

# Anthropogenic Factors that Influence Soil Management: Ethnopedology and Ethnopedozoology



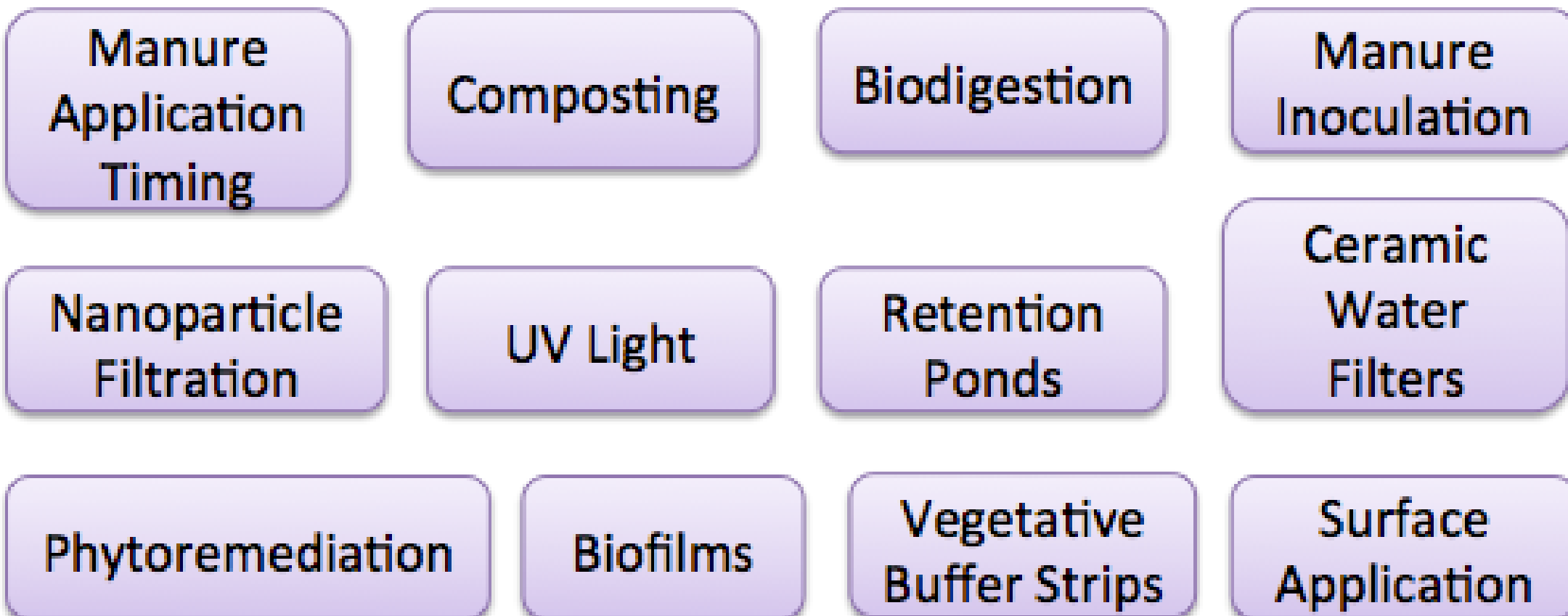
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## Abstract

Ethnopedology is the study of a local population's knowledge, belief and management of their soil. Ethnopedozoology is the study of human interactions with soil biota. Ethnopedology and Ethnopedozoology were developed to answer questions related to human-centered design including social, cultural, political and economic factors that influence soil management. These disciplines have also shown that local and scientific knowledge can be combined to find solutions for soil-related problems. Transdisciplinary research encounters many problems including the creation of new methods to answer research questions and how to communicate their findings. Currently, local knowledge is collected using qualitative methods and scientific knowledge through quantitative methods. Different methods have been used to integrate these two knowledge bases including GIS and participatory research but both methods have encountered challenges. The scope of ethnopedology research needs to be expanded to include the effect of local soil knowledge and beliefs on soil management. Ethnopedology also needs to include an examination of how green-revolution technologies affect the dynamic of local soil knowledge, beliefs and management. Ethnopedozoology is a new discipline, whose scope so far has only looked at macro fauna. An extension of the scope of ethnopedozoology to also include beneficial microorganisms would allow the scientific community to better understand how to communicate and facilitate adoptions of probiotics and composting. This would also create the opportunity for the scientific community to learn about a possible local management practice, which would promote soil biodiversity.

