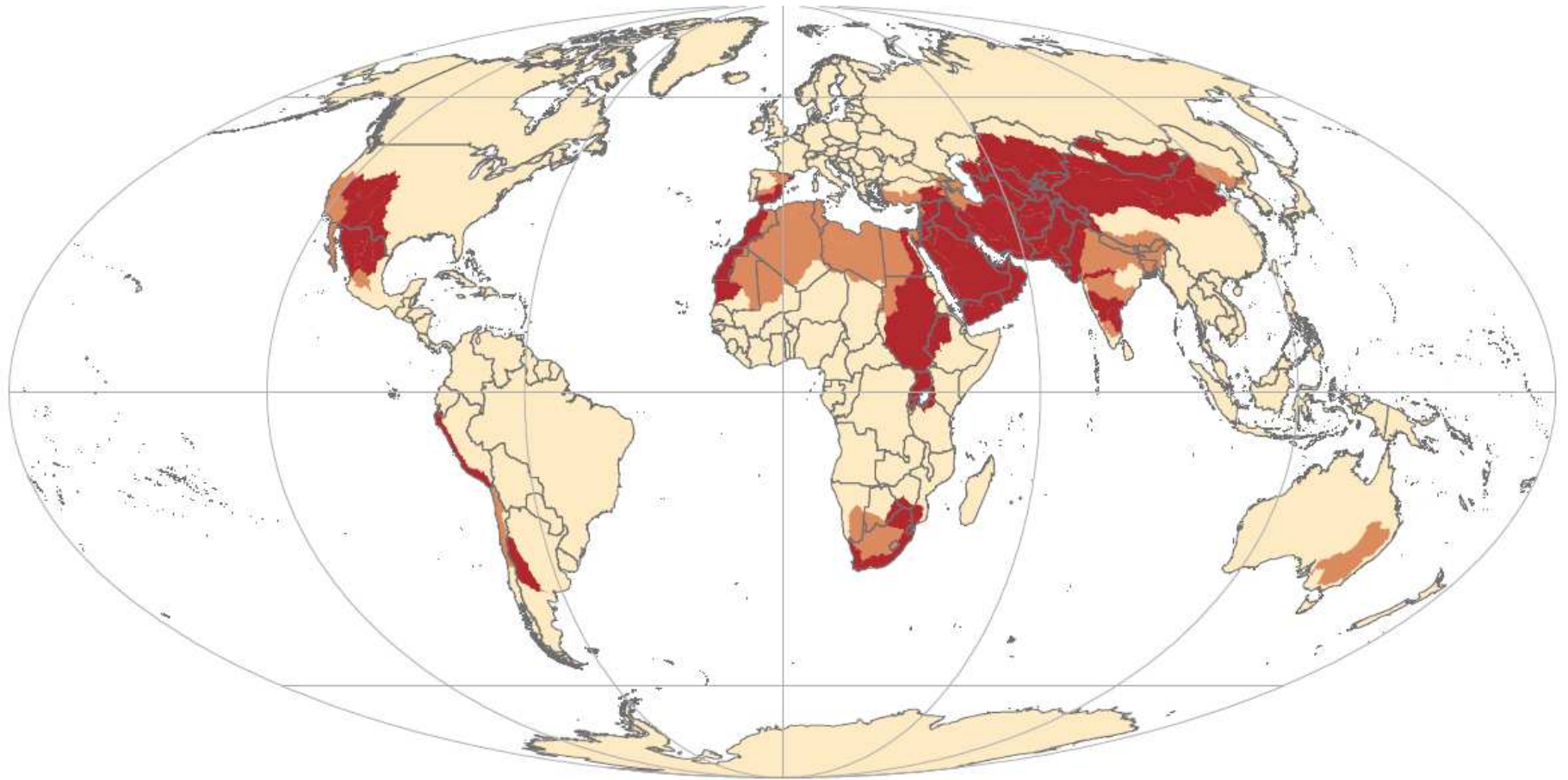


land under irrigated and rainfed cropping (1961-2008)

