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**Food and Agriculture Organization of the
United Nations (FAO)**

Addis Ababa, 16 July – 20 July 2007

Session 6: Land Use Statistics (FAO)

- FAO Land Use database: presentation, data sources, updates, accessibility. International versus country data.
- Land use/land cover classifications. Sources of data: land registers, remote sensing. (Focus: Agriculture and Forestry)
- Statistics on Land tenure

Land Use

Land use:

the sequence of operations carried out with the purpose to obtain goods and services from the land, characterized by the actual goods and services obtained as well as by the particular management interventions undertaken by the land users.

Land use is generally determined by **socio-economic** market forces and the **biophysical** constraints and potentials imposed by the land resource.

Information on the land use can be indirectly derived from agricultural census data, land cover information and from maps of the biophysical resource.

Land use is the single most important driver of land degradation as it focuses on interventions on the land which directly affect its status and impacts on goods and services.

The need for Land use information

Land use information is required at three levels

- **At the local level, it is required for the physical planning and land management.**
- **At the national level it is required for overall resource policy and management, including planning for future use of land and for protection of the environment.**
- **At an international level, land information is used for comparative descriptions and analysis of national patterns, extending and monitoring assistance programmes.**

The need for Land use information

- Different land uses affect the natural equilibrium of ecosystems differently - dissimilar impacts on the sustainable flow of goods & services;
- Land resources are finite & usually scarce;
- Competition among various land uses (e.g. urban expansion into agricultural areas);
- Thus, knowledge of current LU (& land resources) is needed for formulating changes leading to sustainable use of the resources.

The need for Land use information

Policy formulation & planning

Major national development sectors in DCs

- Natural resources & the environment (agriculture, agro-industries, forestry, minerals, water, fisheries,..);
- Human resources (e.g. education, health services & infrastructure);
- Prevention & mitigation of natural disasters & military conflicts.

Functional approach to land use :



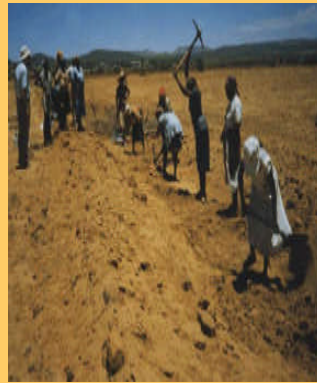
“the description of land in terms of its socio-economic purpose” defined to be applicable for all land use purposes such as agriculture, forestry, residential, etc. (Duhamel, 1998). functional uses of land can be made at a single point in time or over a shortened period of time.

Sequential approaches to land use



Malawi

Botswana



- :
- designed primarily for classifying agricultural lands.
 - The approach defines land use as “a series of operations on land, carried out by humans, with the intention to obtain products and/or benefits through using land resources.” (Duhamel, 1998).
 - By definition, the sequential approach requires observation over an extended period of time.
 - Classification system devised by Mùcher, Stomph and Fresco in 1993 (Duhamel, 1998).



FAO LAND USE DATABASE

- Since 2002 data is compiled through a new integrated Resource Questionnaire recently developed by the FAO Statistics Division.
- The land resource questionnaire covers four main areas:
 1. Land use and Irrigation
 2. Land use – Plantations
 3. Land prices
 4. Metadata.

RESOURCES ACCOUNT MODULE

LABOUR		LAND USE BY CATEGORY						INVESTMENT					WATER FOR IRRIGATION				INTERMEDIATE CONSUMPTION (INPUTS & OVERHEAD)			TRADE (Qty)																								
Paid Worker by Gender		Unpaid workers and family labour by Gender		CROP LAND																																								
				Forest	Pasture	Very suitable	Suitable	Moderately suitable	Marginally suitable															Non suitable	Area Under Green Houses																			
Wages by Gender		Purchase Prices of Crop Land						Farmer Purchase Prices					Water Charges paid by Farmer				Farmer Purchase Prices			Trade Prices																								
		Land Rent						Consumption of Fixed Capital																																				
								Permanent Crops		Livestock		Buildings		Irrigation Works		Tractors and Other Machinery		Others		Ground Water		Surface Water (Canals & rivers)		Reservoirs		Other Sources		Seed (Local and improved)			Fertilizers		Pesticides		Energy (Oil, petrol and electricity)		Services and Others		Feed		Import of Goods and Services		Exports of Goods and Services	



**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS - STATISTICS
DIVISION**

AGRICULTURAL RESOURCES - LAND USE AND IRRIGATION (000 Ha)

- Please report Land use data according to the classification listed in the questionnaire. However, if a different classification and land definitions have been used, please explain the differences in the NOTES column (or by adding a supplementary information sheet).
- For Land use categories description and other important instructions, please refer to the "Explanatory notes" and "Instructions" sheets.

FAO CODE	LAND CATEGORIES	FORMULAS	2002	2003	2004	2005	2006	NOTES
			(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	
	Land use							
1A	Country area (1)	(1)=(2)+(21)						
1	Land area (2)	(2)=(3)+(18)+(19)+(20)						
1.1	Agricultural area (3)	(3)=(5)+(14)						
1.1.0	Agricultural area irrigated (4)	(4)=(8)+(10)+(13)+(16)						
1.1.a	Arable land and Permanent crops (5)	(5)=(6)+(12)						
1.1.1	Arable land (6)	(6)=(7)+(9)+(11)						
1.1.1.1	Temporary crops (7)							
1.1.1.1.1	Temporary crops irrigated (8)							
1.1.1.2	Temporary meadows and pastures (9)							
1.1.1.2.1	Temporary meadows and pastures irrigated (10)							
1.1.1.3	Fallow land (temporary: less than 5 years) (11)							



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			(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	
	Land use							
1.1.2	Permanent crops (12)							
1.1.2.1	Permanent crops irrigated (13)							
1.1.3	Permanent meadows and pastures (14)	(14)=(15)+(17)						
1.1.3.a	Permanent meadows and pastures - Cultivated (more than 5 years) (15)							
1.1.3.1	Permanent meadows and pastures - Cultivated and irrigated (16)							
1.1.3.b	Permanent meadows and pastures - Naturally grown (17)							
1.2	Forest area (18)							
1.3	Other wooded land (19)							
1.4	Other land (20)							
2	Inland water (21)							



