

The role of spatial analysis in provincial REDD+ planning

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Outline

This presentation will provide an overview of the role of spatial analysis in supporting provincial REDD+ planning in Viet Nam, and the steps involved the PRAP process:

1. Background

2. Using spatial information to support provincial REDD+ planning

3. Steps in the PRAP process



1. Background



REDD+

REDD+

= Reducing emissions from
Deforestation and forest Degradation
+
Conservation of forest carbon stocks
Sustainable management of forests
Enhancement of forest carbon stocks

- REDD+ is an international initiative to combat climate change by changing the ways in which forests are used and managed, so that emissions of GHG from forests are reduced and carbon sequestration is increased.
- REDD+ may require different actions, such as protecting forests from fire or illegal logging or rehabilitating degraded forest areas.

UN-REDD Programme

- UN-REDD = United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries.
- Started in 2008; joint programme of UNDP, FAO, UNEP
- Supports national REDD+ readiness efforts in more than 60 partner countries
- Viet Nam started its UN-REDD National Programme in 2009; currently implementing Viet Nam UN-REDD Phase II Programme
- Viet Nam National REDD+ Action Plan approved in 2012; currently developing PRAPs for pilot provinces



Introduction to UNEP-WCMC

- United Nations Environment Programme World Conservation Monitoring Centre
- Provide support to UN-REDD partner countries on Safeguards & Multiple Benefits:
 - Planning for REDD+ that achieves multiple benefits, including using mapping and other tools, e.g. economic analyses
 - Developing country approaches to safeguards
- Close collaboration with in-country partners, FAO & UNDP; focus on capacity building & participatory approaches



UNEP-WCMC – Viet Nam REDD+ collaboration

- Previous work on:
 - Ecosystem services from new & restored forests (2010)
 - Mapping potential of REDD+ to provide biodiversity co-benefits (2010)
- In 2014, began providing technical support on spatial analysis to inform development of PRAPs
- Upcoming technical support on design of Safeguards Information System



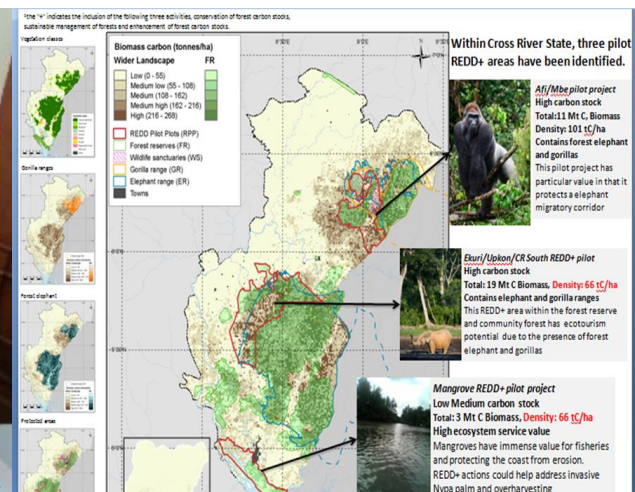
2. Using spatial information to support provincial REDD+ planning



Decision-support tools and analyses

Numerous tools, analyses and studies support planning for REDD+. For example:

- Analysis of drivers of deforestation and forest degradation
- Valuation studies
- Spatial analysis / mapping
- Stakeholder consultations and participatory approaches
- Costs-benefits analysis