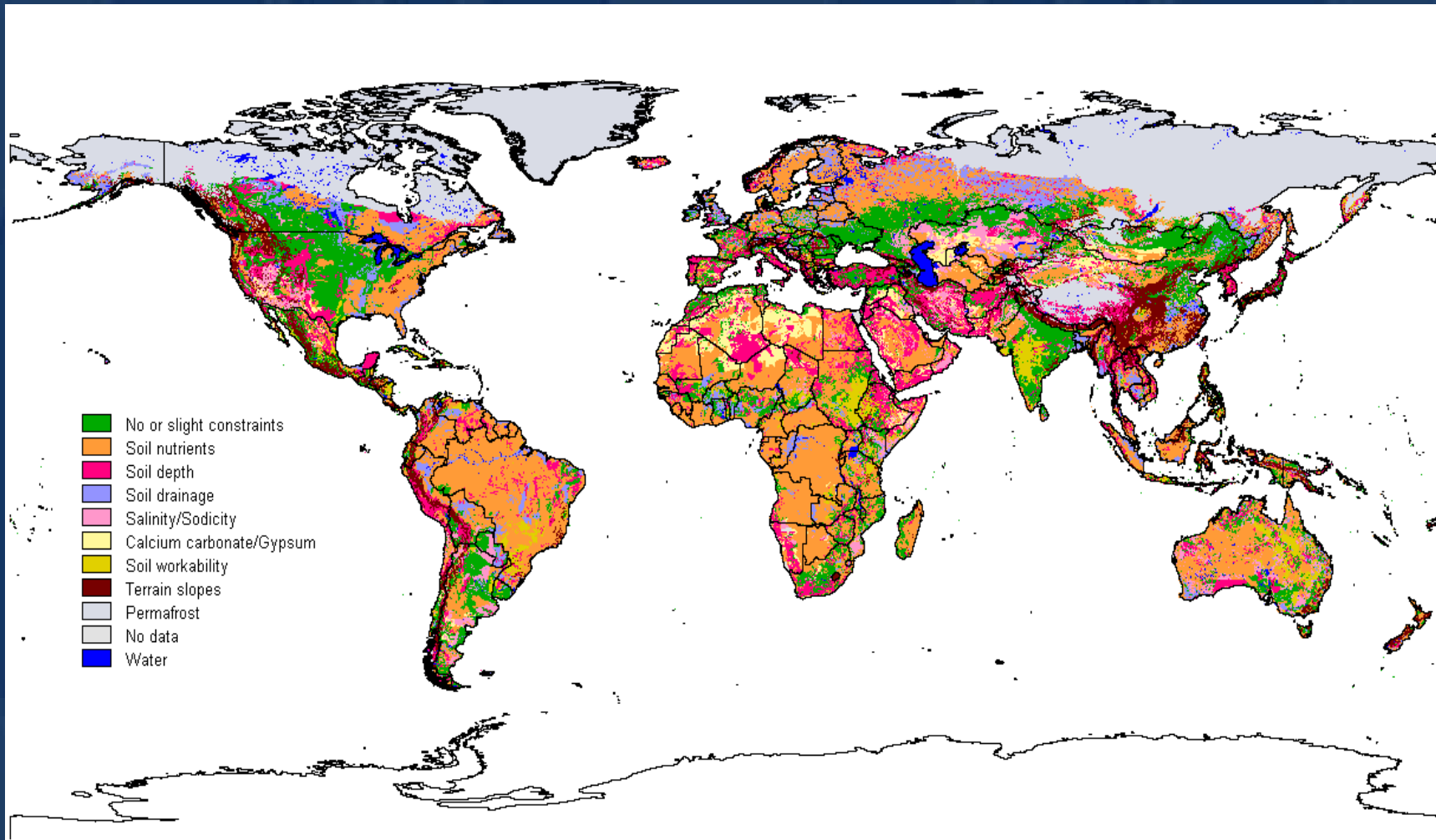
	1961	2009	Net increase 1961-2009
Cultivated land	1,368	1 527	12%
▪rainfed	1,229	1,226	- 0.2%
▪irrigated	139	301	117%

Net changes in major land use (million ha)

