



Food and Agriculture Organization  
of the United Nations

>> FAO Statistics Division

# FAOSTAT Data processes for environment statistics



# Outline

- Country processes for environment statistics
- Environment analytical statistics and indicators
- Geospatial for agri-environment statistics

# FAOSTAT Core Environment Statistics

## Annual Data collection, analysis and dissemination

**Questionnaire on Agricultural Resources Pesticides Use** Reference Years: 2007-2014

**Questionnaire on Agricultural Resources Land use and Irrigation** Reference Years: 2009-2014

FAOSTAT provides free access to food and agriculture data for over 245 countries and territories and covers all FAO regional groupings from 1961 to the most recent year available.

**FAOSTAT**

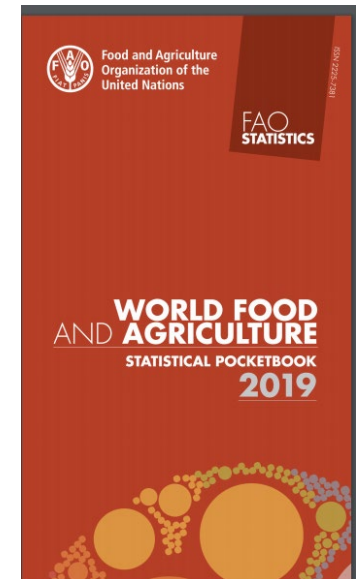
Database Updates  
Credit to Agriculture (Investment) May 12, 2017  
Producer Prices - Annual (Price) April 27, 2017 Minor Revision  
Producer Prices - Monthly (Prices) April 21, 2017

FAO Statistical Yearbooks  
The FAO Statistical Yearbook provides a selection of indicators on food and agriculture by country. The first part of the book includes thematic spreads with data visualizations (graphs, charts, and maps) with basic text. The second part has country-level tables for a selected number of indicators.

Bulk Download  
All FAOSTAT Data 830 MB  
Updated on May 12, 2017

Tweets by @FAOstatistics  
James Edge (@jamesedge) A plague of armyworms is marching across Africa, devastating crops, and claiming new territory at an alarming rate. [bit.ly/2a3b3vY](#)

Armyworms: The hungry caterpillar threaten... A plague of armyworms is marching across Africa... [theguardian.com](#)



- Regulated by FAO Constitution – Statistics a **core pillar** of FAO
- Countries provide data relevant to food and agriculture *via national focal points* (NSOs; Min Ag; Other)
- FAO collects, analyses and disseminates national statistics in support of **evidence-based decision making**

# Agri-environment FAOSTAT questionnaires

<http://www.fao.org/economic/ess/ess-home/questionnaires/en/>

<b>Land use, irrigation and agricultural practices</b>	<b>Based on FAO Land Use classification and the Census definition of relevant irrigation and agriculture activities</b>
<b>Fertilizers</b>	Collects data on mineral and chemical fertilizers, organic fertilizers, by main nutrient (N, P, K) and by product
<b>Pesticides</b>	Collects data on chemical pesticides used in agriculture, by main pesticide family (herbicides, fungicides, etc.) <i>and by product in active ingredients</i>