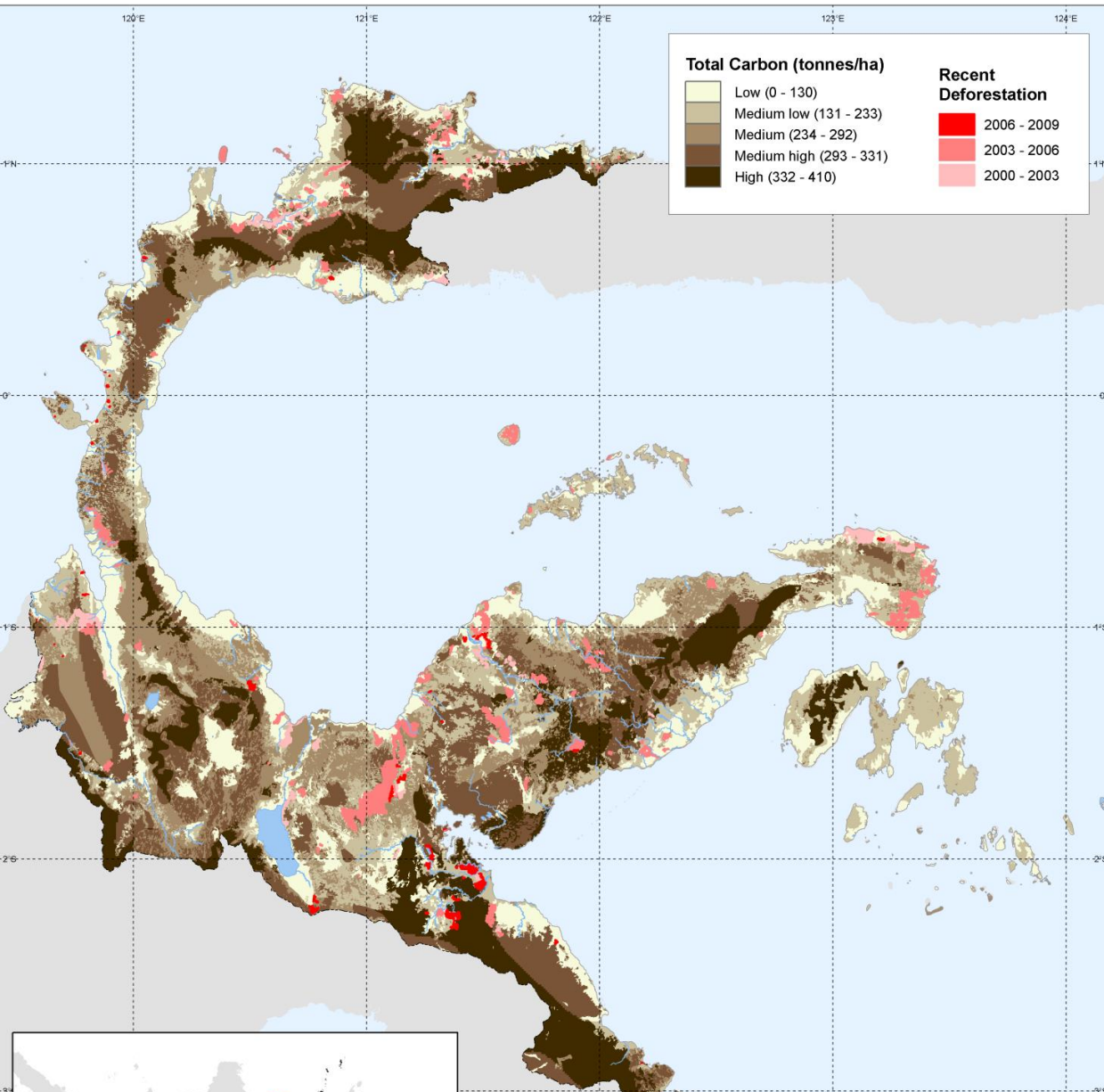


Maps as decision-support

- Map-making is not itself a planning process
- Maps can and should be used together with other tools and approaches
- Maps can help REDD+ planners and stakeholders to:



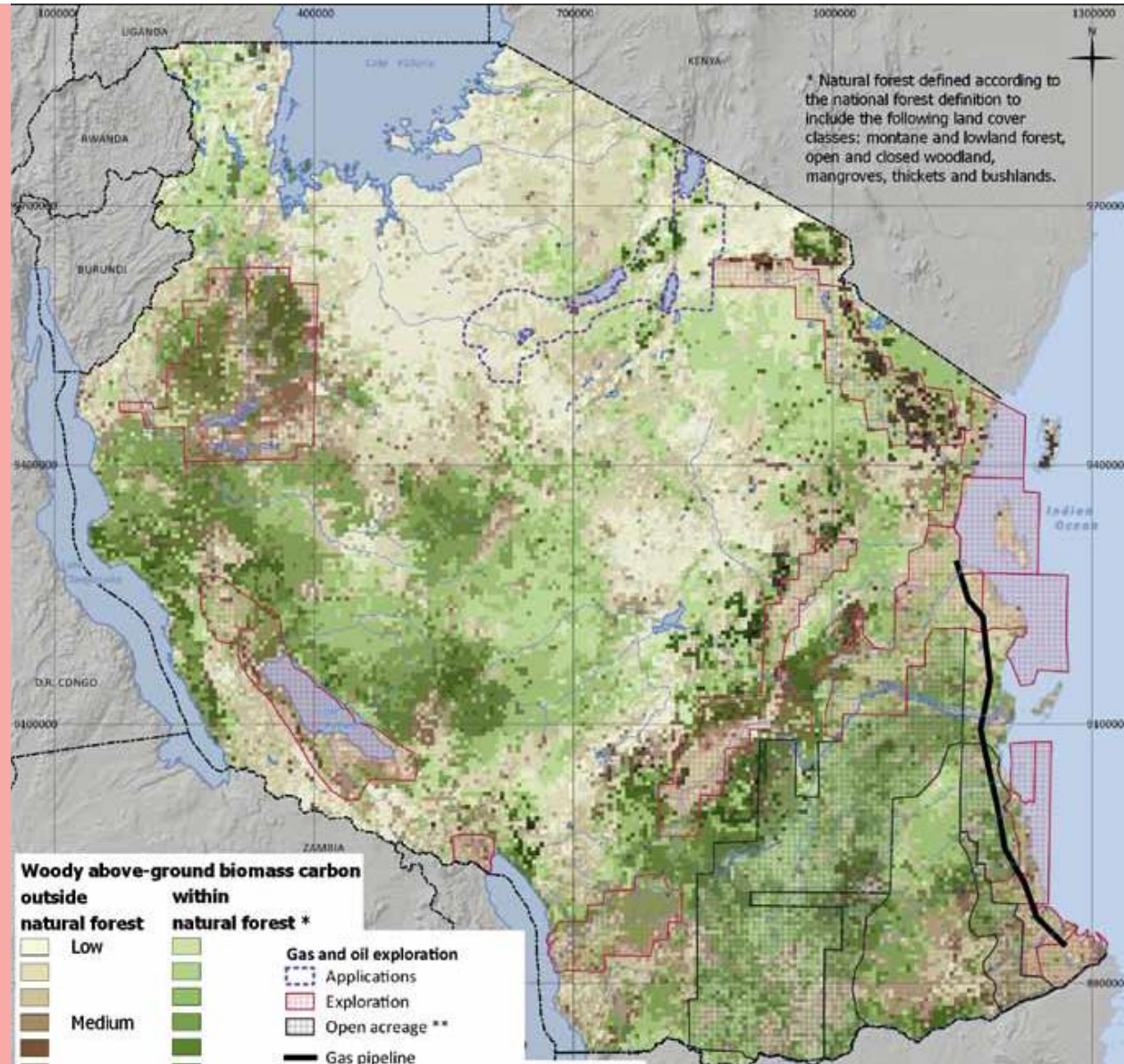
1. Understand context for REDD+ planning



