

ADAPTATION
AT ALTITUDE

Taking Action in the Mountains

The Adaptation at Altitude Knowledge Network



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC

Rosie Witton and
Kate Williamson

19th September 2023



Agenda:

Welcome

Introduction to the Adaptation at Altitude Knowledge Network (5 minutes)

Project showcase and Q&A (45 minutes)

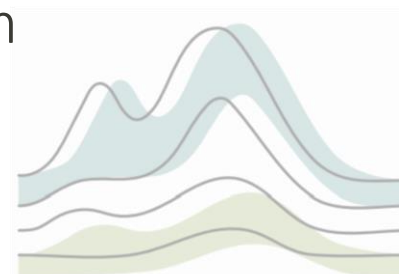
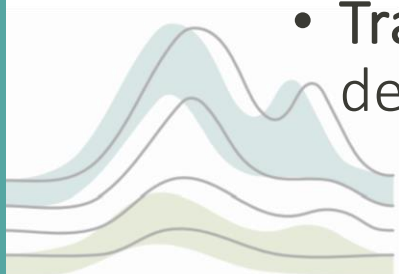
- Participative, ecohydrological monitoring and integral, community territory management in Cusco
- Adaptation at Altitude: From knowledge management to strengthening governance and adaptive capacities across the Andes
- MOVING (MOuntain Valorisation through INterconnectedness and Green growth)

AOB (5 minutes)

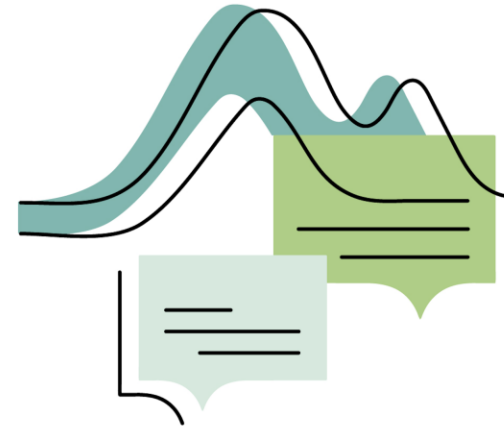
How to get involved (5 minutes)

What is the Adaptation at Altitude (A@A) programme?

- A collaborative programme launched and co-supported by the Swiss Agency for Development and Cooperation (SDC).
- The Adaptation at Altitude programme seeks to **increase the resilience and adaptive capacity of mountain communities and ecosystems** to climate change by:
 - **Improving the knowledge** of appropriate climate change adaptation strategies in the mountains
 - **Transferring that knowledge** through science–policy platforms to inform decision-making in national, regional and global policy processes



The Adaptation at Altitude Knowledge Network!



ADAPTATION AT ALTITUDE

KNOWLEDGE
NETWORK

A **global community** through which we can share experiences and knowledge on adaptation in the mountains and collaborate to accelerate the uptake of innovative solutions. It aims to:

- **Encourage communication between stakeholders** working on and experiencing climate change adaptation in mountainous regions across the globe.
- **Support the sharing of successful solutions** for adaptation in mountains.
- **Foster the translation and uptake of solutions** for use in other locations.

Showcasing your work!



Jan R. Baiker - "Participative, ecohydrological monitoring and integral, community territory management in Cusco (Peru)"



Luis Daniel Llambí - "Adaptation at Altitude: From knowledge management to strengthening governance and adaptive capacities across the Andes"



Mar Delgado – MOVING (MOuntain Valorisation through INterconnectedness and Green growth)

CONNECTING KNOWLEDGES, BUILDING RESILIENCE

Community and Ecosystem-based Adaptation in high Andean Pastoralist Systems

The case of the Chillca community (Pitumarca, Canchis, Cusco)

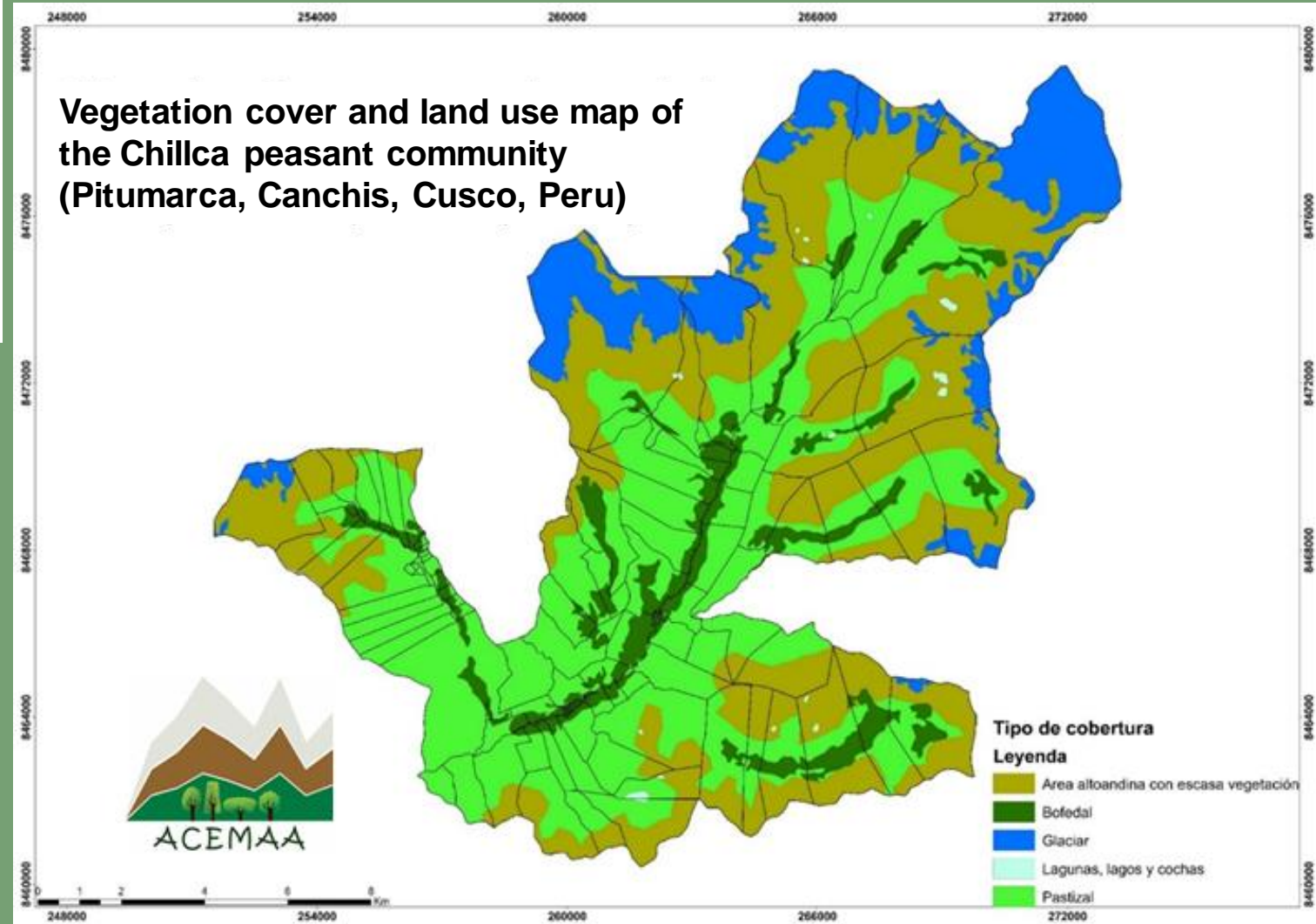
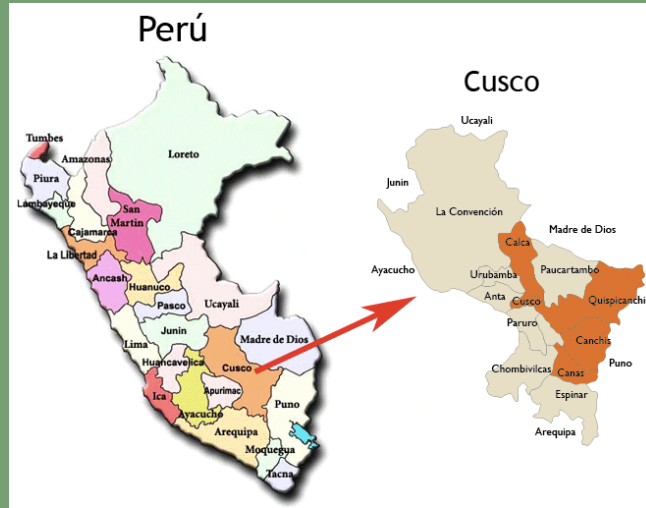


