

Local Soil Knowledge and Gendered Landscapes in Bolivia and the Philippines: Can GIS Tell Their Story?

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Abstract

This research will pose questions about using mixed methods for research on gender, local soil knowledge, and agricultural resources. It presents qualitative GIS methods used in sample households in the Bolivian Andes to discuss its cross-cultural applicability for future fieldwork in the Philippines. It will be part of the Gender Cross-cutting Research Activity of SANREM CRSP in collaboration with a research-for-development organization in Claveria, Misamis Oriental, Mindanao. The goal is to combine qualitative methods with geospatial techniques to identify and document gendered knowledge, agricultural practices, and access to resources in order to better understand the relationship between gender, agriculture, and landscape. By incorporating multiple methods we hope to identify gender based constraints and opportunities at the household level that are relevant to conservation agriculture production systems (CAPS).



Preliminary study site in Sank'ayani Alto, Tiraque, Andean Region of Bolivia.



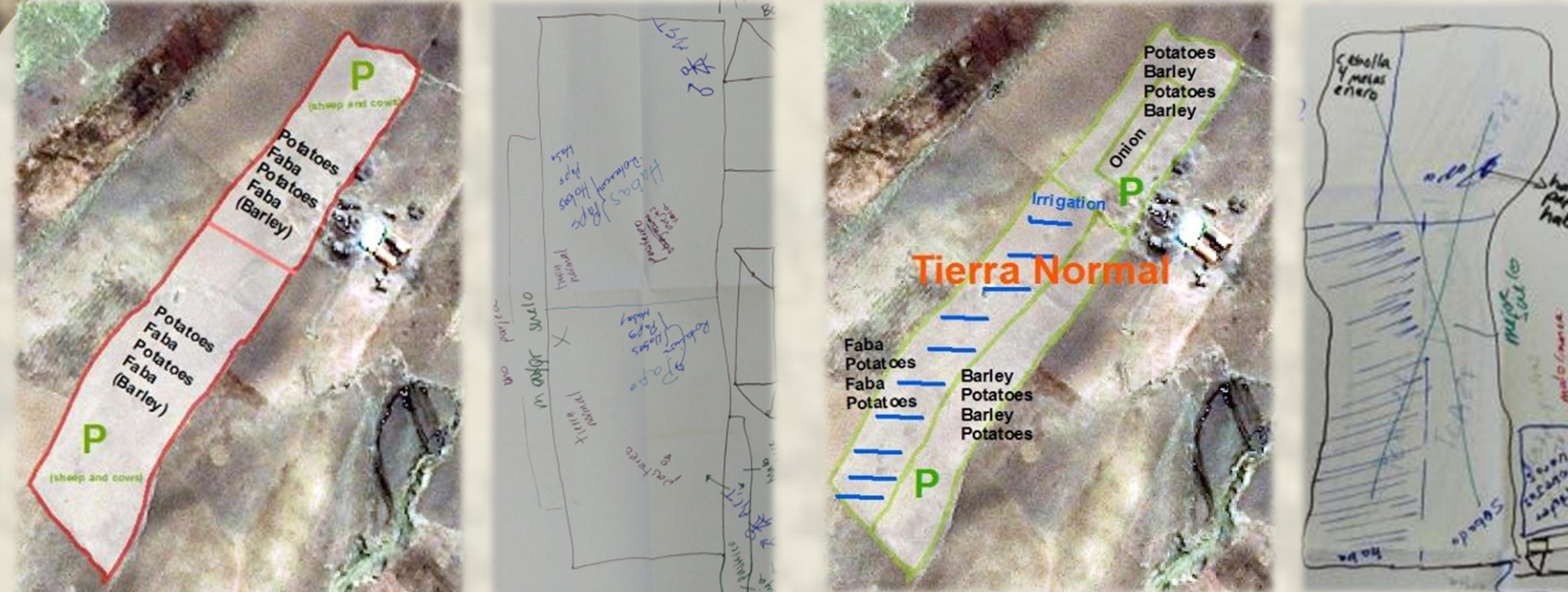
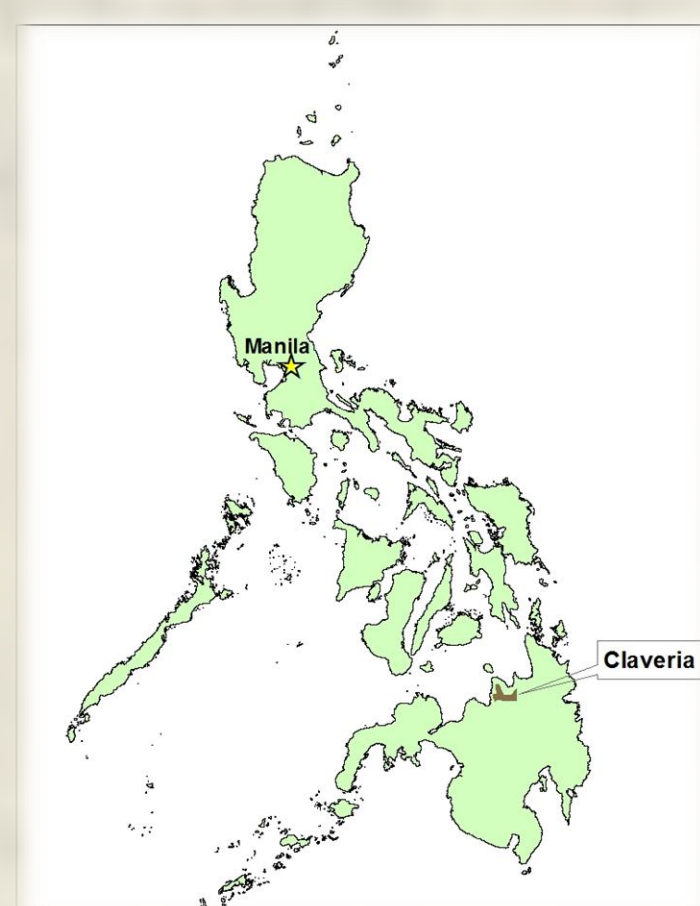
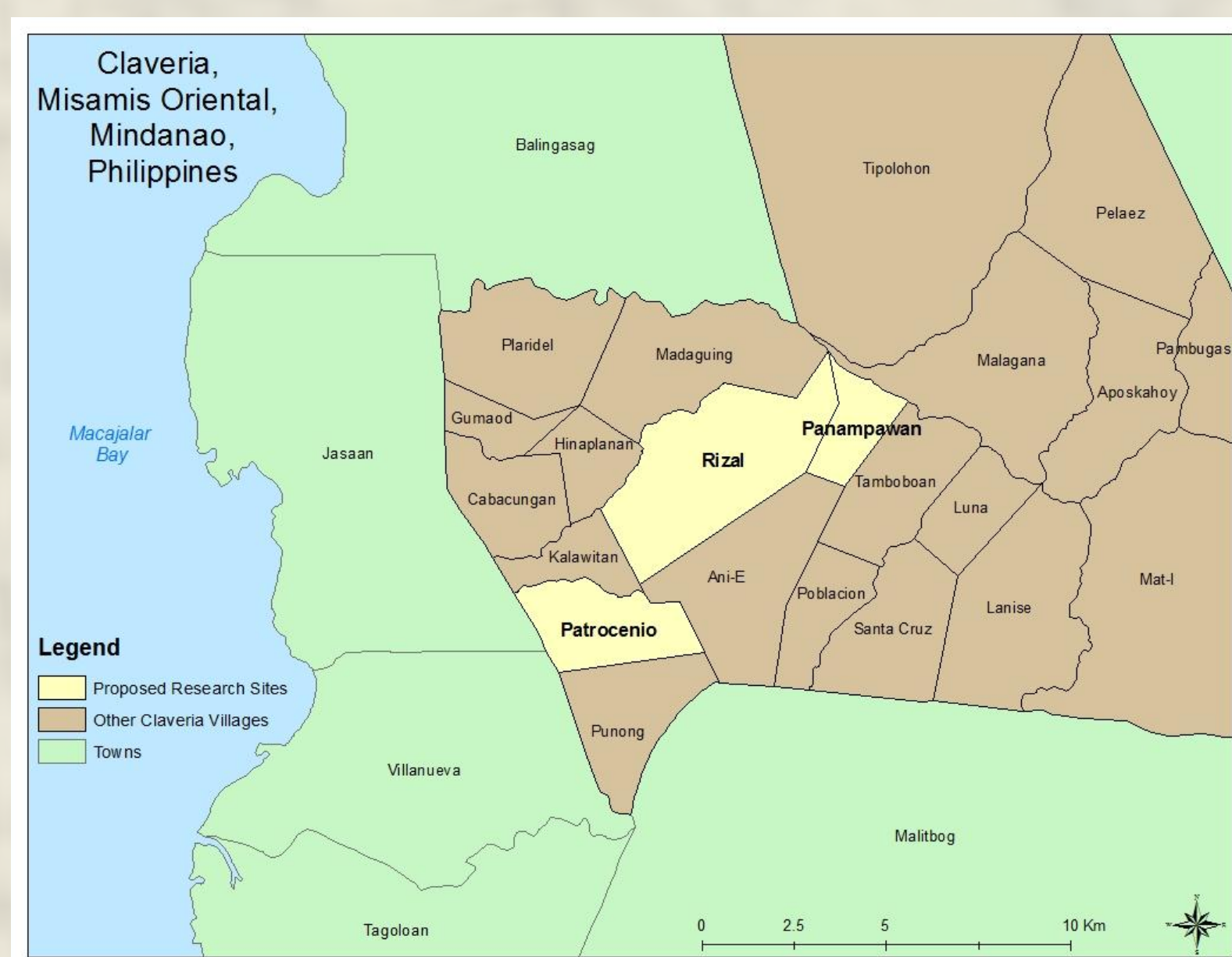
Future study site Claveria, Misamis Oriental, Mindanao, Philippines

