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Using spatial analyses in land use planning to mitigate risks and enhance benefits from REDD+

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UN-REDD AFRICA REGIONAL WORKSHOP

Planning for REDD+: incorporating multiple benefits and safeguards

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Overview

- Steps for addressing REDD+ safeguards and multiple benefits through land-use planning

- How can spatial analysis help to allocate REDD+ actions in order to mitigate risks and achieve multiple benefits?

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Possible steps for addressing REDD+ safeguards and multiple benefits in land-use planning

1. Identify goals of REDD+ for the country: what benefits is REDD+ expected to deliver?
2. Identify REDD+ actions that can achieve those goals
3. Identify the potential risks and benefits associated with these actions (the SEPC can be used as a guiding framework)
4. Identify priority areas where REDD+ actions could be implemented
5. Design the implementation of the REDD+ actions to minimize risks and promote benefits

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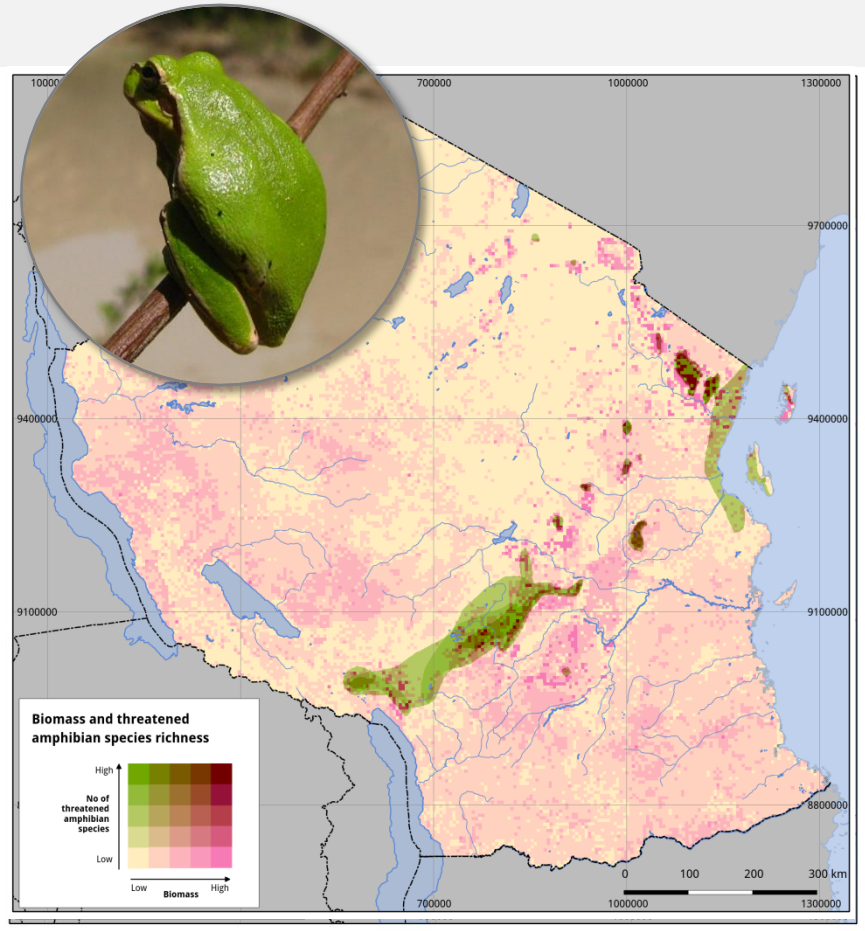
Empowered lives. Resilient nations.

Maps as tools can be:

- **Rapidly created**
- **cost-effective**
- **easily customizable**

➢ **Can communicate complex concepts to people with different levels of knowledge**

➢ **Can e.g. inform participatory planning processes for REDD+**



Can serve the REDD+ planning process to identify areas of both:

- **High opportunity (e.g. strong positive correlation in carbon and biodiversity values)**
- **High risk (e.g. low in carbon, high in biodiversity and no protection)**

So, why map multiple benefits?

