Culture and Ecosystem based Adaptation in the Peruvian Andes

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Instituto de Montaña

MISSION:
Take care of life in the mountains

Instituto de Montaña

Presentation for the course “Strategies for change and Transformation”

Eberswalde University for Sustainable and Development

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Eberswalde University for Sustainable Development

1. Introduction and background

2. The Mountain EbA project: the Miraflores case

3. Outcomes, impacts and key lessons

1. Introduction and background

Our Mission:

In a world facing unprecedented change, Instituto de Montaña (IdM) supports the women and men of mountain communities to thrive in healthy environments through the development of sustainable economies, conservation of their ecosystems, research and innovation, based on their own culture and spirituality.

Instituto de Montaña:

Taking care of life in mountains

Geographic scope and topics

- **Ancash: since 1995**
  → Huascarán National Park: Master Plan; rural tourism/Gran Ruta Inca; sustainable livestock; climate change adaptation in a river basin scale and municipal associations.

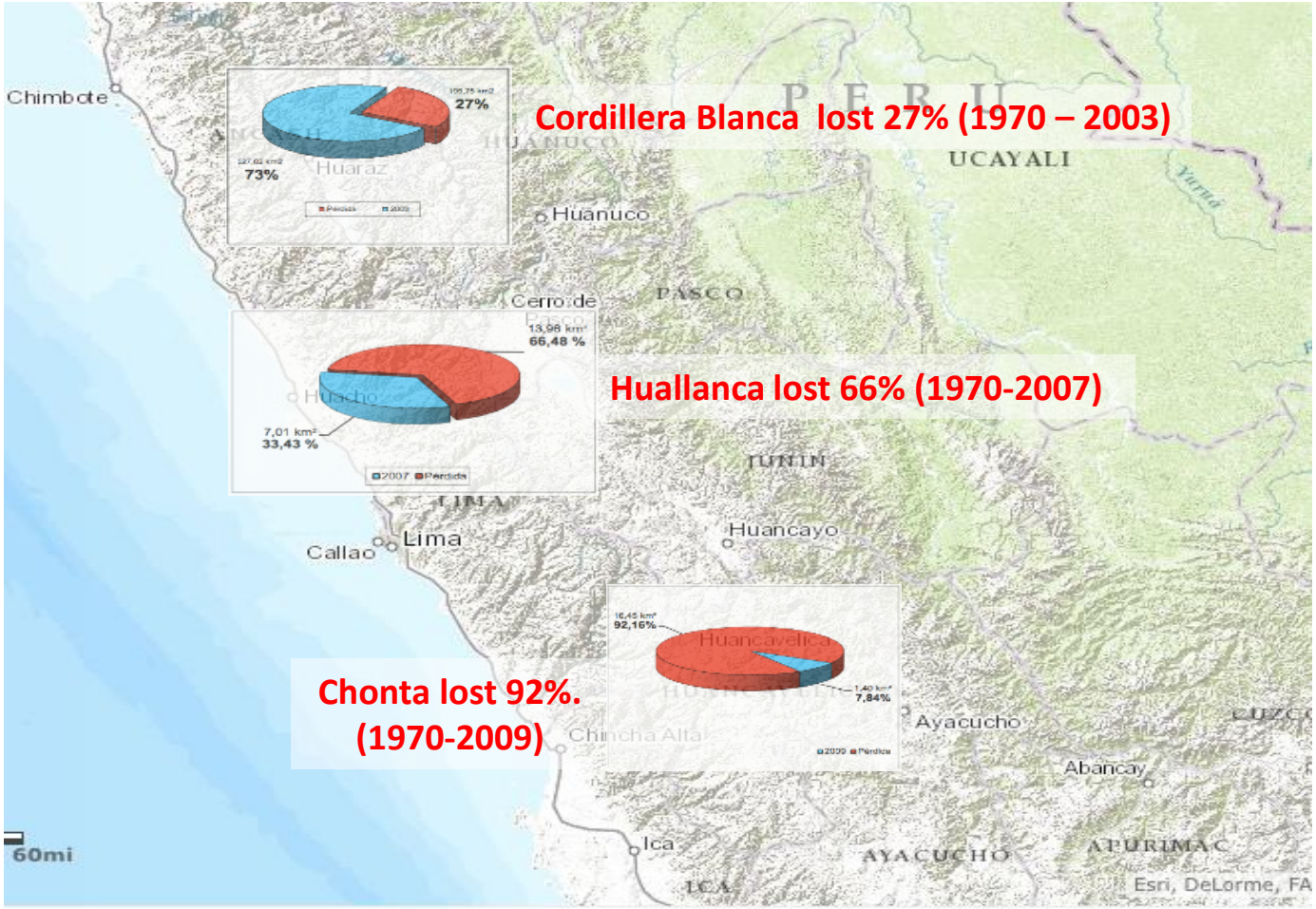
- **Piura: since 2004**
  → Páramo Ecosystem Conservation integrated with local economic development and watershed management; rural tourism/Gran Ruta Inca; Medicinal and Aromatic Plants.

