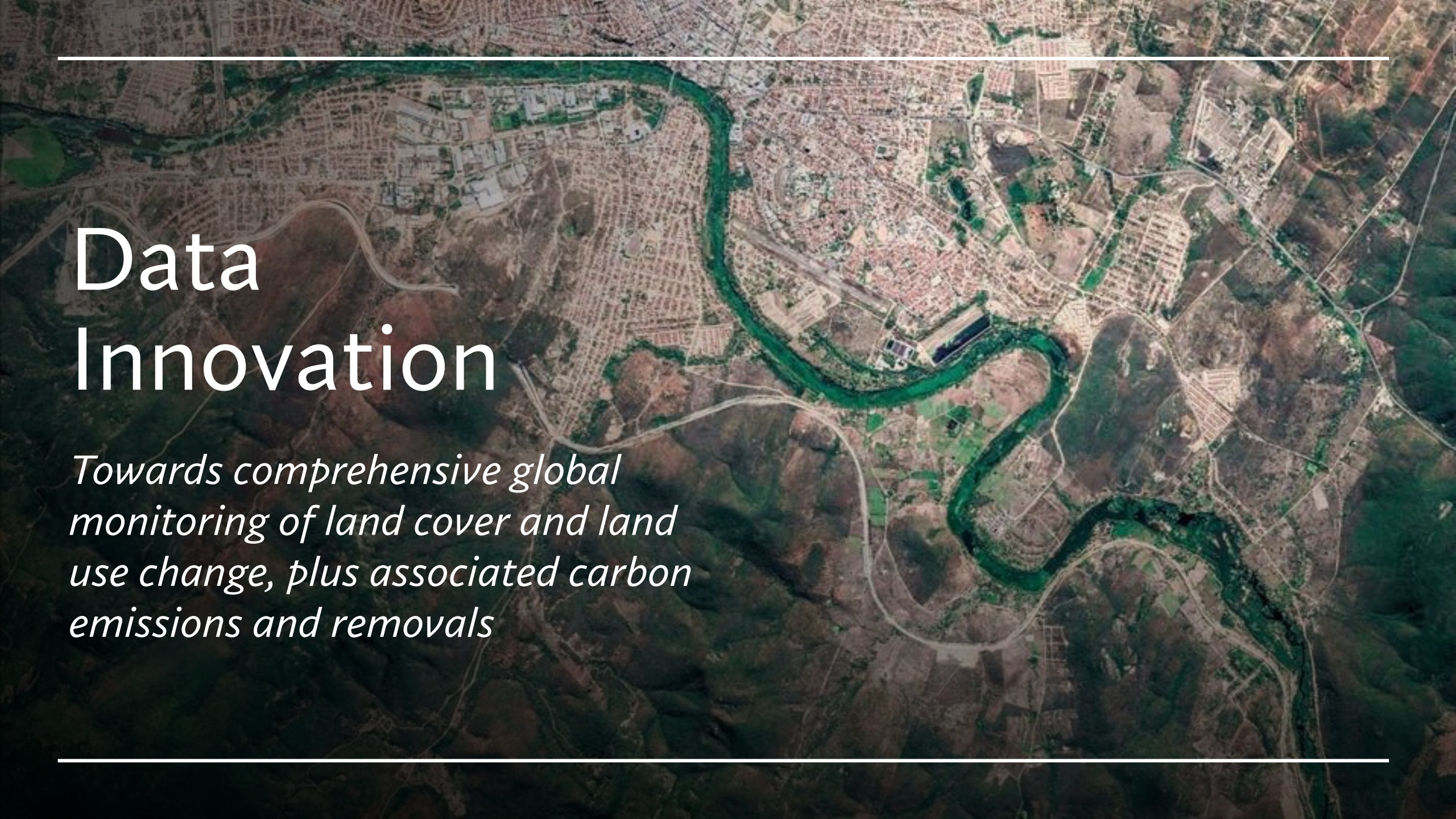
EO 4 Ecosystem Accounting 2022

Land cover

Fred Stolle, Sarah Carter
World Resources Institute (WRI)

Date

WRI's hub for geospatial data and monitoring of the world's land



Data Innovation

Towards comprehensive global monitoring of land cover and land use change, plus associated carbon emissions and removals

Ecosystems are Changing..

