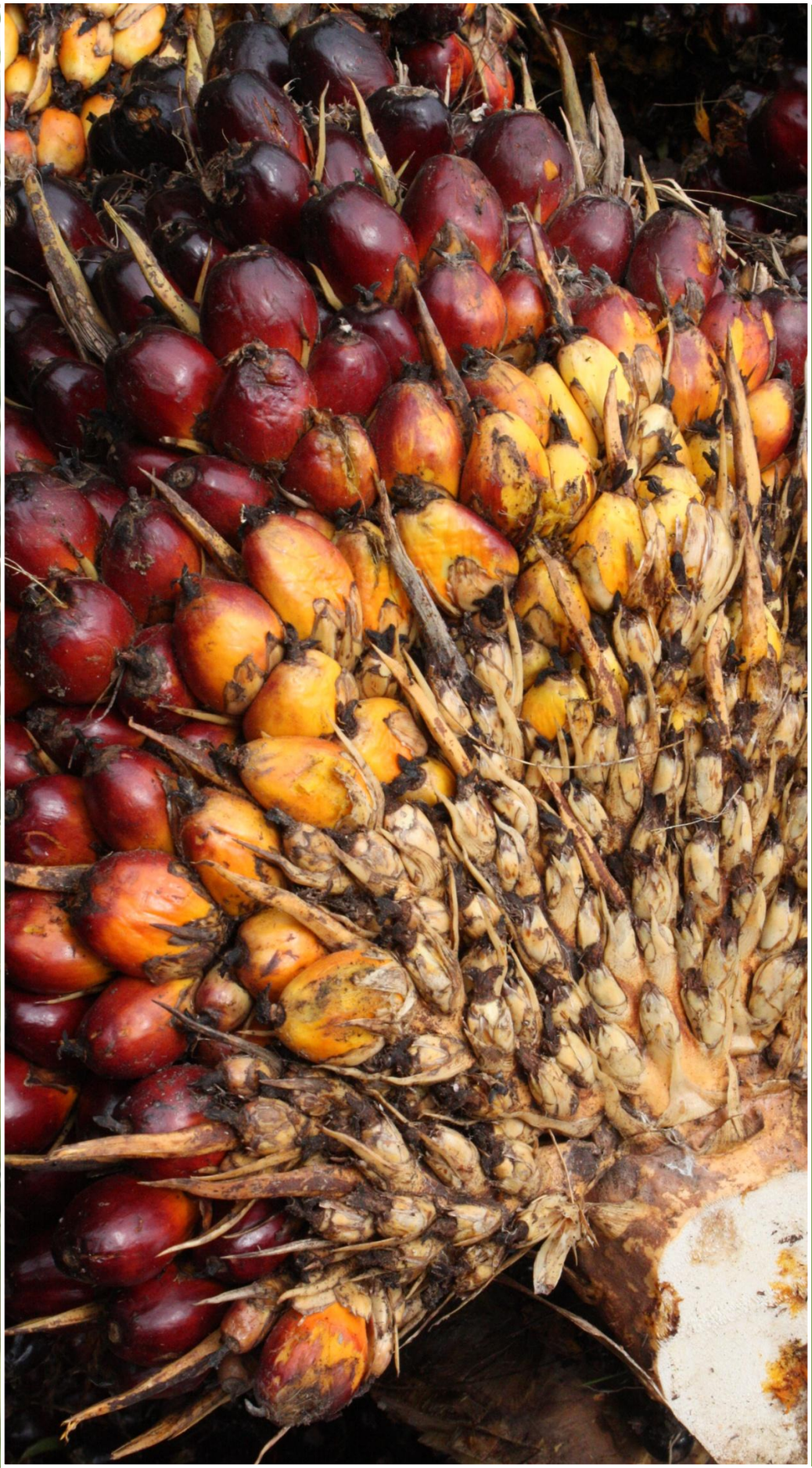


Sustainability for Global Biofuel Feedstocks

Biomass 2011

July 26, 2011

Chris Dragisic
Director, Agriculture, Biofuels & Forestry

CONSERVATION INTERNATIONAL

CONSERVATION INTERNATIONAL

vision

We imagine a healthy prosperous world in which societies are forever committed to caring for and valuing nature for the long-term benefit of people and all life on Earth.

mission

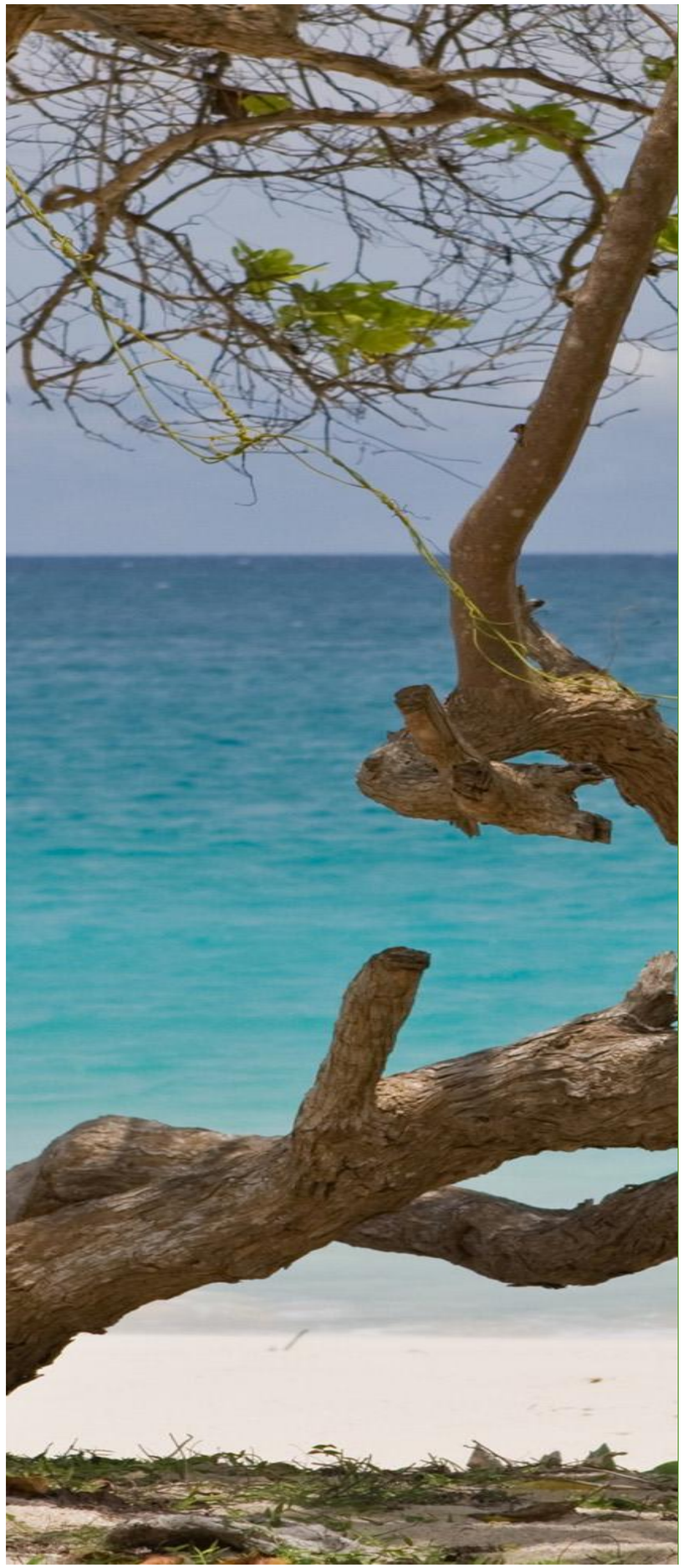
Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature for the well-being of humanity.

