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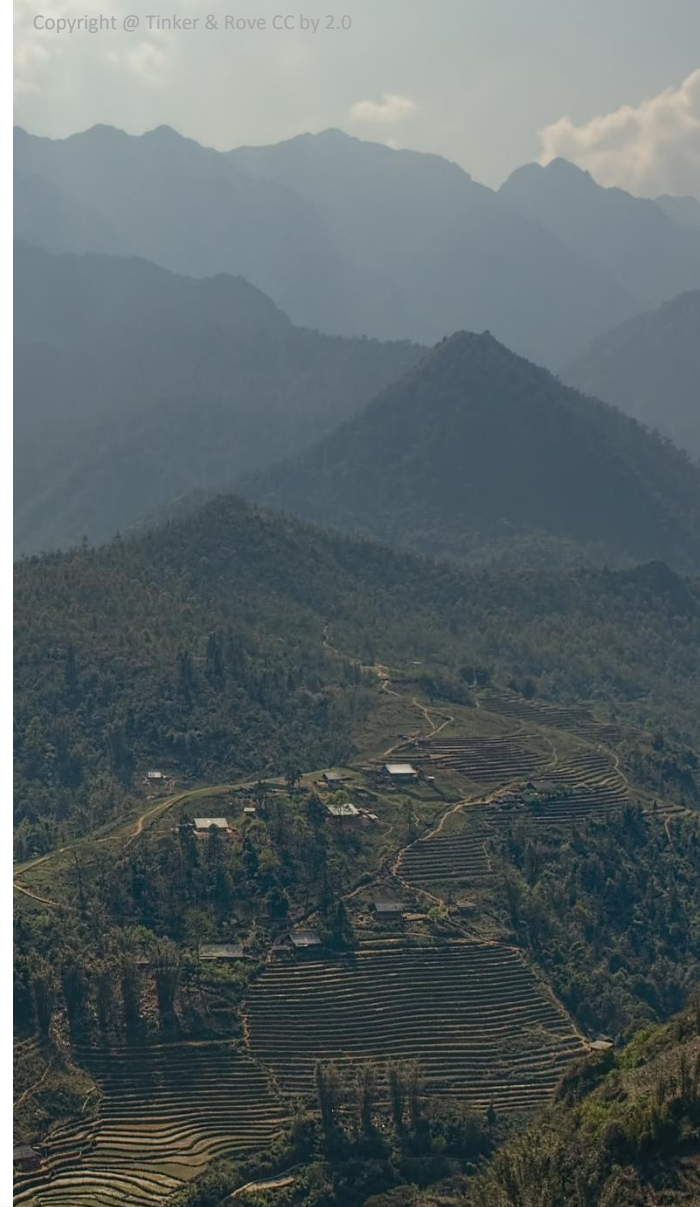
What are current/future pressures on forests, and why do we need to integrate information from different sectors?


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Outline

1. Pressures and threats: How do these relate to drivers and barriers?
2. Why do we need to integrate information from different sectors?
3. How can we identify and map future threats and drivers?
4. Approaches for mapping drivers and barriers





1. Pressures and threats: How do these relate to drivers and barriers?

Pressures and threats: How do these relate to drivers and barriers?

REDD+: addressing **drivers** of deforestation and forest degradation and **barriers** to conservation, sustainable management and forest enhancement

'Pressures': often used in a similar way to **'drivers'**

'Threats': risk factors that may change the **'future distribution of drivers'**

Pressures and threats: How do these relate to drivers?

Current:

Where are the drivers of deforestation/degradation now, and where has forest cover change recently happened?

Future:

Where are pressures and threats on forests that may lead to deforestation or forest degradation in the future?

i.e. drivers of future change.