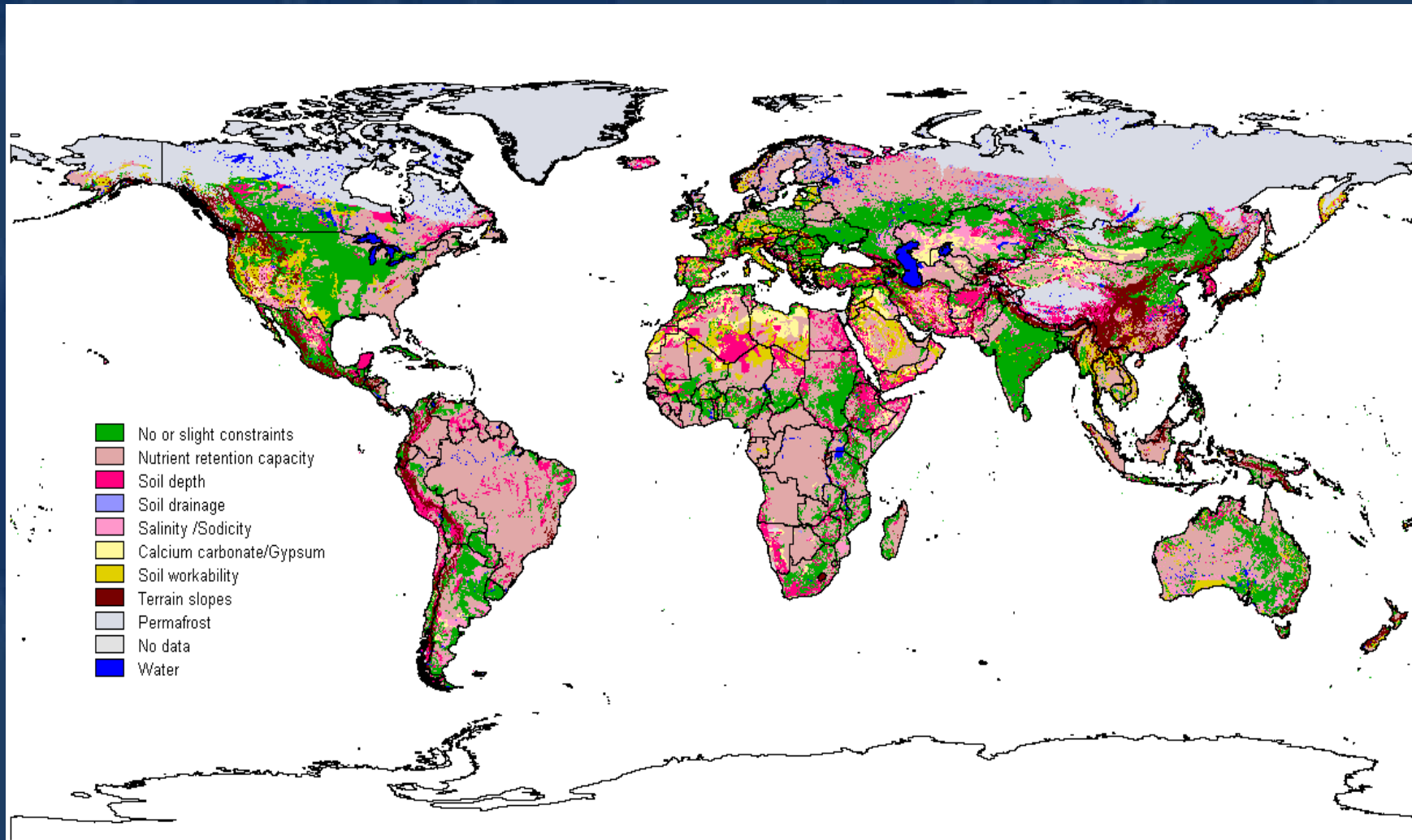
Physical Water Scarcity



