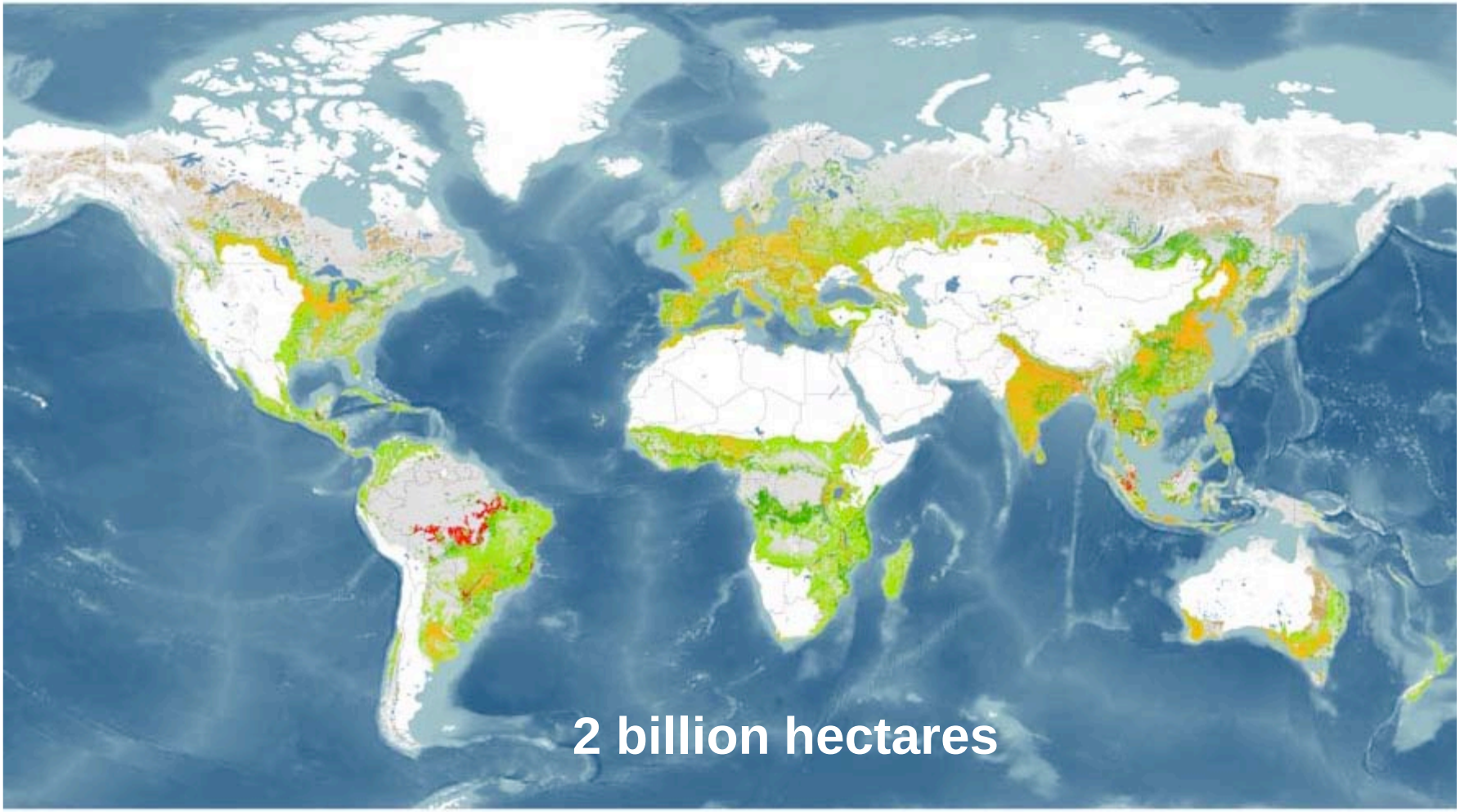
Restoration Opportunities Assessment Methodology (ROAM)

This Presentation Will Cover

- The global potential for restoration
- The forest landscape restoration approach
- Restoration Opportunities Assessment Methodology (ROAM)

BONN CHALLENGE
on forests, climate change and biodiversity 2011

A World of Opportunity
for Forest and Landscape Restoration



FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES
- Wide-scale restoration
- Mosaic restoration
- Remote restoration

OTHER AREAS
- Agricultural lands
- Recent tropical deforestation
- Urban areas
- Forest without restoration needs

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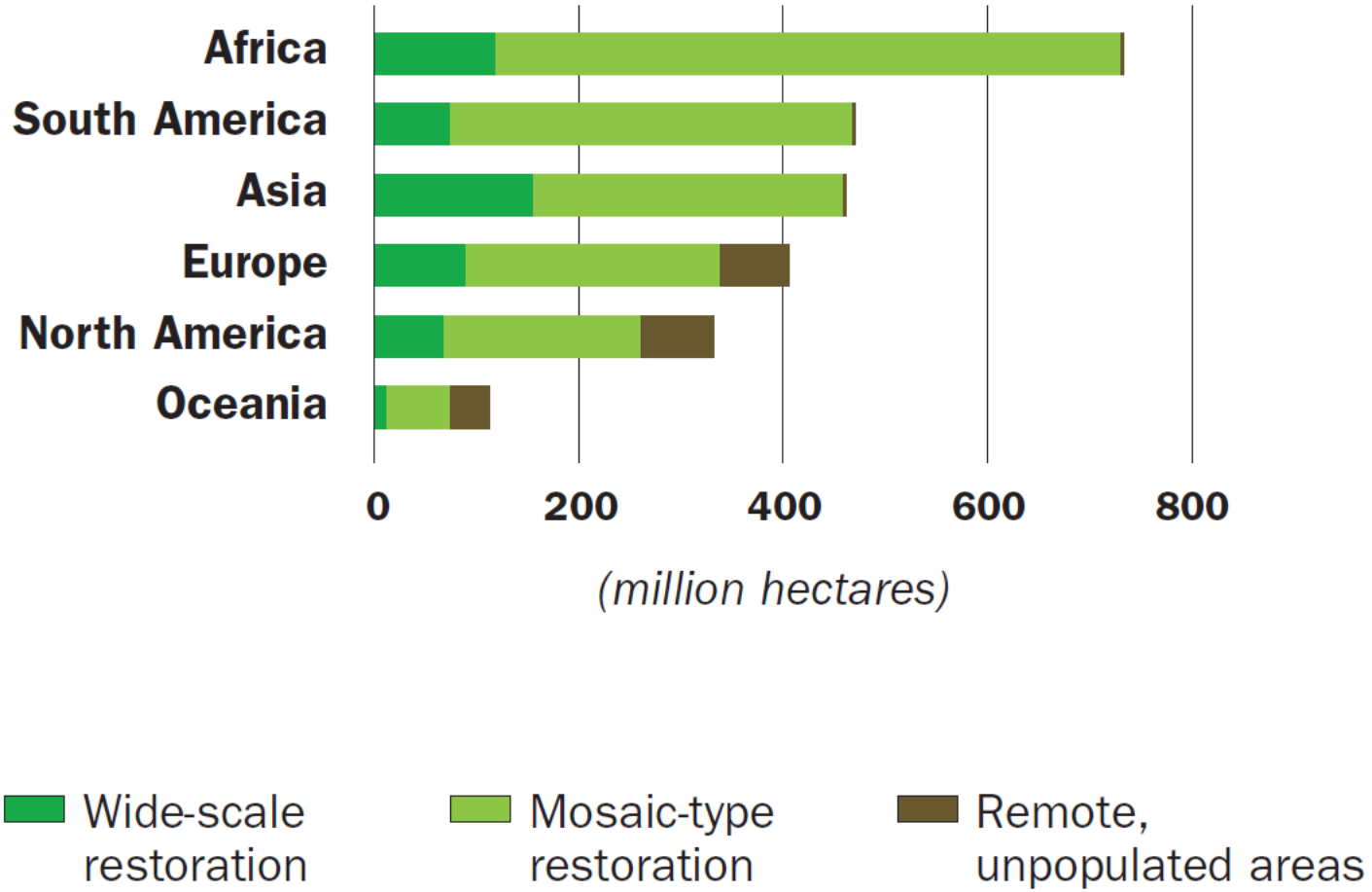
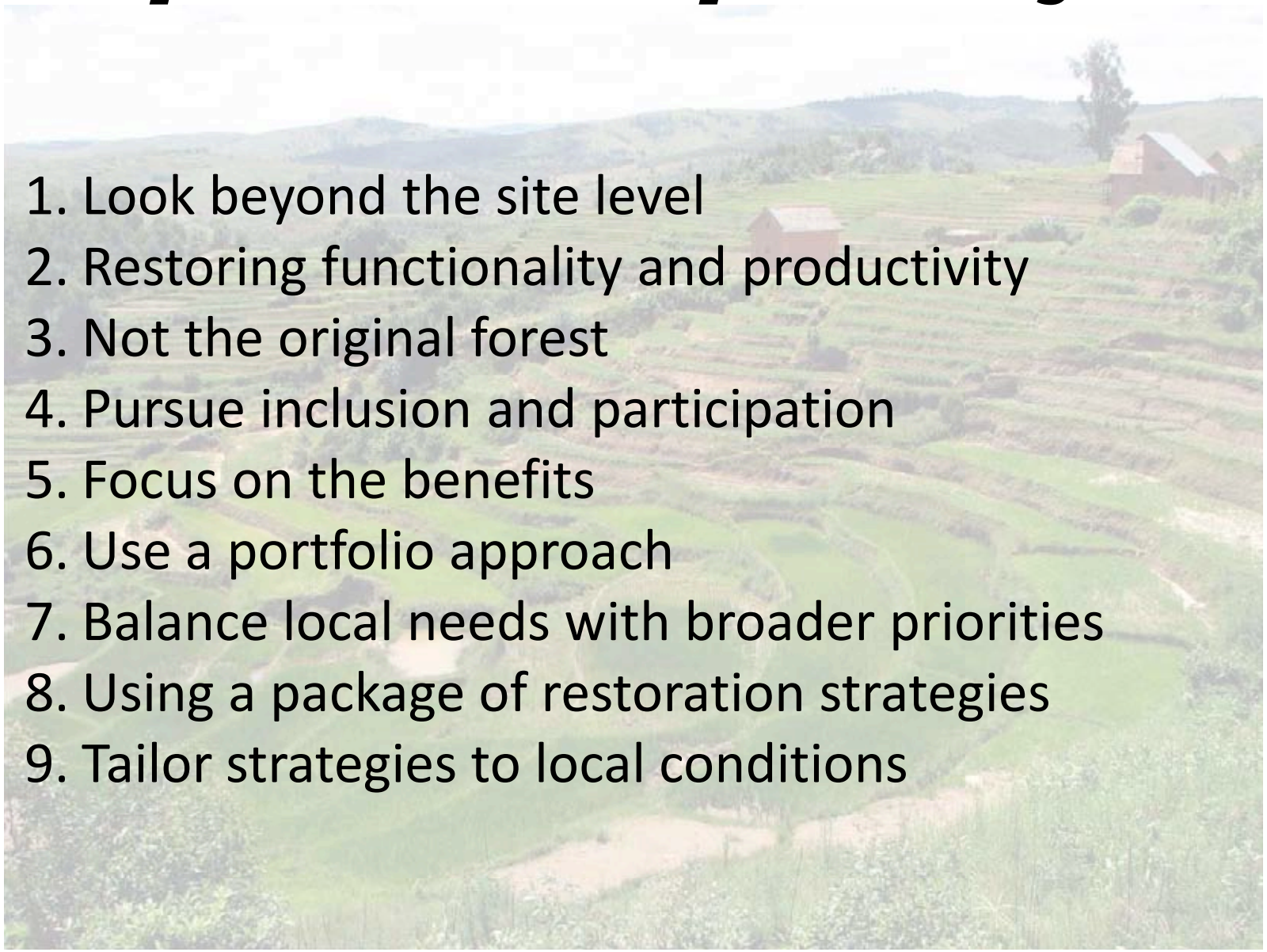
There is opportunity for restoration of degraded lands across the world



Forest Landscape Restoration (FLR)

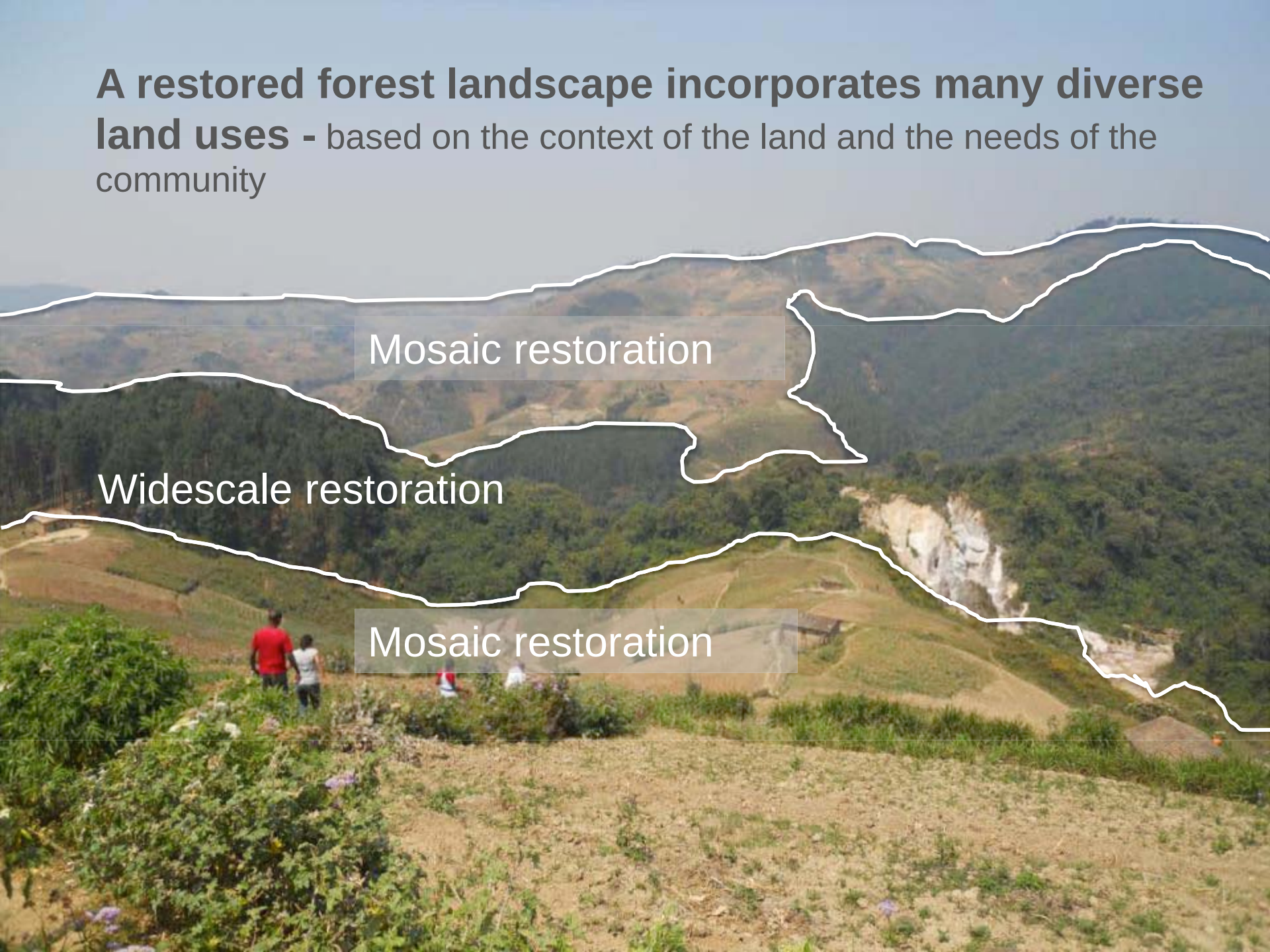
A long-term process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes."

