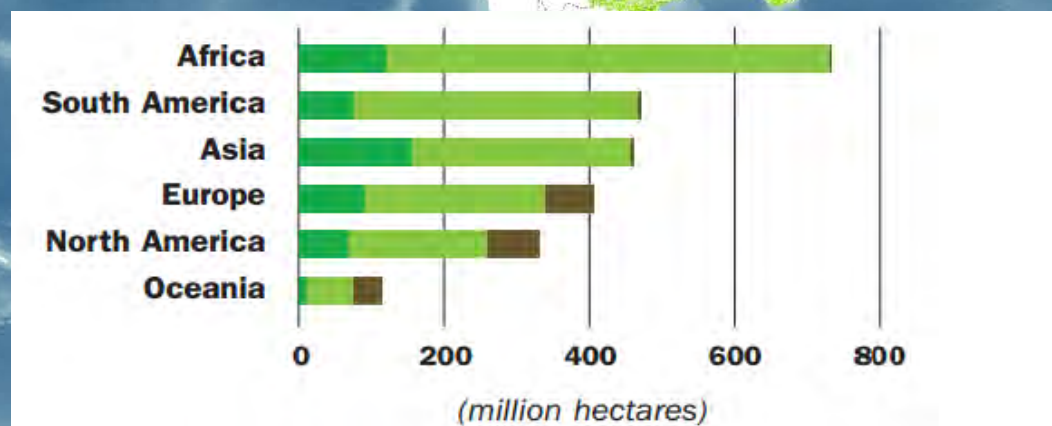# Restoration Opportunities Assessment Methodology (ROAM)

Li jia
Forest Landscape Restoration Coordinator, Asia
IUCN
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Estimated that more than 2 billion hectares may have opportunity for restoration

Africa
South America
Asia
Europe
North America
Oceania

0   200   400   600   800

(million hectares)

But how do we assess forest and landscape restoration opportunities?

And where do we start?

One way forward is the Restoration Opportunities Assessment Methodology (ROAM)

A guide to the Restoration Opportunities Assessment Methodology (ROAM)

Assessing forest landscape restoration opportunities at the national or sub-national level
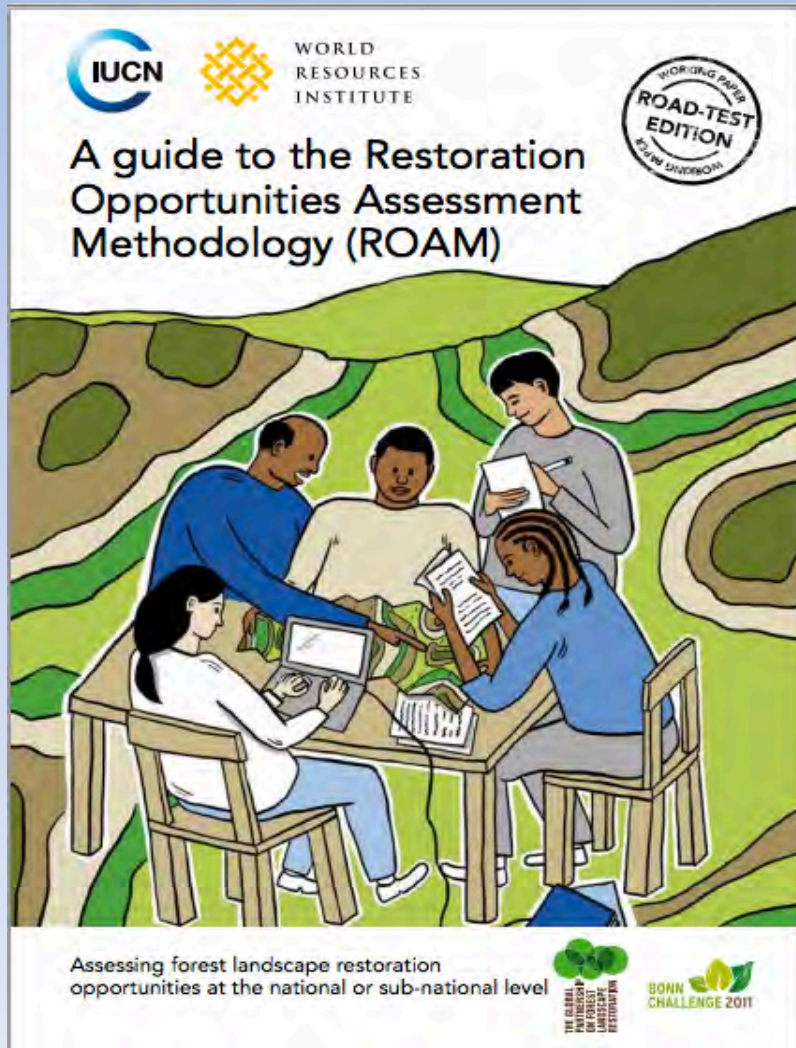
Getting Started