Dina Farfan Flores & Jan R. Baiker

Emails: dinafarfan.acemaa@gmail.com, jbaiker@gmail.com

Collaborators: Nilton Montoya Jara and Oscar Ladrón de Guevara Rodríguez (UNSAAC),
Juan Carlos Benavides Duque (Pontificia Universidad Javeriana, Bogotá)

GEOGRAPHIC LOCATION



Sources: <https://www.dreamstime.com/royalty-free-stock-photo-political-map-south-america-image7242655> , https://www.aatccusco.com/mapas_y_planos.php



THE SOCIO-ECOSYSTEM



POPULATION:

- 180 families
- Organizational system: Assemblies and traditional communal committees
- Productive system: Camelid grazing (mainly)

TERRITORY:

- **Registration item in public records:** N° 11001632
- **Total area:** aprox. 25'000 hectares
- **Microbasins:** 15
- **Glacier area:** 2'600 hectares
- **Springs:** 28
- **Lakes and lagoons:** 2800 hectares
- **Altitude:** 4200 m.a.s.l. (Chillca village)

CONNECTING KNOWLEDGE, BUILDING RESILIENCE

Vision:

Co-construction of knowledge, technologies and capacities to develop responses (solutions) to local problems, through the generation of spaces for the encounter of community institutions, academics, civil society and the State.

General objective:

Promote self-management and analysis of quantitative and qualitative information in mountain communities, which allows the development of adaptation strategies based on local, high-resolution data.



CO-DESIGN, CO-CONSTRUCTION (INSTRUMENTALIZATION ETC.), CO-PRODUCTION OF KNOWLEDGE AND FEEDBACK LOOPS

Community-based Adaptation - CbA

A process led by communities, based on their needs, priorities, knowledge and capabilities, which should lead to their empowerment in planning and responding to the impacts of climate change.

Source: Reid et al. (2009:13)

Ecosystem-based Adaptation - EbA

Ecosystem-based Adaptation is a strategy for adapting to climate change that harnesses nature-based solutions and ecosystem services

Source: UNEP, <https://www.unep.org/explore-topics/climate-action/what-we-do/climate-adaptation/ecosystem-based-adaptation>

