Analyses to identify priority areas for the implementation of REDD+ actions

Barbara Pollini

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The logic to identify benefits beyond carbon of REDD+

- What are the no-carbon benefits we want to achieve through the implementation of REDD+?

- What actions can maintain or enhance these benefits and who are the stakeholders involved in the implementation of these actions?

- Where are located the areas more suitable for the actions that can maintain and enhance these benefits?

- How can we integrate all these information in the REDD+ national strategy and in the national safeguards approach?

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Benefits and risks are not spatially uniform

The implementation of the REDD+ actions depends on the more suitable areas.

Water yield

Ecotourism
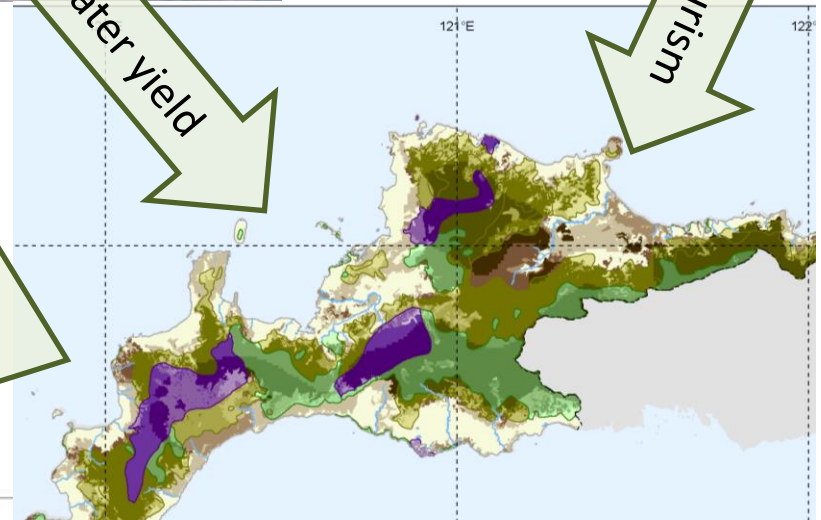
Plantations

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# Identification of priority areas for benefits beyond carbon of REDD+

It's useful to identify a specific question that the analyses should answer.

Some initial questions could be:

- *What are the critical conditions for the success of the action?*

- *Where are the highest risks for the implementation of the action?*

- *How are the benefits currently distributed?*

- *What are the costs and compromises required for the implementation of the action?*