field presence

- Offices in 35+ countries
- 1000+ partners worldwide
- Strong connections to communities, governments
- Focus on developing solutions that work locally and can be replicated globally

top rated charity

Charity Navigator ★★★★ (four stars)
Exceptional: Exceeds industry standards and outperforms most charities in its cause



smart science + solutions in action

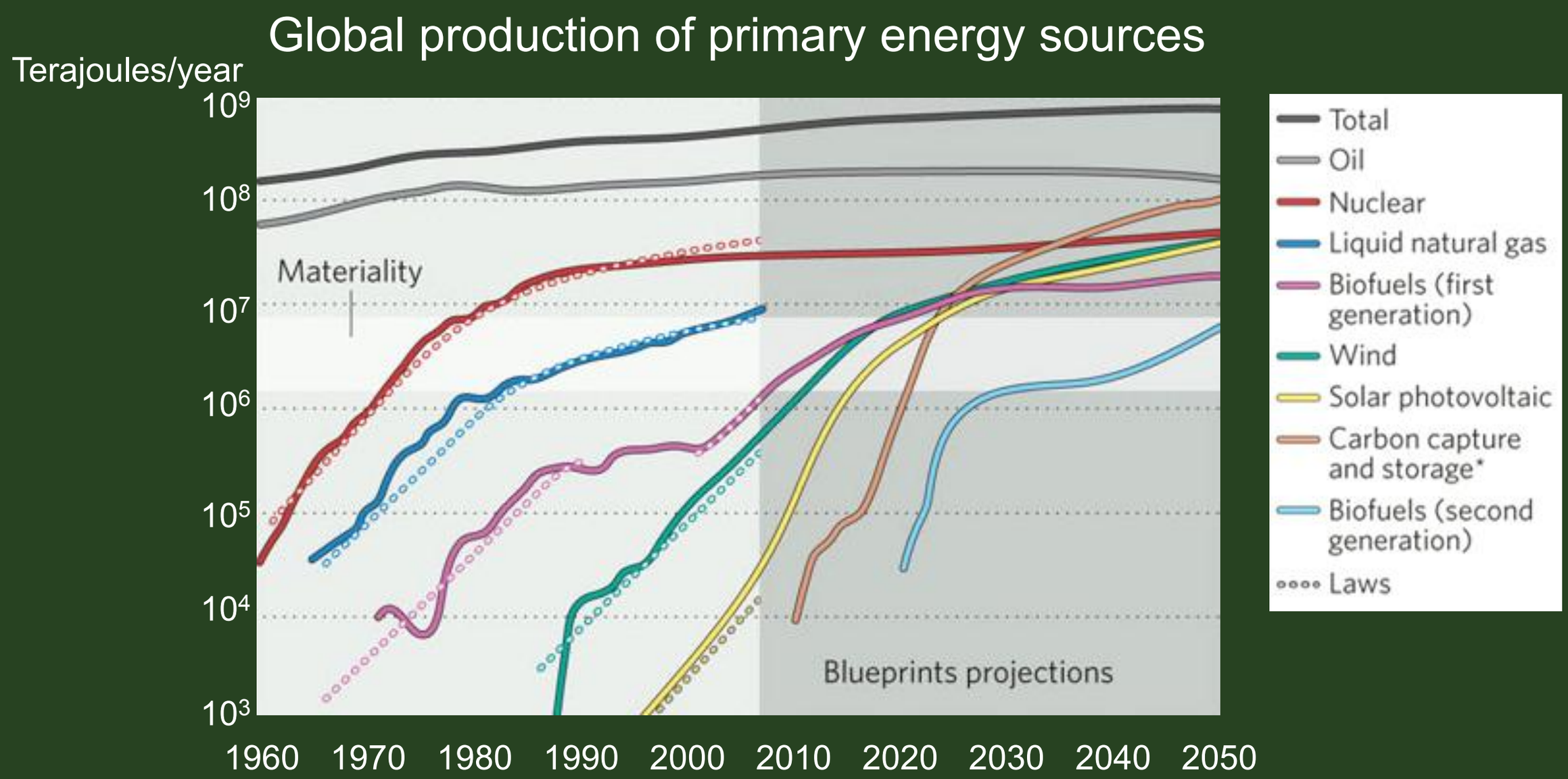
- CI has helped protected more than 500 million acres on land and sea, an area large enough to be seen from space.
- CI pioneers innovative funding, giving more than $100 million to conservation partners over the past five years.
- CI has helped to safeguard about one-third of all globally threatened mammals, birds and amphibians around the world.
- CI will work with indigenous people to protect more than 61 million acres of traditional lands by the end of this decade.
- CI will protect 35 new marine areas in the next three years, preserving some of the world's most pristine coral reefs.

leading the responsible corporate movement

McDonald's
BUNGE
SC Johnson A Family Company
Cargill
PEPSICO
Marriott
MONSANTO
kraft foods
STARBUCKS COFFEE
Walmart Save money. Live better.
DELL
Disney
ebay
TOYOTA
Bank of America Bank of Opportunity
WhiteWave FOODS
FIJI WATER

Global Bioenergy

Future Energy Options

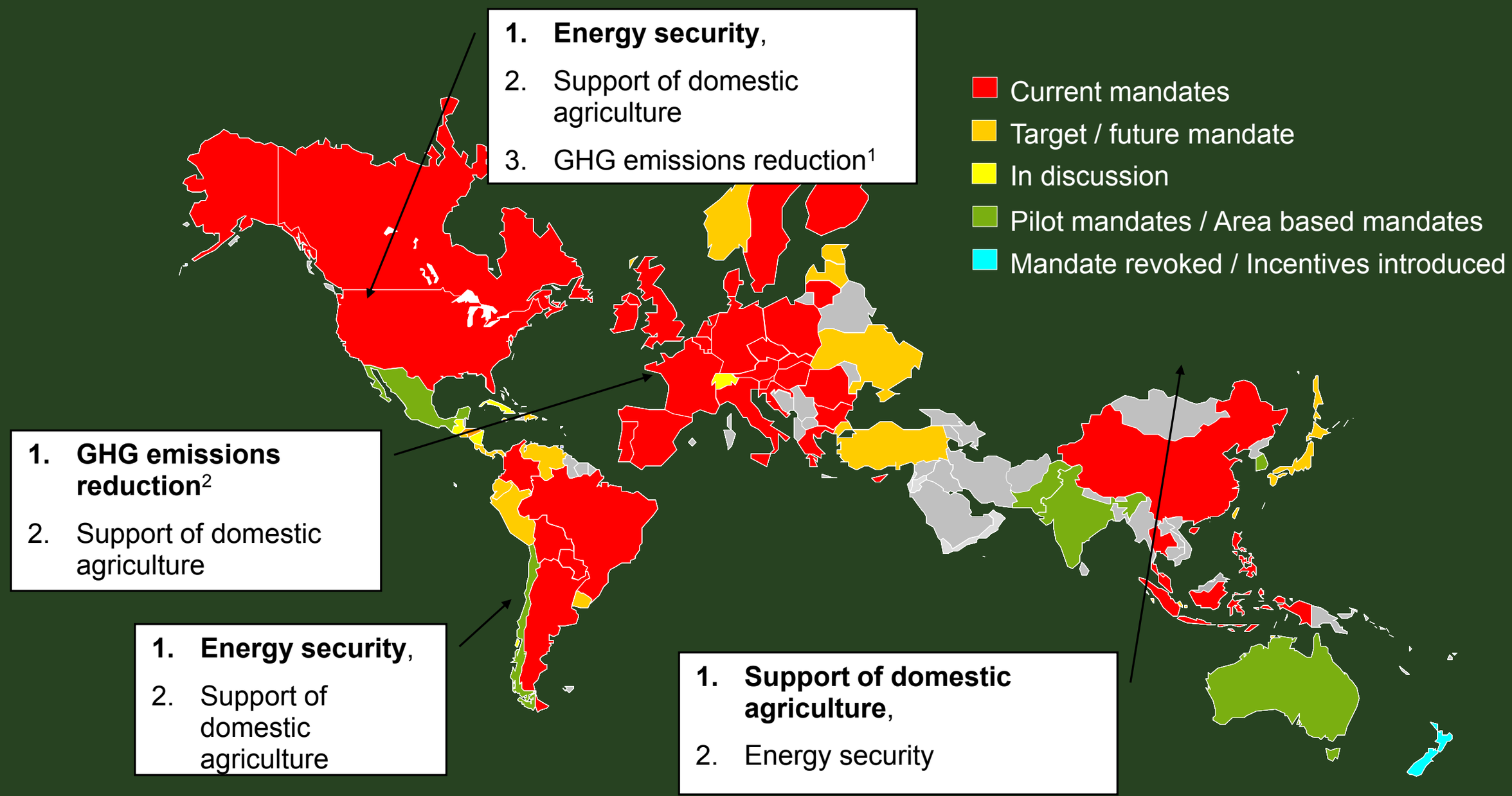


Source: Historic Data: Energy Balances of OECD Countries (IEA, 2009), Energy Balances of Non-OEDD Countries (IEA, 2009). Projections: Shell International, from the article: *No quick switch to low-carbon* energy by Gert Jan Kramer & Martin Haigh *Nature* 462, 568-569(3 December 2009)