What is SANREM CRSP?

SANREM CRSP stands for Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program and is funded by the U.S. Agency for International Development. The project's goal is to increase smallholder food security and agriculture productivity through conservation agriculture production systems (CAPS).

CAPS consists of three components:

- Maintain a year-round soil cover
- Minimize soil disturbance by tillage
- Utilize crop rotation systems



Woman's perception of plot from Bolivia that was digitized in GIS from her participatory map. This is her "best" soil. It shows local soil knowledge, crop rotation, and pasturing. She emphasized her land use in terms of pasturing and sustenance.

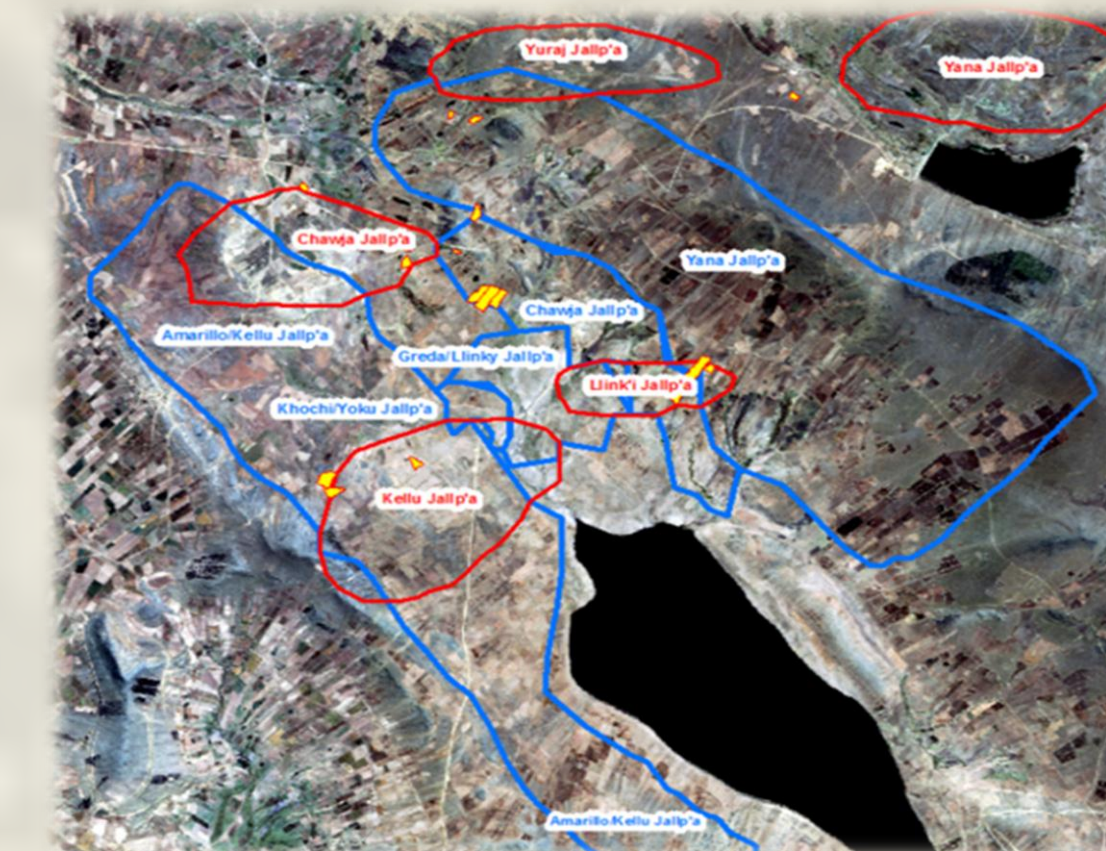
Man's perception of same plot that was digitized in GIS from his participatory map. This is also his "best" soil. Shows local soil knowledge, detailed crop rotation, irrigation, and pasture. Compared to the woman, his perception of the plot was based on work and productivity.

Methods

The goal is to map gendered landscapes and local soils knowledge using and linking participatory mapping with GPS mapping. Other methods include(d) structured and unstructured interviews, household and field visits, focus group activities, photo interpretation, and soil sampling. Content of data included: land ownership, crop rotations, access, control, labor, and pasturing.

Based on research done in Bolivia, by taking local, gendered knowledge from qualitative methods and integrating that with GIS software (Arcmap 2010), we were able to:

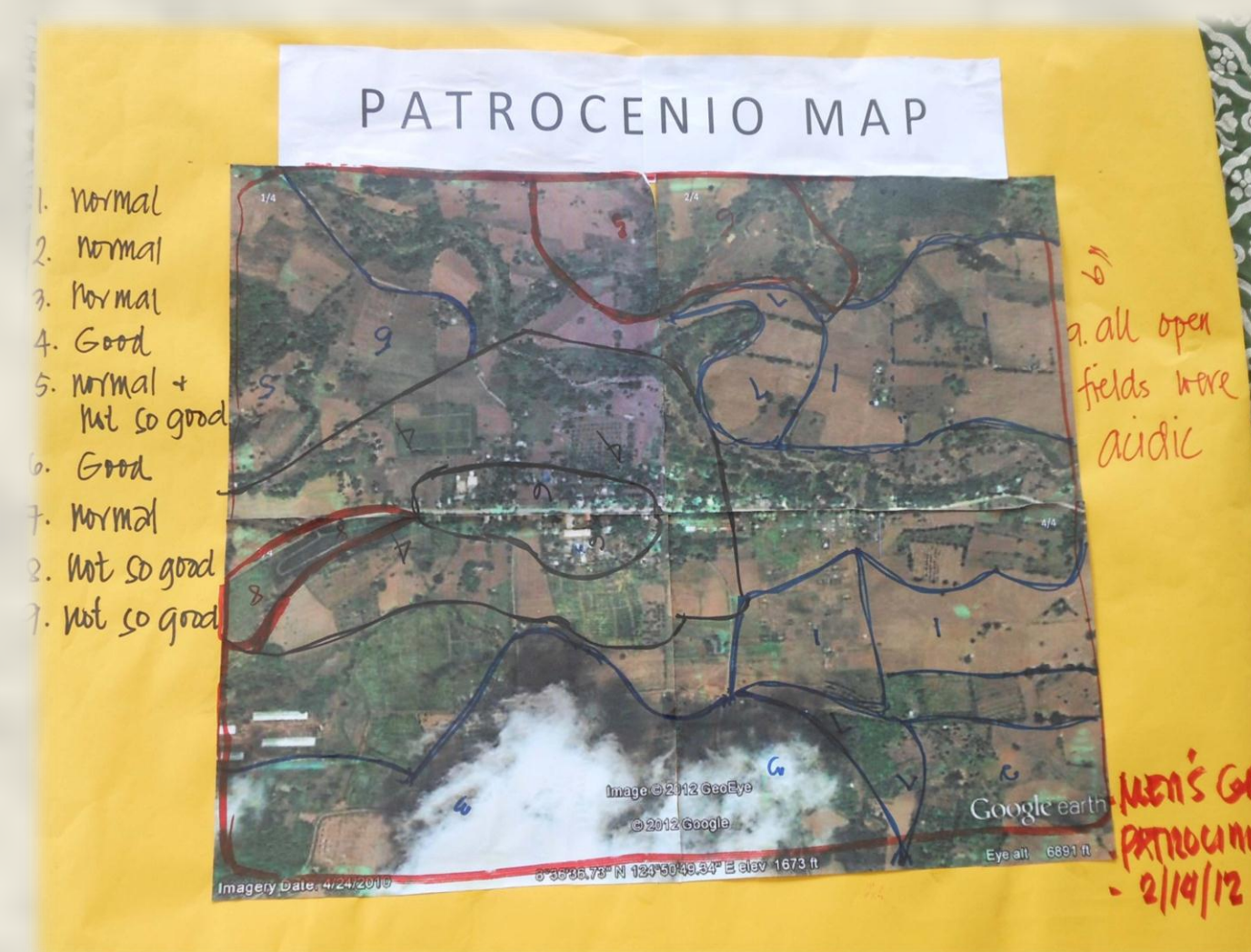
- produce spatial details that were not conveyed through the other methods such as size, shape, and location
- Organize the data based on gender and location
- Visually compare gendered knowledge, practices, and access to resources