Biomass and threatened amphibian species richness
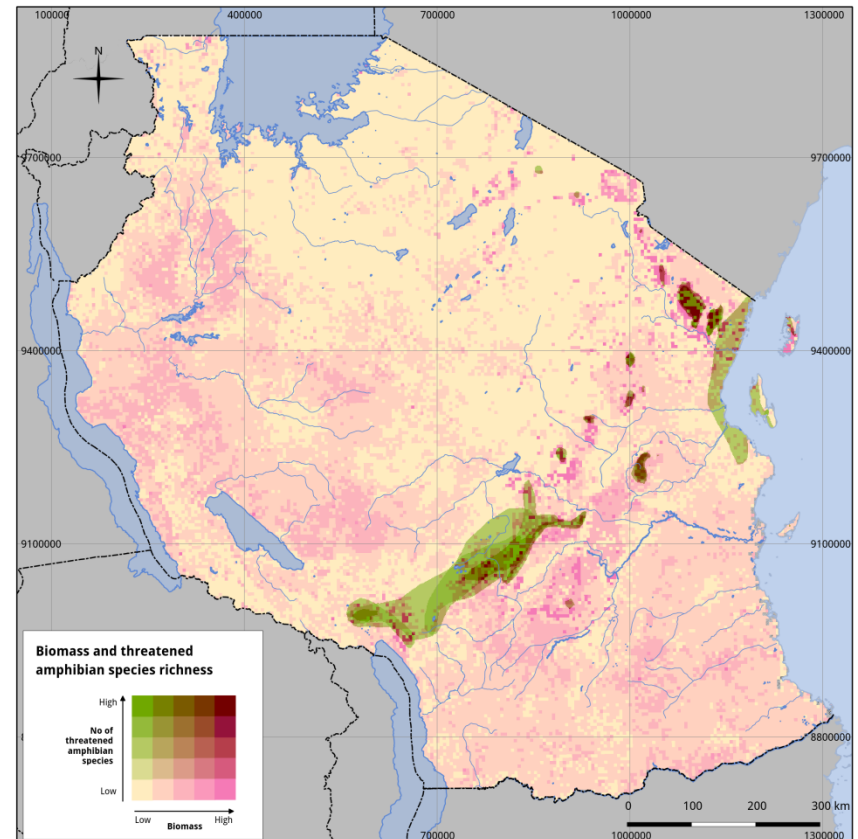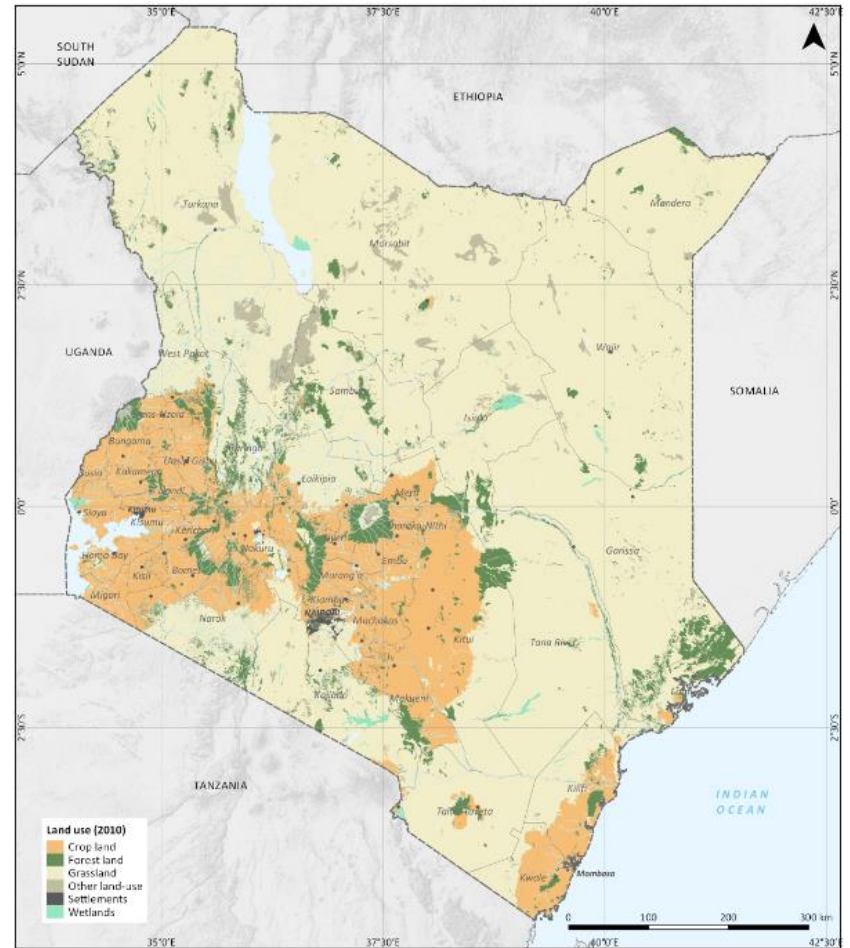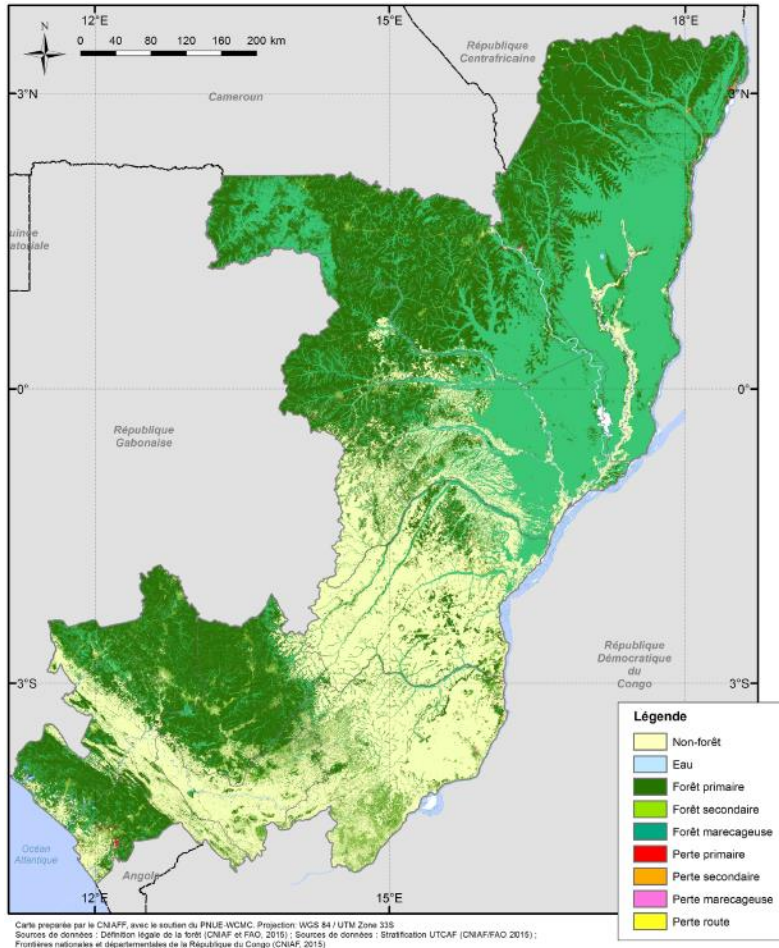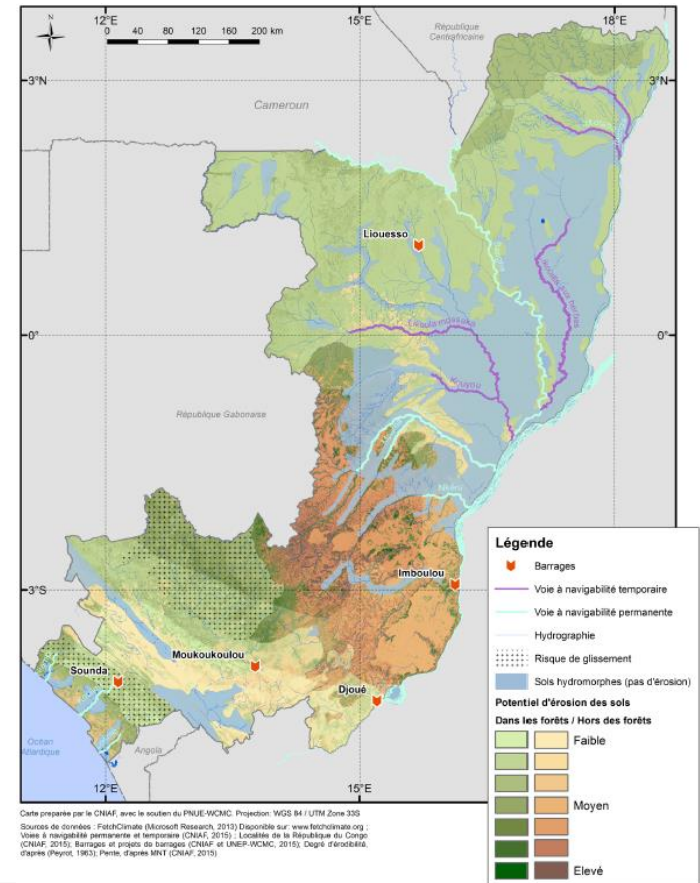
Where is the forest?