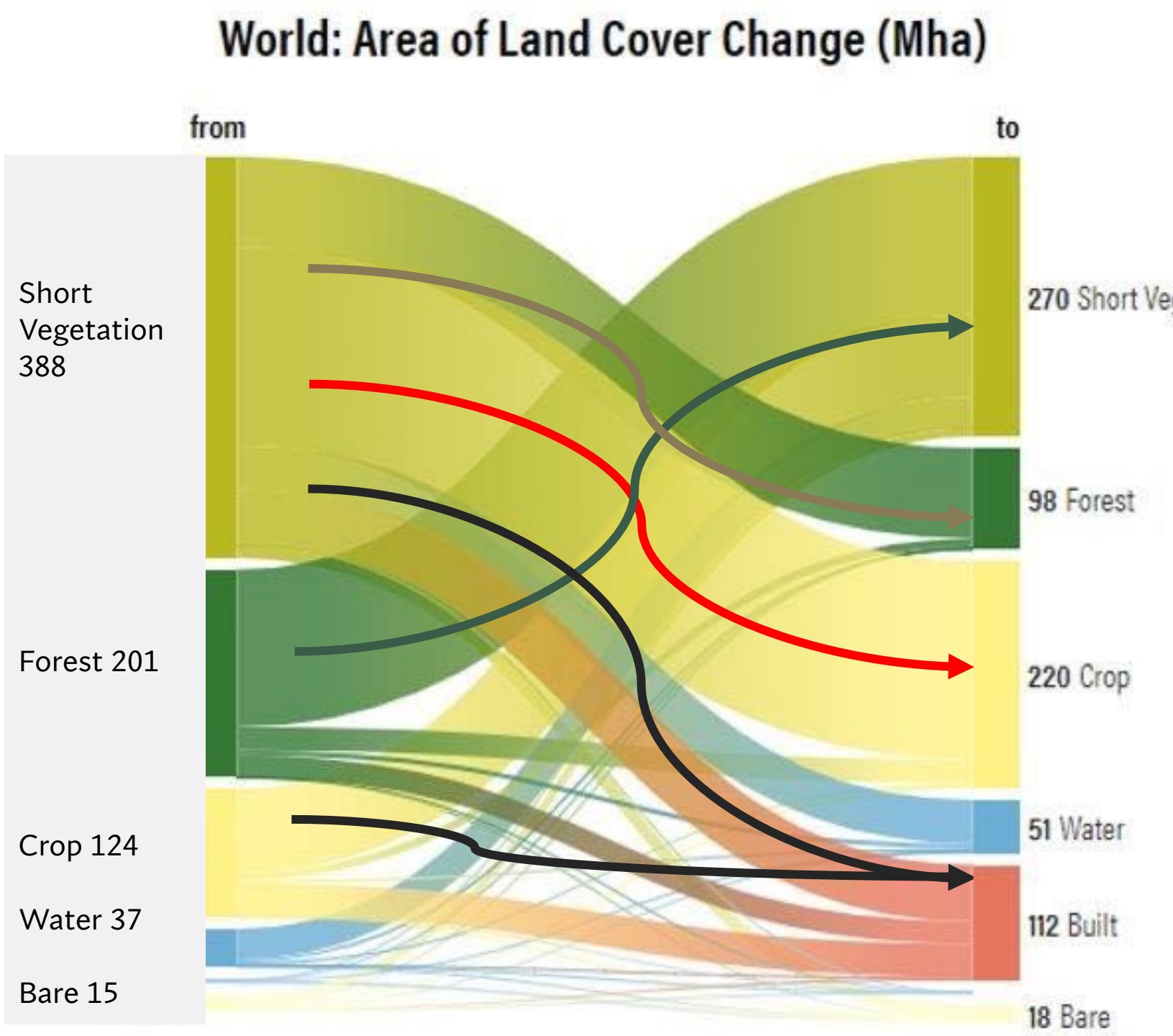
All Vegetation Change in 20 years **total 0.8 Bha**

All Vegetation Change in 20 years **total 0.8 Bha = 6%**

Forest:	Loss of 2.5% (103 Mha)
Grass:	Loss of 2.2 % (117 Mha)
Crop:	Gain of 8.4% (96 Mha)
Built-up:	Gain of 27 % (112 Mha)

The Global 2000-2020 Land Cover and Land Use Change Dataset Derived From the Landsat Archive: First Results.

