Food and Agriculture Organization of the United Nations

TWENTY-NINTH SESSION OF

THE ASIA AND PACIFIC COMMISSION ON AGRICULTURAL STATISTICS

Ulaanbaatar, Mongolia
22-25 November 2021

Using Earth Observation data for producing environmental statistics

APCAS29

Francesco N. Tubiello
Senior Statistician, Team Leader Environment Statistics
FAO Statistics Division

www.APCAS29.com

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Using Earth Observation data for producing environmental statistics

Francesco N. Tubiello

Senior Statistician, Team Leader Environment Statistics

FAO Statistics Division

APCAS, 29th Session
Ulaanbaatar, Mongolia
22-25 November 2021

INTRODUCTION

- FAO collects annually, from its member states, statistics on the agri-environment, in relation to factors of production (fertilizers and pesticides, land use, water)
- World total response rates are 40-50%. RAP region at 40-50%
- Actual data provision through questionnaires is nonetheless more lacking. For instance, only 4-9 countries (out of 54) in RAP provided official data on *Agricultural Land* over the period 2010-2019; 11-17 for *Cropland*, 10-13 for *meadows and pastures*
- Against this background, countries are asked to provide even more data for reporting on multiple international processes, chiefly sustainability (2030 SDG Agenda) and climate change (UNFCCC)

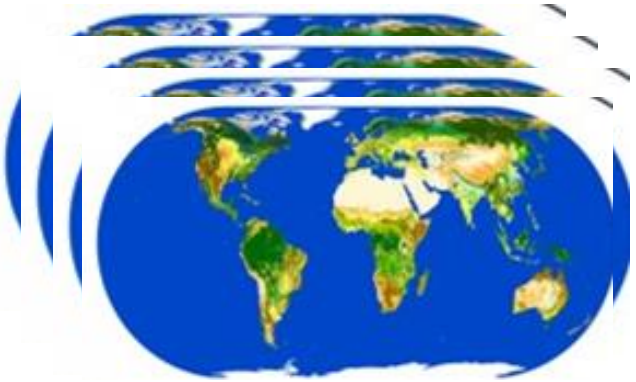
INTRODUCTION (cont'd)

- To bridge this data gap, FAO develops methods and tools to support experts in member countries to work with available geospatial information to produce better environmental statistics, with multiple goals:

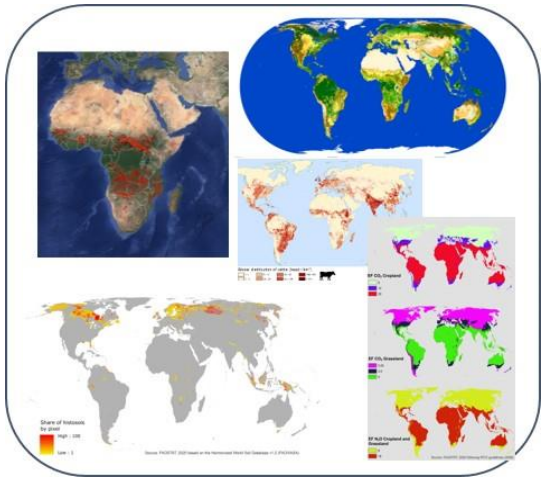
- Increase national data availability, and improve dissemination by FAO of basic environmental statistics
  (example 1: Land Cover-Land Use statistics)

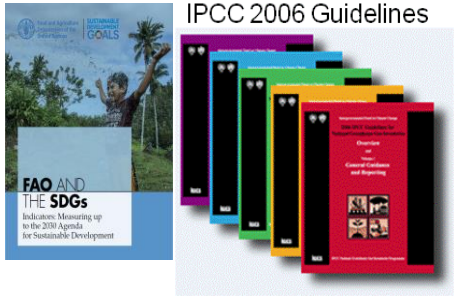
- Enhance reporting by member countries to international processes
  (example 2: fires and peatland degradation statistics)