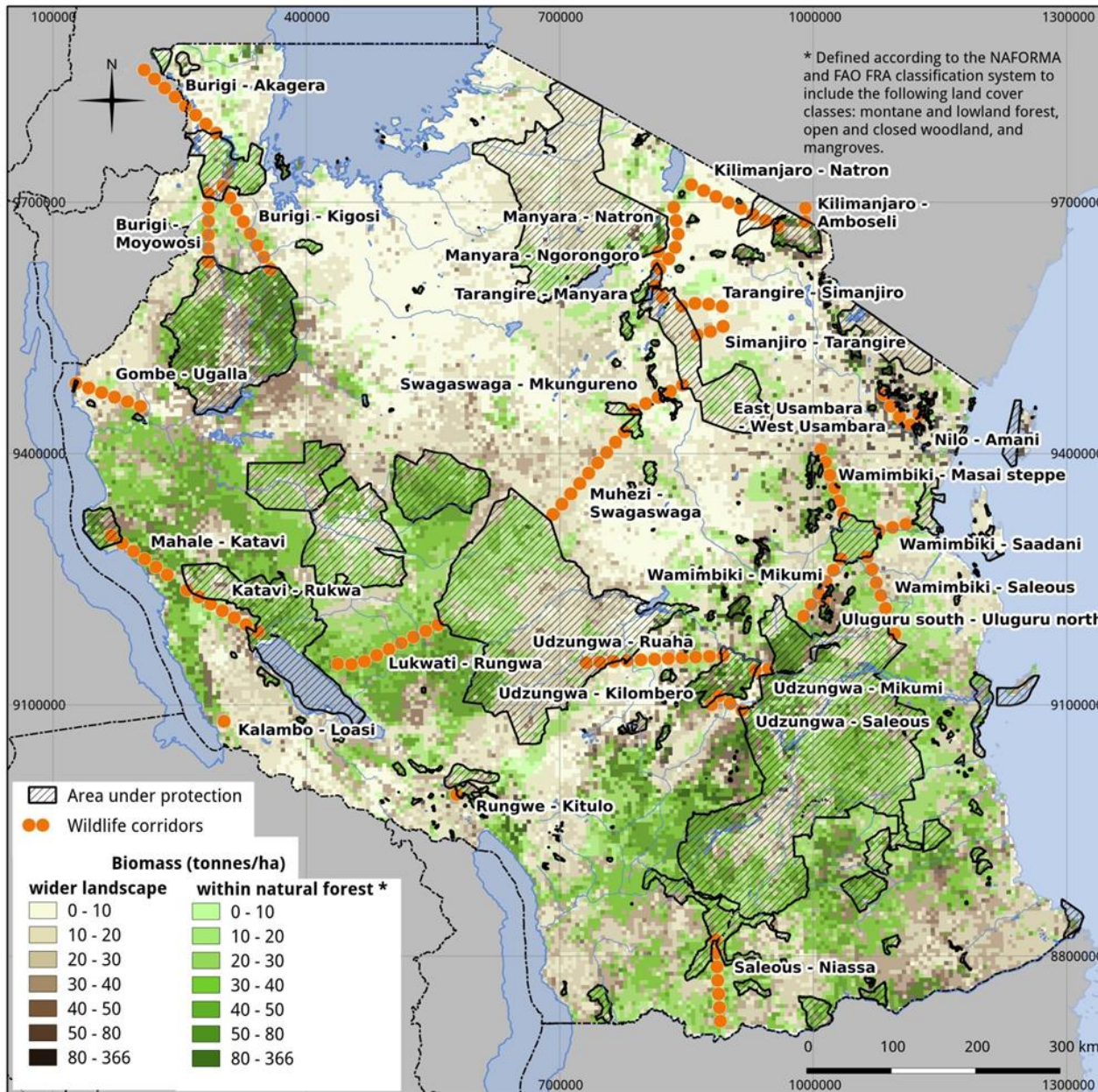
**For example:
Carbon stocks and
areas of recent
deforestation
(2000-2009) in
Central Sulawesi**

2. Understand past/current/future drivers of deforestation/ degradation

**For example:
Current oil and gas
exploration
licenses,
applications and
open acreage in
Tanzania, with
carbon and natural
forests**



3. Help to identify potential benefits and risks of REDD+



For example:
Important wildlife corridors, protected areas, natural forest and woody biomass carbon in Tanzania

Additional benefits of REDD+

- While main aim of REDD+ is to reduce GHG emissions and increase CO₂ sequestration from the atmosphere, it has the potential to deliver additional benefits
- Additional benefits of REDD+ are all of these other benefits – social and environmental – that may result from the implementation of REDD+. For example:
 - Enhancement of ecosystem services
 - Biodiversity conservation
 - Livelihoods and social benefits
 - Clarified tenure and improved governance of natural resources