*Coal and natural gas used in power generation with carbon capture and storage

Biofuels: Global issue, different drivers

Countries with bioenergy mandates



1. The key drives of LCFS regions
2. Includes mandatory sustainability elements.

Source: M. Morton, Shell

Global Impacts of Bioenergy

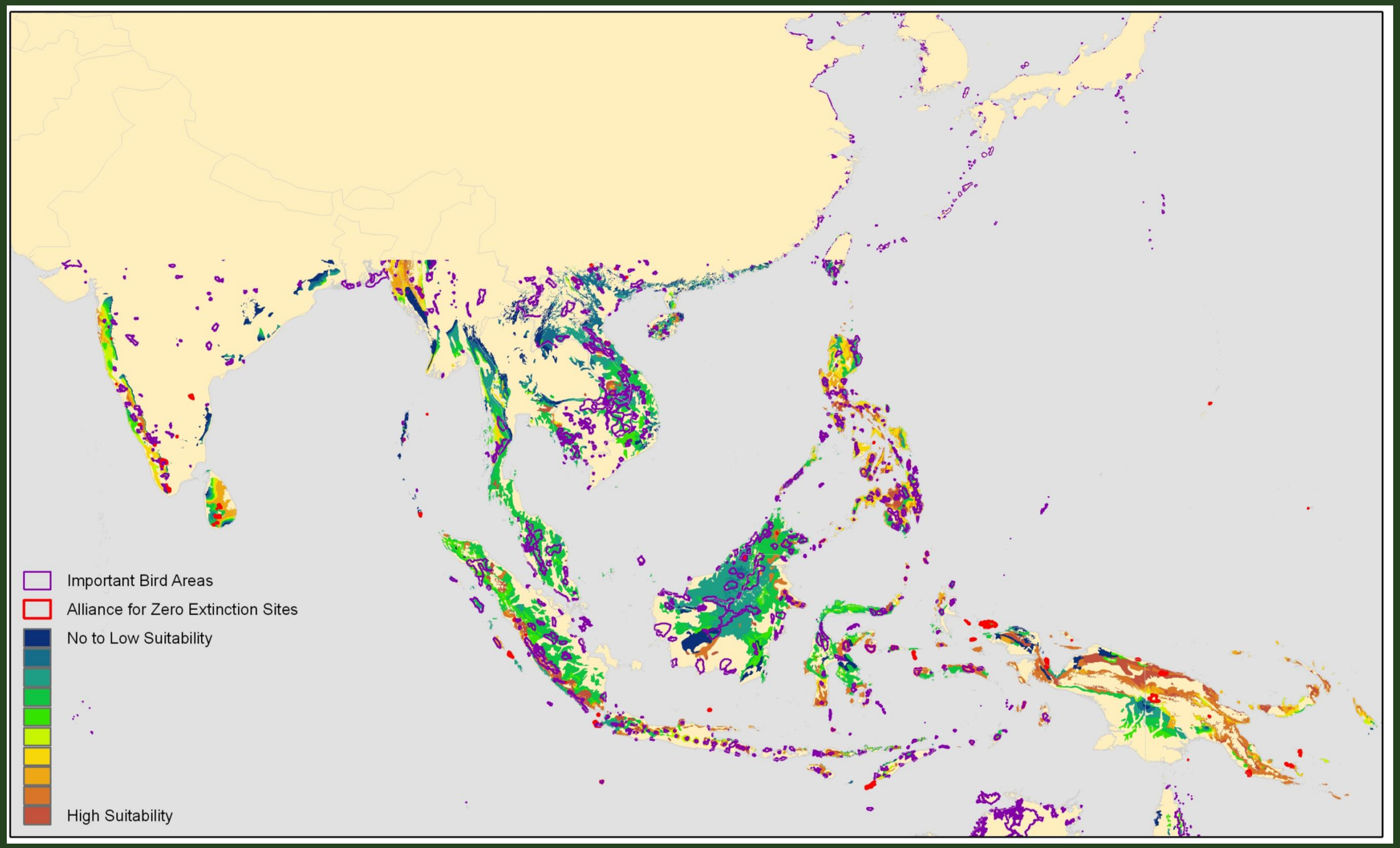
- Biodiversity
- Water
- GHG Emissions
- Food Security
- Energy Access
- Livelihoods
- Markets
- Direct/ Indirect Land Use Change
- …

In other words…

Potential Bioenergy Risks & Opportunities

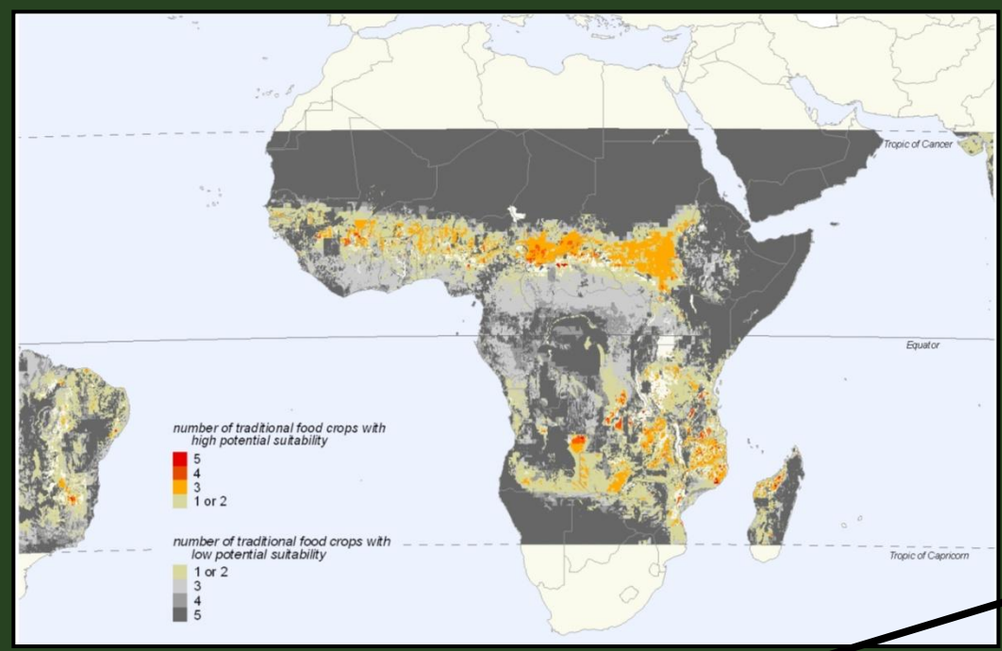
Step 1: Understand

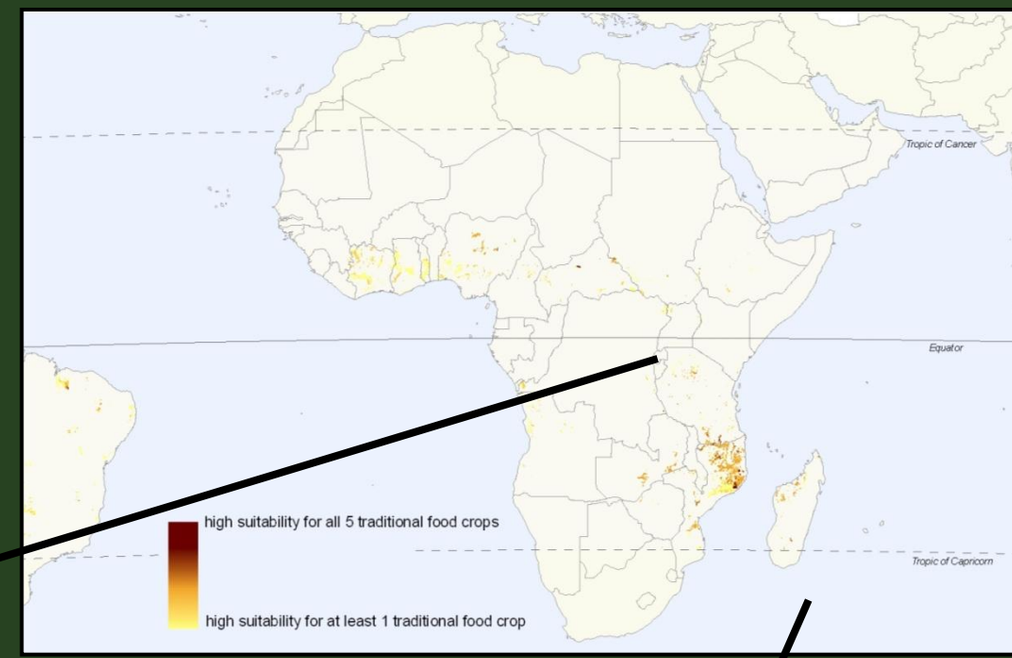
Potential Risk: Biodiversity



Oil palm suitability, Important Bird Areas, and Alliance for Zero Extinction Sites

