

Taking Care of the Land for Food Security: The Indigenous Planning of Quechua People in Peru



UNIVERSITY
of GUELPH

How Can "One Health" Approaches Enhance Community Resilience
in a Changing Climate

World Environment Day 2024

Veterinarians Without Frontiers

June 05, 2024

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Introduction

- Agri-food system research prioritizes non-local and non-indigenous systems (Conti, et al. 2024).
- Agri-food planning prioritizes the intensification of land use, external input use and agricultural industrialization (Núñez Ramírez, 2005).
 - It is drawn up by small groups of “experts” or by outsiders with little or no reference to community priorities or realities (Bennett et al., 2016).
- Top-down systems of control persist and take responsibility away from peasant people to exclude them from decision-making processes (Grillo, 1998).

Study area



Conceptual Framework



- Intersectionality (Hankivsky, 2012; Kerr, 2004) and intra-categorical analysis (MacCall, 2005; Castro Varela and Dhawan, 2009).
- Socioecological resilience (Gunderson et al., 1995; Gunderson and Holling, 2002; Ford et al., 2020; Ensor et al., 2018; Matin et al., 2018).

Methodology

Data collection and analysis involved multiple steps

First Phase – Descriptive and thematic accounts of women's and men's contributions to local agri-food systems and past research (2012, 2016, 2018).

Second Phase - Generated a picture of discourses around men's and women's identities vis-à-vis local systems.

Third Phase 10 in-depth interviews with key informants for validating and updating information gathered in these initial two steps).

Data analysis

Visual, written, and oral data, were triangulated and coded following the intra-categorical analysis (McCall, 2005) with the support of critical discursive analysis.