- **Junín-Lima: since 2009**
  → Nor-Yauyos Cochas Landscape Reserve: rural tourism/Gran Ruta Inca; Ecosystem-Based Adaptation, Mechanisms for Retribution of Ecosystem Services

- **Cusco-Arequipa-Apurimac-Puno: since 2024**
  → Puna eco-region: Ecosystem-Based Adaptation (EbA) and Climate-Resilient Value Chains (CRVC) though a Green Climate Fund project.

Climatic crisis in the tropical Andes

Impacts of Climate Change on water supply



Cordillera Blanca lost 27% (1970 – 2003)

Huallanca lost 66% (1970-2007)

Chonta lost 92%. (1970-2009)


Migration increase
Cultures & traditional knowledge continue being lost
Lower productivity of Alpaca and other animals herds
Land is overstocked
Grasslands and wetlands loose their capacity to retain water
Perverse spiral

Impacts of Climate Change and other human-induced alterations of the landscape

Andean Socio-Ecosystems

Andean technologies

Technologies:

"Technology is not a body of knowledge about objects or techniques to do something faster or more efficiently. Rather, it is about the social links woven around objects, landscapes and practices that give them meaning, condition their productive use and justify their cultural configuration."

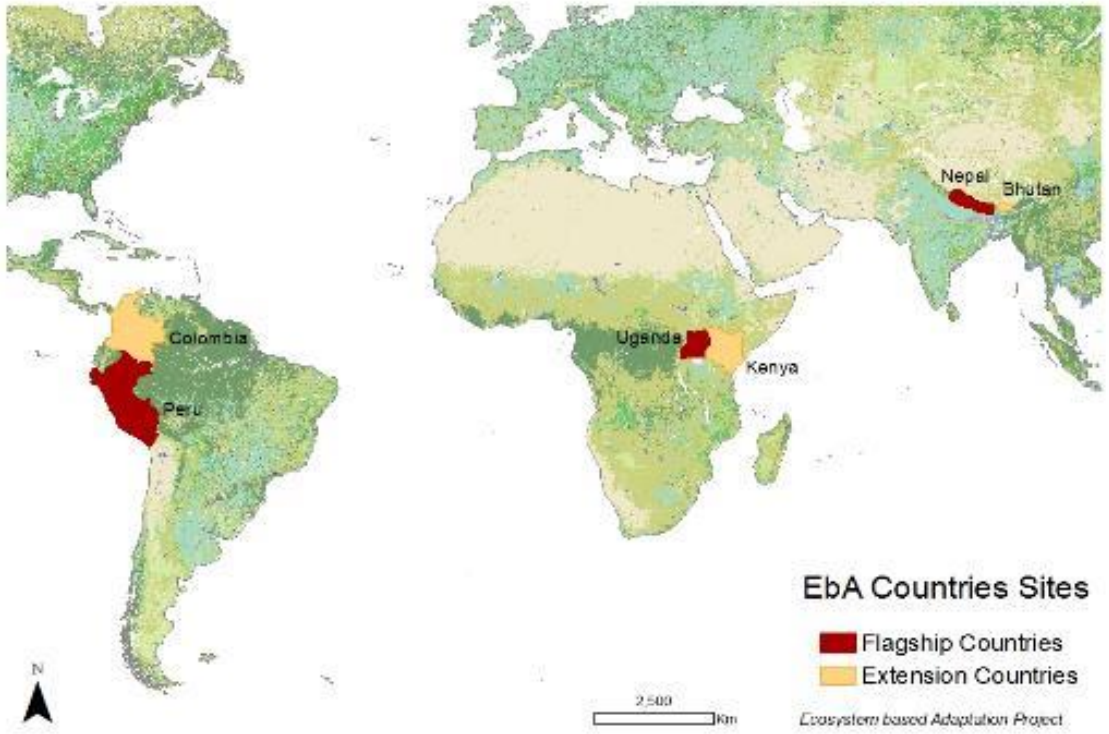
(Herrera 2011: 21)