Collecting data

Analysis and mapping

Sharing results

strategizing for follow-up

1. Preparation and planning

2. Data collection and analysis

3. Results to recommendations

Identification of restoration objectives and linkages to national priorities/targets

Identification of restoration options

DATA COLLECTION

STAKEHOLDER PRIORITIZATION OF RESTORATION INTERVENTIONS

RESTORATION OPPORTUNITIES MAPPING

+/− RESTORATION ECONOMIC MODELLING AND VALIDATION

CO_2 RESTORATION COST-BENEFIT-CARBON MODELLING

RESTORATION DIAGNOSTIC OF PRESENCE OF KEY SUCCESS FACTORS

$ RESTORATION FINANCE AND RESOURCING ANALYSIS

Discussion and feedback on assessment results

Validation of strategic recommendations

Follow-up for policy uptake

STAKEHOLDER ENGAGEMENT

Phase 1. Preparation and planning

Defining the scope of the assessment

- Stocktaking
- Scoping FLR (objectives)
- Defining the problem and opportunities
- Understanding the drivers of degradation

Right: Potential contributions of FLR interventions to national development targets in Rwanda

Forest landscape restoration in Rwanda

Natural Forest

Protective Forest

Woodlots

Agroforestry

Forest
Increase forest cover to 30%

Energy
70% access to electricity

Water
100% access to clean water

Food
Agri production to 2600 kcal/day

Economy
Poverty level to 20%; Per capita GDP to US$ 1,240

Phase 2. Data collection and analysis

Key aspects of ROAM – FLR prioritization

Determine indicators or proxies for degradation

Relevant to scope of the assessment!

Socio-economic / bio-physical data

Degradation map

Multi-criteria degradation maps

FLR priority map

FUNCTIONAL LAND DEGRADATION

=

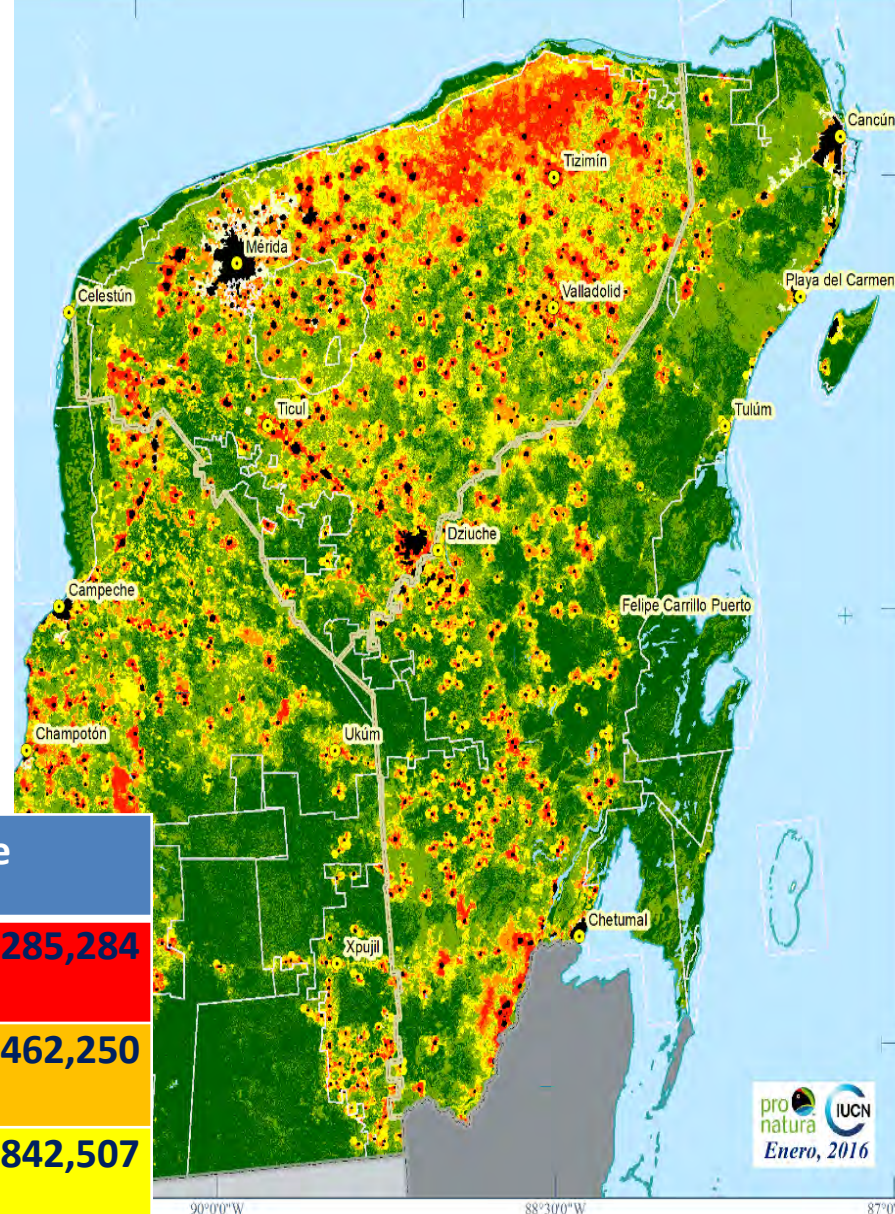## Loss of support function of the land (ecosystem services)