FROM GEOSPATIAL TO STATISTICS



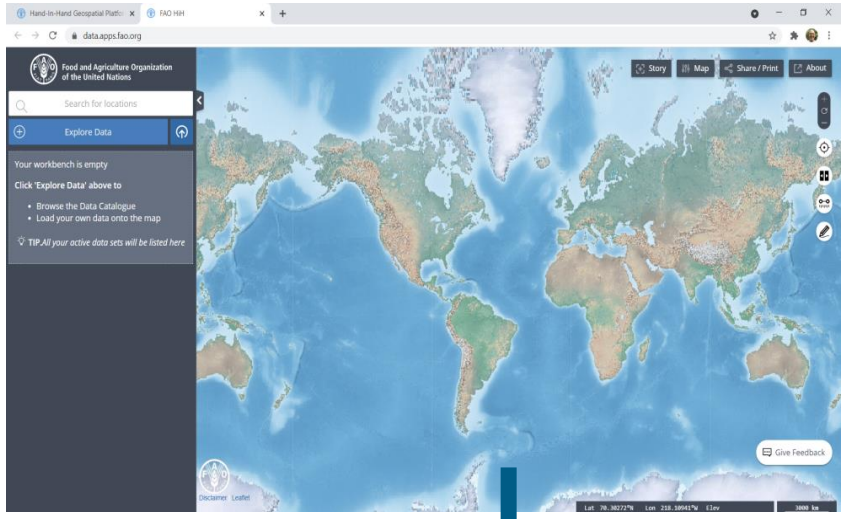
ESA-CCI LC 1992-2019
NASA MODIS LC 2001-2019
MODIS FIRES 2001-2019
CLIMATE ZONES, IPCC EF