2. The Mountain EbA project: the Miraflores case

Mountain Ecosystem-based Adaptation (EbA) Flagship Project (2013-2015)

Upscaling Mountain EbA Project

(2017-2022)



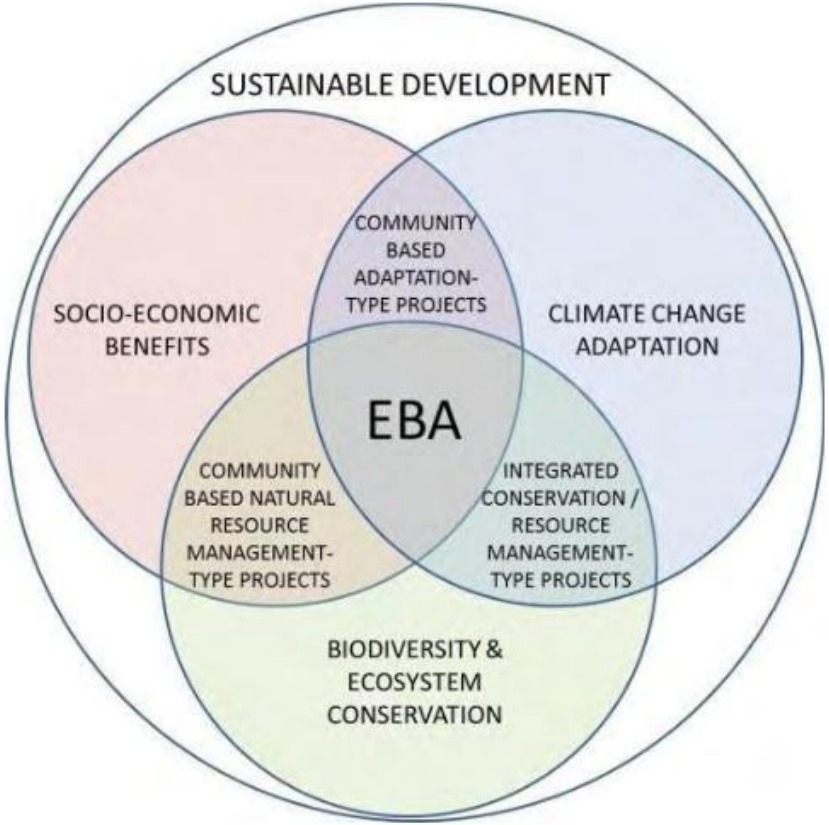
What is EbA?

Ecosystem-based Adaptation is the

- use of biodiversity and ecosystem services
- as part of an overall adaptation strategy
- to help PEOPLE to adapt to the adverse effects of climate change."

(CBD, 2009)

What is EbA?



Adapt:ed from Midgley et al. 2012

Mountain EbA Flagship Project (2013-2015)

1. Development of methodologies and tools for EbA

2. Application of those methodologies and tools

3. Implementation of EbA pilots

4. Formulation of policies and building an economic case for EbA

Upscaling Mountain EbA (2017-2022)