+

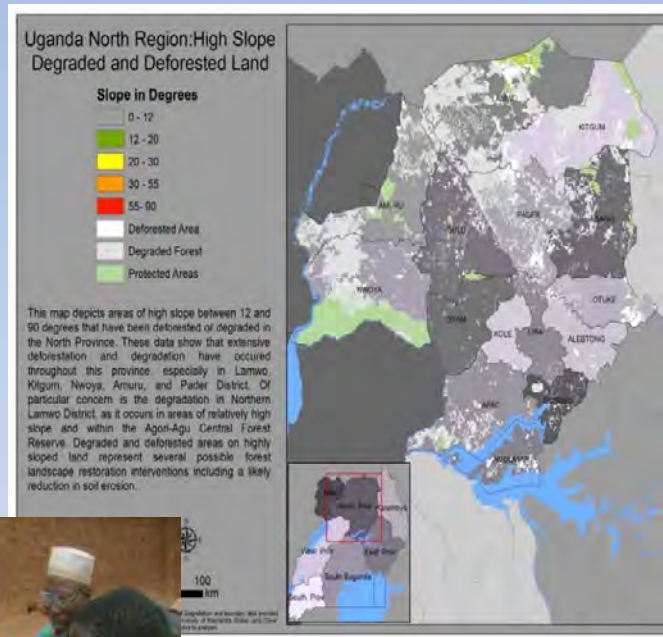## Level of fragmentation and land pressure

+

Diminished carbon sequestration

Level of functional land degradation (ha) in the Yucatán península

	Quintana Roo	Yucatán	Campeche
Very high	114,365	446,338	285,284
High	231,301	632,194	462,250
Medium	500,018	925,328	842,507
Low	1,515,095	1,237,034	1,616,788
Very low	1,881,192	548,633	2,313,210

Data collection
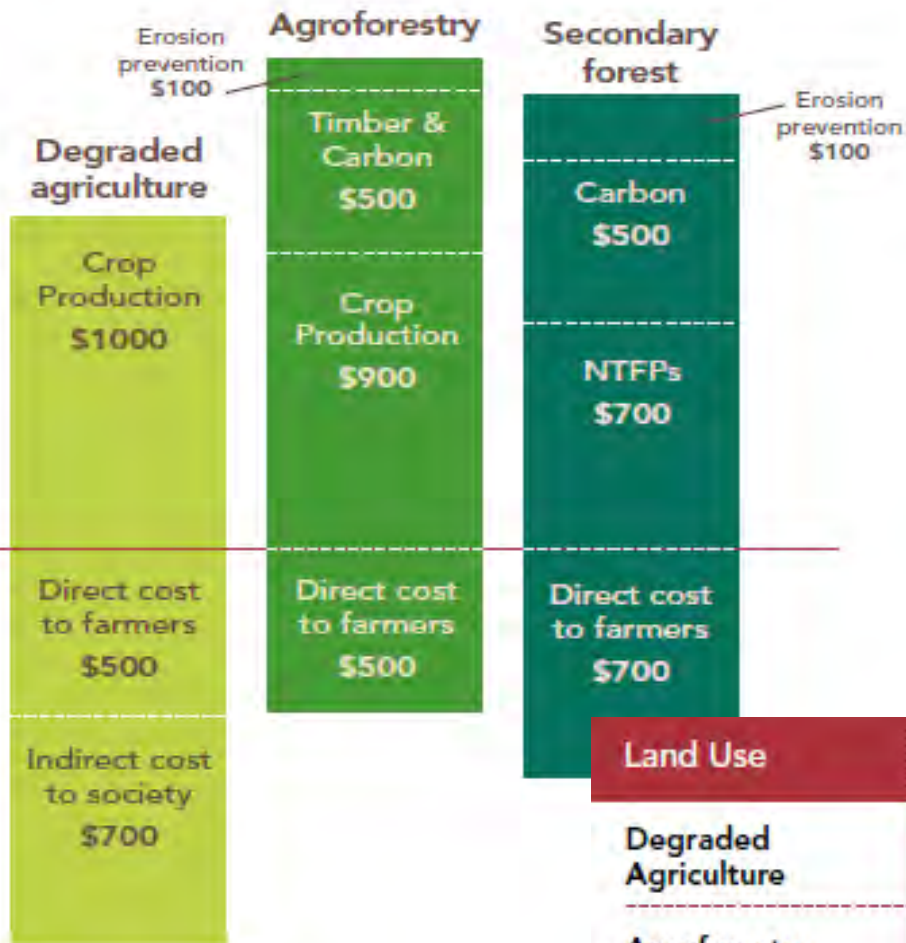
Restoration Economic Modeling and Valuation

