

# **Agri- Environmental indicators and the recently adopted Framework for the Development of Environment Statistics-FDES**

**FAO-OEAC/IE-IICA WORKING GROUP ON AGRICULTURAL  
AND LIVESTOCK STATISTICS FOR LATIN AMERICA AND THE CARIBBEAN**

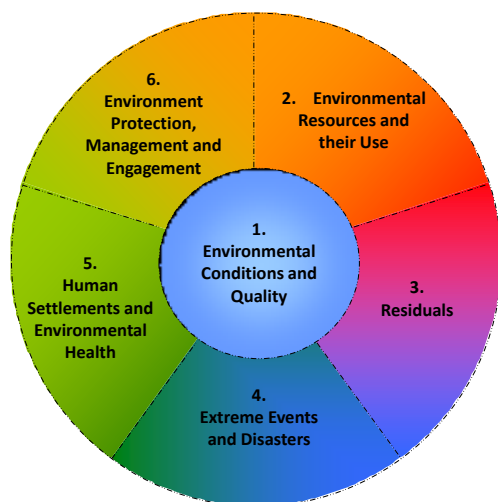
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## **Some Environmental challenges facing agriculture**

- Environmental sustainability of high production
- Increasing use of chemicals, infrastructure and machinery
- Greenhouse gases emissions, loss of wildlife habitat, etc.
- Flows and imbalance of nutrients
- Effect of releases of contaminants from livestock production
- Monitor the changing interactions of agriculture and the environment and the environmental consequences

## The FDES 2013 structure The Six Components of the FDES

**FDES 2013**



Component 1: Environmental Conditions and Quality	SubSub-component 1.1: Physical Conditions Sub-component 1.2: Land Cover, Ecosystems and Biodiversity Sub-component 1.3: Environmental Quality
Component 2: Environmental Resources and their Use	Sub-component 2.1: Non-energy Mineral Resources Sub-component 2.2: Energy Resources Sub-component 2.3: Land Sub-component 2.4: Soil Resources Sub-component 2.5: Biological Resources Sub-component 2.6: Water Resources
Component 3: Residuals	Sub-component 3.1: Emissions to Air Sub-component 3.2: Generation and Management of Wastewater Sub-component 3.3: Generation and Management of Waste
Component 4: Extreme Events and Disasters	Sub-component 4.1: Natural Extreme Events and Disasters Sub-component 4.2: Technological Disasters
Component 5: Human Settlements and Environmental Health	Sub-component 5.1: Human Settlements Sub-component 5.2: Environmental Health
Component 6: Environment Protection, Management and Engagement	Sub-component 6.1: Environment Protection and Resource Management Expenditure Sub-component 6.2: Environmental Governance and Regulation Sub-component 6.3 : Extreme Event Preparedness and Disaster Management Sub-component 6.4: Environmental Information and Awareness

## The Framework for the Development of Environment Statistics (FDES)

### Sub- component 2.5: Biological Resources

**2.5.3.a:** Main annual and perennial crops

**2.5.3.a.1:** Area harvested

**2.5.3.a.2:** Area planted

**2.5.3.a.3:** Amount produced

**2.5.3.a.4:** Amount of organic production

**2.5.3.a.5:** Amount of genetically modified crops  
produced

**2.5.3.b:** Amount used of:

**2.5.3.b.1:** Natural fertilizers (e.g., manure, compost,  
lime)

**2.5.3.b.2:** Chemical fertilizers

**2.5.3.b.3:** Pesticides

**2.5.3.c:** Monoculture / resource-intensive crops

**2.5.3.c.1:** Area being used for production

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## **Aspects of the FDES 2013**

- The components of the FDES can easily be related to the description of the interrelationships between agriculture and the environment
- The relevant statistics are included in the Core and Basic Sets and can be used to derive agri-environmental indicators
- The FDES compatible with other statistical and analytical frame works: SEEA, DPSIR, etc.