Potential Risk: Staple food crop* suitability

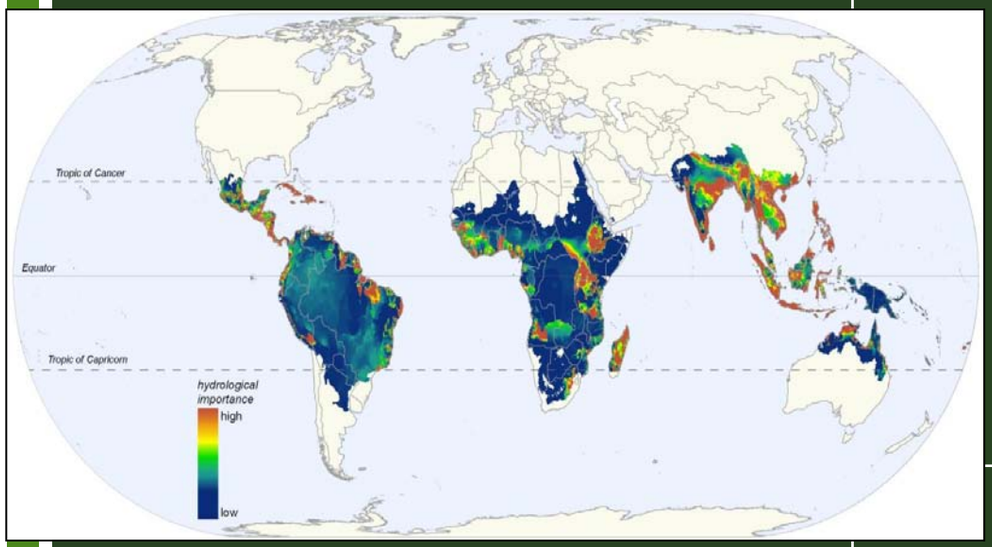




Jatropha

**Rice, maize, soybeans, cassava, and sorghum

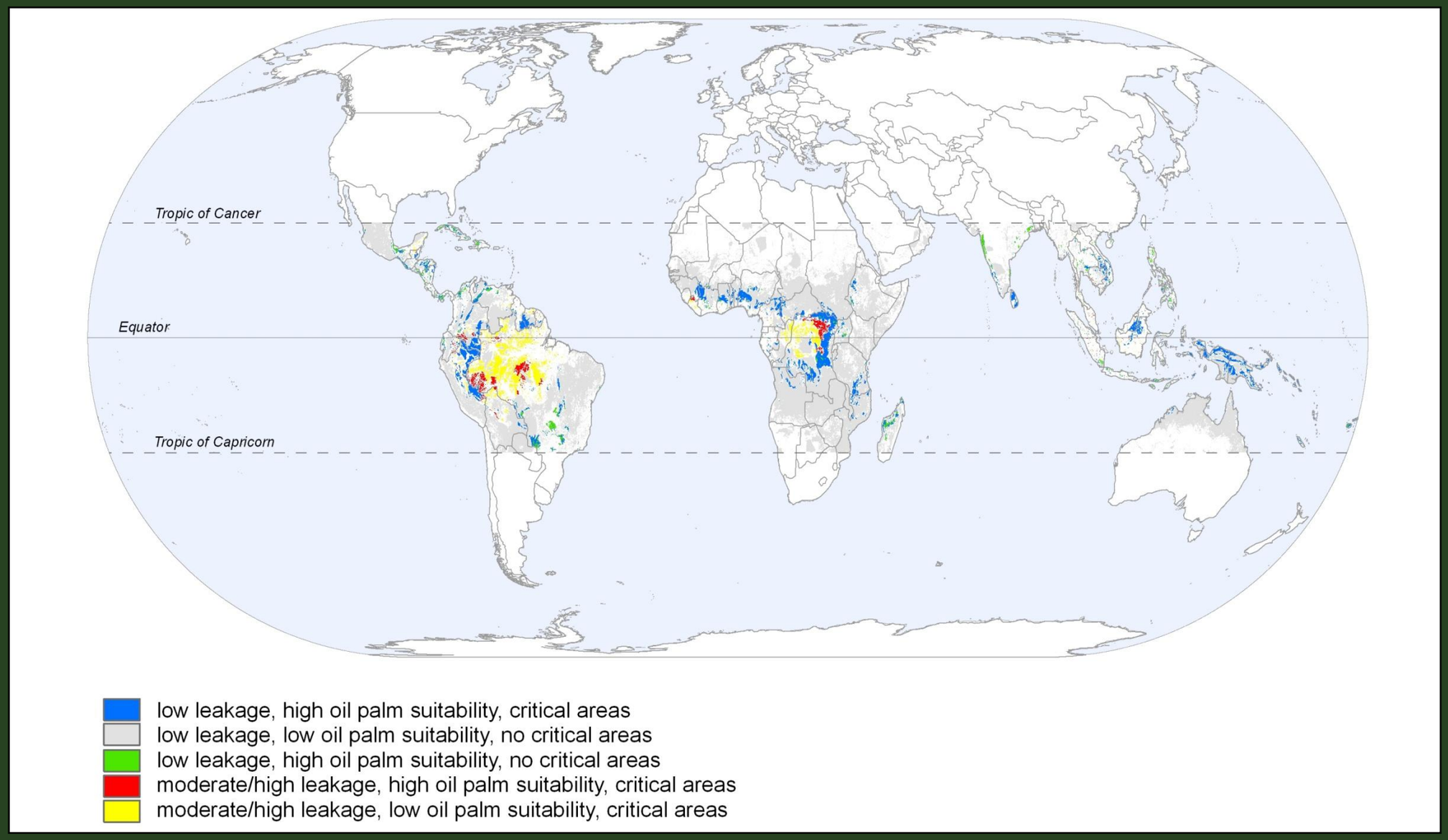
Potential Risk: Hydrological importance



Composite index showing the combined influence of population, area of irrigable agriculture and important biodiversity areas