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FAO CODE	LAND CATEGORIES	FORMULAS	2002	2003	2004	2005	2006	NOTES
			(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	(000 Ha)	
	Land use							
2	Inland water (21)							
Area equipped for Irrigation								
3	Total area equipped for irrigation (22)	$(22)=(23)+(24)+(25)+(26)$						
3.1	Arable land area equipped for irrigation (23)							
3.2	Permanent crops area equipped for irrigation (24)							
3.3	Permanent meadows and pastures area - Cultivated and equipped for irrigation (25)							
3.4	Other land area equipped for irrigation (26)							
	Total planted area							
4	Gross planted area (27)							
4.1	Net planted area (28)							

General comments/notes on this section

FAO land use data

- FAO land use data are significant for conducting studies from various perspectives on
- agricultural production,
- food security;
- deriving cropping intensity and feasibility for sustainable agricultural development;
- deriving land use indicators for measuring countries agricultural practices in view of sustainability and environmental conditions.

Current status of data availability (2001-2005)

Land category	Number of Official data	% Official data on total data	Number of Unofficial data	% of Unofficial data on total data	Number of Estimated data	% of Estimated data on total data	Number of countries reporting official data	Total Reporting countries
Africa (57 countries in the L.U. database)								
Agricultural area	20	7.1	-	-	260	92.9	6	56
Arable land	23	8.1	-	-	257	91.8	9	56
Permanent crops	33	12.5	-	-	232	87.5	10	53
Permanent meadows and pastures	31	11.5	-	-	239	88.5	10	54
Total area equipped for irrigation	6	2.3	21	8.1	233	89.6	4	52
North and Central America (36 countries in the L.U. database)								
Agricultural area	20	11.1	-	-	160	88.9	10	36
Arable land	13	7.4	-	-	162	92.6	7	35
Permanent crops	16	11.4	-	-	124	88.6	8	28
Permanent meadows and pastures	16	10.3	-	-	139	89.7	9	31
Total area equipped for irrigation	6	5.5	4	3.6	100	90.9	5	22

Current status of data availability (2001-2005)

Land category	Number of Official data	% Official data on total data	Number of Unofficial data	% of Unofficial data on total data	Number of Estimated data	% of Estimated data on total data	Number of countries reporting official data	Total Reporting countries
South America (14 countries in the L.U. database)								
Agricultural area	14	20.0	-	-	56	80.0	7	14
Arable land	9	13.8	-	-	56	86.2	3	13
Permanent crops	11	16.9	-	-	54	83.1	4	13
Permanent meadows and pastures	21	30.0	-	-	49	70.0	6	14
Total area equipped for irrigation	2	3.1	1	1.5	62	95.4	2	13
Asia (51 countries in the L.U. database)								
Agricultural area	60	24.0	-	-	190	76.0	15	50
Arable land	66	26.4	2	0.8	182	72.8	21	50
Permanent crops	80	32.0	11	4.4	159	63.6	25	50
Permanent meadows and pastures	57	24.3	2	0.9	176	74.9	19	47
Total area equipped for irrigation	62	26.4	1	0.4	172	73.2	16	47

Current status of data availability (2001-2005)

Land category	Number of Official data	% Official data on total data	Number of Unofficial data	% of Unofficial data on total data	Number of Estimated data	% of Estimated data on total data	Number of countries reporting official data	Total Reporting countries
Europe (43 countries in the L.U. database)								
Agricultural area	128	61.0	3	1.4	79	37.6	35	42
Arable land	161	76.7	7	3.3	42	20.0	35	42
Permanent crops	147	81.7	8	4.4	25	13.9	33	36
Permanent meadows and pastures	157	80.5	3	1.5	35	17.9	35	39
Total area equipped for irrigation	57	32.6	1	0.5	117	66.9	20	35
Oceania (27 countries in the L.U. database)								
Agricultural area	7	6.4	-	-	103	93.6	3	22
Arable land	6	6.0	-	-	94	94.0	3	20
Permanent crops	9	8.6	-	-	96	91.4	3	21
Permanent meadows and pastures	6	8.0	-	-	69	92.0	3	17
Total area equipped for irrigation	10	40.0	-	-	15	60.0	3	5

LAND USE AND LAND COVER DATA

FAOSTAT databases

- Is a main source for country level data on agricultural land and forests, and other wooded land is



<http://faostat.fao.org/default.aspx>

FAOSTAT provides access to over 3 million time-series and cross sectional data relating to food and agriculture. FAOSTAT contains data for 200 countries and more than 200 primary products and inputs, just in its core.

The national version of FAOSTAT, [CountrySTAT](#), is being implemented in about 20 countries and three regions. It offers a two-way bridge amongst sub national, national, regional and international statistics on food and agriculture.

The following subject domains have been updated

30 June 2007:

Production,

Trade,

Supply Utilization Accounts,

Food Balance Sheets,

Producer prices,

Trade unit values

Fertilizers.



- **The FAOSTAT** comes with complete global coverage, cross-domain integration, a fully-refined user-interface and increased data transparency. It will serve the needs of our users and allow them more time for analysis-;
- linking users to the detailed databases in the family which are consistent with the *core database*.
- links to other related databases that are not members of the family, both in FAO and outside..