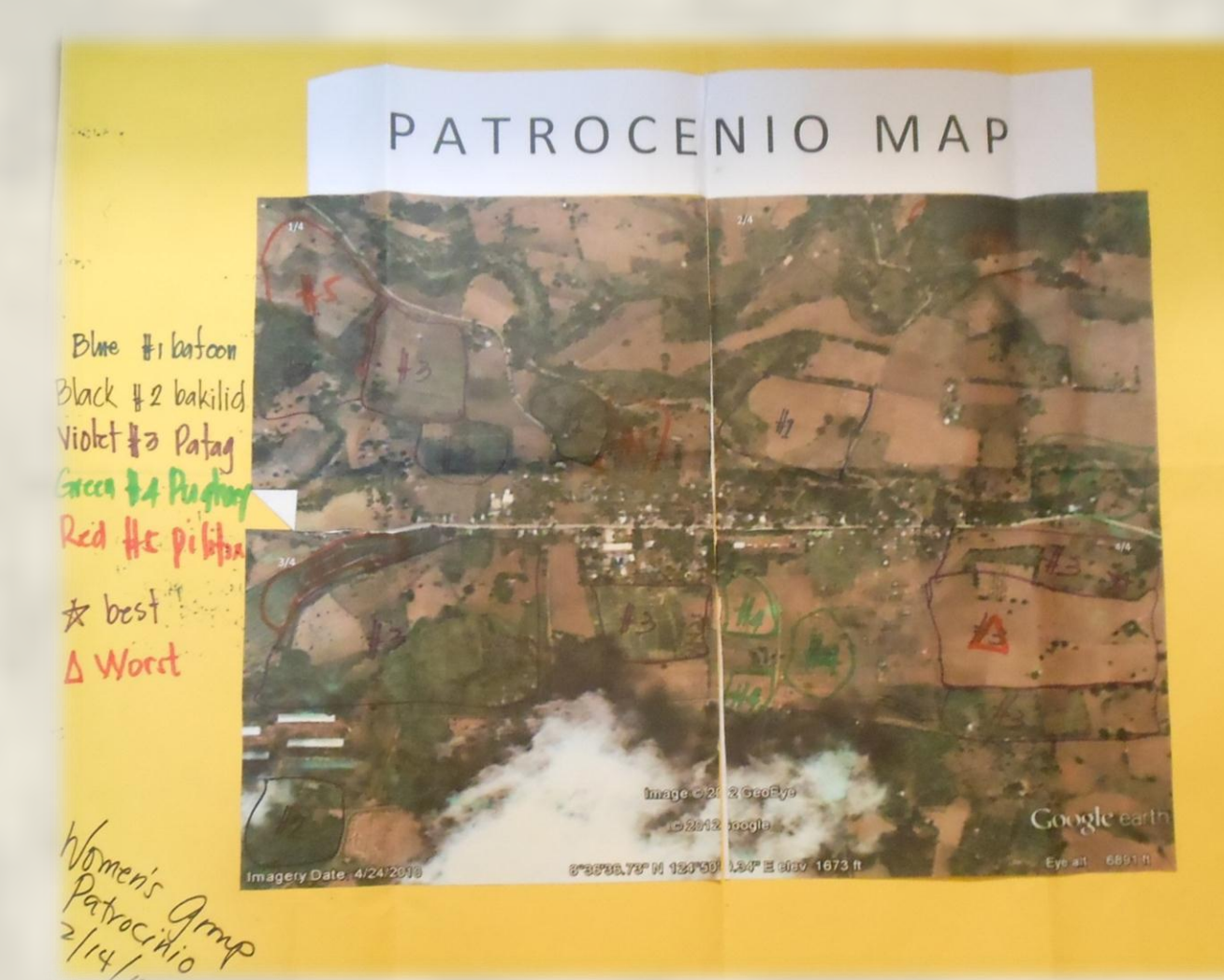
Community soils maps drawn by men and women digitized on an IKONOS image. The red circles are drawn by women and the blue by men.

Limitations include(d):

- Language
- Accessing appropriate GIS data
- Inconsistent data availability by household



At the Philippines site, men use color as a primary method for classification of soils while women use terrain/landscape. This seems to correlate to women being responsible for weeding in their discussion of the soils.



