



Building Adaptive Capacity in the Water Sector under a Changing Climate

CIF Knowledge for Resilience Series
October 7, 2020



Agenda



9:00 - 9:07

Welcome and introduction



9:07 - 9:15

Introduction to the study and its motivation



9:15 - 9:45

Methodology and presentation of study results



9:45 - 10:00

Interpretation of results to the Bolivian context



10:00 - 10:25

Open discussion



10:25 - 10:30

Closing remarks

Climate Investment Funds Knowledge for Resilience Series

- Highlights observations and lessons learnt from countries implementing projects under the PPCR
- Sharing knowledge to advance climate resilience goals and guide decision-making among stakeholders
- Series includes knowledge products (i.e. case studies and research briefs) and webinars on topical issues



Climate Services for Good Health: Supporting Climate-Resilient Health Care



Evaluation and Learning (E&L) Initiative

EVALUATION AND LEARNING INITIATIVE

The Evaluation and Learning Initiative enables learning that is relevant, timely and used to inform decisions and strategies for CIF and the wider climate finance sector. Over 30 studies and activities covering five priority learning themes have been completed under the Initiative.

TRANSFORMATIONAL CHANGE

Understanding and assessing transformational change in the CIF context

DEVELOPMENT IMPACTS OF CLIMATE FINANCE AND JUST TRANSITIONS

Understanding socio-economic development contributions and issues related to CIF investments

MOBILIZING PRIVATE SECTOR THROUGH CONCESSIONAL FINANCE

Investigating models and experiences to mobilize private sector investment in CIF-related sectors, including the role of concessional finance

LOCAL STAKEHOLDER ENGAGEMENT AND BENEFIT

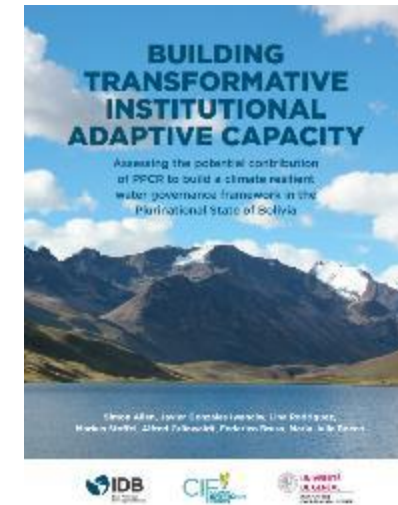
Exploring CIF local stakeholder engagement strategies, Indigenous Peoples, gender, and other topics focused on local actors

PROGRAMMATIC AND SECTORAL STUDIES

Assessing various priority programs or sector-related topics and themes

KEY FEATURES

- Guided by an independent Advisory Group
- Focus on applied learning
- Strategic and demand-driven studies
- Participatory, inclusive processes



Moderator and Closing Speaker

Moderator:

Xianfu Lu

Senior Strategy and Outreach Specialist for PPCR
Climate Investment Funds (CIF)



Closing Speaker:

Claudio Alatorre

Lead Climate Change Specialist
Inter-American Development Bank (IDB)



Speakers

Alfred Grunwaldt

Senior Climate Change Specialist
Inter-American Development
Bank (IDB)



Dr. Simon Allen

Research Associate
University of Geneva



Dr. Markus Stoffel

Full Professor
University of Geneva



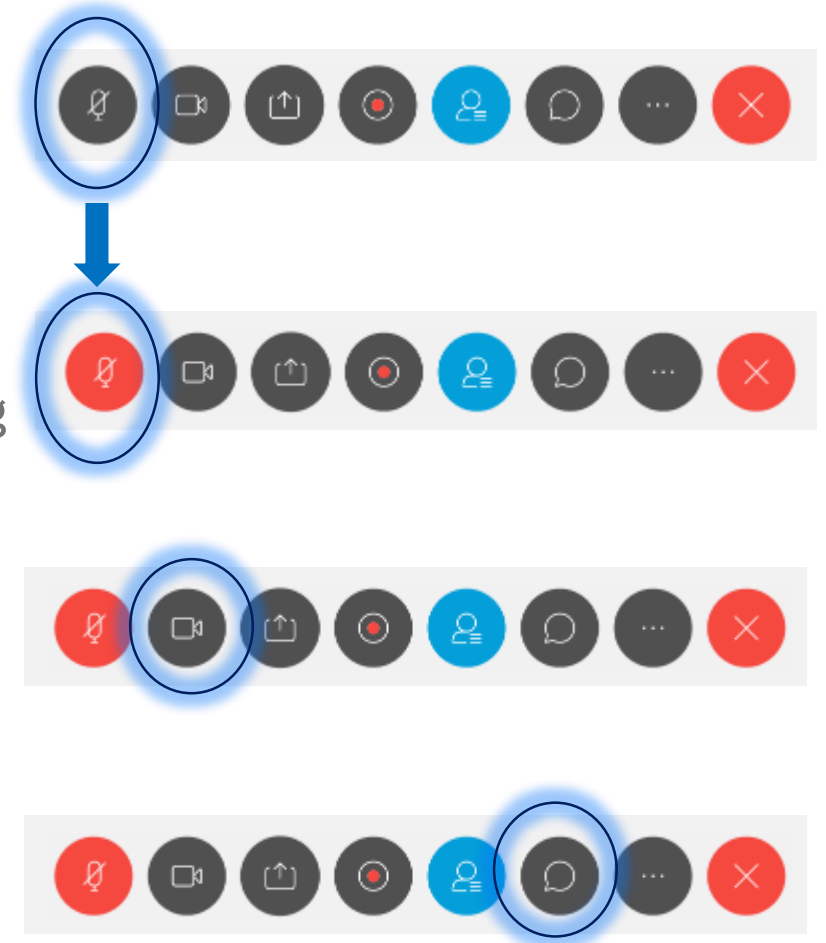
Javier Gonzales Iwanciw

Senior Research Associate
Institute for Science and Social
Research (IICS) at Universidad Nur



Please:

- Mute your audio
 - Use the mute button if using the WebEx app
 - If you are calling in by phone, you can mute yourself using the “mute” button on your phone or by dialing *6
- Switch off your video
- Use the chat function throughout the panel contributions to share any questions or thoughts
- Note this webinar will be recorded and the recording will be available on the CIF website





“The time is past when humankind thought it could selfishly draw on exhaustible resources. We know now the world is not a commodity.”

Francois Hollande on climate change
Former President of the French Republic

Building Adaptive Capacity in the Water Sector under a Changing Climate

Alfred H. Grünwaldt, Climate Change Senior Specialist (alfredg@iadb.org)
Inter-American Development Bank
October 2020



1. Three main messages

1

**We need to see
Adaptation as a
contributing process to
Sustainable
Development.**

2

**For an Adaptation process
to be effective we need to
understand how capacity
can be created to generate
transformation.**

3

**The Monitoring of
progress in Adaptation
requires a framework
that characterizes it
and allows its
evaluation**



1

**We need to see Adaptation as a
contributing process to
Sustainable Development**

2. Paris Agreement and SDGs as starting points



Article 7

.....enhancing **adaptive capacity**, strengthening **resilience** and **reducing vulnerability** to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the **temperature goal**.



PARIS CLIMATE ACCORD IN NUMBERS

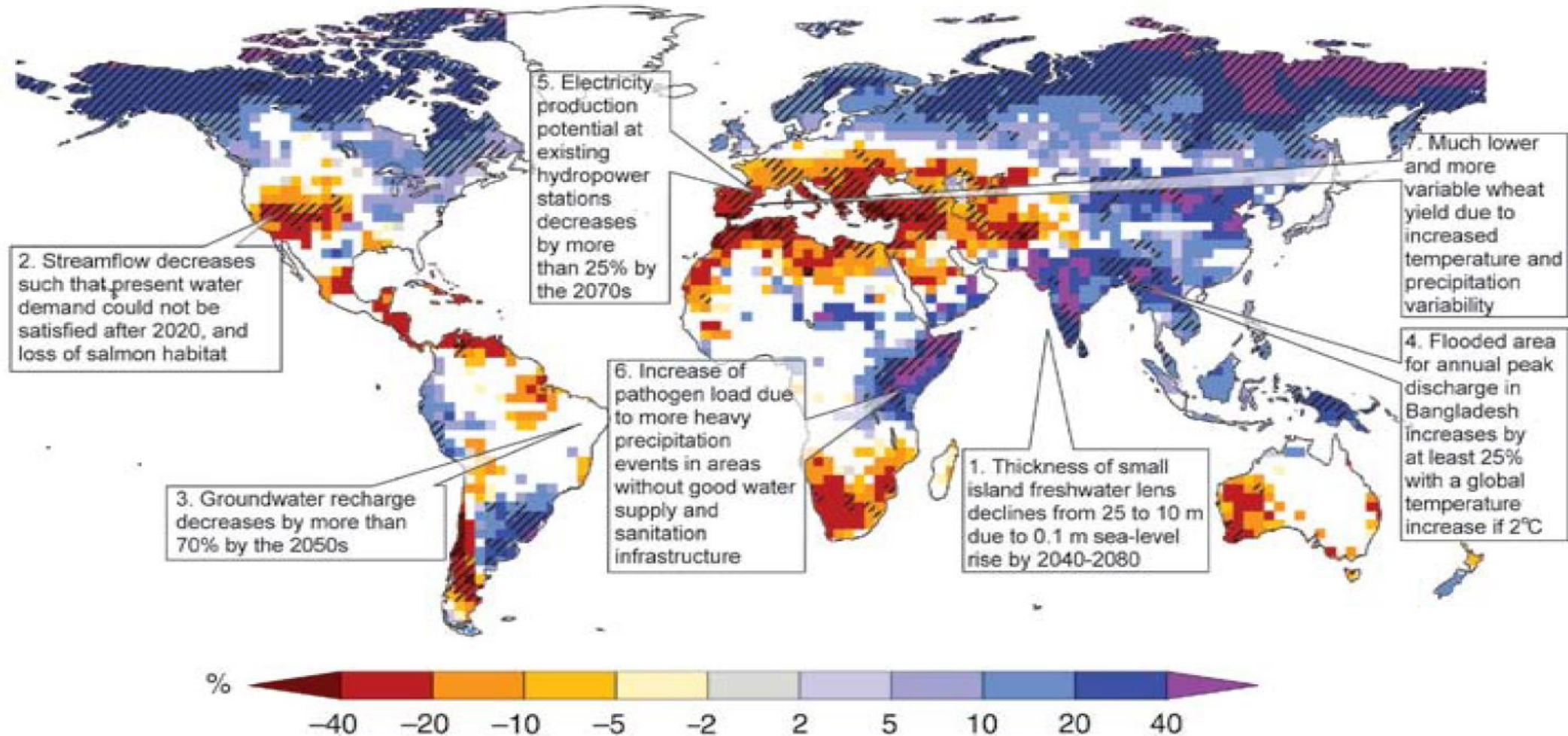


Rich and poor nations resolved in Paris to do their bit to tackle climate change at the end of a 13-day meeting, adopting a 32-page climate accord. Mint explains the new climate agreement in numbers.