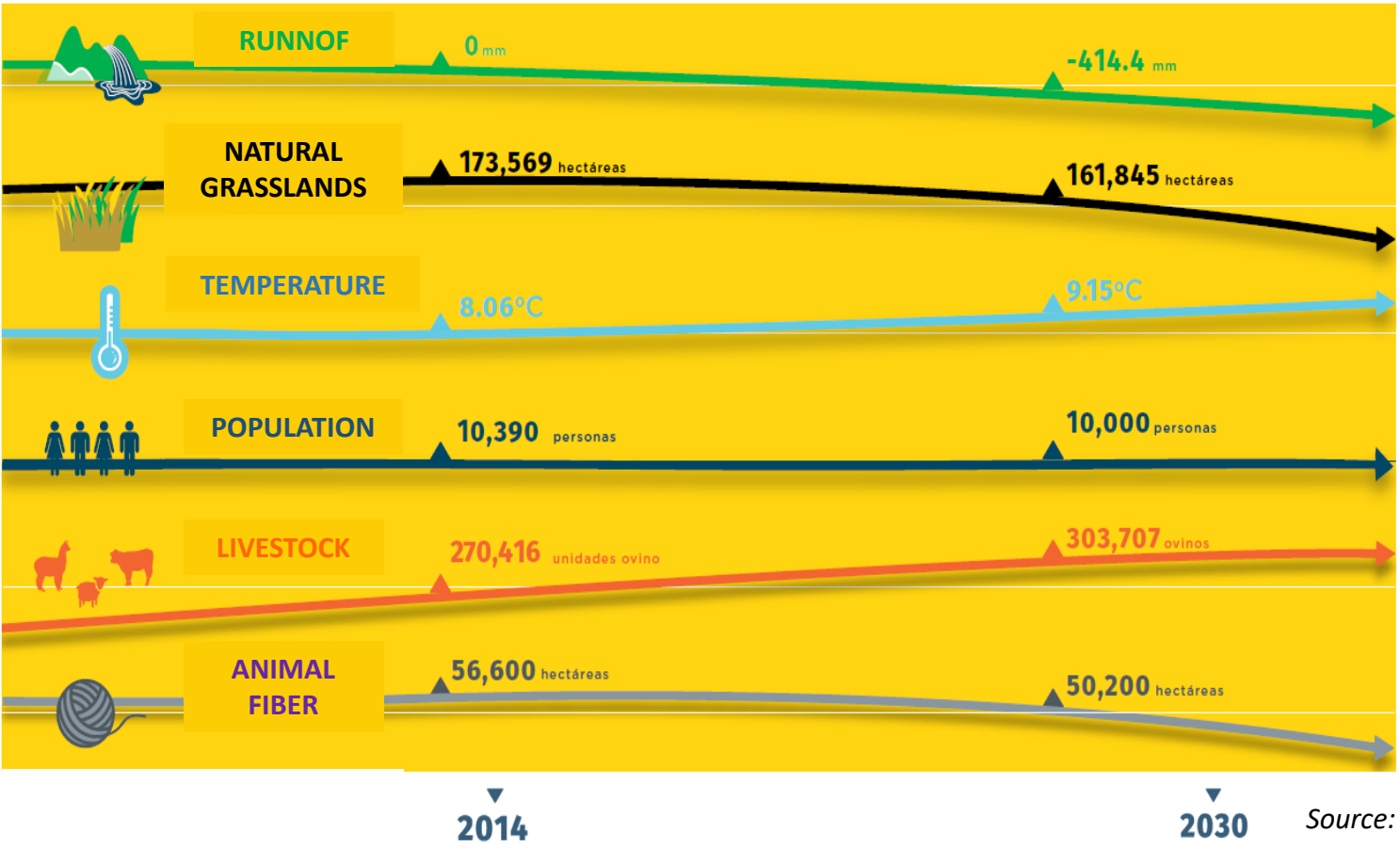
1. Build evidence

2. Replicate success

3. Inform policy


Nor Yauyos Cochas Landscape Reserve, Peru (2500 – 5750 m.a.s.l.)
Socio-ecological landscape
High andean lagoons
Peatlands
Grasslands
Native forest
Inter-andean valley
Terraces
Crops