Potapov et al.
Front. Remote Sens., 13 April 2022



Projected Business-as-Usual Land Needs

2010 - 2050

+40% Population Growth

+56% Crop Demand

+88% Beef/Lamb Demand

+68% Meat/Dairy Demand

+70% Wood Products Demand

+120 Mha
Expansion of Urban Areas

+400 Mha
Expansion of Pastureland

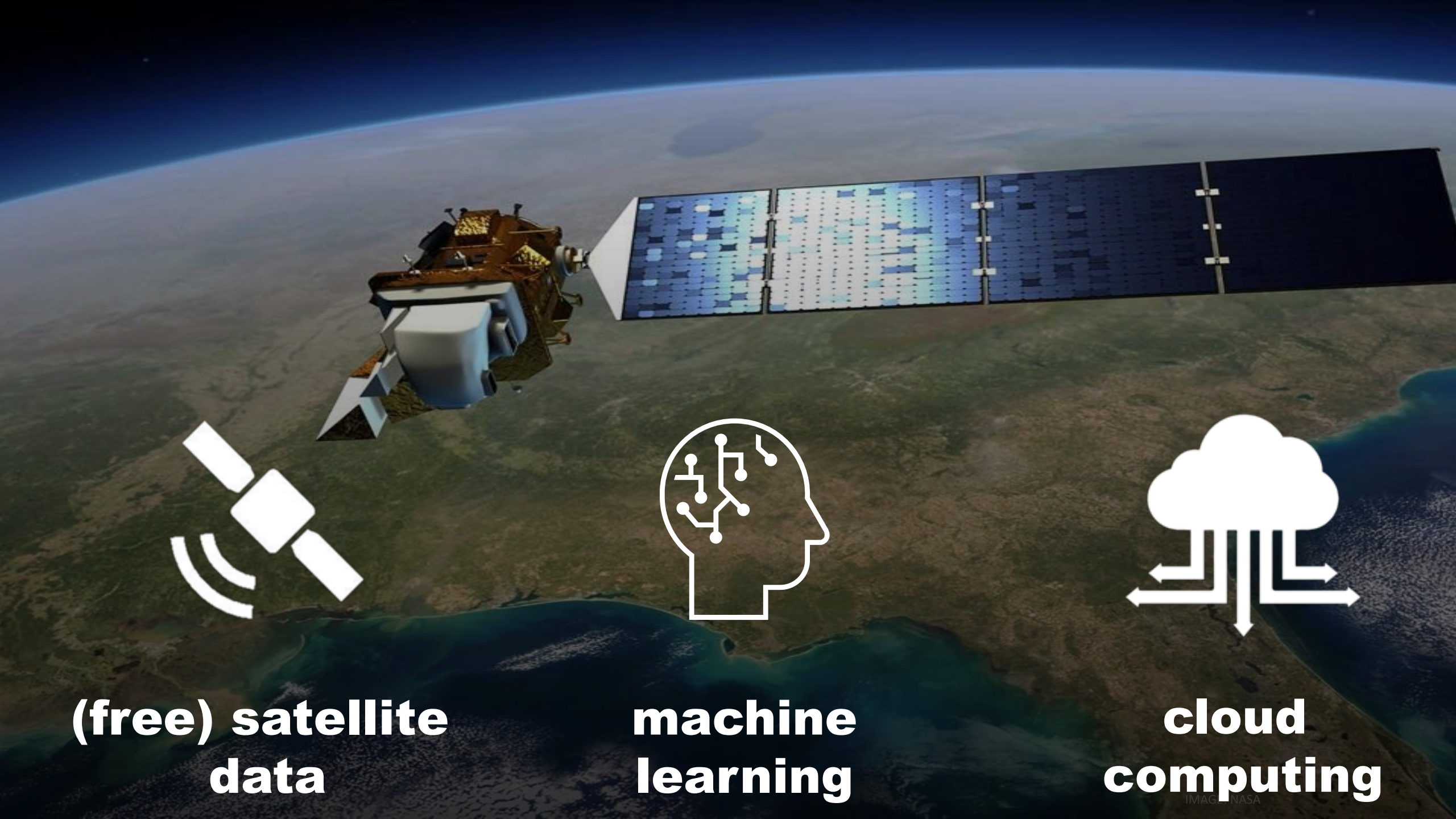
+ 200 Mha
Expansion of Cropland

WORLD RESOURCES INSTITUTE

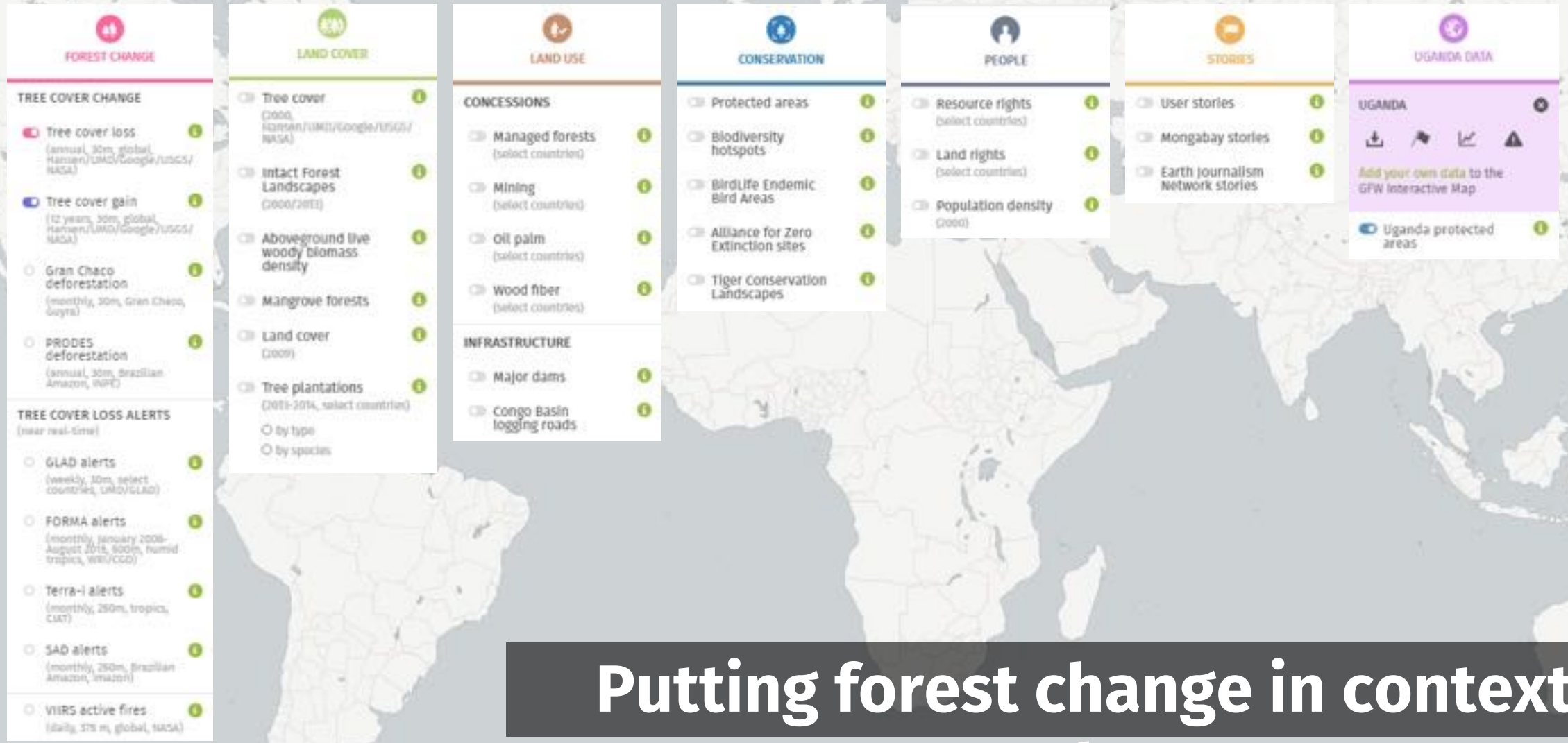
Cropland decreased from 0.45 to 0.21 hectare per capita between 1961 - 2016.