Map sources: Biomass: NAFORMA woody biomass only. 5km preliminary dataset base on field data only**. Threatened vertebrates:** IUCN 2013. The IUCN Red List of Threatened Species. Version 2012.2. <http://www.iucnredlist.org>. Downloaded March 2013. Spatial data from IUCN, 2013.

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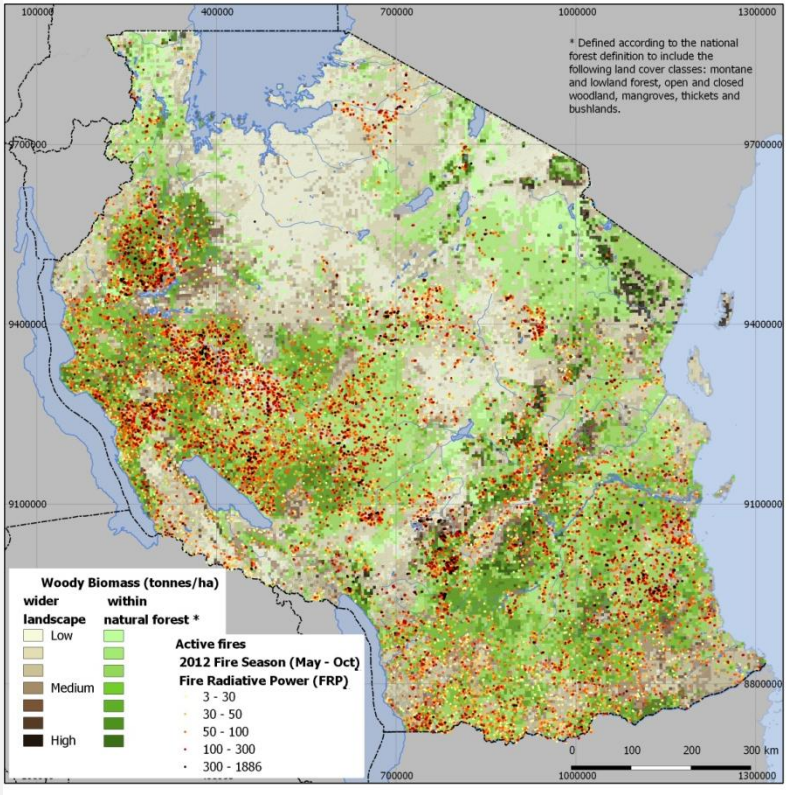
An example from Tanzania



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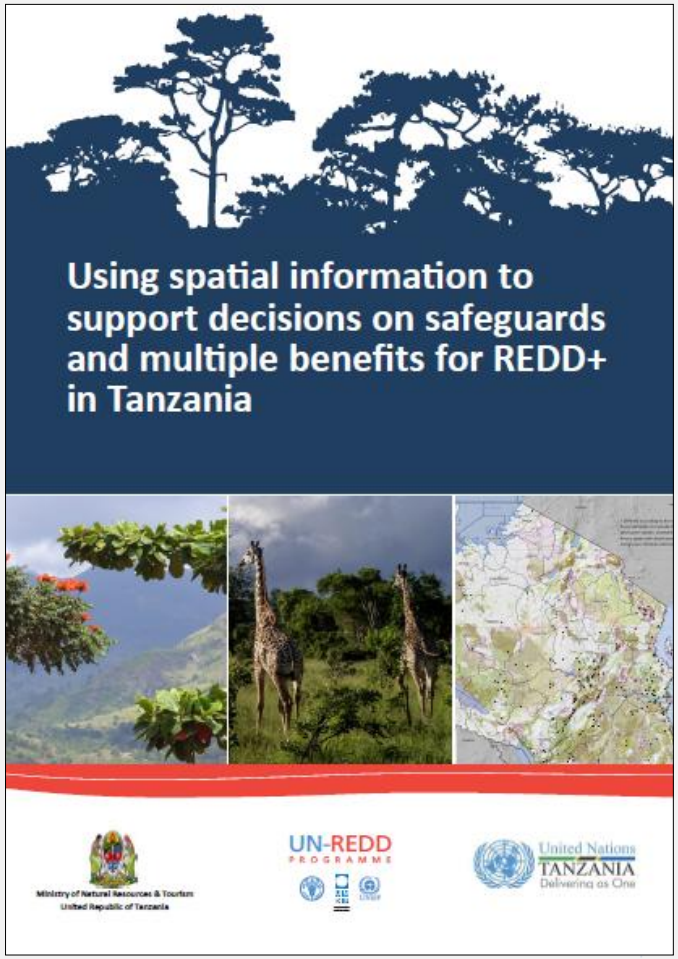
Tanzania