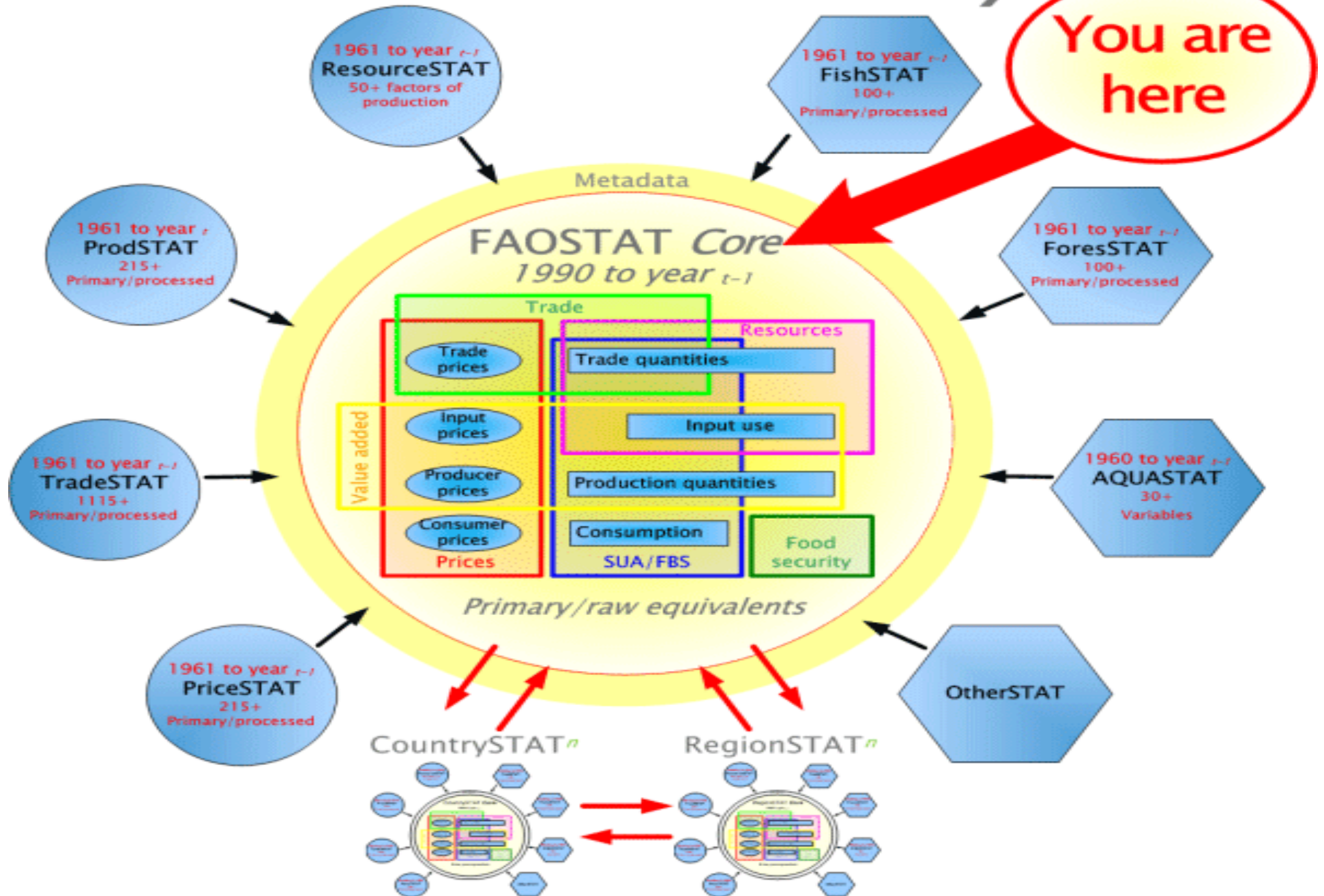




- **FAOSTAT** consists of an **integrated core database** and satellite databases feeding and supporting it.
- "FAOSTAT family" which is organised in modules around a *core* database that brings together and integrates the data contained in thematic databases.
- Databases cover agricultural production, consumption, trade, prices and resources.
- The current core of FAOSTAT contains a full matrix of integrated and compatible statistics coverage of 200 countries, 16 years, and more than 200 primary products and input items related to production, trade, resources, consumption and prices.



FAOSTAT Family





- **Subscription** Since 1 January 2007 FAOSTAT is available with three user levels:
- **LIMITED ACCESS** (limited to 4000 records) – FREE without the need to register.
- **SILVER, UNLIMITED ACCESS** – US\$1 500 for the first user and US\$1 000 for each additional user
- **GOLD** (all of the above, in addition to full access to the international trade matrix) **FULL TRADE MATRIX** – US\$15 000 for up to 10 users
- For further details on the benefits of the above options, please refer to the subscriber benefits matrix below, or contact us at: FAOSTAT-Subscribers@fao.org. Thank you for your interest. The FAOSTAT team

Problems and difficulties compiling and processing global information from national data

- Definitions used by reporting countries vary considerably and items classified under the same category often relate to differing kinds of land (e.g. pasture and woodland).
- Definition of “Arable land” used by most countries refers to the land that is potentially cultivable, whereas the FAO's definition refers to land under temporary crops, meadow and pasture

Problems and difficulties processing...

- Many countries do not distinguish between two types of fallow area and count them under arable land, these are:
- i) land that has been left idle in the current crop season to improve the productivity of the land;
- ii) land that is left fallow for a longer time period and for which no cultivation activity has been planned.

Problems and difficulties processing...

- Data on agro-forestry, fallow areas, pasture and shifting cultivation are very rarely available and are very often mixed-up with arable land, grasslands or forest land
- The multiple-use characteristics of grasslands and forest lands presents a high degree of complexity in a land classification system (agro-forestry, plantation, grazing)

Problems and difficulties processing...

- Wooded land is applied by some countries to refer to 'woodland'. In most developed countries, animals graze in these areas. Statistically, the areas where animals graze are classified as pasture.
- The definition of land with tree cover is a source of confusion, particularly when data provided is collected from remote sensing or maps. It is not clear for some countries how to classify fruit trees plantation (olive plantation), rubber plantation and forest trees...

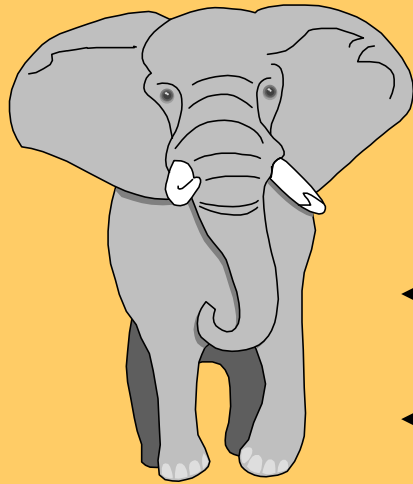
Problems and difficulties processing...