Potential risks of REDD+

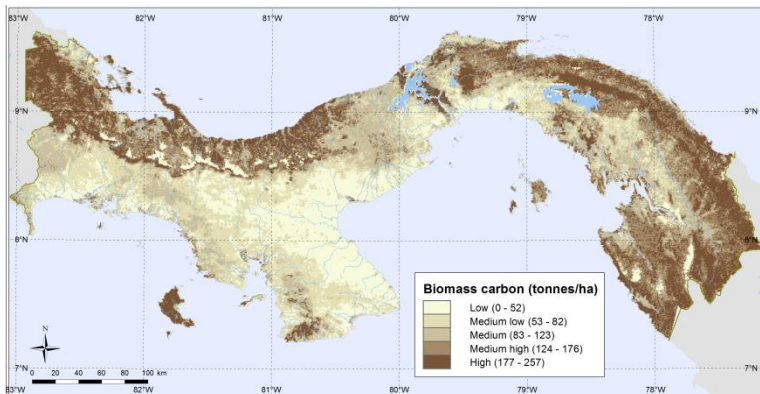
- REDD+ also carries potential risks, which depend on specific actions, as well as national and local contexts:
 - Environmental risks could include:
 - Conversion of degraded natural forest or other ecosystems to plantations
 - Displacement of pressures to areas important for biodiversity or ecosystem services
 - Social risks could include:
 - Reduced access to resources for forest users
 - Inequitable sharing of REDD+ benefits
 - Conflicts over land
 - Displacement of forest dependent communities



Benefits & risks vary geographically

For example: individual benefits of forests in Panama

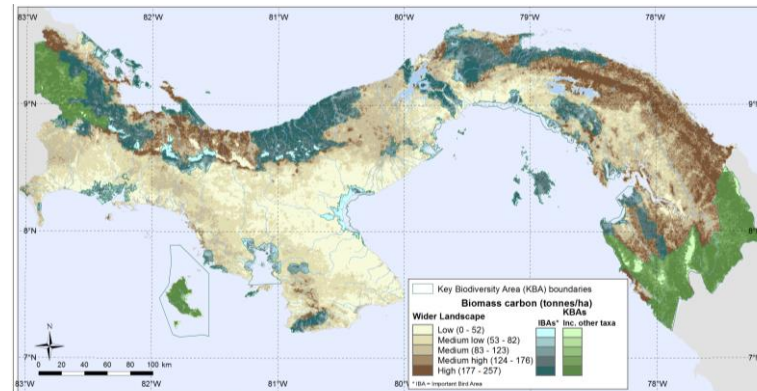
Biomass carbon stocks



National dataset of Aboveground Live Woody Biomass density at spatial resolution of circa 500m derived from field/LIDAR/GLAS/MODIS
A. Bacoin, S.J. Goetz, W.S. Walker, N. T. Laporte, M. Sun, D. Sulla-Menashe, J. Hackler, P.S.A. Beck, R. Dubayah, W.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>
The project's web site: http://www.whrc.org/mapping/biointropicalcarbon_dataset.html

Map prepared by UNEP-WCMC, January 2013

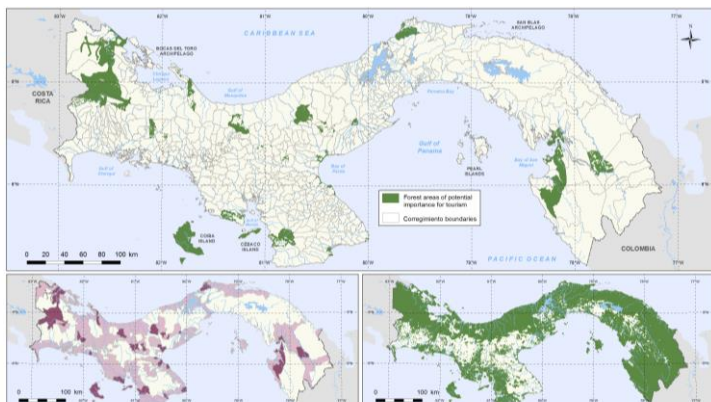
Importance for biodiversity



Key Biodiversity Areas (KBAs) of the world including Important Bird Areas (IBAs) and Alliance for Zero Extinction sites (AZES) compiled by BirdLife International and Conservation International, October 2012. For further information, please contact mapping@birdlife.org
National dataset of Aboveground Live Woody Biomass density at spatial resolution of circa 500m derived from field/LIDAR/GLAS/MODIS
A. Bacoin, S.J. Goetz, W.S. Walker, N. T. Laporte, M. Sun, D. Sulla-Menashe, J. Hackler, P.S.A. Beck, R. Dubayah, W.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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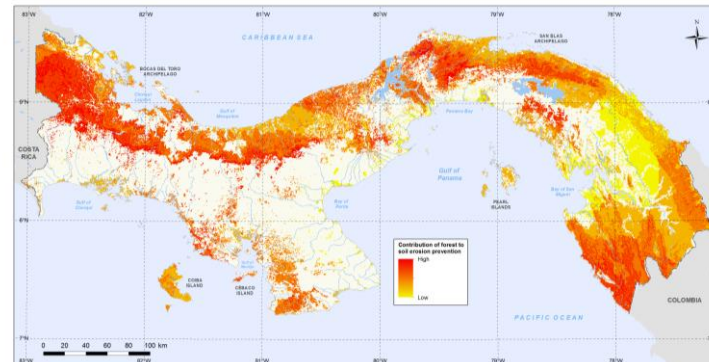
Map prepared by UNEP-WCMC, January 2013