IPCC 2006 Guidelines

FAO Hand in Hand Platform



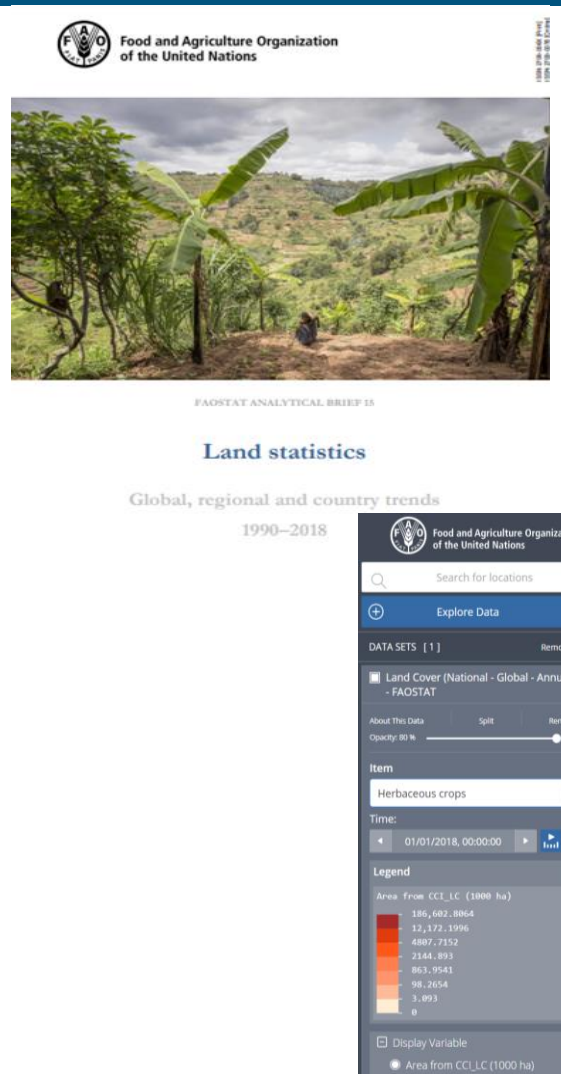
Source: FAO Hand in Hand Platform

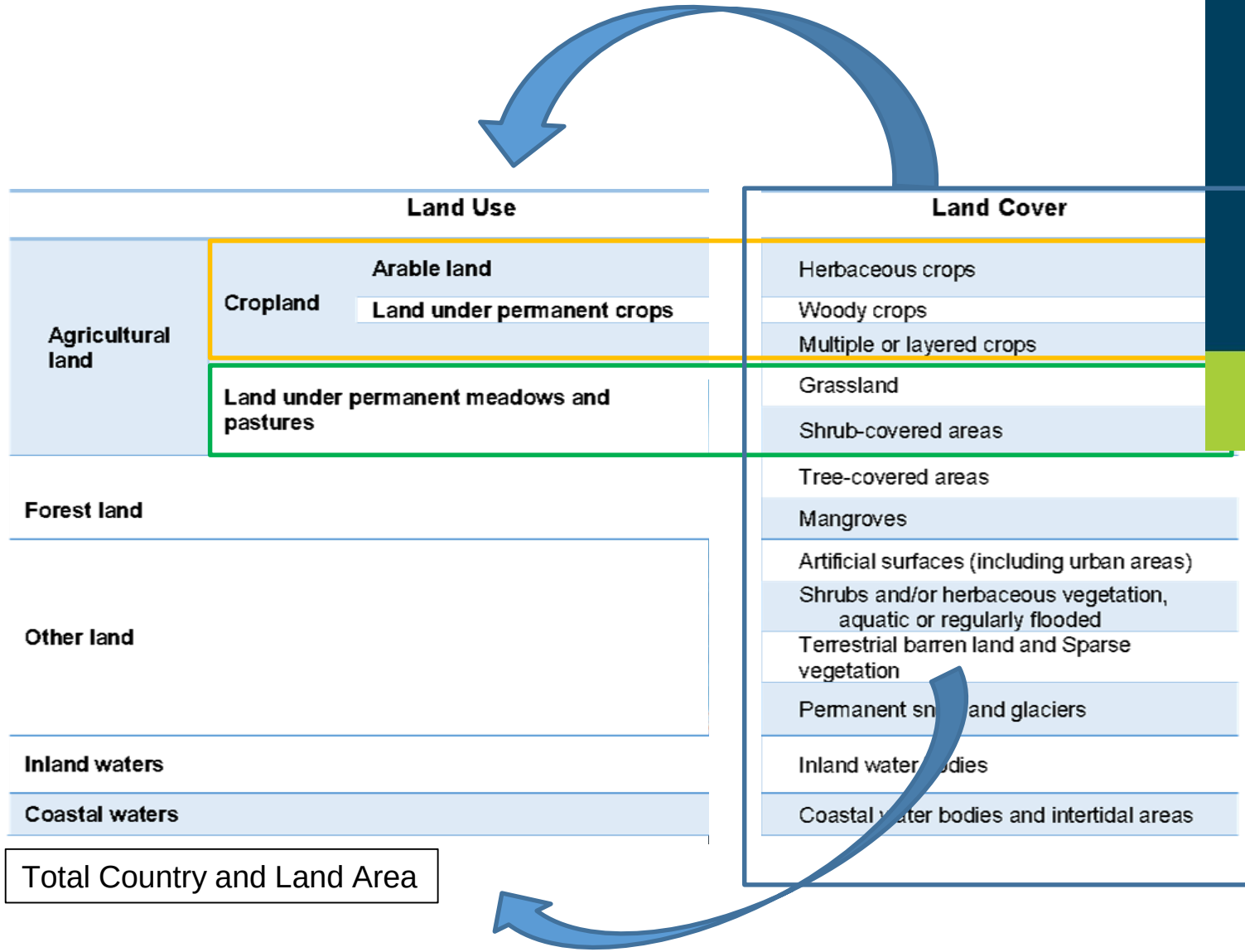
Source: FAOSTAT

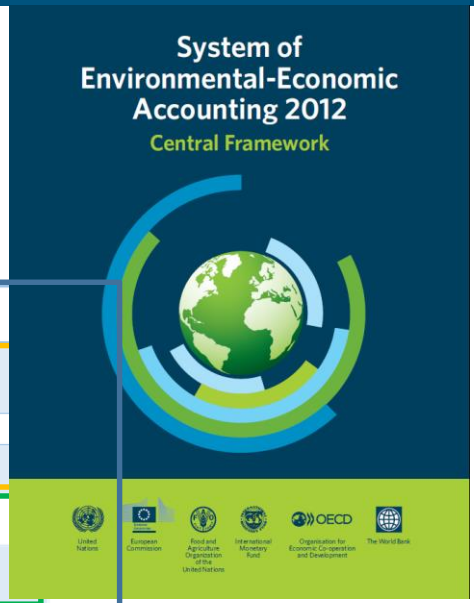
Source: FAO

The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontier and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