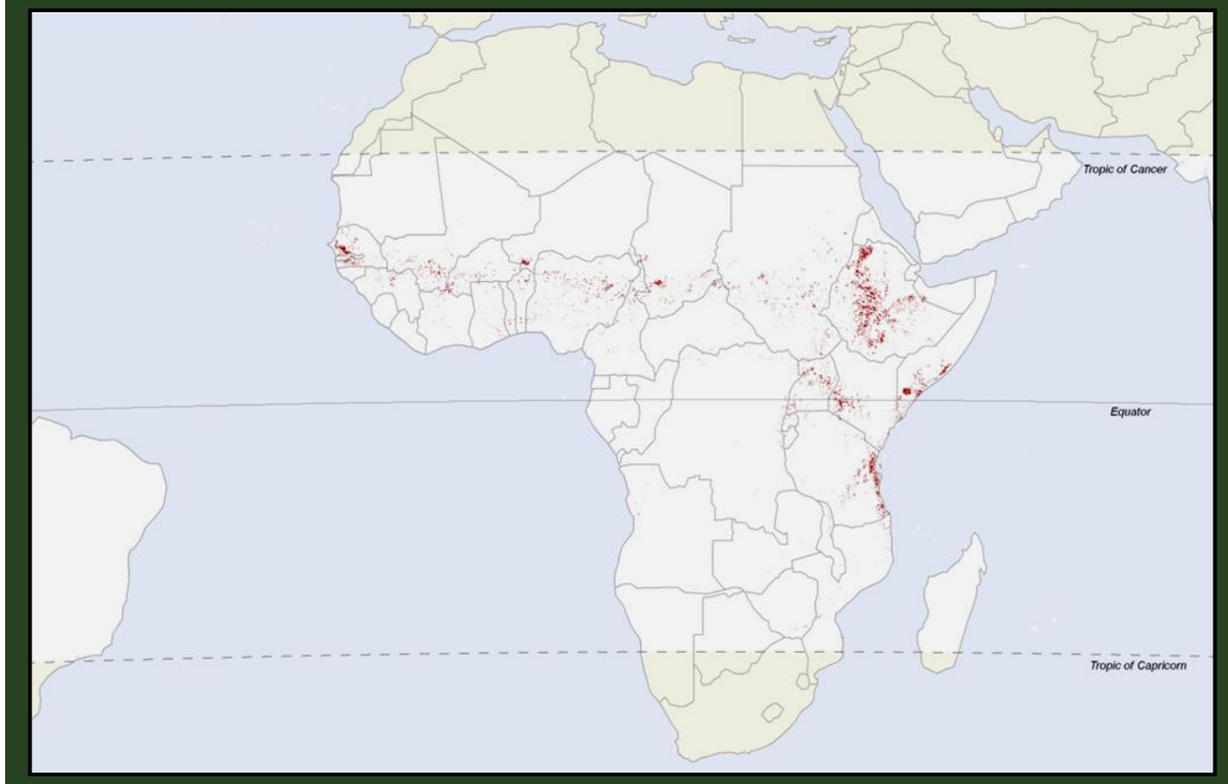
Region	Biofuel crop	Total area of hydrological priority (ha)	Area of hydrological priority within land suitable for biofuel (ha)	Overlap of hydrological priority area with land that is suitable for biofuel crops (%)
Central & South America	Jatropha	318,943,965	35,366,205	11
	Eucalyptus (nit)		22,648,093	7
	Eucalyptus (cam)		112,359,498	35
	Eucalyptus (glob)		17,931,510	6
	Eucalyptus (grand)		89,627,975	28
	Soy		79,601,658	25
	Sugarcane		104,760,497	33
	Switchgrass		13,800,301	4
	Cassava		162,762,059	51
	Oil Palm		76,342,269	24
Africa	Jatropha	425,490,416	72,253,459	17
	Eucalyptus (nit)		31,179,434	7
	Eucalyptus (cam)		246,545,103	58
	Eucalyptus (glob)		43,916,780	10
	Eucalyptus (grand)		161,302,899	38
	Soy		205,757,952	48
	Sugarcane		82,166,429	19
	Switchgrass		40,649,270	10
	Cassava		257,192,269	60
	Oil Palm		70,209,780	17
Asia	Jatropha	531,197,530	43,158,820	8
	Eucalyptus (nit)		11,073,032	2
	Eucalyptus (cam)		253,117,990	48
	Eucalyptus (glob)		17,972,541	3
	Eucalyptus (grand)		164,234,127	31
	Soy		127,018,797	24
	Sugarcane		222,680,018	42
	Switchgrass		54,608,908	10
	Cassava		351,506,205	66

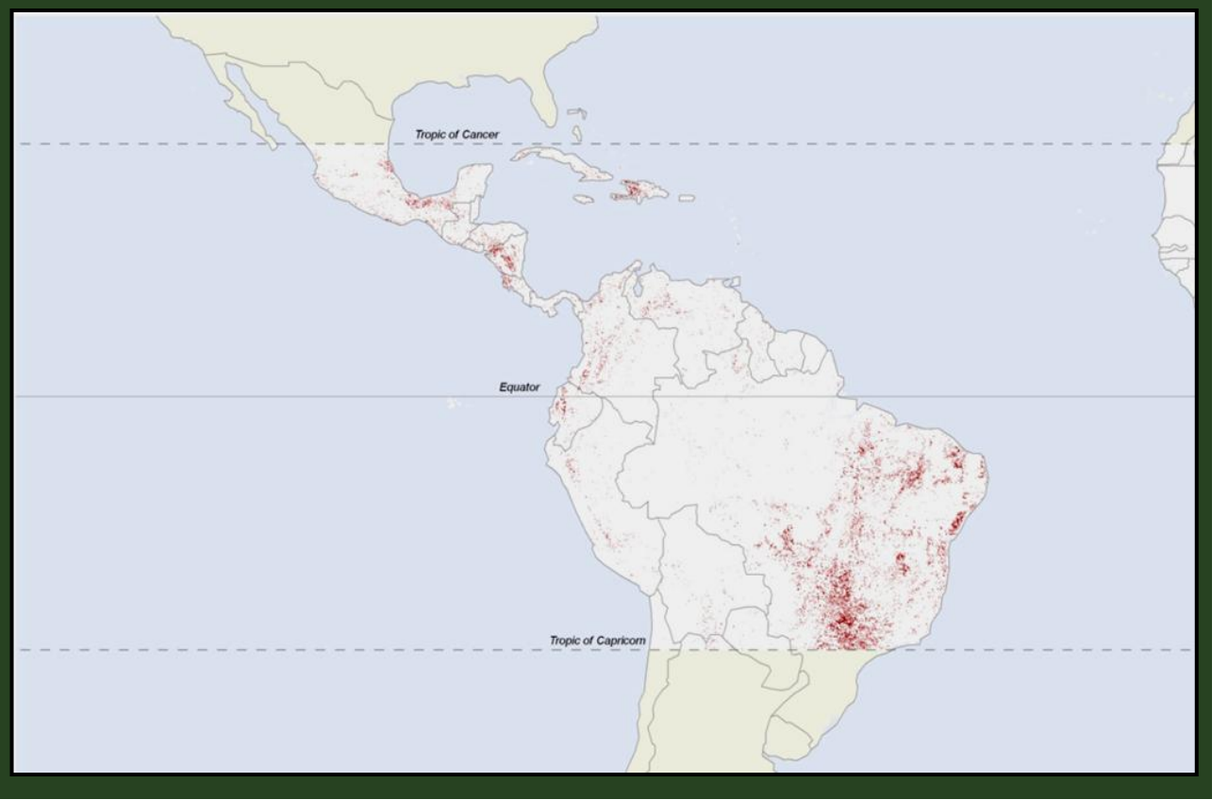
Potential Risk: Areas sensitive to secondary effects of agricultural displacement



Oil palm

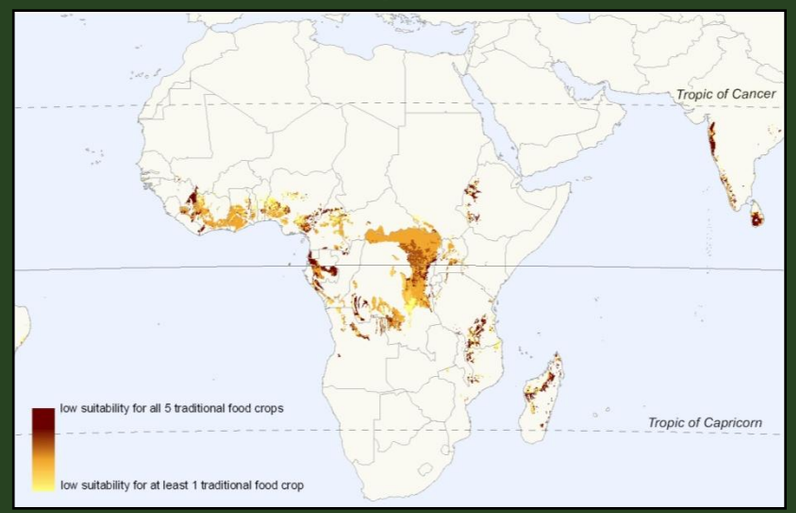
Potential opportunity: Underutilized & degraded lands