Forest

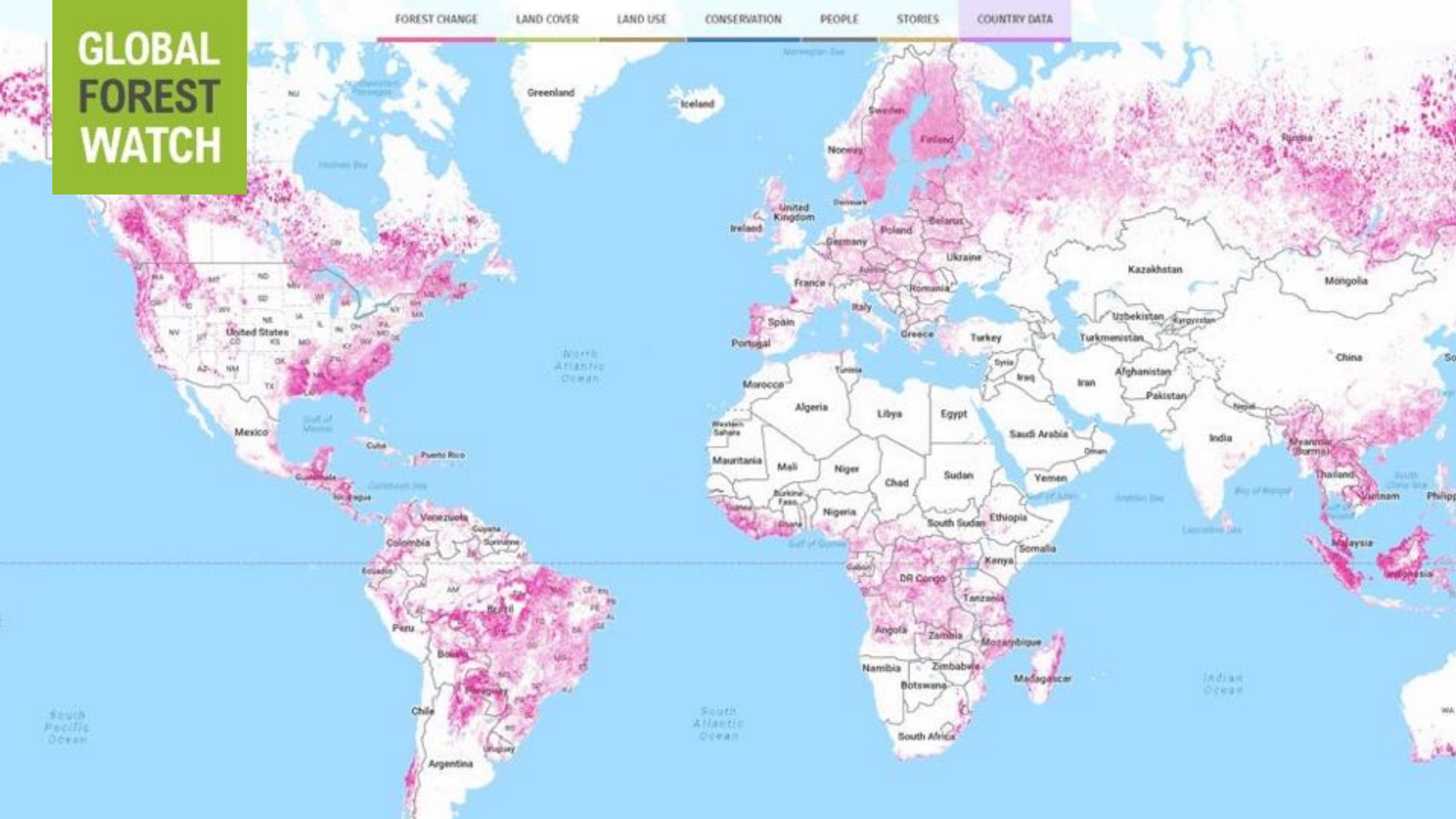

UNIVERSITY OF MARYLAND
USAID
FROM THE AMERICAN PEOPLE
NORWEGIAN MINISTRY OF THE ENVIRONMENT
esri
Google
Imazon
Center for Global Development
UNEP
vizzuality.
DFID
Department for International Development
Orbital Insight
Unilever
MARS
RESOLVE
Walmart
planet.
GLOBAL FOREST WATCH
A GROWING PARTNERSHIP
globalforestwatch.org/partners
Transparent World
the Jane Goodall Institute
citibank
agrosatélite
applied geotechnology
MAPBIOMAS
FMO
Finance for Development
IDB
Inter-American Development Bank
OSINFOR
gef
Cargill
Woods Hole Research Center
FORESTRY
R
L
RED LIST
Carrefour
GREENPEACE
Descartes Labs
GORDON AND BETTY MOORE FOUNDATION
Santander
MONGABAY
Mondelēz International
Ministry of Foreign Affairs of the Netherlands
DigitalGlobe


(free) satellite data
machine learning
cloud computing
IMAGE: NASA


GLOBAL
FOREST
WATCH



Putting forest change in context, such as:


GLOBAL
FOREST
WATCH
FOREST CHANGE
LAND COVER
LAND USE
CONSERVATION
PEOPLE
STORIES
COUNTRY DATA
Greenland
Iceland
Norway
Sweden
Finland
Russia
United Kingdom
Ireland
Denmark
Poland
Belarus
Germany
Ukraine
France
Romania
Italy
Spain
Portugal
Greece
Turkey
Kazakhstan
Mongolia
Uzbekistan
Kyrgyzstan
Turkmenistan
China
Syria
Iraq
Iran
Afghanistan
Pakistan
India
Nepal
Myanmar (Burma)
Thailand
Vietnam
Malaysia
Indonesia
Morocco
Algeria
Tunisia
Libya
Egypt
Western Sahara
Saudi Arabia
Oman
Yemen
Mauritania
Mali
Niger
Chad
Sudan
Nigeria
Burkina Faso
Guinea
Ghana
South Sudan
Ethiopia
Somalia
Kenya
DR Congo
Tanzania
Angola
Zambia
Mozambique
Namibia
Zimbabwe
Botswana
Madagascar
South Africa
United States
Mexico
Cuba
Puerto Rico
Guatemala
Nicaragua
Venezuela
Guyana
Suriname
Colombia
Ecuador
Peru
Brazil
Bolivia
Paraguay
Chile
Argentina
Uruguay
North Atlantic Ocean
South Atlantic Ocean
South Pacific Ocean
Indian Ocean
Gulf of Mexico
Caribbean Sea
Gulf of Guinea
Arabian Sea
Bay of Bengal
Andaman Sea
Lakshadweep Sea