EXAMPLE 1: LAND COVER TO ESTIMATE LAND USE STATISTICS

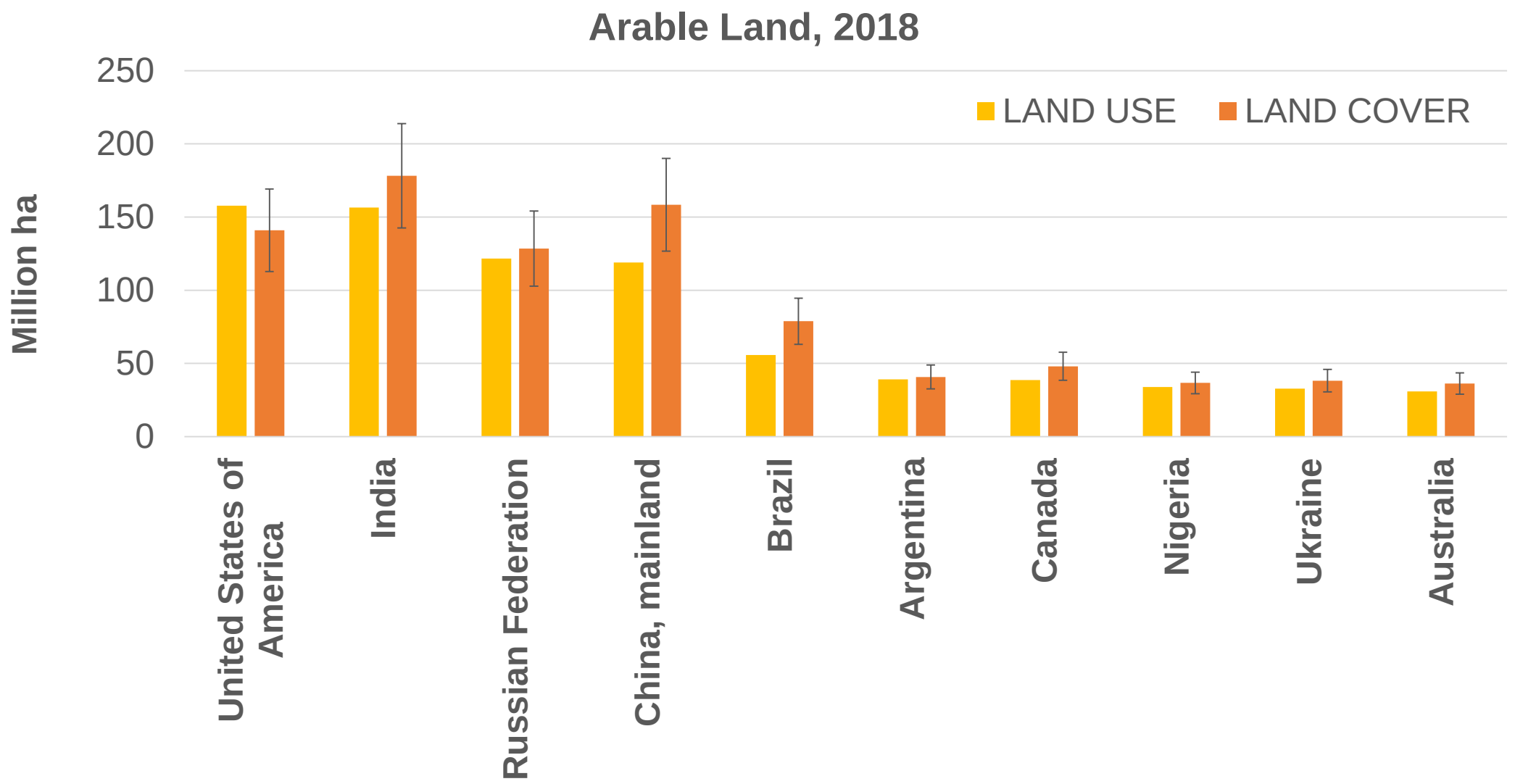




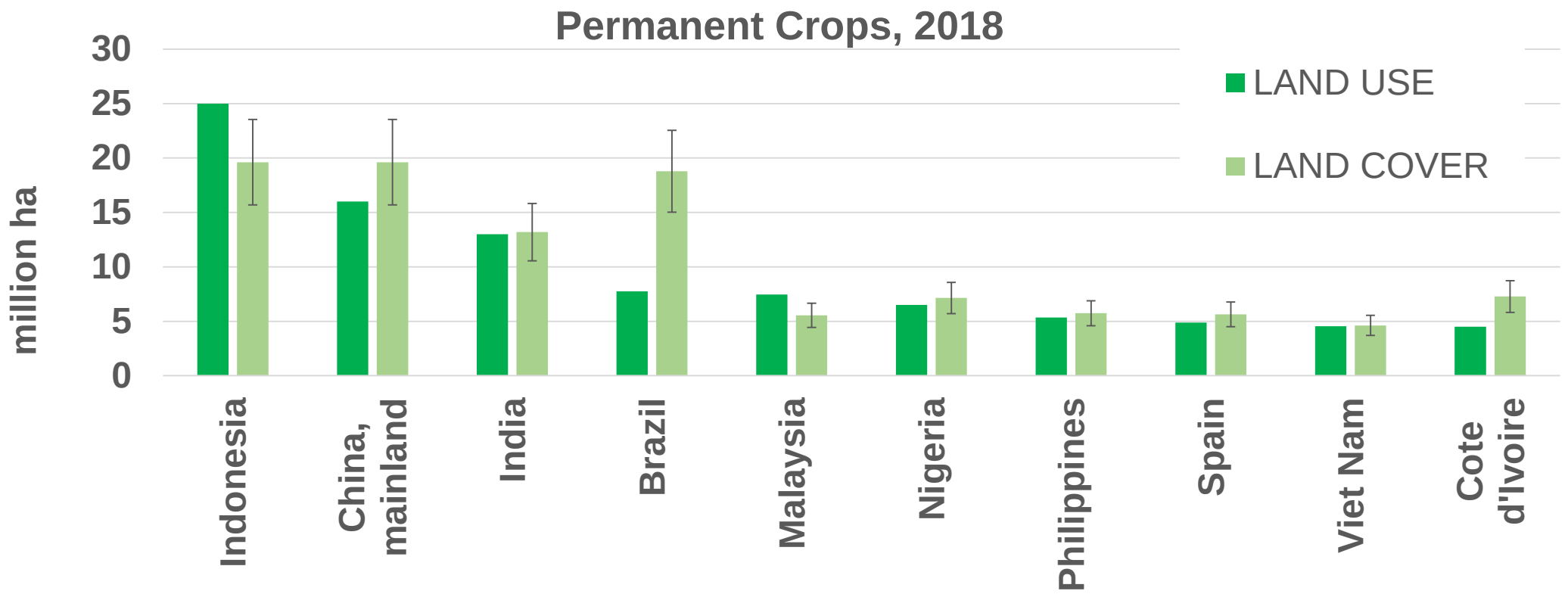


