

# **Work and Research in Mountains**

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IPROMO  
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# Outline

- ✓ Work: AMICAF
  - ❖ Component 1: Impacts of CC on Agriculture
  - ❖ Component 2: Food Insecurity Vulnerability Analysis
- ✓ Research: Andean Pastoralism SES and SEC
  - ❖ Perceptions of CC
  - ❖ Responses to CC
  - ❖ Synthesis





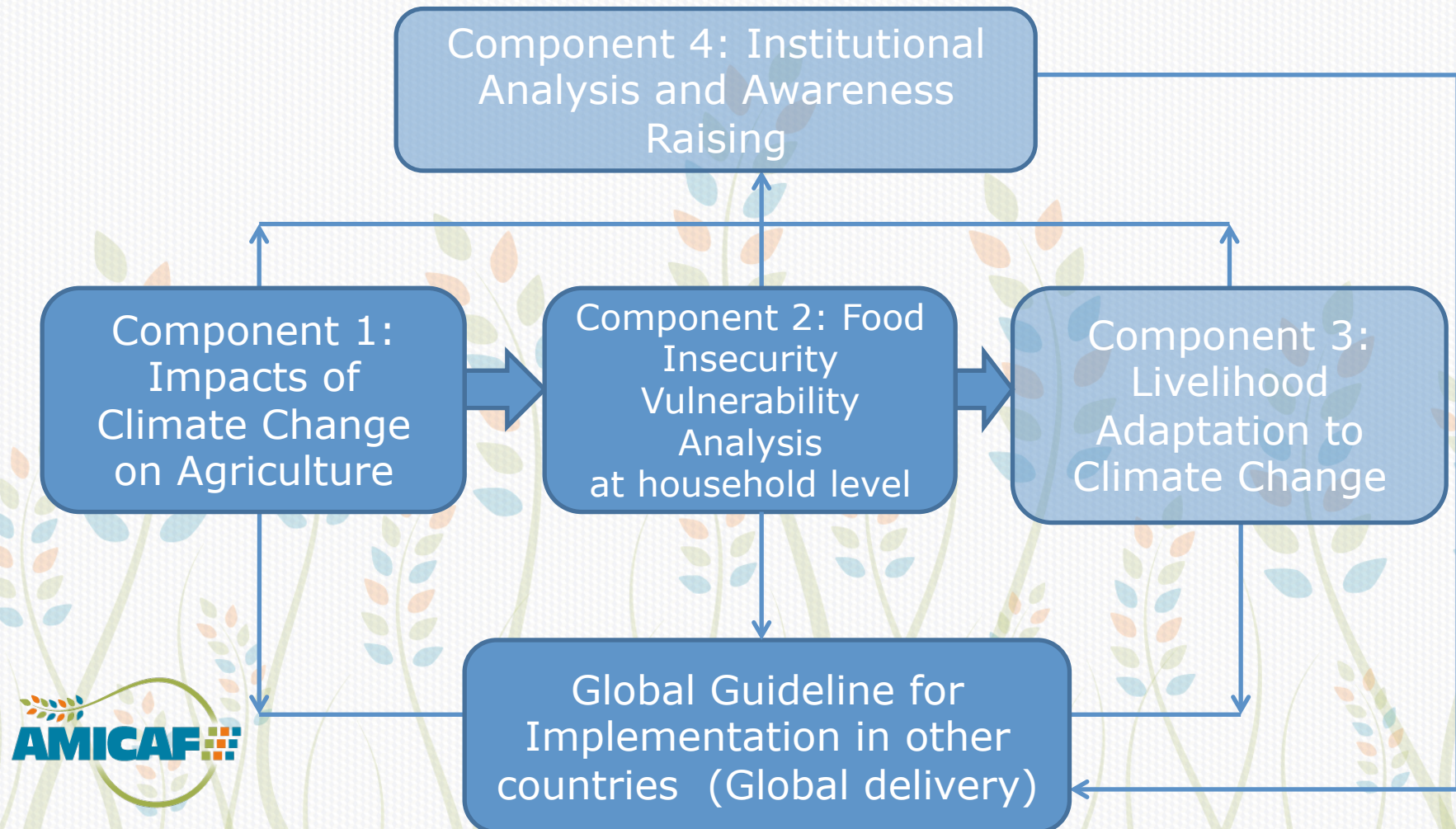
# Assessments of Climate Change Impacts and Mapping of Vulnerability to Food Insecurity under Climate Change to Strengthen Household Food Security with Livelihoods' Adaptation Approaches