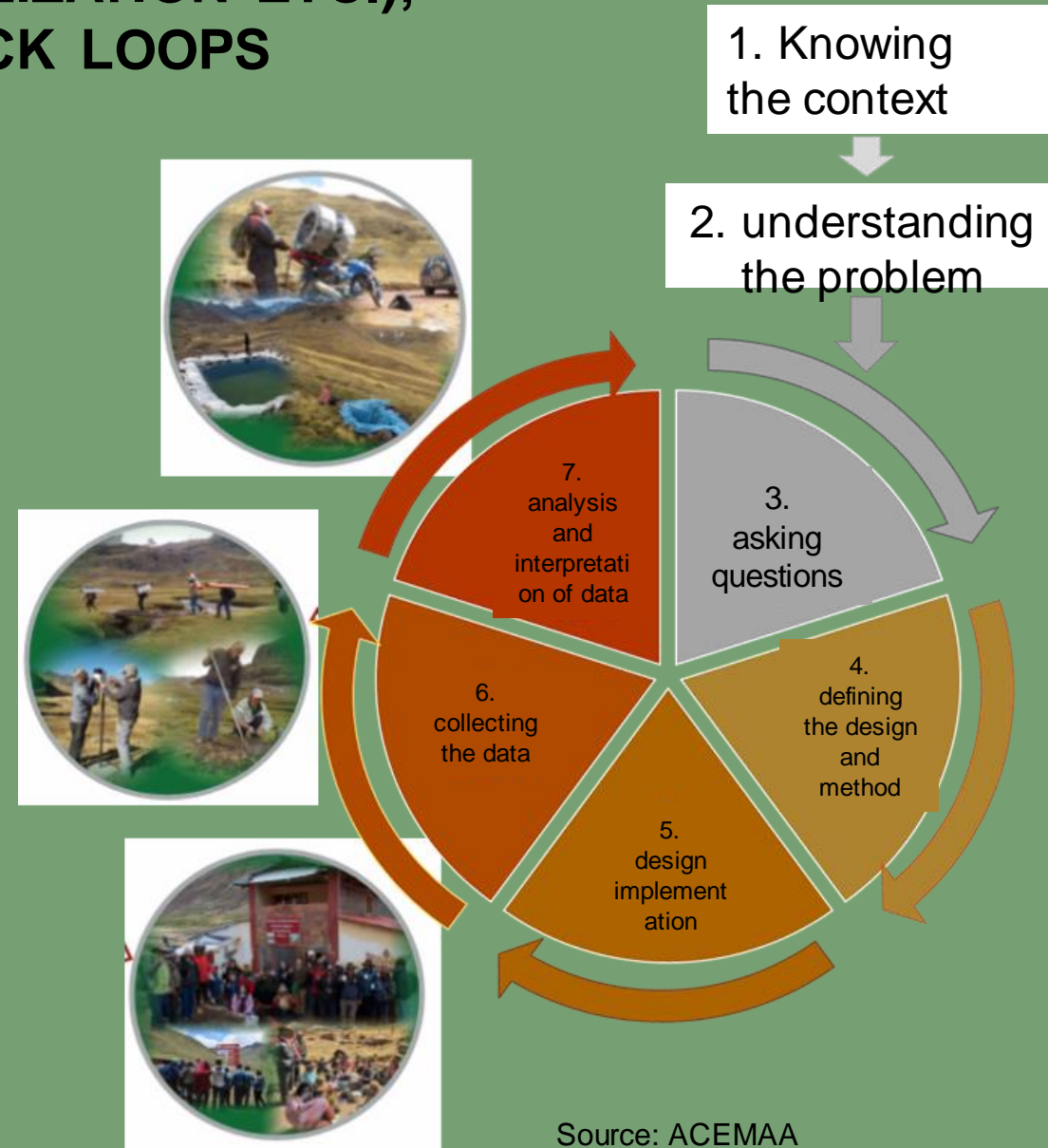
Cycles

They allow us:

- to reflect about the results and their utility
- to consider feedback
- to actively incorporate new actors/stakeholder

They can be determined by:

- nature
- the productive systems
- sociocultural norms

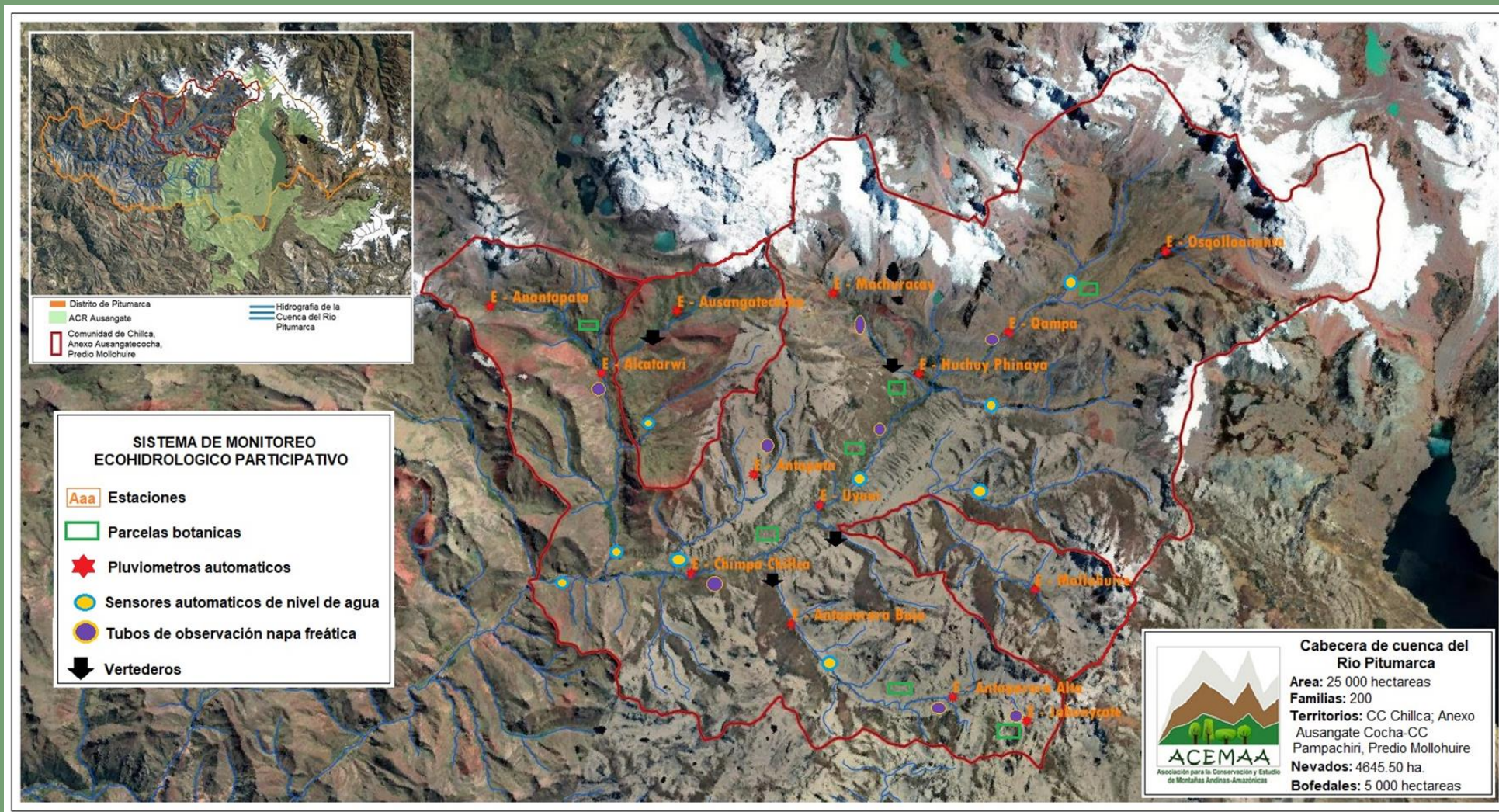


14 ECOHYDROLOGICAL STATIONS

(Sistema de Monitoreo Ecohidrológico Participativo – SMEHP Chillca)

SMEHP semi-automatic

- Appropriation of the monitoring system through **joint work**.
- Achieve a **real co-construction of knowledge** through the design and adjustments of instrumentalization.
- Facilitate **joint analysis** of data achieved through **participation in all stages of the system implementation**.
- It is not replicated, it is built together, thanks to **feedback from local experience and knowledge**.



SMEHP SEMI-AUTOMATIC – MANUAL MEASUREMENTS AND ULTRASONIC SENSORS



Foto: riverlabs



Fotos: ACEMAA

SMEHP SEMI-AUTOMATIC – CONSTRUCTION OF TOTALISATORS (PLUVIOMETERS)