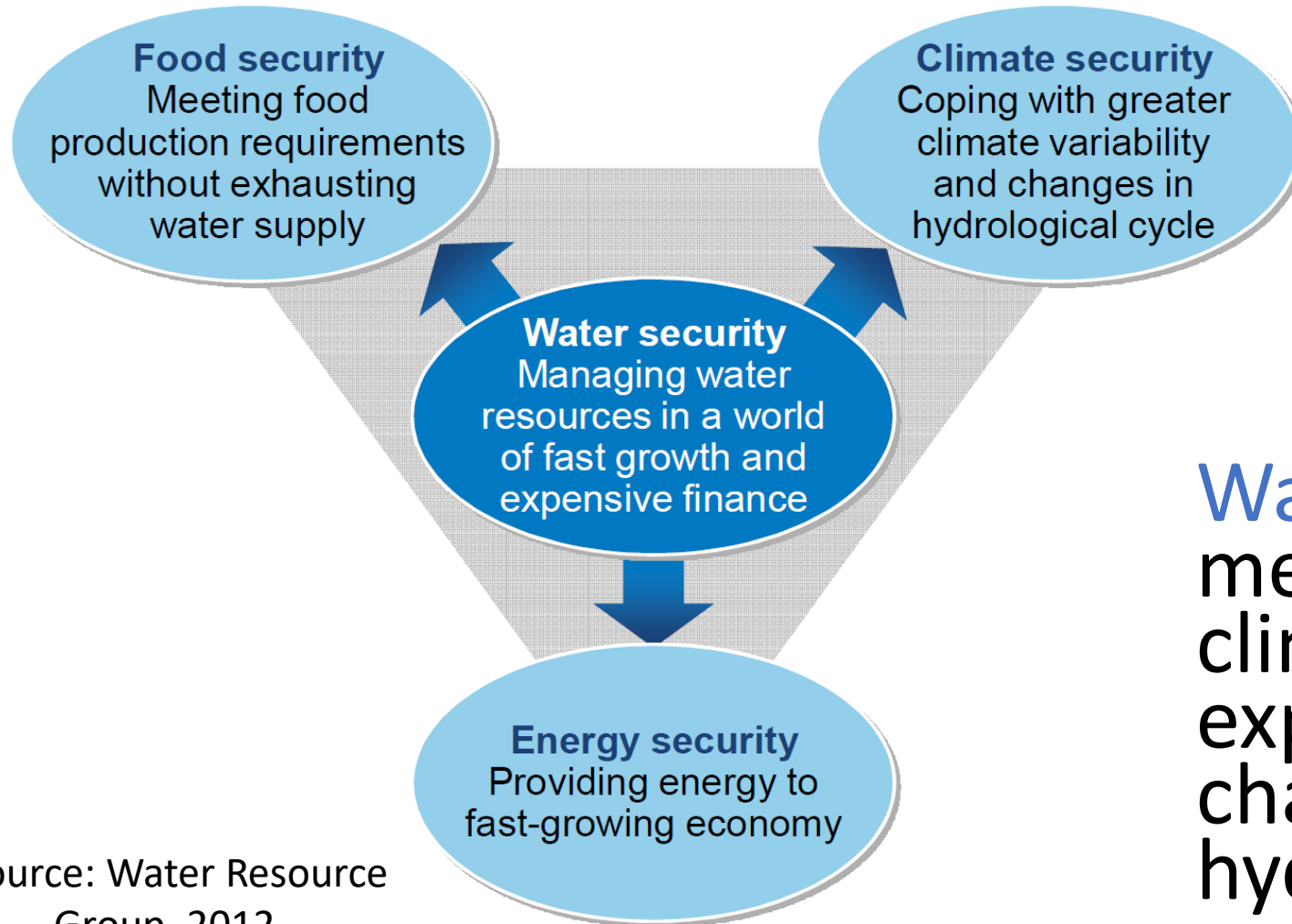
- **195** countries adopted the agreement after talks that stretched from 30 November to 12 December.
- **Twenty-nine** articles deal with specific issues like technology transfer, finance, stocktaking and capacity building.
- Rise in global temperature to be limited to "well below **2 degrees Celsius**" over pre-industrial times; and efforts to be made to limit it to **1.5 degrees Celsius** above pre-industrial levels by the end of **2100**.
- Developed countries to provide finance of **\$100 billion** every year to developing countries by **2020**.
- Goal of raising climate finance from a floor of **\$100 billion** per year from **2025**.
- Global stocktaking every five years.
- Agreement to take effect after ratification by **55** countries accounting for at least **55%** of global emissions.
- **188** countries submitted their voluntary climate action plans ahead of the summit.
- Nearly **150** heads of states attended the summit opening.

3. Water resources and climate change at a glance

- At the current rate, there will be a 40% gap between global water supply and demand by 2030 (*Global Economic Forum*)



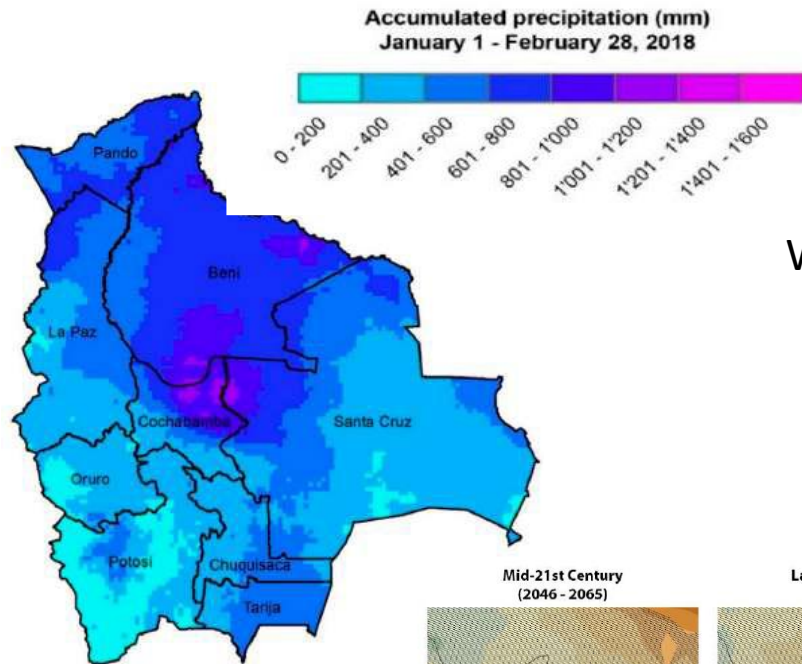
4. Water resources at the center of sustainable development



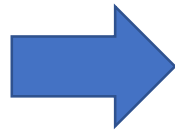
Source: Water Resource Group, 2012

Water is the primary medium through which climate impacts will be experienced, through changes in local hydrological patterns.
(Parry et al. 2007).

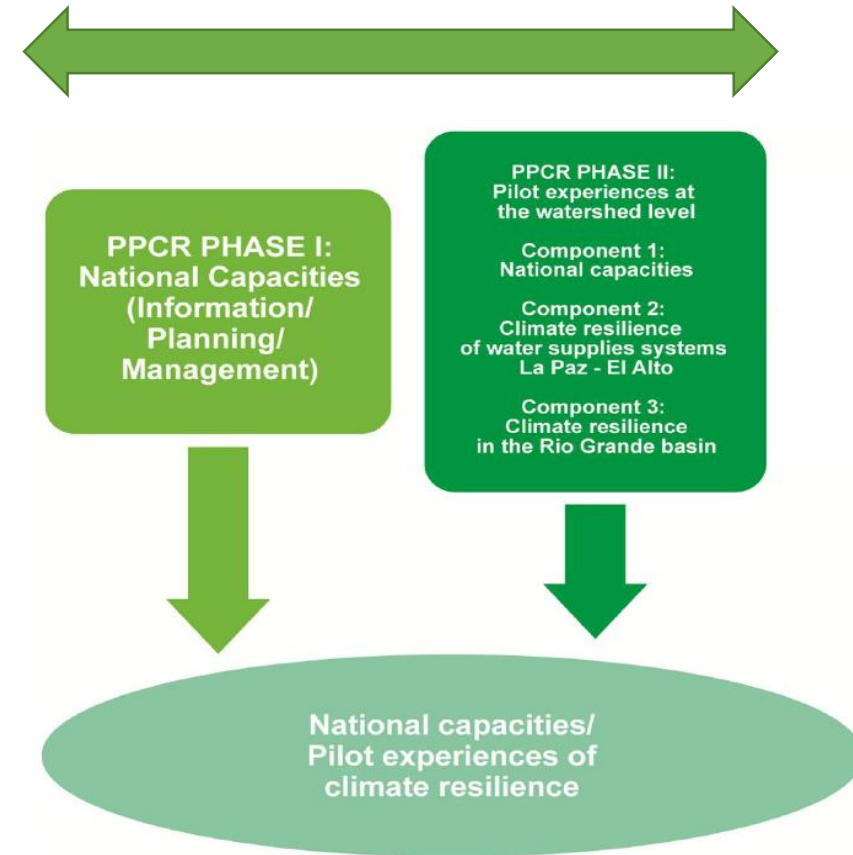
5. Why Bolivia?



Work on adaptation
focused on water



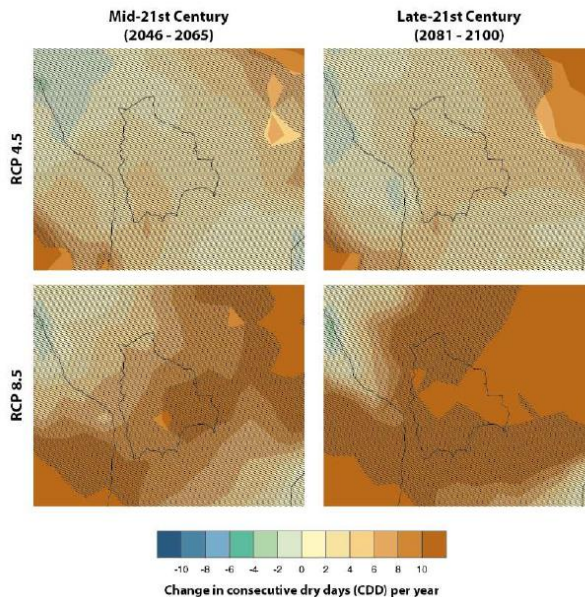
Pilot Program for Climate Resilience (PPCR)



Source: NASA Giovanni tool at <https://giovanni.gsfc.nasa.gov/giovanni/>

7 <https://reliefweb.int/disaster/fi-2018-000015-bol>

Change in consecutive dry days in Bolivia as simulated from the CMIP5 for mid and late 21st century



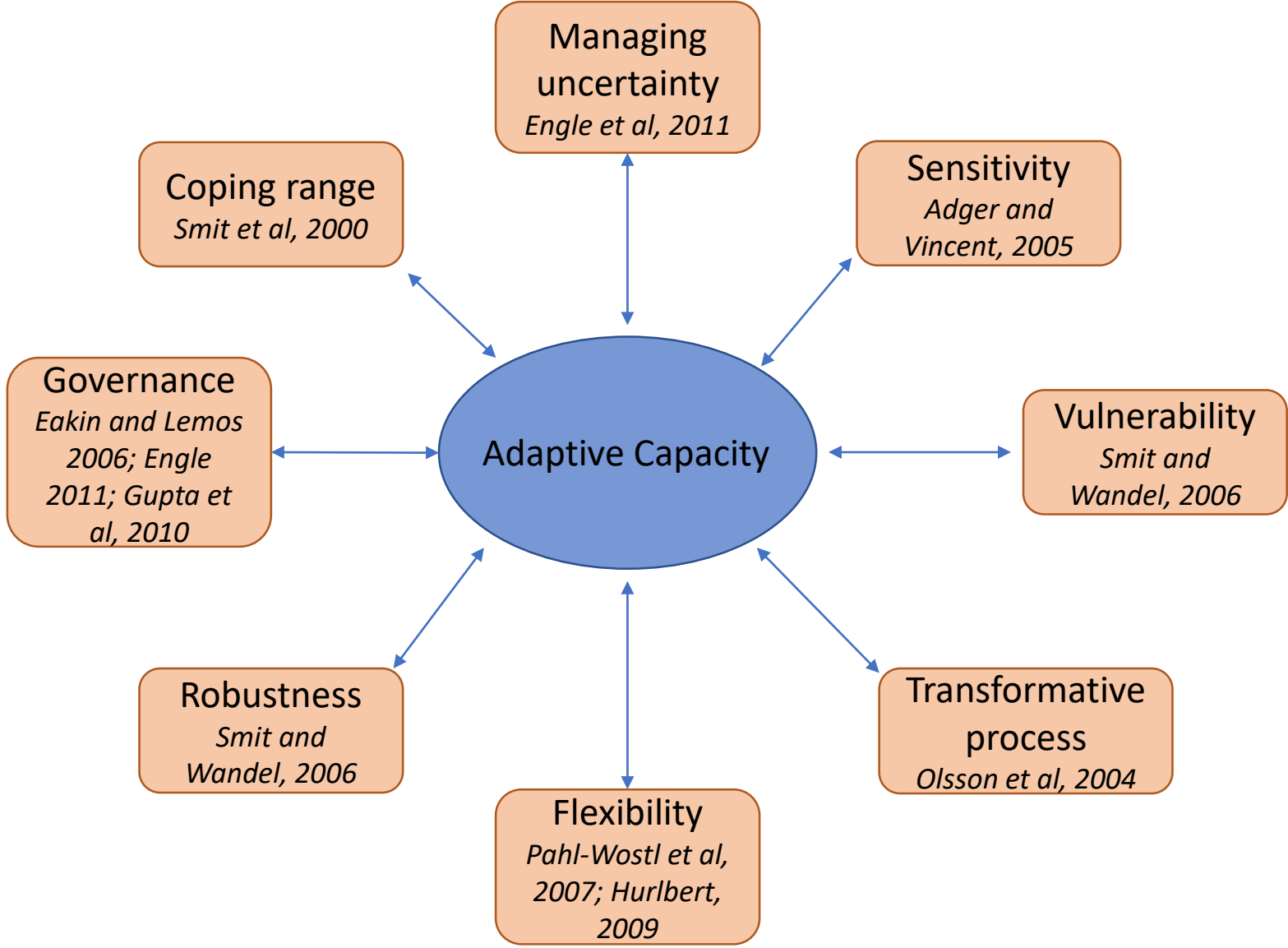
Source: KNMI climate explorer at <https://climexp.knmi.nl>.