Tz REDD+ Action Plan:

- **Presence of staff knowledgeable on integrated methods for quantifying REDD+ and co-benefits**
- **Develop a package of integrated methods for REDD+ co-benefits mapping**
- **Build national and local capacities to address Social and Environmental Safeguards - undertake training of relevant stakeholders**

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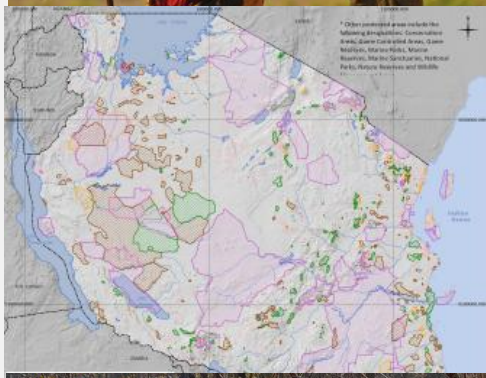
Themes mapped

- Biodiversity
- Ecosystem services
- Forest land management units
- Pressures on forest resources



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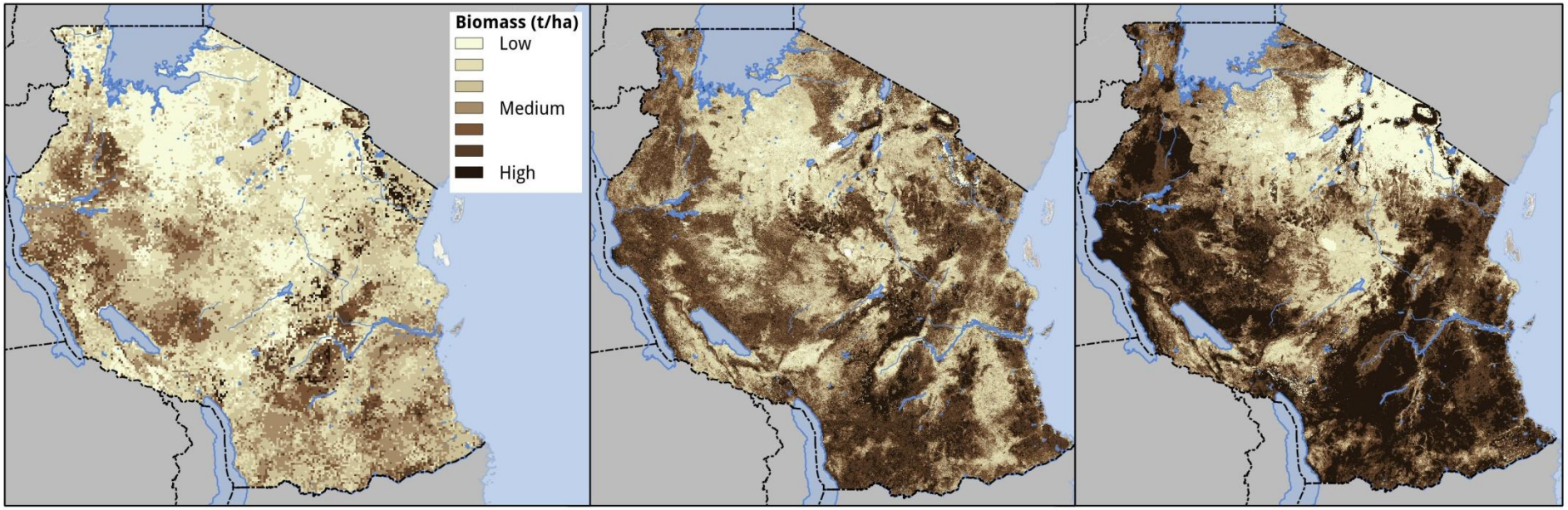
Where are areas of high and low densities of forest carbon stocks?