Andean Farming Systems



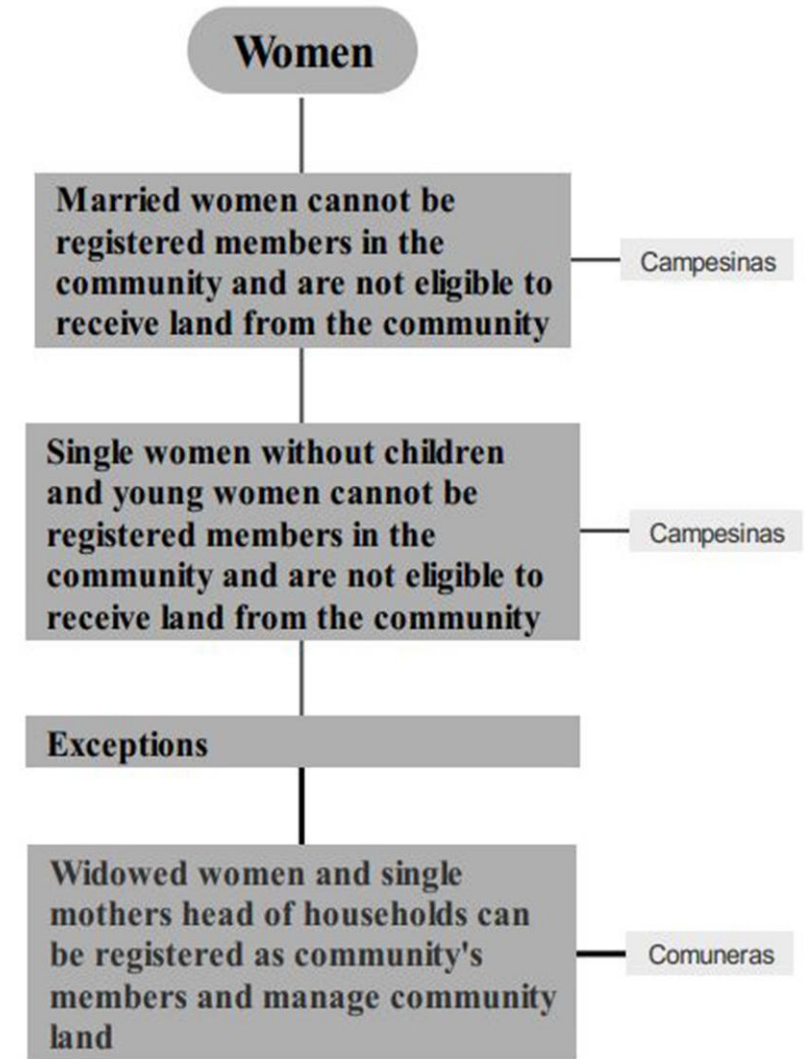
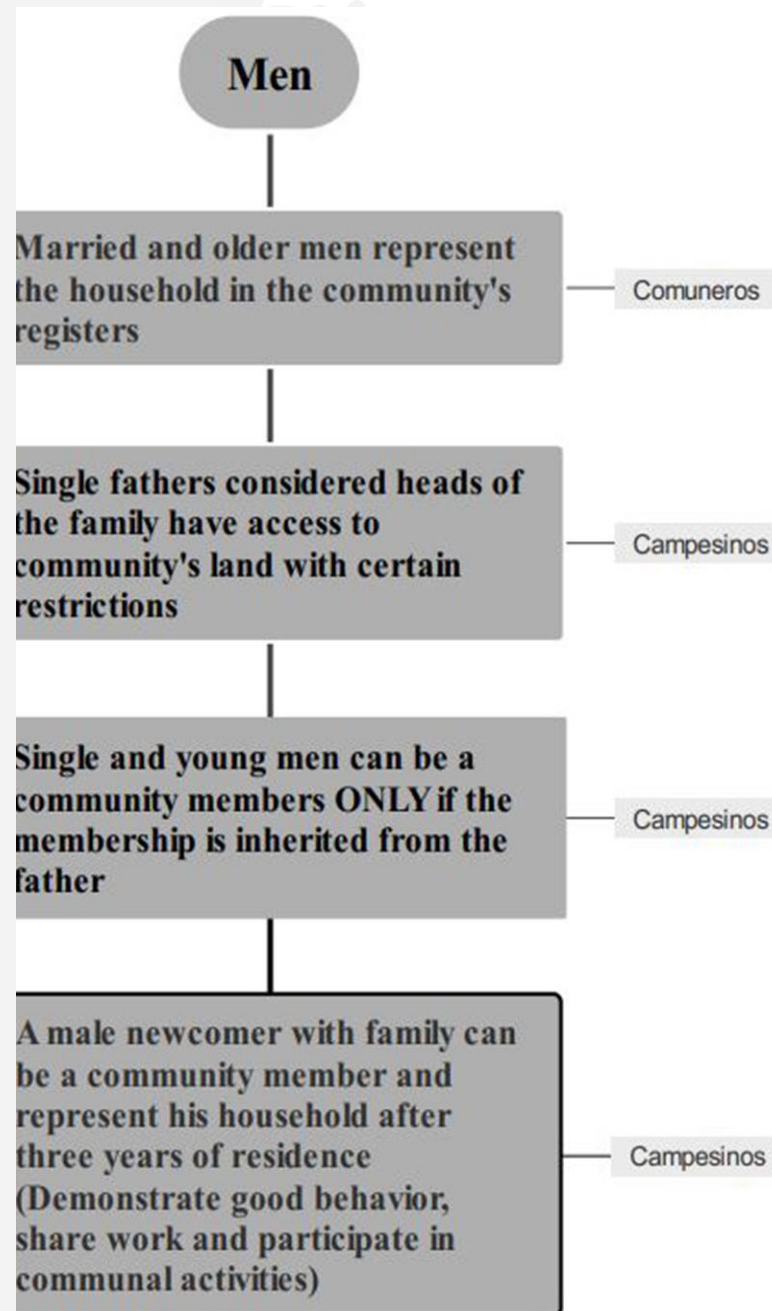
Andean Cosmvision

- Agro-centric principles
- Communal systems (*ayllu*, *ayni*, *minka*, bartering or *trueque*)

Indigenous Knowledge or '*saber campesino*'

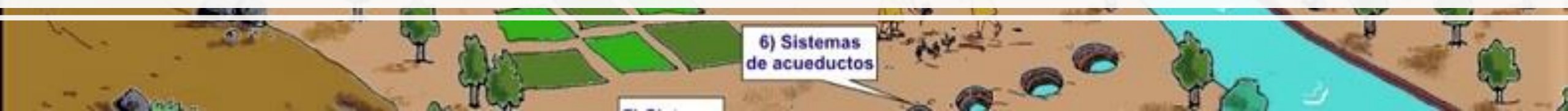
- Sustainability
- Resiliency
- Biodiversity (plants, animals)

Women's and men's participation and contribution to community planning





Communal Planning



How is it Done?