2

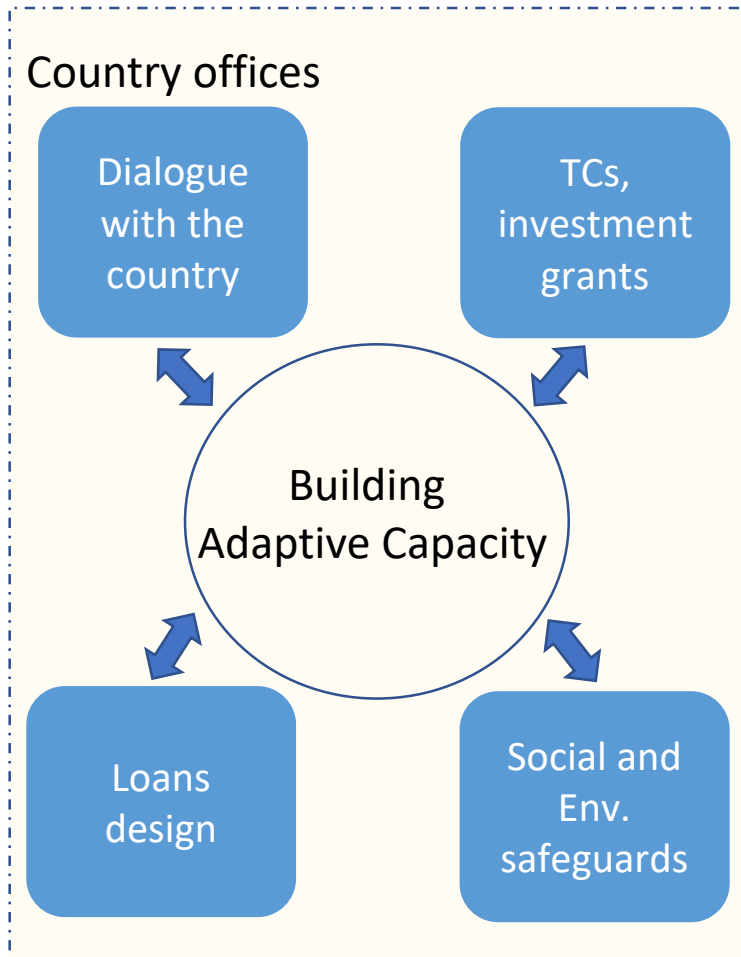
For an Adaptation process to be effective we need to understand how capacity can be created to generate transformation

6. Defining Adaptive Capacity



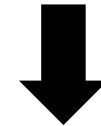
7. Operationalizing the concept of adaptive capacity

Mainstreaming with an UPSTREAM FOCUS **instead of** a downstream focus



Objective: Identify climate change resilience opportunities (including climate risk mitigation actions) in projects during country dialogue and programming (Climate change division internal process)

SCAN



ERM

QRR

Approval



Risk SCREENING

Objective: Categorize disaster and climate change risks of projects in the pipeline (ESG lead process)

ERM: Eligibility Review Meeting

QRR: Quality and Risk Review

8. Where to start for building adaptive capacity?





3

**The Monitoring of progress in
Adaptation requires a
framework that characterizes it
and allows its evaluation**

9. Correlating indicators of adaptive capacity

Policy-based loans as an example

a) Governance indicators:		PBL policy matrix			
Indicator	Operational criteria				
Ownership	<u>Consistency and certainty</u> Legal certainty about ownership and user rights at multiple governance levels.	N/A	Preparedness	Pre-emptive Planning Emergency provisions and preparedness for hydrological extremes.	2.2.7 Guidelines for Water Utilities for the development of contingency plans.
	<u>Coverage</u> Coverage of all water rights and uses	3.2.2 SENASBA Strategic In: Plan (PEI) 2019-2020 includ projections.		Prioritization Proportional reduction or prioritization of water rights and uses, and other resources (personal and financial) to deal with hydrological extremes.	
Responsibility and accountability	<u>Consistency and certainty</u> Clear legal authority and regulations (embedded in law or policy) to enable decision-making to address water-related challenges.	2.2.1 Methodological guide encourage connectivity to s sewerage systems in urban urban areas	Effectiveness	Holistic Incentives to use water efficiently and effectively across multiple uses (including conservation).	N/A
		2.2.3 Technical guidelines for reduction of non-revenue w (NRW) in La Paz-El Alto water			
		2.2.4 Guidelines for the prep of the National Strategy to in Water Utilities' management			
		2.1.6 Updated guide for pre Five-Year Development Plan EPSA			2.1.1 National Policy for the exercise of the Human Right to Water and Sanitation (DHAS) in Bolivia.
					2.1.3 Sectorial Categorization of Potable Water and Sanitation Projects and Scope and content of studies of technical designs for pre-investment of social development projects.
				Capacity Matching resources (financial, human, and technical) at the enforcement level.	2.2.5 Guidelines of the Plurinational program for capacity building and certification of labor competencies in the water and sanitation sector.

10. Categorizing adaptive capacity: The need of a framework to assess adaptive capacity

Passive Adaptation

- If responses adhered to concepts of steady state resource management, further degradation of SES.

Based on

Degradation of the system to a less favorable state, resulting from either a failure to transform and adapt or maladaptation.

(Chapin et al, 2009)

Persistent/incremental Adaptation

- If responses exhibited **Aspects of technical or governance innovation** to decision making or water resources management.

Based on

Persistence of the fundamental properties of the current system through adaptation (Chapin et al, 2009)

Transformative Adaptation

- If responses exhibited **traits of managing for uncertainty** /integration of **ecological and social** considerations (SES).

Based on

Innovation- transformation of Socio-ecological systems into trajectories that sustain and enhance ecosystem services, Social development and well being (Walter et al, 2004)



Levels of Adaptive Capacity

Source: Margot Hill, 2014, Univ. Geneva



THANKS!

Follow us in twitter for updates [@Agrunwaldt](#)
[@theIDB](#).



Assessment Framework and Study Results

A wide-angle photograph of a mountain range with several prominent peaks covered in snow. The foreground consists of rolling, grassy hills under a clear blue sky.

Markus Stoffel and Simon Allen

A photograph of a river flowing through a valley. The water is calm and reflects the surrounding landscape, including the snow-capped mountains seen in the top image. The banks are covered in green and brown vegetation.

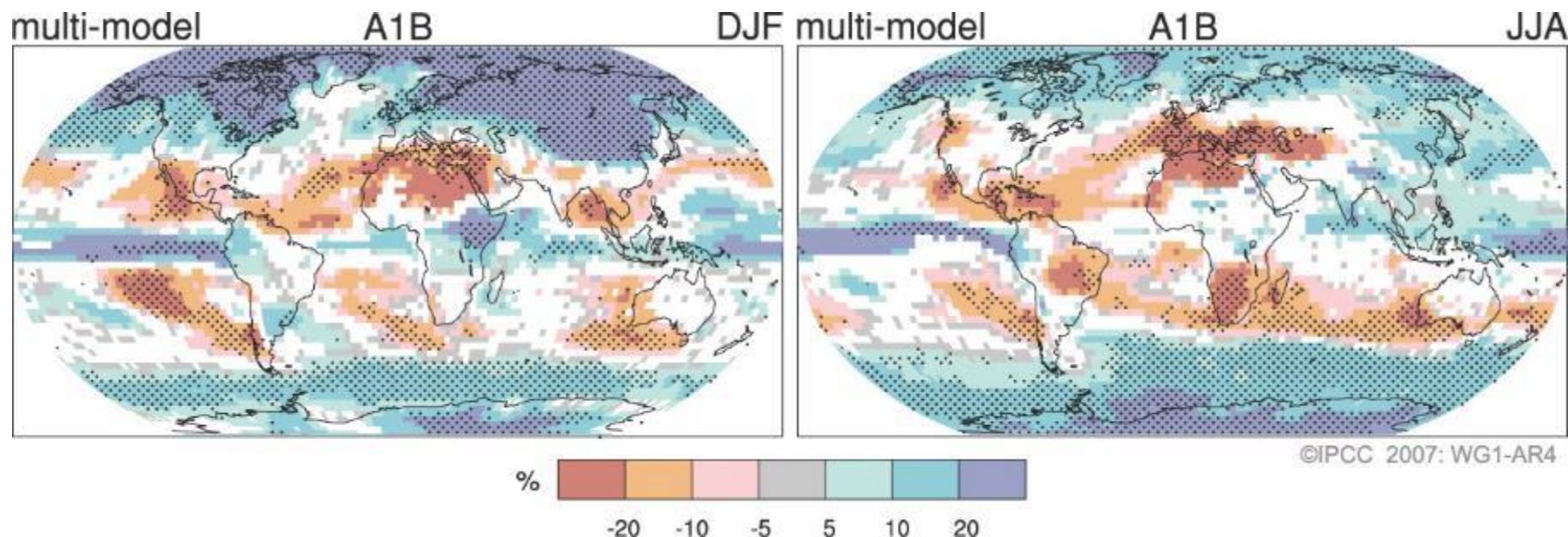
Presentation Overview

1. Introduction: The road to Bolivia
2. Aims and objectives of the study
3. Assessment framework
4. Methodological steps
5. Main results
6. Recommendations
7. Future perspectives and concluding remarks

1) Introduction: the road to Bolivia

- Based largely on the results of the IPCC's 4th Assessment Report (2007), there was increasing recognition of changes in the global water cycle.
- > notion of wet regions getting wetter, and dry regions getting drier.

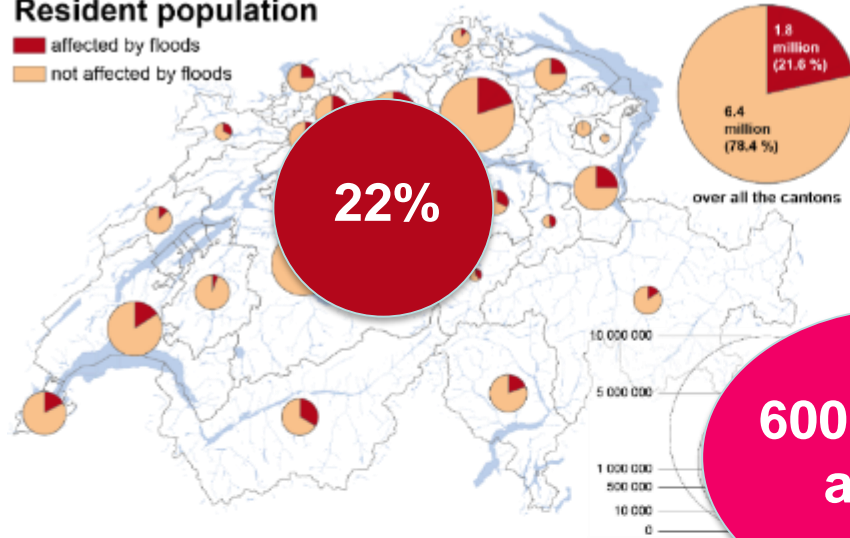
Projected changes in precipitation patterns



- A global problem affecting both the developed and developing world!

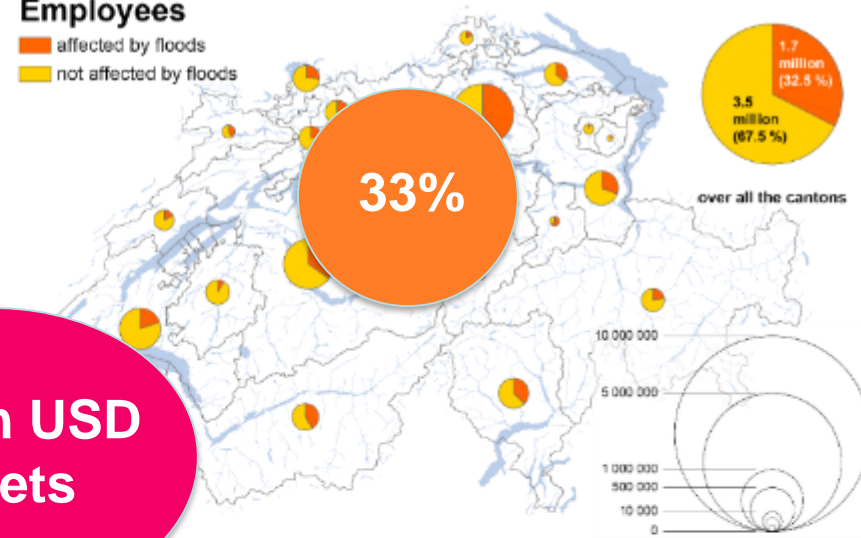
Resident population

- affected by floods
- not affected by floods



Employees

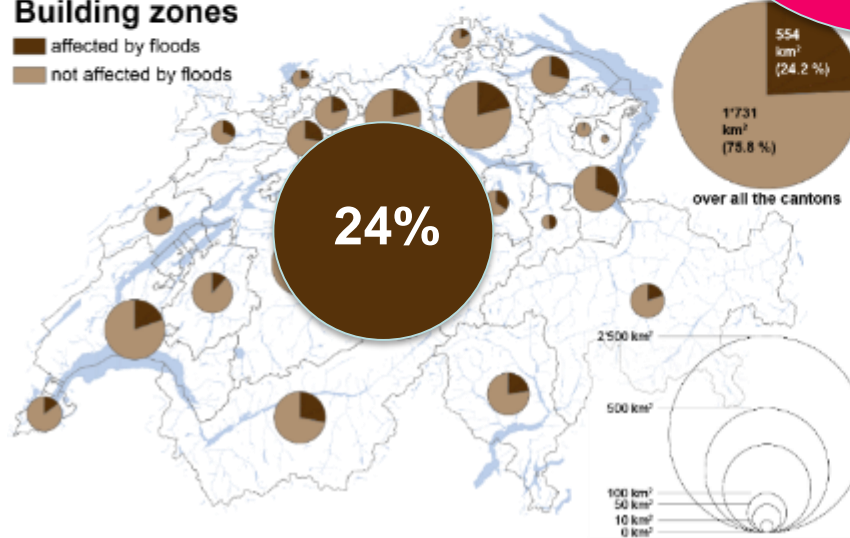
- affected by floods
- not affected by floods