Tree cover loss –time series


Walmart Shareholders Meeting
Walmart
GLOBAL
FOREST
WATCH
PRO

Forest- Tree cover Gain

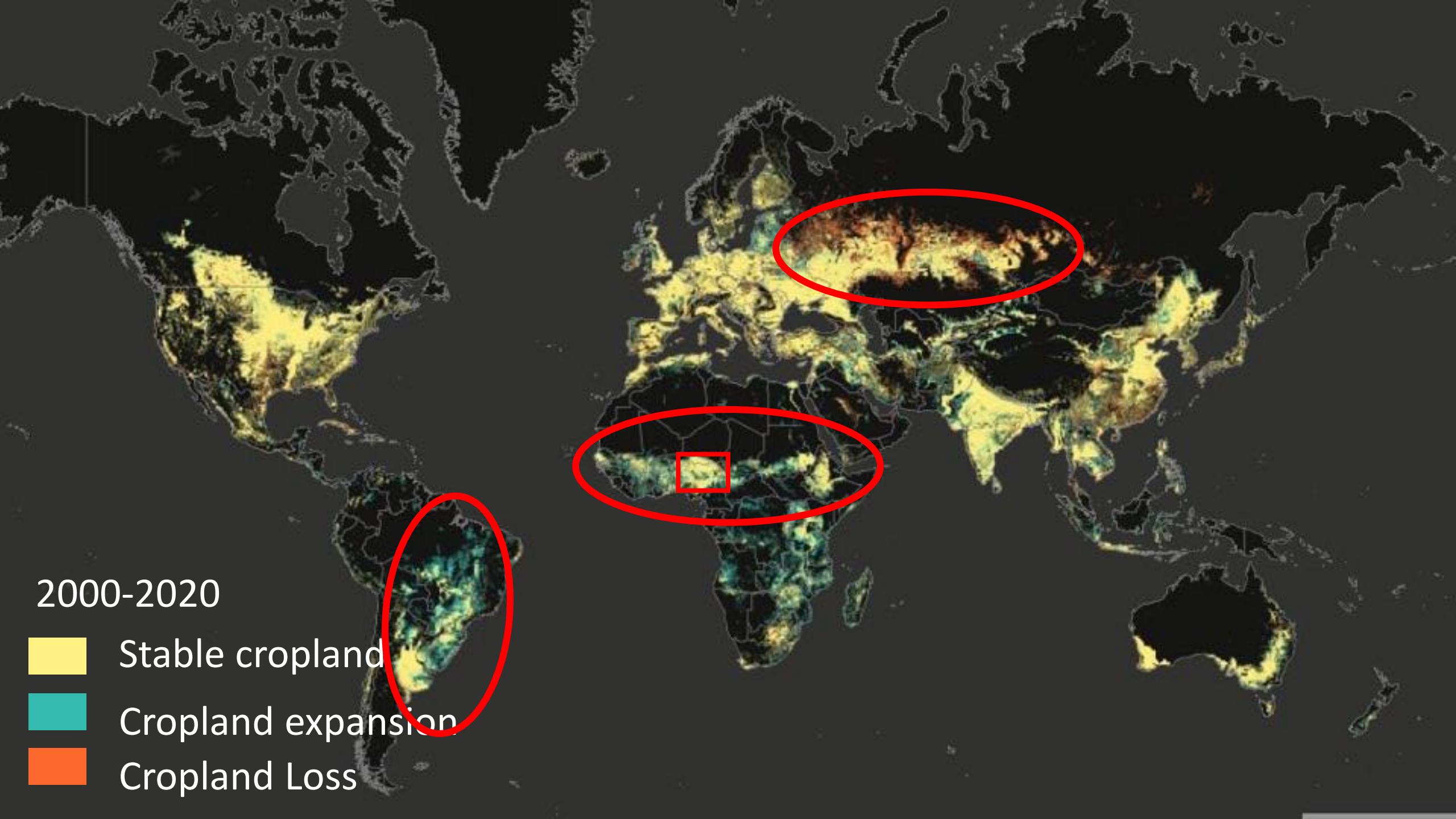
2000-2020 Net change % in tree cover area under a 5km * 5km grid (“landscape”)