IMPLEMENTATION OF THE ECOHYDROLOGICAL MONITORING STATIONS



Foto: ACEMAA

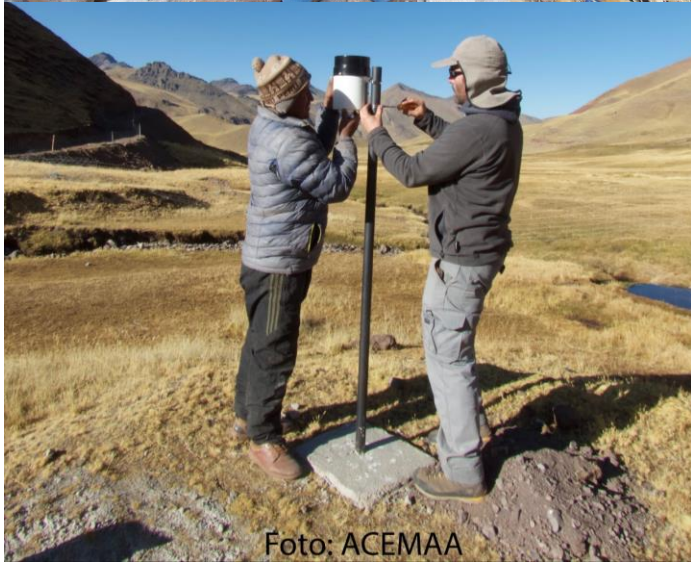


Foto: ACEMAA

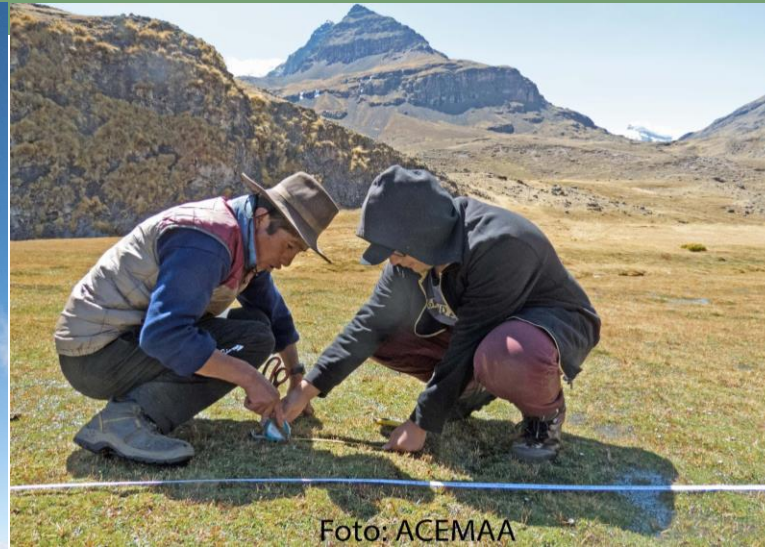


Foto: ACEMAA



Foto: ACEMAA

EVALUATION OF PEAT AND VEGETATION



CONSTRUCTION OF CAPACITIES (TRAINING) FOR THE MONITORING



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA

WATER SOWING & HARVESTING INTERVENTIONS AND ECOSYSTEM MANAGEMENT



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA



Foto: ACEMAA

SCIENTIFIC STATION AND RURAL SCHOOL OF THE SMEHP CHILLCA (inaugurated on December 8th 2022)



CURRENT STRATEGIES AND LINES OF WORK

- Internalization of sustainable ecosystem management in alpaca value chains (fibre, meat) through the **Responsible Alpaca Standard (RAS) certification**
- **Payment for Ecosystem Services** (*Mecanismo de Retribución por Servicios Ecosistémicos – MERESE*)
- **Carbon credits** (counting for carbon stocks in high Andean ecosystems: bofedales wetlands etc.)



Foto: ACEMAA

SMEHP CHILLCA - PARTICIPATORY ECOHYDROLOGICAL MONITORING SYSTEM

COLLABORATING INSTITUTIONS



Comunidad
Campesina Chillca



Escuela Profesional de
Agronomía
UNSAAC



Programa de Pequeñas
Donaciones del Fondo
Para el Medio
Ambiente Mundial



Facultad de Estudios
Rurales y Ambientales



email: info@acemaa.org, web: <https://acemaa.org/>

Facebook: “Acemaa – Conservación y Estudio de Montañas Andinas Amazónicas”

Linkedin: “ACEMAA Perú”

CONNECTING KNOWLEDGES, BUILDING RESILIENCE

Community and Ecosystem-based Adaptation in high Andean Pastoralist Systems

The case of the Chillca community (Pitumarca, Canchis, Cusco, Peru)

Contact ACEMAA:

info@acemaa.org

Dina Farfan Flores (Executive Director):

dinafarfan.acemaa@gmail.com

Jan R. Baiker (Project Coordinator):

jbaiker@gmail.com

Web: <https://acemaa.org/>

Facebook: “Acemaa –
Conservación y Estudio de
Montañas Andinas Amazónicas”

Linkedin: “ACEMAA Perú”





CONDESAN
Consortio para el Desarrollo Sostenible
de la Ecorregión Andina




Adaptation at Altitude: from knowledge management to strengthening governance and adaptive capacities across the Andes

Luis Daniel Llambí

luis.llambi@condesan.org



 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Agencia Suiza para el Desarrollo
y la Cooperación COSUDE



Organización de las Naciones
Unidas para la Alimentación
y la Agricultura



Zonas de montaña
y vulnerabilidad
al cambio climático



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC



CONDESAN
Consortio para el Desarrollo Sostenible
de la Ecorregión Andina

ICIMOD



UNIVERSITÉ
DE GENÈVE



Problems Addressed by the Program

KNOWLEDGE

**Knowledge Gaps:
impacts of CC,
socio-ecosystem
vulnerability,
adaptation
solutions**



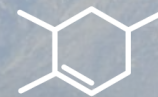
GOVERNANCE

**Weak
governance
frameworks for
CC adaptation
at a regional
scale**



MONITORING

**Institutional and
financial
weaknesses form
monitoring of CC
impacts and CC
adaptation**



DIALOG

**Lack of
regional spaces
for science-
policy dialog
and capacity
building**



Outcome Articulation

Andes



1.1 Knowledge synthesis for CC adaptation

Knowledge Gaps

Knowledge Synthesis

CC Adaptation Policies

EbA Solutions in Rural Production Systems

Platform of Socio-Ecological Indicators

1.2 Strengthening Integrated Monitoring

Long-term monitoring networks (AFN & GLORIA-Andes)

Integrated Observatories / Learning Sites (ROSA)

Synthesis publications and protocols

Strengthen Regional Dialog

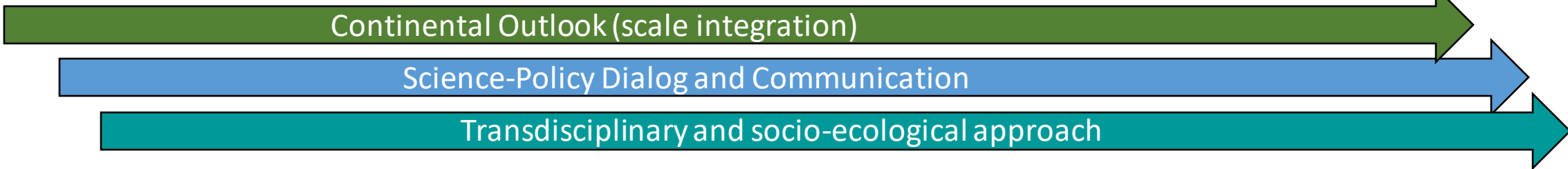
2. Consolidation of regional governance (AMI)