What is the land tenure or the type of management in the forested areas?
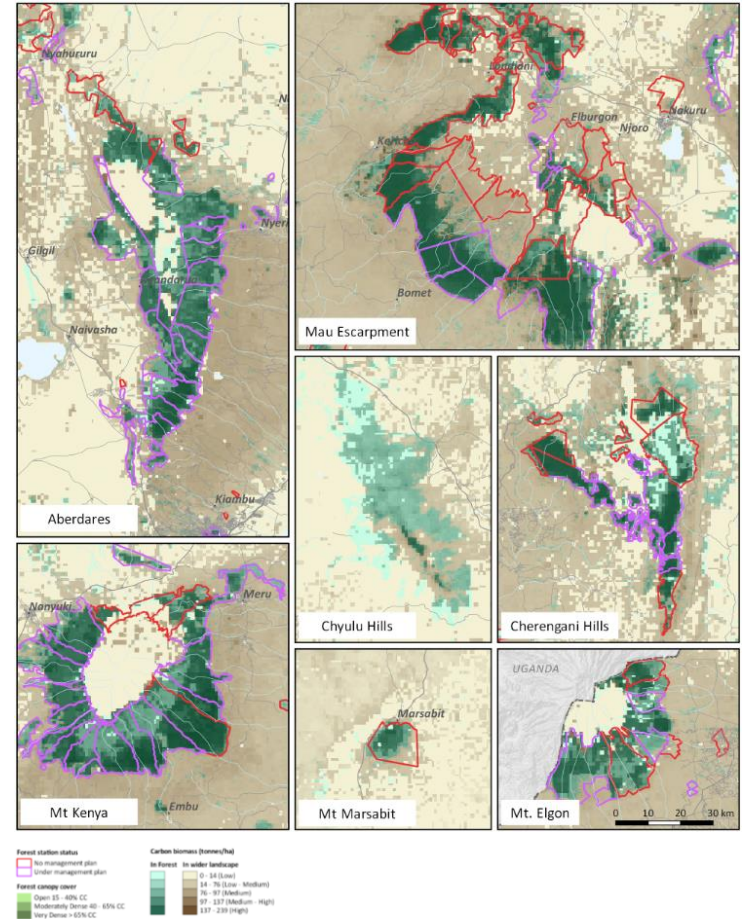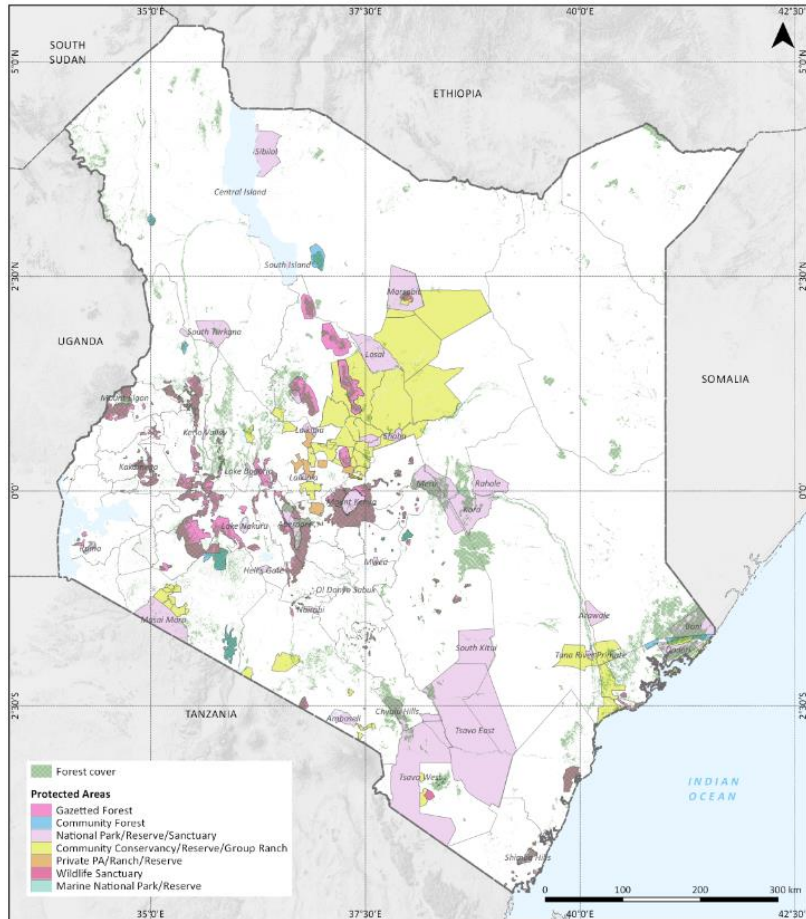
What is the role of forest in soil erosion protection?