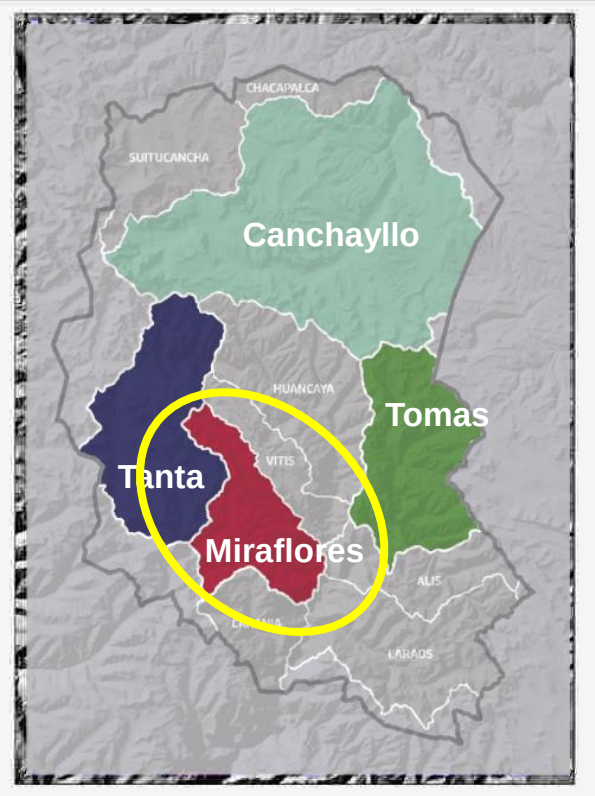
Climate projections in NYCLR



Changes in hydrological and temperature patterns → affect grassland, crops and water resources, which are vital for livestock-dependent communities.

Source: UNDP, UNEP, IUCN, IdM (2016)

Location of the RPNYC and the four EbA sites



The Context: Miraflores, NYCLR

- Degradation of grasslands and wetlands due to overgrazing.
- Inadequate rotation of livestock because of poor water distribution.
- Labor shortages to maintain ancient water and grassland management technologies due to migration.
- Weak social organization for the management of water and grasslands.

Ancient technologies

Ancient Yanacancha Dams (pre-Inka 800-1000 years)

Storage wáter and improve its quality

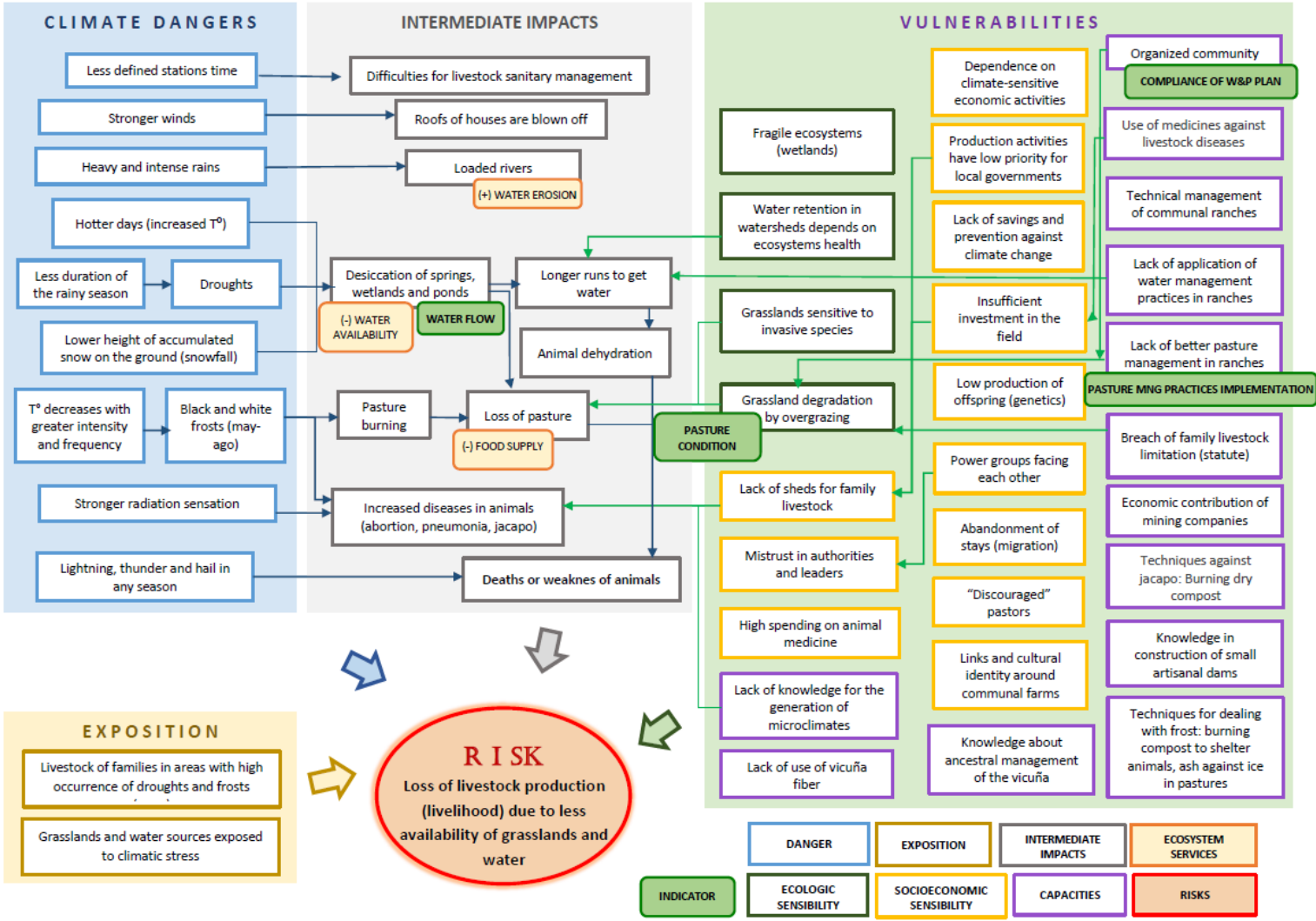
Stages in the EbA implementation process

		Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preliminary	*Explore feasibility*	Yes or no											
Stage 1	*Context and objectives*	Theory of change											
Stage 2	*Vulnerability Assessment*	Climate risk assessment											
Stage 3	*Rapid Assessment of Ecosystem Services*	Adaptation Ecosystem Services Map											
Stage 4	*Design of EbA measures*	Design of the EbA measure and strategy											
Stage 5	*Monitoring*	Monitoring system		Monitoring, systematization and evaluation for learning									
Stage 6	*Implementation*			Implementation of the EbA measure and strategy						Measure implemented			
Stage 7	*Mainstreaming and synergies*	Mainstreaming and synergies promotion											

Participatory Appraisal, EbA selection and design

IdM & IUCN, 2018 . "EbA Handbook"

Climate Risk Assessment using Impact Chains

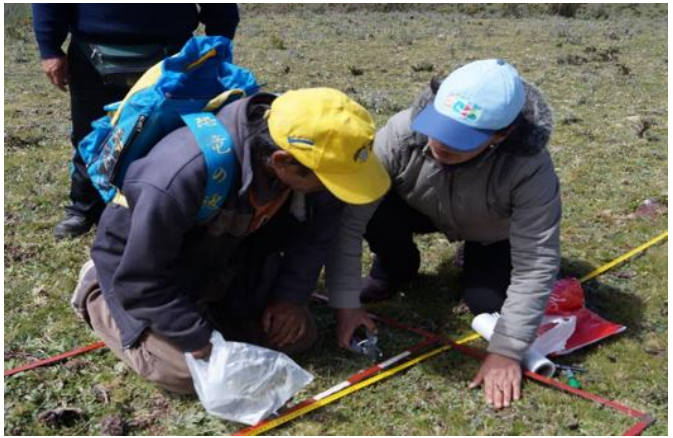


Participatory Appraisal, EbA selection and design

1. Intercultural knowledge dialogue between local researchers/leaders and scientists facilitated by a team trained on Participatory Research and other participatory methods.

2. Tailored solutions.

Participatory approach & Dialogue of knowledge



- Local and external researchers working together.
- **Local research committee** for the whole project.
- Quality of participation

EbA Measure in Miraflores

The EbA measure in the community of Miraflores includes a combination of strengthening of local capacities in terms of skills and organization and the restoration of ancient water technologies adapted to the present context, combining green and grey infrastructure, to improve water and grassland management.