600 bn USD
assets

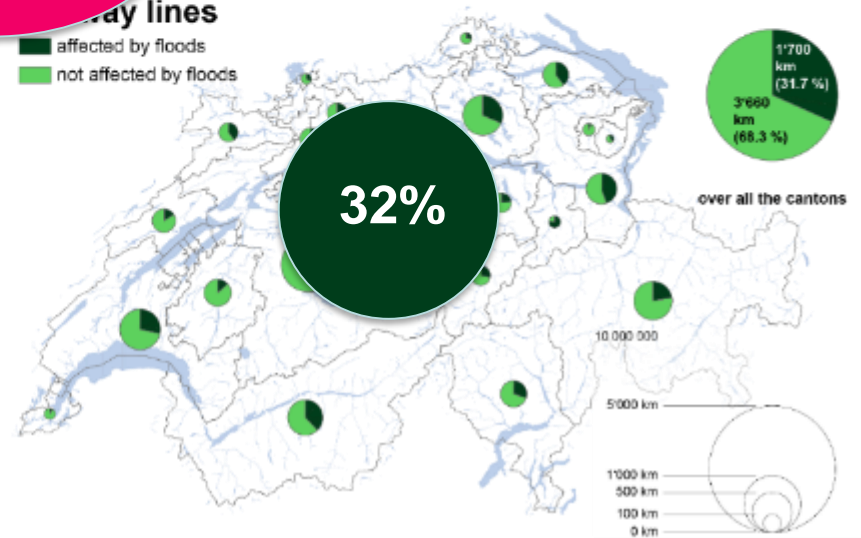
Building zones

- affected by floods
- not affected by floods



Ray lines

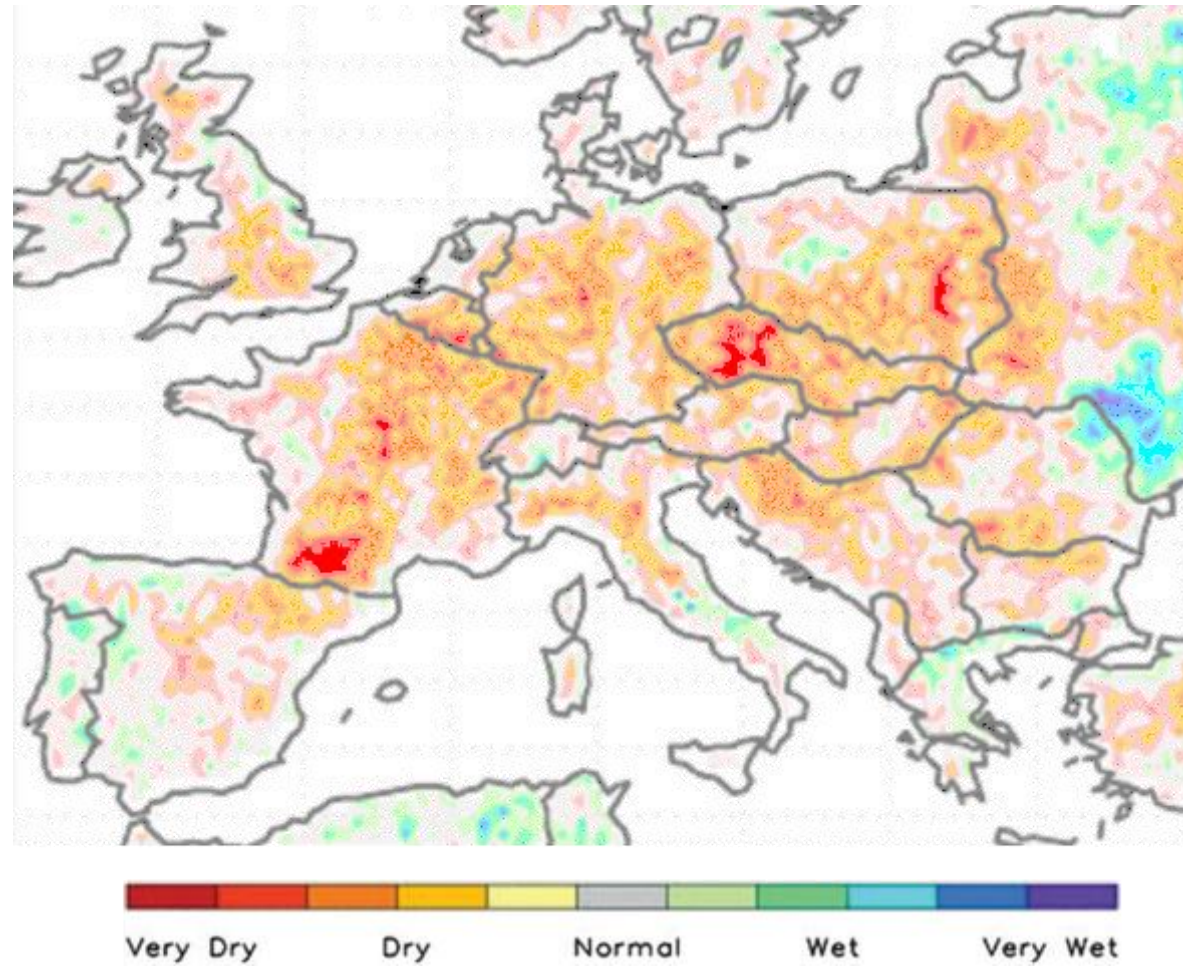
- affected by floods
- not affected by floods





Floods in August 2005, Switzerland





Extreme heat/drought, Europe 2003



- 40,000-70,000 excess deaths in Europe.
- Numerous forest and bush fires.
- Very low water levels in rivers, with additional consequences for:
 - Irrigation
 - Aquifer recharge
 - Energy production and cooling of nuclear power station reactors
 - Aquatic ecosystems
 - Enhanced glacial melt
- Massive losses for European agriculture, estimated at 10 billion Euros.

Extreme heat/drought, Europe 2003

- Particular challenges for water governance emerging in mountain regions, owing to combined effects of precipitation changes, and loss of glaciers
-> increasing challenges, but also opportunities (e.g. hydropower)

Projected future evolution of Aletsch Glacier, Switzerland

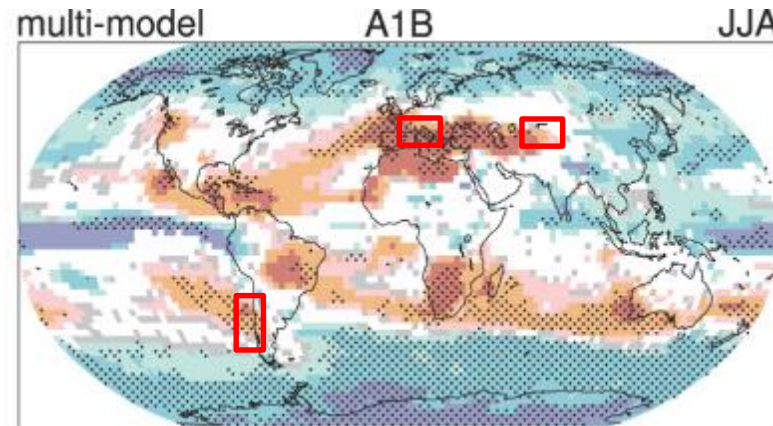


Source: A. Linsbauer (U. Zurich)

- In response to these challenges, the UNIGE-led project ACQWA was initiated (6.5 million Euro – European Research Council):

“**A**ssessing **C**limate change impacts on the **Q**uantity and quality of **W**ater”

- ACQWA focussed on 3 mountainous regions, all within zones where rainfall is projected to decrease during the 21st century, but with contrasting governance contexts, and different time-frames to adapt and respond:
 - European Alps (Switzerland)
 - Tian Shan (Kyrgyzstan)
 - Andes (Chile)



- One key objective of ACQWA was to develop **adaptation** strategies that would future-proof water management under a changing climate.

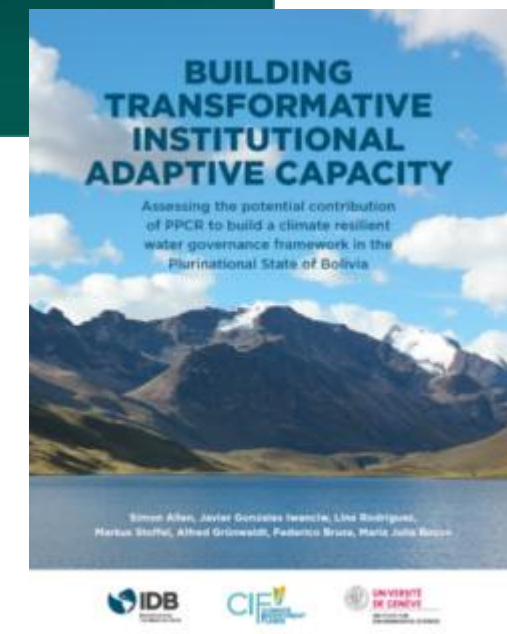
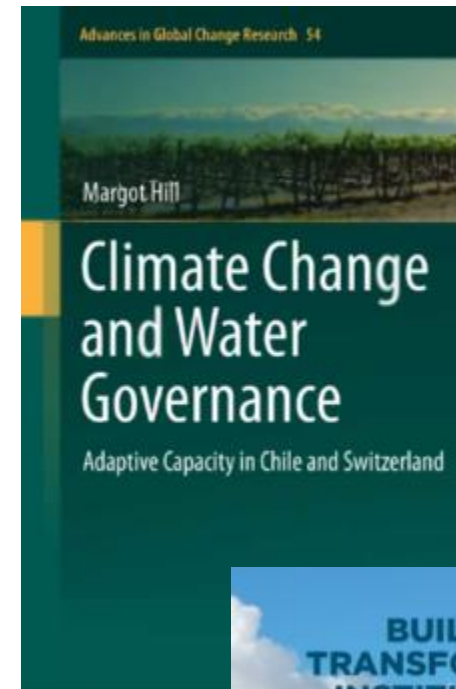
But....

What does adaptation look like in the water sector?

How can we **measure** it?

How can water **governance** facilitate the building of adaptive capacity?

- These were core questions addressed by ACQWA, but are also of high importance to IADB, World Bank, and other agencies supporting adaptation projects in the water sector.
- This led to an exciting opportunity to transfer an assessment approach developed within academic research to serve the needs of development banks.



2) Aims and objectives of the study

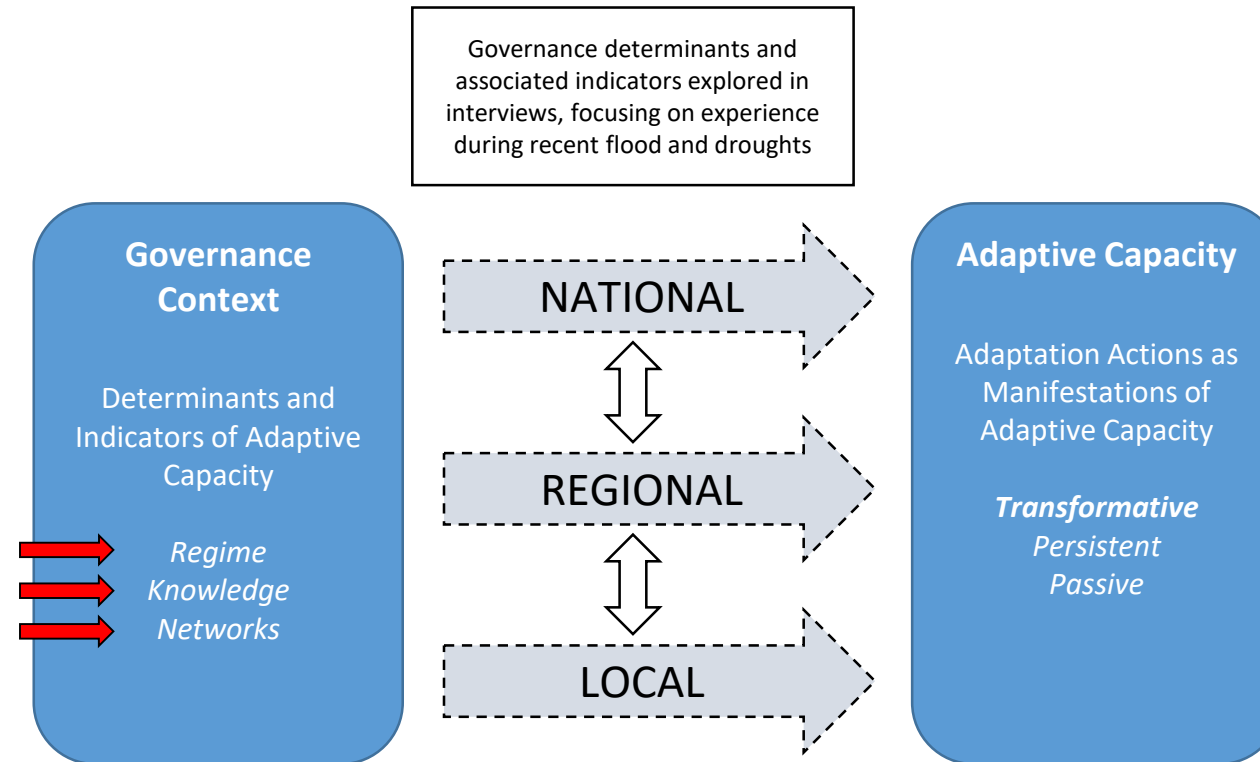
Assess the potential for building transformative institutional adaptive capacity in the Bolivian water sector.