- ‘Other land’ does not always refer to the same type of land in different classifications.
- Quantity and quality of data collected were often hindered by the lack of satisfactory cooperation between the statistical offices and the ministries/authorities responsible for environmental issues in the countries.

***Concepts, methods &
classifications***

For Example:

If an elephant needs to be described, all the possible features may be used



← Higher than 2.5 m

← Big ears

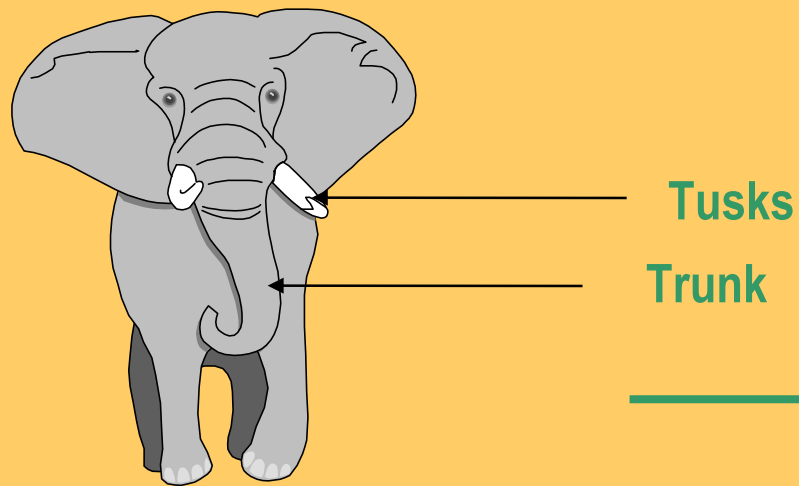
← Tusks

← Trunk

← Grey skin

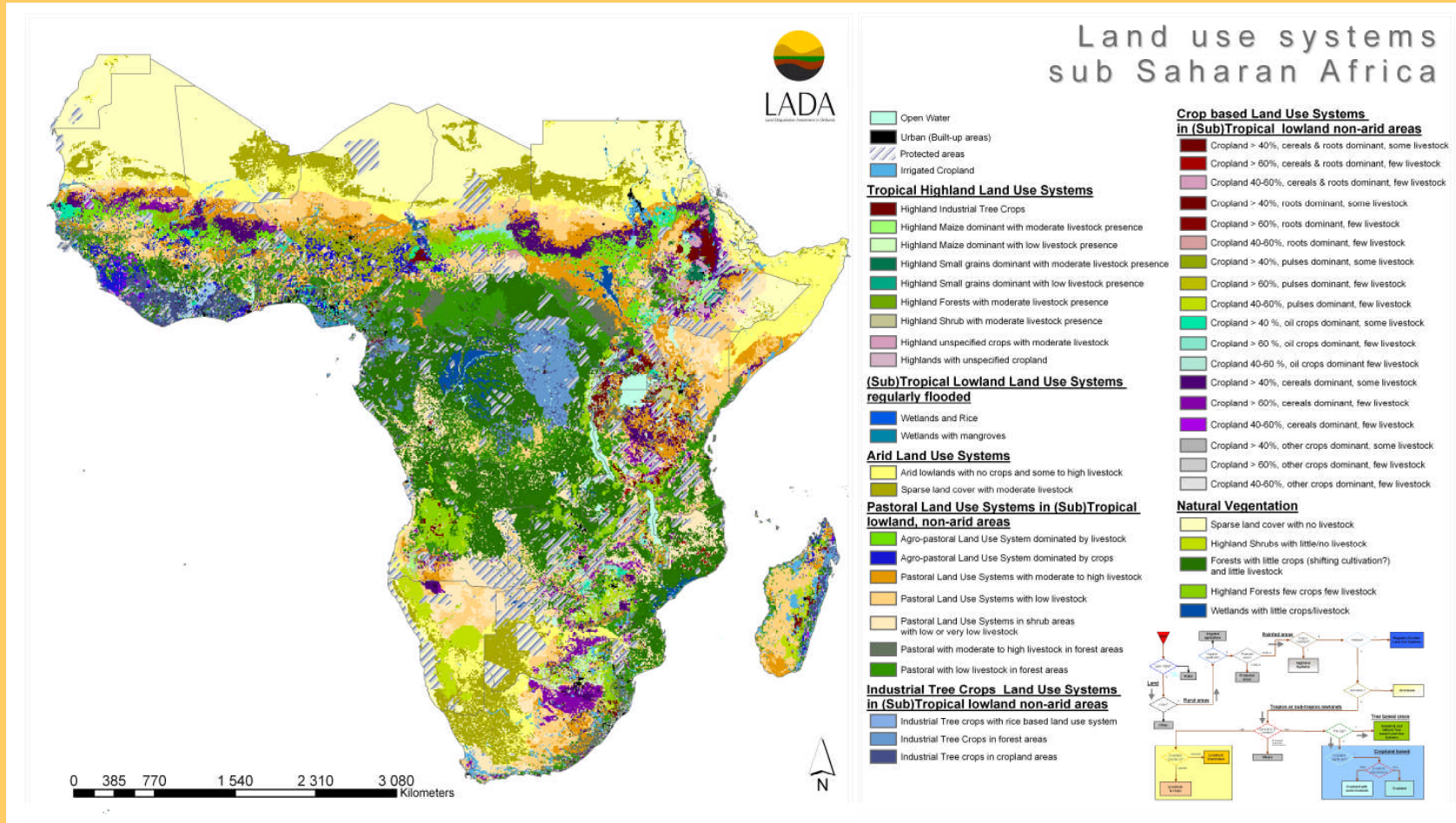
← Big feet

If an elephant needs to be classified, only a few elements should be used, i.e., those that allow a clear identification:



All other attributes of the elephant can be linked in the database to these two distinctive features.