# AMICAF Framework: Linking Climate Change and Food Security

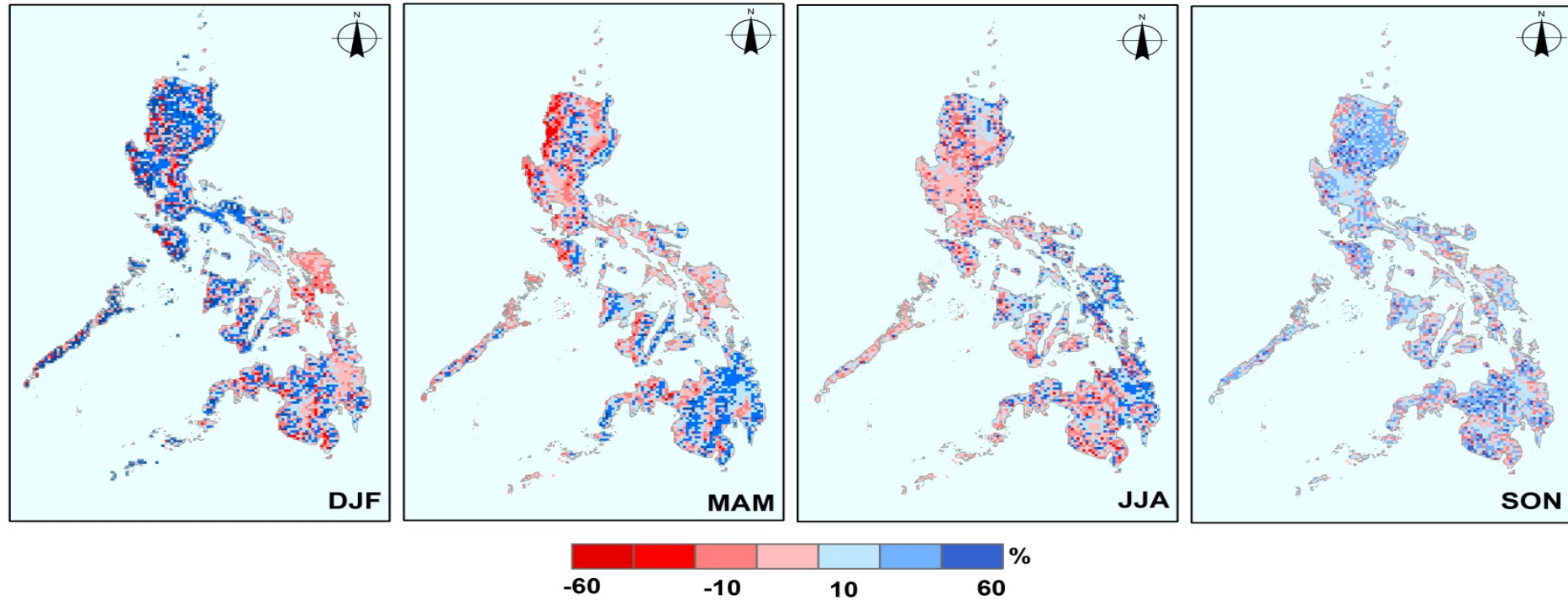
- The Philippines and Peru (only first two components)