- *By utilising slopes, average annual precipitations, we can generate a map of soil erosion risk;*

- *This map shows the soil erosion risk inside and outside the current forest cover*

Where are located the areas highly threatened and with high biomass?

- *The IUCN distribution ranges for threatened species are used to generate a species richness index*

- *This layer can be combined with one indicating the distribution of carbon or biomass*
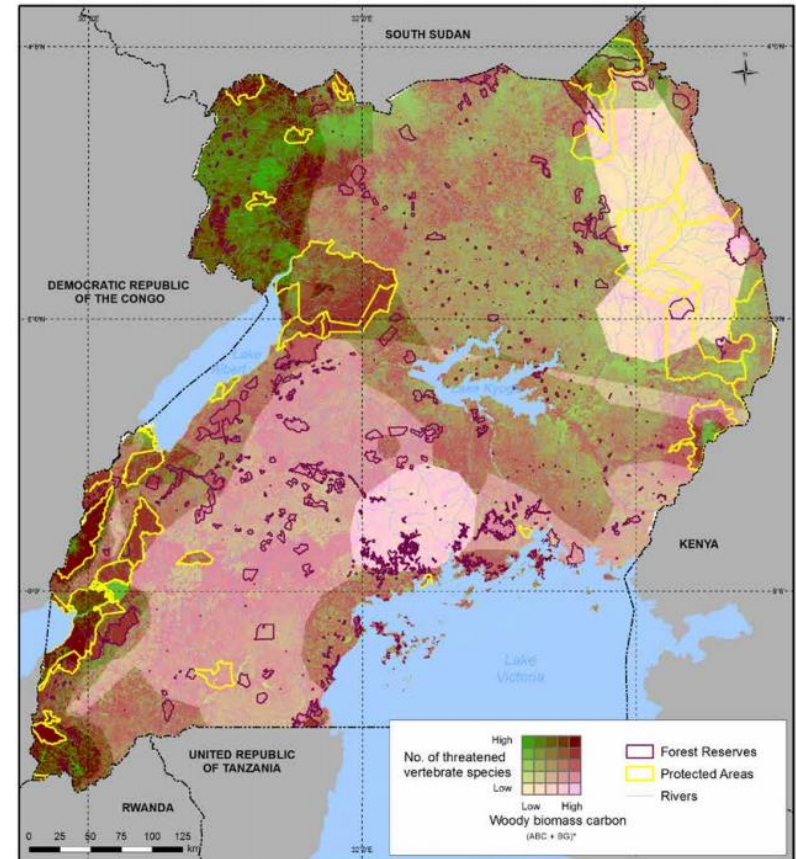
In which regions the forest ecosystems overlaps with wildlife corridors?