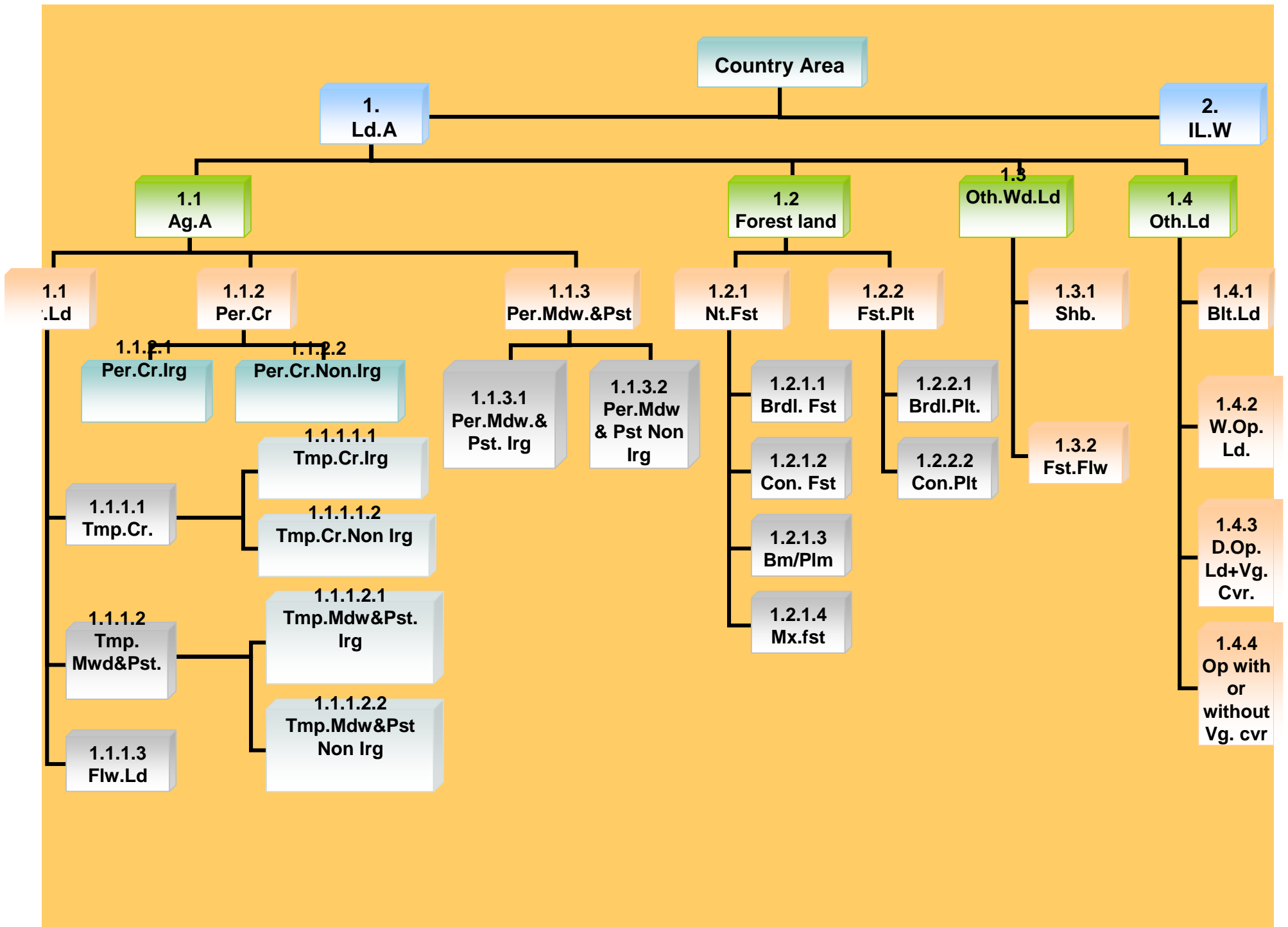
Land use Systems in Sub-Saharan Africa



Principles of classification

- cover total area of land needs to be classified,
- categories of classification should not overlap,
- take into account the multi-purpose nature of land use,
- based on a clear and systematic description of the class,
- classification should not be confused with legends,
- comprehensive rules for describing and naming classes.

(e.g. Eurostat 1991, Young 1992, FAO 1996, LANES 1997, Di Gregorio and Jansen, 1997, Duhamel 1998).



