



Introduction

The Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP) is in its fourth phase of using science to improve the livelihoods and food security of small farmers in the developing world. Two of four cross-cutting research activities (CCRAs) are **Gendered Perspectives for Conservation Agriculture and Soil Carbon and Soil Quality**. Women possess specialized agricultural knowledge which may differ from that of men's based on women's practices, access to and control of assets, and other factors, providing incentives (or disincentives) for women's participation in CAPS.

Terms & Abbreviations:

- PM - Participatory mapping
- EPS - Ethnopedological studies
- GIS - Geographic information systems
- SK - Scientific knowledge
- LK - Local knowledge
- CAPS - Conservation Agriculture Production Systems



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Local Knowledge of Place, Scientific Knowledge of Space

Ethnopedology's ability to enhance conservation efforts comes from its ability to reveal local knowledge to outside researchers. Participatory mapping, using a universal "language" of space and relationships, enriches SK with LK.

Ethnopedology's KCP model:

- the beliefs and symbolic associations (**Kosmos**),
- cognitive systems (**Corpus**) and
- methods of production (**Praxis**).



Geography & Ethnopedagogical Studies

Geography provides a way to understand the world through spatial relationships and unlimited variables. Regardless of training, all people develop and use mental maps to explain relationships in their surroundings. Mapping can provide an interface for understanding relationships between local and scientific knowledge.

Space and Place through Soil: Participatory Mapping, Ethnopedology, and the importance of Local & Gendered Knowledge

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SANREM CRSP Research Data

From 2009 to 2010, focus group activities were conducted in

- Mali: Village of Fambougou
- Ghana: Village of New Nyoli
- Uganda: Village of Kaplak
- Philippines: Rizal and Tamboboan
- Ecuador: Illangama and Alumbre watersheds (gender disaggregated data not collected)
- Kenya: Naismbu in peri-urban surroundings of Kitale (gender disaggregated data not collected)

SANREM CRSP Methodology

Gender disaggregated data is gathered by dividing men and women into different groups to describe photos and soil samples.

They are prompted to describe soil quality, determine which soil is – in their opinion – better for growing, and explain how they arrived at these conclusions. Note-takers who speak the same language as the participants record the conversations.

soil physical properties	Mali Fambougou		Ghana New Nyoli		Uganda Kaplak		Philippines Rizal		Philippines Tamboboan	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
color	10	x	x		x	x	x	x	x	x
texture	9	x	x		x	x	x	x	x	x
coarseness	3				x	x	x	x	x	x
stickiness	1				x	x	x	x	x	x
hardness	4				x	x	x	x	x	x
organic matter	5	x		x	x	x	x	x	x	x
aeration	1				x	x	x	x	x	x
drainage	5	x		x	x	x	x	x	x	x
relief	4				x	x	x	x	x	x
depth	3				x	x	x	x	x	x
	5	2	1	5	5	8	4	7	3	5
	Men 18		Women 27							
soil fertility indicators	Mali Fambougou		Ghana New Nyoli		Uganda Kaplak		Philippines Rizal		Philippines Tamboboan	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
crop health	9	x	x	x	x	x	x	x	x	x
organic matter	5	x		x	x	x	x	x	x	x
animal presence	3			x	x	x	x	x	x	x
tree growth	7		x	x	x	x	x	x	x	x
pests/weeds	4	x	x	x	x	x	x	x	x	x
roots in soil	1				x	x	x	x	x	x
soil weathering	2				x	x	x	x	x	x
nutrient deficiency	4				x	x	x	x	x	x
	2	1	4	4	4	5	4	5	3	3
	Men 17		Women 18							
labor related properties	Mali Fambougou		Ghana New Nyoli		Uganda Kaplak		Philippines Rizal		Philippines Tamboboan	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
plowing	4	x	x	x	x	x	x	x	x	x
stickiness	1			x	x	x	x	x	x	x
hardness	4			x	x	x	x	x	x	x
drainage	5	x		x	x	x	x	x	x	x
pests/weeds	4		x	x	x	x	x	x	x	x
erosibility	2		x	x	x	x	x	x	x	x
	3	1	2	2	4	2	1	4	1	1
	Men 10		Women 10							

"x" denotes that a variable is mentioned by the group of either men or women

"If indigenous knowledge is so good, why is my farm so poor?"
-Kenyan farmer

Methodological Recommendations

- Soil samples should be randomly collected by soil scientists, analyzed, and compiled into a GIS soil map.
- Without contaminating information, participatory mapping approaches should be used by an ethnographer.
- Potential topics to spatially represent: pathways, resources, access, labor, and control.
- The ethnographer should use the hand-drawn maps as a guide and go on a transect walk with a farmer and note-taker who speaks both languages.
- GPS points should be taken along the walk whenever a boundary is crossed or a feature is reached. The note-taker records what each point represents.
- the researcher and farmer will each draw their own diagram of the transect walk as a cross-section that shows topography, resource, field and landscape features, etc.



Research pitfalls :

- miscommunication of research intentions,
- clarity of information from farmers, and
- mistranslation of indigenous knowledge into Western science constructs.



Anticipated Results:

The GPS points and soil GIS will be combined to form a culturally informed spatial overlay for comparison with scientific knowledge. This map can then be annotated with the help of local farmers and given to them to use as a land management resource.

Conclusions:

This is not a conclusion to a project, but the results of preliminary research aimed at creating a methodological design for the future. The information held in LK can be shared with researchers to provide them with a snapshot-style body of information that illustrates the past and present of a landscape, while explaining the dynamic forces that have acted as agents of change, and can be harnessed to better serve sustainable land practice initiatives.