Principles of landscape approaches relate to *interdependence* and *adaptive management*



1. Look beyond the site level
2. Restoring functionality and productivity
3. Not the original forest
4. Pursue inclusion and participation
5. Focus on the benefits
6. Use a portfolio approach
7. Balance local needs with broader priorities
8. Using a package of restoration strategies
9. Tailor strategies to local conditions

A restored forest landscape incorporates many diverse land uses - based on the context of the land and the needs of the community



FLR Beyond The Letters: Speaking The Same Language

Land Use	Land sub-type	General category of FLR option	Description	Relevance of FLR option to your region (0= None, 1= Marginal, 2=Considerable 3=Significant)	Specific restoration interventions	Locations/Examples/Cases (where this is best working in your region
Forest land Land where forest is, or is planned to become the dominant land use → **Suitable for wide-scale restoration**	If the land is without trees there are two options:	1. Planted forests and woodlots 	Planting of trees on formerly forested land. Native species or exotics and for various purposes, fuelwood, timber, building, poles, fruit production, etc.		Exotic plantations Fuelwoodlots Indigenous plantations	
		2. Natural regeneration 	Natural regeneration of formerly forested land. Often the site is highly degraded and no longer able to fulfil its past function – e.g. agriculture. If the site is heavily degraded and no longer has seed sources, some planting will probably be required.		Direct seeding Prevention of overgrazing Weed suppression Wildfire prevention	
	If the land is degraded forests:	3. Silviculture 	Enhancement of existing forests and woodlands of diminished quality and stocking, e.g., by reducing fire and grazing and by liberation thinning, enrichment planting, etc.		Bush fire prevention Direct seeding Enrichment planting Restricted grazing	
Agricultural land Land which is being managed to produce food → **Suitable for mosaic restoration**	If the land is under permanent management:	4. Agroforestry 	Establishment and management of trees on active agricultural land (under shifting agriculture), either through planting or regeneration, to improve crop productivity, provide dry season fodder, increase soil fertility, enhance water retention, etc.		Intercropping with food crops Intercropping with cocoa Silvopastoral	
	If land is under intermittent management:	5. Improved fallow 	Establishment and management of trees on fallow agricultural land to improve productivity, e.g. through fire control, extending the fallow period, etc., with the knowledge and intention that eventually this land will revert back to active agriculture.		Contour management Fallow enrichment Fire management	
Protective land and buffers Land that is vulnerable to, or critical in safeguarding against, catastrophic events → **Suitable for mangrove restoration, watershed protection and erosion control**	If degraded mangrove:	6. Mangrove restoration 	Establishment or enhancement of mangroves along coastal areas and in estuaries.		Improved management of degraded shoreline	
	If other protective land or buffer:	7. Watershed protection and erosion control 	Establishment and enhancement of forests on very steep sloping land, along water courses, in areas that naturally flood and around critical water bodies.		Shoreline restoration	

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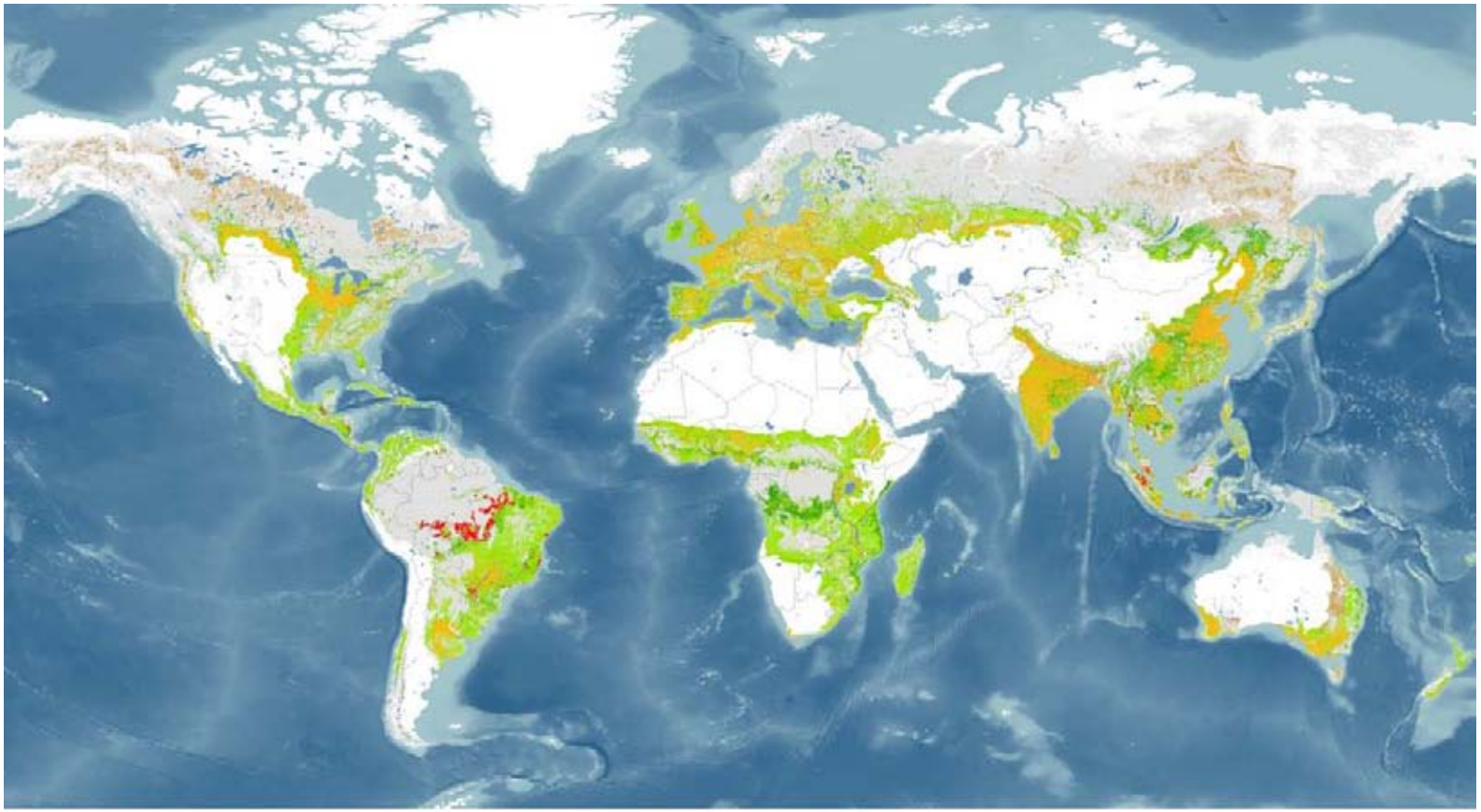
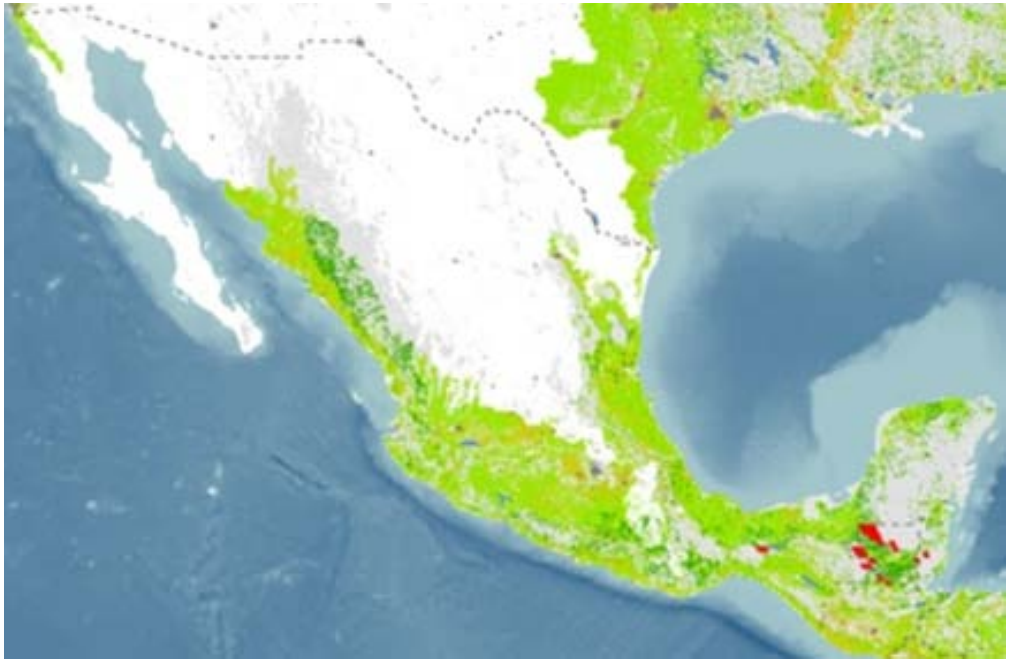
“Nice global map – but what’s my national opportunity?”



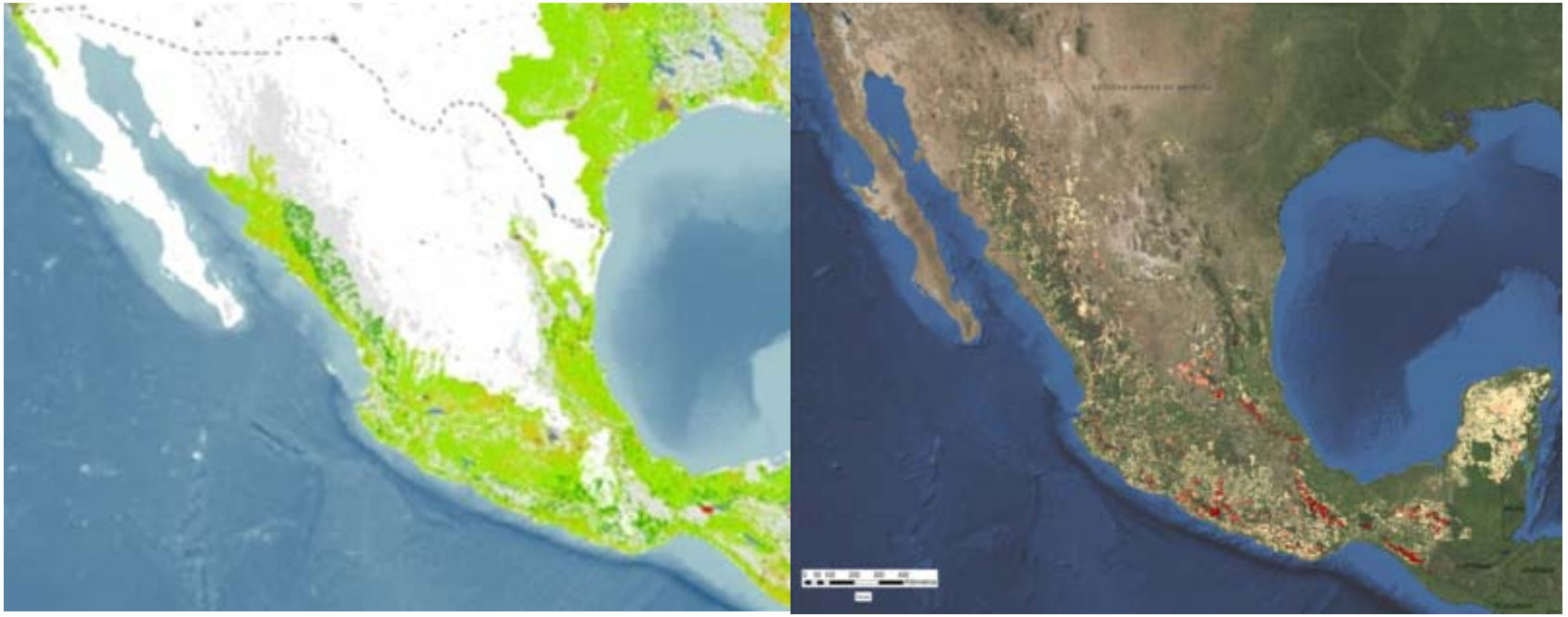
Global data shows opportunities & trends; but too coarse for national strategy

A	B	C	D	E	F	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
ID	Country	Continent	Region	Land area		Ag lands	Mosaic	Wide scale	Remote	w/o ag	mos+wide	Mosaic	Wide scale	Mos+wide	
185	Nigeria	Africa	Western Africa	91		26.1	32.2	4.6	0.0	36.8	36.8	16		16	
29	Benin	Africa	Western Africa	12		2.2	6.1	0.5	0.0	6.6	6.6				
42	Burkina Faso	Africa	Western Africa	27		4.0	14.5	0.0	0.0	14.5	14.5				
47	Cape Verde	Africa	Western Africa	0		0.0	0.1	0.0	0.1	0.2	0.1				
66	Cîte d'Ivoire	Africa	Western Africa	32		2.5	18.8	2.0	0.0	20.8	20.8				
91	Gambia	Africa	Western Africa	1		0.3	0.6	0.0	0.0	0.6	0.6				
95	Ghana	Africa	Western Africa	23		3.3	13.5	1.1	0.0	14.5	14.5				
105	Guinea	Africa	Western Africa	25		1.3	7.7	2.0	0.0	9.7	9.7				
106	Guinea-Bissau	Africa	Western Africa	3		0.1	1.1	0.1	0.0	1.2	1.2				
146	Liberia	Africa	Western Africa	10		0.2	1.2	0.0	0.0	1.3	1.3				
158	Mali	Africa	Western Africa	125		3.6	17.2	0.0	0.0	17.2	17.2				
162	Mauritania	Africa	Western Africa	104		0.0	0.0	0.0	0.0	0.0	0.0				
184	Niger	Africa	Western Africa	119		0.4	0.5	0.0	0.0	0.5	0.5				
211	Saint Helena	Africa	Western Africa	0		0.0	0.0	0.0	0.0	0.0	0.0				
221	Senegal	Africa	Western Africa	20		0.9	5.5	0.0	0.0	5.5	5.5				
225	Sierra Leone	Africa	Western Africa	7		0.7	3.1	0.3	0.0	3.3	3.3				
247	Togo	Africa	Western Africa	6		1.4	2.4	1.1	0.0	3.5	3.5				
68	Democratic Republic of the Congo	Africa	Middle Africa	230		7.9	40.2	45.1	0.0	85.3	85.3	11	4	5	
7	Angola	Africa	Middle Africa	125		1.6	57.1	8.8	0.0	65.8	65.8	5	12	7	
45	Cameroon	Africa	Middle Africa	47		2.3	10.7	4.8	0.0	15.6	15.6				
49	Central African Republic	Africa	Middle Africa	62		0.3	16.3	1.9	0.0	18.2	18.2				
50	Chad	Africa	Middle Africa	127		1.9	22.9	0.0	0.0	22.9	22.9				
59	Congo	Africa	Middle Africa	34		0.2	1.6	10.0	0.0	11.7	11.7		10		
77	Equatorial Guinea	Africa	Middle Africa	3		0.0	0.0	0.0	0.0	0.0	0.0				
90	Gabon	Africa	Middle Africa	26		0.0	0.3	2.6	0.0	2.8	2.8				
218	Sao Tome and Principe	Africa	Middle Africa	0		0.0	0.0	0.0	0.0	0.0	0.0				

The challenge now is to move from the global generic



To the national specific



... and to identify priority actions and priority landscapes

The goal is to frame sub/national programmes that offer workable and cost-effective strategies for landscapes like these

Rwanda's deforested mountains hold tremendous potential for restoration that can improve lives

Primary challenges include

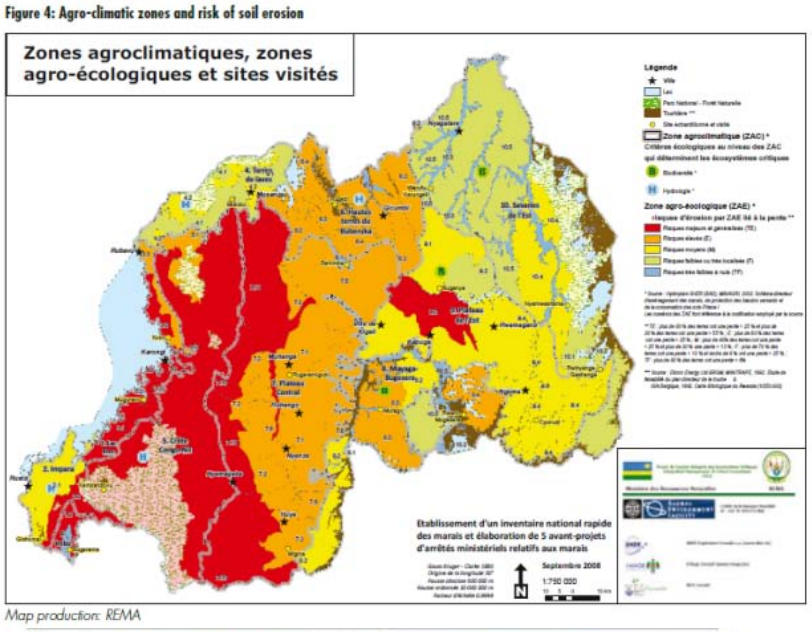
1. Lack of data: degraded lands and natural resources are opaque – if not invisible – as are the livelihoods of people who live there
   - Spatial and biophysical data needed
   - Economic and social data needed

2. Lack of coherence: in policy & programmes
   - Either institutional competition
   - Or (more likely) institutional myopia

ROAM – Restoration Opportunities Assessment Methodology

(an input into land use planning processes)

Best knowledge



Best science

Main steps to ROAM

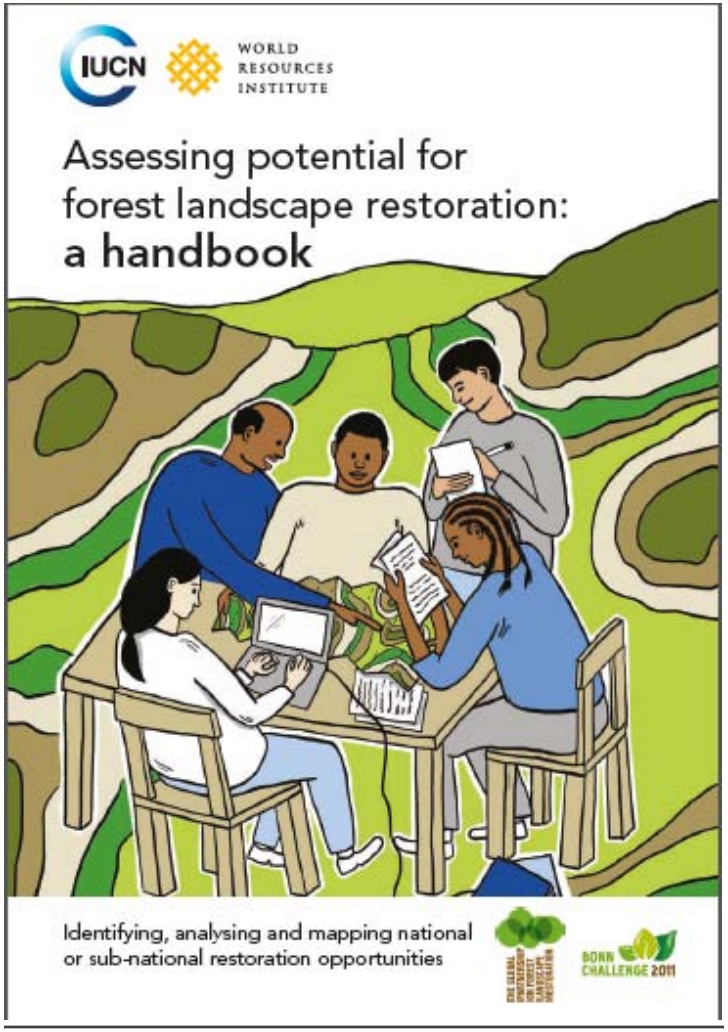
1. Engage stakeholders
2. Identify FLR interventions
3. Align FLR with priorities
4. Conduct FLR analyses
5. Validation and iteration
6. Restore

Download a ROAM Handbook:

www.iucn.org/roam

The Restoration Analyses of ROAM include

1. Rapid diagnostic for presence of “enabling conditions” for success
2. Mapping of restoration opportunities
3. Economic valuation (costs and benefits)
4. Carbon ACCRUAL analysis
5. Assessment of finance options and needs