Direct and indirect drivers

DIRECT drivers include:

- Expansion of infrastructure
- Agricultural expansion
- Fire
- Mining activities
- Expansion of plantations e.g. rubber

INDIRECT drivers include:

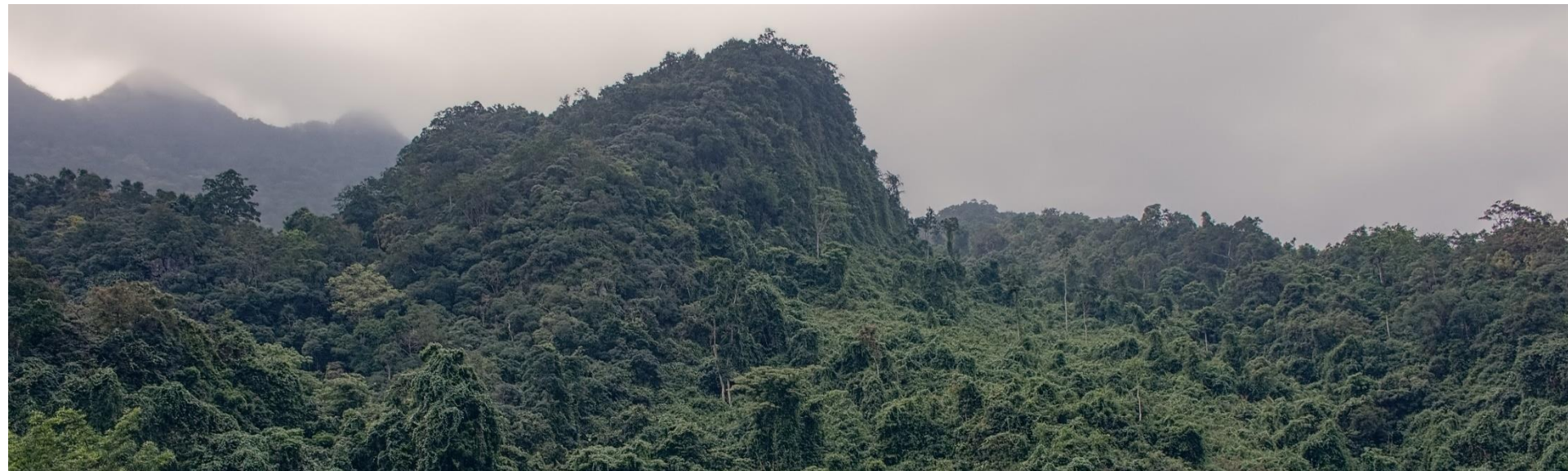
- Population size and density
- Poverty levels
- Financial incentives
- Cultural preferences
- Political decisions




Planning for REDD+ actions to address drivers & barriers

To identify locations for REDD+ actions, consider

- current pressures (e.g. the location of current drivers)
- threats to forests, to help identify where the same or new drivers may be in the future
- Barriers to conservation/restoration/management (e.g. conflict over land)





2. Why do we need to integrate information from different sectors?

Why do we need to integrate information from different sectors?

- An integrated land-use planning approach tries to engage stakeholders from **various sectors**, taking into account **different objectives and activities in the landscape** and any **decisions** relating to them.
- It aims to enable sectors, individually or together, to achieve their goals with a minimum of conflicts and enhanced benefits for society, the economy and the environment.
- Future land-use demands may need to be reconciled across sectors



Why do we need to integrate information from different sectors?


- Data from other sectors can help to provide an indication of the role of past, current or future pressures on forests.
- Data from sectors other than forestry can also often be mapped and may highlight particular pressures on forests.

Useful datasets can include:

- planned land concessions for agriculture and plantations
- infrastructure development plans
- current and/or projected population density
- timber harvesting areas

Example of datasets prioritized during the Viet Nam provincial REDD+ planning process

SUGGESTED DATASETS	FOR USE IN:	UNDERSTANDING FEASIBILITY	PRIORITISING LOCATIONS
BASIC DATASETS			
FOREST/LAND COVER		X	
CARBON (ABOVE- AND BELOW-GROUND)		X	X
FOREST CLASSES/CATEGORIES		X	X
POVERTY			X
POPULATION DENSITY			X
CURRENT Land-use		X	X
FUTURE Land-use PLAN (2020)			X
CURRENT MINING AND HYDROPOWER		X	X
FUTURE MINING AND HYDROPOWER			X
PROTECTED AREAS/PROTECTED ZONES		X	X
ROAD NETWORK		X	X
ADDITIONAL DATASETS			
WATERSHEDS & WATER BODIES			X
SOIL EROSION RISK/INPUT LAYERS FROM FOREST FUNCTION MAPPING			X
SPECIES RICHNESS			X
KEY BIODIVERSITY AREAS			X
FOREST SECTOR VALUE/EMPLOYMENT			X
FIRE OCCURRENCE/RISK/INTENSITY			X
DIGITAL ELEVATION MODEL (SLOPE, ASPECT, ELEVATION)			X
PRECIPITATION		X	X
FOREST OWNERS/FOREST MANAGEMENT UNITS		X	X
FOREST LAW VIOLATIONS			X



2. How can we identify and map future threats and drivers?

How can we identify and map future threats and drivers?