Computing the marginal values of restoration interventions

Land Use	Benefits – Costs	Net Benefit	Marginal Benefit
Degraded Agriculture	$1,000–$1,200	$-200	-
Agroforestry	$1,500–$500	$1,000	$1,200
Secondary forest	$1,400–$700	$700	$900

Key aspects of ROAM – FLR transitions & technical packages

Analyze FLR transitions, to identify the best social, economic and ecological FLR strategies.

Analysis: Diagnostic, Valuation, Carbon, CBA, Ecosystem service modelling, e.g InVest and use decision support tools such as ROOT.

Analysis of FLR transitions

FLR strategies identified

FLR technical packages developed

IUCN

InVEST
integrated valuation of environmental services and tradeoffs

FLR potential to:

(A) increase carbon storage
(B) improve water quality
(C) conserve biodiversity
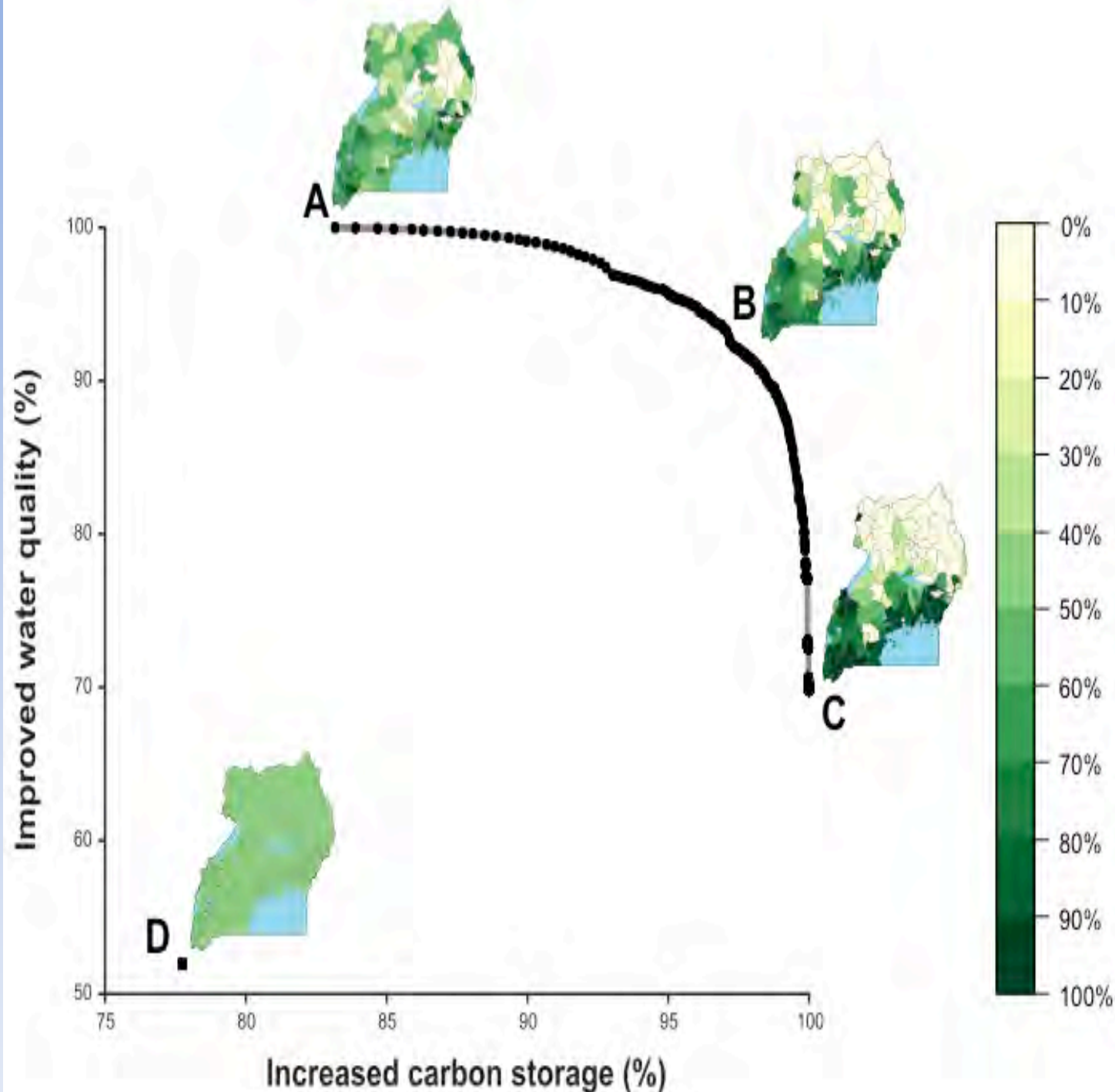(D) maintain agricultural production