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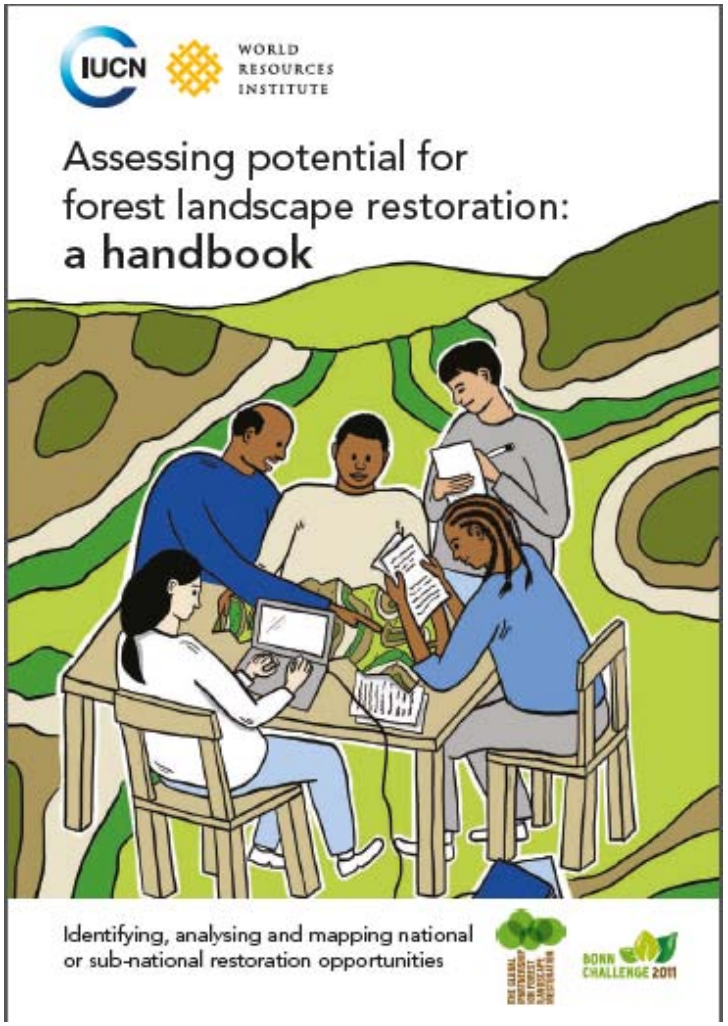
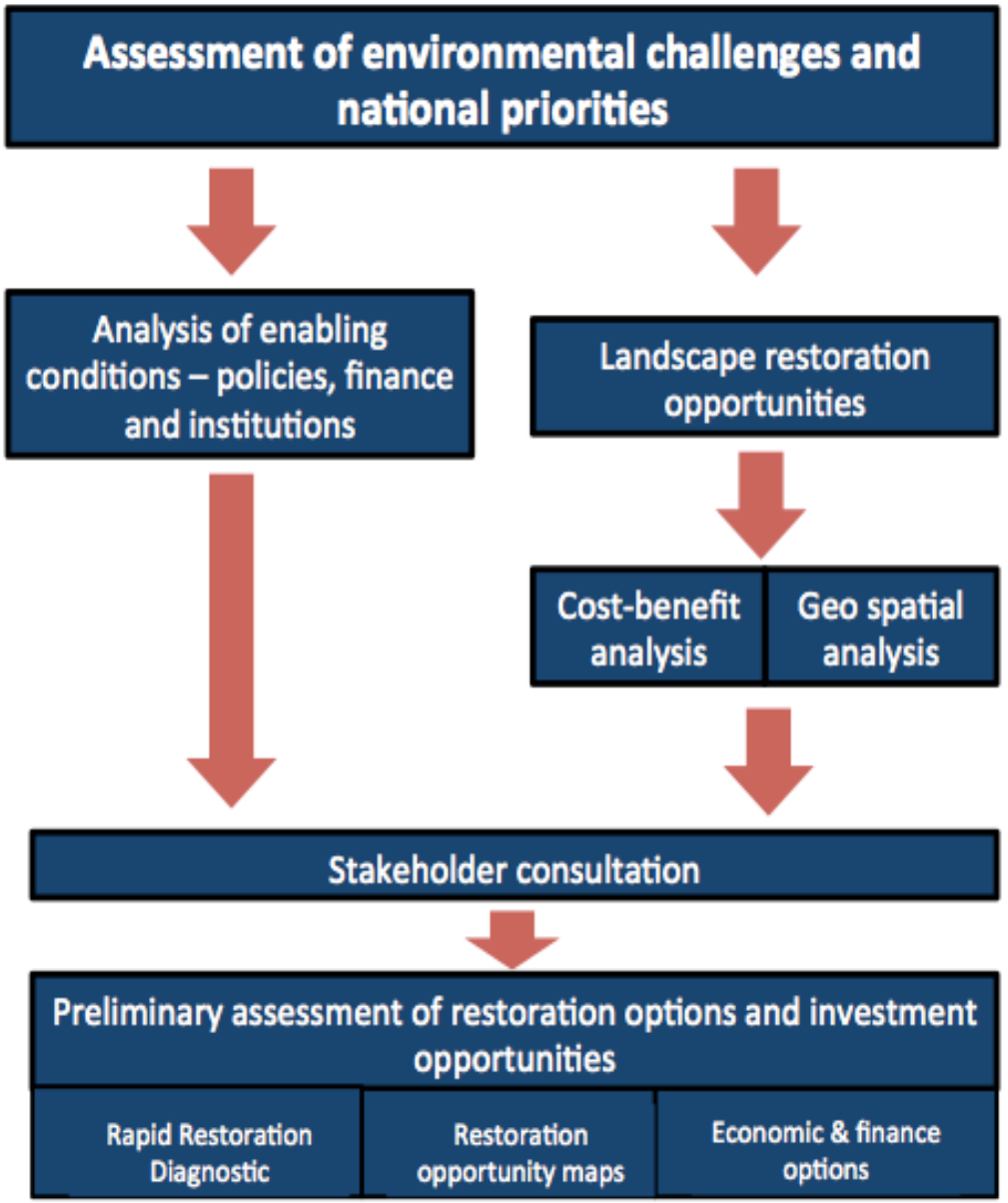
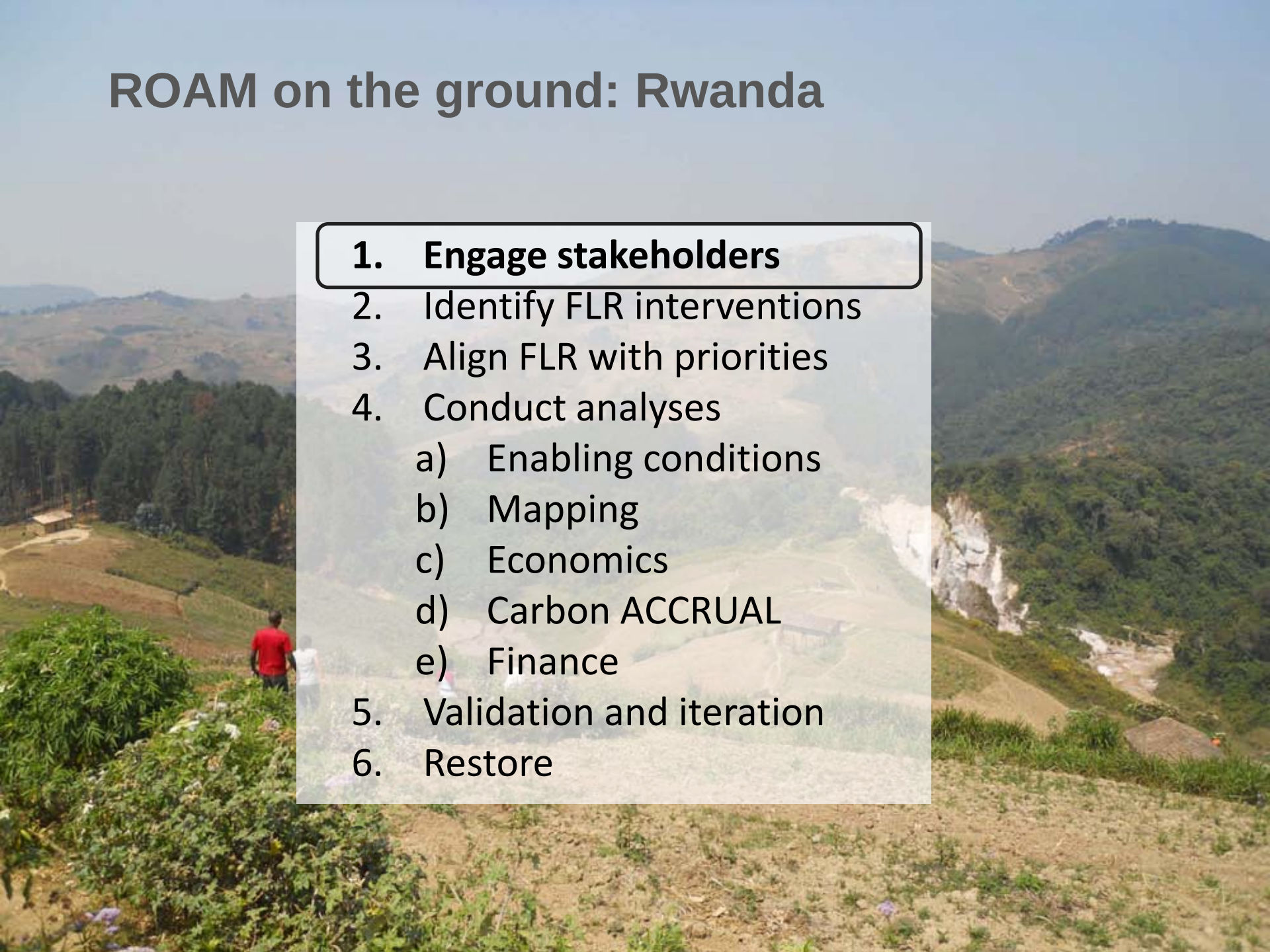




ROAM on the ground: Rwanda



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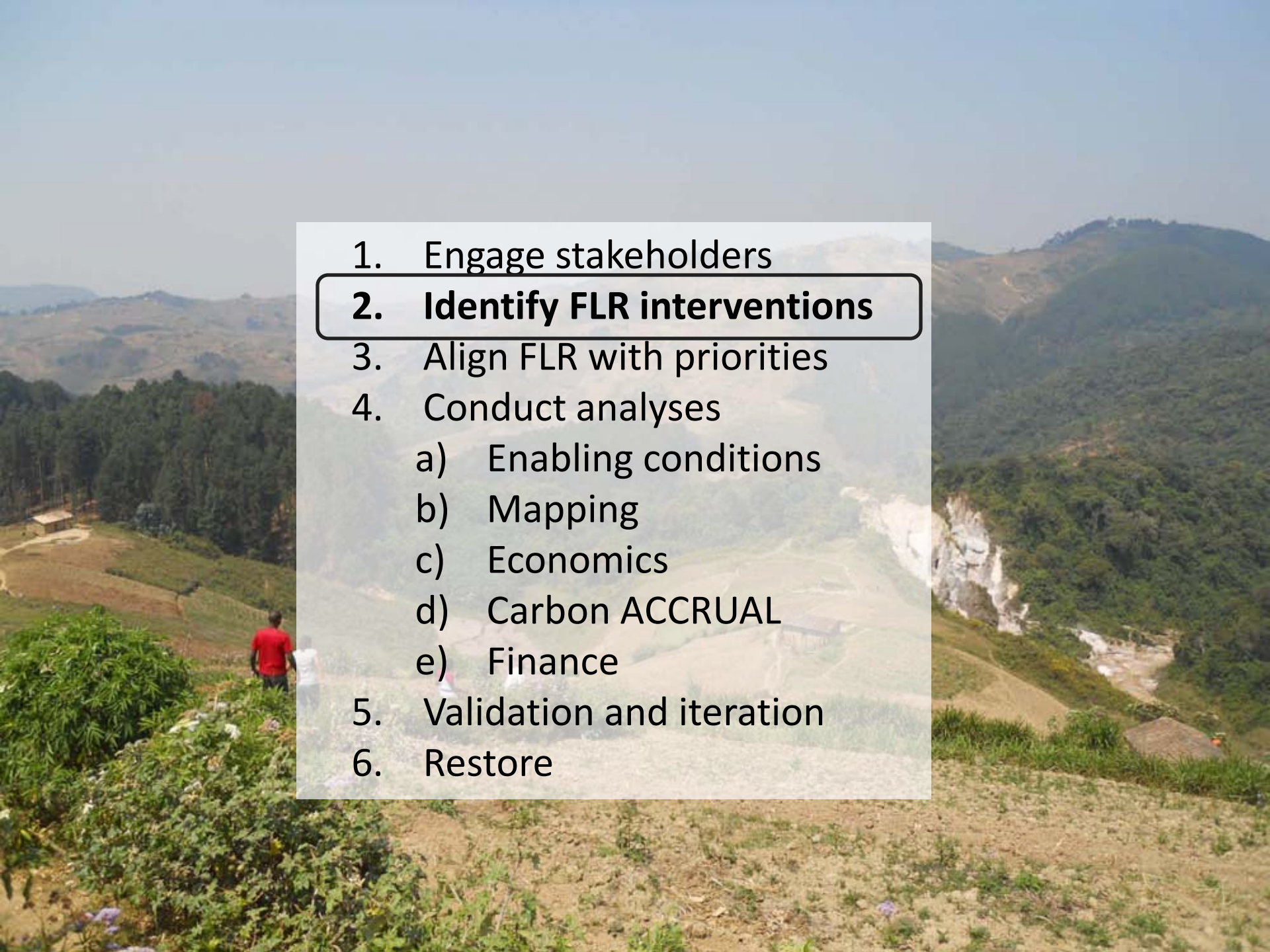

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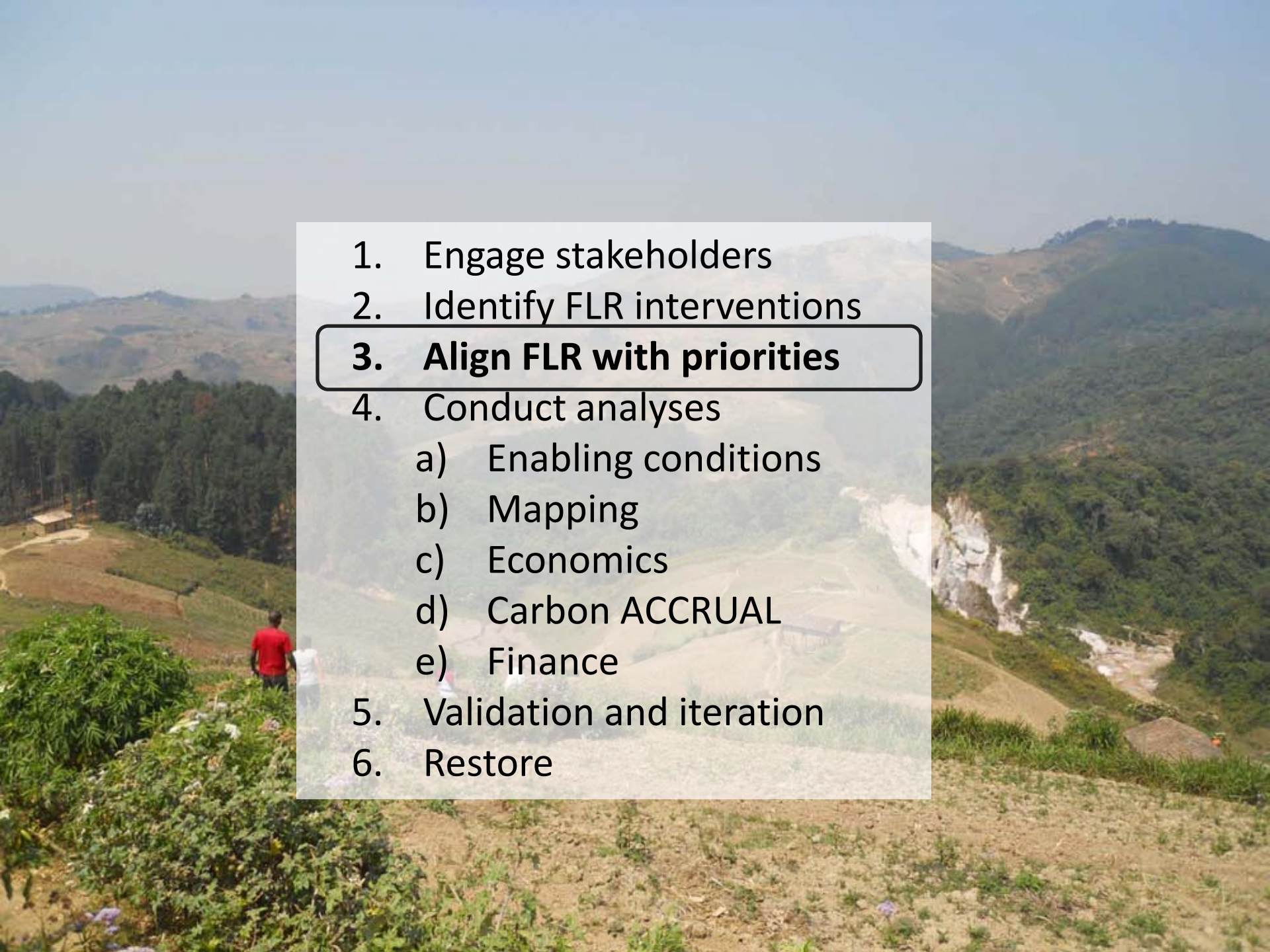
Proposed Restoration Interventions

Discussions and field visits resulted in identification of:

1. **Agroforestry on steep sloping lands** for crops and livestock (705k ha)
2. **Agroforestry on flat or gentle sloping lands** for crops and livestock (404k ha)
3. Rehabilitation of **woodlots** for fuel and structural needs (256k ha)
4. Protection and restoration of **natural forests** including small fragments (14k ha)
5. Improvement or establishment of **protective forests** on ridge tops (42k ha) and along water bodies (81k ha)