Biomass carbon

NAFORMA: Woody biomass only
(5km resolution preliminary dataset based on field data)

Saatchi: above ground biomass
(1km resolution)

Baccini: above ground biomass
(500m resolution)



Map sources: NAFORMA: Woody biomass only. 5km preliminary dataset base on field data only**. Saatchi:** Saatchi S, Harris NL, Brown S, Lefsky M, Mitchard ET, Salas W, Zutta BR, Buermann W, Lewis SL, Hagen S, Petrova S, White L, Silman M, Morel A. (2011). Benchmark map of forest carbon stocks in tropical regions across three continents. Proc Natl Acad Sci U S A. 2011 Jun 14;108(24):9899-904. More information can be found at: http://carbon.jpl.nasa.gov/ **Baccini:** A. Baccini, S J. Goetz, W.S. Walker, N. T. Laporte, M. Sun, D. Sulla-Menashe, J. Hackler, P.S.A. Beck, R. Dubayah, M.A. Friedl, S. Samanta and R. A. Houghton. Estimated carbon dioxide emissions from tropical deforestation improved by carbon-density maps. 2012 Nature Climate Change, http://dx.doi.org/10.1038/NCLIMATE1354

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Where is Tanzania's natural forest?

Natural forest in REDD+ safeguards

Cancun safeguards (2010):

- "[REDD+] Actions are consistent with the conservation of natural forests and biological diversity, ensuring that actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits"

Cancun Agreement: FCCC/CP/2010/7/Add.1 Appendix I

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Definition of natural forest in REDD+ strategy

Natural forest

Forest composed of indigenous trees, not planted by man.