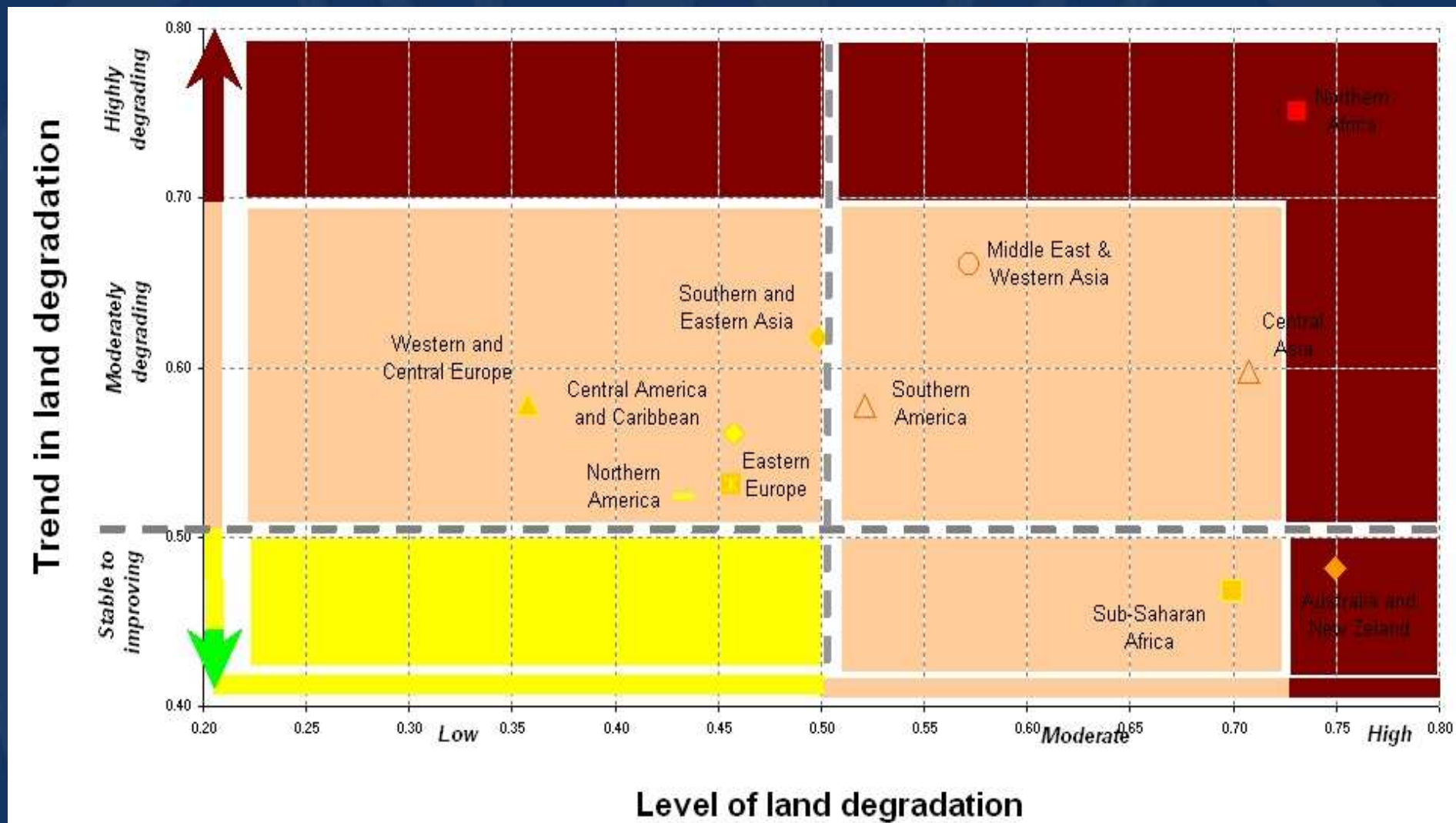
Dominant soil and terrain constraints for low input farming