Ecosystem based Adaptation measure

Community grassland and water management Plan

Intercultural dialogue scientific / local knowledge about practices for grass and water management

Restoration of ancestral and modern infrastructure, recovery of technology for expansion and conservation of wetlands and for community management of native grasslands

3. Outcomes, impacts and key lessons

Impacts in Miraflores

- New available grazing area: 165 ha
- Improving 7,200 ha of grassland management
- More resilient livelihood
- Better social organization
- Indications of biodiversity improvement

"Positioning the Evidence for the Potential of Nature-based solutions for Economic Recovery"

- Project conducted by the Nature-based solutions Initiative Peru (NbSI Peru) at Instituto de Montaña in alliance with the NbSI of Oxford University and NbSI Bangladesh, with the financial support of the Oxford Martin School Rapid Response Grant
- Period: 2021 –2023
- 9 cases (one of them: Miraflores)

ENVIROMENTAL IMPACTS

- Water regulation
- Improved water distribution
- Recovery and conservation of native grasslands
- Grassland fire reduction
- Conservation an enhancement of carbon reserves
- Grazing redistribution

SOCIAL IMPACTS

- Strengthening on institutional mechanisms and capacities for community management of water, pastures & livestock
- Pastures productivity improvement through the organization of grazing activities in the different areas
- Contribution to NYCLR conservation objectives achievement
- Local knowledge and capacities strengthening

CLIMATE CHANGE ADAPTATION

- Increased resilience and adaptive capacities of communities and their ecosystems
- Water availability during droughts

Outcomes & SDG

I. Short-term economic recovery potential

1. Employment generation
2. Livelihoods
3. Productivity and income

II. Long-term development outcomes (RESILIENCE)

4. Water and food security

5 Climate change (adaptation, mitigation, DRR)

6. Equity and social capital
7. Others: Trade-offs

III. Impacts of the pandemic

EbA effectiveness and impact assessment in Miraflores

Livelihoods

Cattle raising

Measurement driven livelihoods

- ✓ Production and sale of cheese
- ✓ Production and sale of beef
- ✓ Cattle sale
- ✓ Sale of alpaca fiber
- ✓ Meat production
- ✓ Increased weight of live cattle for sale

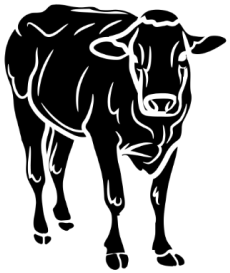
Increase in local commercial activity

- ✓ 90% (68 out of 75) of community members have had an improvement in their livelihoods due to the measure.
- ✓ 30 – 60% (23 – 45) of families have increased their economic income

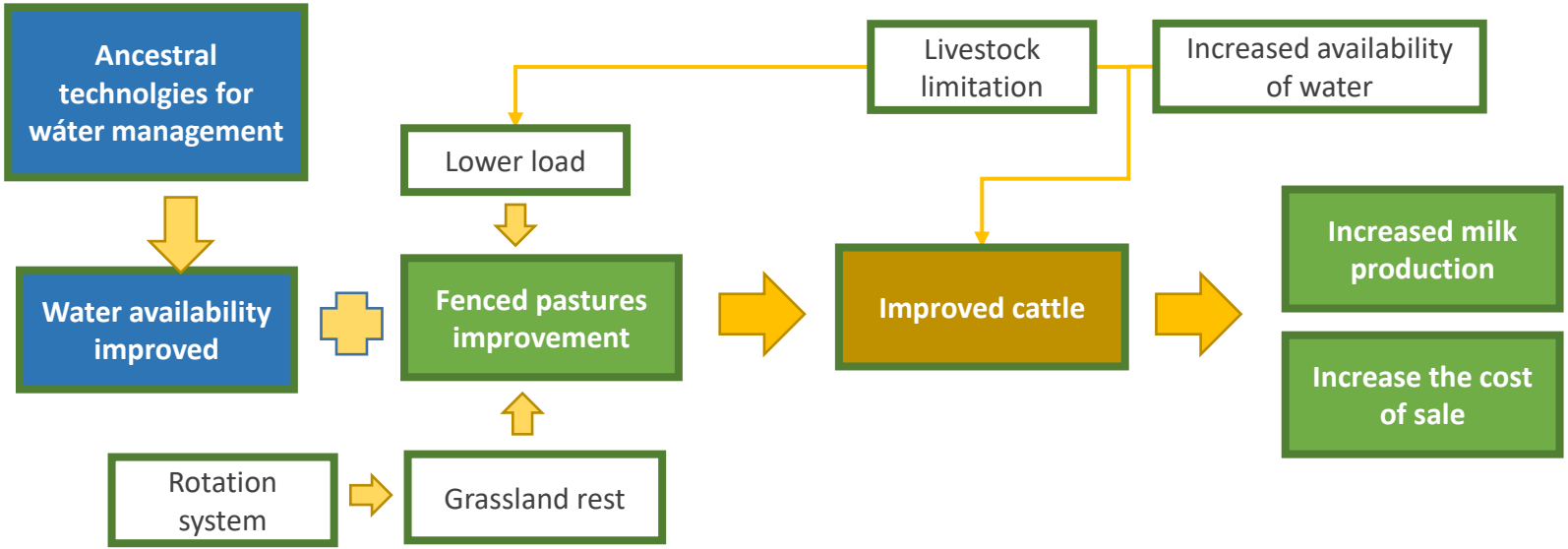
Improvement in their diversified livelihoods