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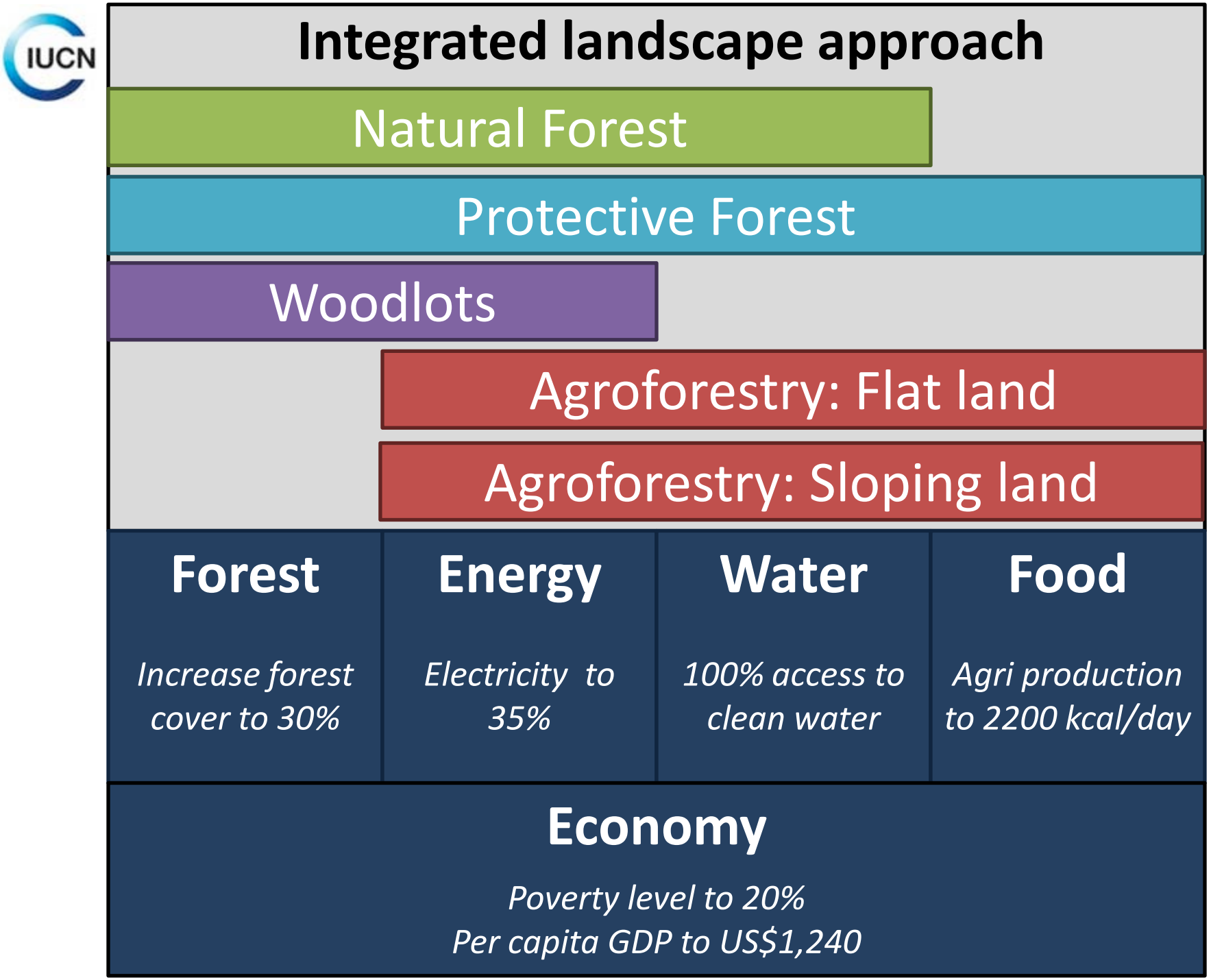
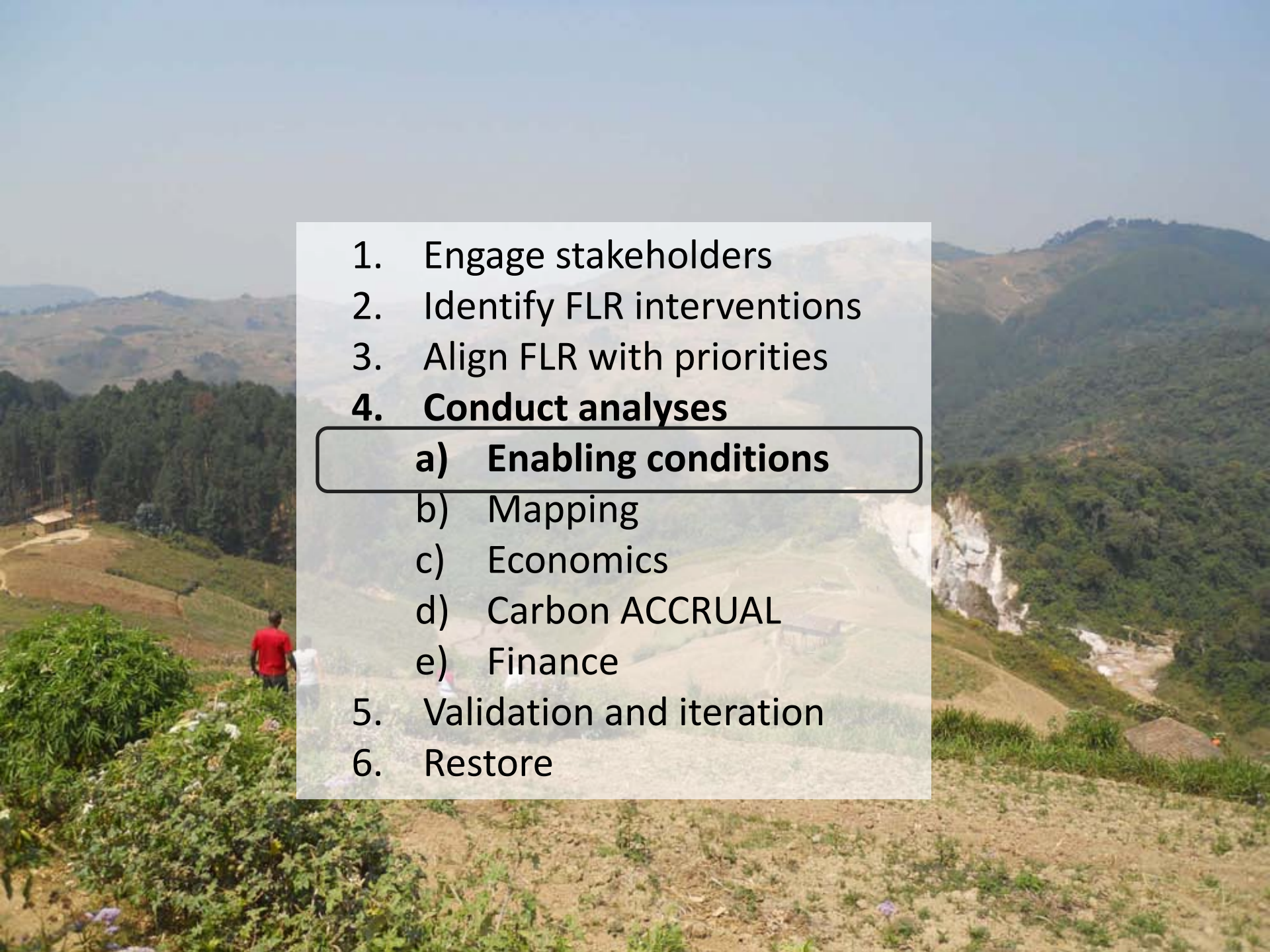

Integrated landscape approach
Natural Forest
Protective Forest
Woodlots
Agroforestry: Flat land
Agroforestry: Sloping land
Forest
Increase forest cover to 30%
Energy
Electricity to 35%
Water
100% access to clean water
Food
Agri production to 2200 kcal/day
Economy
Poverty level to 20%
Per capita GDP to US$1,240



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RAPID·RESTORATION·DIAGNOSTIC¶

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A·method·to·help·governments,·companies,·and·civil·society·to·successfully·accelerate·forest·landscape·restoration¶

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Version·1.0¶

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Report¶
Draft¶
January·28,·2014¶

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As·a·contribution·to¶

THE GLOBAL PARTNERSHIP ON FOREST LANDSCAPE RESTORATION

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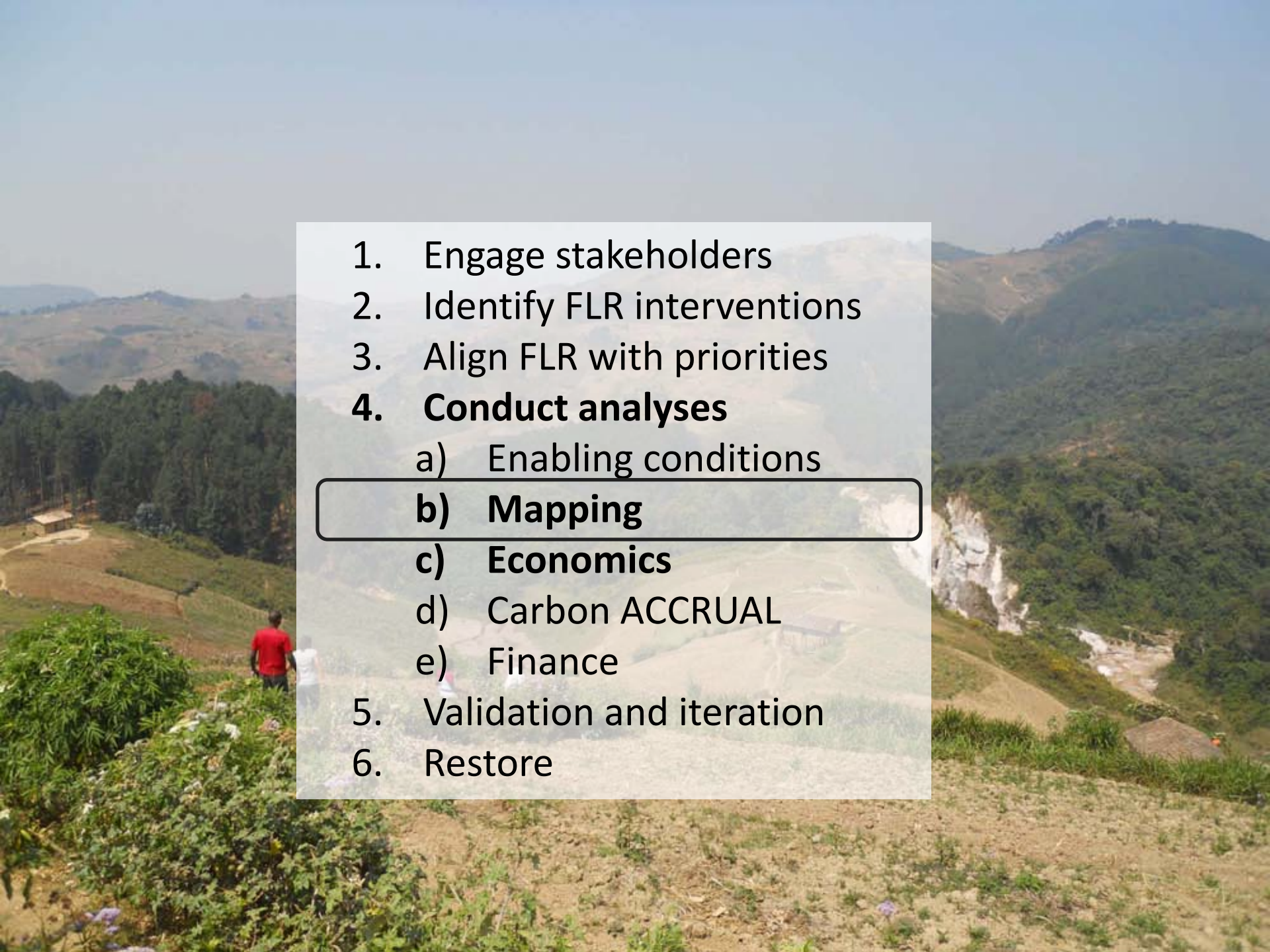
http://www.wri.org/blog/what-does-it-take-successful-forest-landscape-restoration

Theme	Feature	Key success factor	Response
Motivate	Benefits	• Restoration generates economic benefits	
		• Restoration generates social benefits	
		• Restoration generates environmental benefits	
	Awareness	• Benefits of restoration are publicly communicated	
		• Opportunities for restoration are identified	
	Crisis events	• Crisis events are leveraged	
	Legal requirements	• Law requiring restoration exists	
		• Law requiring restoration is broadly understood and enforced	
Enable	Ecological conditions	• Soil, water, climate, and fire conditions are suitable for restoration	
		• Plants and animals that can impede restoration are absent	
		• Native seeds, seedlings, or source populations are readily available	
	Market conditions	• Competing demands (e.g., food, fuel) for degraded forestlands are declining	
		• Value chains for products from restored area exists	
	Policy conditions	• Land and natural resource tenure are secure	
		• Policies affecting restoration are aligned and streamlined	
		• Restrictions on clearing remaining natural forests exist	
		• Forest clearing restrictions are enforced	
	Social conditions	• Local people are empowered to make decisions about restoration	
		• Local people are able to benefit from restoration	
	Institutional conditions	• Roles and responsibilities for restoration are clearly defined	
		• Effective institutional coordination is in place	
Implement	Leadership	• National and/or local restoration champions exist	
		• Sustained political commitment exists	
	Knowledge	• Restoration “know how” relevant to candidate landscapes exists	
		• Restoration “know how” transferred via peers or extension services	
	Technical design	• Restoration design is technically grounded and climate resilient	
	Finance and incentives	• Positive incentives and funds for restoration outweigh negative incentives	
		• Incentives and funds are readily accessible	
	Feedback	• Effective performance monitoring and evaluation system is in place	
		• Early wins are communicated	

Feedback from District Workshops

Key Factors	Urgent
The economic case is understood at district level	
Better local planning processes	
Better coordination between government agencies	
A government supported campaign	
More government finance and incentives	
Better district level technical extension	
Performance targets for restoration	
Better supply of planting material	