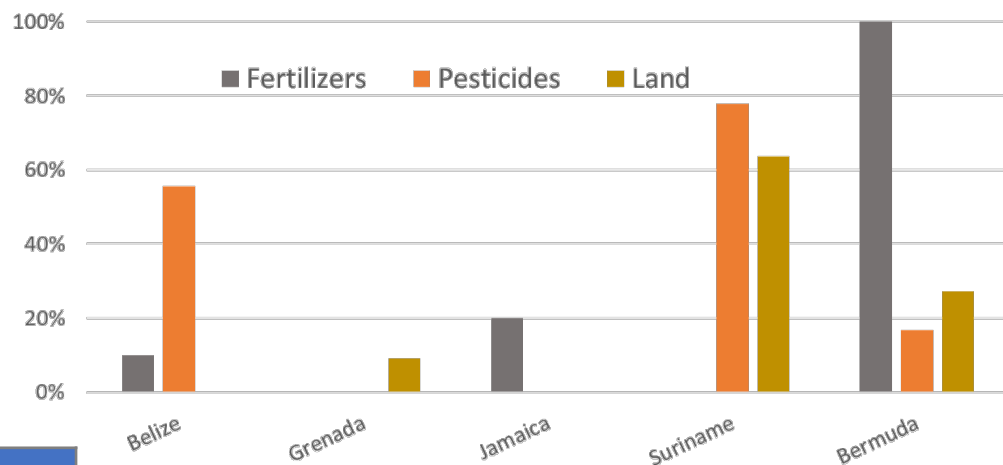
## National Focal Points

	FERTILIZERS	PESTICIDES	LAND
<b>Grenada</b>	Ministry of Finance	Pesticides Control Board	Ministry of Agriculture
<b>Belize</b>	Statistical Institute	Pesticides Control Board	Ministry Nat. Resources
<b>Bermuda</b>	Government of Bermuda, Department of Statistics		
<b>Dominica</b>	Central Statistical Office	Ministry Agriculture & Environment	Central Statistical Office
<b>Jamaica</b>	Statistical Institute	Ministry of Health	National Irrigation Commission
<b>Saint Lucia</b>	Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources & Co-operatives		Central Statistical Office
<b>St. Vincent and the Grenadines</b>	Statistical Office	Ministry of Agriculture, Forestry, Fisheries and Rural Transformation	
<b>Suriname</b>	General Bureau of Statistics	Ministry of Agriculture Animal Husbandry and Fisheries	General Bureau of Statistics

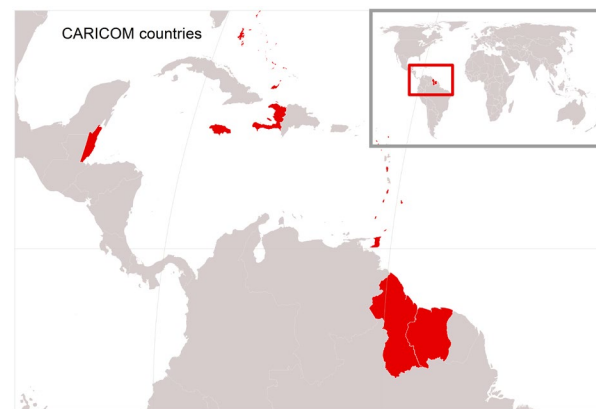
# Improving data flow

## Actions taken

- Reduced data burden
- Joint Dispatch



PHASE	JAN - MAY	JUL - AUG	SEP - DEC
Collection			
Analysis			
Dissemination			



## Improving data flow

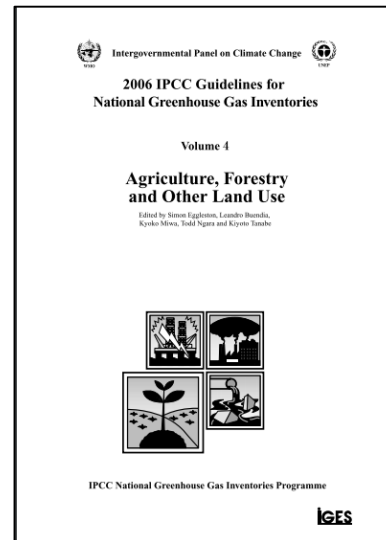
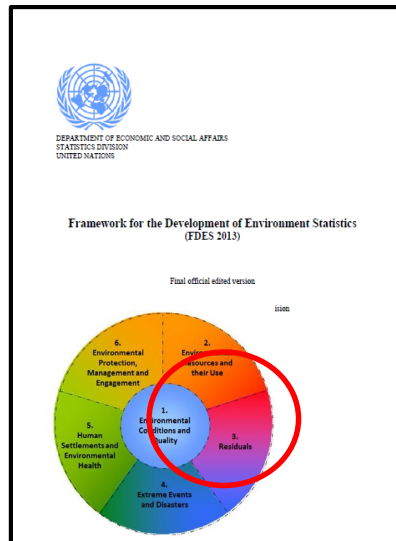
.. more needed

FAO and countries:

- Compare and update information on Focal Points more regularly
- Work closely together on provision of capacity development and training of data production through relevant methodologies