## Justification

Proposed methods to reduce introduction of antibiotics from manure into the environment



Farmer Adoption

**Why have none of these methods been implemented by Farmers?**

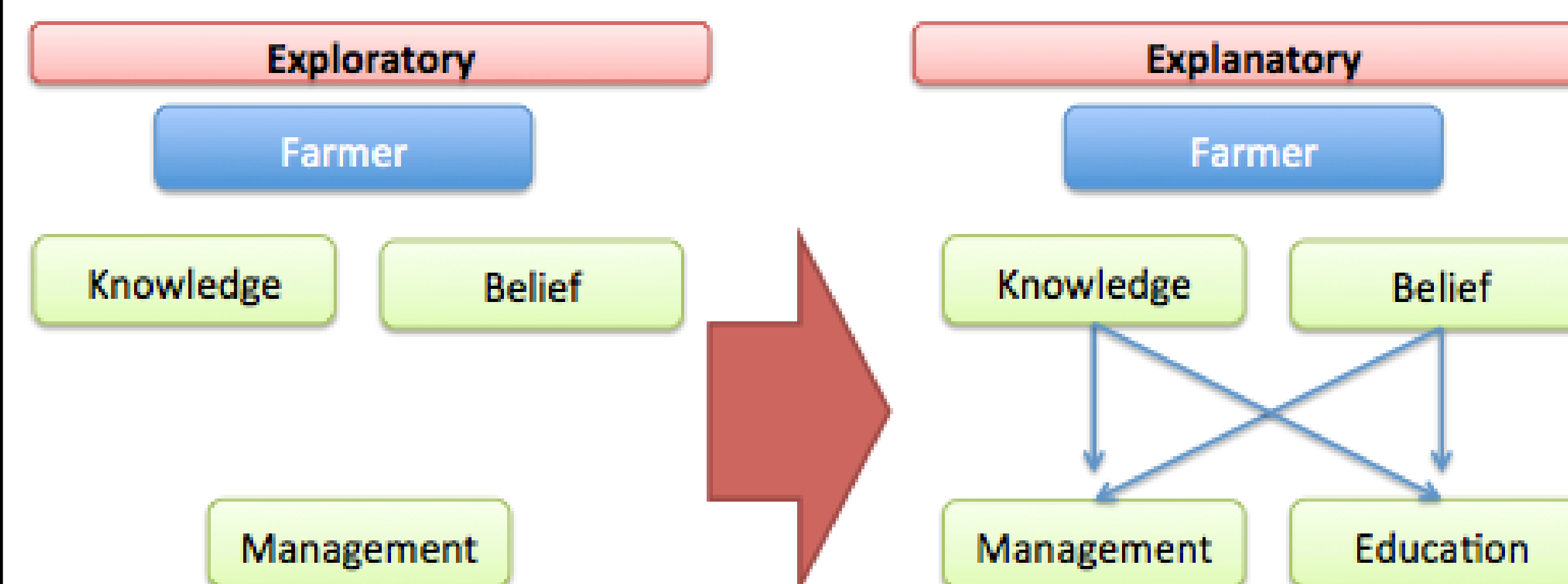
**Could a farmer's belief and knowledge be in conflict with the proposed methods?**