Purple low, Green high

A B C D

-3   -2   -1   0   1   2   3
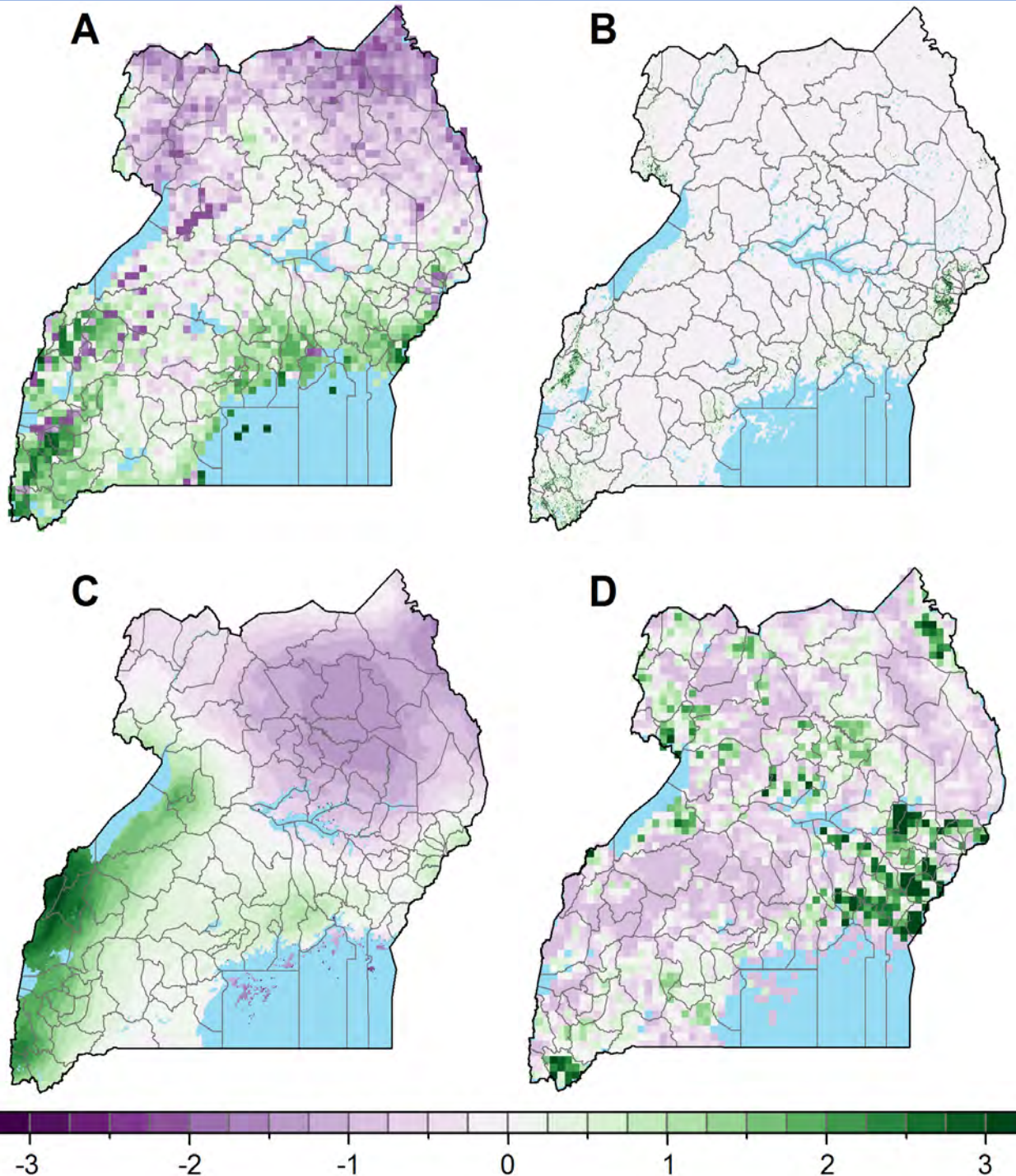
ROOT

Restoration
Opportunities