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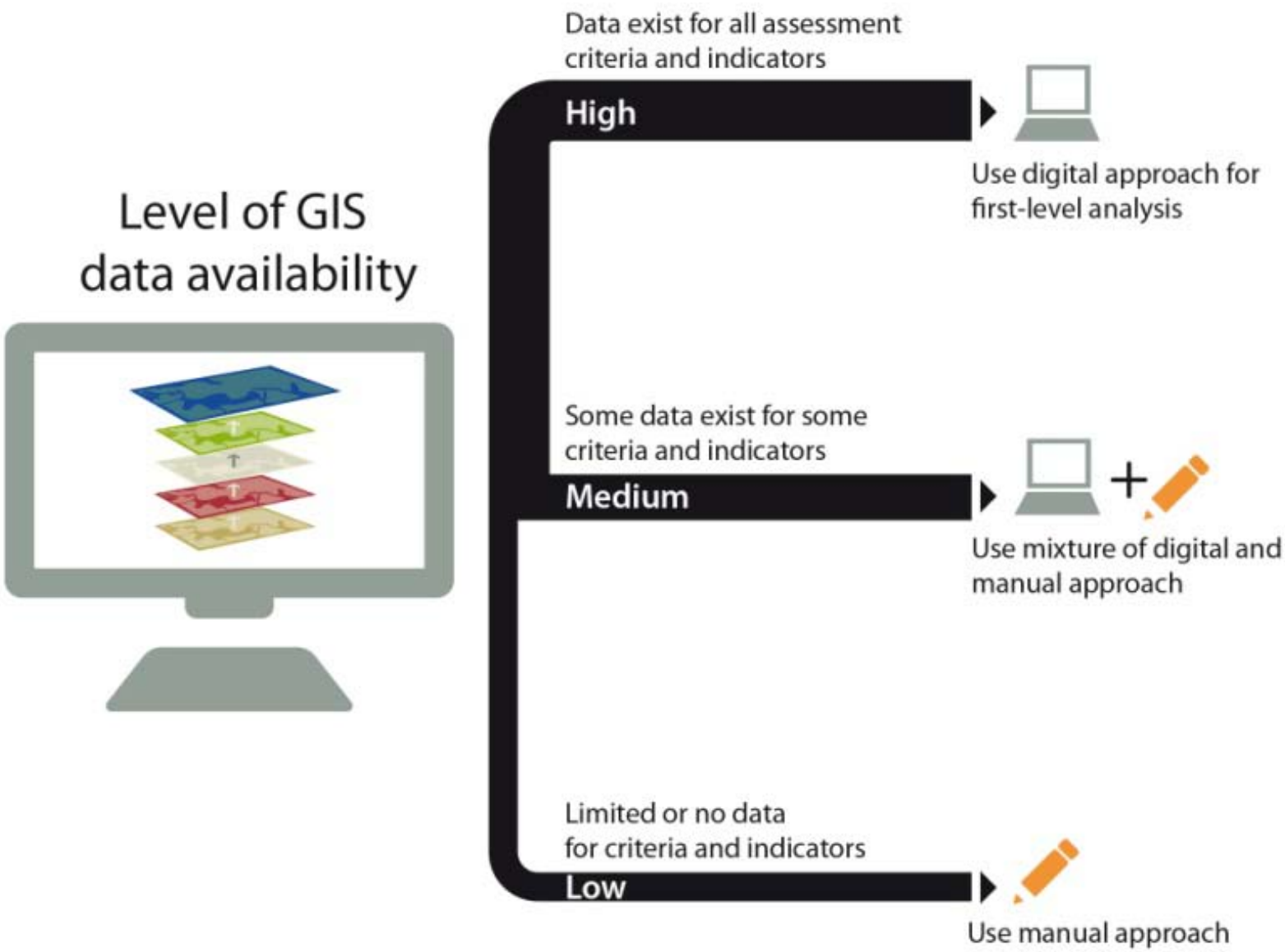
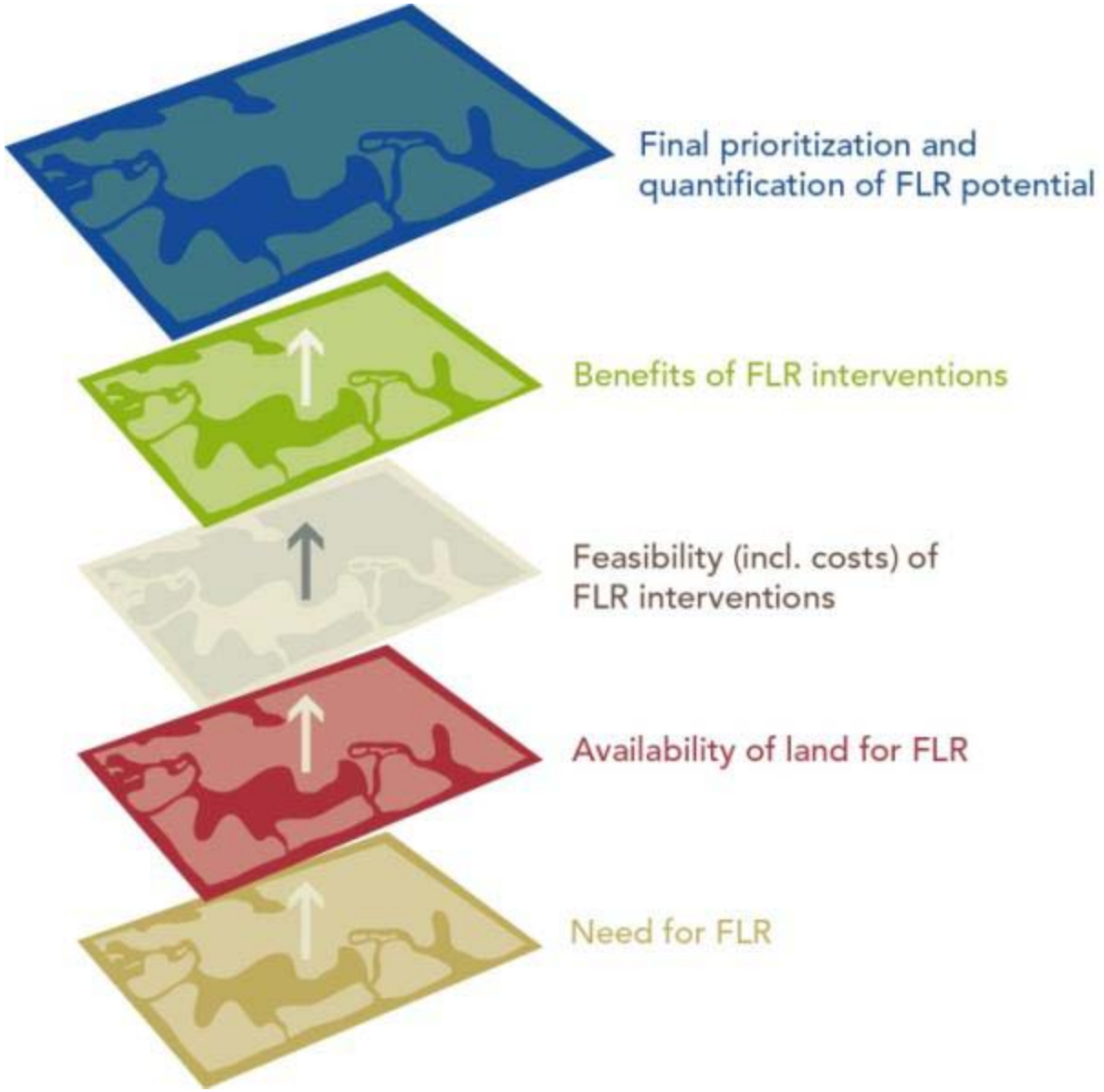
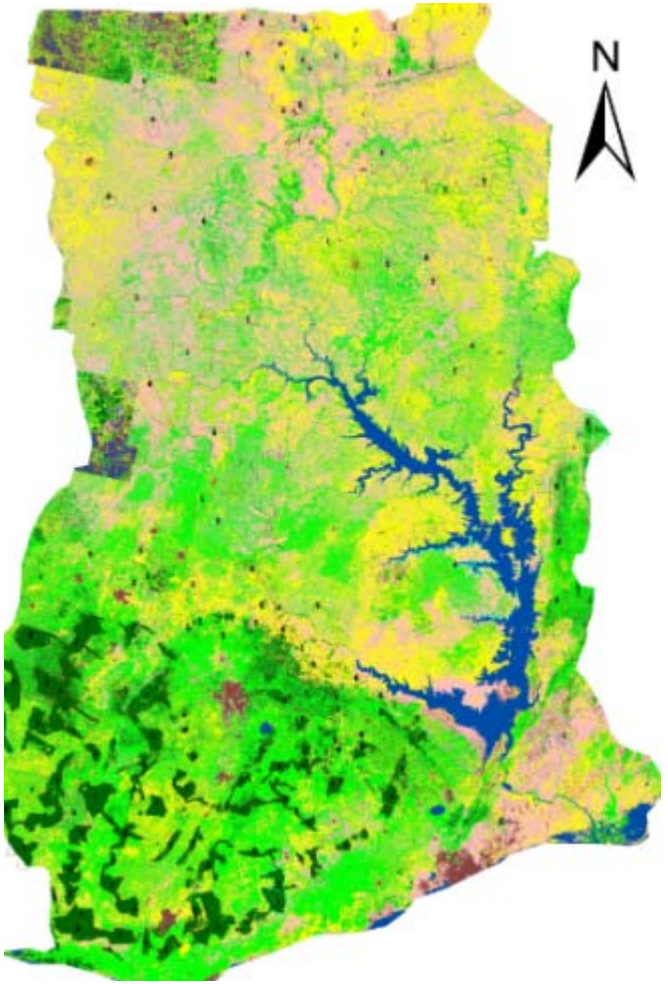
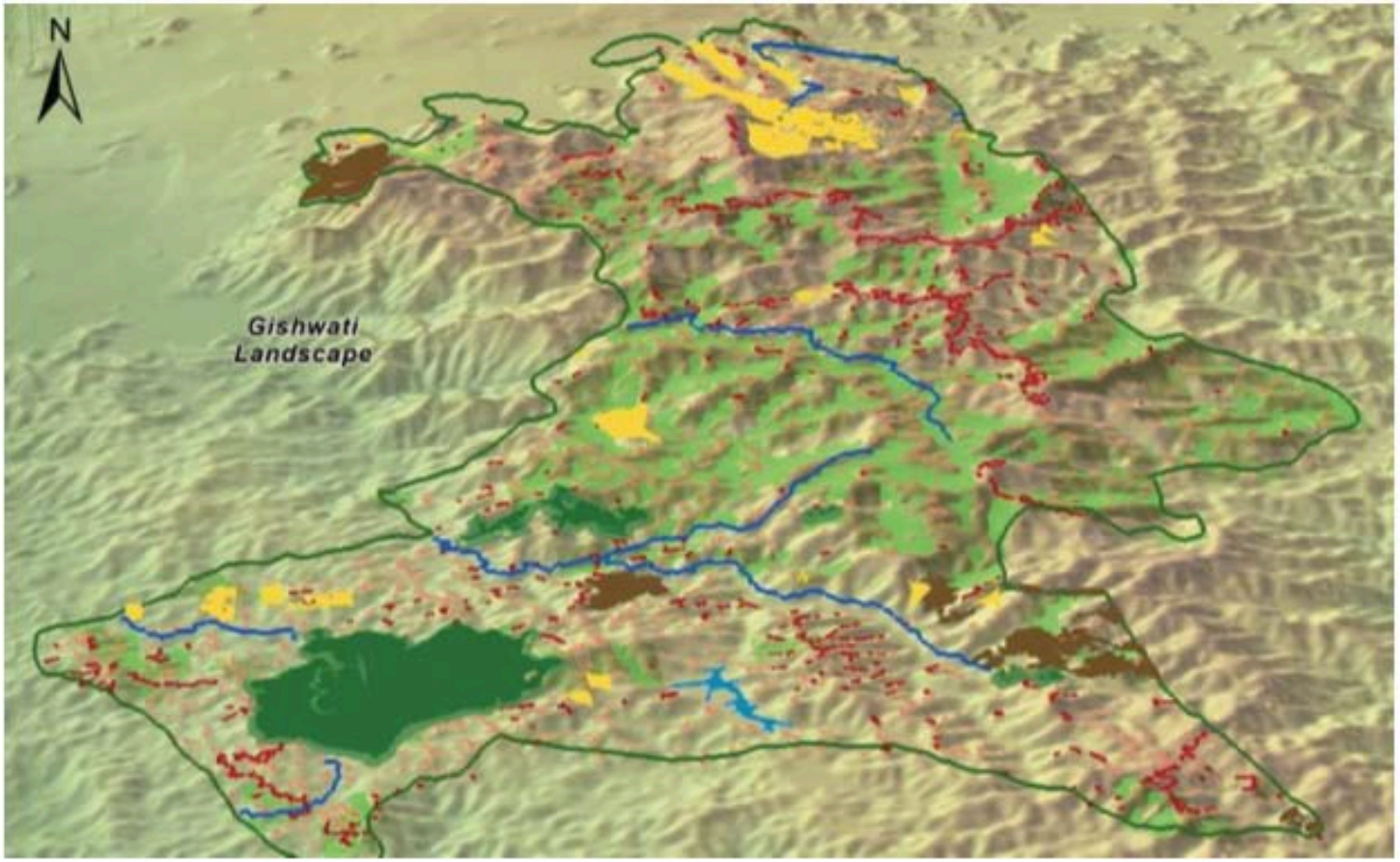
Spatial Analysis and Mapping



Analysis and Mapping







- Deforested area in riparian corridors
- Existing natural forest
- Area for buffers around natural forest
- Degraded natural forest
- Deforested area surrounding wetlands
- Deforested area on steeply sloped ridges (>55%)
- Deforested area on moderately sloped ridges (20% < slope < 55%)
- Degraded agricultural land
- Silvopastoral areas
- Gishwati landscape

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What does economics have to do with restoration?

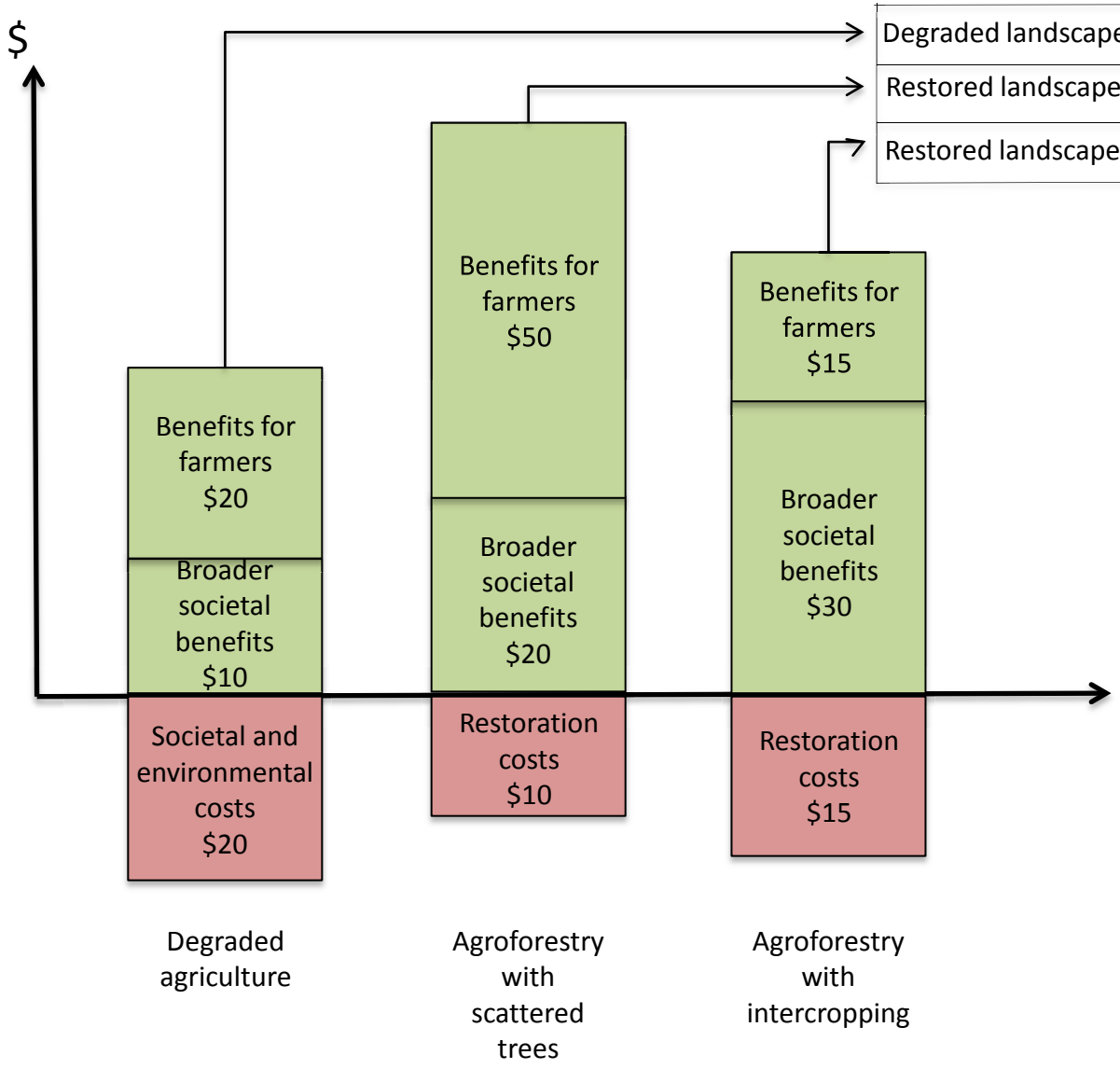
- Globally, there are more than 2 billion hectares of degraded land.
- With this tremendous opportunity, deciding where, when, and how landscapes should be restored is important.
- The answers to these questions must be formed on the basis of restoration's expected impacts on ecosystem goods and services.

How can economics help?

- An ROI framework is appropriate for serving the decision making processes at the country, regional, or local level.
- Framework assesses the ecosystem service and economic impacts of forest landscape restoration to help decision makers understand trade-offs.
- Carbon abatement curves show how much carbon each transition could capture and helps decision makers offset emissions by restoring landscapes as efficiently as possible.

Value of a restoration transition is a *marginal value*

	Benefits - costs	Net benefit	Marginal benefit
Degraded landscape	$30 - $20	$10	-
Restored landscape I	$70 - $10	$60	$50
Restored landscape II	$45 - $15	$30	$20



Four steps in applying the ROI framework

1. *Identify degraded forest landscapes and their land uses:* Map landscapes in need of restoration as well as the characteristics of the landscapes.

2. *Identify restoration transitions:* Determine which restoration interventions could be used to restore each type of degraded land use.

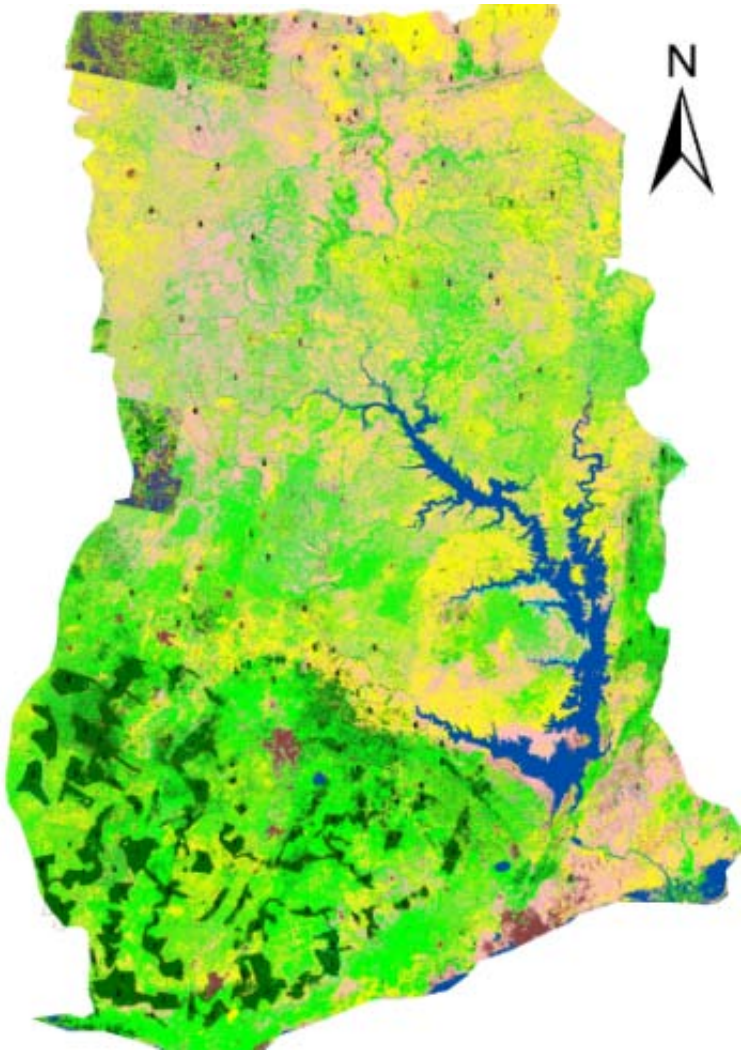
3. *Model and value the change in ecosystem goods and service production for each restoration transition*: Calculate the net change in ecosystem goods and service production.

4. *Conduct sensitivity and uncertainty analysis:* See how sensitive the cost-benefit results are to changes in key variables like prices, interest rates, and biological assumptions.

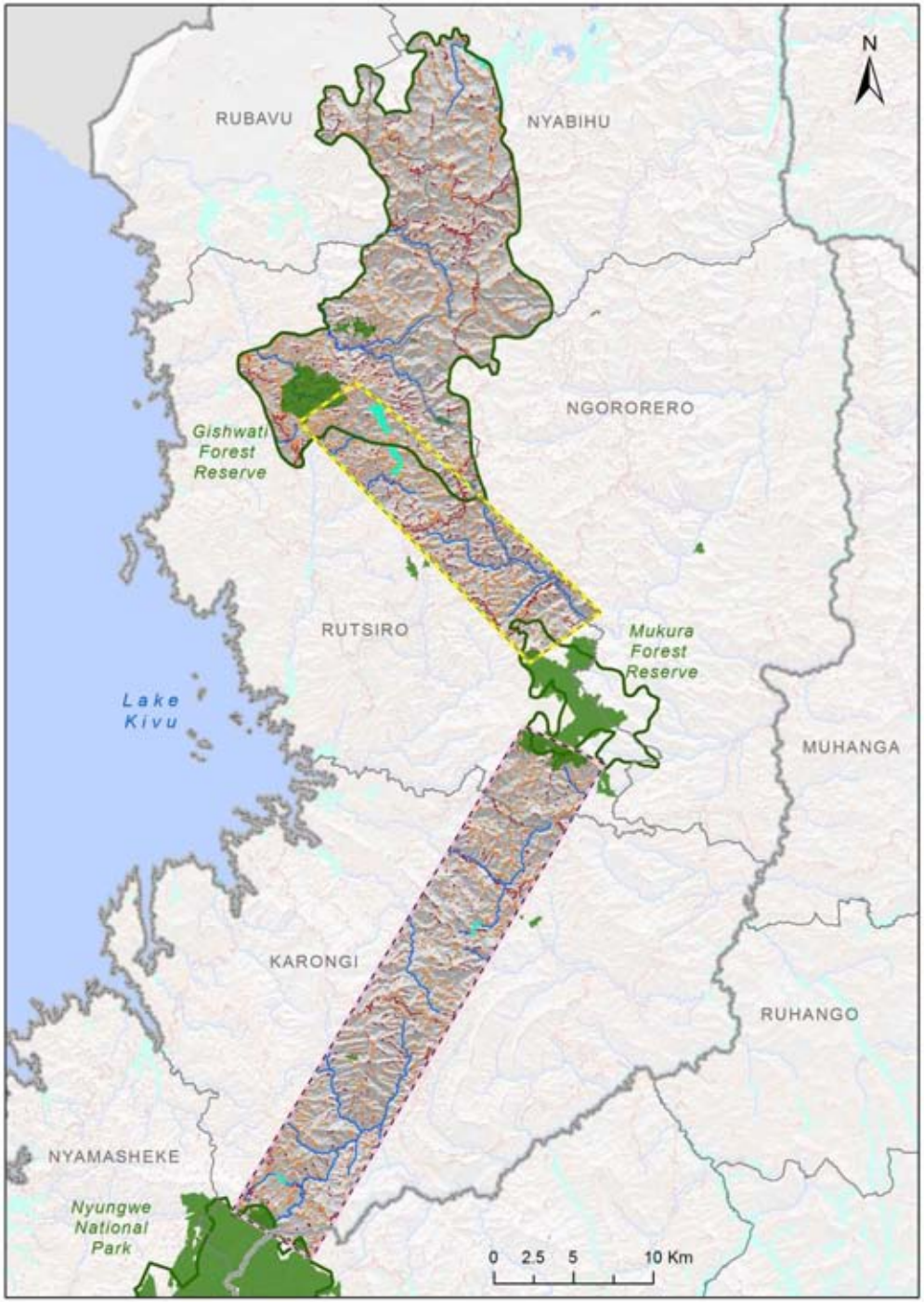
Step 1: Identify degraded forest landscapes and their land uses

- Map landscapes in need of restoration, as well as the characteristics of the landscapes.
- Degraded landscapes should be characterized in terms of current land uses and land cover, weather, socio-economic conditions, and other contextual information.