## Introduction

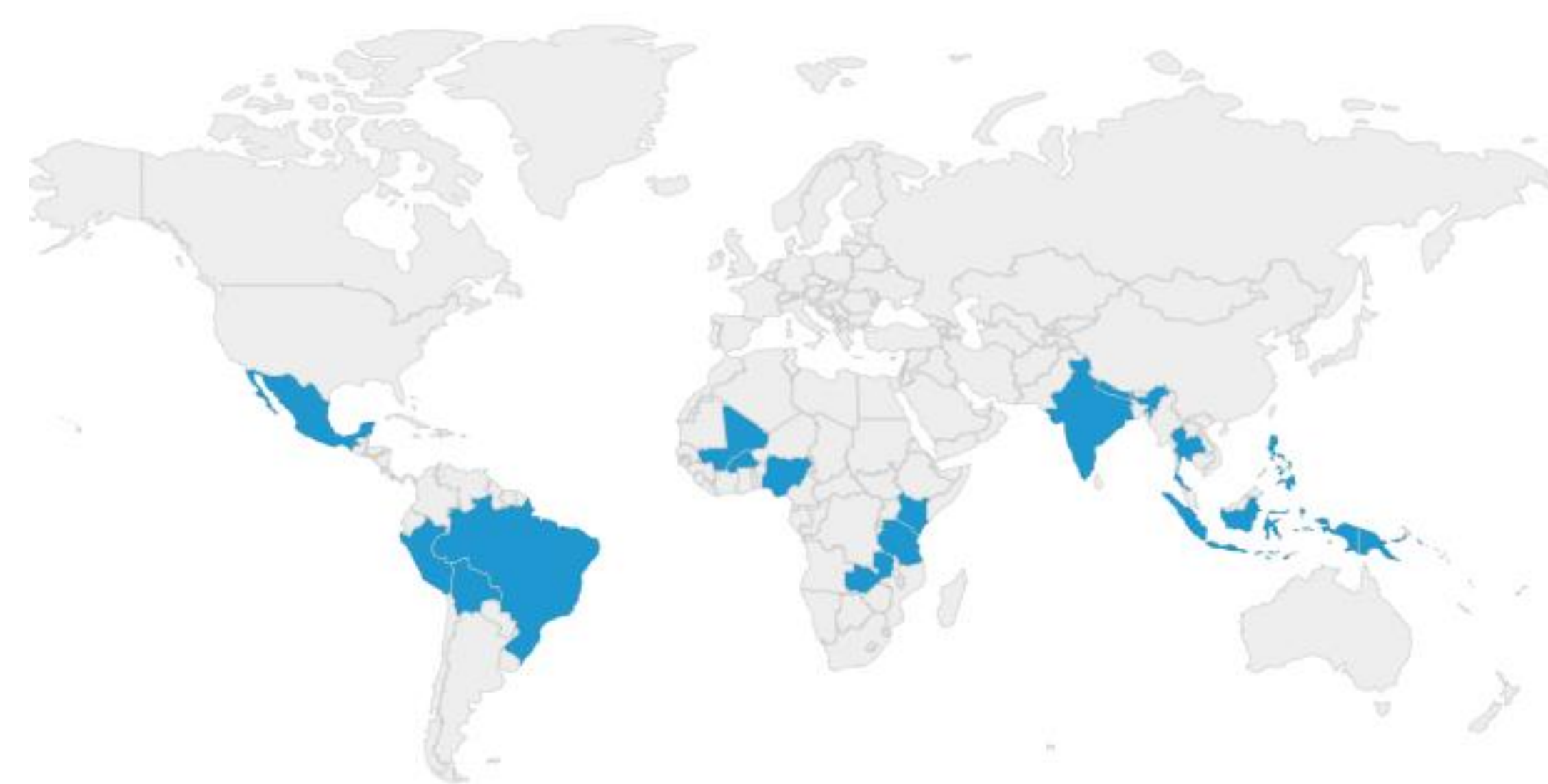
**Ethnopedology is the study of a local populations knowledge, belief and management of soil<sup>1</sup>. Ethnopedozoology examines specifically soil biota<sup>5</sup>.**