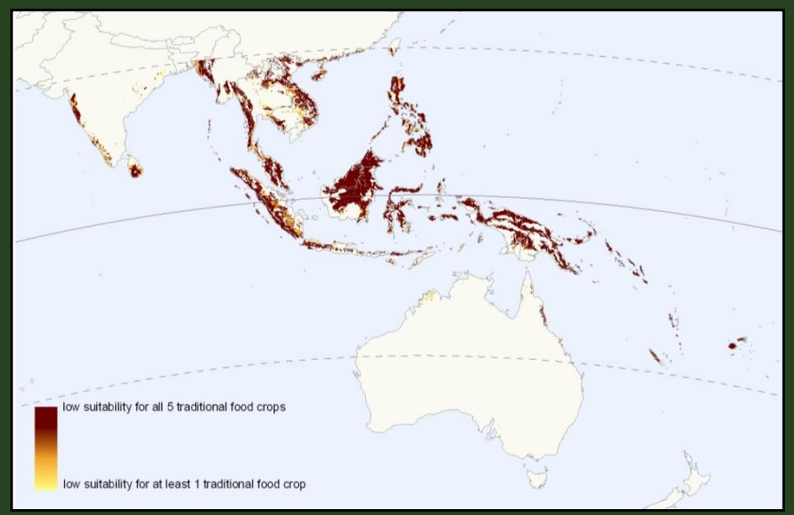




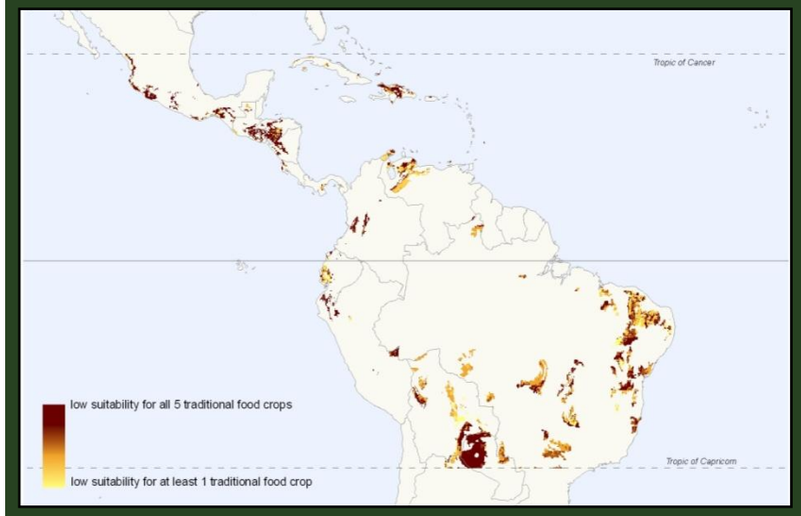
Potential opportunity: Areas of low staple crop* suitability