Geospatial analysis



- Geospatial analysis used to quantify areas of degraded land use that are also opportunity areas for forest and landscape restoration.
- Analysis based on geospatial datasets including elevation, slope, land cover, forest cover, water bodies, parks and reserves, and administrative areas.
- Five degraded categories: deforested land, agriculture, native forest, plantations, and farm fallow



Gishwati Forest Reserve, GIshwati-Mukura Corridor and Nyungwe-Mukura Corridor

Legend

- Gishwati-Mukura corridor
- Nyungwe-Mukura corridor
- Ridge tops with Very Steep slopes (>55%)
- Ridge tops with Steep slopes (20% - 55%)
- Wetlands - Buffered 50m
- Rivers - Buffered 20m
- Closed Natural Forest
- Reserves and National Parks
- Lakes
- District boundary
- Province boundary

Hillshade (Elevation)
High
Low

Step 2: Identify restoration transitions

- Determine which restoration interventions could be used to restore each type of degraded land use.
  - For example, degraded agricultural land could be restored to agroforestry and
  - deforested land could be restored to secondary forests through natural regeneration.

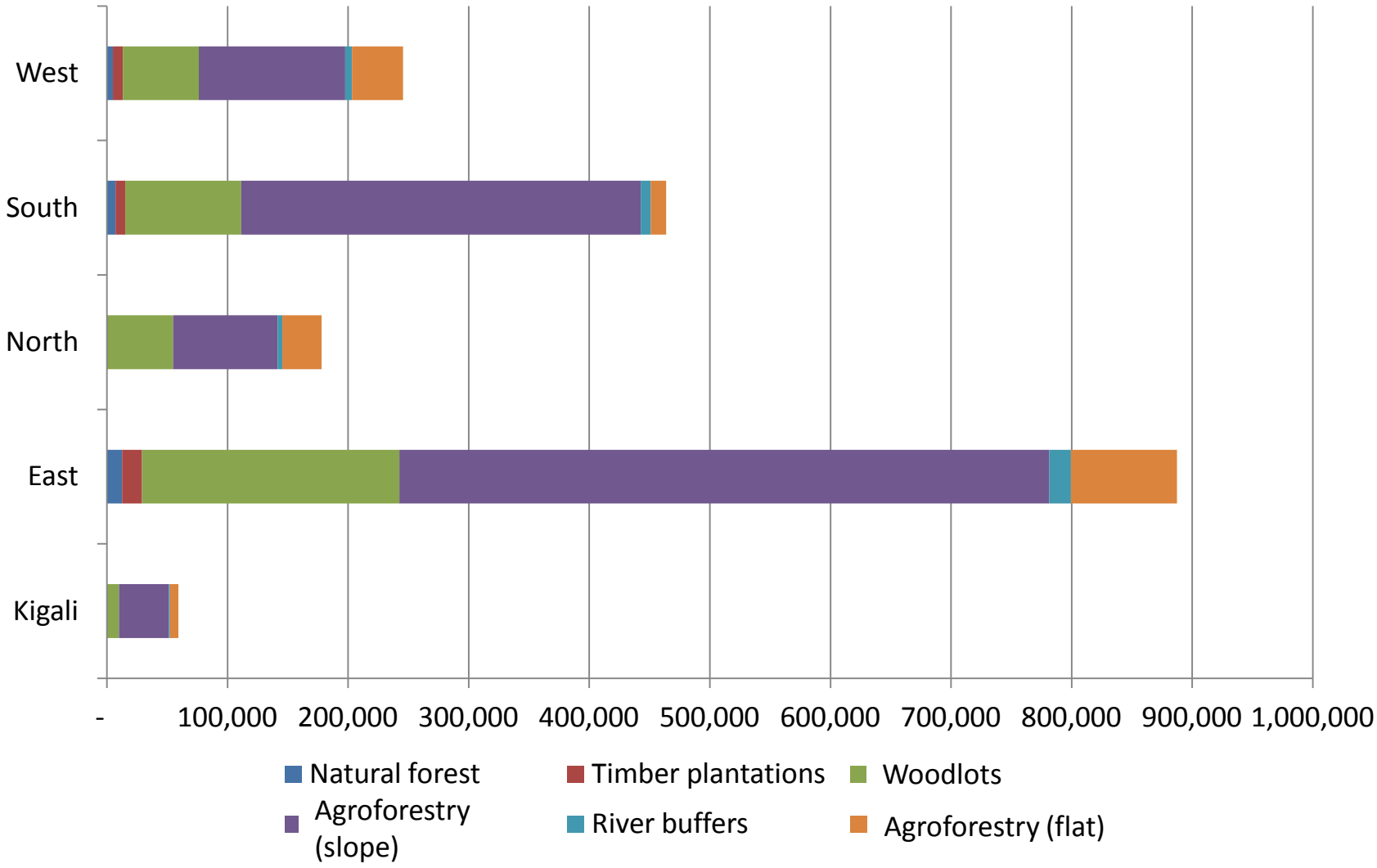
Example of restoration transitions

Conventional agriculture → Agroforestry

Poorly managed woodlots → Well managed woodlots

Deforested land → Naturally regenerated forests

Interventions (# of hectares) – Rwanda



Define restoration transition actions

- **Make relatively reliable estimates of the different technical specifications involved in each transition**

- **A Multistakeholder approach**

- Examples from Rwanda
  - **Conventional agriculture → Agroforestry**
    - Sale of crops is only source of revenue for agriculture
    - Agroforestry would add 300 additional trees/ha to agricultural land
    - Leaves from trees would be used as green manure, reducing fertilizer costs
    - Rotation interval for trees is 20 years
  - **Poorly managed woodlots → Well managed woodlots**
    - Poorly managed woodlots stock 1,100 trees per hectare
    - Well managed woodlots stock 1,600 trees per hectare
    - After 1 year, 15% of seedlings are replanted
    - After 4^{th} year 250 trees/ha are removed for thinning

Step 3: Value change in ecosystem goods and services

- The quantity of ecosystem services and goods, and their value can be estimated using a number of methods depending on how available biological and market data are.

- In data rich situations more accurate and advanced methods can be used, such as biological production functions.

- In data poor situations benefit-transfer techniques can be used to construct look-up tables of land-use values.

- Our goal: estimate economic returns of each restoration transition and identify areas where restoration would have a large, positive impact.

- To do this: compare the value of ecosystem services gained through restoration with the costs of restoration.

Step 3: Value change in ecosystem services – calculate ROI with the Look-up Table and ROI Worksheet

Restoration Opportunity Assessment Look-up Table										
	Ecosystem goods and services			Monetized benefit estimates						
Land uses	Timber (M3/ha)	Carbon (tons/ha)	Crop Production (tonnes)	Timber revenue	Carbon revenue	Crop revenue	Value of erosion prevention	NTFPs value	Cost/ha	NPV
Degraded land uses	[1a]	[1b]	[1c]	[1d]	[1e]	[1f]	[1g]	[1h]	[1i]	
1. Deforested land	0	0	0	$0	$0	$0	$0	$0	$50	-$50
2. Degraded natural forest	200	100	0	$0	$2,569	$0	$1,000	$1,000	$100	$4,469
3. Degraded forest plantation	180	90	0	$2,700	$2,312	$0	$750	$500	$4,000	$2,262
4. Degraded agriculture	0	0	18	$0	$0	$3,600	$500	$300	$5,000	-$600
5.Poor farm fallow	0	0	10	$0	$0	$2,000	$250	$200	$2,200	$250
Restoration interventions	[2a]	[2b]	[2c]	[2d]	[2e]	[2f]	[2g]	[2h]	[2i]	
1.Tree planting	300	150	0	$4,500	$3,854	$0	$1,500	$500	$7,000	$3,354
2. Natural regeneration to establish blocks of forest	400	200	0	$0	$5,138	$0	$2,000	$1,000	$1,000	$7,138
3. Improved plantation management	300	150	0	$4,500	$3,854	$0	$1,500	$500	$7,000	$3,354
4. Agroforestry	160	80	24	$2,400	$2,055	$4,800	$1,000	$300	$7,500	$3,055
5. Improved fallow	40	20	16	$600	$514	$3,200	$500	$200	$4,500	$514

Biophysical values/landscape characteristics

Economic values based on biophysical values

Costs

Step 3: Value change in ecosystem services and goods

- The net present value (NPV) concept allows various sums of money to be compared over time.
- For example, $10 received a year from now would have a NPV of $9 assuming the future is discounted at a rate of 10%.
- NPV greater than zero suggests that restoring degraded landscape is a worthwhile.
- NPV less than zero suggests that restoring the degraded landscape will generate too few benefits to justify the costs.

Step 3: Value change in ecosystem services and good

- ROI calculates the amount of value (measured in currency) that would be generated by every dollar invested in the restoration transition.

- For example, an ROI of 0.2 means for each dollar invested $1.20 worth of ecosystem goods and services would be created.

- Private investors and private landowners want to achieve large ROIs through land use transitions

Step 3: Value change in ecosystem services – calculate ROI with the Look-up Table and ROI Worksheet

- We repeat this exercise for every restoration transition
- This tells us the Cost, NPV and ROI of each transition

Restoration Opportunity Assessment ROI Table											
	Ecosystem goods and services			Monetized benefit estimates							
	Timber (M3/ha)	Carbon (tons/ha)	Crop Production (tonnes)	Timber revenue	Carbon revenue	Crop revenue	Value of erosion prevention	NTFPs value	Cost/ha	NPV	ROI
Restoration transition	[2a-1a]	[2b-1b]	[2c-1c]	[2d-1d]	[2e-1e]	[2f-1f]	[2g-1g]	[2h-1h]	[2i-1i]	(Rev -cost)	[(Rev - cost)/cost]
1. Deforested land to tree planting	300	150	0	4,500	3,854	0	1,500	500	6,950	$3,404	0.49
2. Degraded natural forest to Naturally regenerated forests	200	100	0	0	2,569	0	1,000	0	900	$2,669	2.97
3. Degraded forest plantation to Silviculture	120	60	0	1,800	1,541	0	750	0	3,000	$1,091	0.36
4. Degraded agriculture to Agroforestry	160	80	6	2,400	2,055	1,200	500	0	2,500	$3,655	1.46
5.Poor farm fallow to Improved farm fallow	40	20	6	600	514	1,200	250	0	2,300	$264	0.11

Step 3: Value change in ecosystem services and good – Interpret the results

- How much financing would be required to restore the landscape?

- How much revenue would be expected?

- For every dollar invested in the restoration of this landscape how many additional dollars of benefits are created?

Step 3: Value change in ecosystem services – Interpret the results

- How much financing would be required to restore the landscape?

Restoration Opportunity Assessment Geospatial Worksheet						
	Cost/ha	NPV	Area (M Ha)	Total cost	Total revenue	Landscape ROI
Restoration transition	**[1]**	**[2]**	**[3]**	**[1*3]**	**[2*3]**	
1. Deforested land to tree planting	6,950	3,404	4,000	$27,800,000	$13,614,000	1.09
2. Degraded natural forest to Naturally regenerated forests	900	2,669	2,000	$1,800,000	$5,338,000	
3. Degraded forest plantation to Silviculture	3,000	1,091	10,000	$30,000,000	$10,914,000	
4. Degraded agriculture to Agroforestry	2,500	3,655	40,000	$100,000,000	$146,208,000	
5.Poor farm fallow to Improved farm fallow	2,300	264	1,000	$2,300,000	$263,800	

Step 3: Value change in ecosystem services – Interpret the results

- How much financing would be required to restore the landscape?
  - $162 million would be need to restore the landscape. This represents both material and labor costs

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- How much revenue would be expected?
  - Restoring the landscape would generate $176 million over the restoration horizon (20 – 30 years)

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- How much revenue would be expected?
  - Restoring the landscape would generate $176 million over the restoration horizon (20 – 30 years)
- For every dollar invested in the restoration of this landscape how many additional dollars of benefits are created?
  - The results from the ROI framework suggest that each dollar invested in this landscape would yield $1.09 of additional benefits, including crops, timber, reduced erosion, and increased carbon sequestration.

Restoration Opportunity Assessment Geospatial Worksheet						
	Cost/ha	NPV	Area (M Ha)	Total cost	Total revenue	Landscape ROI
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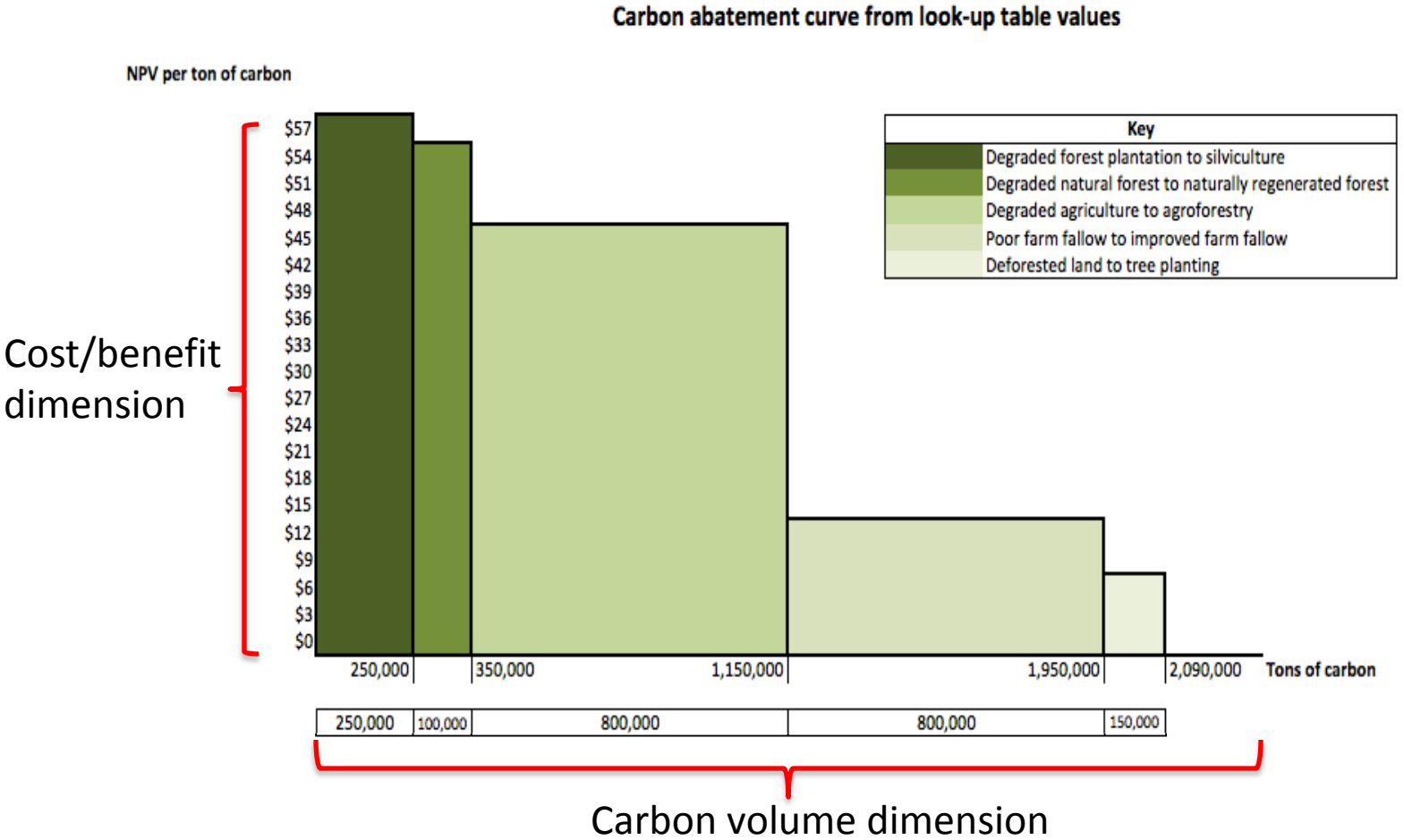
Constructing a carbon abatement curve

- Countries who use restoration to offset emissions want to find the least costly/most beneficial way to do so.
- Carbon abatement curves use information on the costs and benefits to estimate the costs/benefits of sequestering carbon under each restoration transition.
- The curves show how much carbon each transition could capture if all of the restoration opportunities were taken.

Two dimensions of a carbon abatement curve

- Cost (benefit) dimension: Height of curves show which restoration transitions sequester carbon for the least cost or most benefit.
- Volume dimension: The width of each bar represents the total amount of carbon that could be sequestered if all opportunity areas were restored.