Road Map for Governance

5 Years Action Plan

Financial Sustainability

3. Knowledge Exchange and Capacity Building (e.g. IPROMO 2021, 2023)



Main Products and Achievements

**Knowledge
synthesis for CC
adaptation:
+ 20 products**



Knowledge

**Strengthening
integrated
monitoring in 7
countries and 2
long-term
learning sites**



Monitoring

**Strengthened
governance of the
AMI:
7 countries, +10
international
events**

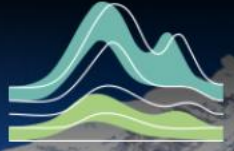


Governance

**Experience
Exchange and
Capacity Building:
13 spaces;
6 courses:
+ 3.000
participants**



Exchange



ADAPTACIÓN EN
LAS ALTURAS

ADAPTATION AT ALTITUDE

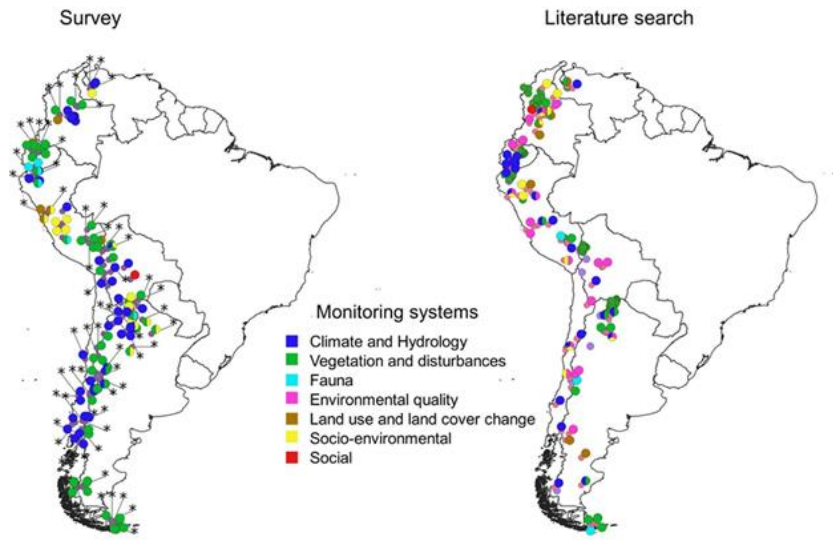
Taking Action in the Mountains

*A collaborative programme for climate
change adaptation in the Andes*



Knowledge Synthesis for CC Adaptation

- Knowledge Gaps for CC Adaptation in the Andes (Llambí y Garcés 2021)
- **State of the Art of CC Adaptation Policies in the Andes:** approaches for multi-scale adaptation and knowledge dialog (Dupuits et al. 2022)
- State of the art and **agenda for integrated monitoring in the Andes** (IER, Carilla et al. 2023)





Knowledge Synthesis for CC Adaptation

■ EbA Solutions in Andean Rural Landscapes

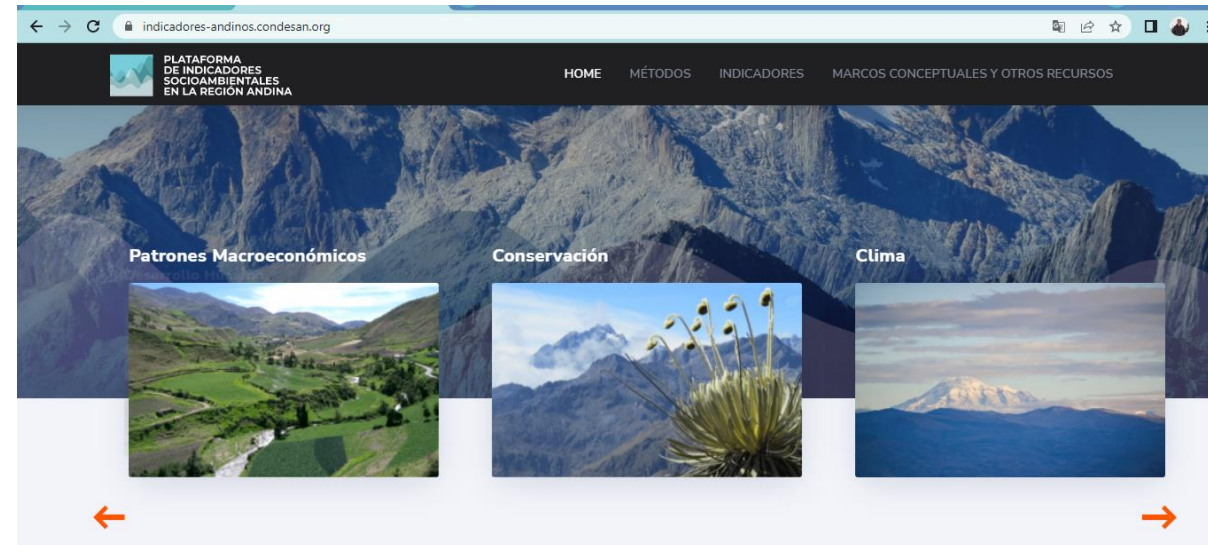
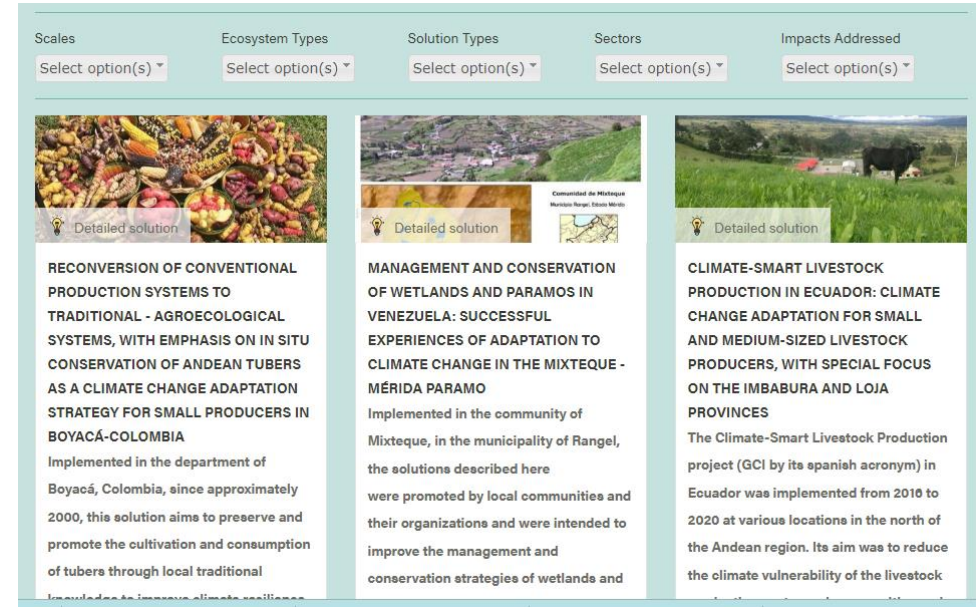
- ✓ 18 case studies in the Northern and Central Andes
- ✓ Shared in the weADAPT A@A Solutions Portal