Optimization
Tool

Decision support
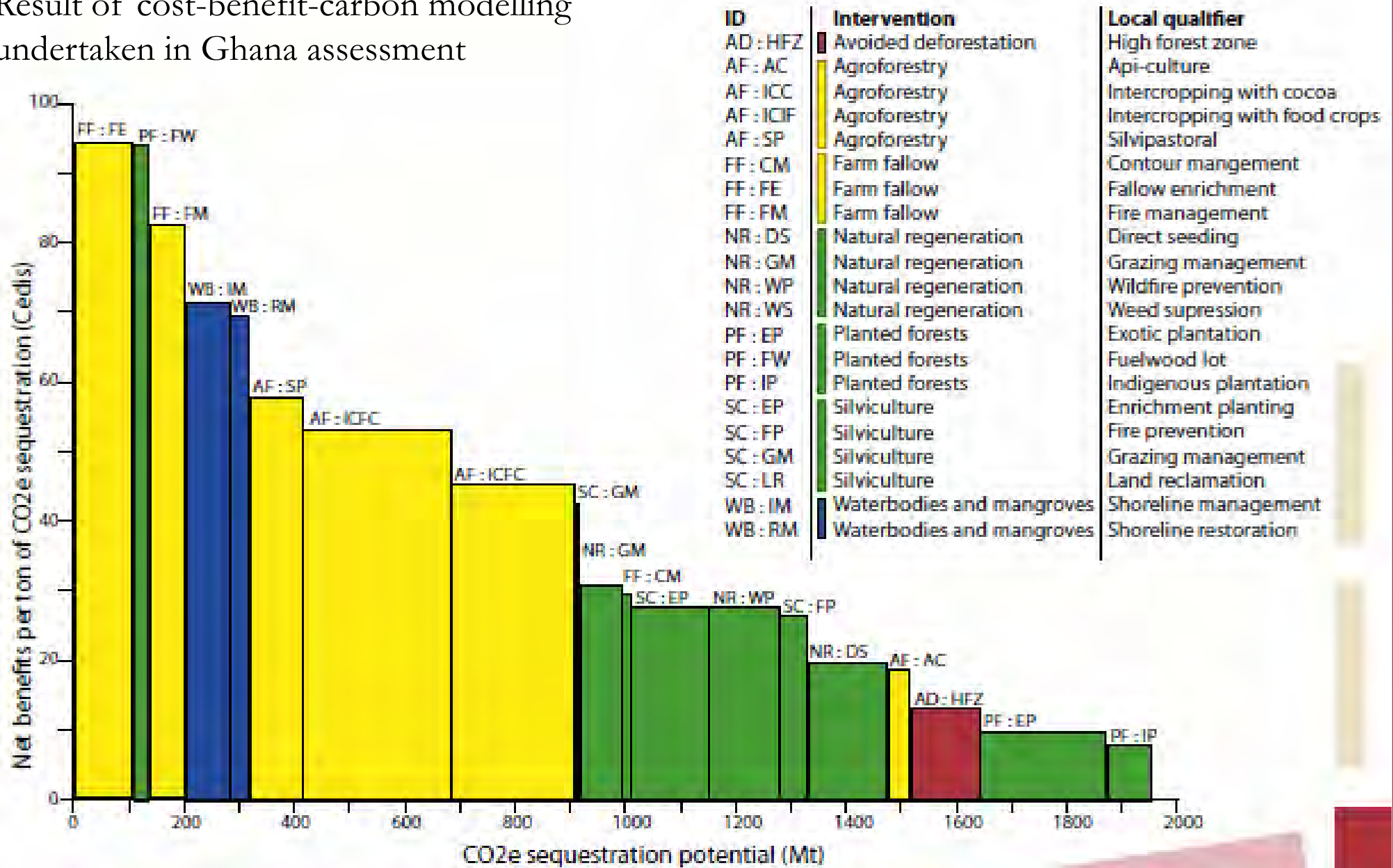tool to optimize a
combination of
two services or
goods.