Importance for tourism



Map prepared by UNEP-WCMC, January 2013
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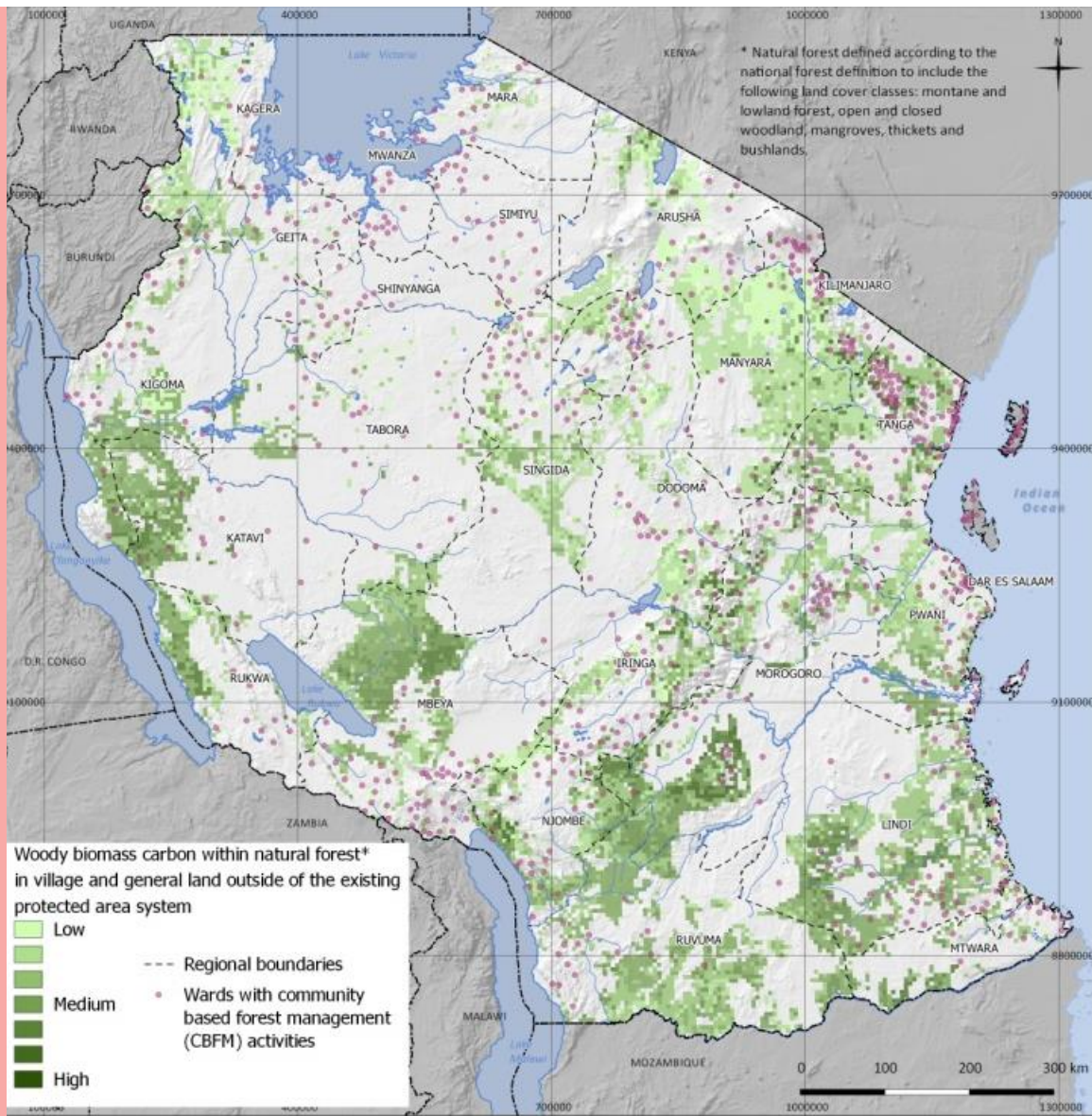
Importance for soil erosion control



Methods and data sources
The contribution of forest to soil erosion prevention was estimated as a function of slope, rainfall and the presence of something important downstream that could be adversely affected by soil erosion (dams and lakes). This method uses an overlay approach, where data on precipitation is combined with data generated by erosion, and upstream catchments of dams and lakes. This is then combined with forest data.
Data sources: Slope: S. Weiler, C. Jones, N. 2009. New global hydrology data: derived from multi-sensor remote sensing. *Env. Transp. Res.* 16(3): 107-12. See <http://hydro.ku.edu/>
Rainfall: Global Rainfall. High Res. 1982-2005. See <http://www.earthenginepartners.net/>
Dams and lakes: R. Cameron, D. Wiegand, S. Grimaldi, C. Ferrer, S. Casas, P. Dall, D. et al. High resolution mapping of the world's reservoirs and dams for sustainable soil flow management. *Frontiers in Earth and the Environment*. Springer, Dordrecht. (2008).
Map by UNEP-WCMC, January 2013. This map combined with national data on hydrology and other maps from HydroShare and the Geospatial Platform (UNEP-WCMC and National Science Foundation 2008).
Forest Cover: National dataset of 2008 forest cover (GFW)GLAC and LAKE (2011).