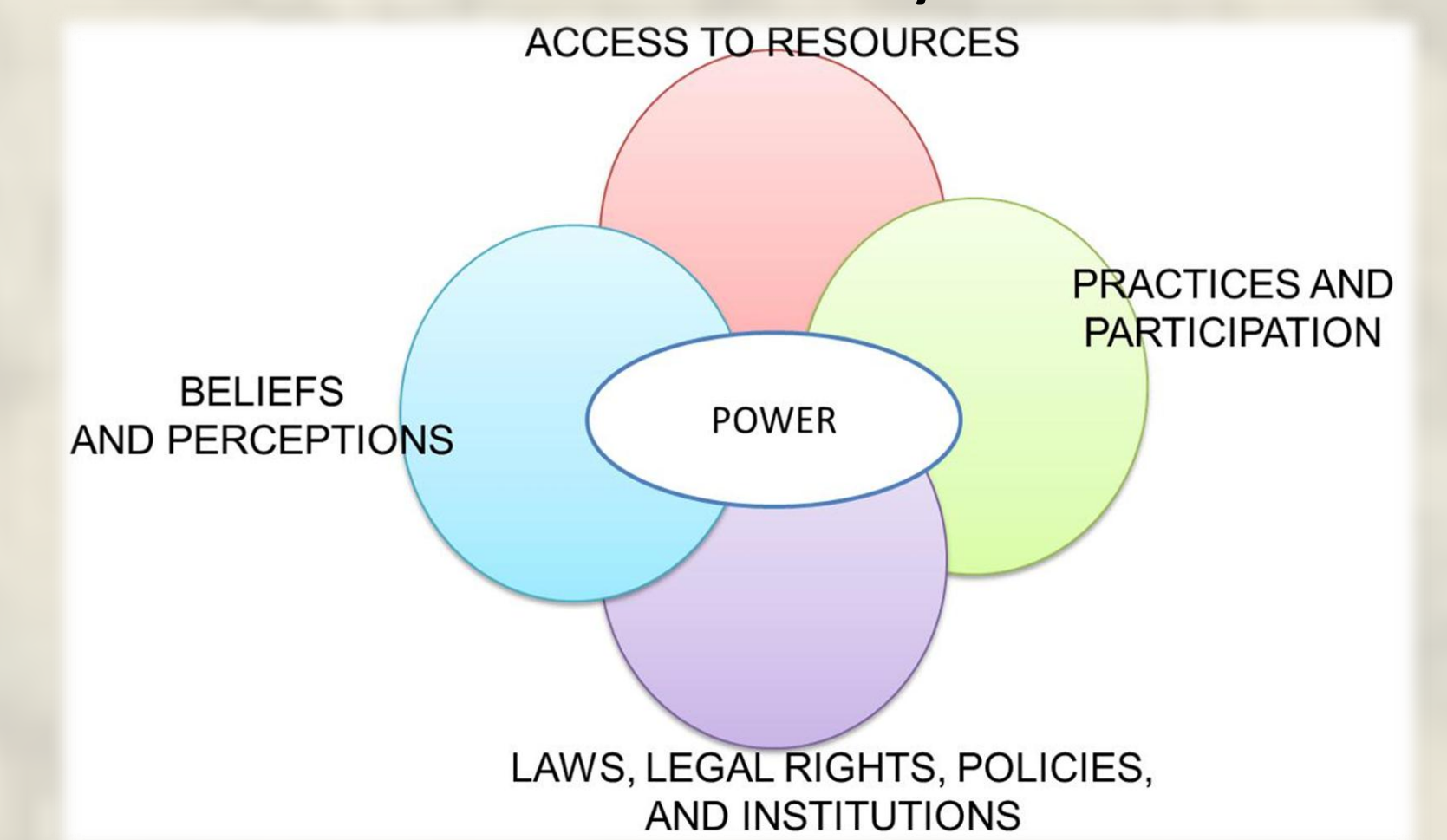
Soils Classification Chart

	1	2	3	4	5	6	7	8	9
Men	Clay	Pula na yuta (Red Soil)	Brown na yuta (Brown Soil)	Itom na yuta (Black Soil)	Pughay na yuta (Porous Soil)	Balason na yuta (Sandy Soil)	Tubigon na yuta (Waterlogged)	White Clay na yuta (White Clay Soil)	Acidic na yuta (Acidic Soil)
Women	Batoon (Rocky Soil)	Bakilid (Sloping Soil)	Patag (Plain/Flat)	Pughay (Loose Soil)	Pilit Pilit (Sticky Soil)				

Research Questions

- 1.) Do men and women have different soil knowledge and access to land in the Philippines? Is this relevant to conservation agriculture production systems?
- 2.) What are the implications of conservation agriculture production systems on men and women's local soil knowledge, agricultural practices, and access to resources in the Philippines?
- 3.) How can the combination of participatory methods and geospatial techniques serve to document gendered knowledge, practices, and resources in conservation agriculture product systems?
- 4.) How can geospatial techniques help understand meaningful relationships between gender and conservation agriculture product systems?

Gender Analysis



The Gender Dimensions Framework (GDF) assists in the gender analysis and organization of data.

The overall purpose of the project is to understand how changes in farming practices that form part of conservation agriculture production systems—such as leaving crop cover on the field—will affect men and women's use and knowledge of the land. Preliminary findings show that men and women's local soil knowledge is related to gendered access and use of space.



Men and women draw their community maps and indicate who has access, control, and labor for particular resources.

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