Cost Benefit Analysis

	Agroforestry		Woodlots		Natural regeneration	
Discount Rate	10%	16%	10%	16%	10%	16%
	Value (UGX/Ha)	Value (UGX/Ha)	Value (UGX/Ha)	Value (UGX/Ha)	Value (UGX)	Value (UGX)
Present Value of Costs	1,274,893	908,642	5,377,609	3,567,785	94,269	61,772
Present Value of Benefits	17,334,162	8,135,547	7,993,122	4,502,454	2,967,154	1,542,919
NPV	16,059,269	7,226,905	2,615,513	934,669	2,872,885	1,481,147
Benefit Cost Ratio	13.60	8.95	1.49	1.26	31.48	24.98

Carbon Modeling

Result of cost-benefit-carbon modelling
undertaken in Ghana assessment

Restoration Diagnostic of Key Success Factors

ENABLING CONDITIONS IN PLACE

Feature	Preliminary Result	Preliminary Rationale	Ability to Improve
Ecological Conditions	*Partially in place*	There are opportunities for restoration. Many steep slopes are not well suited to agriculture. Natural regeneration is a viable option in many of the flat areas. Limited rainfall in Eastern province and a lack of quantity, quality and diversity of native seeds and seedlings throughout Rwanda are issues.	**High** Capacity of the Tree Seed Center and network of nurseries to be increased and focused on native species
Market Conditions	*Partially in place*	The growing population and extent of farming households puts pressure on land. As such, pasture and crop intensifications are major priorities. Domestic demand exists for a range of forest products, but ability to process and transport is limited.	**Low** Bolster the domestic supply chain for forest products in strategic areas in Rwanda. Link agroforestry with intensification programs.
Policy Conditions	*Partially in place*	Land and natural resource tenure are reasonably secure. Tenders with tree nurseries are limited to twelve months in length, which has led to weak seedling production. Though many laws, policies and strategies exist, enforcement, governance and implementation remain inadequate.	**Medium** It is important that policies and strategies are published by relevant agencies to provide transparency and aid in coordination efforts. However, enforcement is not likely to improve dramatically without additional funds.
Social Conditions	*Mostly in place*	From a rights perspective, substantial progress in providing individual land rights. Land tenure claims are still being mapped. However, from a process perspective, landowners are often not adequately consulted to help make participatory decisions in the landscape.	**High** Increase engagement with civil society and cooperatives, as both have an important role to play in ensuring equity and participation in landscape restoration activities.
Institutional Conditions	*Not in place*	Master plans, strategies and policies are not released in a timely or transparent manner by all agencies. This is not yet the case, which causes problems when trying to coordinate across agencies. A shared common vision and framework for restoration among stakeholders is therefore lacking. Inconsistencies exist between policies and strategies of various Ministries, especially related to agroforestry. Responsibilities are defined but too often overlap. Planning is often not coordinated which leads to areas being overcommitted to multiple land uses. Coordination mechanisms need emphasis and strengthening.	**High** Executive Office and Parliament to increase accountability to ensure that master plans, strategies and policies are published on time. Joint Sector Working Groups allocated additional resources and attention by the Executive Office and Parliament.

IMPLEMENTATION CAPACITY & RESOURCES

Feature	Preliminary Result	Preliminary Rationale	Ability to Improve
Leadership	*Mostly in place*	Rwanda has strong political leadership and commitment. Rwanda has already made a substantial commitment to the Bonn Challenge and the Aichi targets. There is a need to invest to build more restoration champions at the district, sector and village level.	**High** Honor existing champions. Identify potential champions among civil society and community groups. Identify strategies to build their capacity and honor their efforts.
Knowledge	*Mostly not in place*	There is a small but strong university network. Rwandan stakeholders already possess an impressive amount and quality of GIS and other data. However, there is a lack of knowledge produced about opportunities in the drier and flatter lands in the Eastern province. There is a general lack of knowledge and data related to native species. There is also a lack of a cadastral map for forests, which is a major problem. Additionally, extension services are not focused on restoration (e.g. Forests promotes woodlots and Agriculture promotes traditional methods of intensification)	**Medium** Focus additional resources on native species and on drier areas of the country. Invest in creating and maintaining a cadastral forest map. Increase the quantity, quality and breadth of extension services available to communities.
Finance & Incentives	*Not in place*	There are insufficient funds available from government, the private sector, civil society and donors to engage in restoration at scale. Many smallholder farmers are poor and lack access to appropriate loans, grants and/or incentives. Need creative financing mechanisms to help build the capacity of cooperatives, NGOs and private sector companies to implement restoration at scale.	**Medium** Engage poor landowners with funds in exchange for labor. Quantify the economic and social returns of restoration and conduct a campaign to raise a combination of investment and social funds to support restoration at scale.
Technical Design	*Mostly not in place*	Currently, government, civil society (and to a limited extent the private sector) are engaged in a limited number of well-designed activities. Projects are often not designed for scale. Most research is focused on exotic species in sloping, wet areas. Technical research should increase its engagement and outreach to smallholder farmers. Need to increase focus on resilience, i.e. designing the landscape of the future	**High** Bridge the gap between research and practice. Increase focus on native species and include flatter, drier areas. Extension and other outreach services should be increased.
Feedback	*Mostly not in place*	Projects often have expensive or insufficient monitoring systems. Monitoring has focused on tree cover and not trees outside the forest. There is a need for high resolution, lower frequency data to quantify restoration progress.	**Medium** Need for low-cost, scalable FLR monitoring system that can be utilized by a range of stakeholders. Small, early wins need to be identified, championed and communicated nationally and internationally

