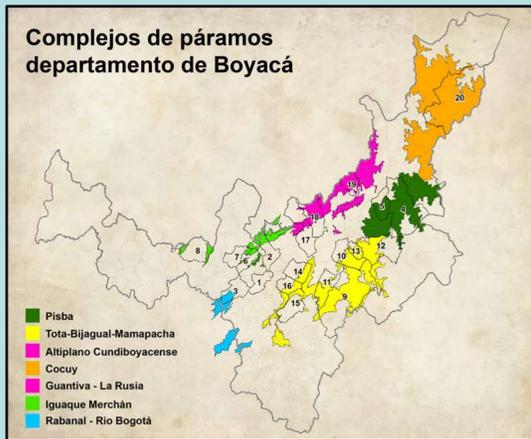


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## Background

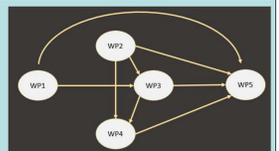
- Resolving tensions between ecosystem conservation and livelihood protection implies an understanding of the wider conflicts about land and ecosystem services and who benefits from the exploitation of natural resources, and an identification of shared visions and pathways to achieve them.
- Focusing on the Colombia Páramos of Boyacá, this project aims to understand the economy, ecology and conflict dynamic by mapping the social, hydrological, environmental, agricultural and bio-economic identities of Colombia's Páramo ecosystem, which can contribute to an equitable and healthy Páramos for all stakeholders.



## Páramos: Hydrological identity

The areas occupied by this ecosystem are thought to be an important source of water to urban areas because both the vegetation and soils may have high water storage capacities which could store water throughout the wet season and supply subsurface flow to downstream rivers during the dry season.

## Project work packages:



- WP1:** Historical and cultural geographies of environmental conflicts;
- WP2:** Hydrological resources and ecosystem services;
- WP3:** Land-cover dynamics with a focus on livestock farming;
- WP4:** Map ecosystem service values;
- WP5:** Facilitate stakeholder mutual understanding.

## WP1: Historical and cultural geographies of environmental conflicts

**Conflict mapping:** Map the conflicts and tensions affecting páramo inhabitants and the various actors.

**Identify the impacts of conflict:** Map the social, cultural, economic and environmental impacts of the conflicts/tensions, tracing them in the páramo landscapes of local farms, impacts on livelihoods, farming practices, productivity, water access, etc.

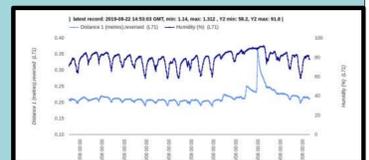
**Narratives of conflicts:** Build and narrate a collective memory of the conflicts and their environmental impacts as imprinted on the landscape.



## WP2: Hydrological resources and ecosystem services

The research will analyse hydrological resources and ecosystem services.

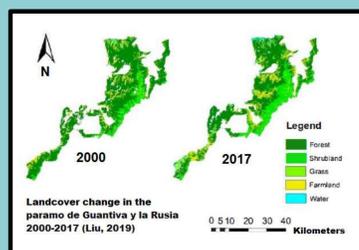
- Monitor Páramo hydrology and climate, particularly soil moisture and flow dynamics – catchment study with more than 100 monitoring instruments (KCL FreeStations).
- Spatial modelling of impacts of land use and land cover change on ecosystem services, using WaterWorld.
- Broader analysis of the role of Páramos in Colombia's biodiversity and ecosystem service landscape.



## WP3: Land-cover dynamics with a focus on livestock farming

This component will investigate:

- Historic land cover change analysis;
- Fire dynamics analysis and modelling;
- Human-environment interactions and projections of future change.



## WP4: Map ecosystem service values

Understand agricultural production in páramo areas and its place in people's livelihoods:

- Map use and non-use ecosystem service values;
- Understand the opportunity costs and trade-offs inherent on specific service categories (agriculture, water services and peatland carbon).



## WP5: Reconciled Páramos

This component of the project will bring together the data from the other work packages and, through design participatory methods, model potential sustainable scenarios. These will help inform policy in a way that incorporate different stakeholders, to co-design a shared vision of a future, healthy and happy Páramo.



## Acknowledgements

This research is a contribution to the NERC ColombiaBio programme project 'Towards environmental reconciliation in Páramo land in Boyacá: resolving ecosystem trade-offs in post-conflict spaces' (Por El Páramo) ref: NE/R017999/1.

## References

- Liu, Y, 2019, *Investigating land-cover change in the páramo of Colombia from 2000 to 2017*, MSc project, King's College London.

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