# FAOSTAT Analytical Environment, CC Statistics

## In support of Climate Change processes, SDGs



- Based on **FAO Core Statistics** and **aligned to International Standards**
- Reference data products in support of national analysis and International Reporting (SDGs, UNFCCC)



# Land Use and irrigation questionnaire

<http://www.fao.org/faostat/en/#data/RL>

Land Use

The FAOSTAT Land Use domain contains data on forty-seven categories of land use, irrigation and agricultural practices, relevant to monitor... [Show More](#)




Food and Agriculture Organization of the United Nations (FAO)


↓ Bulk Downloads


All Data	634 KB
All Data Normalized	1.21 MB
All Area Groups	142 KB
Africa	117 KB
Americas	105 KB
Asia	118 KB
Europe	131 KB
Oceania	33 KB

Last Update  
September 10, 2019

Related Documents

-  Country\_Notes
-  README\_Domain\_Information
-  Update history

 Definitions and standa...

 Metadata

## 230 Countries and Territories 1961–2017

Country area

Land area Agricultural land area (*Cropland; Pastures..*)

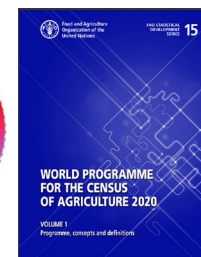
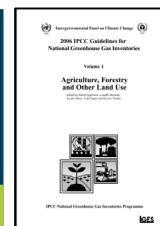
Total area equipped for irrigation

Forest area

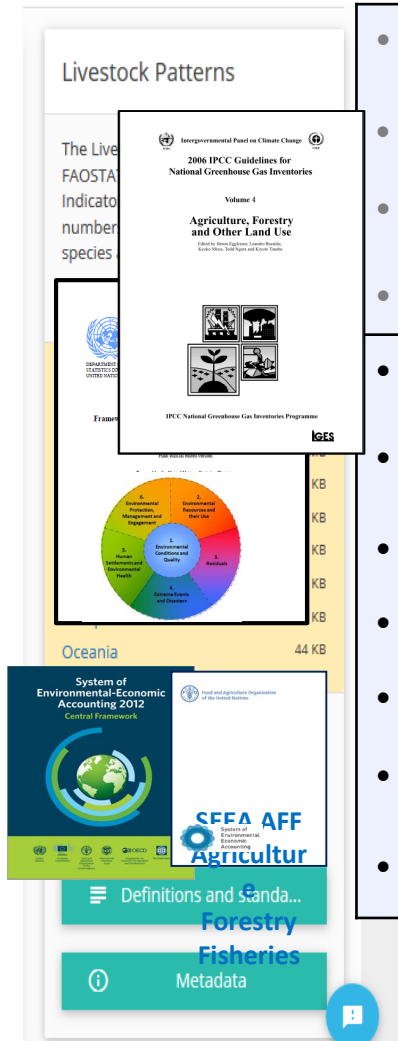
Carbon Stock (from FAO Global Forest Resources

Assessments)

Aligned with FDES and SEEA;  
Mapped to WCA2020 and IPCC



# FAOSTAT Agri-environmental Indicators



• Air and Climate	% Ag. NH <sub>3</sub>	1980-2009
• Energy	Bioenergy, Ag. Use	1971-2009
• Soil	% C, degrad., erosion	1991 & 2008
• Water	% ag. withdrawals	1961-2010
• <b>Land Use Shares</b>	Share in land/country area	1961-2017
• <b>Pesticides Rates</b>	kg/ha on cropland	1990-2017
• <b>Livestock Manure</b>	kg N applied ag land	1961-2017
• <b>Fertilizers Rates</b>	kg/ha on cropland	1961-2017
• <b>Livestock Patterns</b>	LSU/ha agricultural land	1961-2017
• Land Cover	1000 ha	1992-2018
• Climate Change	<b>GHG</b> , Temp Change	1961-2018

EUROSTAT/OECD/FAO AEI, 2011

# Agri-environment indicator: land use shares

<http://www.fao.org/faostat/en/#data/EL>

Land Use

The Agri-environmental Indicators— Land Use domain provides information on the distribution of agricultural and forest land, and their sub-components... [Show More](#)

Food and Agriculture Organization of the United Nations (FAO)