<https://adaptationataltitude.org/solutions-portal>

■ Platform of Socio-Ecological Indicators for the Andes

- ✓ 20 indicators:
 - Climate
 - Biodiversity and conservation
 - Land use
 - Human development/population, macro-economic patterns

<https://indicadores-andinos.condesan.org/>





Consolidation of Regional Governance



- **Strengthening of the Andean Mountain Initiative:**
 - ✓ Consolidation of Work-groups:
 - **Governance**
 - **5 year Action Plan (2022-2026)**
 - **Regional CC Vulnerability Analysis (Adaptation Fund)**
 - ✓ Support for **participation/incidence in global decision making spaces**: e.g. COP-26 -27-28;
Learning Visit to the Alpine Convention and Carpathian Convention (2023)
 - ✓ **Communication strategy**: web page, social media campaigns (<https://iam-andes.org/>)





WELCOME THE ANDEAN MOUNTAIN INITIATIVE

Mountains unite us

The Andean Mountain Initiative is a platform formed by the seven countries that share a common territory: the Andes. Argentina, Bolivia, Colombia, Chile, Ecuador, Peru and Venezuela, on a voluntary basis, seek to strengthen the regional dialogue with the purpose of promoting and undertaking joint actions aimed at the conservation and sustainable development of the Andean mountains.

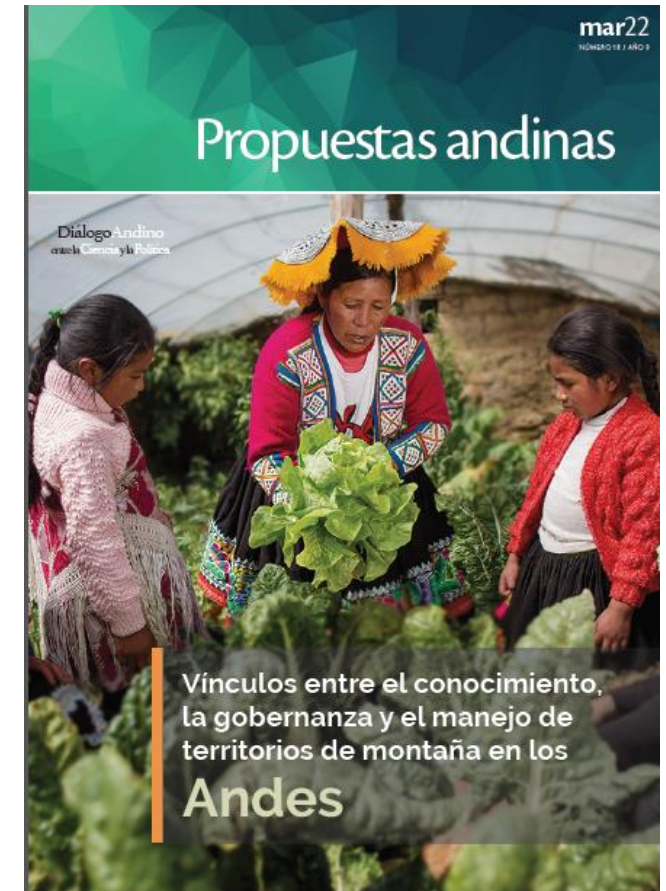


Experience Exchange and Capacity Building

- ✓ Implementation of **IPROMO Latino América 2021 and 2023** (*Mountain Partnership-CONDESAN*)
- ✓ Development of the Community of Practice **Adaptation in the Andes** (*UNEP-Practical Action-CONDESAN*)
- ✓ **Regional Dialogs on Sustainable Mountain Development** in the Andes (Sep-Oct-Nov 2021)
- ✓ International on-line Conference **Bridges in the Andes** (Dec 2021).



**ADAPTACIÓN
EN LOS ANDES**
COMUNIDAD DE PRÁCTICA

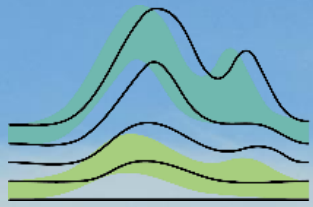




Some key lessons...

- **Importance of an Andean continental perspective: diversity of socio-environmental and institutional contexts, challenges and opportunities**
- **Need for more transdisciplinary, integrated and participatory approaches for research and monitoring (specially of CC adaptation): explicit integration into decision making**
- **Remaining challenges in understanding and monitoring the interactions between CC and Land Use Change and their combined impacts on ecosystem services and human welfare**
- **Need to articulate governance and CC adaptation policies at local, national and regional levels and foster more effective dialog between scales and actors**
- **Need for strengthening institutional and financial sustainability of regional governance and monitoring platforms and of more effective articulation of academia, civil society and decision making.**
- **Importance of inter-regional dialog between global mountain platforms for cross-learning and developing a common voice for mountains**





ADAPTACIONEN
LAS ALTURAS



CONDESAN
Consejo para el Desarrollo Sostenible
de la Comunidad Andina



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Agencia Suiza para el Desarrollo
y la Cooperación COSUDE

A@A Team



Support:



- **Luis Daniel Llambí – Coordinator**
- **Karen Price – Policy**
- **Saskia Flores – Capacity Building**
- **Alejandra Melfo – Knowledge management**
- **Ana Carolina Benítez – Communication**
- **Rafael Rodríguez – Communication**

- **María Argüello, Directora Ejecutiva**
- **Manuel Peralvo, Coordinador Proyecto NDT Ecuador**



MOVING
MOUNTAIN VALORIZATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

Vulnerability and adaptation capacity in 23 European Mountain Regions

Mar Delgado, Emilia Schmitt (UCO)

19/09/2023

Adaptation at high Altitude Network



MOVING receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 818194. The content of this document does not reflect the official opinion of the European Union. Responsibility for the information and views expressed therein lies entirely with the author(s).