## Objectives

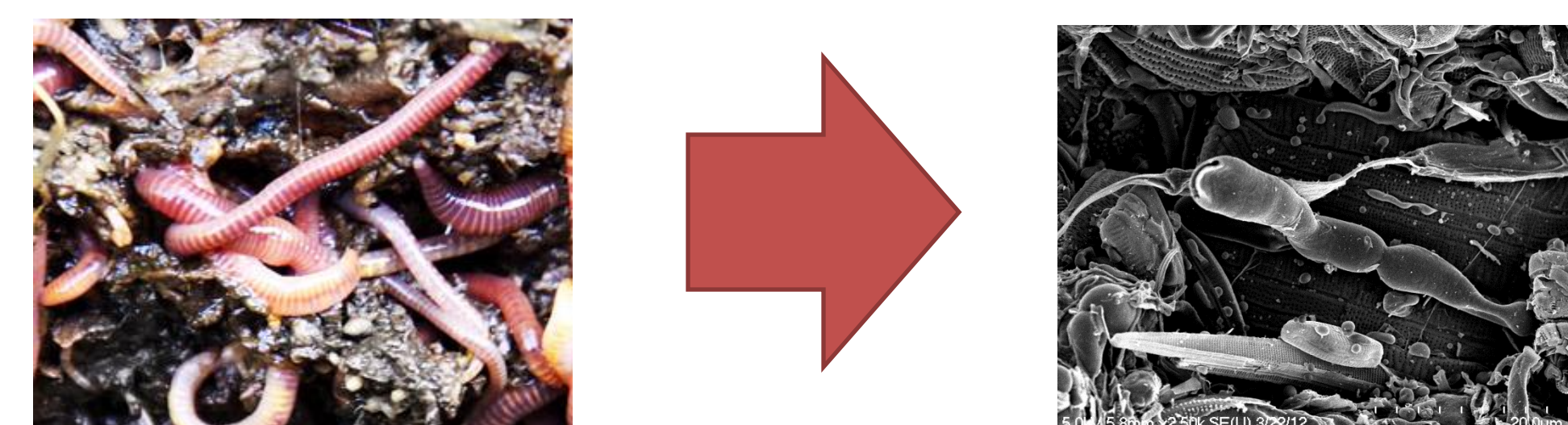
- Current research of ethnopedology and ethnopedozoology is exploratory<sup>1</sup>; the next step is to move the research to explanatory.



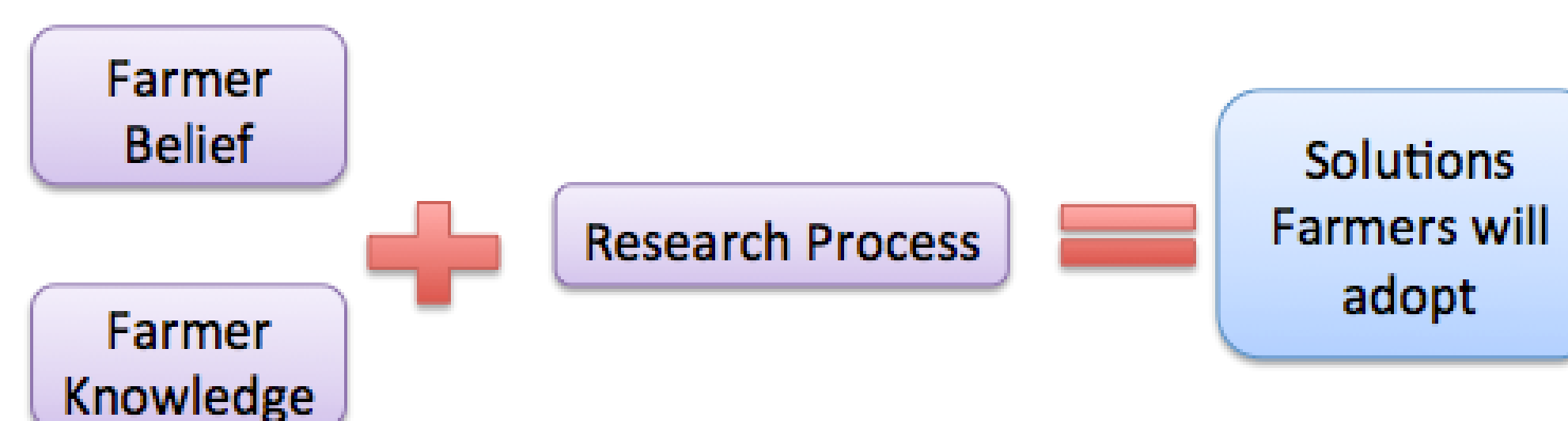
- Increase the geographic regions of study; map shows the most studied countries for ethnopedology<sup>1</sup>.