**Bulk Downloads**

All Data	427 KB
All Data Normalized	860 KB
All Area Groups	76 KB
Africa	92 KB
Americas	80 KB
Asia	87 KB
Europe	83 KB
Oceania	26 KB

Last Update  
November 28, 2018

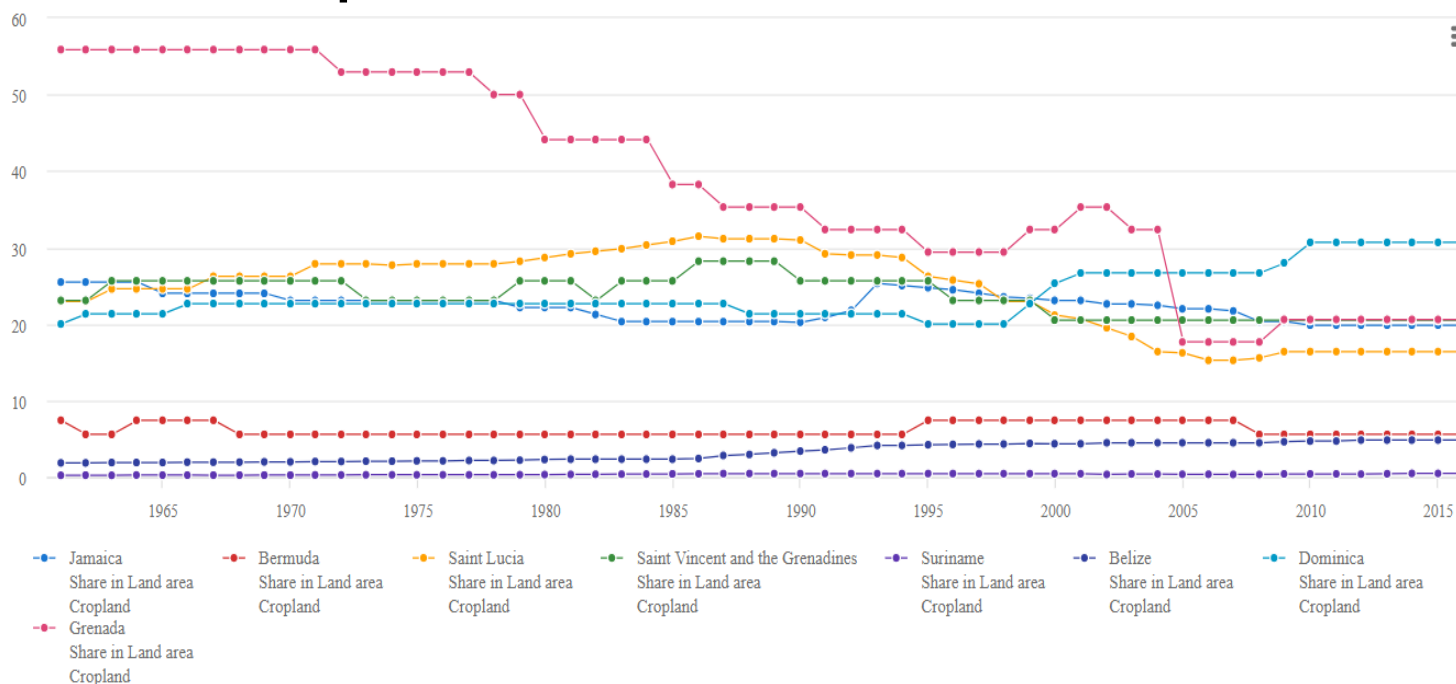
Related Documents

- EL\_Country\_Notes
- README\_Methodological\_Note
- Update history

[Definitions and standa...](#)

[Metadata](#)