# Component 1: Impacts of CC on AG

National scope & Sub-national level



% change in precipitation (A1B, BCM2 model) from 1971-1999 to 2011-2040



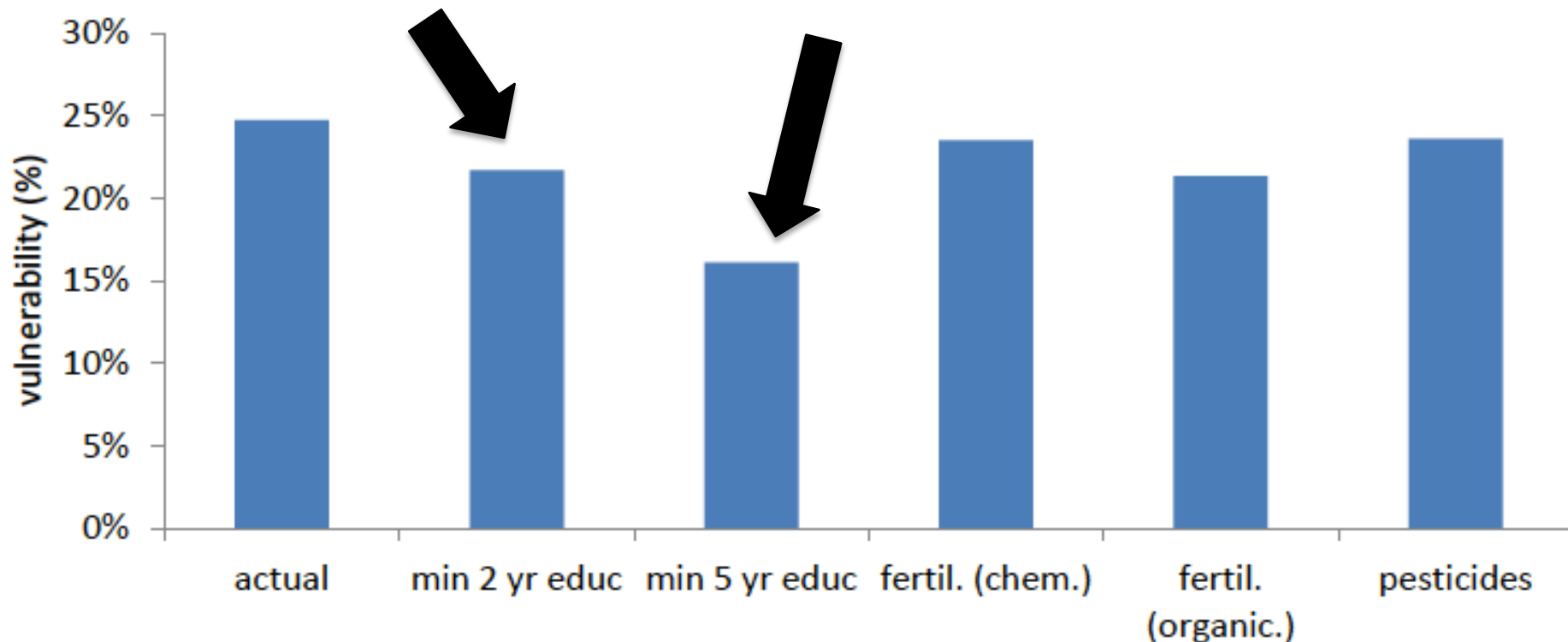


- Tier 1: Rice, Potato, Maize, Manioc, Banana, Wheat, Alfalfa, Coffee, Cacao.
- North Coast: Lemon, Maize, Beans, Sweet Potato.
- Central Coast: Maize, Lima Bean, Sweet Potato.
- South Coast: Fava Bean, Oregano, Onion, Olive.
- North Andes: Bean, Maize, Barley.
- Central Andes: Pees, Fava Bean, Maize, Barley.
- South Andes: Quinoa, Pees, Maize, Olluco.
- Amazonia: Orange, Bean, Maize, Lemon

# Comp. 2 Food Insecurity Vulnerability Analysis

- Econometric model.
- Characterizing vulnerability and identifying variables associated with highest levels of vulnerability

**Figure 14 - At current temperatures education has the greatest impact on reducing vulnerability**





# The multiscalar relation between Andean pastoralism social ecological system (SES) and soc-env change (SEC)



- 1 m<sup>2</sup> quadrats (113)
- Survey (91 households)
- Participant observation
- Semi-structured interviews
- Focus groups (12)
- Archive/documents





# Perceptions of Climate Change (Postigo 2012, 2013, forthcoming)

- Glacier retreat
- Temperatures:
  - ❖ Warmer days
  - ❖ Colder nights
- Rainy season:
  - ❖ Shorter
  - ❖ More abrupt
  - ❖ Fluctuates from intense rain to dry days