Forest- Trees outside Forest

Trees in Mosaic Landscapes

CREDIT: Peter Irungu/WRI

Croplands


2000-2020
Stable cropland
Cropland expansion
Cropland Loss

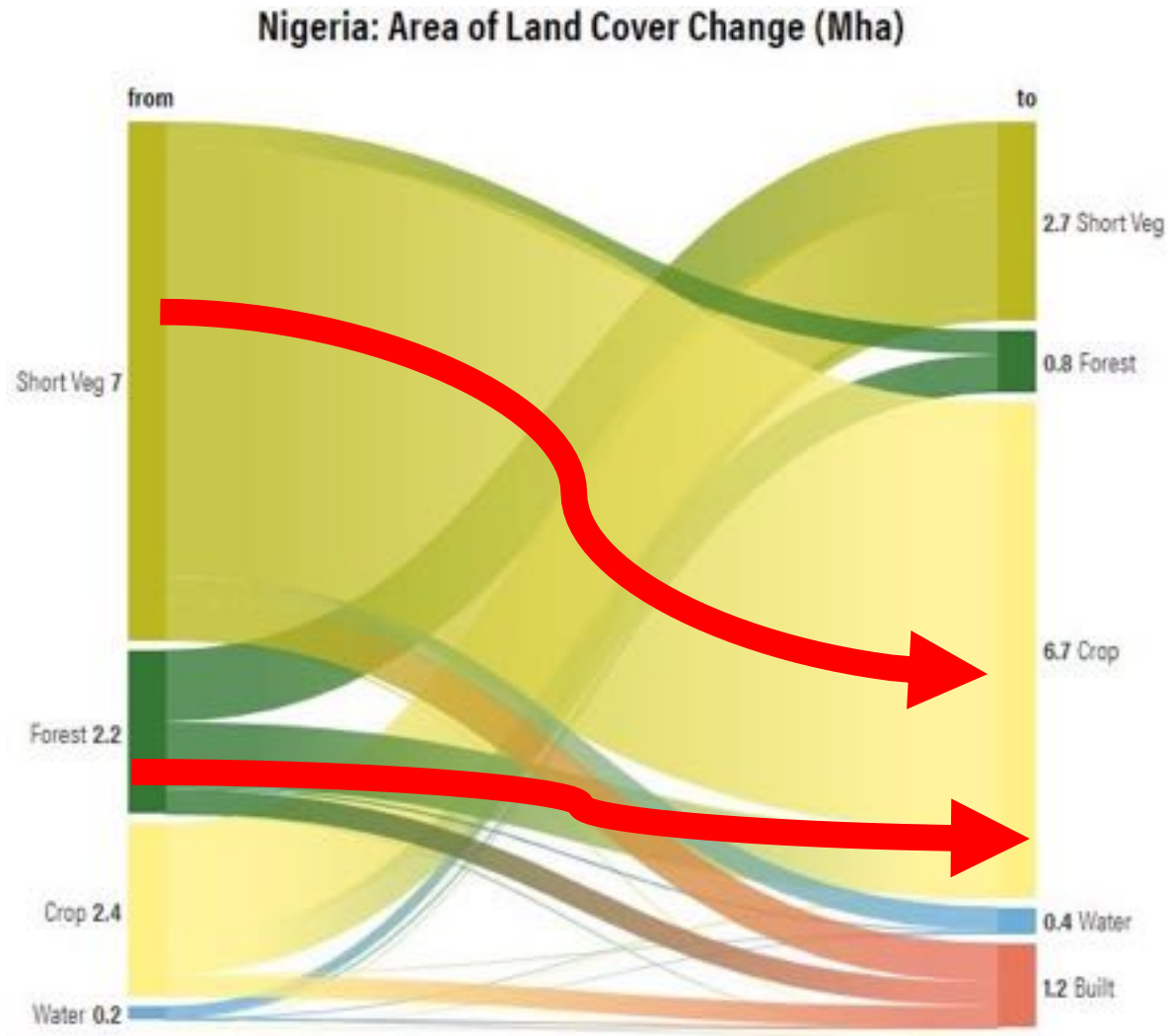
Example: Nigeria

From 2000 to 2020:

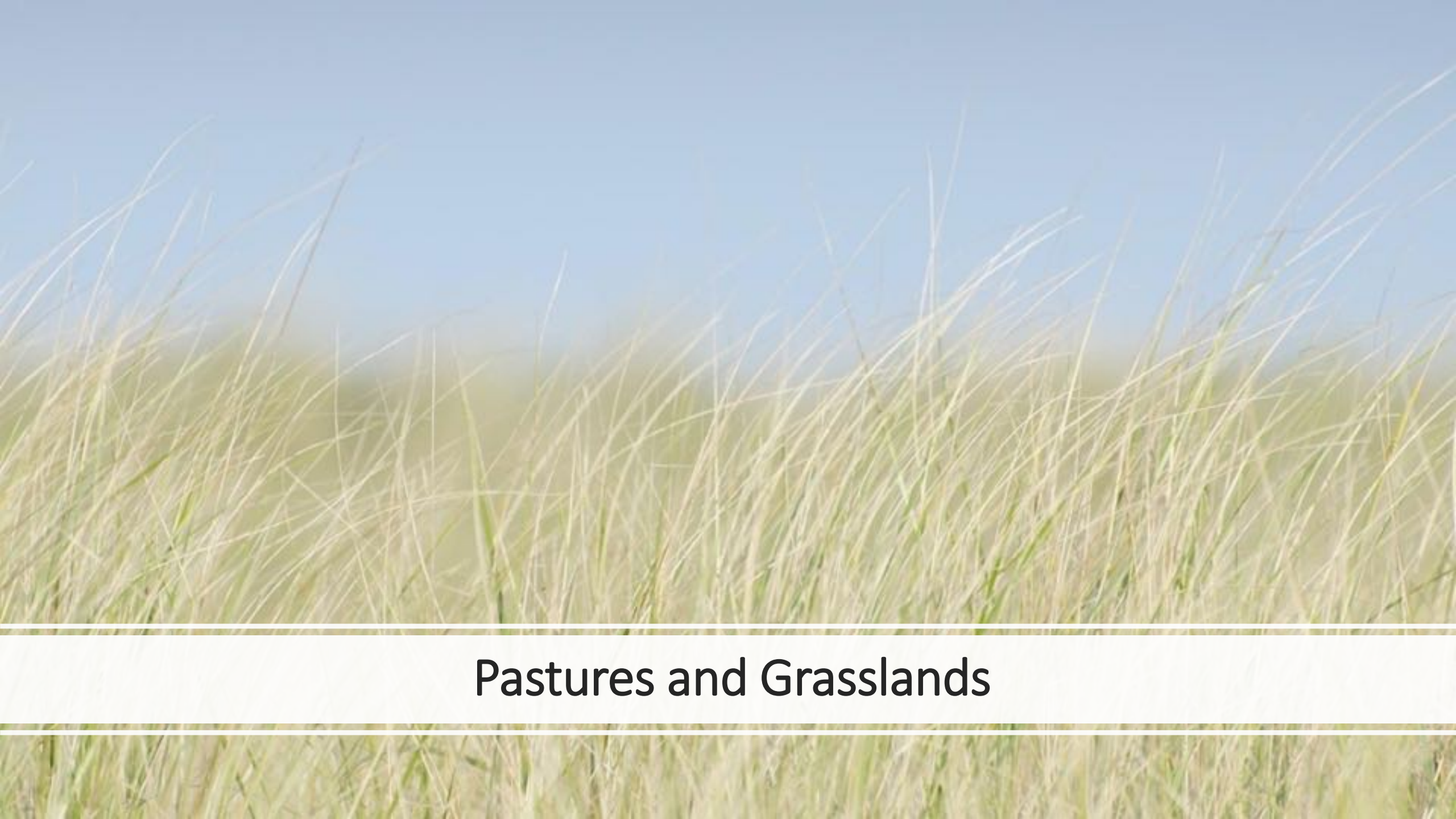
70% *Increase* in Population

13% *Decrease* in yields

43% *Increase* in area of cropland

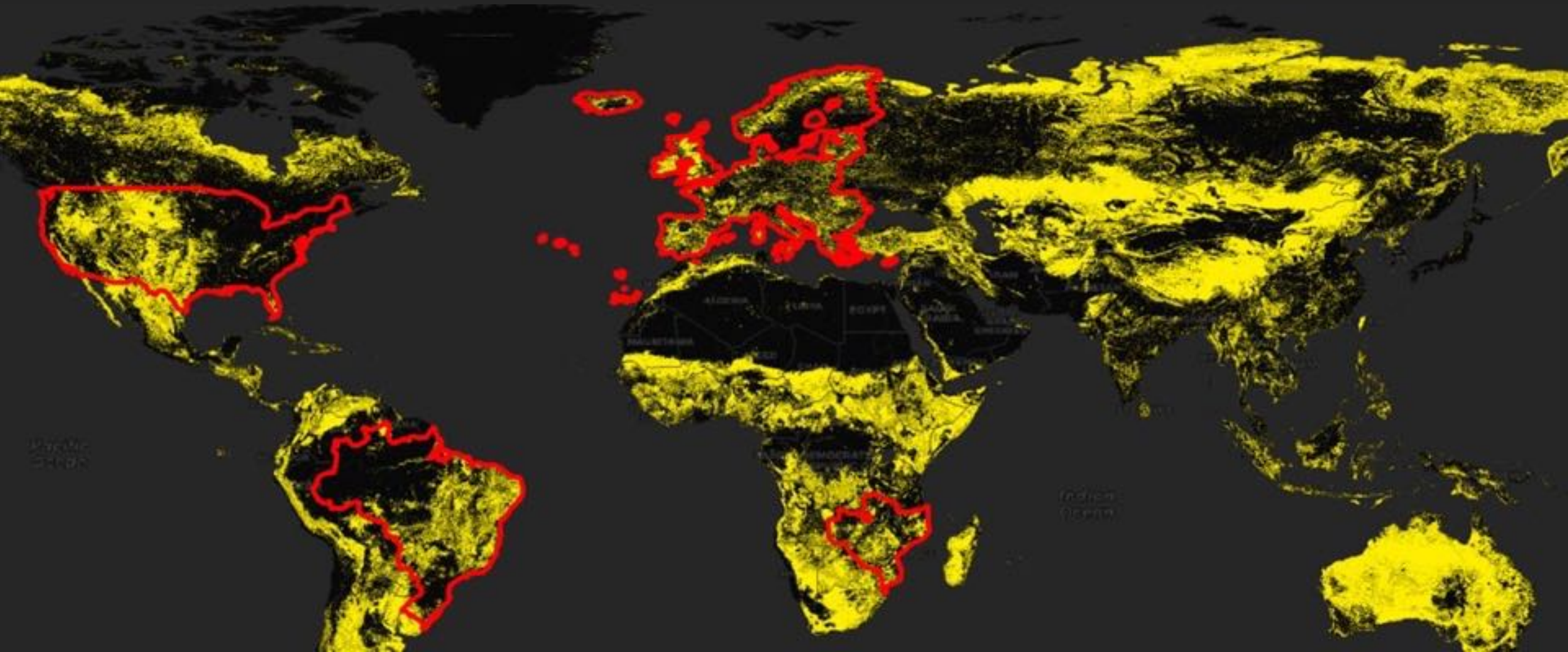


Almost 80% of new cropland in Africa was created from grasslands and forests



Pastures and Grasslands

Innovative research with urgency



Natural- no Conversion Map

“NATURAL ECOSYSTEMS” BASE MAP

Coming in 2023…

Conclusions - Recommendations

Opportunities and Recommendations

- Take into account all “Services”
  - There is a land crunch. Now more then ever need the right land use at the right place, “Right” = taking into account food, fuel, fiber, ecosystems, biodiv etc
- Do not forget
  - Tree gain / Restoration
  - Trees outside forest in the rural agricultural landscape
- Basis of Ecosystems is credibility = Measure/Monitor and Transparency
  - To do evaluation/planning we need to be able to measure/monitor and this need to be open and transparent