## Share of cropland in land area



Using FAOSTAT COMPARE DATA tool

<http://www.fao.org/faostat/en/#compare>

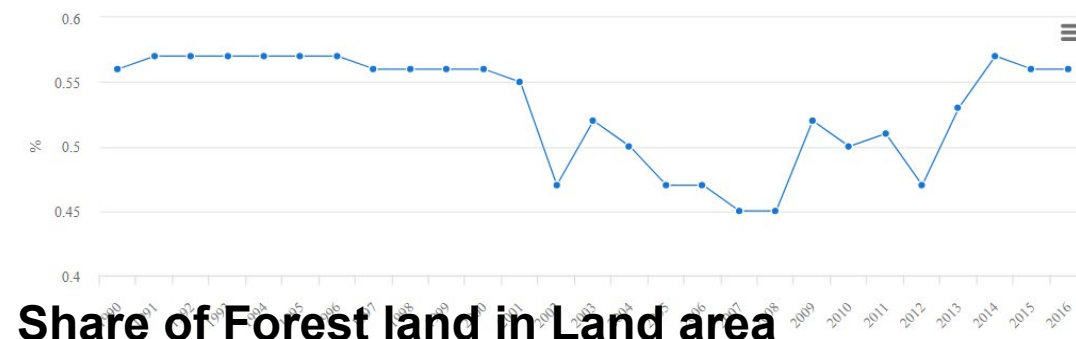
# Land use shares for Country analysis

Visualize country data: e.g. Suriname

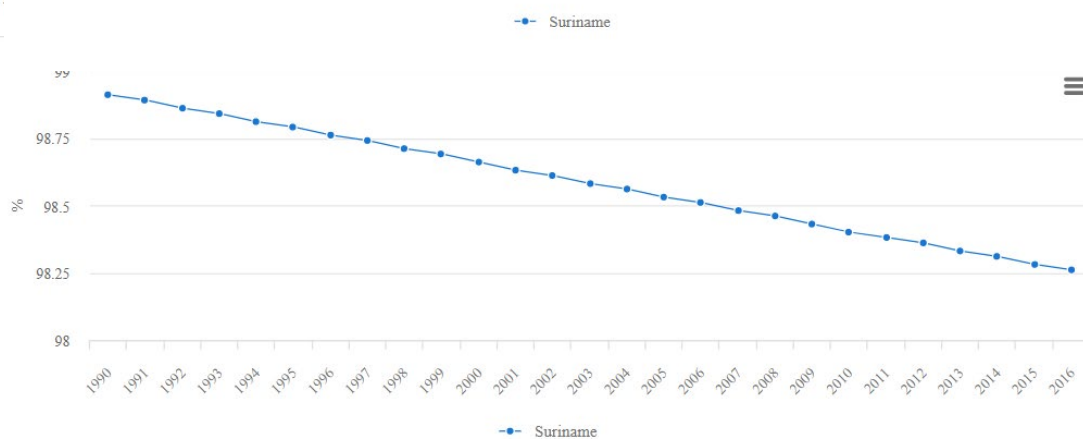
## Share of Agricultural land in Land area

Agricultural land - Share in Land area (%)