Total Country and Land Area

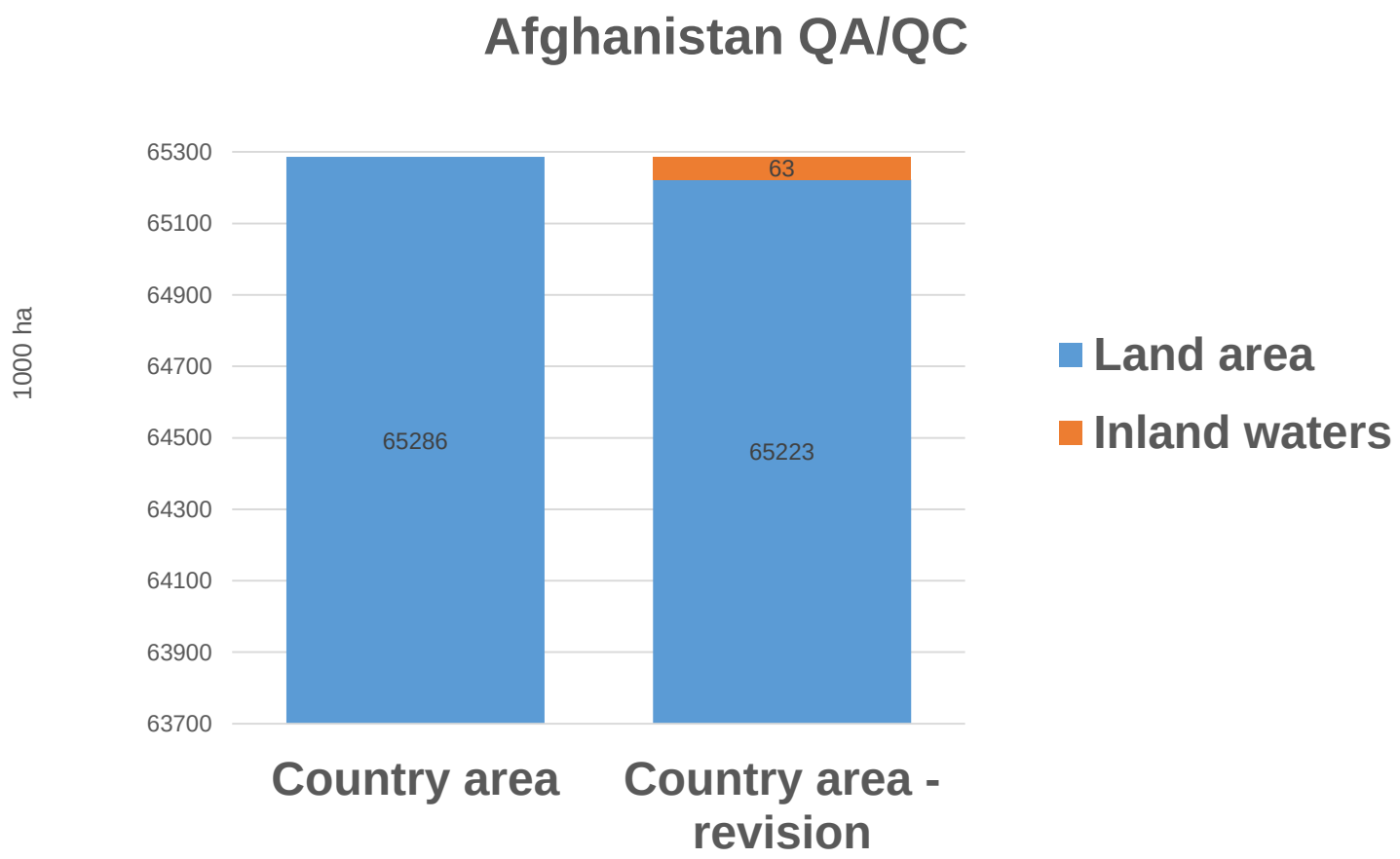
EXAMPLE 1: LAND COVER TO ESTIMATE LAND USE STATISTICS