Research questions:

- How do existing governance processes in Bolivia **facilitate** adaptive capacity in the water sector?
- What are the main **difficulties** to building adaptive capacity across different scales, and how might these be **overcome**?
- What is the **potential** for adaptation programs to influence water governance processes and achieve **transformative** change?

Learning from past experience with droughts & floods to maximize the success of program interventions in the water sector

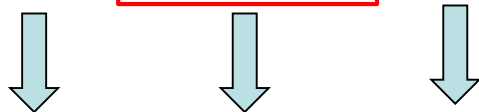
3) Assessment framework



- Regime: Rules, policy, legal, regulatory and water rights, finances.
- Knowledge: Information and technological inputs into a governance system.
- Networks: The way in which stakeholders interact and cooperate.

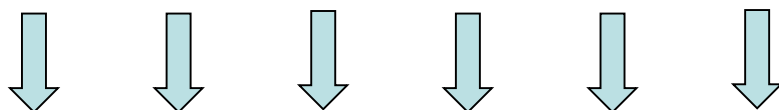
Determinants of Adaptive Capacity

Regime, Knowledge, Networks



Indicators

(What we can measure)



Criteria

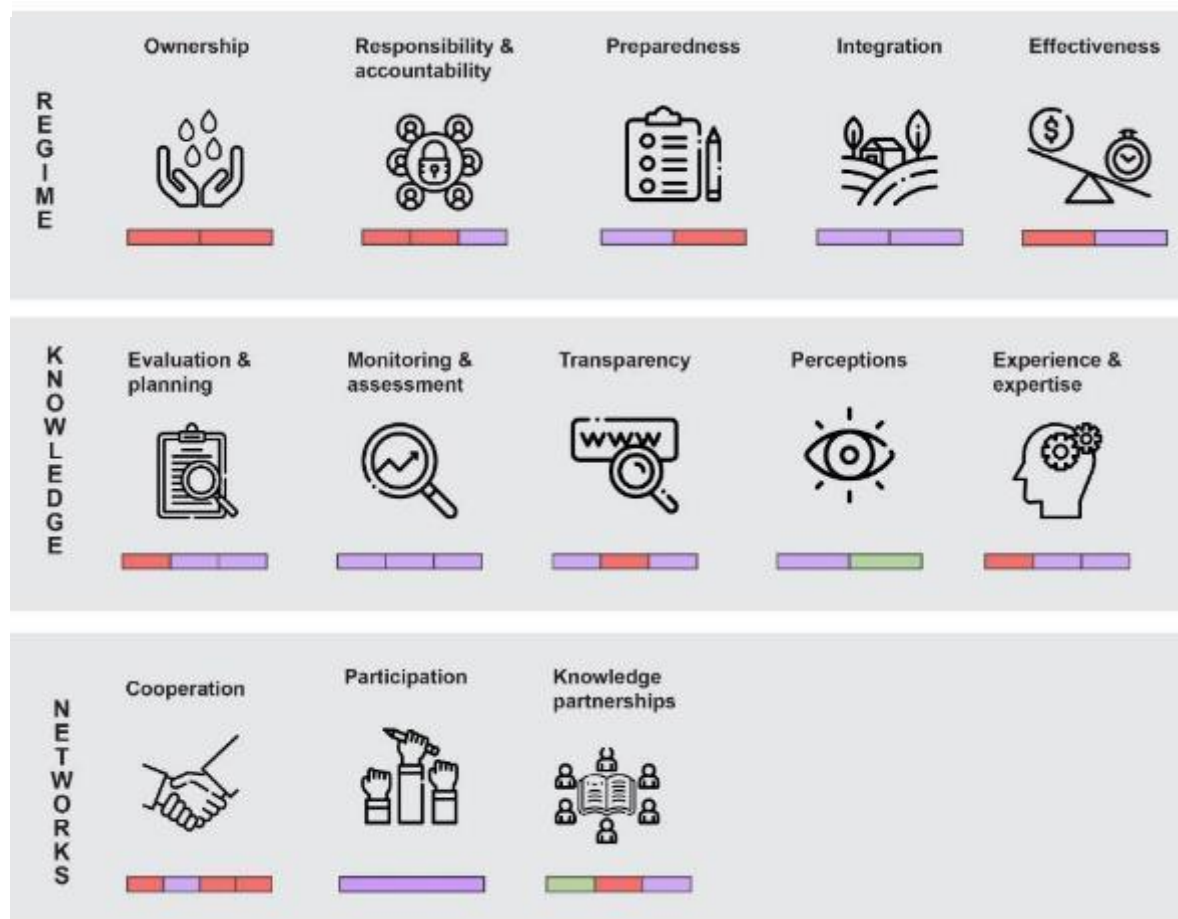
(How we measure/classify)

How information feeds into the governance system and is made available for decision making.

- Evaluation & Planning
 - Transparency
 - Perceptions
 - Experience and Expertise
 - Monitoring & Assessment
-
- ✓ Consistency of data and methods
 - ✓ Diversity of inputs to decision making
 - ✓ Coverage of the monitoring network

 - ✓ Awareness of climate impacts
 - ✓ Openness to learning and new ideas

Indicators used in this study:



CIF Arenas of Intervention:



Financing



Institutions



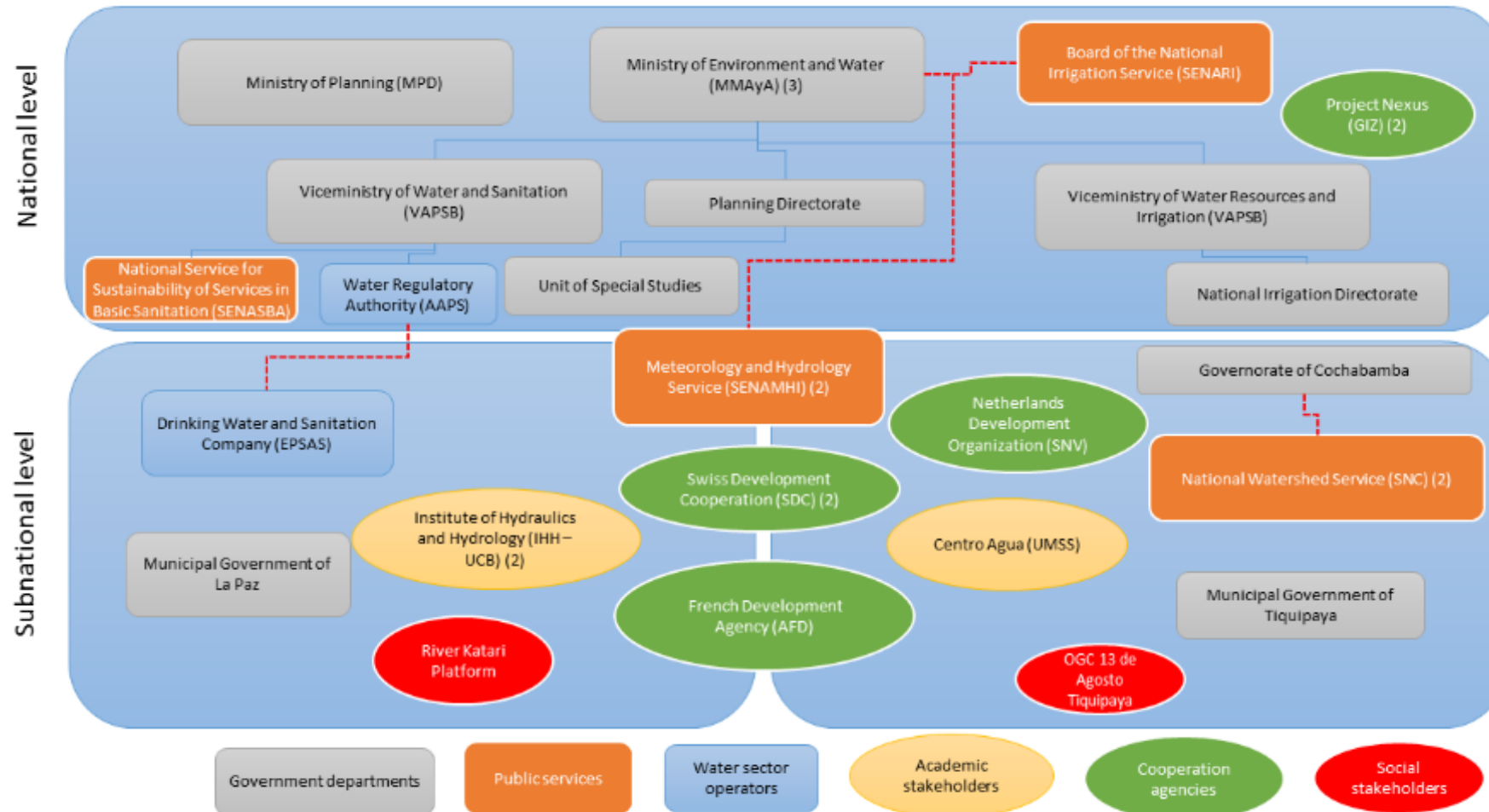
Policies

4) Methodologic steps

Application of the assessment framework to extract lessons from the 2016/17 drought, and 2017/18 flooding:

- **Refine** and fine-tune the determinants, indicators and criteria used in the assessment framework.
- Identify key **stakeholders** who will be interviewed (up to 30).
- Conduct interviews using standardized **questionnaire** during field survey.
- Qualitative data **analyses** based on transcribed interviews.
- **Reporting** and recommendations.
- Multiple rounds of **stakeholder exchange** and discussion (La Paz).

Stakeholder mapping



Questionnaire:

- Participants included a range of water governance stakeholders and experts from national – regional – local scales.
- Included government representatives, NGO's, private actors and water users, and academic experts.
- Semi-structured **open-ended** interview lasting up to around 45 minutes.
- All responses were **confidential**.



La Paz, extreme drought of 2016/17



Cochabamba, extreme floods and mud flow of 2018

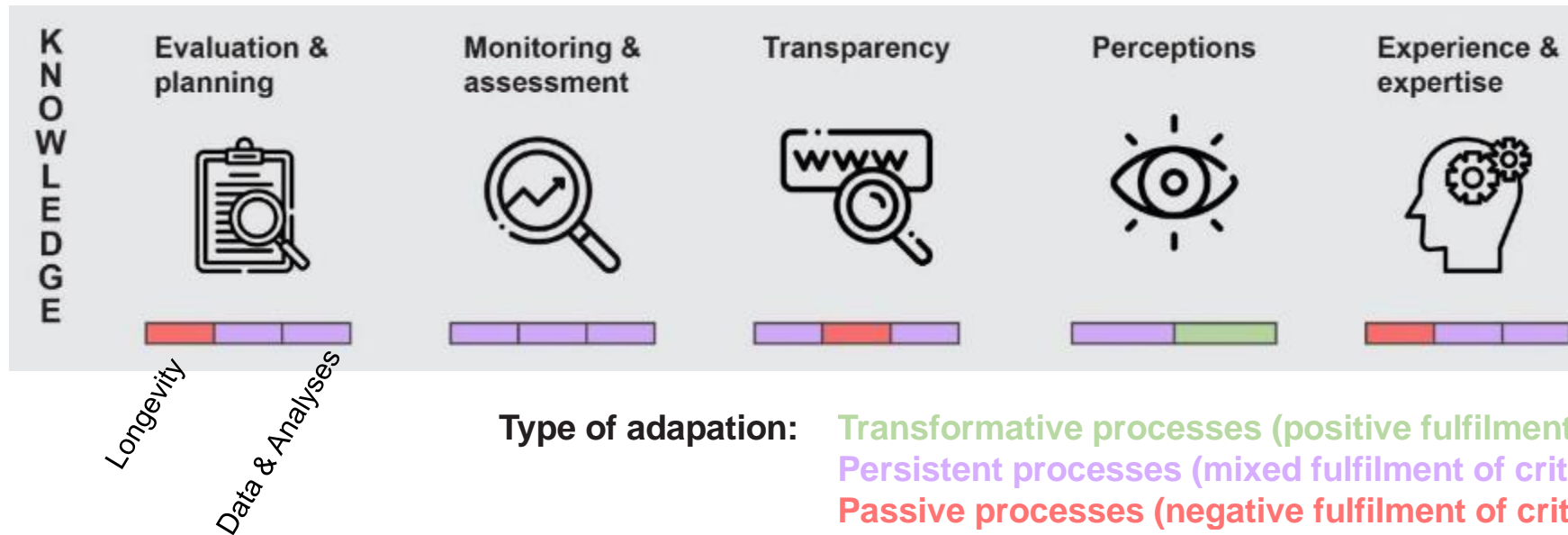
Example questions based on determinants and indicators:

Knowledge

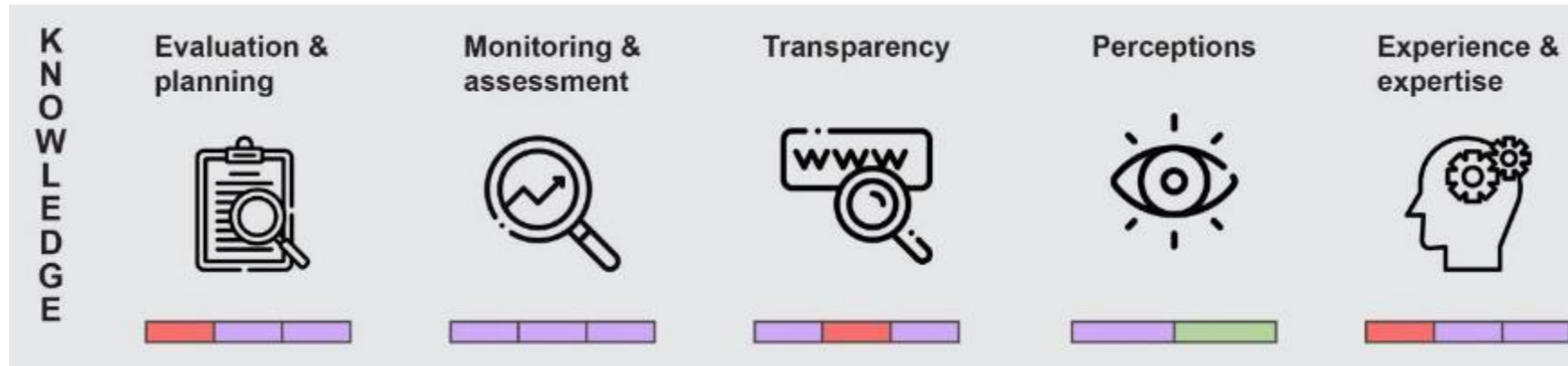
- **What** kind of technical or scientific information is used to manage water supply in your region?
- **How** do you access this information?
- Can you give examples of how this information was used to **manage** the extreme situation?
- Was this information **shared** across different groups? How?

Such information collected for all determinants (regime, knowledge, networks), built a picture of how governance is or is not facilitating adaptive capacity in the water sector.

5) Main results



- **Planning horizons** remain relatively short-term -> forward-looking transformative adaptation planning is not yet widely evident.
- There has been significant strengthening of **monitoring networks** (SENHAMI), but gaps exist on the water demand side.



Type of adaptation: **Transformative processes (positive fulfilment of criteria)**
Persistent processes (mixed fulfilment of criteria)
Passive processes (negative fulfilment of criteria)

- **Communication** between state and civil society has been seen as a weakness, particularly in the lead up to 2016/2017 drought (rather reactive).
- A positive outcome of the recent crises has been the improved **awareness** across all stakeholders, and an openness for learning and altered behavioural thinking.



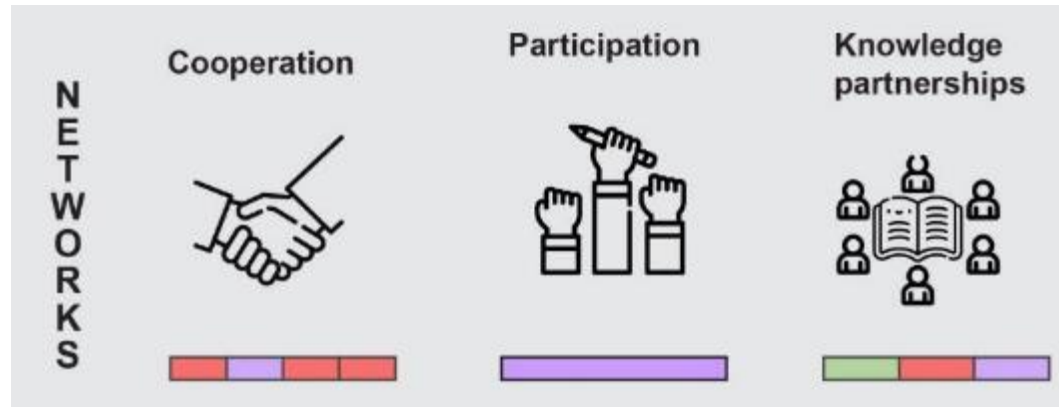
Type of adaptation: **Transformative processes (positive fulfilment of criteria)**
Persistent processes (mixed fulfilment of criteria)
Passive processes (negative fulfilment of criteria)

- Unsuccessful efforts to update the **water law** remain a challenge for long-term planning, and prioritisation during extreme events.
- The challenge for the governance system is to balance the distribution of water rights for different users on the one hand, but in case of extreme events, remain **flexible** enough to allow for short-term redistribution.



Type of adaptation: **Transformative processes (positive fulfilment of criteria)**
Persistent processes (mixed fulfilment of criteria)
Passive processes (negative fulfilment of criteria)

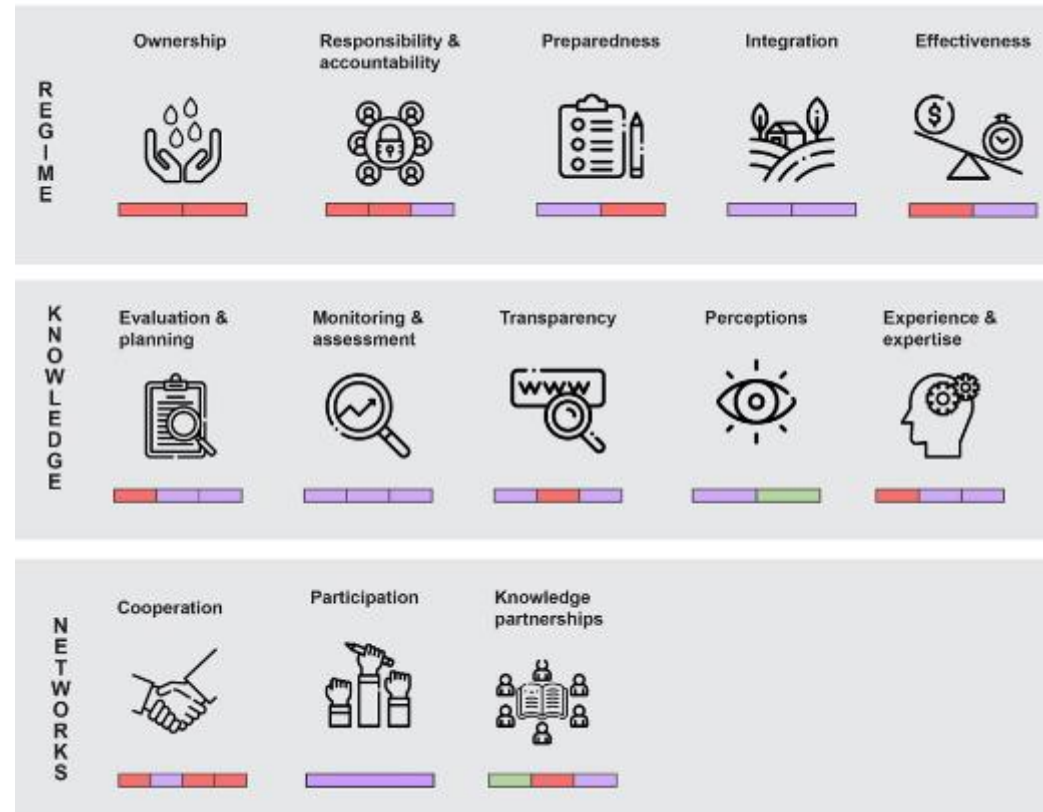
- Response to recent crises is considered to have been more **reactive**, rather than proactive.
- At micro-basin level, integrated watershed management plans are being implemented, building on high levels of **ownership** and **responsibility** that local communities have demonstrated.



Type of adaptation: **Transformative processes (positive fulfilment of criteria)**
Persistent processes (mixed fulfilment of criteria)
Passive processes (negative fulfilment of criteria)


- Some sectors not engaging in **negotiations**. At micro-basin level, differing perspectives between communities living upstream and downstream.
- There has been **learning**, but this has occurred in an adhoc fashion, rather than through any established networks or platforms.

- The evidence is predominantly **mixed** -> limited evidence for transformative processes.
- Identified weaknesses in the governance system are being addressed through programs such as PPCR. Focus on information systems, monitoring, early warning, and strengthened technical and institutional capacities.
- Core barriers are evident, and adaptation processes are characterized primarily as examples of persistent (**incremental**) change, often in response to recent drought and flood crises.



6) Recommendations

- 17 concrete recommendations have been given, where there are opportunities for programs to be expanded/adjusted, to **enhance transformative change** in the Bolivian water sector.
- Recommendations are all based on underlying **case evidence** (from the interviews), and aligned to the challenges and opportunities identified.
- Within the broader context of the CIF TCLP, recommendations are aligned with the Dimensions for Transformation and Arenas of Intervention.

CIF Arena of Intervention	How the PPCR aims to contribute?	What adjustments could strengthen the contribution of PPCR in Bolivia?	Dimensions for transformation
Financing 	Resettlement plan for flooded land, including payment and compensation mechanisms.	Ensuring that financial plans are in place to support long-term sustainability of adaptation responses established under PPCR; Platforms, projects, risk reductions strategies (flood protection, early warning), and other infrastructure require ongoing maintenance and support programs.	<ul style="list-style-type: none"> • Relevance • Sustainability

a) Challenges in long term planning

- **Integration of climate scenarios into planning:** Training in the use of climate scenarios, with an emphasis on decision-making in the face of often large uncertainties, e.g., irrigations systems, reservoirs, flood defence systems.
- **Low-regret adaptation options:** The creation of green-spaces in high risk land areas. Current regulatory efforts to maintain river zone security in Tiquipaya goes in the desired direction, and can be upscaled.
- **Sustainability of technical resources:** Institutionalisation of existing capacity building programmes to ensure longevity.

b) Challenges in governance across sectors

- **Establishing intersectoral development objectives:** Strategic pilot projects where outcomes are targeted towards overall sustainable development objectives, focusing on improved livelihoods, eco-system productivity, and health. Demonstrating how investments can be framed in the context of sustainable development.
- **Tools for intersectoral planning:** Support the development of tools or platforms that integrate information on socio-economic dimensions, environmental degradation and vulnerability of ecosystems into the planning process. Tailoring of tools to better support cross-sectoral development projects and the objectives.

c) Challenges in hydro-meteorological and climate services

- **Tailoring of data to sectoral needs:** End-users should be heavily consulted in the design of the data and information portals. Less can be more, with stakeholders identifying the need for a clear set of simple indicators that can be used as a basis for issuing flood and drought alerts.
- **Establishing a national research agenda:** Formalize linkages between the state and local universities, through the establishment of prioritised national research programs. Interventions that strengthen national research capacities can be seen as long-term, transformative investments.
- **Integration of traditional knowledge:** Strengthening joint-knowledge production, where local communities shift from being benefactors of the proposed interventions, to increasing being seen as active participants in the solution.

d) Challenges in building knowledge and awareness

- **Establishing water as a resource:** Education and awareness programs to change how society views water, such that water is valued as a resource that is to be protected and cared for, rather than simply as a commodity provided by the state. Generating ownership of the resource!

Goal 6 of the United Nation's 2030 Agenda, seeking to *“support and strengthen the participation of local communities in improving water and sanitation management”*



Lake
Titicaca


- **Changing risk perceptions:** Resettlement from flooded areas is about more than payment and compensation mechanisms. Needs to be supported with education and awareness around risks, risk maps, event probabilities, and the impact of climate change on these risks.



Proyecto
Glaciares,
Peru

7) Future perspectives and concluding remarks

- There has been **considerable progress** in Bolivia, with a range of programs that are addressing many of the important challenges and gaps evident in the process of building adaptive capacity across the water sector.
- There remains **significant opportunities** for programs and interventions to address barriers and build on existing progress in the Bolivian water sector to better facilitate the journey towards **transformative change**.
- Under CIF, **learnings** and **experiences** from this study have the potential to serve as a reference for assessment and the design of adaptation programs across **other countries** where climate change and water security threaten sustainable development.
- For outscaling and replication, times-scales need to be well planned to allow for the **local tailoring** and close stakeholder interactions required.