4. Analyze suitability of different areas for different types of REDD+ actions (interventions)

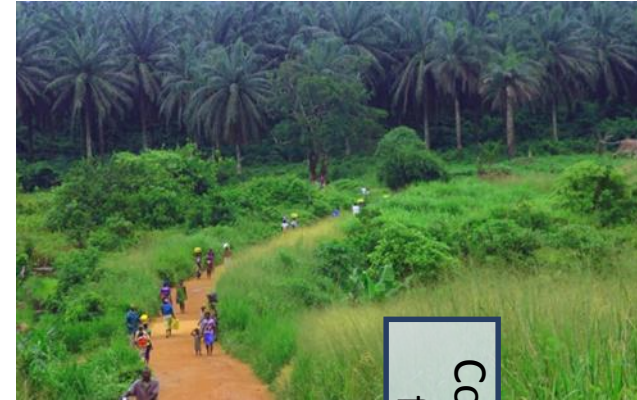
For example: Potential zones for REDD+ actions to extend areas community-based forest management in Tanzania



REDD+ actions? (In Viet Nam = interventions)

Activity	Example interventions
Reducing emissions from deforestation	Eg: reduce conversion pressure through improved land-use planning
Reducing emissions from forest degradation	Eg: improve sustainability of NTFPs harvesting/production; fuelwood alternatives/efficient cookstoves
Conservation of forest carbon stocks	Eg: improve management of existing protected areas
Sustainable management of forest	Eg: reduced impact logging; community forestry
Enhancement of forest carbon stocks	Eg: forest rehabilitation; afforestation

Different REDD+ actions may be implemented in different areas



Potential **benefits** and **risks** of REDD+ depend on where and how actions are implemented



How can mapping help to identify priority areas for REDD+ actions?

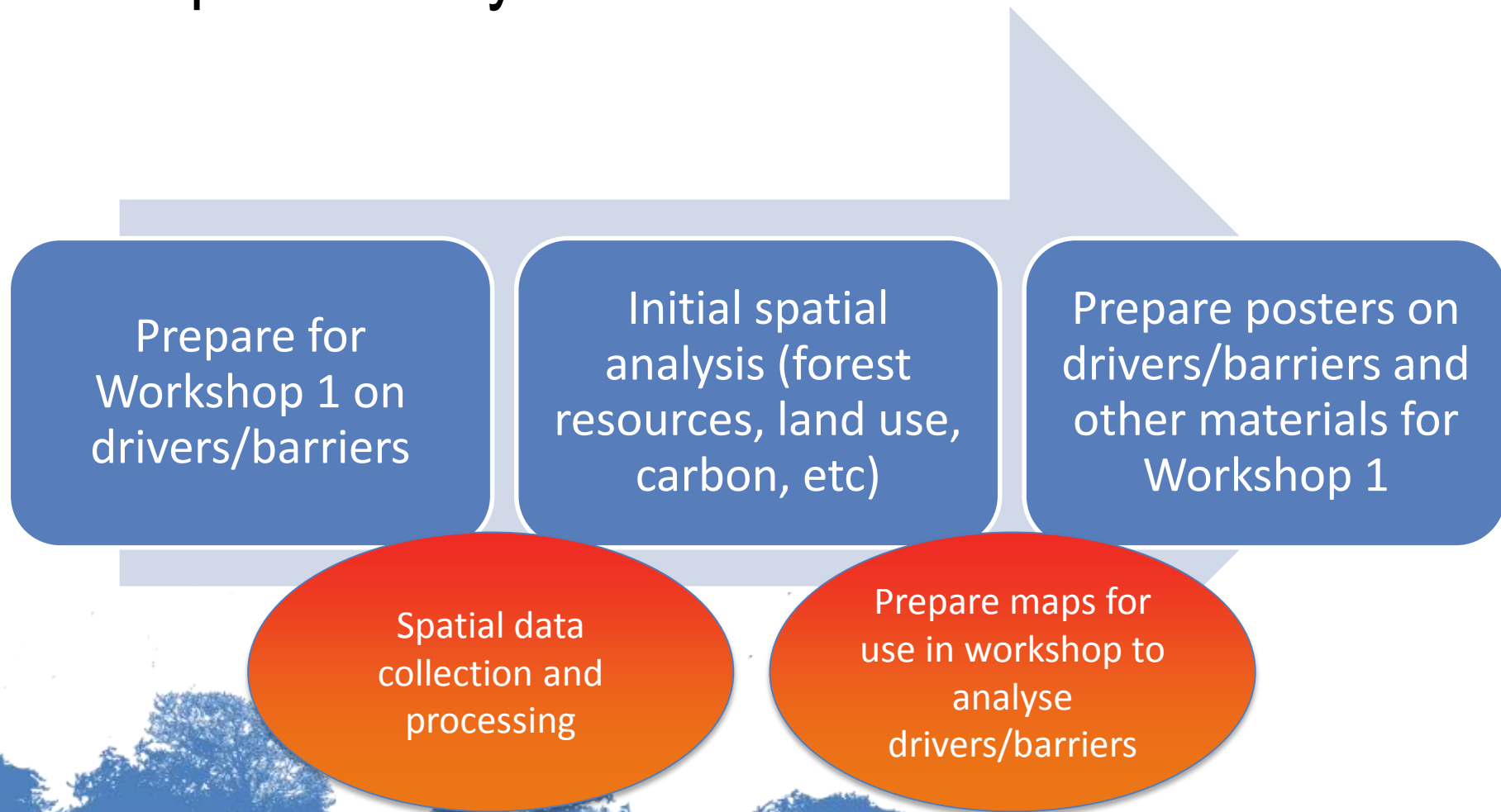
- Based on existing conditions, where are the areas where REDD+ actions **can** be implemented?
- Which areas are under **pressure**?
- Which areas would **enhance benefits, mitigate risks and reduce costs**?
- Are there particular areas that should be **included or excluded**?