- Incorporate ethnopedozoology into the solution; broaden the current scope of study from soil macro fauna to include micro fauna and flora.



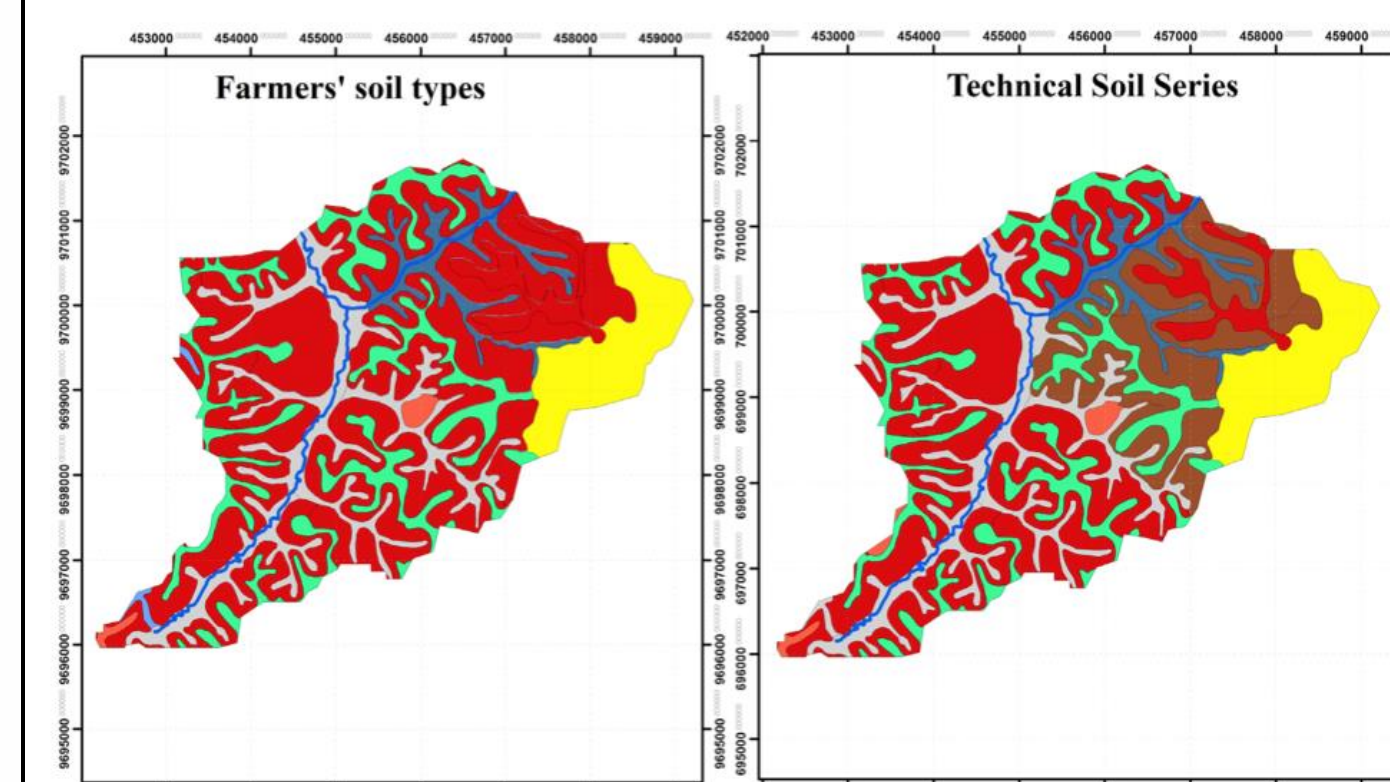
- Integrate qualitative and quantitative data into the research process by incorporating farmer's knowledge and belief systems