An aerial photograph of a large, deep blue lake, likely a reservoir, surrounded by rolling hills. The hills are covered in sparse, dry-looking vegetation, suggesting a semi-arid or high-altitude environment. The sky is a clear, pale blue with a few small, white clouds. The water in the lake is a vibrant blue, and a small boat is visible in the lower-left quadrant. The overall scene is peaceful and scenic.

Thanks to all involved in the project and we are looking forward to future discussions and opportunities to take this work further!

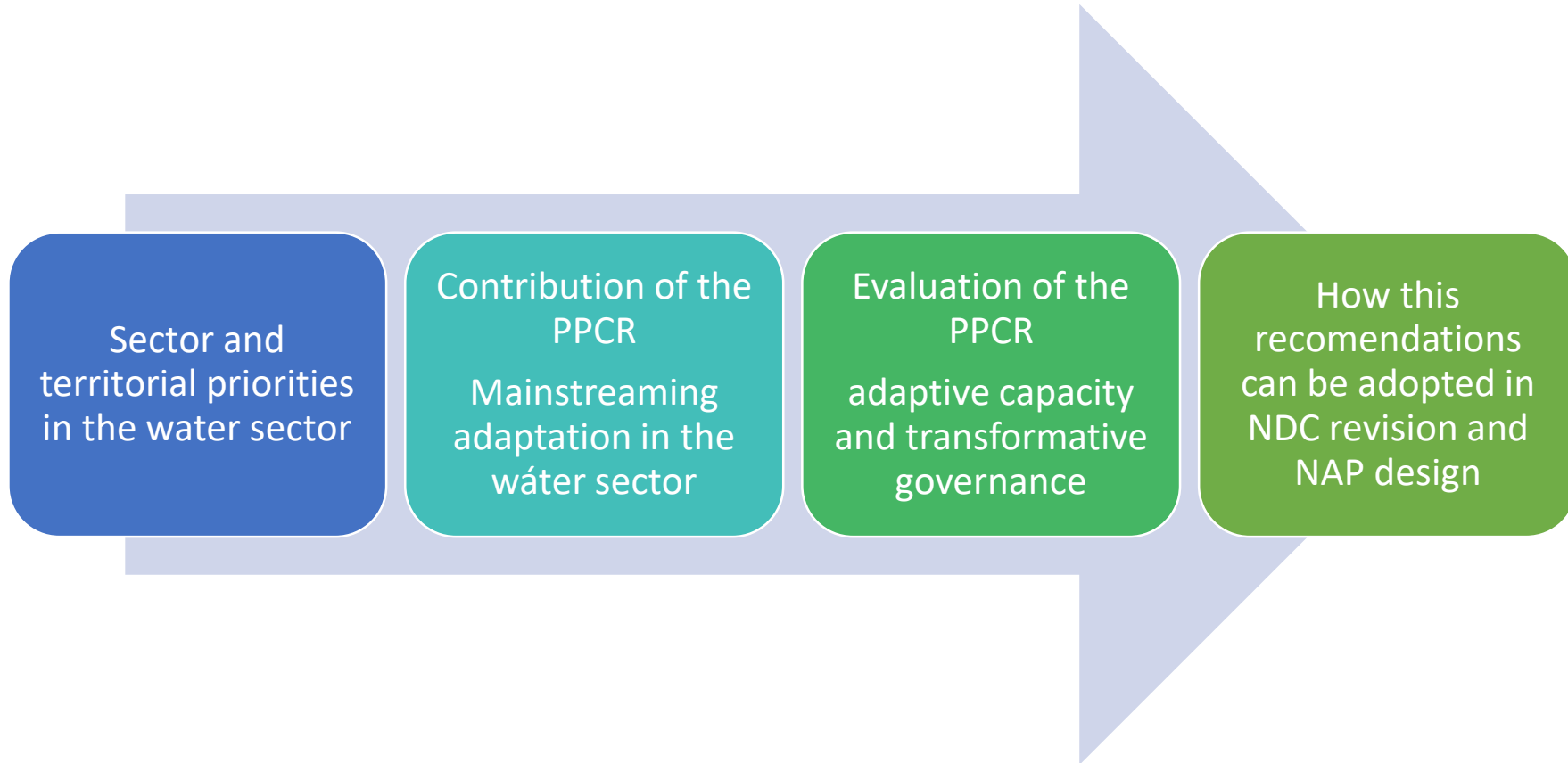


Implications of the study results for future water resource management policies in Bolivia

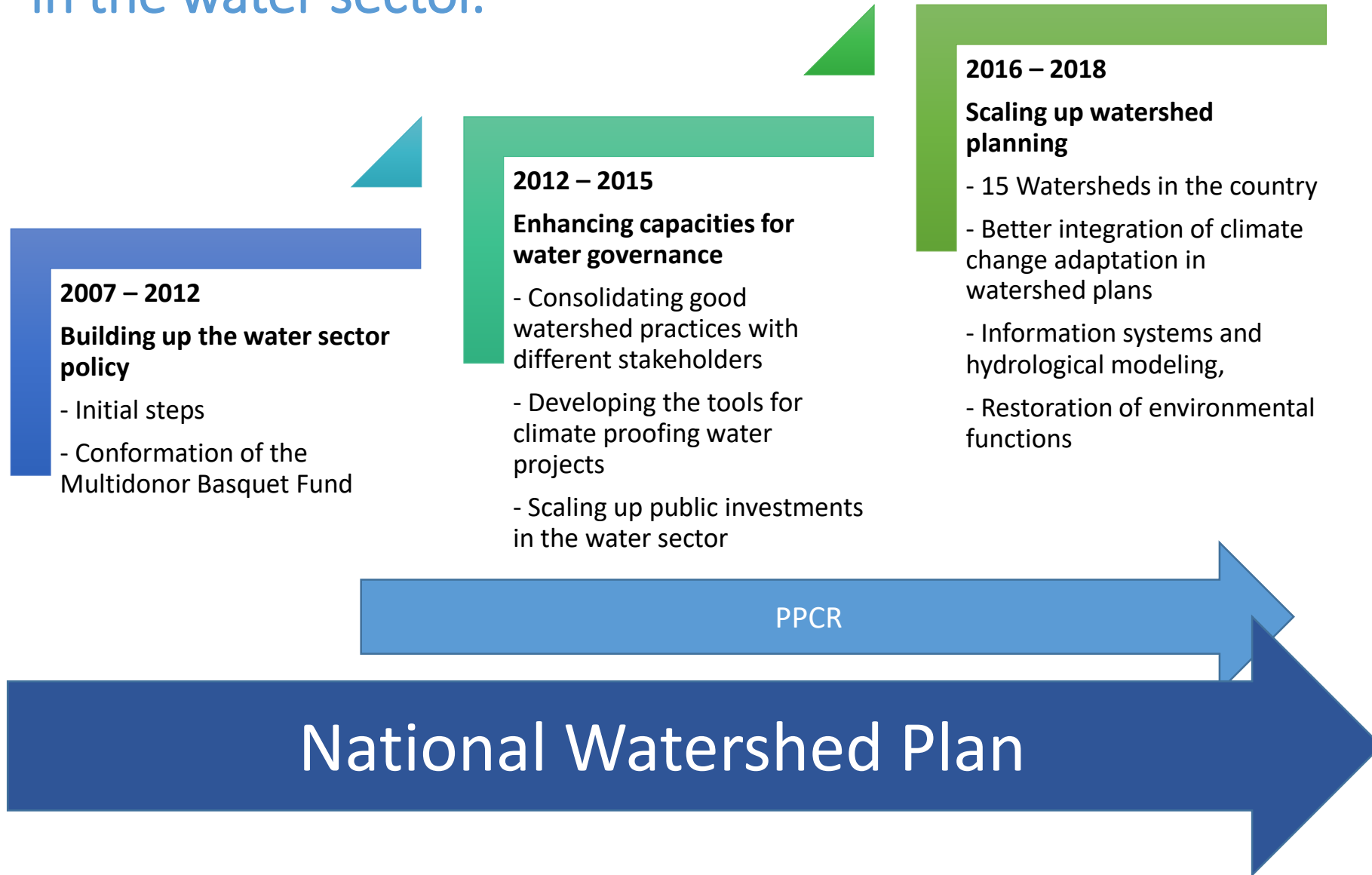
Joint CIF-IDB Webinar: Building Adaptive Capacity in the Water Sector under a Changing Climate (7 October 2020)

Javier Gonzales Iwanciw

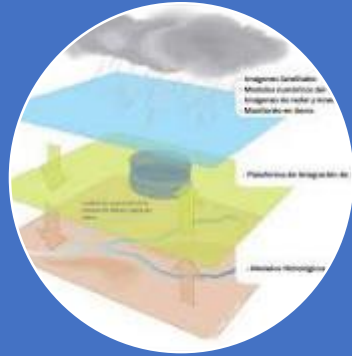
Outline



Mainstreaming climate change in the water sector.



PPCR Contribution



Component 1:
National capacities
for planning
adaptation



Component 2:
Water provision for
the La Paz – El Alto
city



Component 3:
Integrated
Watershed
Management in
river Grande



Mountain regions in Bolivia becoming dryer

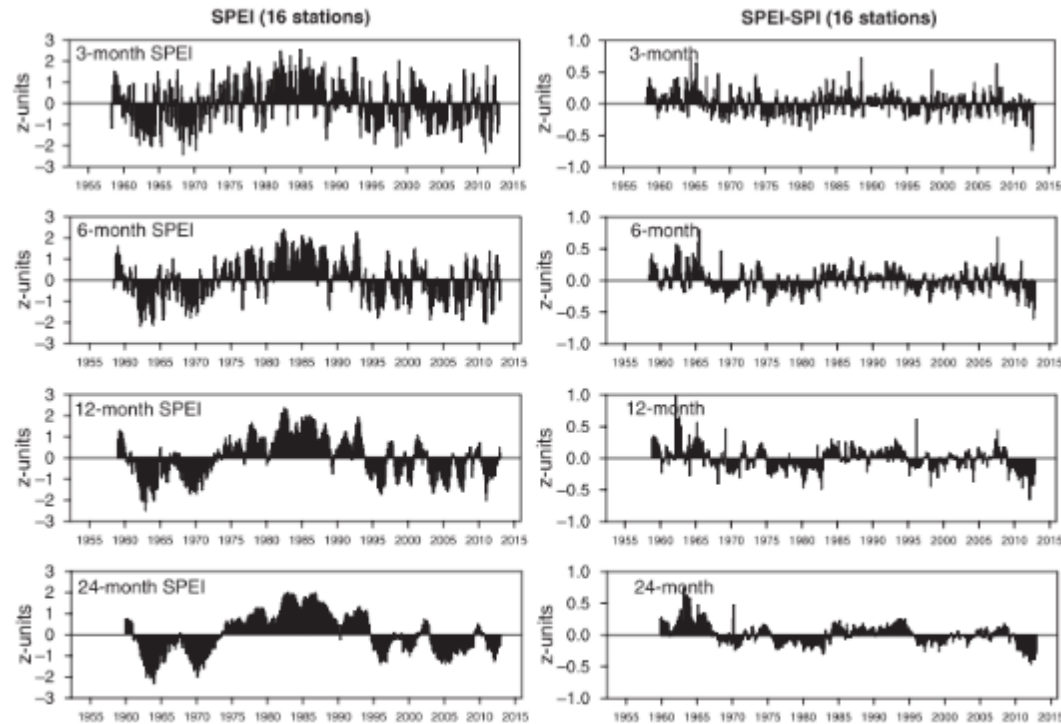
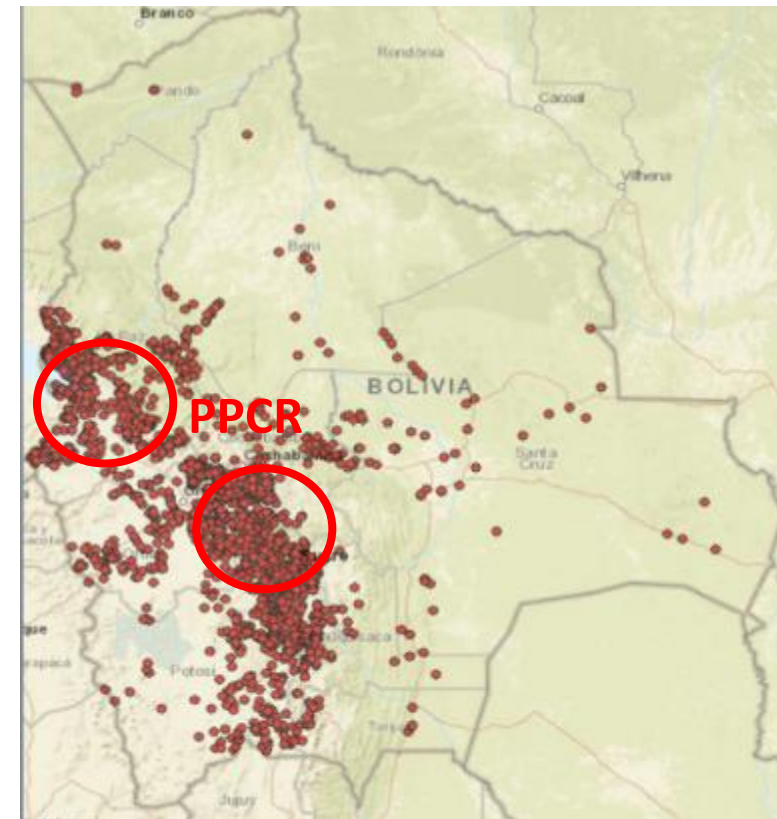


Figure 3. Evolution of the 3-, 6-, 12- and 24-month SPI and SPEI from the regional series for Bolivia. The difference between the mean SPI and SPEI series obtained from the same 16 stations is shown.