EbA effectiveness and impact assessment in Miraflores

Productivity and incomes



Family cattle



↑ Milk yields (before: 2-3 l/cow, now: 7-8 l/cow)

↑ Cheese yields

EbA effectiveness and impact assessment in Miraflores

Productivity and incomes

Communal farn

Community initiative between 2015-2017

+

Technical advice 2018 (consolidation)

+

More grass and new grazing areas

Change of cattle in the communal farm: sheep for alpacas

Increased weight of live cattle for sale

Fiber production

New income for the community

- *S/ 12,000 per shearing for 2018*

EbA Impact & Effectiveness Assessment

		Miraflores
EFFECTIVENESS FOR SOCIETY	Awareness & adaptative capacity improved	
	Benefits generated for the Community	
	Local & traditional knowledge included	
EFFECTIVENESS FOR ECOSYSTEMS	Overgrazed grazing recovery	
	More water available	
	Improved animal quality	
FINANCIAL AND ECONOMIC EFFECTIVENESS	Increased animal yields	
	Improvement of household economies	
	Atraction of new projects & investments	
POLITICAL, INSTITUTIONAL AND CAPACITY FACTORS	Community strengthened & law enforcement	
	Community ownership	
	Institutional cooperation for EbA	

EbA Impact & Effectiveness Assessment

		Miraflores	Canchayllo	Tanta	Tomas
EFFECTIVENESS FOR SOCIETY	Awareness & adaptative capacity improved	+	=	+	+
	Benefits generated for the Community				
	Local & traditional knowledge included				
EFFECTIVENESS FOR ECOSYSTEMS	Overgrazed grazing recovery	+	+	+	+
	More water available				
	Improved animal quality				
FINANCIAL AND ECONOMIC EFFECTIVENESS	Increased animal yields	+	+	+	+
	Improvement of household economies				
	Atraction of new projects & investments				
POLITICAL, INSTITUTIONAL AND CAPACITY FACTORS	Community strengthened & law enforcement	+	=	+	+
	Community ownership				
	Institutional cooperation for EbA				

Key lessons

1. Relevance of Participatory Research and local leadership in each step: from initial assessment to evaluation.
2. Prioritize social and cultural dimension of EbA / NbS.
3. **Ancestral technologies** adapted to current context.
4. **Local knowledge** alive: intergenerational transmition.
5. Intercultural knowledge dialogue between local researchers/leaders and scientists facilitated by a team trained on Participatory Research and other participatory metho
6. Tailored solutions.
7. Hybrid solutions: local and scientific knowledge / Green-gray.
8. Integrate EbA / NbS to local and regional processes and governance.

To take away

- Aligning EbA measures with the local context
  - → Adapting ancestral technologies to modern conditions and needs
  - → Green-gray infrastructure
- Institutional strengthening and Community organization
  - → Participatory development of “Water and Grassland Management Plan” (integration to larger strategy)
  - → Development of a new grazing rotation plan
- **Participatory approach & Community ownership**

Thank you!

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