Key-objectives of MOVING



MOVING
MOUNTAIN VALORIZATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH



Identifying the socio-ecological factors that will shape the future of mountain value chains by 2050



Setting up a European community of stakeholders to foster the exchange of knowledge and experiences

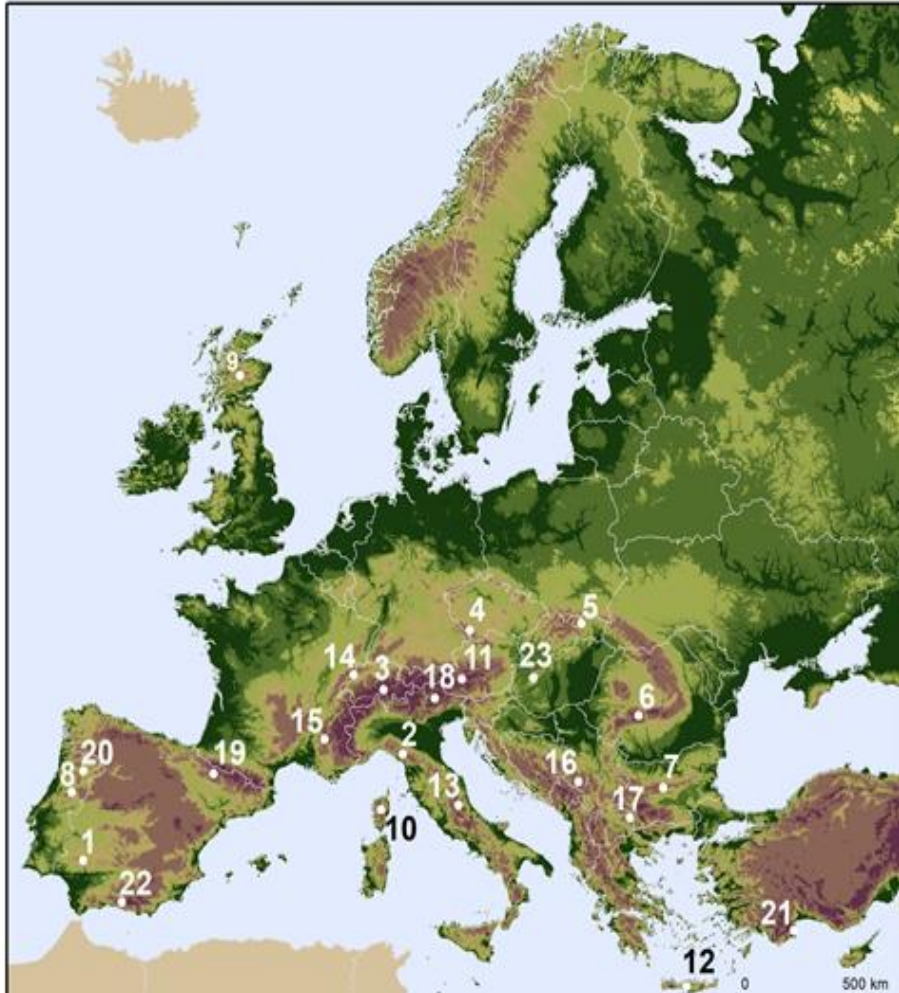


Supporting policy design that enhances the resilience of mountain regions through new or upgraded value chains



Building capacities of mountain regions and their stakeholders to enhance resilience to climate change

Who we are!



- A consortium of 23 expert partners (research centres, rural developers, industry representatives, and innovation agents)
- 23 reference regions in 16 countries

- | | |
|---|-----------------------------|
| 1. Sierra Morena | 13. Central Apennines |
| 2. Northern Apennines | 14. Swiss Jura |
| 3. Swiss Alps | 15. Drome Valley |
| 4. Sumava - Cesky Les | 16. Dinaric mountains |
| 5. Slovak Carpathian mountains | 17. Maleshevski Mountains |
| 6. Southern Romanian Carpathian mountains | 18. Eastern Alps |
| 7. Stara Planina | 19. Spanish Pyrenees |
| 8. Cordilheira central | 20. Maciço Noroeste |
| 9. Highlands and Islands | 21. Beydaglari |
| 10. Corsica | 22. Betic Systems |
| 11. Austrian Alps | 23. Transdanubian Mountains |

Research related to climate change



- 1. Examine Drivers of Change:** Assess various factors impacting 23 land-use systems in European mountain regions linked to value chains.
- 2. Stakeholder Perspectives:** collect stakeholders' views on the exposure and trends of environmental drivers affecting vulnerability in mountain land use and value chains.
- 3. Visual Vulnerability Analysis:** Provide geographical vulnerability assessment tools.
- 4. Adaptation Mechanisms:** Gather and evaluate the adaptive measures at different levels, according to participant views.
- 5. Capacity Building:** Facilitate participatory research within regions and across clusters at the EU level.