- *Carbon, location of natural forest, of protected areas and wildlife corridors*

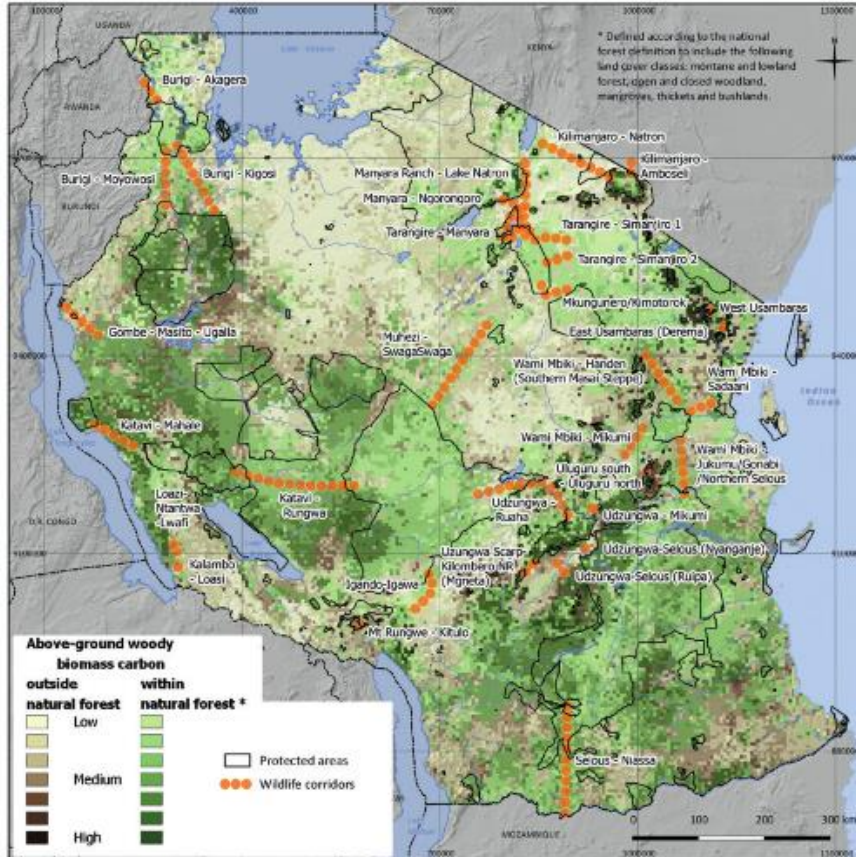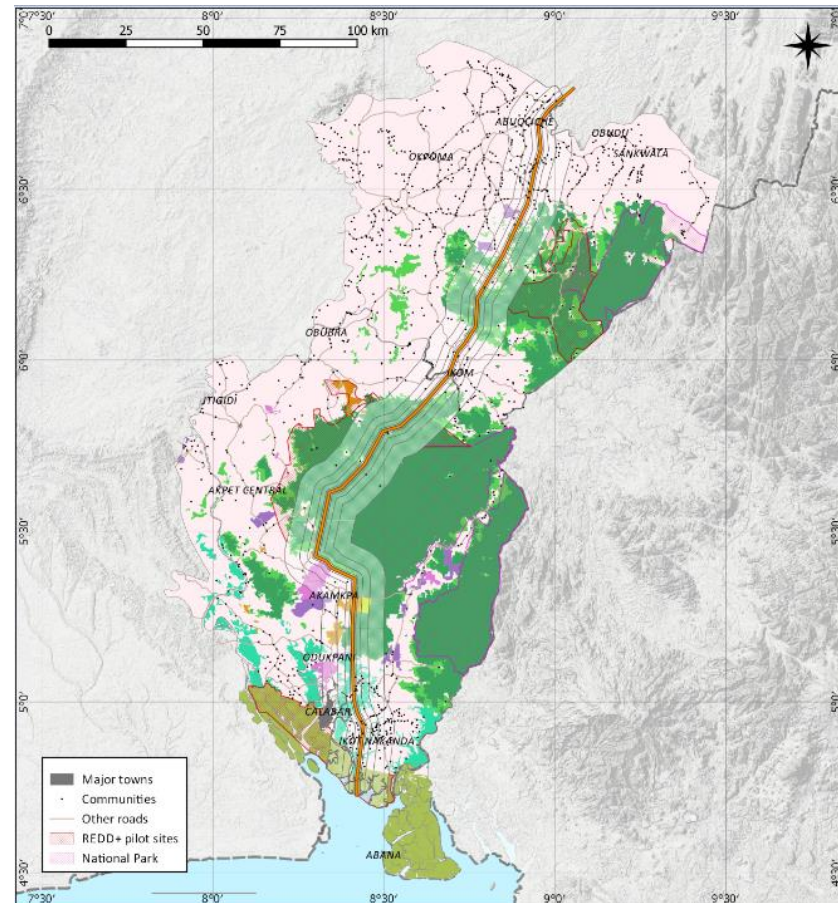# Impact of infrastructures development on land use and forest cover