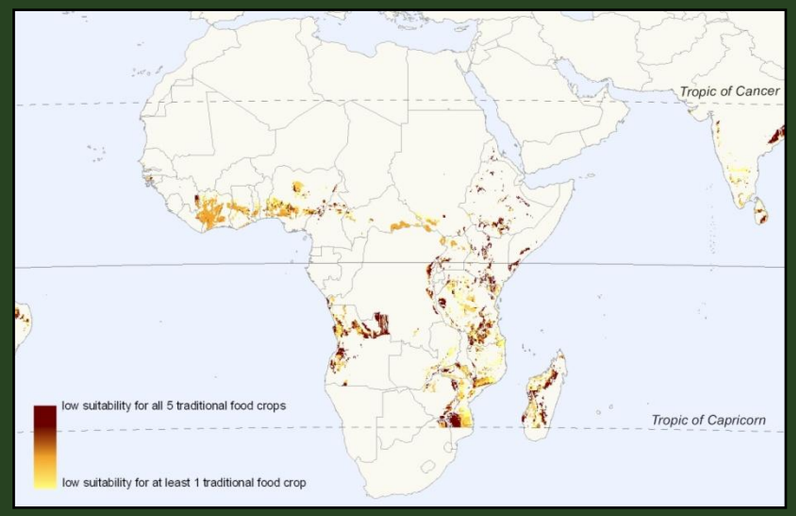
Oil palm

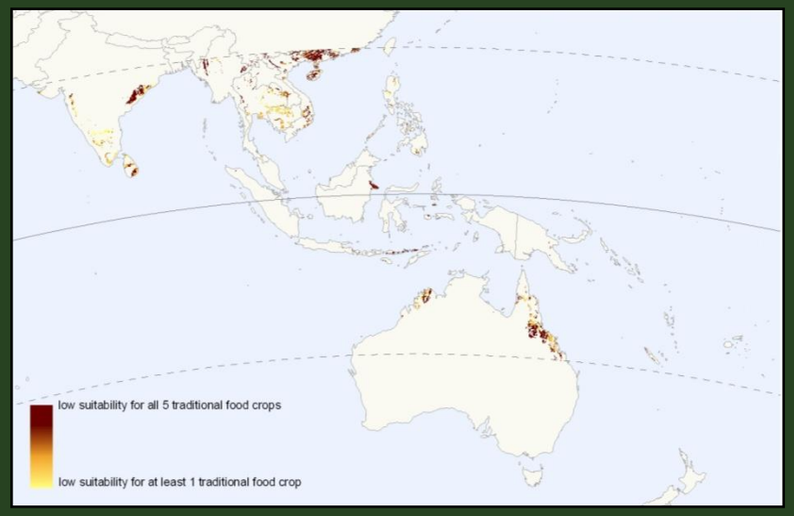




Jatropha

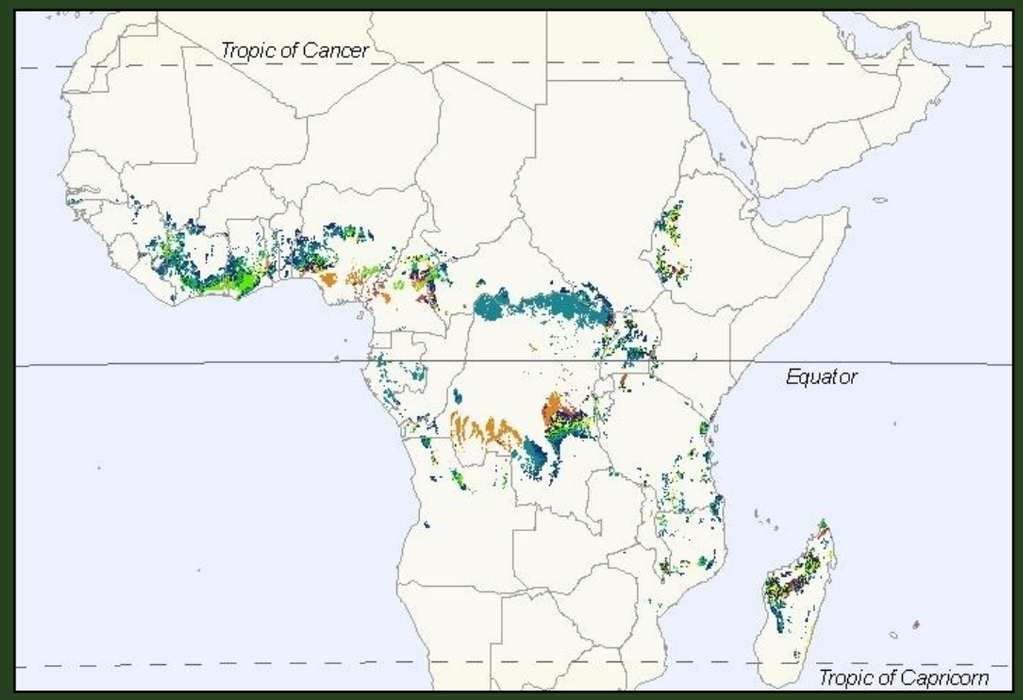


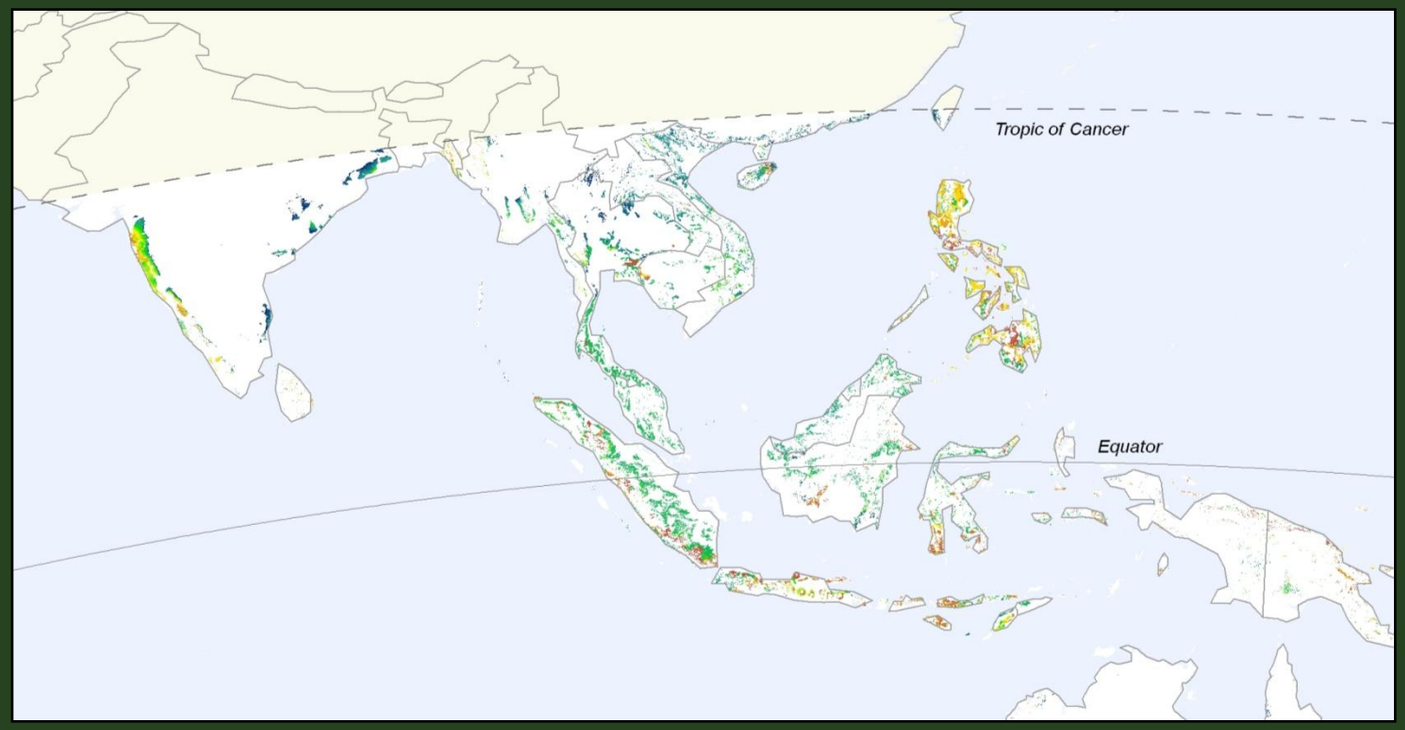


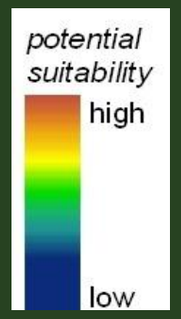


*Rice, maize, soybeans, cassava, and sorghum

Potential opportunity: Priority Areas





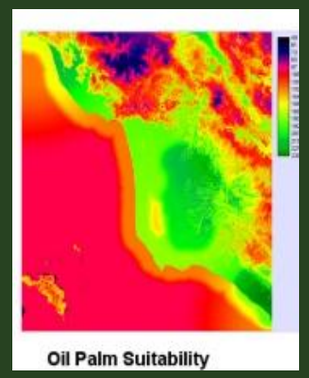


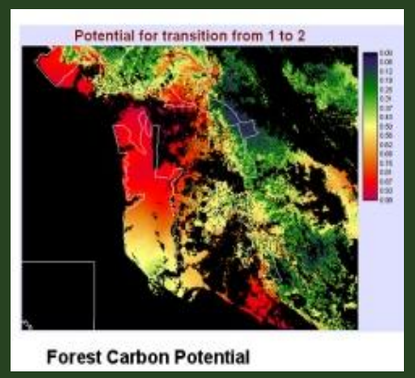
Conservation priority areas omitted from oil palm suitability zones

Potential Bioenergy Risks & Opportunities

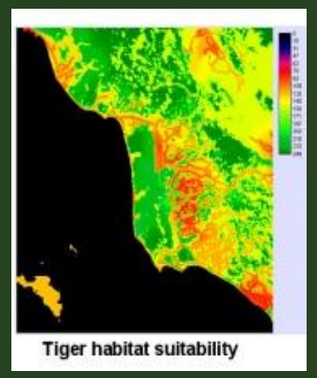
Step 2: Address

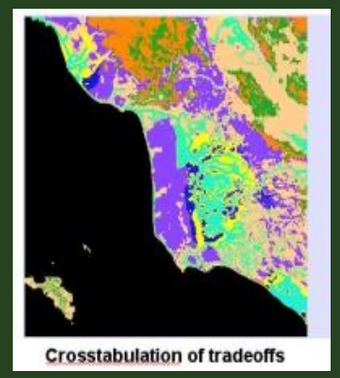
Land Use Planning
e.g Aceh, Indonesia





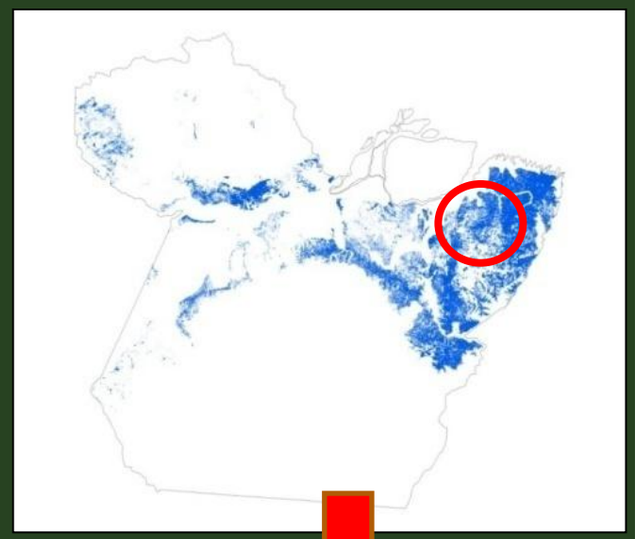
Provincial, district-level **spatial planning** and **green development** plans



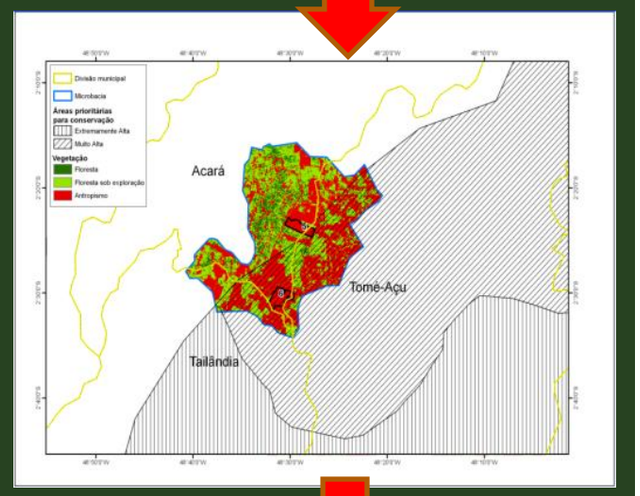


- Biodiversity surveys
- Carbon assessments
- Best practice trainings
- Capacity-building