1990 - 2016



## Share of Forest land in Land area



# Soil N balance, rates

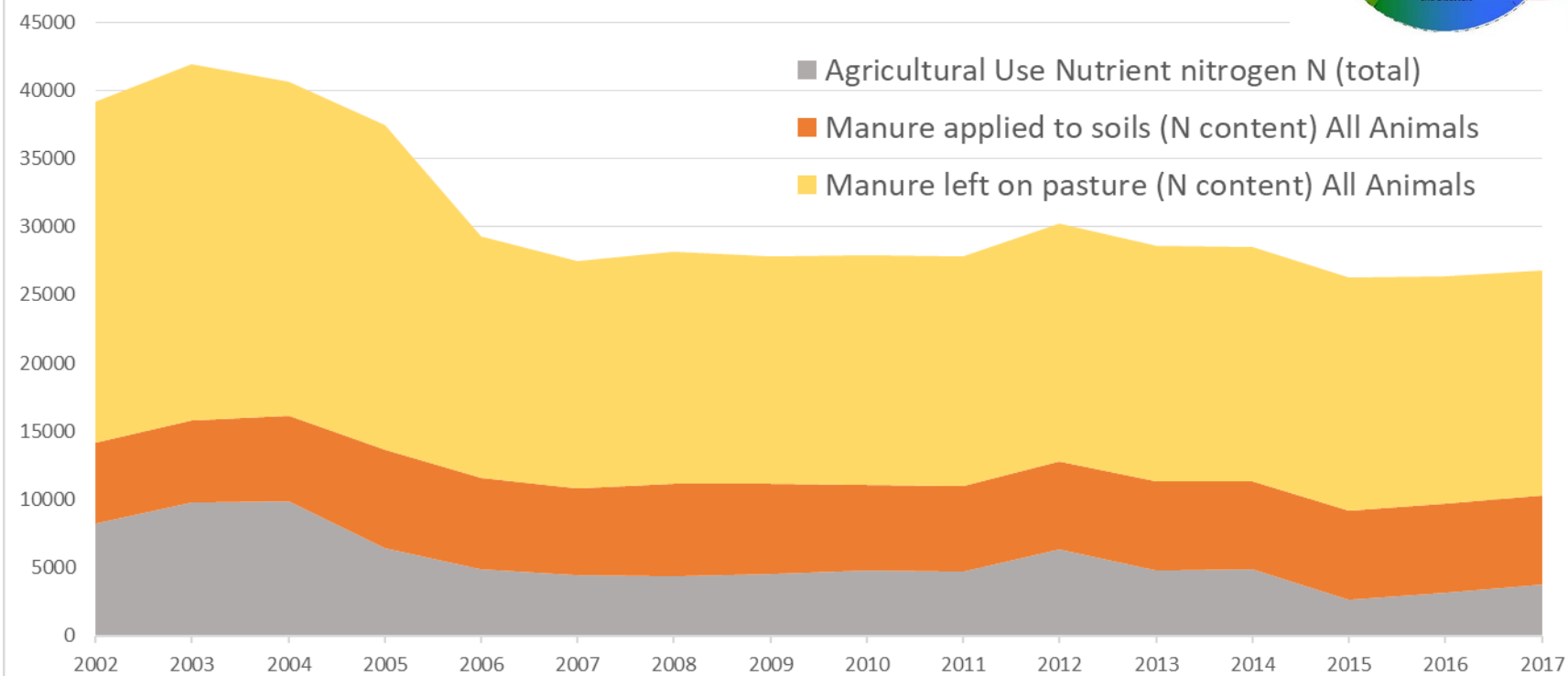
Chemical and organic N inputs

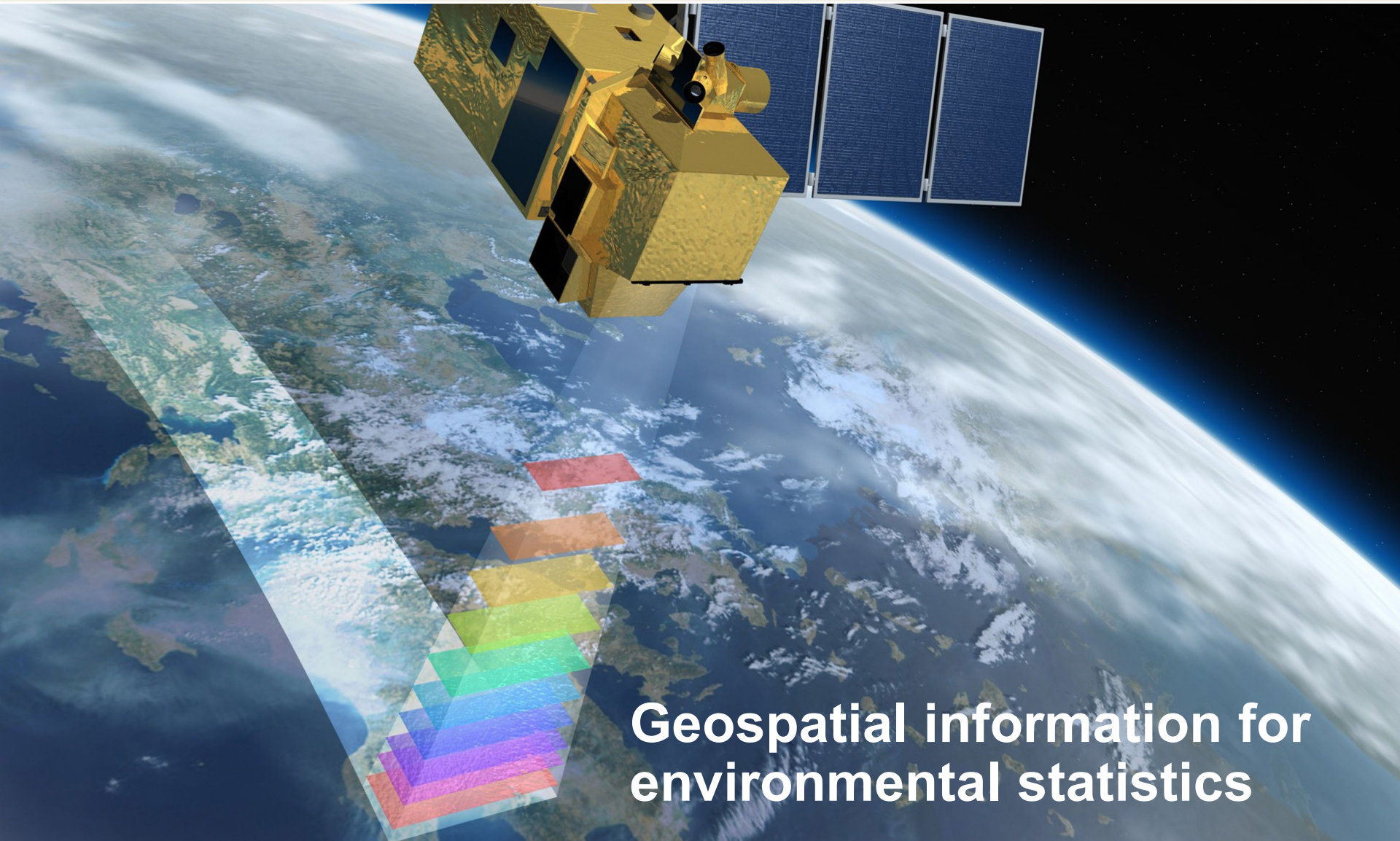
<http://www.fao.org/faostat/en/#data/EMN>