- *The map shows future development and the table shows the extent of each land use class affected at different distance for development*

Area (ha) of each land cover class affected by total width of zone cleared for road construction and buffer zones

	200m	500m	1km	2km	5km	10km	20km	total land cover
Tropical High Forest	1,624	4,033	8,097	16,186	42,218	91,215	192,971	640,638
Open Forest	677	1,649	3,073	5,649	12,413	19,726	33,571	120,663
Mangrove	194	475	912	1,680	3,848	7,528	17,405	94,989
Swamps	285	720	1,473	3,099	7,760	13,649	17,830	51,669
Other Land	2,346	5,927	12,024	24,326	59,020	113,702	224,485	1,204,098
Oil Palm	0	0	0	0	277	1,675	4,734	18,567
Gmelina	108	271	540	1,075	2,344	3,908	5,805	10,164
Rubber	15	49	121	298	1,073	2,671	8,443	13,399
Regeneration	0	0	0	0	141	1,356	1,470	1,470

Where are located fires near forested areas?

- *Fires observations subdivided in 5 time series.*

Biomass carbon (tonnes/ha) (ABG + BG)*

outside	within natural forest
0 - 12.5	
12.6 - 20.4	
20.5 - 27.2	
27.3 - 38.5	
38.6 - 288.9	

Active fires
Fire Radiative Power (FRP)
- -1.0 - 35.5
- 35.6 - 79.7
- 79.8 - 156.9
- 157.0 - 320.5
- 320.6 - 983.6
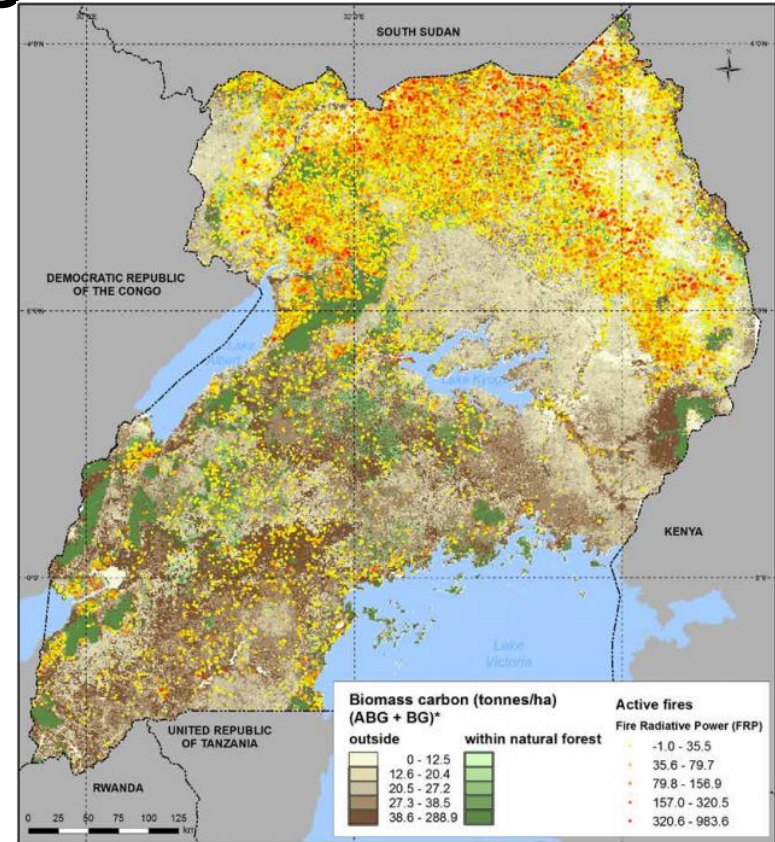
Observed fires in Jan-Mar