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Definition of forest

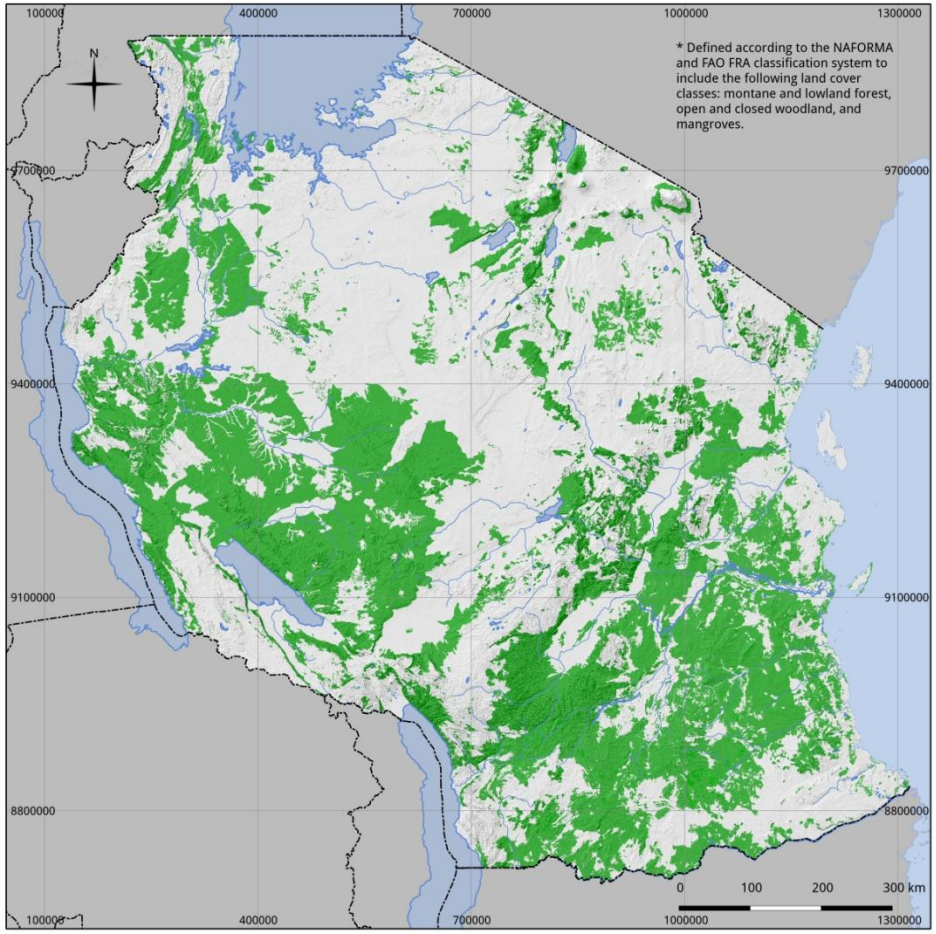
https://cdm.unfccc.int/DNA/bak/ARDNA.html?CID=211

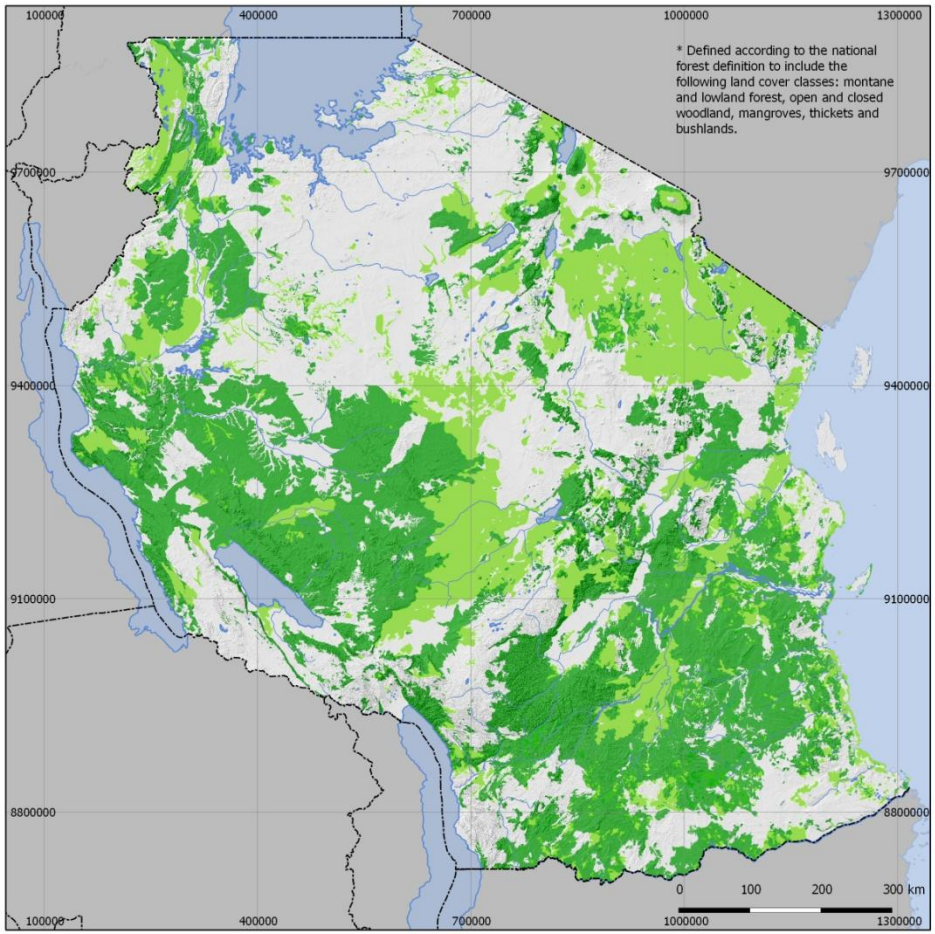
Country Click name to get information on DNA	For afforestation and reforestation project activities - Host Party's selected single minimum:		
	A single minimum tree crown cover value between 10 and 30 per cent	A single minimum land area value between 0,05 and 1 hectare	A single minimum tree height value between 2 and 5 metres
United Republic of Tanzania	10	0.05	2