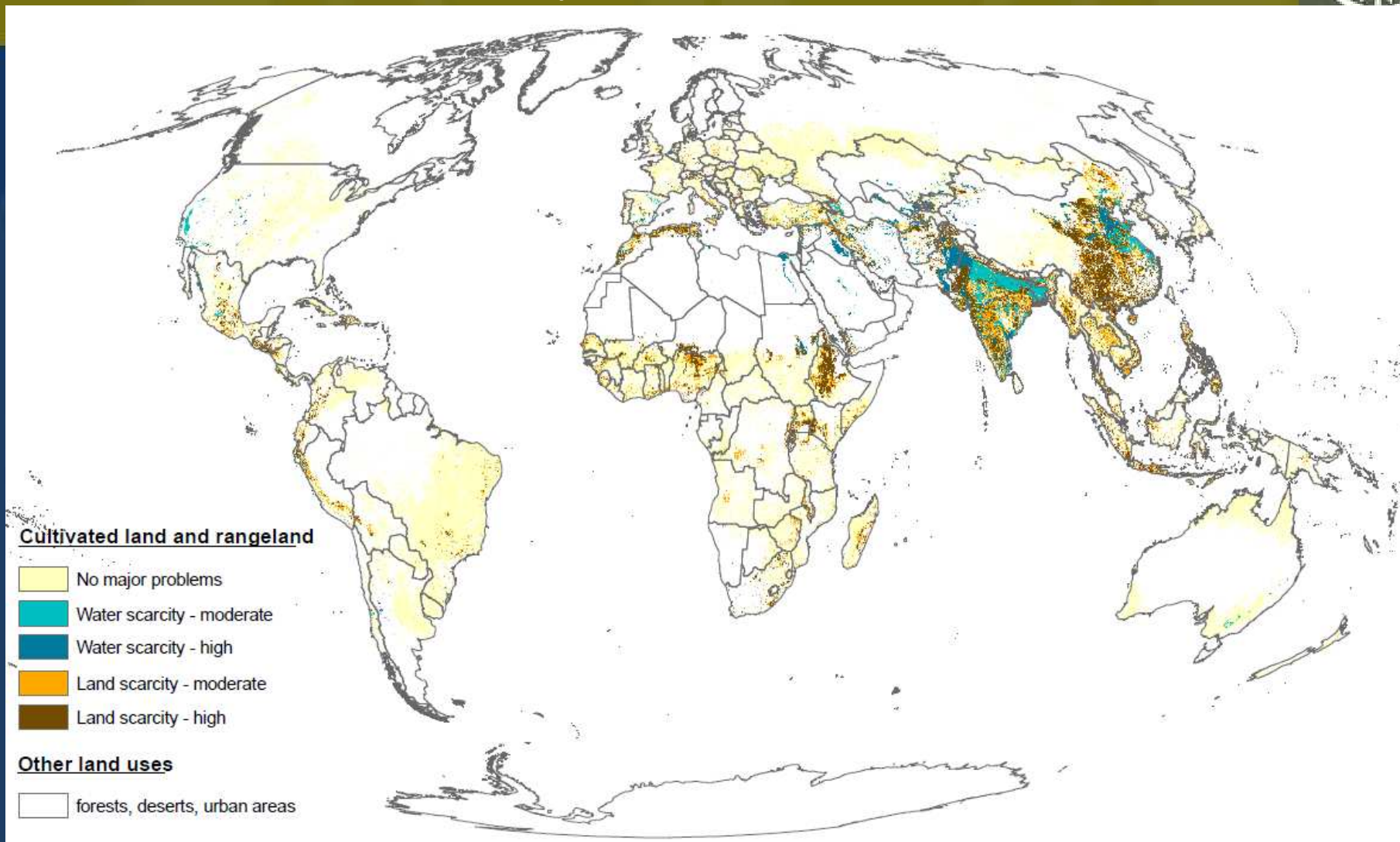
Dominant soil and terrain constraints for high input farming



State of Land Degradation




L&W systems at risk



Agricultural systems at risk – Human pressure on land, and water scarcity in major agricultural systems



FAO's WORK: LIVESTOCK

- **GLIPHA: Global Livestock Production and Health Atlas**
 - provides quantitative information related to animal production and health
 - sub-national statistics relating to the livestock sector are mapped, or displayed as tables and charts
 - includes both spatial and temporal variation
- **DAD-IS  DAD-IS Domestic Animal Diversity Information System**