Fire Radiative Brightness (FRB): < 15.5   15.5 - 24.4   24.4 - 39.1   39.1 - 71   > 71

2003   2006   2009   2012   2015

Resilient nations.
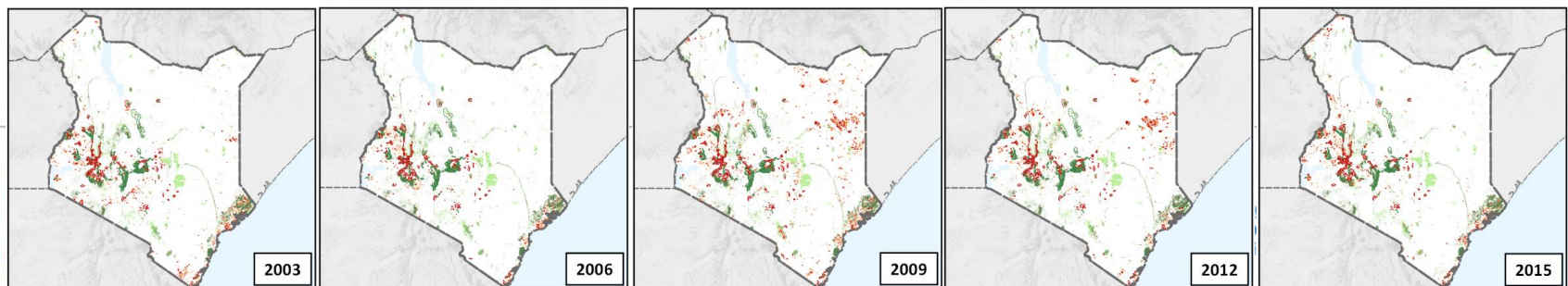
What is the spatial location of population density and biomass?

- *By combining a layer showing the population density and another one the carbon biomass, we can observe where the layers have high or low values*
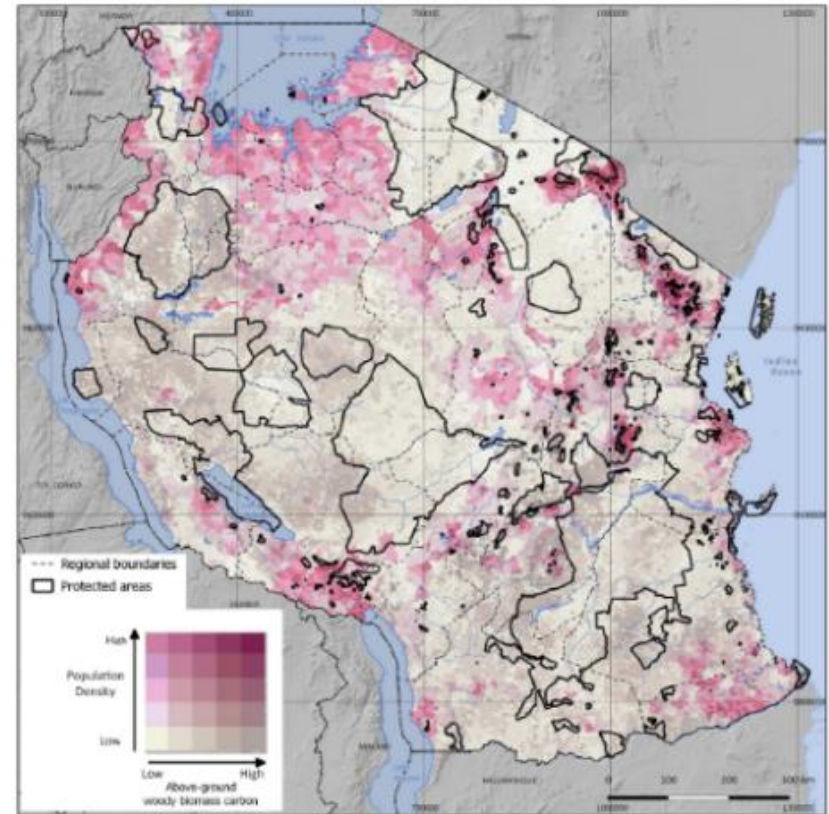
Spatial workflow

It's a sequence of analytical steps that use data and analyses to generate results, which answer a specific question.