3. Steps in the PRAP process



What are the steps in the PRAP process and how does spatial analysis fit in?

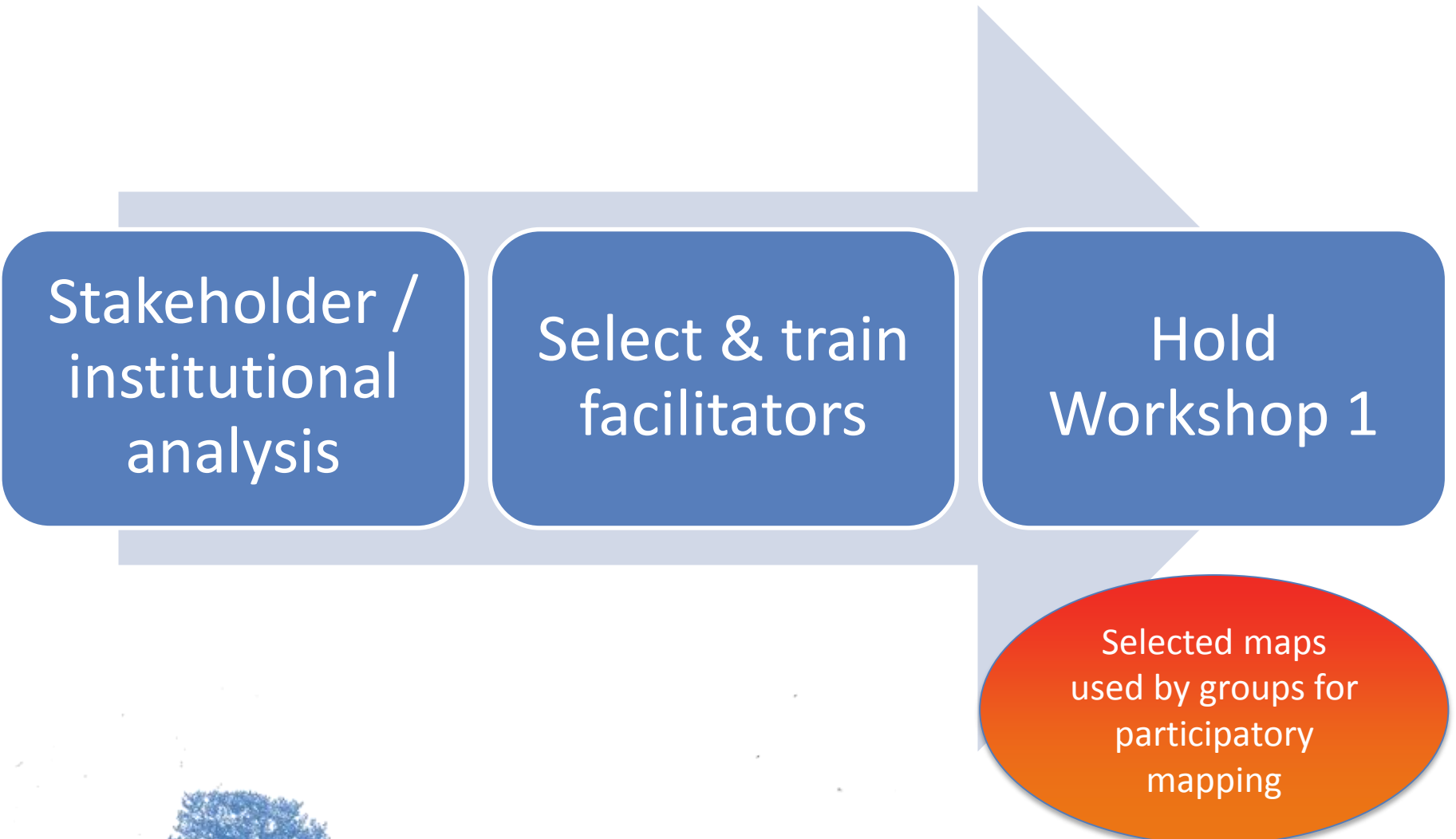


Stakeholder /
institutional
analysis

Select & train
facilitators

Hold
Workshop 1

Selected maps
used by groups for
participatory
mapping



Process results of
Workshop 1 (problem
trees, maps, notes, etc)

Prepare for Workshop 2
on
solutions/interventions

Hold Workshop 2

Combine
participatory
mapping & GIS for
final maps of
DFD/barriers

Prepare maps for
use in Workshop 2

Selected maps used
for participatory
mapping of
potential
intervention sites

Process results
of Workshop 2
(solution trees,
maps, notes, etc)

Draft maps of
potential areas
for interventions

Environmental
impacts study
and workshop

Combine
participatory maps
from workshops
with GIS maps

Develop workflows
& prepare draft
maps of areas for
interventions

Does the
consultant/
workshop need
any maps on
environmental
risks/benefits?