ISSUES AND OBSTACLES

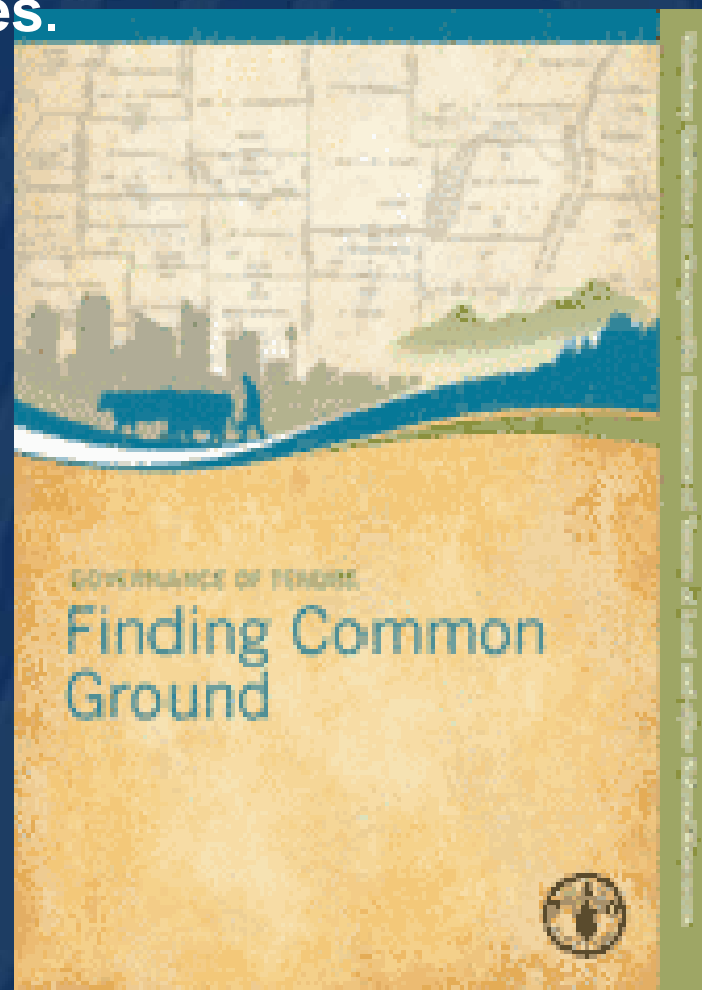
- lack of complete standardization makes it difficult to analyze data in a meaningful way
- information and use of software/databases is highly technical and difficult to grasp by non-specialists
- most of the information at this point is purely physical/environmental
- the data does not give indication on the type of agro-ecological or livelihood system which exists in a given area
- need more information about the *drivers* and impacts of land cover and land use change
- additional studies needed to understand how all of this is related to indigenous peoples' territories and practices

OTHER FAO INITIATIVES (1)



Voluntary Guidelines to improve the governance of tenure of land and other natural resources.

- to assist States, CSO and the private sector in improving the governance of tenure
- set out principles and internationally accepted standards for responsible practices.
- provide a framework that States can use when developing their own strategies, policies, legislation and programmes.
- allow government authorities, the private sector, civil society and citizens to judge whether their proposed actions and the actions of others constitute acceptable practices.





OTHER FAO INITIATIVES (2)

FAO POLICY ON INDIGENOUS AND TRIBAL PEOPLES

2010: Formal clearance is sought. In August 2010 the policy is approved by the Director General's cabinet.

Gives information about indigenous peoples' livelihoods, world views and concerns about development

Core principles: Development with Identity; Free, Prior and Informed Consent; Participation and Inclusion; Rights over land and other natural resources; Cultural rights; Collective rights; and Gender equality

OTHER FAO INITIATIVES (3)