## Methods

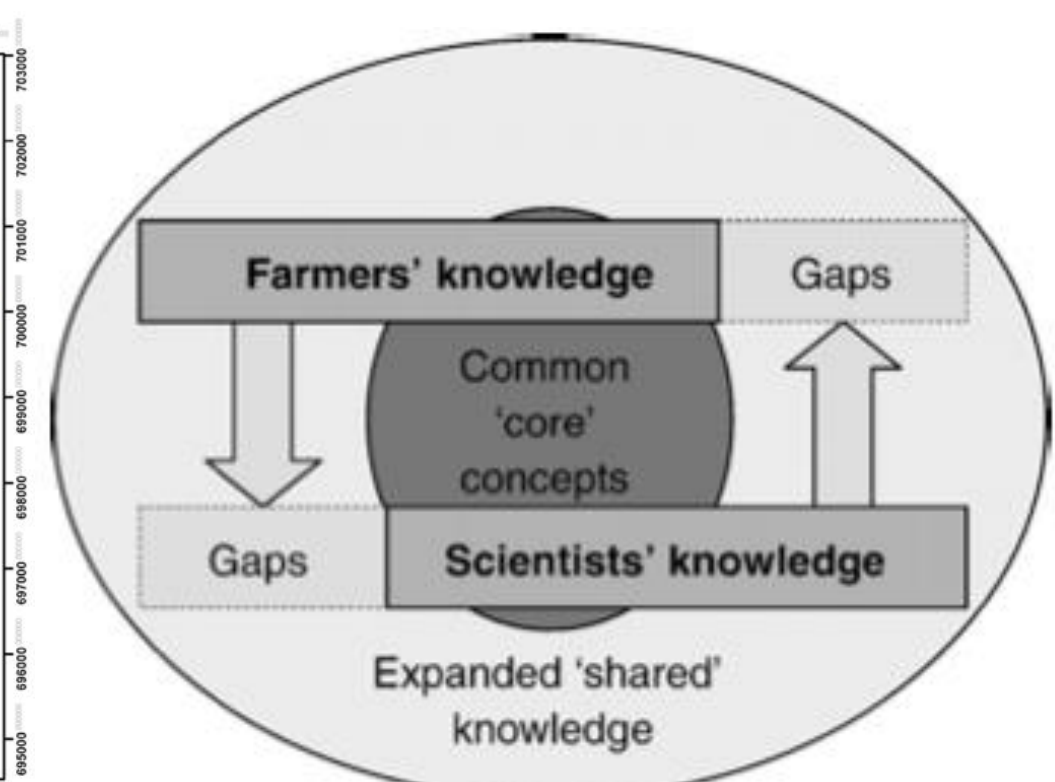
GIS and participatory research are two methods that have been used.

GIS comparison of local to scientific soil surveys



Left: Figure taken from Rushemuka et al. (2014)

Participatory Research: South-South method



Right: Figure taken from Barrios et al. (2006)

## Possible Questions

**How does a farmer's knowledge and belief about soil biota affect their management?**

- Can data collected about soil biota be used to explain a populations belief, knowledge and management of soil biota?
- What are farmer misconceptions of soil biota and how does that affect their management of soil?
- Are farmer's misconceptions of soil biota being appropriately addressed by higher education and extension?
- How are knowledge and beliefs of soil biota developed by farmers?

## Research Challenges for Ethnopedozoology

- No distinct Journal<sup>3</sup>
- No distinct Professional Community<sup>3</sup>
- No distinct methodology<sup>3</sup>
- Difficult to integrate Qualitative and Quantitative Data<sup>1</sup>
- Defining how to include participants in the solution making process<sup>3</sup>

## References

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