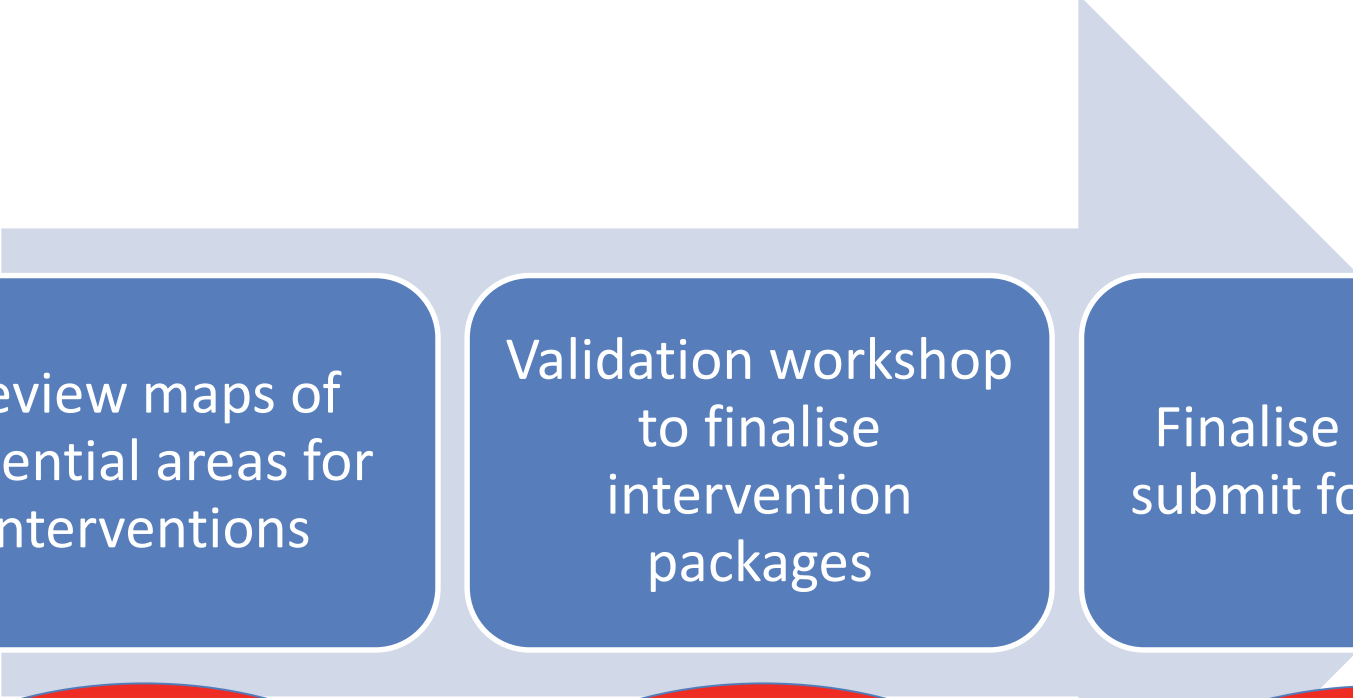
Intervention
package design –
key informants
workshop

Costing of
intervention
packages

Develop PRAP
monitoring plans
& add to
interventions

Are draft maps or
any other maps
needed for this
workshop?

A blue silhouette of a forest with various trees, including palm trees, is positioned at the bottom of the slide.



Review maps of potential areas for interventions

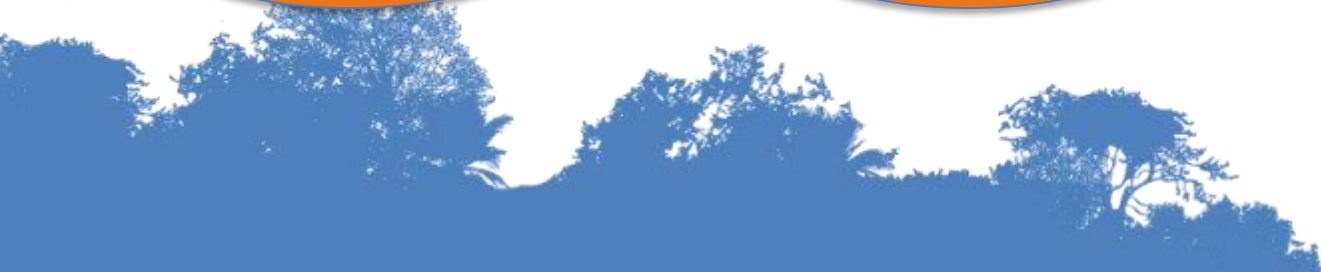
Validation workshop to finalise intervention packages

Finalise PRAP and submit for approval

Refine maps based on environmental study/intervention design workshop, etc

Final draft maps available for use in this workshop

Finalise maps for interventions & any other maps to be included in PRAP



Thank you!

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