The simplest model includes a list of data, one analysis and one result – for example: "Show a 5km buffer area from a road"
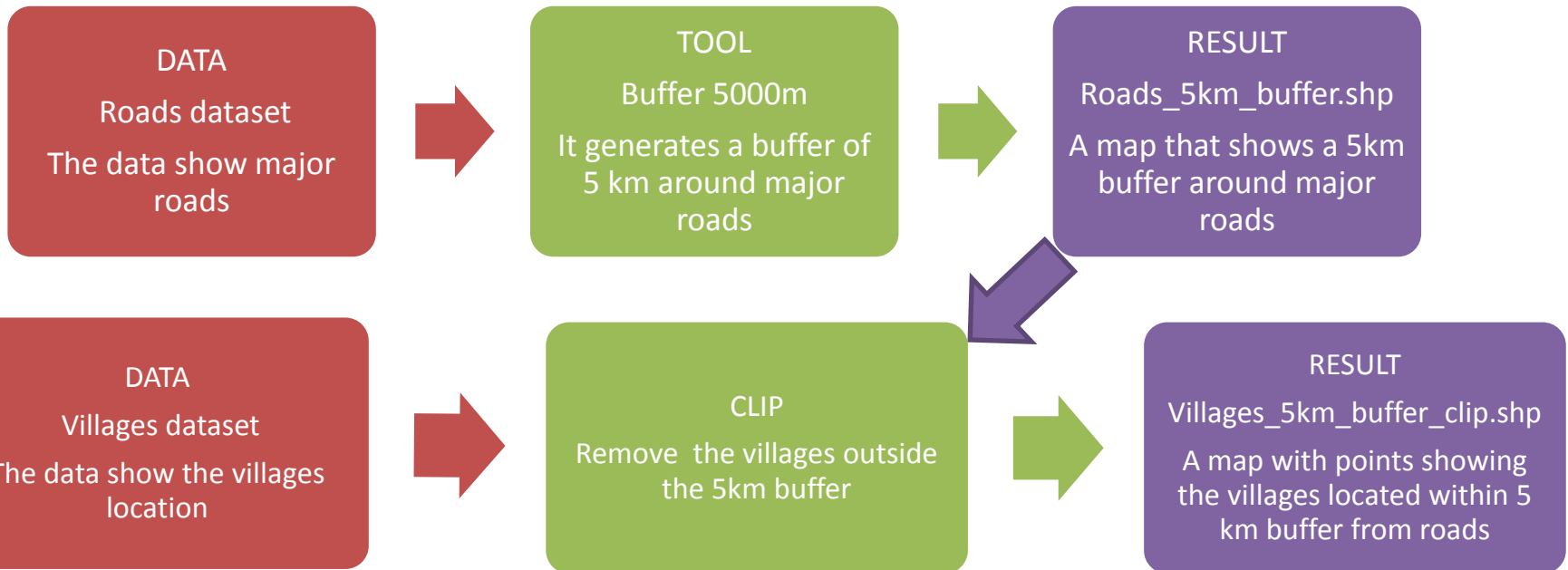
DATA		TOOL		RESULT
Roads dataset	→	Buffer 5000m	→	Roads_5km_buffer.shp
The data show major roads		It generates a buffer of 5 km around major roads		A map that shows a 5 km buffer around major roads

Spatial workflow

The complexity of the question determines the number of steps necessary to answer the question.

"Which villages are located within a distance of 5 km from the major roads?"

DATA
Roads dataset
The data show major roads

→

TOOL
Buffer 5000m
It generates a buffer of 5 km around major roads

→

RESULT
Roads_5km_buffer.shp
A map that shows a 5km buffer around major roads

DATA
Villages dataset
The data show the villages location

→

CLIP
Remove the villages outside the 5km buffer

→

RESULT
Villages_5km_buffer_clip.shp
A map with points showing the villages located within 5 km buffer from roads

Spatial workflow

"Which villages are located within 5km buffer from major roads and how will they be affected in terms of local land use, within a distance of 1km from the villages?"

- DATA: Roads
- DATA: Villages
- DATA: Land use
- TOOL: Buffer 5km
- TOOL: Clip villages within 5 km buffer
- TOOL: Clip land use with 1km buffer
- FINAL RESULT: Local land use within 1km from villages and 5km from roads
- RESULT: 5km Buffer
- RESULT: Villages within 5km Buffer
- TOOL: Buffer villages by 1km
- RESULT: 1km buffer villages
- RESULT: Local land use within 1km buffer villages
- TOOL: Clip land use with 5km buffer

Why is this helpful?

- *It helps to define clear and specific questions as well as the information required to answers these questions.*

- *It helps to identify the criteria and conditions that can facilitate the provision of benefits, and it indicates how to measure the benefits*

*These analyses should help to identify **which are the most appropriate areas where to implement the actions** that can provide the benefits identified*

Thank you!

Barbara Pollini | *Barbara.Pollini@unep-wcmc.org*

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