

# Making ecosystem restoration meet multiple goals for people, biodiversity and the climate

## Background

Ecosystem restoration, in particular of forest ecosystems but also in peatlands and agricultural landscapes, is a key option for action on climate change. When properly planned and implemented, it can provide many co-benefits in terms of biodiversity conservation, ecosystem services and social and economic sustainability. However, restoration efforts can also pose risks, for example if the ecological characteristics of species used in restoration or impacts on surrounding land are not adequately taken into account, or if current social and environmental values of the ecosystems to be restored are not sufficiently reflected in decision-making.

Assessments of restoration opportunities are being undertaken in many countries or regions and by a range of governmental and non-governmental stakeholders. At the same time, there are great differences between the approaches used by such initiatives with regard to the extent to which they include consideration of possible social and environmental benefits and risks.

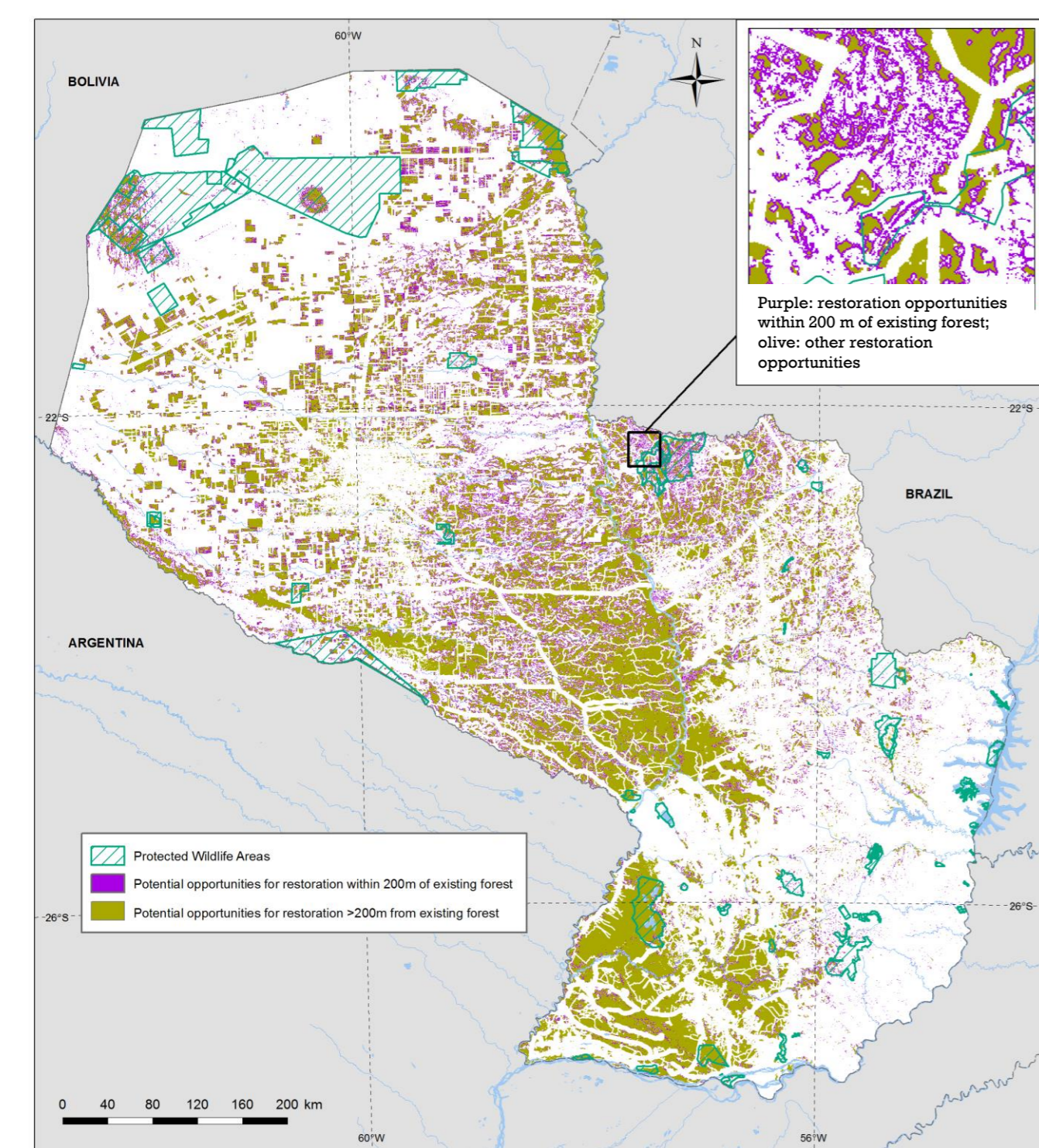
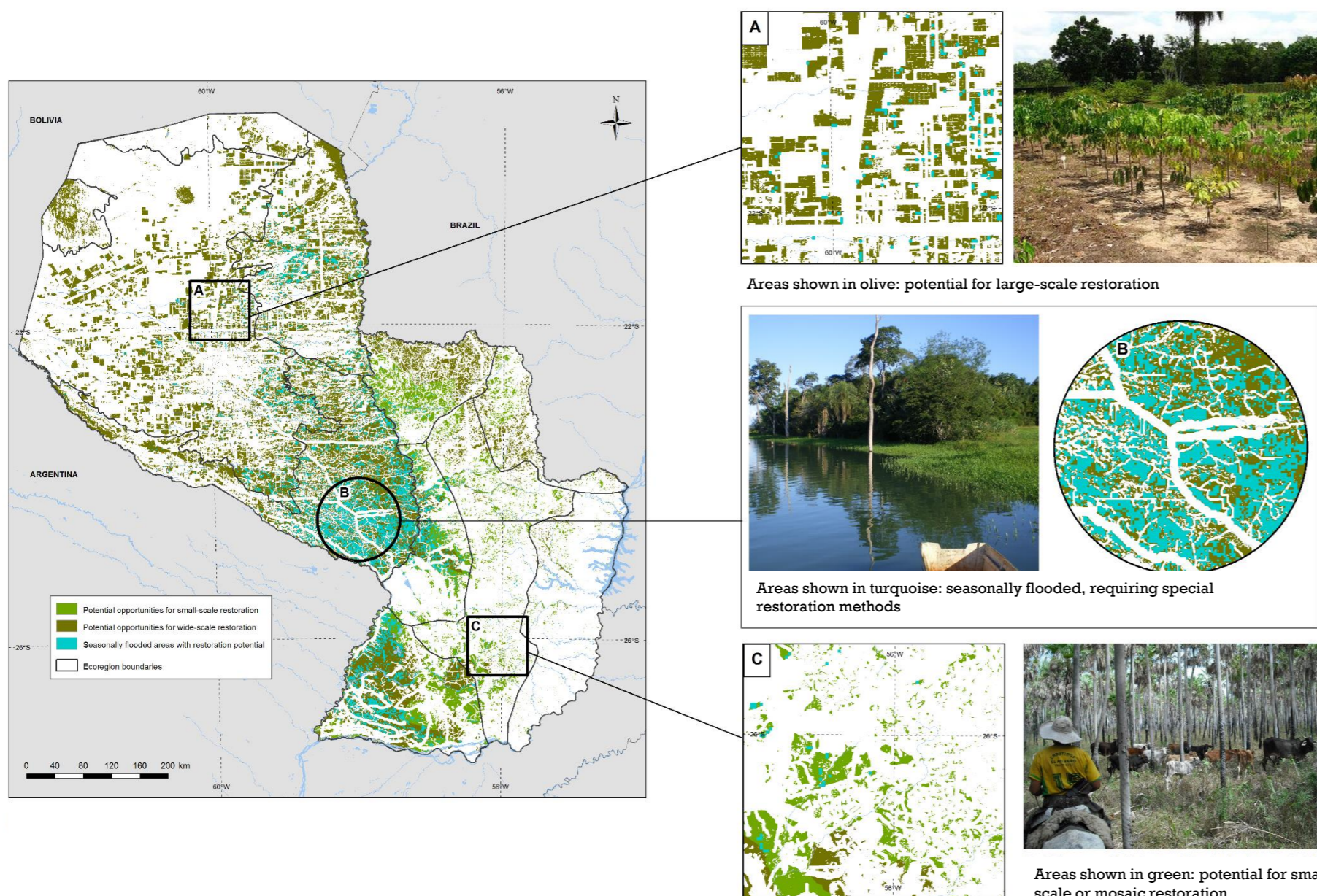
## Approach

Any assessment of restoration opportunities should take into account the ecological factors that determine the feasibility of restoration and the possible methods (e.g. climate and soil condition) and the socio-economic factors that influence competition with other land uses (e.g. population density, opportunity cost, agricultural suitability). Adding information on the possibility for restoration to provide a range of benefits (e.g. carbon sequestration, biodiversity conservation, water regulation) can enhance the practical value of the results. Two examples of analyses carried out under the UN-REDD Programme are shown here.