Phase 3. Results to recommendations

Organizing the validation workshop

FLR finance and scaling up

Determine the business models for financing

Look at private sector, public sector, investment and donor community.

Business models (bankable proposals)

Unlocking finance

Scaling-up and uptake into policies/legislation

Application of ROAM

- **Ghana** – baseline-setting supporting Ghana's Forest Investment Program (FIP)

- **Mexico** - contribute a cross-institutional national restoration strategy

- **Rwanda** – define a strategy to realize the commitment of 2 million ha to the Bonn Challenge

- **Guatemala** – foundation for the 1st national restoration strategy; and, the re-shaping of reforestation incentive schemes
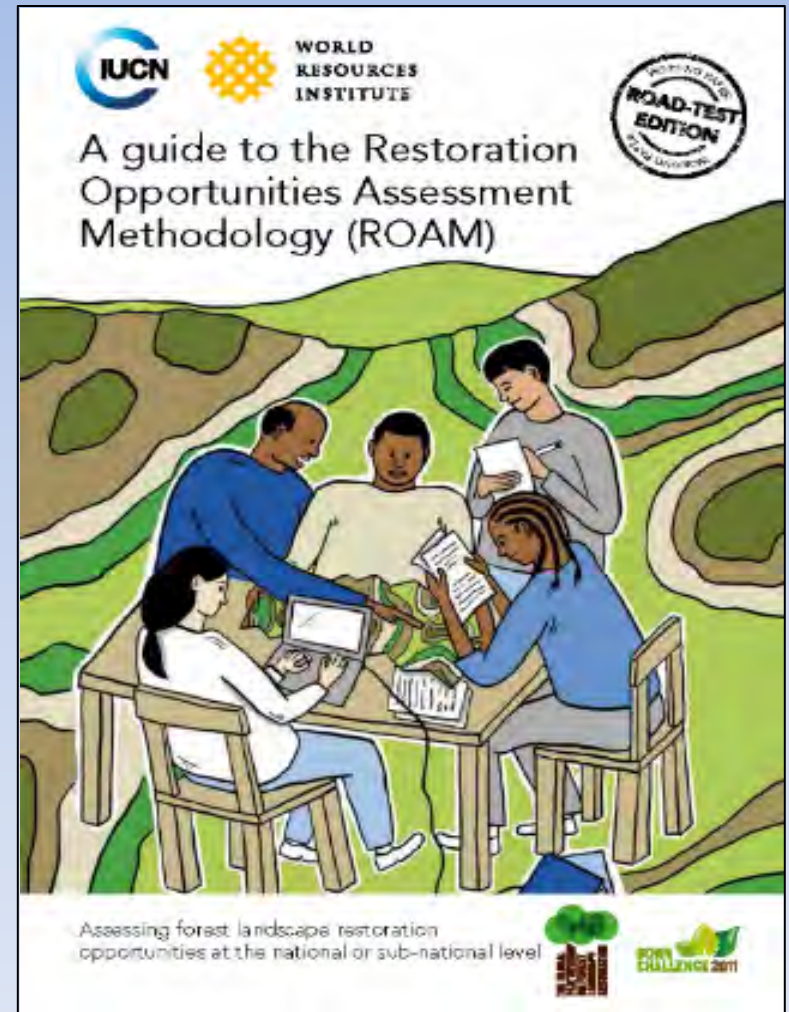
Summary

- ROAM is the most **comprehensive and responsive framework** for Forest Landscape Restoration
- The key inputs of ROAM are **stakeholder engagement and ownership** in:
  - preparation and planning
  - data collection & analysis
  - validation of the results
- Key outputs of ROAM are:
  - **Implementation of FLR and uptake into policy and legislation**
  - **Unlocking finance**
- The results of ROAM facilitate local, sub-national, national and international processes and the methodology is resilient to different scales.
- The ROAM framework is **not prescriptive, but procedural**, allowing stakeholders to guide and inform Forest Landscape Restoration decision-making at each step and build local ownership underneath a global movement.

For more information, contact

Li Jia

Jia.li@iucn.org
Forest Landscape Restoration Coordinator, Asia
IUCN, International Union for Conservation of Nature