- Map current direct and indirect pressures, and examine their relationship with forest cover and forest cover change
- Think about how these may change in the future
 - Draw on future models of change, as available
 - Draw on existing land-use plans, as available

How can we identify and map future threats and drivers?

Roads and infrastructure

- Is there a relationship between the locations of past forest-cover change and the distance to roads and infrastructure?
- Where do planned infrastructural developments affect forests and/or increase access to forests?

How can we identify and map future threats and drivers?

Population density and poverty

- Is there a relationship between the locations of past forest cover change and the population density or poverty in these areas?
- How is the population and their livelihoods expected to change (rate of change), and how may this affect forest cover?

How can we identify and map future threats and drivers?

Local practices and political decisions (land-use plans)

- How do the locations of the current drivers of deforestation/degradation relate to the level of forest cover change observed in an area?
- Is there any planned deforestation?
- How will a proposed land-use plan change the extent to which a driver changes forest cover in these areas?

How can we identify and map future threats and drivers?

Hydropower

- Where are planned dams?
- How large are these, and what area of forest would be flooded? Can a topographical map be used to model this?
- What other infrastructure development would be required to access the dam?
- Are there any likely positive impacts on forests from planned dams? (e.g. PES scheme, less dependence on biomass energy)

How can we identify and map future threats and drivers?

Mining

- Where are mineral concessions? Which of these are for exploration and could be active in the future? Which of these are active already?
- Is there a history of forest cover loss within concessions?
- Do concessions include obligations to identify and retain high-carbon stock forests?

How can we identify and map future threats and drivers?

Plantation concessions

- Where is natural forest, and what is its aboveground carbon stocks?
- Are there any plantation concessions within this natural forest, i.e. potentially at risk of conversion to planted forest?
- What type of planted forest is prevalent? What is its carbon stock? Is there a history of forest cover loss within concessions?
- Do concessions include obligations to identify and retain high-carbon stock forests?



4. Approaches for mapping drivers and barriers

Methods for mapping future drivers

Option 1 – Simple overlays of pressures/future threats

Possible outputs form this method:

- Information presented as single maps e.g.
 - Forest shown according to distance to roads and distance future roads
 - Population density across the province
 - Slope
 - Elevation
 - Poverty
 - Future land use plan
 - Forests show according to distance from recent forest cover change

Methods for mapping future drivers

Option 2 – Maps are created showing areas selected based on pre-defined criteria

Possible outputs from this method:

- Map showing locations of future pressure/threats based on a number of inputs (using specified criteria and thresholds)
- Maps showing possible future extent of a particular driver based on user-defined workflow
- Maps showing the individual input layers and thresholds used
- Combined map showing number of possible future threats/pressures/drivers

Methods for mapping future drivers

Option 1 – Simple overlays of pressures/future threats

Pros

- Individual can identify areas they feel are most at risk
- Transparent
- May encourage selections based on local knowledge in a participatory environment

Cons

- Areas of potential future drivers are NOT identified
- More difficult to identify specific areas
- Subjective in terms of locations chosen