Country Area

1. Ld.A

2. IL.W

1.1 Ag.A

1.2 Forest land

1.3 Oth.Wd.Ld

1.4 Oth.Ld

1.1.1 Ld

1.1.2 Per.Cr

1.1.3 Per.Mdw.&Pst

1.2.1 Nt.Fst

1.2.2 Fst.Plnt

1.3.1 Shb.

1.4.1 Blt.Ld

1.1.1.1 Per.Cr.Irg

1.1.1.2 Per.Cr.Non.Irg

1.1.3.1 Per.Mdw.&Pst. Irg

1.1.3.2 Per.Mdw & Pst Non Irg

1.2.1.1 Brdl. Fst

1.2.2.1 Brdl.Plnt.

1.3.2 Fst.Flw

1.4.2 W.Op. Ld.

1.1.1.1 Tmp.Cr.

1.1.1.1.1 Tmp.Cr.Irg

1.1.1.1.2 Tmp.Cr.Non Irg

1.1.1.2.1 Tmp.Mdw&Pst. Irg

1.1.1.2.2 Tmp.Mdw&Pst Non Irg

1.1.1.2 Tmp. Mwd&Pst.

1.1.1.3 Flw.Ld

1.2.1.2 Con. Fst

1.2.1.3 Bm/Plm

1.2.1.4 Mx.fst

1.2.2.2 Con.Plnt

1.4.3 D.Op. Ld+Vg. Cvr.

1.4.4 Op with or without Vg. cvr

Actual code	Provisional code	Land use Classes	Definition
		Country area	Total area including land area and inland water bodies.
31	1	Land area	Total area excluding area under inland water bodies. Inland water bodies generally includes major rivers and lakes.
51	1.1	Agricultural Area	The sum of area under Elements “Arable land and “Permanent crops” and “Permanent pastures”
71	1.1.1	Arable land	Land under elements “temporary crops”, “temporary meadows”, “kitchen garden”, and “temporary fallow”. Data for “Arable land” are not meant to indicate the amount of land that is potentially cultivable.
	1.1.1.1	Temporary crops	All land used for crops with a less than one-year growing cycle and which must be newly sown or planted for further production after the harvest.
102	1.1.1.1.1	Temporary crops irrigated	The same as 1.1.1.1 but irrigated.
	1.1.1.1.2	Temporary crops non irrigated	The same as 1.1.1.1 but non irrigated.
	1.1.1.2	Temporary meadows & pastures	Land cultivated for a period of less than five years for growing herbaceous forage crops for mowing or pasture. A period of less than 5 years is used to differentiate between temporary and permanent meadows.
	1.1.1.2.1	Temporary meadows & pastures irrigated	The same as 1.1.1.2 but irrigated.
	1.1.1.2.2	Temporary meadows & pastures non irrigated	The same as 1.1.1.2 but non irrigated.
101	1.1.1.3	Fallow land	Cultivated land that is not seeded for one or more growing seasons. The maximum idle season is less than five years.

Actual code	Provisional code	Land use Classes	Definition
121	1.1.2	Permanent crops	Land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee and rubber; this category includes land under flowering shrubs, fruit trees, nut trees and vines, but excludes land under trees grown for wood or timber (Forest land and wooded land).
	1.1.2.1	Permanent crops irrigated	The same as 1.1.2 but irrigated.
	1.1.2.2	Permanent crops non irrigated	The same as 1.1.2 but non irrigated.
131	1.1.3	Permanent meadows & pastures	Land used permanently for grazing (five years or more) which includes herbaceous forage crops, either cultivated or growing wild (wild shrubs, wild prairie or grazing land).
	1.1.3.1	Permanent meadows & pastures irrigated	The same as 1.1.3 but irrigated.
	1.1.3.2.	Permanent meadows & pastures non irrigated	The same as 1.1.3 but non irrigated.

Actual code	Provisional code	Land use Classes	Definition
141	1.2	Forest Land	Land spanning more than 0.5 ha with trees higher than 5 m and a canopy cover of more than 10 % , or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
	1.2.1	Natural forest	Natural forests with natural and assisted natural regeneration are forests composed of indigenous trees, not planted by man. Or in other words forests excluding plantations.
	1.2.1.1	Broadleaved forest	Forest with predominance (more than 75 % of tree crown cover) of trees of broadleaved species.
	1.2.1.2	Coniferous forest	Forest with predominance (more than 75 % of tree crown cover) of trees of coniferous species.
	1.2.1.3	Bamboos/Palm	Forest on which more than 75% of the crown cover consists of tree species other than coniferous or broadleaved species (e.g. tree-form species of the bamboo, palm and fern families)
	1.2.1.4	Mixed forest	Forest in which neither coniferous, nor broadleaved, nor palms, nor bamboos, account for more than 75 percent of the tree crown cover.
	1.2.2	Forest plantation (Man made forest)	Forest stands established by planting or/and seeding in the process of afforestation or reforestation.
	1.2.2.1	Broadleaved plantation	Forest stands established by planting or/and seeding in the process of afforestation or reforestation with predominance of trees of broadleaved species.
	1.2.2.2	Coniferous plantation	Forest stands established by planting or/and seeding in the process of afforestation or reforestation with predominance of trees of coniferous species.

Actual code	Provisional code	Land use Classes	Definition
	1.3	Other wooded land	Land not classified as “Forest”, spanning more than 0.5 ha; with trees higher than 5 m and a canopy cover of 5-10 %, or with a combined cover of shrubs, bushes and trees above 10 %.
	1.3.1	Shrubs	Refer to vegetation types where the dominant woody elements are shrubs i.e. woody perennial plants, generally of more than 0.5 m and less than 5 m in height on maturity and without a definite crown.
	1.3.2	Forest fallow	Refers to all complexes of woody vegetation deriving from the clearing of natural forest for shifting agriculture.

Actual code	Provisional code	Land use Classes	Definition
	1.4	Other land	Land not classified as Agricultural land, Forest land and other wooded land.
	1.4.1	Built-up and related land	Land under houses, roads, mines and quarries and any other facilities, including their auxiliary spaces, deliberately installed for the pursuit of human activities.
	1.4.2	Wet open land	Non-wooded sites either partially, temporarily or permanently water-logged, the water of which may be fresh, brackish or saline, on blanket or raised peatlands. The water may be either stagnant or running, and is usually shallow, especially if it is saline
	1.4.3 1.4.4	Dry open land with special vegetation cover Open land without, or with insignificant, vegetation cover	Non-wooded land which is covered by low vegetation (less than 2 metres). Non-built up land the surface of which either is not covered at all by vegetation or scarcely covered by some vegetation, which precludes its inclusion in other categories of the classification.
	2	Inland water	Area occupied by majors rivers, lakes and reservoirs.

Land classification

- Used as a guide for collecting selected information on land relevant for decision making
 - policy formulation; environmental monitoring (e. land degradation);
- Systematic arrangement ; grouping by similar characteristics
 - **land cover** (bio-physical cover) (LCCS-FAO)
 - **land use** (purpose: goods & services, inputs, management)

Environmental related LU information to collect

Examples of Issues

Impact of drought on agricultural production

Impact of loss of agricultural land on production

Pollution caused by use of fertilizers/ pesticides

Threats to wildlife due to habitat destruction

Land evaluation for agriculture

Areas at risk to land degradation

Remedial measures to counter inappropriate land management

FAO Land Cover Classification System (LCCS)

- answer to the needs of a variety of users focusing on mapping exercises, independent of the scale or means used to map
- it enables a comparison of land cover classes regardless of data source, thematic discipline or country
- support to on-going initiatives on classifications and land cover at international level (Duhamel, 1989)
- LCCS,2005

Land Cover Information Relevance at the National Level

Increasing concerns about

- food security for growing population in developing countries,
- environmental degradation including the loss of biodiversity
- climate change accompanied by growing frequency of natural disasters