<http://www.fao.org/faostat/en/#data/RFN>



Jamaica: nitrogen inputs (tonnes)





# Geospatial information for environmental statistics



## FAOSTAT applications of geospatial information

- Environment analytical datasets
  - Land cover <http://www.fao.org/faostat/en/#data/LC>
  - Land cover change (forthcoming)
- Climate Change Statistics
  - Emissions from degraded peatlands  
<http://www.fao.org/faostat/en/#data/GV> & GC & GG
  - Emissions from fires / Burnt areas including peatlands  
<http://www.fao.org/faostat/en/#data/GH> & GI
  - Temperature Change <http://www.fao.org/faostat/en/#data/ET>

**Data aggregation to national level statistics**

Latest developments: Cloud processing platforms

# Satellite instruments

## Optical sensors

### Moderate resolution

- NASA MODIS (250m, 500m, 1km) *free*
- ESA's MERIS (330m) *discontinued*
- PROBA-V (100m) *free*

### High resolution

- NASA's Landsat (30m) *free*
- Copernicus ESA Sentinels (10-20m) *free*
- SPOT (10-20m) *comm.*

### Very high resolution

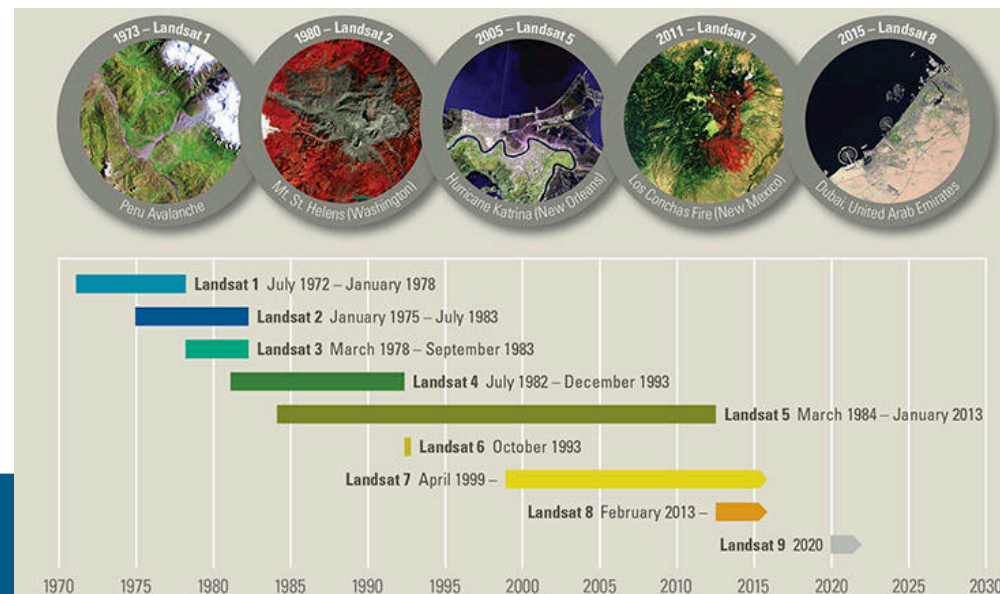
- QuickBird (65cm) *comm.*
- Ikonos (~1m) *comm.*
- DigitalGlobe (30cm) *comm*