EXAMPLE 1: LAND COVER TO ESTIMATE LAND USE STATISTICS

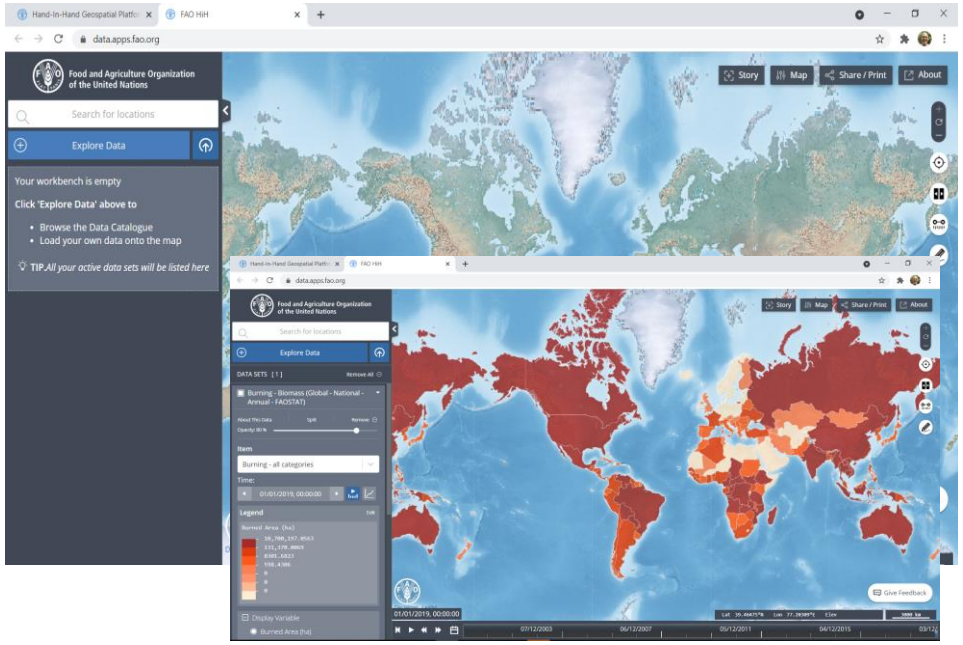


EXAMPLE 1: LAND COVER TO ESTIMATE LAND USE STATISTICS

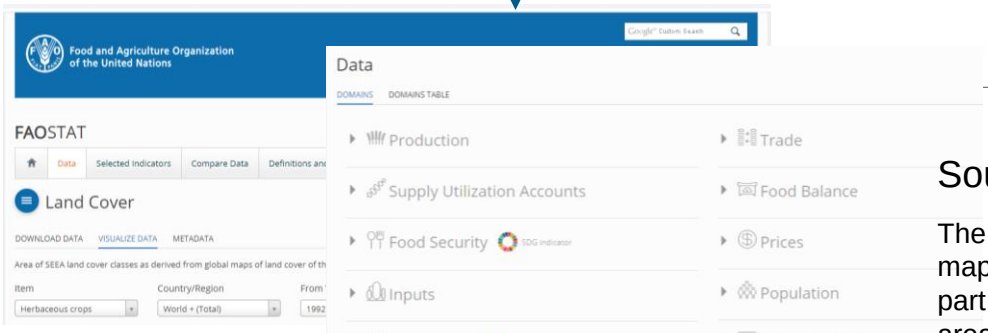


EXAMPLE 2: ECOSYSTEM DEGRADATION and GHG EMISSIONS

FAO Hand in Hand Platform



Source: FAO Hand in Hand Platform

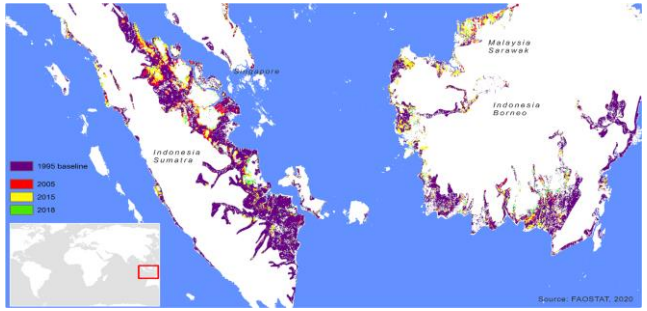


Source: FAOSTAT

Source: FAO

EXAMPLE 2: CURRENT VALIDATION

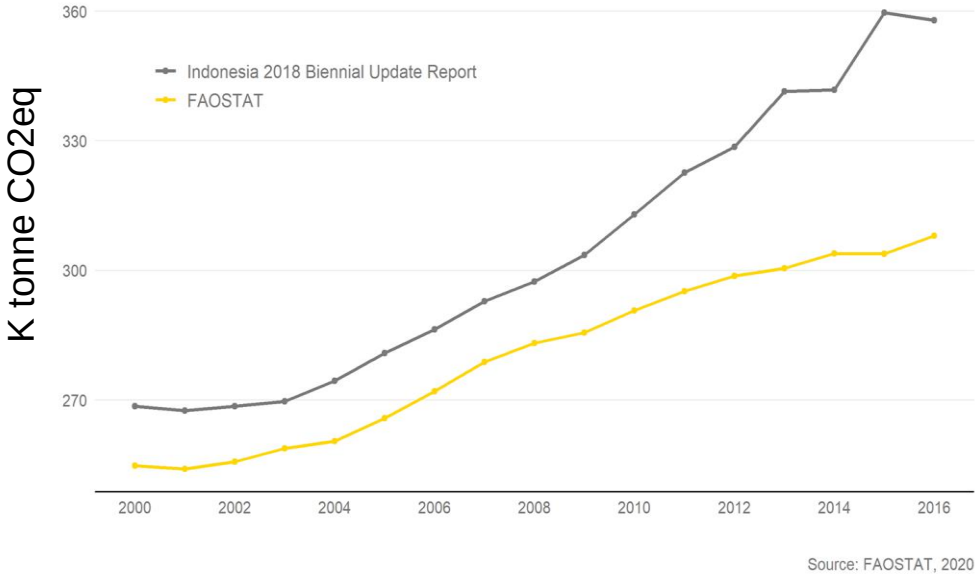
DRAINDED PEATLANDS AND FIRES, 2002-2019



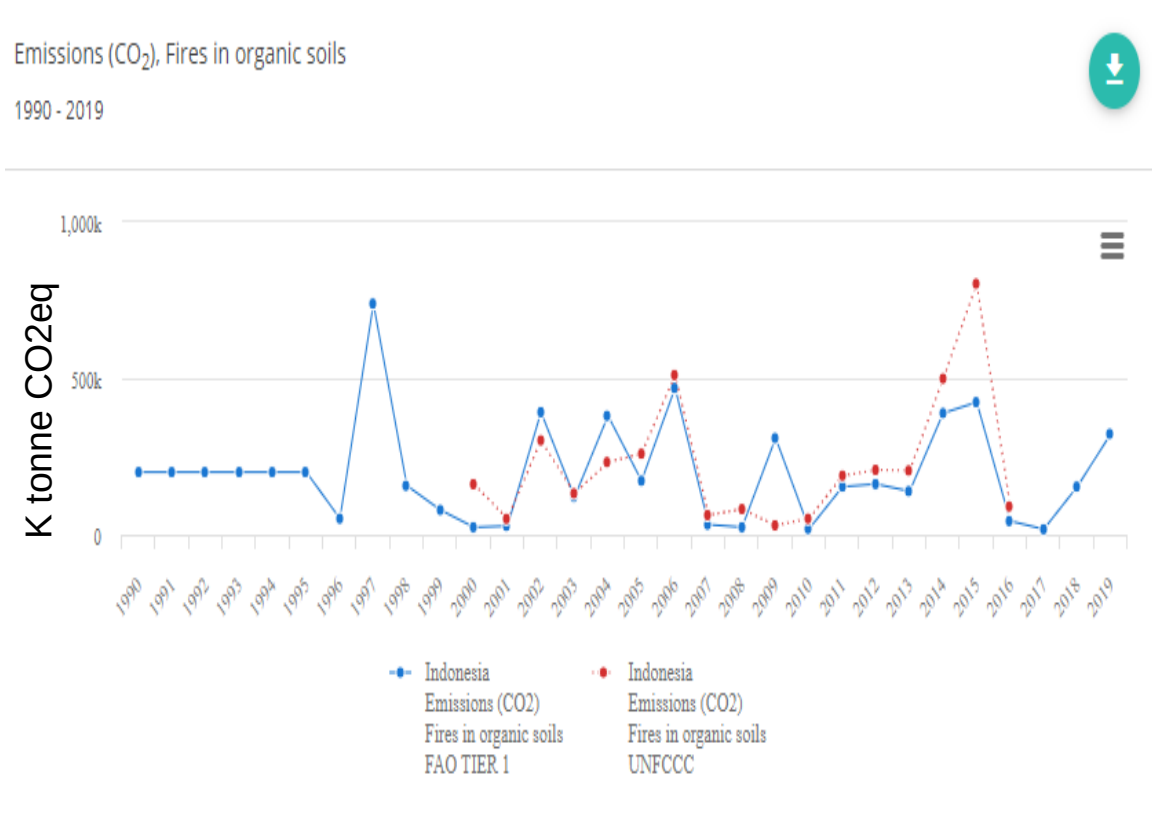
Drained Peatlands, 2000-2018

Source: FAO

The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontier and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.



Peatland Fires, 1990-2019



PROPOSED DISCUSSION POINTS FOR COMMISSION

- **Note** that geospatial products derived from remote sensing can be used to generate environment statistics at sub-national and national level that complement existing, more traditional processes

- **Encourage** countries to use tools, data platforms and other geospatial products to generate environmental and agricultural statistics at disaggregate levels

- **Note** that FAO's Hand in Hand platform and FAOSTAT environmental statistics are a basis for capacity development activities, aimed at improving national analysis and international reporting across multiple processes

- **Recommend** FAO to provide countries technical assistance to use earth observation data in production of environmental and agricultural statistics

Thank you!

francesco.tubiello@fao.org