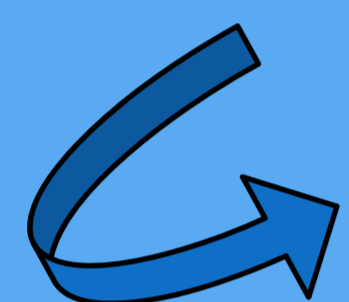


## The influence of Trees and Agroforestry systems in Risk Reduction and Adaptation measures from Climate Change in rural areas of the Peruvian Andes

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### Weather hazards and Andean farmers

Climate change as a long-term hazard is already affecting the small-scale farmers in Andean regions of Peru through extreme weather events. Weather hazards like frosts, hailstorms, droughts and floods are affecting crops and livestock, increasing food insecurity and poverty levels.



Risk reduction and adaptation measures are one of the most urgent aspects for local small-scale farmers.

### Objective

To analyze the use of trees and forests as a measure of adaptation to agricultural droughts in the rural areas of the tropical Andes. The main focus is put on the relation between the presence of trees in the crops (agroforestry systems) and their influence on agricultural droughts (analyzing their effects in the yield) and consequently in the farmer's livelihood (with emphasis on food security).

Finally, a trade-off analysis between the different production systems will be carried out.

### Methods

Different methods and tools are being applied:

- participatory rural appraisals (incl. agro-climate calendars; past, present and future mapping; rankings; trends)
- participant observation
- direct measurements
- semi-structured interviews
- direct observation.



### Preliminary results

Farmers acknowledge the presence of agricultural droughts, they relate their origin to temperature and rainfall changes.

- There is low social capital resources used to address this issue (lack of organization and technical support).
- The Physical and Financial limitations could be overcome with a good organization in the community.
- The lack of training and knowledge to face agricultural droughts (human capital) affects the reaction and adaptation measures of the farmers.



The presence of trees in the farm household systems enables farmers to reduce risks from weather hazards, providing more sustainable incomes. In addition, they are regarded as an insurance (e.g. for accidents or other financial shortages), as an investment tool (increasing their decision-making power) or as a retirement pension.

The implications of agricultural droughts and the yield variations in staple crops between the different production systems (agricultural and agroforestry systems) together with the food security (risk reduction) are being analyzed within the farm household systems.