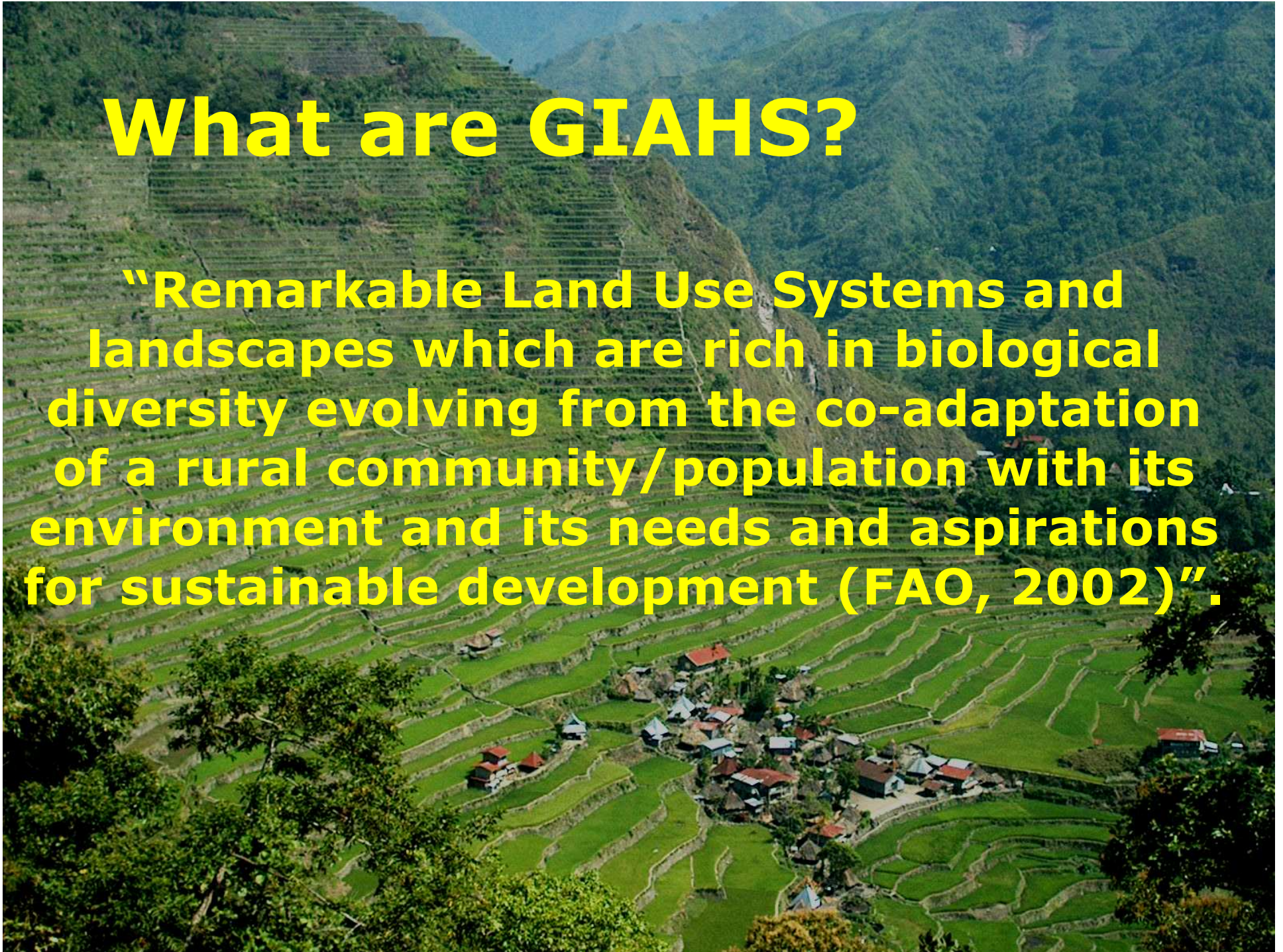
Conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIAHS)

to “protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements”, specifically within agricultural systems.

to promote dynamic conservation and adaptive management of globally significant agricultural biodiversity harboured in globally important agricultural heritage systems.

What are GIAHS?

“Remarkable Land Use Systems and landscapes which are rich in biological diversity evolving from the co-adaptation of a rural community/population with its environment and its needs and aspirations for sustainable development (FAO, 2002)”.



GIAHS recognises that these systems have allowed the co-evolution and maintenance of globally significant agricultural biodiversity and ecosystem diversity...

Animals and plants genetically adapted to their environment need to be maintained, developed and conserved because they:

- are most effective in achieving **local food security** objectives
- are more resilient to climatic stress, local parasites and diseases
- are more productive at lower costs, in low-input systems and sustainable in the long term
- support food, **agriculture and cultural diversity** (supply products + cultural values)
- provide a genepool for improving health and performance of breeds/varieties important for food and agriculture in long term

GIAHS have other values beyond production of foods, fibres...