Natural forest estimation

FAO FRA
(10% canopy c + 5 m height)
- Montane & lowland forest
- Woodland
- Mangrove

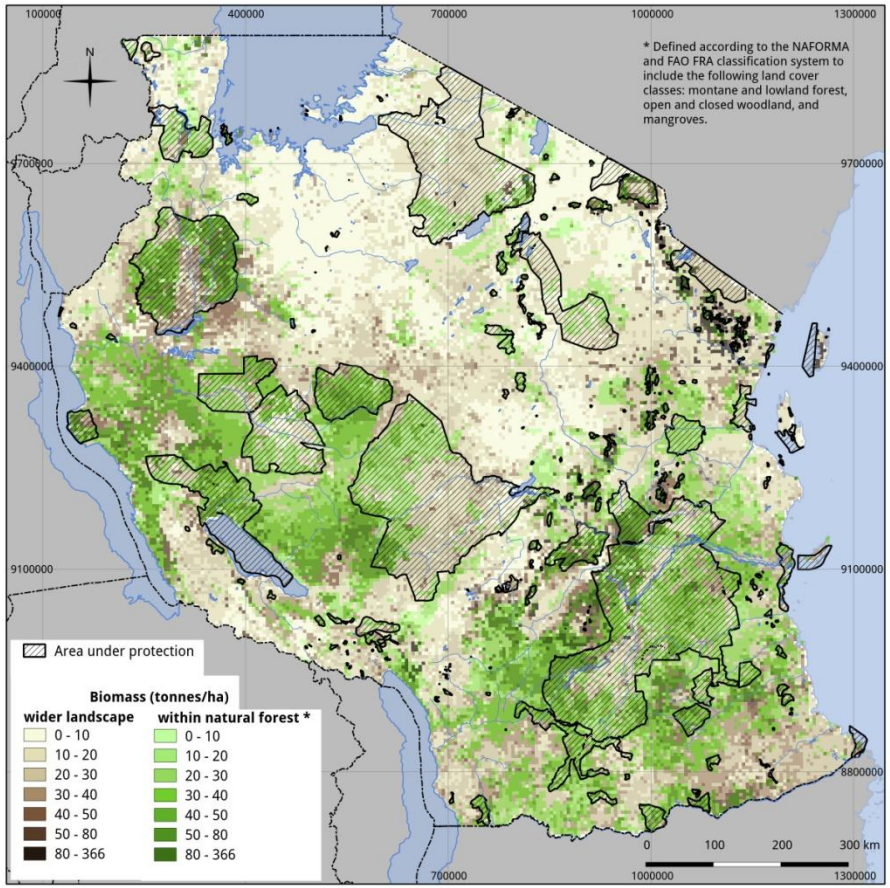
National dfn of forest-TZ
(10% canopy c + 2 m height)
- Montane & lowland forest
- Woodland
- Mangrove
- Bushland (>2m)
- Thickets (>2m)