Option 2 – Maps showing areas selected based on certain criteria

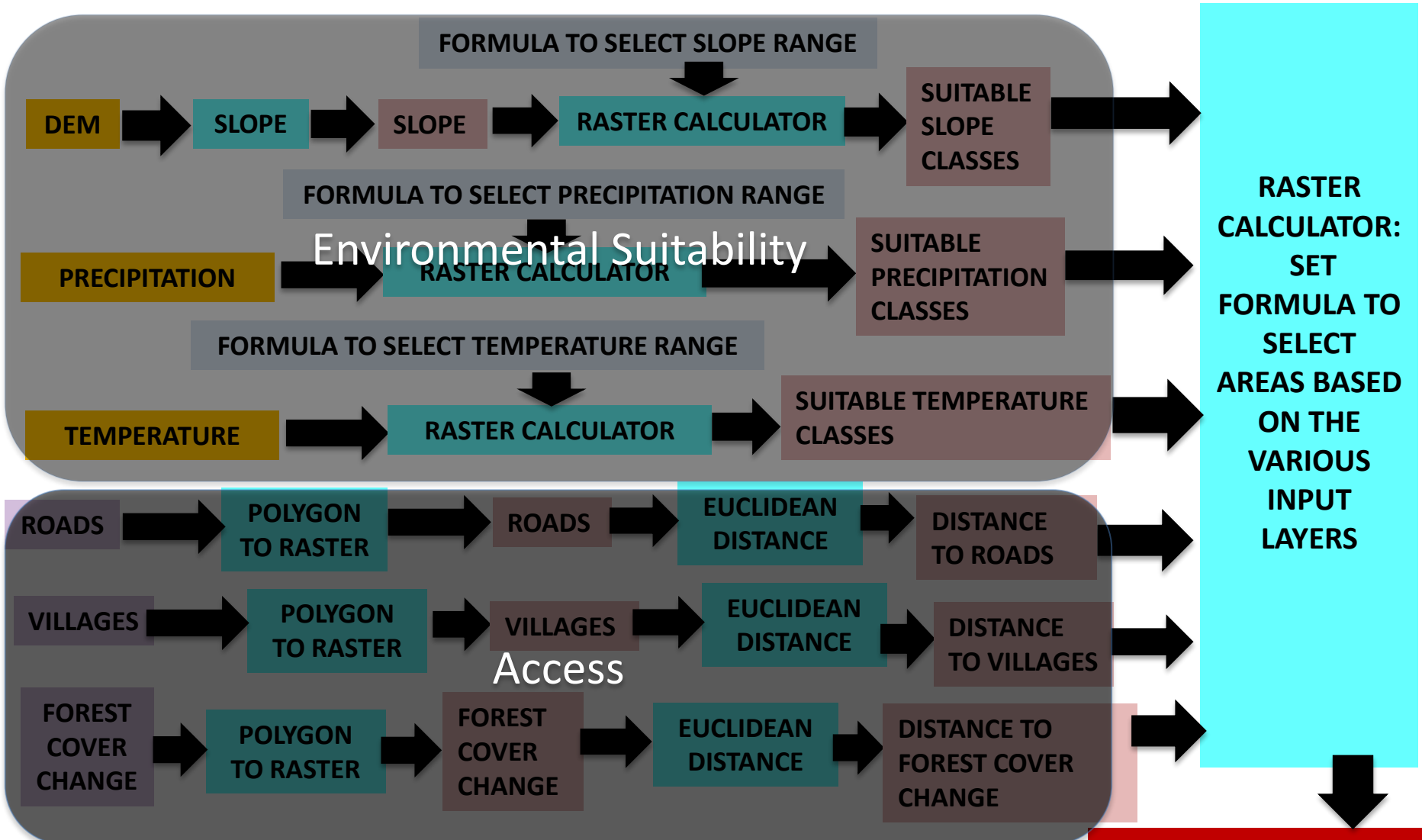
Pros

- Areas of potential future drivers are identified based on input criteria
- Can be useful if presented transparently with a well documented workflow and maps showing the input layers

Cons

- Assumptions more hidden
- Thresholds need to be decided and fed into model
- Subjective in terms of the criteria and thresholds selected (would need to be validated by expert knowledge)
- If expert knowledge to define workflow lacking - can lead to misinformed presentation of data

Workflow example Option 2: Driver:- small-scale cassava expansion (HYPOHETICAL EXAMPLE FOR DEMONSTRATION ONLY)



Input Vectors	Input Rasters	Input Values (numbers or text)	
Output Vectors	Output Rasters	Geoprocessing	FINAL OUTPUT

RASTER OF AREAS THAT MAY BE AFFECTED BY SMALL-SCALE CASSAVA EXPANSION

Summary: pressures on forests and integrating information from different sectors

- Pressures may be **direct** or **indirect**
- Consider both **current pressures** (the location of current drivers and barriers) AND threats on forests to help identify **where drivers** (i.e. the same drivers or new drivers) **may expand to in the future**
- Data from **different sectors** can help to provide an indication of the **role of past, current or future pressures** on forests.
- Data from sectors other than forestry can also often be mapped and may highlight **particular pressures** on forests.
- There are **different options for mapping** that may be relevant at different stages in the planning process.



Thank you! Any questions?

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