Community
information

Geographic
information

Demographic
information

Terrestrial areas -
roads, paths or
caminos

Soil conservation
and forestation
areas

Water
management and
crop production

Livestock – type
and numbers

Wetlands - areas

Types of
land/soils

Weather patterns
documented in
maps and
calendars

Water resources –
types and
locations

Cultural activities

Community
activities

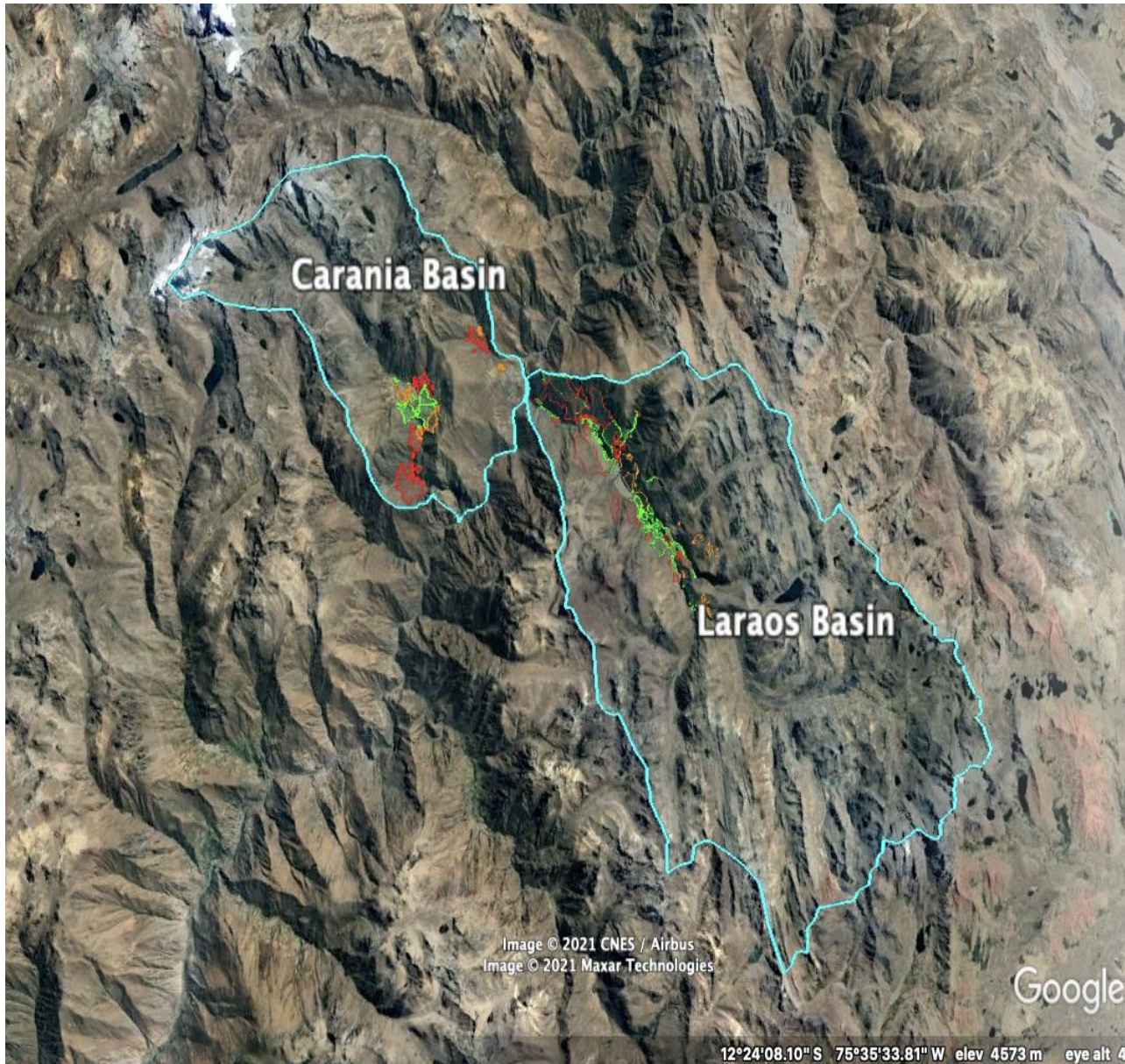
Community
management

Community
facilities

Other
infrastructure

Other community
possessions

Communal Zoning



Production Zones –
Animals and Plants

Forestry Production
Zones introduced
and native species

Pastoral Zones –
introduced
(temporal) and native
species (temporal
and permanent)

Conservation zones
or natural protection
areas

Water management

Sources of
biodiversity

Planning for Resource Management in Andean Food Systems...





Land Use Planning

- Cultivation occurs in the plot or '*chacra*'.
- Cultural practices such as *ayni*, *ayllu* and *minka* are conducted in the plot.
- Family and community members share work and resources to maintain genetic diversity as they control and minimize risks (ecological variability, water scarcity, and soil degradation).
- The use of plots is subject to rotation in *aynocas* (Laraos, Pazos and Racracalla) to maintain the fertility and quality of the soils as well as to control insects and plagues.