Site Selection
e.g. Responsible Cultivation Areas

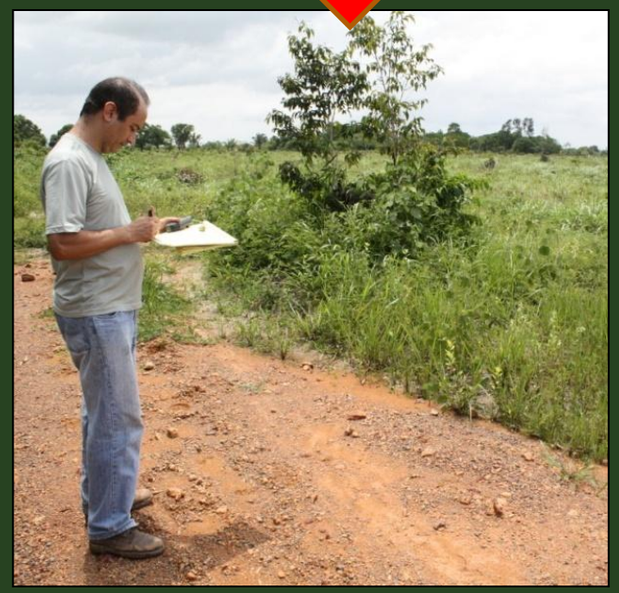


Phase 1: Desktop assessment based on existing information



Phase 2: Selection of areas for field study based on finer-scale information

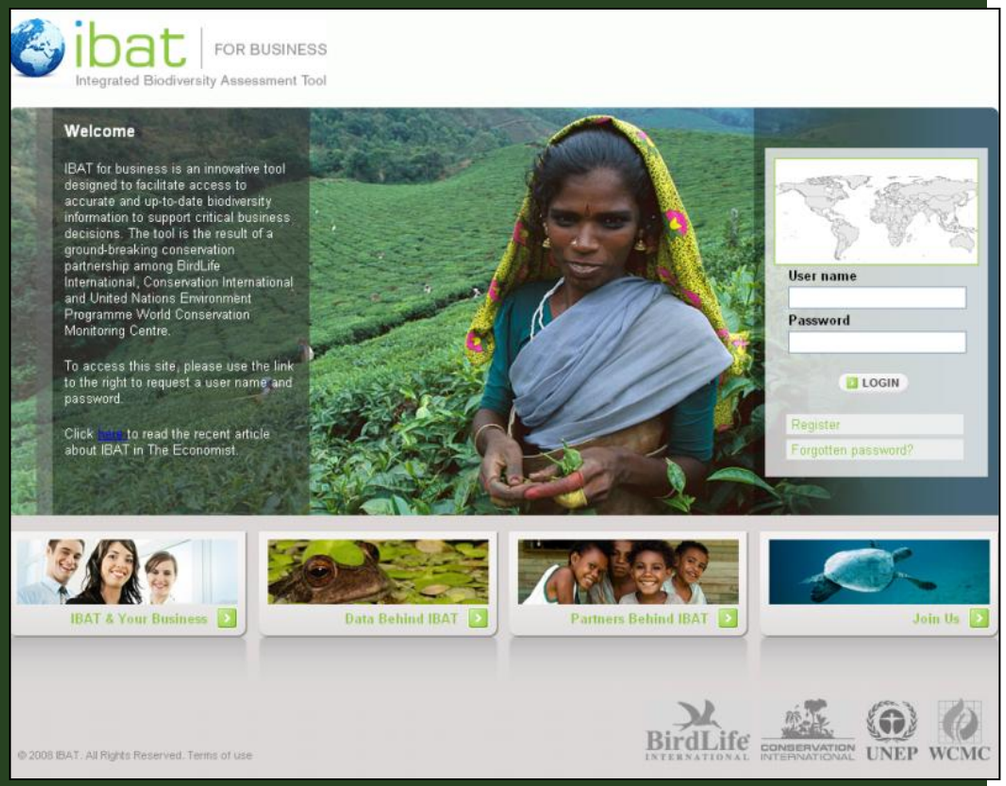
Phase 3: Field work to fill in information gaps and groundtruth data

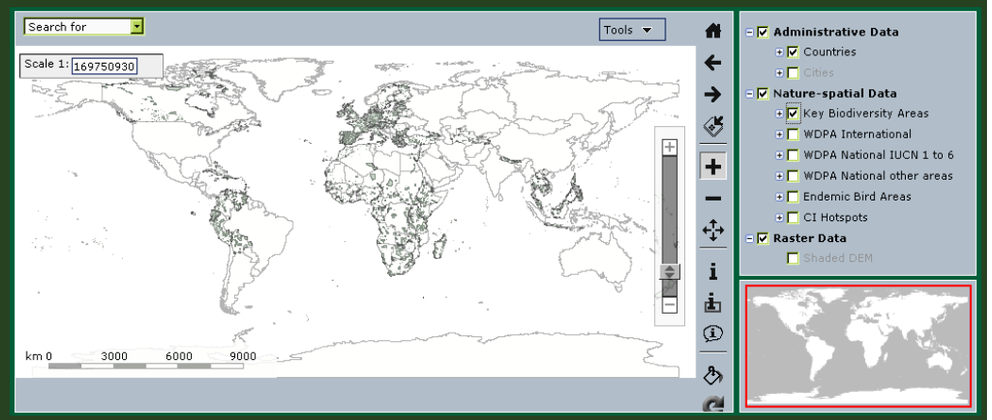


Phase 4: Analysis

Site Selection
e.g. Integrated Biodiversity Assessment Tool (IBAT)

- Provides users **site-specific biodiversity**, **wetland**, and **protected areas** data
- Informs project screening, **ESIA** and **environmental management plans**
- Can assist in incorporating biodiversity into **risk analysis**, decision-making and planning processes





www.ibatforbusiness.org
www.ibat-alliance.org/ibat-conservation

Better Practices
e.g. Atlantic Forest, Brazil

Capacity-building and **engagement** with sugarcane stakeholders:

- Forest Restoration and Environmental Compliance course
- Management of private reserves Biodiversity monitoring
- Forest restoration, climate change, forests for energy
- Reforestation capacity of nurseries
- Biodiversity & fragmentation studies

Potential Bioenergy Risks & Opportunities

Step 3: Codify the
“rules of the game”

Sustainability drivers: Policy

Biofuel sustainability criteria incorporated in

- Central American Regional Strategies for Agriculture and Health, and Climate Change
- Guatemalan climate change policy

Convention on **climate change and biofuels** incorporated into in the Indigenous Peoples Climate Change Roundtable in Guatemala

First **national roundtable on biofuels** in Suriname,

Community level workshops on biofuels, climate change, and agriculture held in Guatemala and Mexico

...

Industry & Market engagement

Roundtable on Sustainable Palm Oil (RSPO) – Board, GHG Working Group

Roundtable on Sustainable Biofuels (RSB) – Indirect Impacts Experts Group, Chamber 6

Round Table on Responsible Soy (RTRS) – National interpretations and mappings, members

Engagement with individual industry leaders on policies, guidelines, investments

Demand drivers: Regulations

EU-RES-D	Biofuels...shall not be made from raw material obtained from land with high biodiversity value, high carbon stock, land that was peatland…
US RFS2	Renewable biomass includes crops and crop residue from agricultural land cleared or cultivated at any time prior to the enactment of EISA that is either „„actively managed of fallow" and nonforested.
ISPO	TBD…

Demand drivers: Voluntary Standards

FSC	10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods, shall be used in the layout of the plantation…
RSPO Roundtable on Sustainable Palm Oil	5.2 The status of rare, threatened or endangered species and high conservation value habitats… that exist in the plantation or that could be affected by plantation or mill management, shall be identified and their conservation taken into account ... Information should (include) … relevant wider landscape-level considerations…

Demand drivers: Corporate commitments

	Bio-components and feedstocks are not knowingly linked to violation of human rights (child or forced labour) and have not knowingly been cultivated, produced or manufactured in areas of high biodiversity value Suppliers join relevant international bodies developing sustainability criteria for the production of particular feedstocks and comply with the sustainability standards set by such bodies, where they exist…
Sustainable Aviation Fuel Users Group	Biofuels must: • Exhibit minimal impact on biodiversity • Meet a sustainability standard with respect to land, water, and energy use • Do not displace or compete with food crops • Provide a positive socioeconomic impact • Do not require any special fuel handling equipment, distribution systems, or changes to engine design

Harnessing bioenergy sustainably…

- Bioenergy is a global market. What happens *here* (anywhere) matters *there* (everywhere).
- The impacts of bioenergy development on ecosystems and communities must be better understood…but:
- We know how to mitigate many negative effects, and enhance the positive.
- Scale will only be reached by codifying these strategies through regulations, standards, policies, guidelines, incentives schemes...

Thank you!

CONSERVATION INTERNATIONAL

cdragisic@conservation.org