### Paraguay

Parameters used to identify suitable areas for restoration:

- current and potential forest cover, seasonal flooding (→ feasibility and method)
- agricultural use, transport infrastructure, population density (→ scale)



Example of an overlay to determine potential for additional benefits:

- proximity to existing forest (→ seed source, can speed up recovery and increase biodiversity value of restored areas)
- proximity to protected areas (→ potential value as buffer zone and to reduce fragmentation)

Source: Walcott, J., J. Thorley, V. Kapos, L. Miles, S. Woroniecki and R. Blaney (2015). Mapping multiple benefits of REDD+ in Paraguay: using spatial information to support land-use planning. Cambridge, UK: UNEP-WCMC.



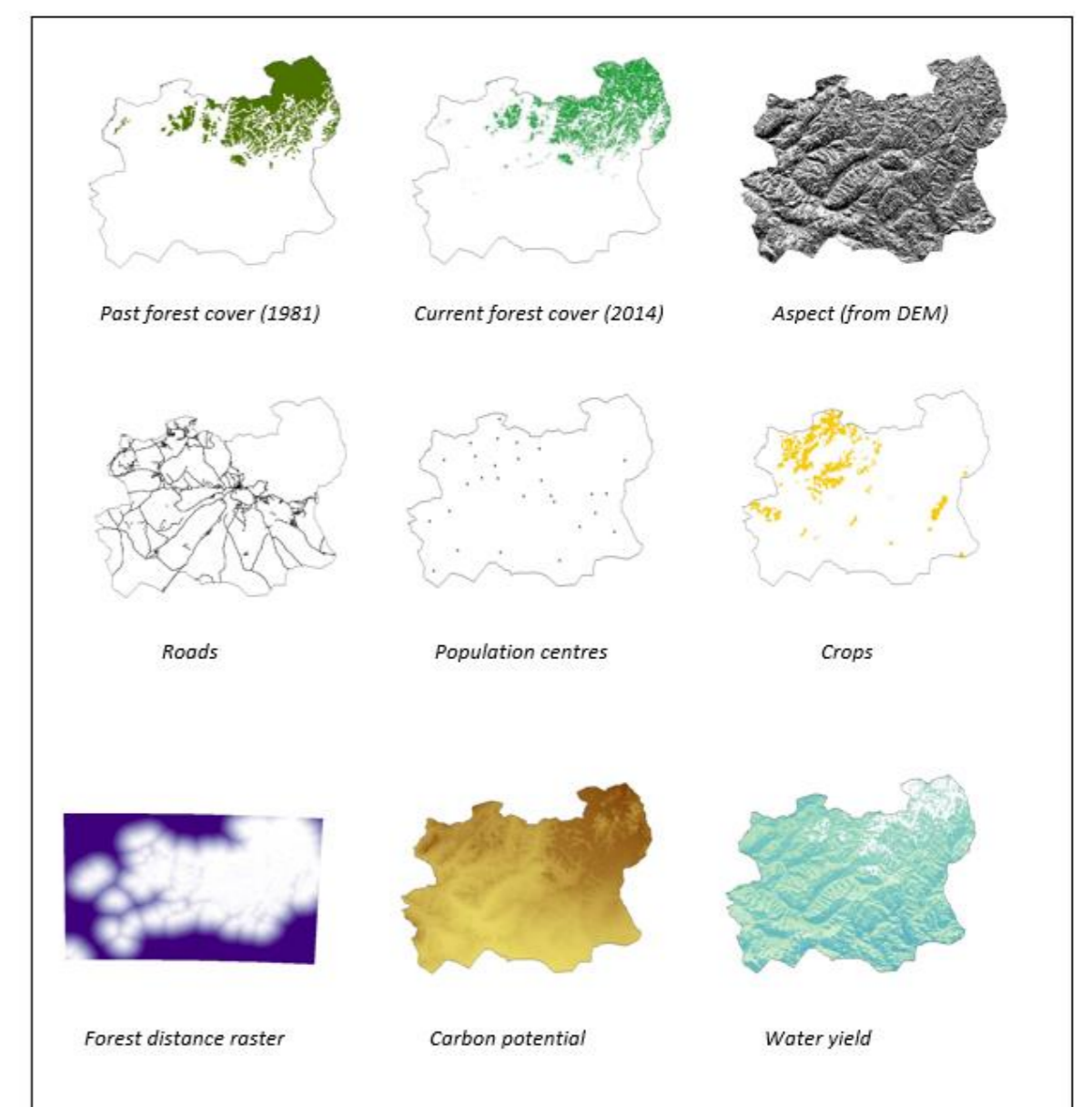
### Mongolia

Parameters used to identify suitable areas for restoration:

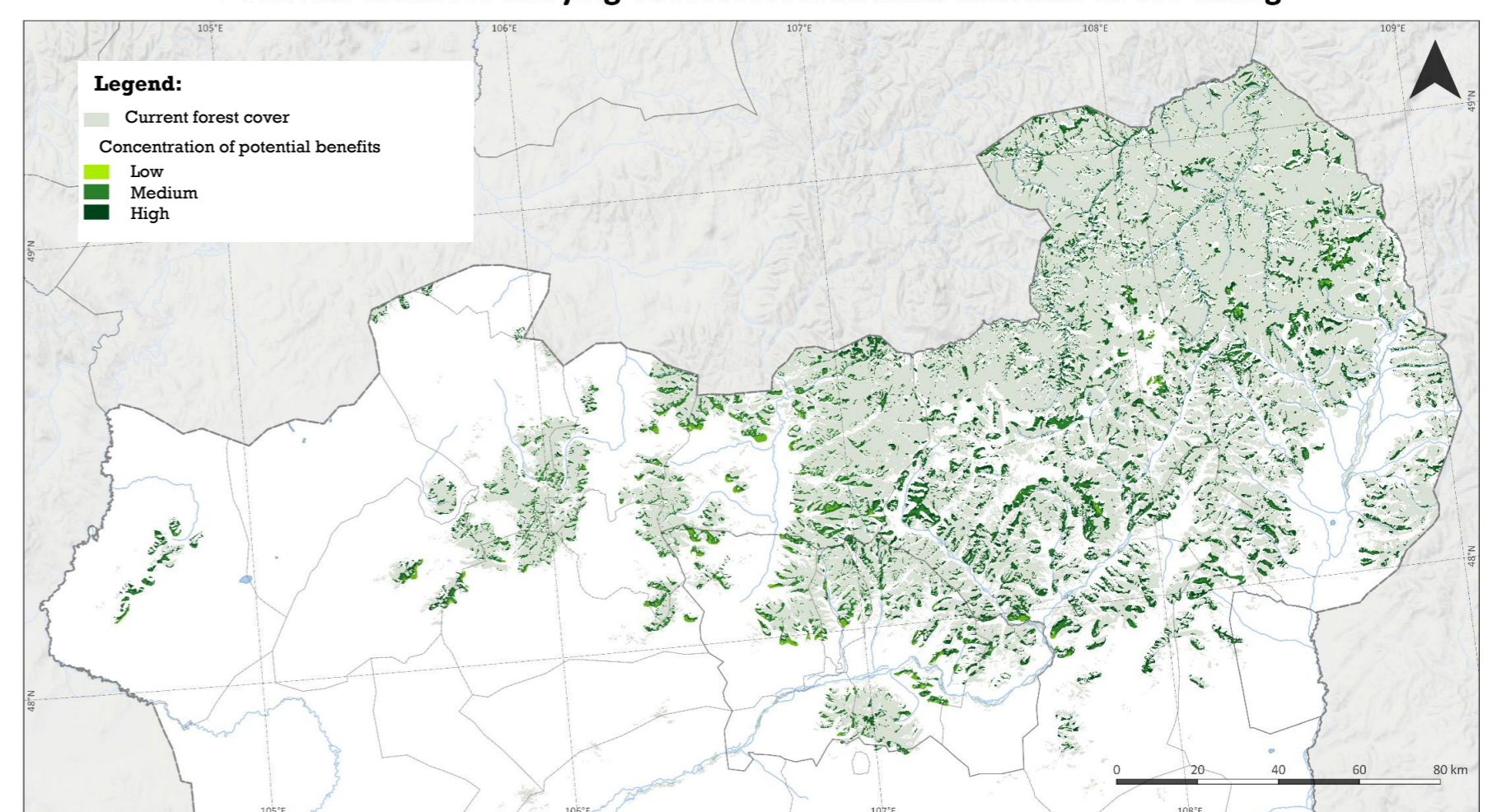
- current and past forest cover, topography (→ feasibility)
- transport infrastructure, population density, agricultural use (→ availability)

Parameters used to determine potential for additional benefits:

- proximity to existing forest (→ seed source, potential to reduce fragmentation)
- potential for carbon sequestration
- potential water yield under forest.



Potential areas for carrying out forest restoration activities in Tov aimag



Source:

Narangerel, Z., Nandin-Erdene, G., de Lamo, X., Simonson, W., Guth, M. and Hicks, C. (in prep.) Using spatial analysis to explore potential for multiple benefits from REDD+ in Mongolia. Joint report of the Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), UNEP World Conservation Monitoring Centre and Mongolia National UN-REDD Programme, Ulaanbaatar.



## Conclusion

By reflecting the multiple values that ecosystems provide to different stakeholder groups in their current state, as well as the potential benefits that can be obtained through restoration, assessments of restoration opportunities can enable countries to simultaneously address commitments under the CBD, UNFCCC, UNCCD and the Sustainable Development Goals.