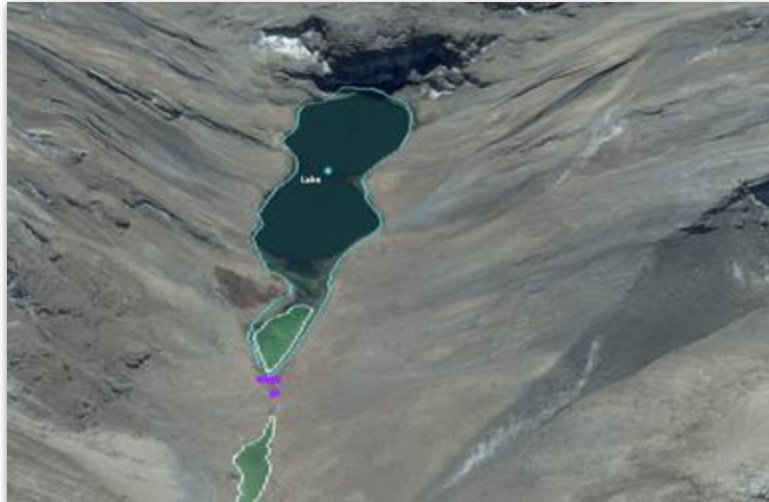
Soil Conservation

Tillage systems minimize soil erosion and prevent losses (productivity, plagues, control and water run-off).

- the '*barbecho*' is a tillage system for lower altitudes in areas with water availability and conducted in the short planting season (campana chica)
- the '*chacmeo*' minimal tillage system adapted to manual plow, carried out ahead of the big planting season (campaña grande).
- the '*ocos*', minimal-tillage practice conducted in higher altitudes with the Chaquitaclla (main season).
- terraces or *andenes* control drought, reduce soil erosion and protect crops from frost. Promote the diversity of food species, diminish surface runoff and act as sponges through water penetration and infiltration.



Water Management



- Natural water sources and infrastructure: rain water, glaciers, lakes (*qocha*), wetlands (*bofedales*), rivers
- Built infrastructure: *champas* (small dams), acequias and amunas (aqueducts), terraces
- **How it works**
 - Terraces slow the speed of water, allowing for increased infiltration and irrigation
 - *Acequias* and *amunas* channel the water along the sides of the mountains, strategically letting it drop in areas with terraces below
 - *Champa* and other holding reservoirs prevent rainwater from being lost and allow for groundwater recharge



Water Management

- It is associated with soil management and the control of runoff produced by water coming from the rain, soil formation and agroclimatic sources.
- '*Acequias*', ditches or drains, or canals are built in streams and springs to spread the water to flood by gravity in cultivated areas and natural pastures.
- '*Cochas*' store water in natural lagoons in the high areas so that they serve as watering holes.
- '*Waru warus*' pull land forming a bed surrounded by water. It produces a special microclimate to prevent the effect of frost and protect the crops from frosting.
- '*Cochas*' and '*waru warus*' control overflow, retain soil, balance humidity, and raise temperatures on frosting nights.

Biodiversity Management

- Activities conducted through cultural and festive calendars
- Multi-cropping and cultivation of crops within small areas (*melga*) temporal rotation developed to manage risk as well as better utilize soil nutrients.
- Uses crops as insect repellents or live fences. It is the case of *mashua* (*Tropaeolum tuberosum*) or *verbena* (*v.peruviana*) used as nematicides.



Biodiversity Management

- Living indicators (plants, animals, physical phenomena, and stars) are indicators of behavior of time to predict climatic occurrences.
- Bartering, *trueque* and *compadrazgo* with communities at different locations and different altitudes for networking, seed exchange and diversified food.
- Communal seedbanks (*in-situ* conservation) serve as seed sources for replacing those seeds lost in the fields.



Cultural Practices

- Communities depend on these activities to maintain resources.
- *Ayllu* is the basic unit of the social organization in the community.
- *Ayni* is a reciprocal work system in the ayllu or community, destined for agricultural work, management of water structures and upkeep of biodiversity.
- *Minka* is another type of collaborative work. It synthesizes relationships of reciprocity, commitment, and complementarity.
- Communal activities are held in a festive atmosphere, accompanied by music, and the consumption of *chicha de jora* and *coca leaves*.



Discussion of Results

1. Social-ecological relations and social interactions
2. Intersectional interactions and social relationships inside and outside the communities
3. Intersectional policy implications in the sustainability and resilience of agri-food systems



Conclusion

Peasant people's challenges are reflected in the exercise of their rights, management of their resources, and opportunities.

A paradigm shift is needed to engage with heterogeneous contexts and the root causes of inequities.

Efforts at building policy evidence informed by all groups' perspectives may have to be responsive to social determinants in the Andean communities

Intersectionality in planning and policies needs to be considered to influence policy processes to respond to Andean people's relative power and privileges vis-à-vis their status, empowerment, and well-being.





Thank you