Constructing a carbon abatement curve

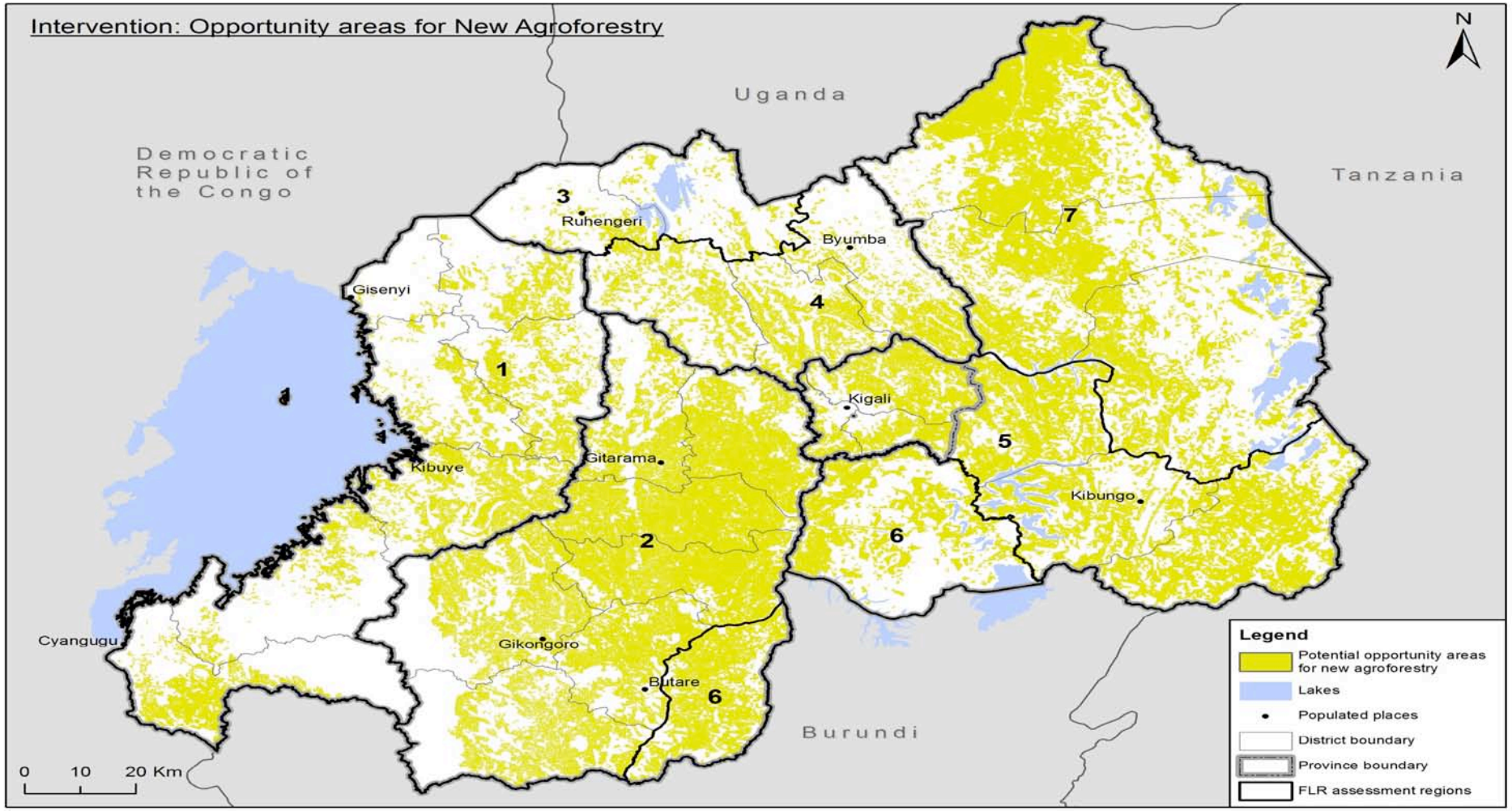
- To construct a carbon abatement curve we need to define the height and width of each restoration transition.
- Begin by creating a table that shows the amount of carbon, total area of opportunity, and the NPV for each restoration transition

Carbon Abatement Curve Worksheet					
Restoration transition	**Carbon (tons/ha)**	**Area**	**Total Carbon**	**NPV**	**NPV/TC**
	[1]	**[2]**	**[1*2]**	**[3]**	**[3/1]**
1. Deforested land to tree planting	150	4,000	600,000	$3,404	$23
2. Degraded natural forest to Naturally regenerated forests	100	2,000	200,000	$2,669	$27
3. Degraded forest plantation to Silviculture	60	10,000	600,000	$1,091	$18
4. Degraded agriculture to Agroforestry	80	40,000	3,200,000	$3,655	$46
5.Poor farm fallow to Improved farm fallow	20	1,000	20,000	$264	$13

- The total amount of carbon that can be stored (i.e. the width of each column) by each transition is found by multiplying the carbon sequestered by each hectare with the total number of hectares that could be restored.
- The cost (benefit) of carbon (i.e. the height of each column) is found by dividing the NPV of each transition by the tons of carbon stored by that transition on a single hectare.

Interpreting a carbon abatement curve

- Which restoration transitions have the potential to sequester the most carbon? Is that what you would have expected?
- If you were a social investor looking for a source of carbon offsets and community impact which restoration transition would you invest in?



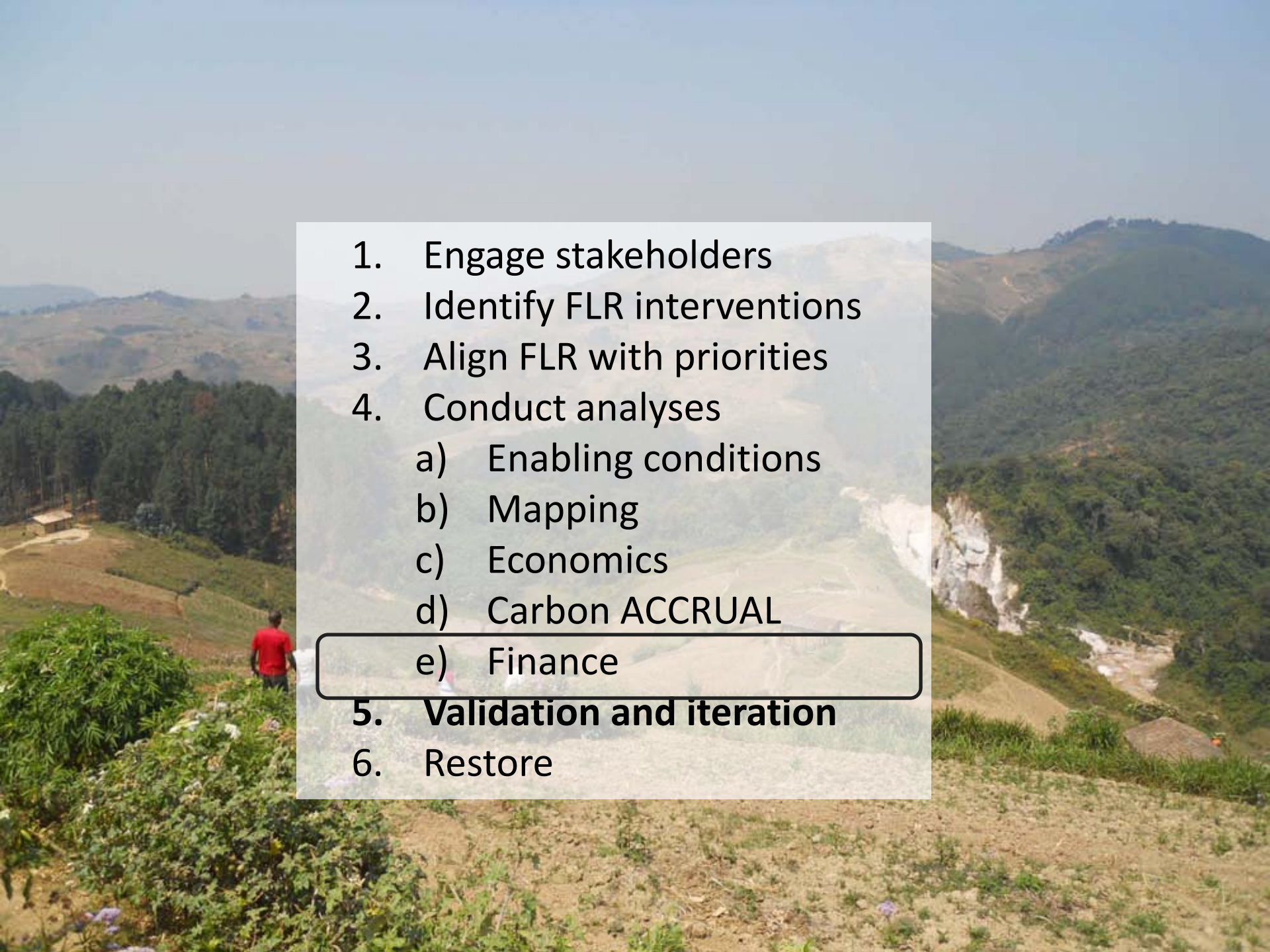
Benefits to society

Benefits to farmers

Annual crop value (Rwf/ha)	Annual woody biomass value (Rwf/ha)	Annual reduced erosion (t/ha)	Additional carbon (t/ha)	Average Return on Investment
-99,000 to 189,000	75,665 to 132,980	22 to 27	251 to 449	28%

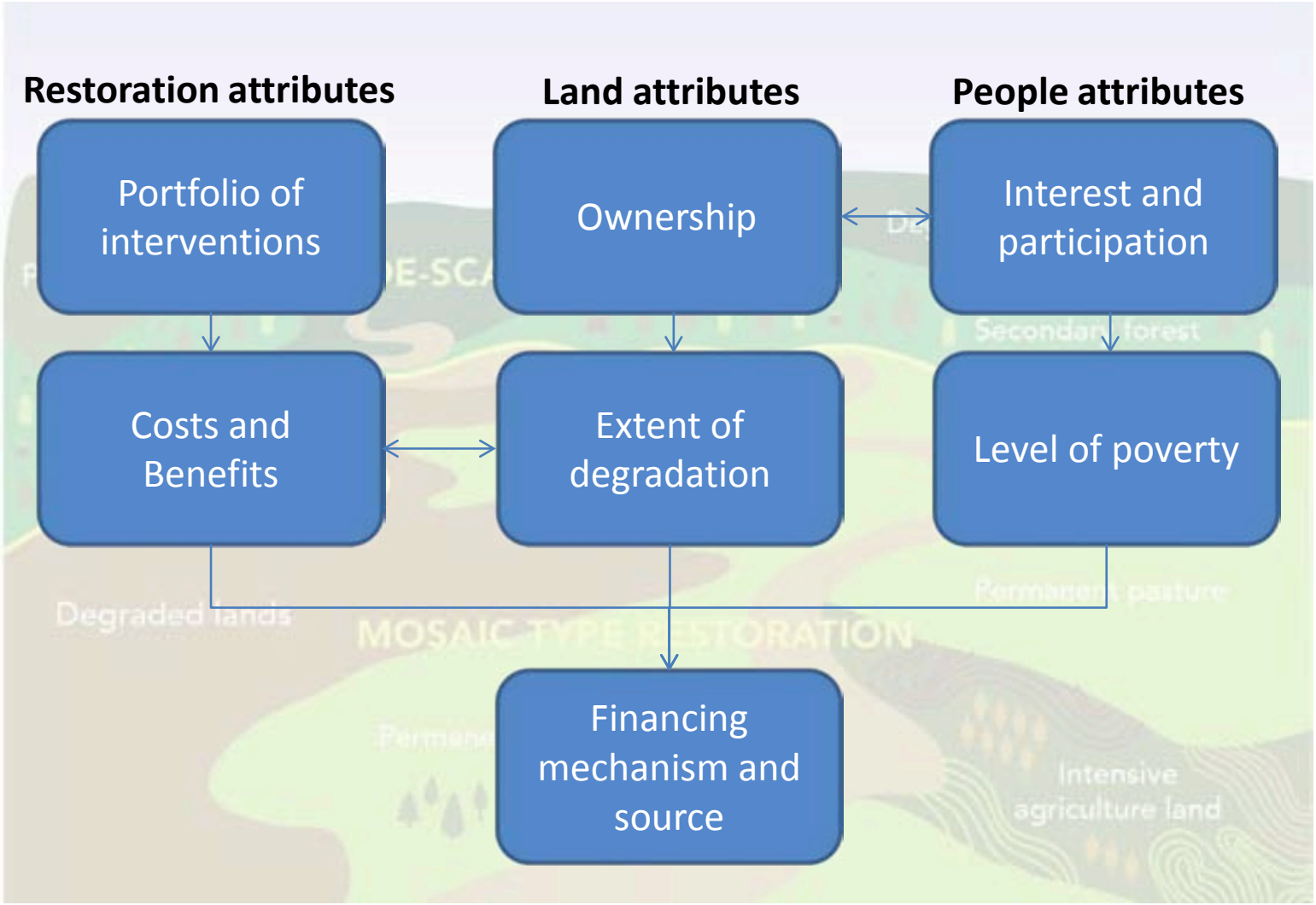
Conclusions

- Given the amount of degraded land across the world, the ability to identify the most beneficial landscapes to restore is an important objective.
- An integrated approach that accounts for both the costs and benefits of restoration provides decision makers with more actionable information.
- Assessing the costs and benefits is useful for prioritizing investments in restoration across a variety of criteria including NPV, ROI, and multi-criteria decision-making.
- Restoration is most successful when planning is based on multiple factors, in addition to economic ones.
- Other factors (e.g. secure land-tenure) will also be key to restoration success. Restoration is most likely to succeed.



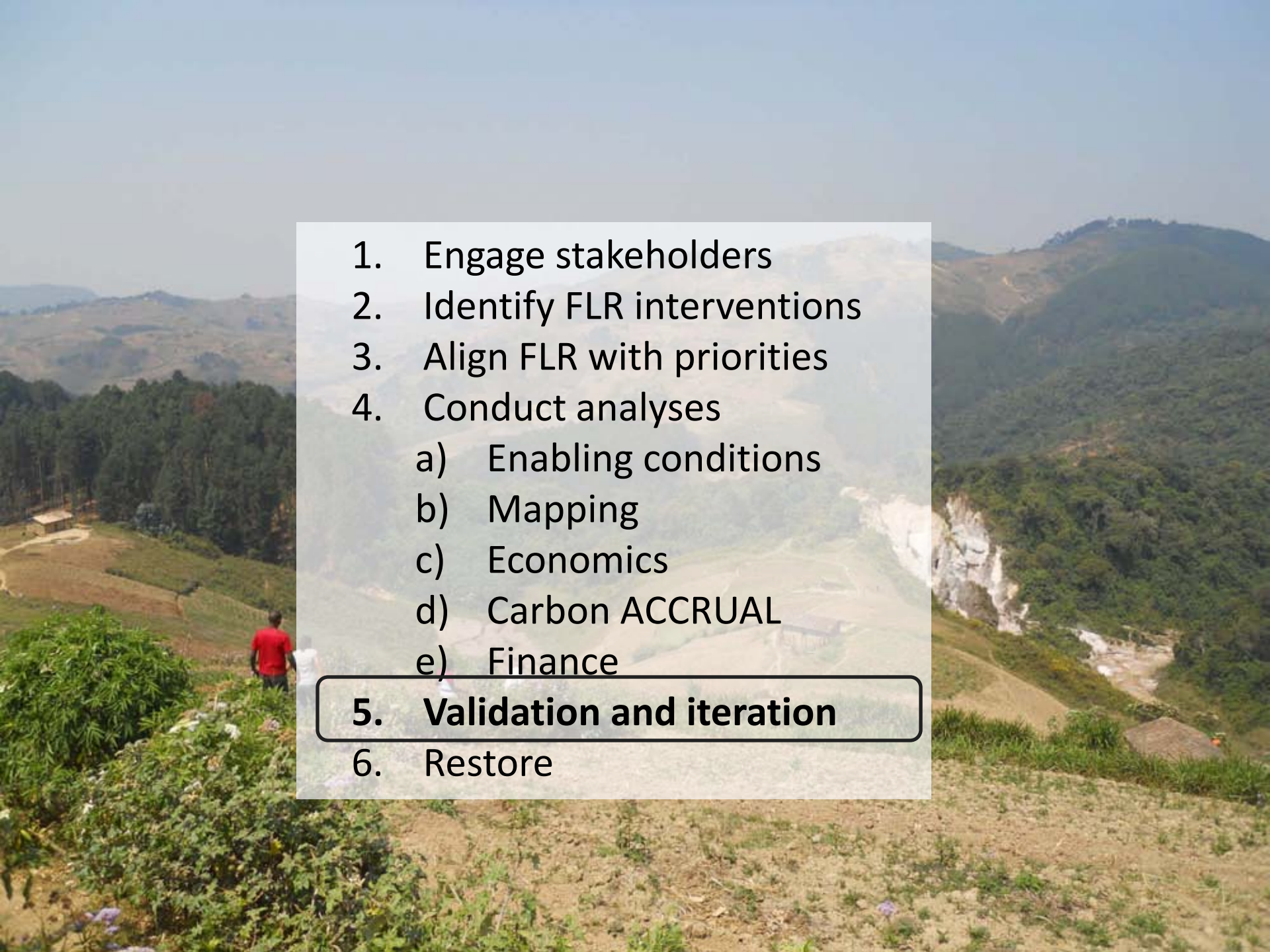
1. Engage stakeholders
2. Identify FLR interventions
3. Align FLR with priorities
4. Conduct analyses
    a) Enabling conditions
    b) Mapping
    c) Economics
    d) Carbon ACCRUAL
    e) Finance
5. **Validation and iteration**
6. Restore

Financing Landscape Restoration



Financing Landscape Restoration: 3 Representative Examples

Attribute	Example 1
Intervention	Agroforestry on slopes
Costs & Benefits	Private benefit
Ownership	Small holder owns
Extent of degradation	Moderate
Participation & interest	High
Level of poverty	Low
Financing mechanism	**Private loan**