Method: vulnerability of land use systems



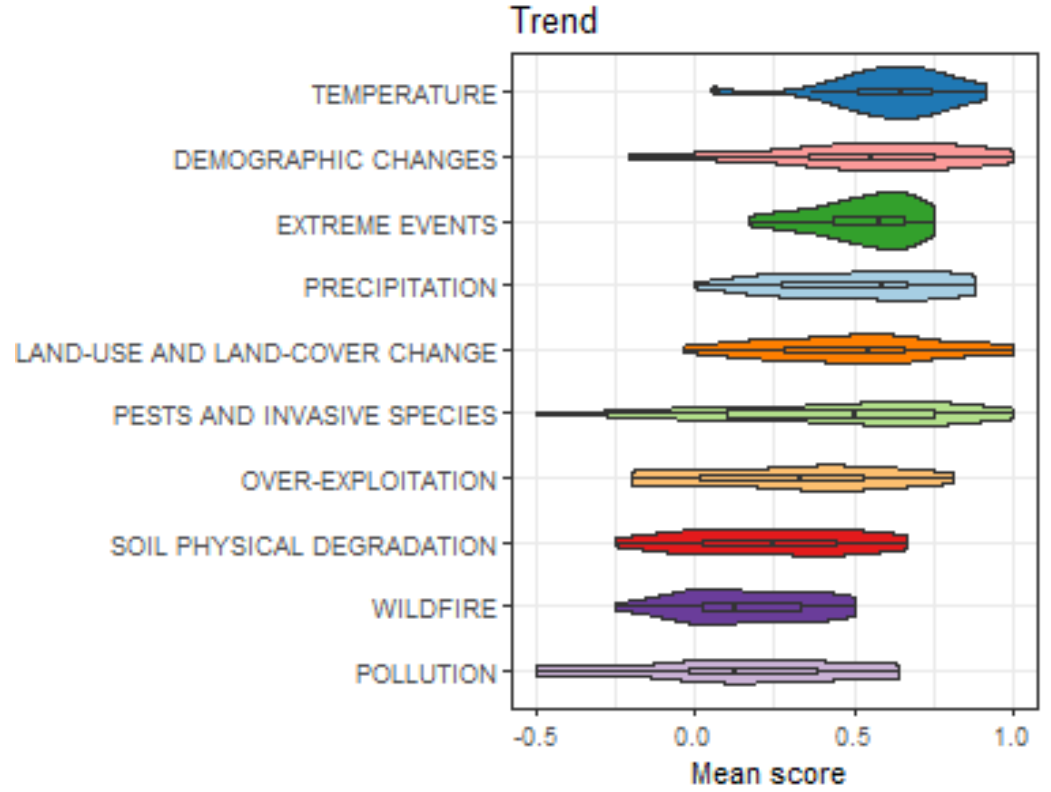
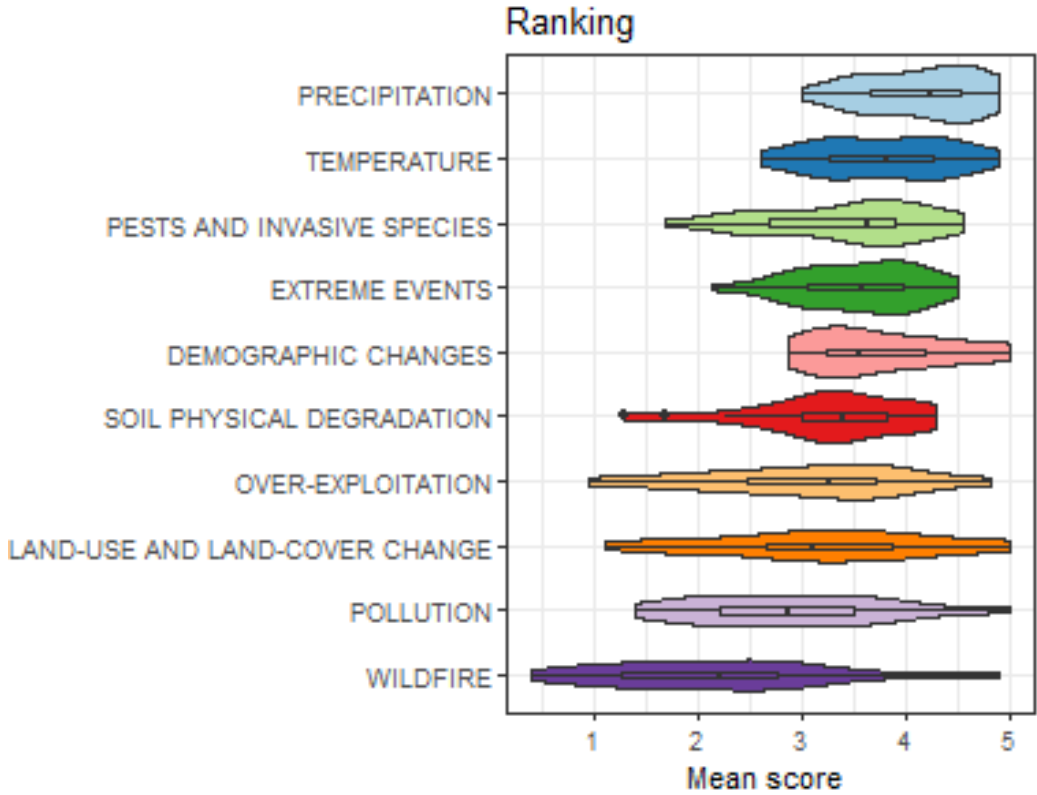
MOVING
MOUNTAIN VALORIZATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

1. Participatory definition of reference variable, drivers and components
2. Participatory evaluation of trends, exposure and importance
3. Participatory collection of adaptation mechanisms
4. Vulnerability assessment in different scenarios of adaptation
5. Selection of the 2 main vulnerability factors
6. Mapping of vulnerability with scenarios on the two factors

Results



- Ranking, trend and sensitivity for all areas



Vulnerability Assessment



- The most important drivers of vulnerability were **climate-related, especially rainfall and temperature.**
- **Non-climatic drivers** showed great variability in terms of their importance across regions, especially regarding overexploitation, and land use and land cover change.
- All drivers showed an increase in magnitude over the last 20 years as perceived by stakeholders in the 23 MRLs studied, with **climate factors generally showing a greater increase in magnitude than other types**

Adaptive capacity



- A total of **160 adaptation mechanisms** were identified.
- Most of the proposed mechanisms showed **high social and environmental feasibility**, while **technical and economic feasibility** was mostly identified as **moderate**
- **Non-climate drivers** would be **most effectively reduced** by the adaptation mechanisms identified.
- Very few mechanisms appear to be able to fully reduce the vulnerability of drivers of change, suggesting that a **well-balanced combination of adaptation mechanisms** may be the most appropriate approach.

Planned work for 2023/2024



- Benchmarking: Cluster analysis on how the value chains perform and adapt to challenges
- Foresight exercises and scenario modelling at the European level
- Stakeholder workshop to validate results and build capacities in November 2023
- **Repertoire of strategic options**
- Policy Roadmap
- End of Project September 2024



MOVING
MOUNTAIN VALORIZATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

Thank you!

Twitter: [@MOVINGH2020](https://twitter.com/MOVINGH2020)
<https://www.moving-h2020.eu>



MOVING receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 818194. The content of this document does not reflect the official opinion of the European Union. Responsibility for the information and views expressed therein lies entirely with the author(s).

AOB:

- **Mark your calendars:** The Adaptation at Altitude Knowledge Network will be hosting its first learning event on the 28th November...more details to follow!



Get involved!

1. Climate Change Adaptation in Mountains theme on weADAPT



► Join the Theme *Climate Change Adaptation in Mountains*

Join to share content with Network Members.

Unsubscribe from Theme



weADAPT



Join the discussion

Discuss this Theme with the experts on the Forum

Go



Skip to category:

Mountain Communities

Biodiversity & Ecosystem Services

Water Stress And Hazards

Data And Knowledge For CCA In Mountains

Agriculture In Mountains

2. A@A Solutions Portal

The screenshot shows the top navigation bar with links for 'About the portal', 'Contribute a solution', and 'Join the community'. Below is the title 'ADAPTATION AT ALTITUDE' and 'Adaptation at Altitude Solutions Portal'. A welcome message states: 'Welcome to the Adaptation at Altitude Solutions Portal (A@A-SP)! This portal allows you to explore tried and tested climate change adaptation solutions for mountain regions, see where they have been implemented, and by who. Use the filters and search option below to explore the solutions, or find solutions in your area of interest using the map (coming soon!)'. There is a 'Read more' link. The main content area features a search bar and filter options for 'Detailed solution' and 'Short solution'. Below are dropdown menus for 'Scales', 'Ecosystem Types', 'Solution Types', 'Sectors', and 'Impacts Addressed'. Three solution cards are visible: 'SUSTAINABLE WATERSHED MANAGEMENT IN GLACIAL MOUNTAIN ECOSYSTEMS IN PERU', 'ASSESSING THE ECONOMIC IMPACTS OF DISASTERS ALONG KEY TRANSPORT CORRIDORS: TAJIKISTAN', and 'RENEWING THE FLOW OF WATER IN MIRESELLI, AZERBAIJAN'.