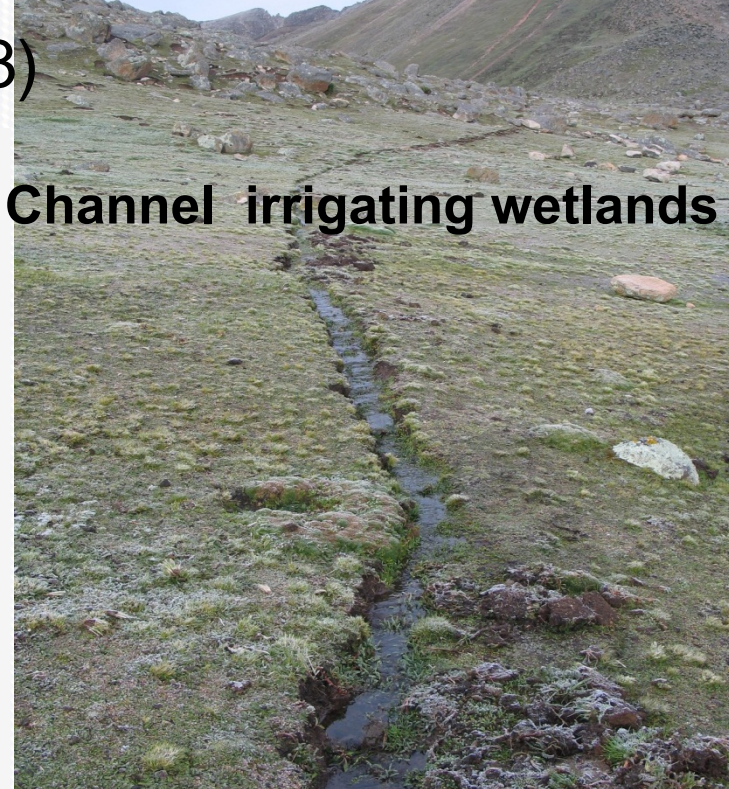


# Pastoralists' responses (Postigo 2012, 2013)

- ❖ Mobility: seasonal grazing—verticality
- ❖ Irrigation: creating wetlands 'jalando el agua' diverting water
- ❖ Innovating: using veterinary medicine, agriculture, and some modern livestock management
- ❖ Tradition: smoke in the field, bio-indicators