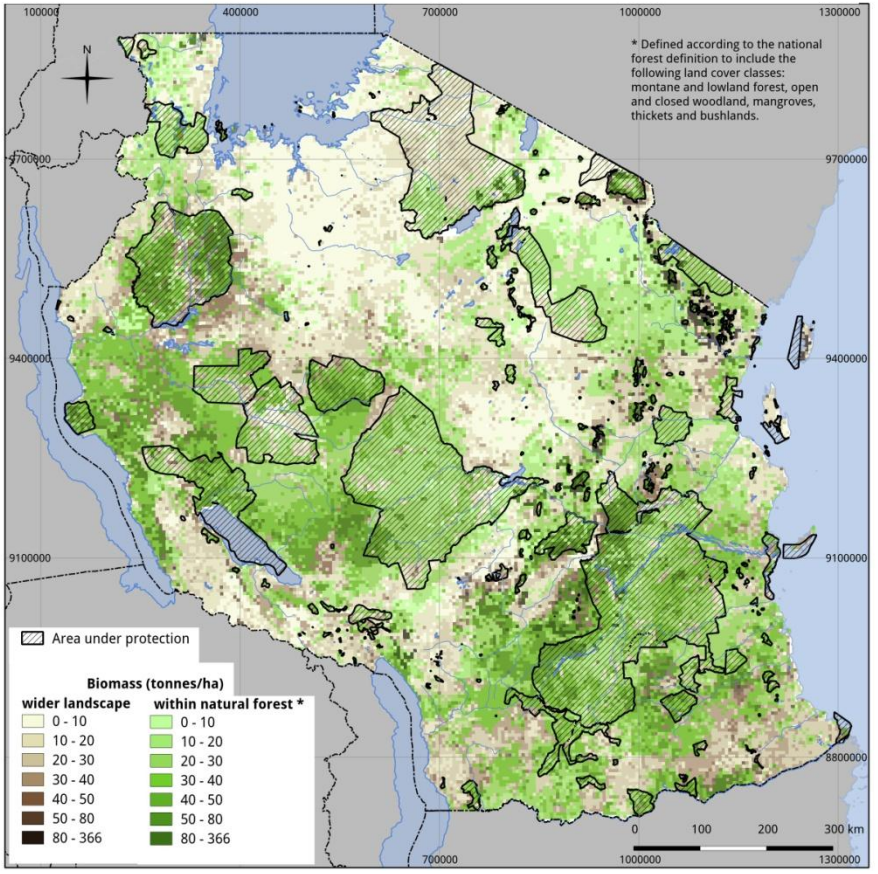




Map source: Derived form landcover classes in NAFORMA landuse landcover map 2010.

Where are high carbon values in the natural forest, and which parts are protected?





Map sources:
Natural forest: NAFORMA landuse landcover map 2010.
Biomass: NAFORMA woody biomass only. 5km preliminary dataset base on field data only**.**
Protected Areas and Forest Reserves: TFS and WDPA 2013.