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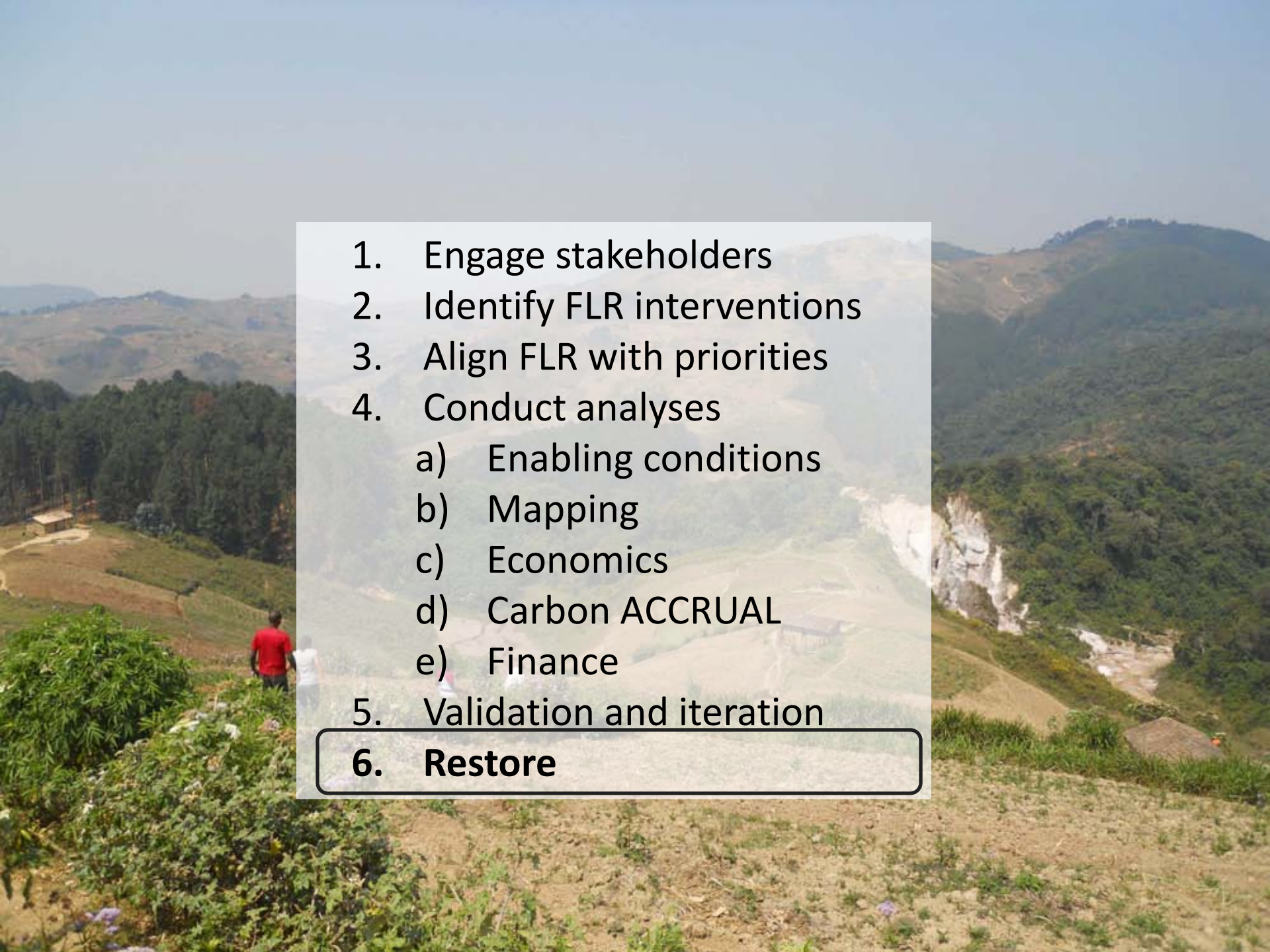

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Examples of knowledge created through ROAM

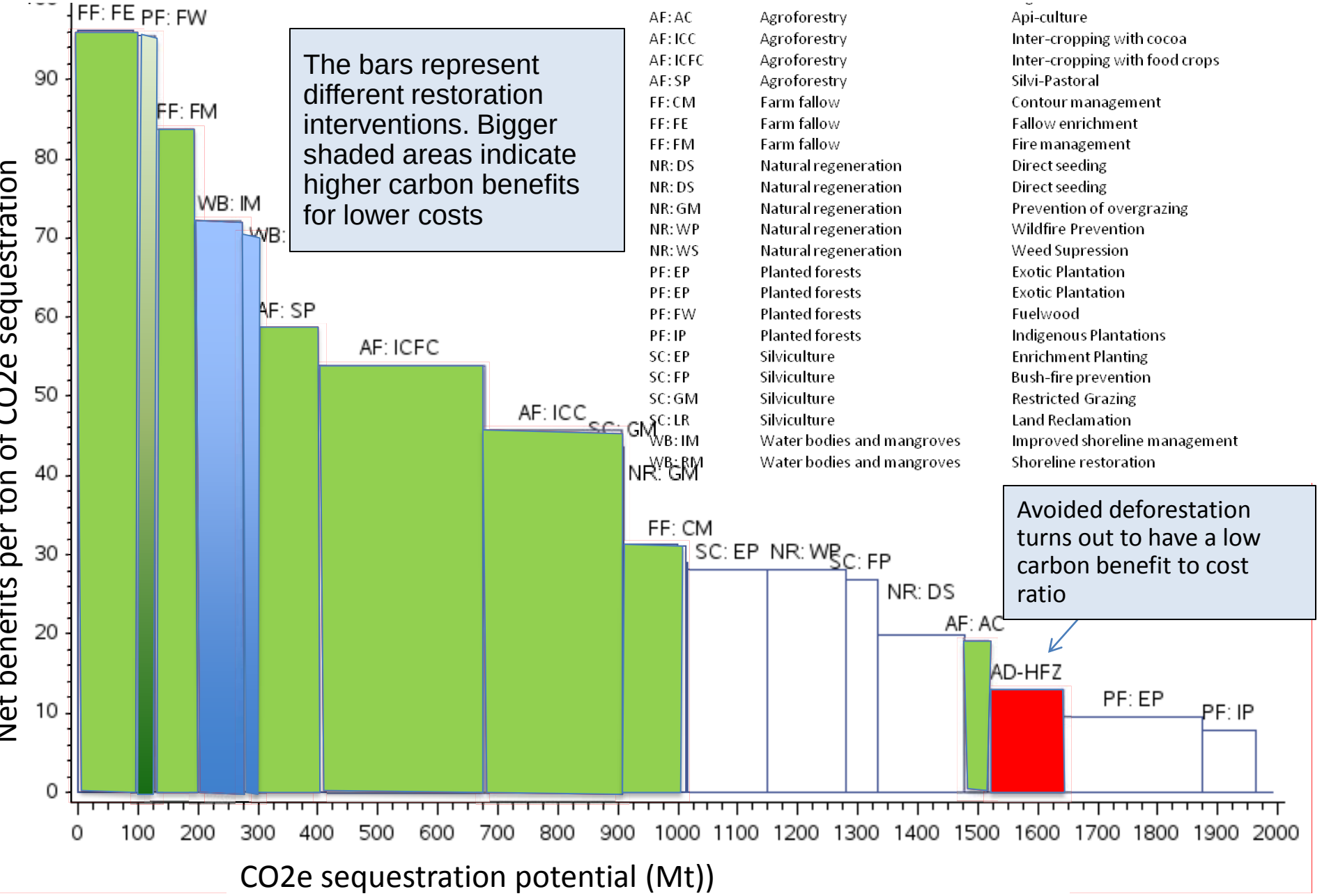
Impacts of assessment findings so far:

• Used as key source document in the design and submission of Ghana's investment plan for the Forest Investment Programme (FIP)

• Providing the basis of interagency development of a national strategy on FLR for Mexico and Guatemala

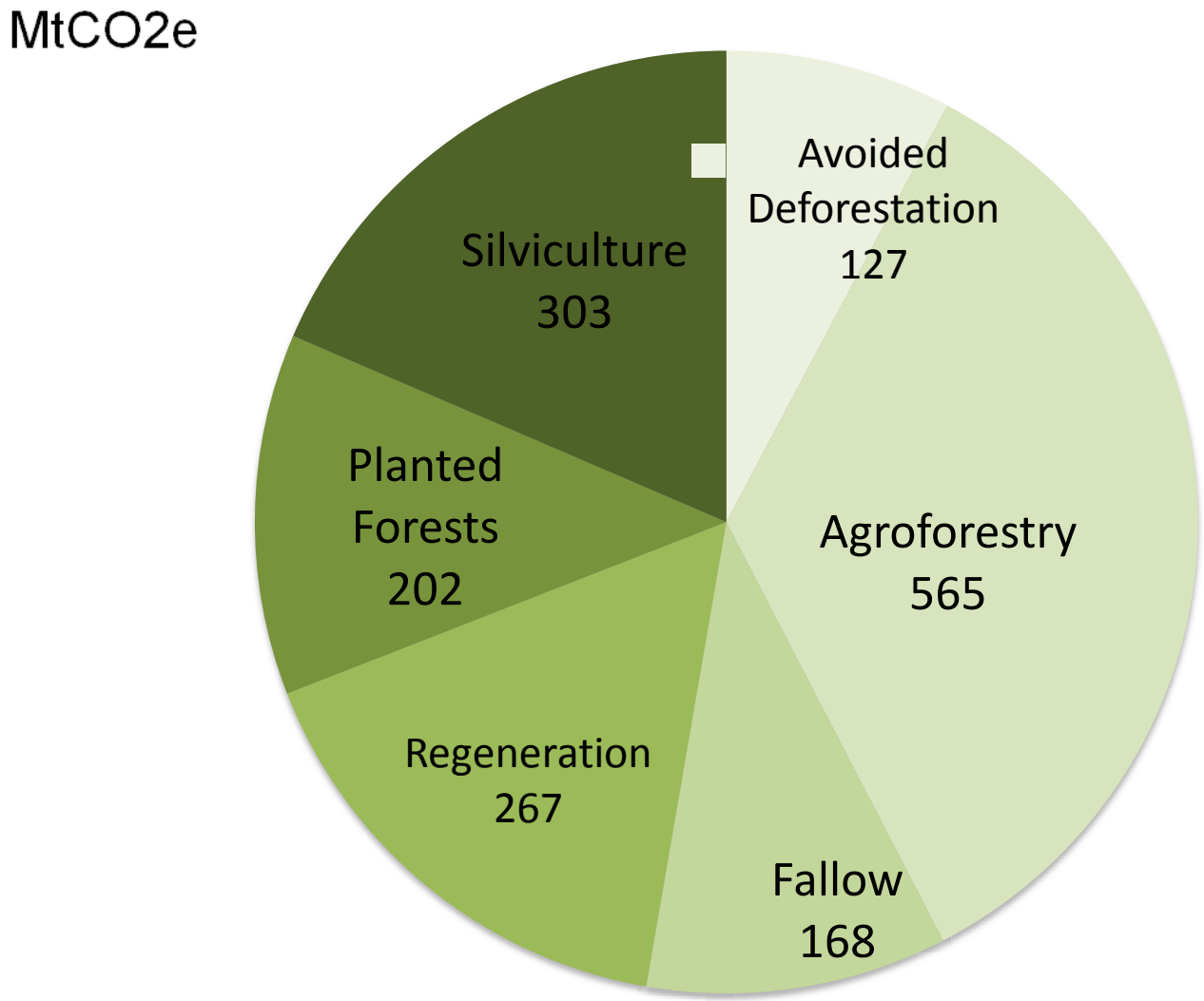
• Formed the basis of a Presidential/Cabinet briefing note and shaping the major GEF landscape restoration project in Rwanda

Allowing us to produce a Landscape Restoration Carbon Cost Abatement Curve

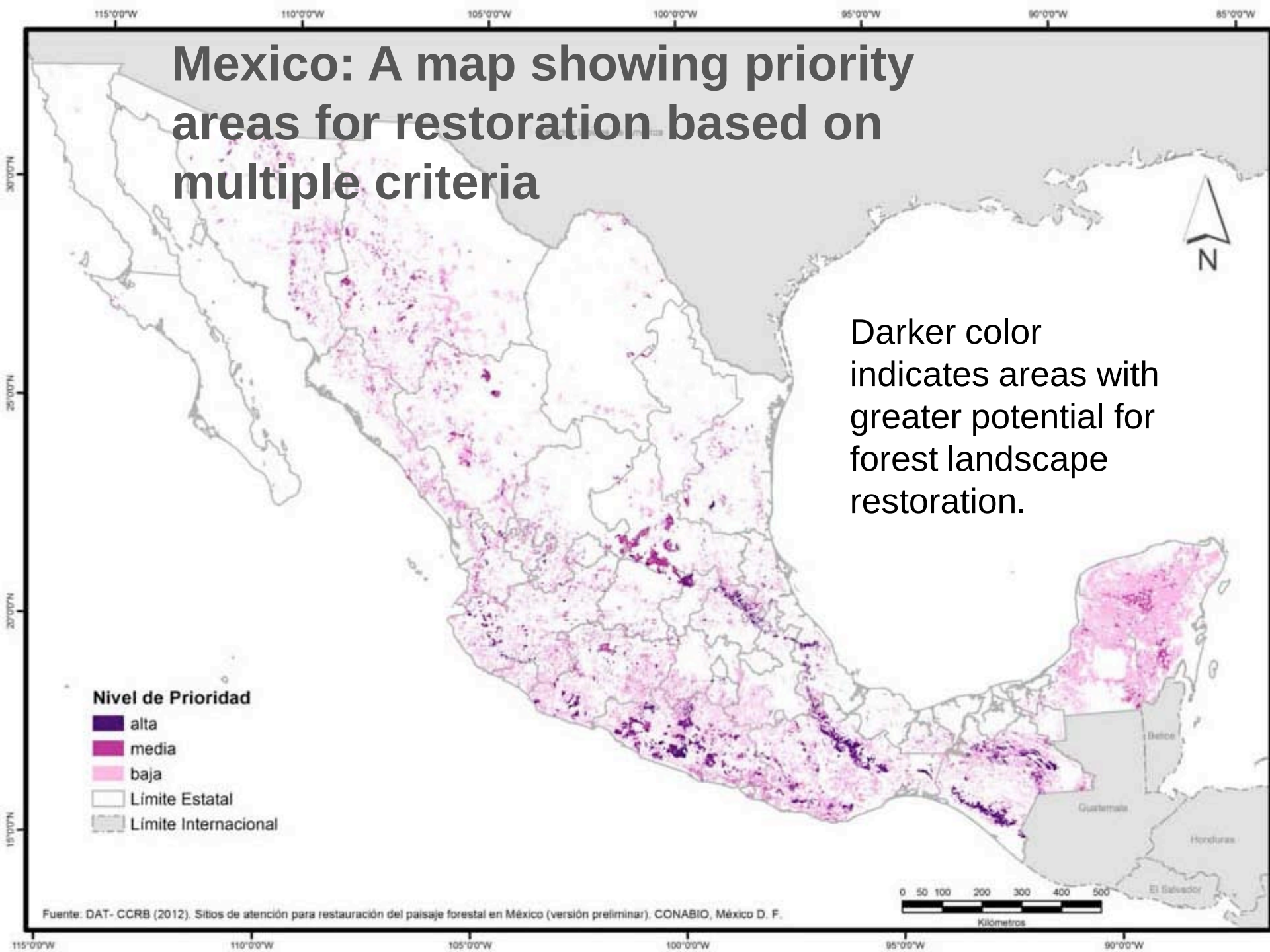


AF: AC	Agroforestry	Api-culture
AF: ICC	Agroforestry	Inter-cropping with cocoa
AF: ICFC	Agroforestry	Inter-cropping with food crops
AF: SP	Agroforestry	Silvi-Pastoral
FF: CM	Farm fallow	Contour management
FF: FE	Farm fallow	Fallow enrichment
FF: FM	Farm fallow	Fire management
NR: DS	Natural regeneration	Direct seeding
NR: DS	Natural regeneration	Direct seeding
NR: GM	Natural regeneration	Prevention of overgrazing
NR: WP	Natural regeneration	Wildfire Prevention
NR: WS	Natural regeneration	Weed Supression
PF: EP	Planted forests	Exotic Plantation
PF: EP	Planted forests	Exotic Plantation
PF: FW	Planted forests	Fuelwood
PF: IP	Planted forests	Indigenous Plantations
SC: EP	Silviculture	Enrichment Planting
SC: FP	Silviculture	Bush-fire prevention
SC: GM	Silviculture	Restricted Grazing
SC: LR	Silviculture	Land Reclamation
WB: IM	Water bodies and mangroves	Improved shoreline management
WB: RM	Water bodies and mangroves	Shoreline restoration

And quantified the potential of each intervention to sequester carbon

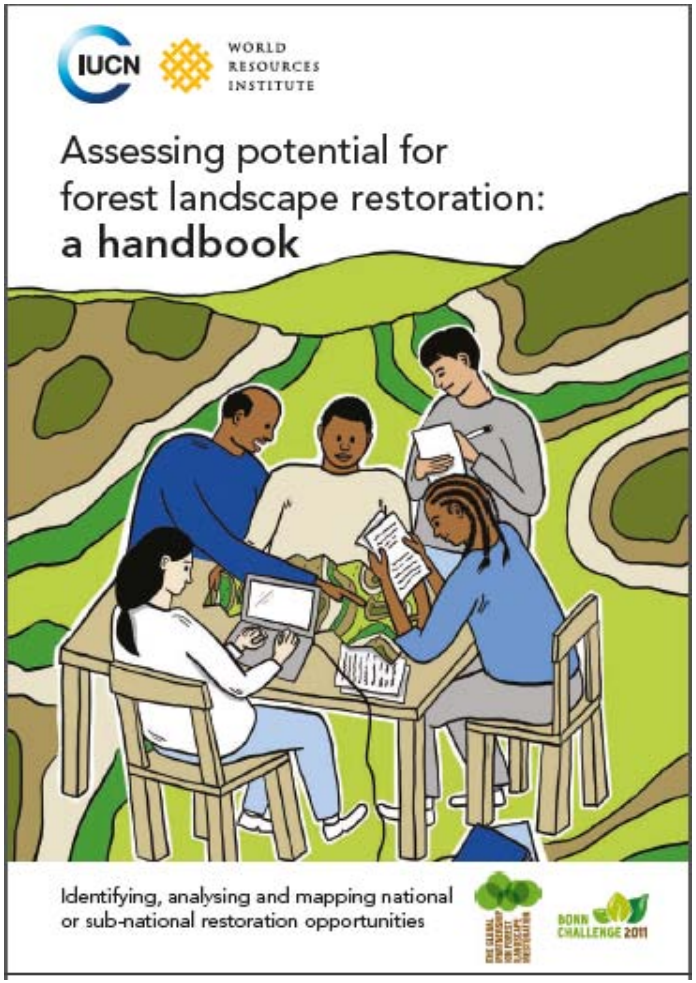


Mexico: A map showing priority areas for restoration based on multiple criteria



Fuente: DAT- CCRB (2012). Sitios de atención para restauración del paisaje forestal en México (versión preliminar). CONABIO, México D. F.

To learn more and get involved



Contact us to get more information on ROAM, assessment processes, or what else we can offer.

- Download our road-test handbook on ROAM: www.iucn.org/ROAM
- IUCN Digital Restoration Economic Valuation tools will be available late summer, 2014.
- WRI Rapid Restoration Diagnostic of Success Factors manual will be available by September, 2014.
- Contact us at: **flr@iucn.org**


Thank You