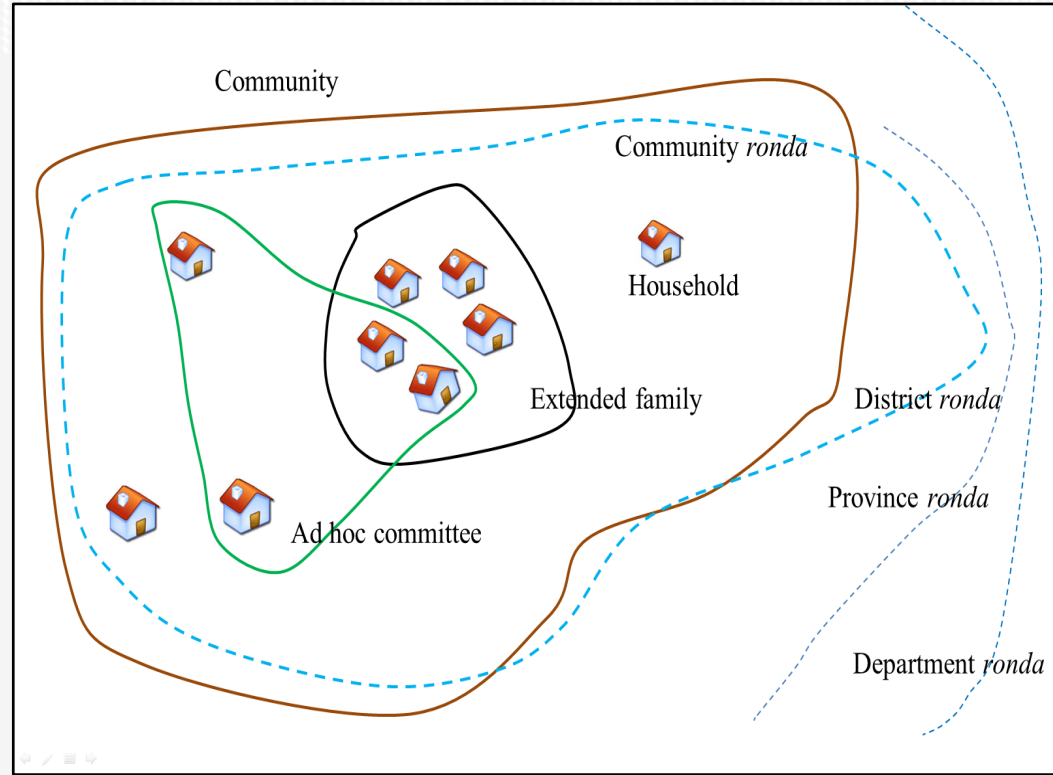
**Channel irrigating wetlands**





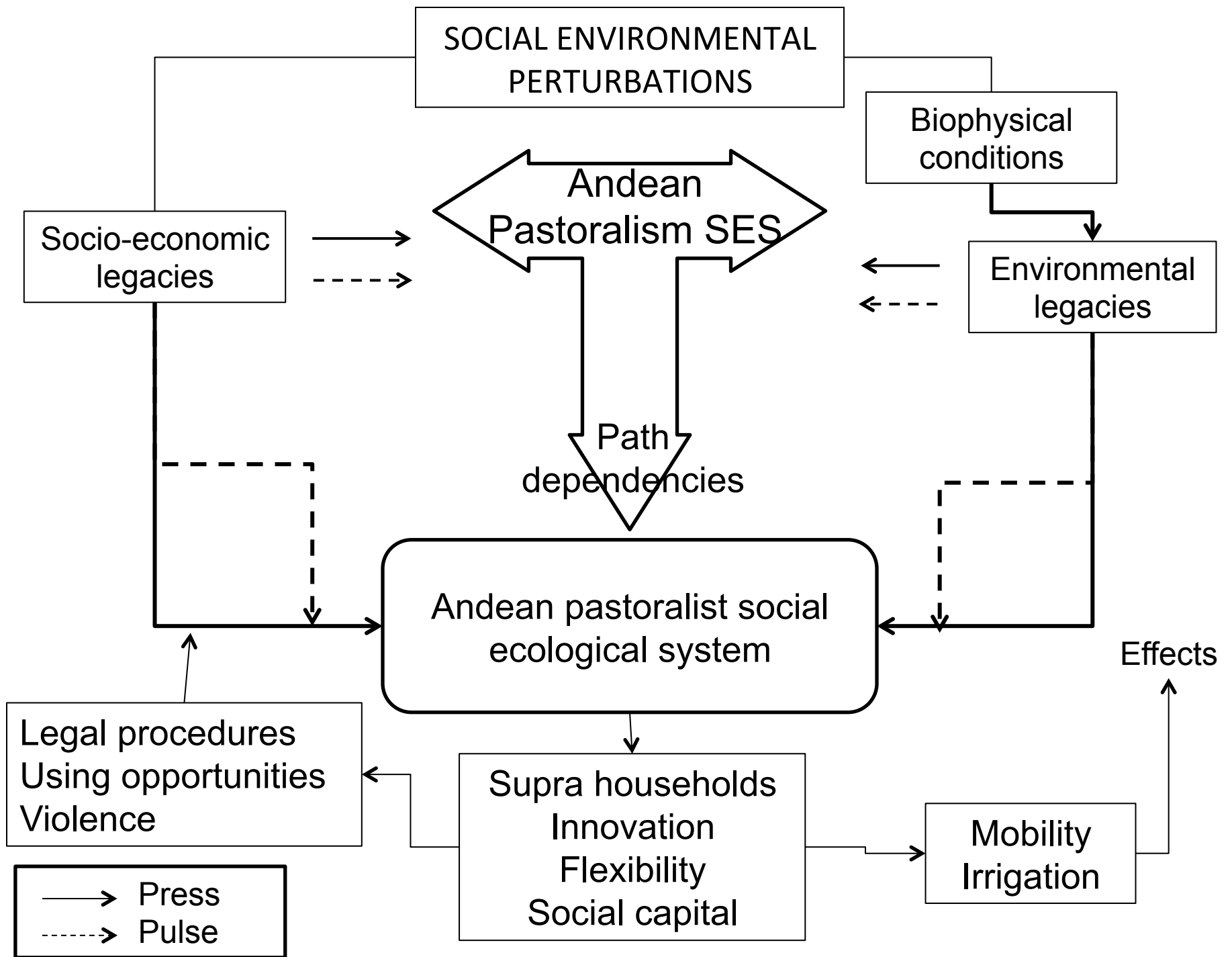
# Enabling responses

- Social organization:
  - ❖ Polycentric nested social organization: household, supra household, and community



- Institutions:
  - ❖ Land tenure
  - ❖ Reciprocity
  - ❖ Collective decision making







# **Thank you**

Questions?

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