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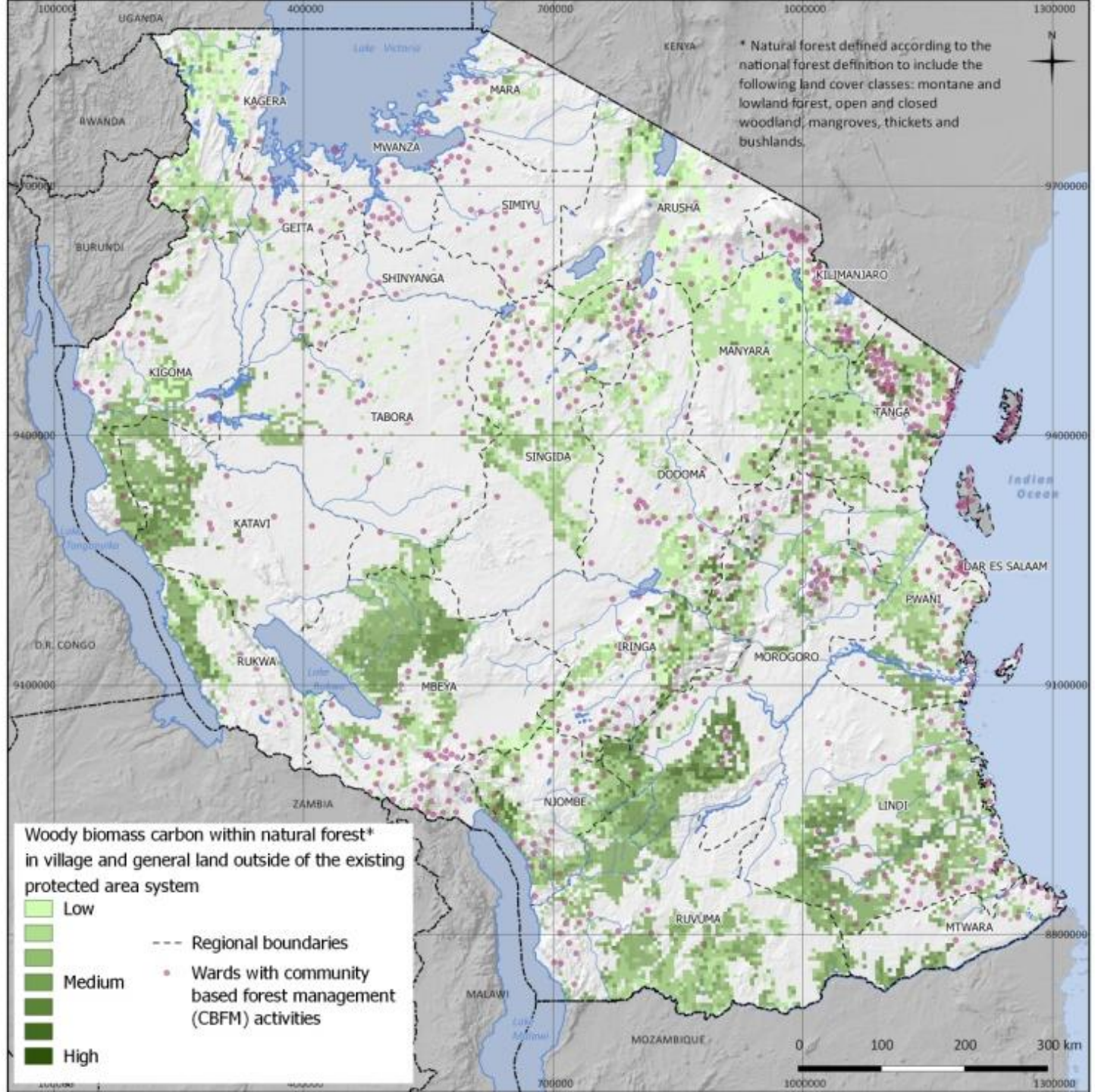
Identifying potential zones for implementing different REDD+ actions



Example: Scale up community Based Forest Management

Conclusions (1)

- To ensure that REDD+ implementation is consistent with REDD+ safeguards, minimizes risks and promotes multiple benefits, it can be useful to:
  - Identify priority benefits: the goals of REDD+
  - Identify REDD+ actions that can achieve those goals
  - Identify the potential risks and benefits associated with these actions (the SEPC can be a useful tool)
  - Identify priority areas where REDD+ actions could be implemented
  - Design the implementation of the REDD+ actions to minimize the risks and promote the expected benefits

Conclusions (2)

- Valuable spatial analyses can include:
  - Identify natural forest distribution to help assess any risks (displacement of pressure) and ensure that natural forest is not converted by REDD+ activities
  - Identify distribution of existing forest benefits that REDD+ is expected to enhance or protect
  - Identify areas where specific types of REDD+ actions are feasible
  - Analyses of threats to success of REDD+ activities, to identify risks of reversals of emission reductions
  - Identification of non-forest ecosystems that may be affected by REDD+ activities, and priorities in relation to these