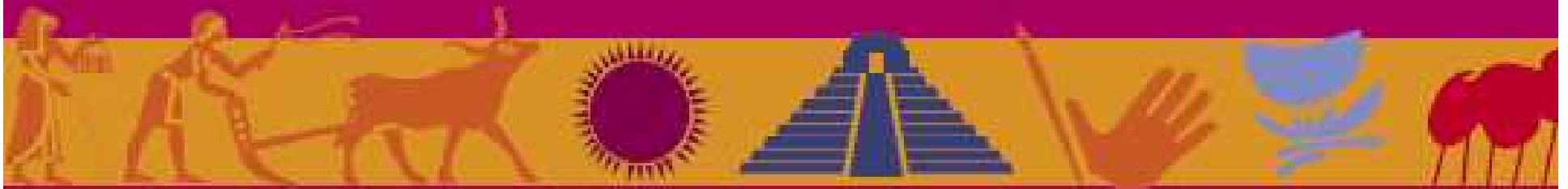
These living and evolving systems and communities have kept their distinct identities intact on the strength of unifying values such as **culture, nature, family, community, history, and a sense of belonging to their natural habitats.**



GIAHS Initiative seeks to establish the basis for the global and national recognition, dynamic conservation and sustainable management of agricultural heritage systems and their associated biodiversity, knowledge systems and cultures



**GIAHS is not about the past,
it is about the future.**



“GIAHS calls for dynamic conservation, emphasizing a balance between conservation, adaptation and socio-economic development”.

ITPGRFA Benefit-sharing Fund



-Sustainable use of plant genetic resources is a funding priority of the **Benefit-sharing Fund of the ITPGRFA**

-The Benefit-sharing Fund (BSF) has already **financed 11 benefit-sharing projects**, including for sustainable and customary use by farmers and farming communities in India, Kenya, Peru, Tanzania, etc.

- The 2010 Call for Proposals of the BSF has announced **10 million USD to keep farmers ahead of the climate change curve through sustainable use** of plant genetic resources for food and agriculture

- **more than 407 pre-proposals** for benefit-sharing projects were received within six weeks, including for sustainable and customary use

- final approval of benefit-sharing projects and disbursement of **10 million USD to farming communities and other stakeholders in developing countries planned for this summer** , including for sustainable and customary use

- **priority is given to farmers in developing countries** who conserve and sustainably use plant genetic resources for food and agriculture

Summary



FAO has built a strong capacity in assessing, measuring and monitoring food insecurity, the state of natural resources and ecosystem vulnerability at the global, regional and country levels

FAO will continue to play a pivotal role in its main role of addressing food insecurity and poverty as well as continues the Organization`s ongoing efforts to protect and sustain natural resources by:

Within the UN system, FAO has taken the lead on criteria and indicators for sustainable management in forest, fisheries, livestock and agriculture.

FAO will continue to prepare global resource and biodiversity assessments, including for fisheries and forests assessments for plant, animal, and forest genetic resources, to provide a basis for sound decision-making and the preparation and implementation of the above mentioned *Global Plans of Action*.

Summary



Directly support implementation of the Convention on Biological Diversity, including by providing forums for intergovernmental discussions on biodiversity; hosting initiatives:

- [International Initiative for the Conservation and Sustainable Use of Pollinators](#);
- [International Initiative for the Conservation and Sustainable Use of Soil Biodiversity](#);
- [International Initiative on Biodiversity for Food and Nutrition](#)

Enhancing international collaboration among agencies and organizations through the Collaborative Partnership on Forests, a voluntary arrangement among 14 international organizations and secretariats with programmes for sustainable development of all types of forest, and through joint programmes of work, such as between the **Convention on Biological Diversity and the Commission on Genetic Resources for Food and Agriculture**.

Promoting understanding of the linkages between biodiversity conservation and food security, through initiatives such as the *FAO Global Action on Pollinator Services for Sustainable Agriculture*, and the *Globally Important Agricultural Heritage Systems (GIAHS)* - which highlights ingenious management of land, water and biological resources and generates interest in the conservation and enrichment of unique biodiversity sites.



Thank you!