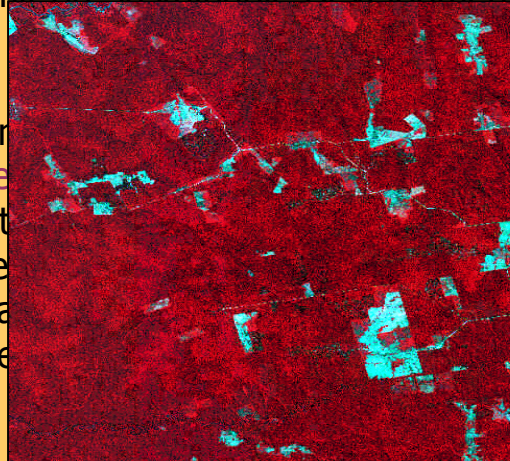
"Importance of the availability of reliable land cover information for the management of the Earth's resources"

UNCED-UN Conference on Environment and Development
WSSD-World Summit on Sustainable Development

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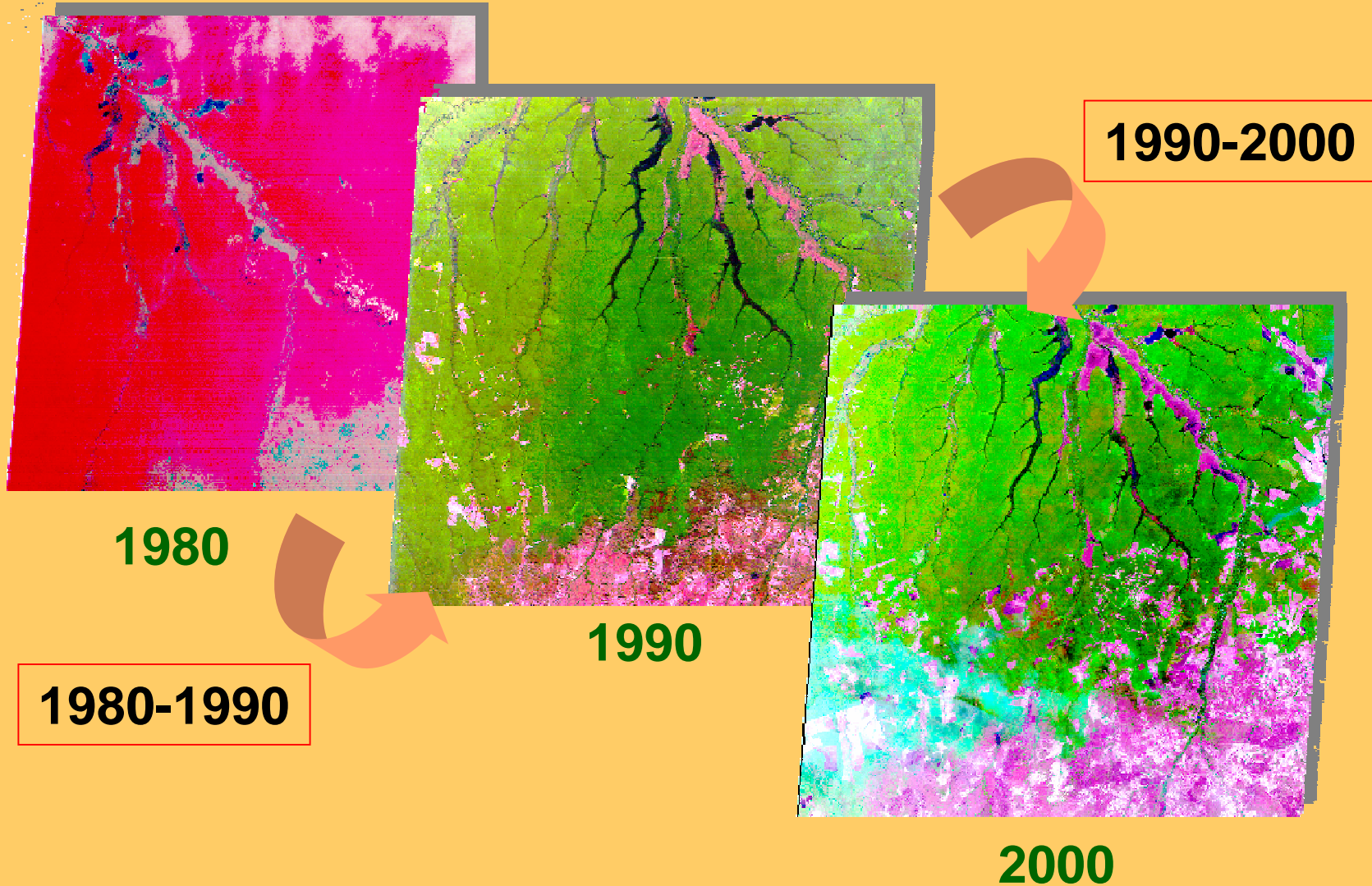
Earth Summit records
RS/GIS technologies

- coordinated, systematic and harmonized collection of data
- assessment of data for environmental degradation



Multi Epoch remote-sensing survey

Three date time series – arable land change



The new land use classification proposed for FAOSTAT:

- is to guide the collection of information on land with the objective of creating an effective database on Total Area (including area under inland water bodies),
- to provide the information required for various agricultural and environmental purposes Land Area (excluding area under inland water bodies),
- to assess land production potentials, monitor land use changes and human impact on the land, soil degradation and many other damaging effects at different level Agricultural area,
- to serve numerous purposes on national, regional and international levels.
- **source:ESSG,November 2005-Proposal for FAOSTAT Land Use classification**

Reduce burden on reporting countries

- new classifications attempts to draw up first approximation to streamline and to further harmonize international land use classification system. The classification proposed is a combination of the different concepts and definition used by the international organisations to ensure comparability and compatibility.



Land registers

- Land registration & Cadastral systems are sources of information on land ownership and rights.
- But-many developing countries do not have registration systems that cover their entire jurisdiction(may cover main urban areas only)
- Data in registration systems may not be easily extracted for use in computerized information system(registration systems not computerized,data may be arranged for transactions,not for analysis).