*Micro-satellites (TerraBella..)*

## Active (radar) sensors

### SAR

- ALOS-PALSAR
- Sentinel 1

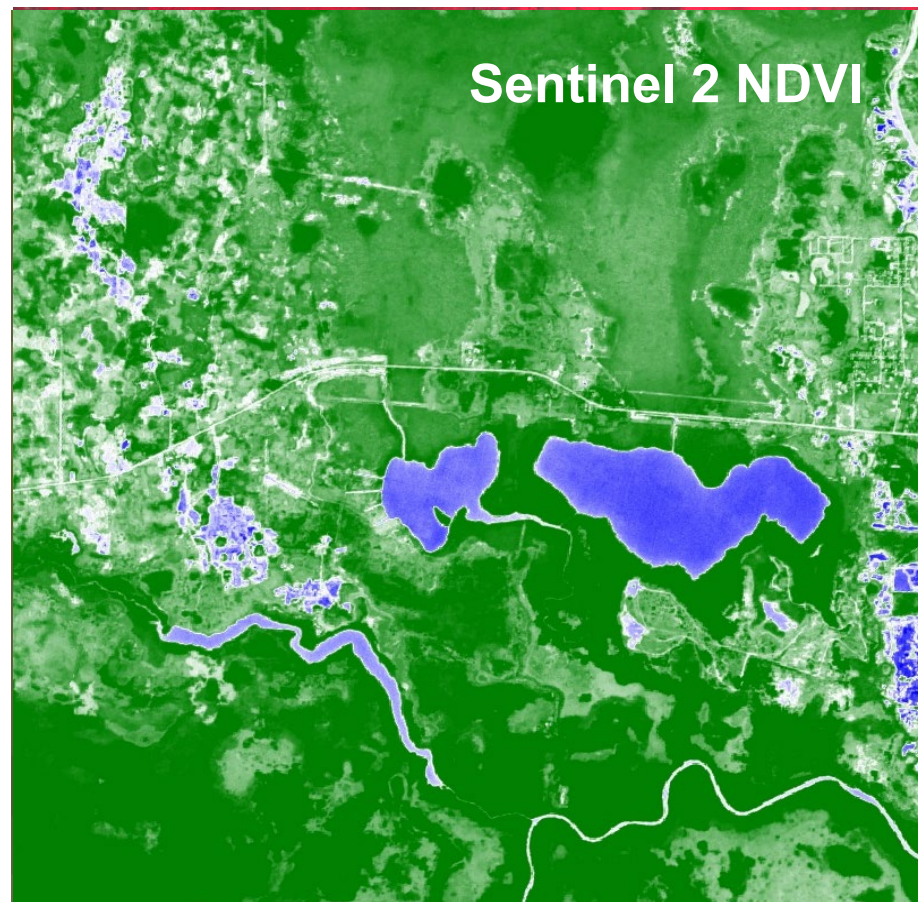




# Increase Data Availability

Earth Observations (Eos) from sensors aboard satellites

- Synoptic views & Temporal resolution
- Spatial resolution
- Spectral resolution (indexes)



## Conclusions

- FAOSTAT environment & climate change statistics **based or expanded from data processes with countries**
- **Geospatial** useful support need to be adapted to the statistical needs and contexts

# THANK YOU

## Contacts

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<http://www.fao.org/economic/ess/environment/en/>