# **FAO Agri-environment Datasets, Statistics and indicators**

## **FAO Statistics Division data potential for the development of environmental indicators**

- Land use data(FAOSTAT)
- Agricultural production and Trade(FAOSTAT)
- Agricultural inputs- Fertilizer data-(FAOSTAT)
- Agricultural inputs- Pesticides consumption data (FAOSTAT)

## **Different databases at FAO that serve different purposes**

- FAO Global Forest Resources Assessments (FRA) => monitors the world's forests at 5 to 10 year intervals since 1946.
- AQUASTAT => FAO's global information system on water and agriculture
- The FAOSTAT database =>focus is to integrate datasets for possible environment issues and analysis

# Agri-Environmental Indicator at FAO

<b>Domain</b>	<b>Sub-domain</b>	<b>Indicator</b>
<b>Air &amp; Climate Change</b>	Ammonia emissions	Ammonia (NH <sub>3</sub> ) emissions from agriculture as a % of total NH <sub>3</sub> emissions
<b>Energy</b>	Energy use in Agriculture and Forestry	Agriculture and forestry energy use as a % of total energy use
	Bioenergy production	Bioenergy production as a % of total renewable energy production
<b>Fertilizers Consumption</b>	Nitrogen Consumption	Nitrogen and Phosphate nutrient use on arable and permanent crop area (N tonnes /1000 ha)
	Phosphate Consumption	Phosphate nutrient use on arable and permanent crop area (P <sub>205</sub> tonnes /1000 ha)
	Nitrogen and Phosphate	Nitrogen and Phosphate nutrient use on arable and permanent crop area (N+P <sub>205</sub> tonnes /1000 ha)
<b>Land</b>	Agricultural area	Agricultural area as a % of land area
	Agricultural area use change	Changes in agricultural area (% per year)
	Area equipped for irrigation	Area equipped for irrigation as a % of agricultural area
	Conservation agriculture	Conservation agriculture area (>30% group cover) as a % of agricultural area
	Cropping patterns	Permanent crops area as a % of agricultural area
		Permanent meadows and pastures area as a % of agricultural area
		Arable land area as a % of agricultural area
	Organic agricultural area	Organic area as a % of agricultural area
Protected land area	Protected terrestrial area as a % of land area	

## Agri-Environmental Indicator at FAO-Continue

<b>Domain</b>	<b>Sub-domain</b>	<b>Indicator</b>
<b>Livestock</b>	Livestock Density	Livestock total per hectare of agricultural area (livestock total number/ha)
	Cattle and Buffalo	Cattle and Buffalo as a % of total livestock
	Pigs	Pigs as a % of total livestock
	Sheep and goats	Sheep and goats as a % of total livestock
	Poultry birds	Poultry birds as a % of total livestock
<b>Pesticides</b>	Pesticides Use	Pesticide use on arable and permanent crop area (tonnes /1000 ha)
<b>Soil</b>	Soil Erosion - GLASOD	Average soil erosion expressed in GLASOD erosion degree
	Land degradation - GLASOD	Average land degradation expressed in GLASOD erosion degree
	Carbon in topsoil	Average carbon content in the topsoil as a % in weight
	Soil Erosion - GLASOD	Average soil erosion expressed in GLASOD erosion degree
<b>Water</b>	Water use in agriculture	Water withdrawal for agricultural use as a % of total water withdrawal



## **Current activities and Future Directions for Improving Environment Data and indicator**

- The revision of the land use questionnaire to include new items
- The revision of the pesticides questionnaire to include trade and chemical listed in the Rotterdam Convention
- A new domain on greenhouse gas (GHG) emissions
- The Development of Agri-Env-indicators within the frame of the Global Strategy for Food and Agriculture Statistics within Latin-American and Caribbean.

## **The Working Group is requested to provide its views on:**

- What are the critical agri-environmental issues in the region?
- The completeness and suitability of indicators included in the new suite of Agri-environmental indicators in FAOSTAT;
- The capacity of countries to produce the basic statistical data required for the indicators and what specific support is needed to do so?

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