Land registers

- Data in some registration systems may not be updated(to cover new development such as spread of settlements)
- Ownership may not be updated when owner dies or sells the land.

Land Tenure

- Land tenure refers to the arrangements or rights under which the holder operates the land making up the holding.
- Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land.
- tenure security.

Land Tenure

- Land tenure is often categorised as:
- Private: resources without the consent of those who hold the rights.
- Communal: a right of commons may exist within a community where each member has a right to use independently the holdings of the community. For example, members of a community may have the right to graze cattle on a common pasture.
- Open access: specific rights are not assigned to anyone and no-one can be excluded. This typically includes marine tenure where access to the high seas is generally open to anyone; it may include rangelands, forests, etc, where there may be free access to the resources for all. (An important difference between open access and communal systems is that under a communal system non-members of the community are excluded from using the common areas.)
- State: property rights are assigned to some authority in the public sector. For example, in some countries, forest lands may fall under the mandate of the state, whether at a central or decentralised level of government.

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Environmental issues

- land tenure can promote land use practices that harm the environment or it can serve to enhance the environment.
- Unsuitable rules (either formal or informal) for acquiring access to land can lead to environmental degradation
- Insecure land tenure is linked to poor land use which in turn leads to environmental degradation.

Environmental issues

- Inappropriate tenure arrangements on state lands can also lead to environmental degradation
- In contrast, well-adapted land tenure rules can promote sustainable land use.

Data Source

- <http://www.fao.org/es/ess/census/wcares/default.asp>
- Results by country- National Agricultural Census referring to the 1980, 1990 and 2000 rounds.
- Relevant information about Number, Size and Fragmentation of Holding, Legal Status of Holders, Land Tenure, Farm Population, Employment, Land Use, main Crops and main Livestock species is reported.

<http://www.fao.org/es/ess/census/wcares/default.asp>

African countries that may have some information

Africa					
Algeria	Libyan Arab Jam.	Uganda	Côte d'Ivoire	São Tomé and Pr.	
	Madagascar	Zambia	Djibouti	Senegal	
Benin	Malawi		Egypt	Seychelles	
Botswana	Mali		Ethiopia	Sierra-Leone	
Burkina Faso	Mauritania		Gambia	South Africa	
Cameroon	Morocco		Guinea	Swaziland	
Cape Verde	Mozambique		Guinea-Bissau	Tanzania, Un. Rep. of	
Central African Republic	Namibia		Kenya	Togo	
Comoros	Niger		Lesotho	Tunisia	
Congo, Rep. of	Réunion (Fr)		Congo, Dem. Rep. of	Rwanda	

FAO Land Tenure Studies

http://www.fao.org/sd/LTdirect/lt_studies_en.htm

- [1. Cadastral surveys and records of rights in land](#)
- [2. Good practice guidelines for agricultural leasing arrangements](#)
- [3. Land tenure and rural development](#)
- [4. Gender and access to land](#)

• http://www.fao.org/sd/2003/IN0501_en.htm

Land Tenure Data aspect

- <http://www.fao.org/ess/census/default.asp>



Volume 1

World Programme for the Census of Agriculture 2010

Food and Agriculture Organization of the United Nations
Rome, 2005

The latest [World Programme for the Census of Agriculture \(WCA 2010\)](#), presented in the publication *"A System of Integrated Agricultural Censuses and Surveys, Volume 1, World Programme for the Census of Agriculture 2010"*, (SDS No. 11) provides countries with a flexible approach to the collection of structural agricultural data on a variety of subjects

Land Tenure and Rural Development



- **FAO LAND TENURE STUDIES
3**

**FOOD AND
AGRICULTURE
ORGANIZATION OF
THE UNITED
NATIONS**

ROME, 2002

Thanks

- The end



Data collection is based on a new land use classification system.

- The first digit classifies the land into four classes.
- At the second digit level, the classification goes into details areas that are more relevant for land use classification.
- Some areas of the four main classes even go further to the third digit level with respect to further details of specific land use.

National level LU & LC statistics

LU	Agricultural land		Ministry of Agriculture/NSO
LC	Forest & other wooded land		Department of Forests
LU	Built-up & related land		Urban & regional Planning
LC	Open land	Wet (no vegtn.)	Ministry of Natural Resources
		Dry (with special vegtn. <2m)	
		n.e.s (with no vegtn)	
LC	Waters		Department of Fisheries Ministry of Natural Resources

UNSD questionnaire/FAO Resources questionnaires, for example

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- Then use the **Logon button** with the following user name: (*Your email address as supplied for the subscription*);
- Click on button "**Send Password**" to receive your new password at the supplied email account.

- As a returning user **with an email address and a password**:

- Please click on the following address: <http://faostat.fao.org/site/584/default.aspx> in order to go the logon page (or by clicking in the footer of the page on "Logon");
- Then use the Logon button with your email address as supplied for the subscription and your password in order to access the full portal.

- **Please note: if you have forgotten your password, just restart with step 1) like a new user.**

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 - b. the multi-dimensional queries within and across domains
 - c. bulk downloading of data in CSV format
- The increased or unlimited number of records downloadable is available automatically in each subject domain.
- To access the multi-dimensional query and bulk downloading features on the other hand you must go to All Data on the top Menu Bar.
- Once you are in All Data you may go to individual domains which will appear in the lower menu (all Core, ProdSTAT, TradeSTAT, and ResourcesSTAT data) for multi-dimensional queries.
- You may download data in the subject domains also in Excel, CSV or XML format by clicking the download box under the query boxes.
- If you wish to use the bulk download facility you should go to bulk downloads which appear in the lower menu which appears in All Data.

- **WARNING**

- Please be aware that this is a very large database with a total of over 3 billion records. You should therefore refrain from performing unlimited multi-dimensional queries and downloads.
- Large sized queries and downloads not supported by the memory or CPU of your machines may result in long times of executions but also may crash your browser at some point.
- We recommend using multiple queries or the bulk downloading feature for queries with more than 4000 records at a time.