Poverty concentrates in mountain areas



Source> Vicente-Serrano et al. (2014). Spatio-temporal variability of droughts in Bolivia: 1955–2012

PPCR Contribution

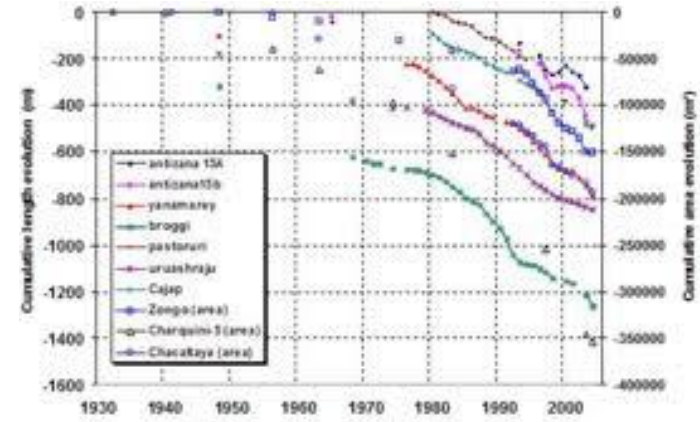
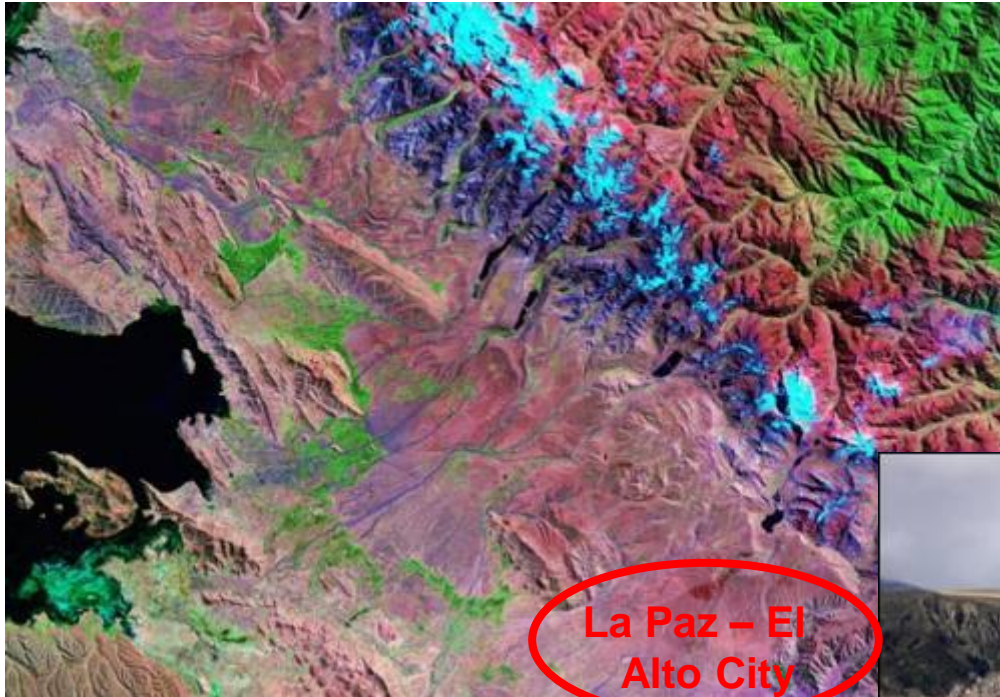


Figura 4. Evolución de la longitud y área de diez glaciares en los Andes Centrales
Fuente: RD, 98, SCSABH-Bolivia, INRENA, INAMHI, EMAAP-Q

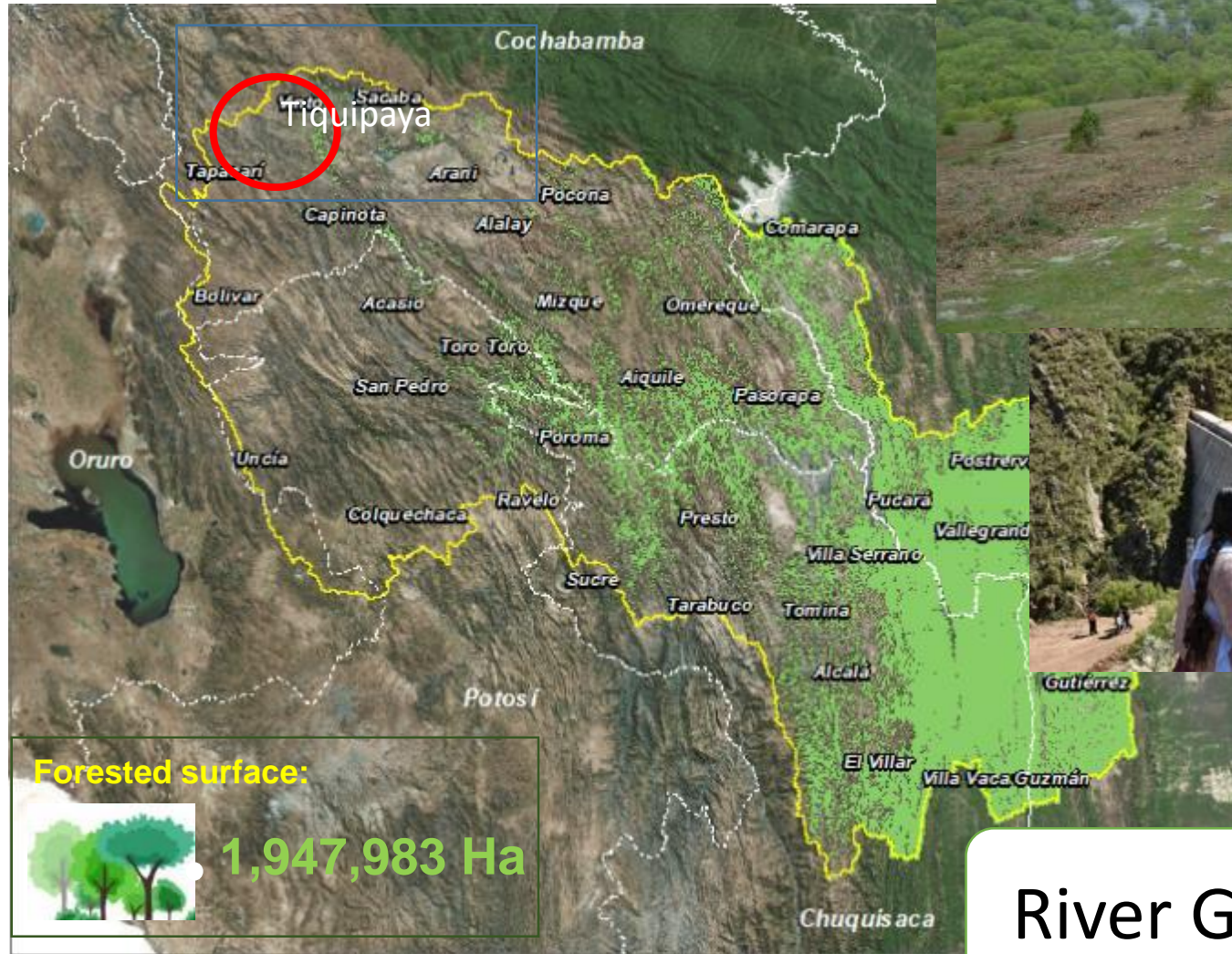


La tierra de la represa de Hampaturi esta totalmente seca. Foto: La Razón



La Paz – El Alto

PPCR Contribution



River Grande Basin

PPCR outputs

PPCR Technical Assistance in the water sector

Integration of
climate resilience
in water plans

Climate
proofing water
infrastrucuture

Identification of
performance
indicators

Information Hub
SNICA

Watershed
plans

Resilience of
water
provision
services

Law 602 of
DRR

Results
based
management

Hidrological
models

Drought
forecasting and
early warning
system

Climate
proofing
critical
infrastructure

Towards transformative adaptive capacity in the water sector



BRIDGES

- Improved awareness and priority setting around climate change issues
- Enhancements in meteorological and climate facilities
- Integration of climate change in planning efforts
- Progress in intersectoral planning
- Improved technical and institutional capacities
- Improved water saving efforts
- Greater participation of civil society

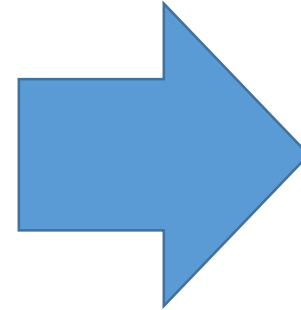
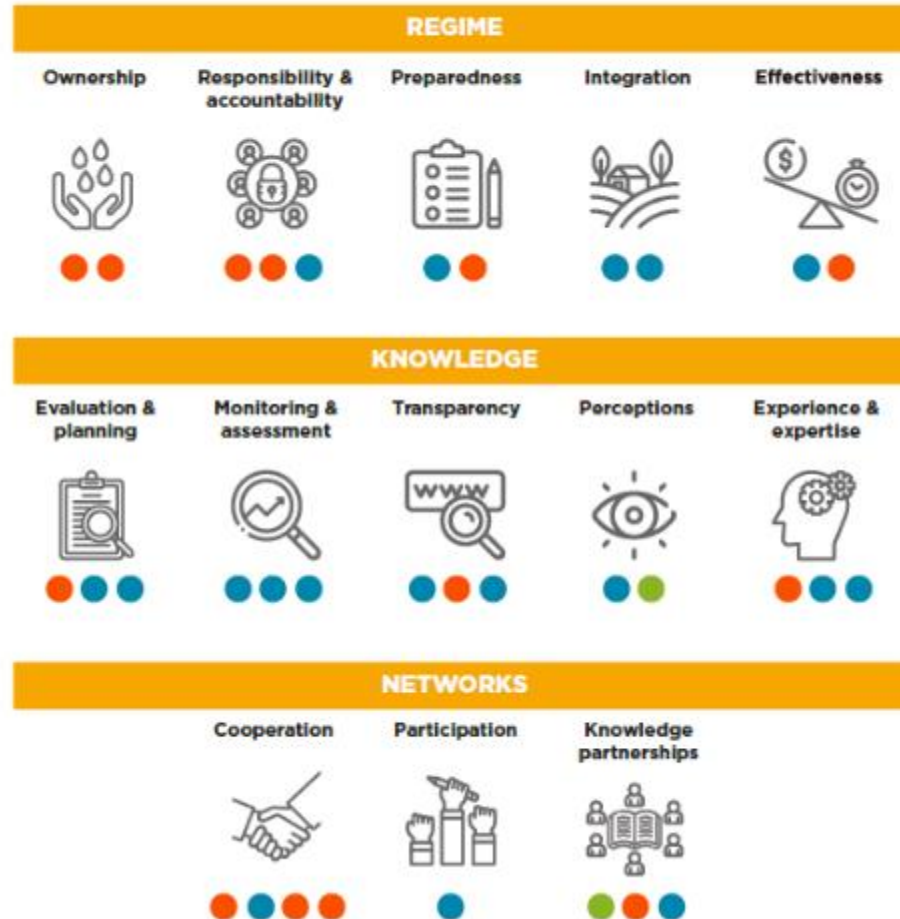


BARRIERS

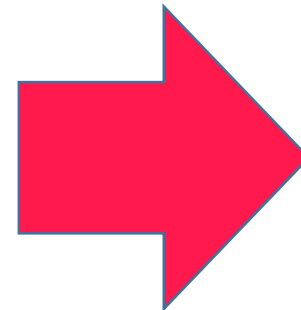
- Constraints for capturing and assimilating lessons
- Technical capacities and staff limitations
- Weakness in meteorological and climate services
- Difficulties for long-term planning and climate change integration
- Limitations in intersectoral coordination
- Challenges in preparatory and contingency planning
- Lack of knowledge and information across broader segments of society
- Weaknesses in irrigation systems
- Difficulties for territorial planning

Towards transformative adaptive capacity in the water sector

Figure 9. The types of adaptation processes currently active in the Bolivian water sectors, based on the classification of case evidence that has been reviewed according to the 13 indicators established under the assessment framework (based on detailed evidence presented in Table 5).

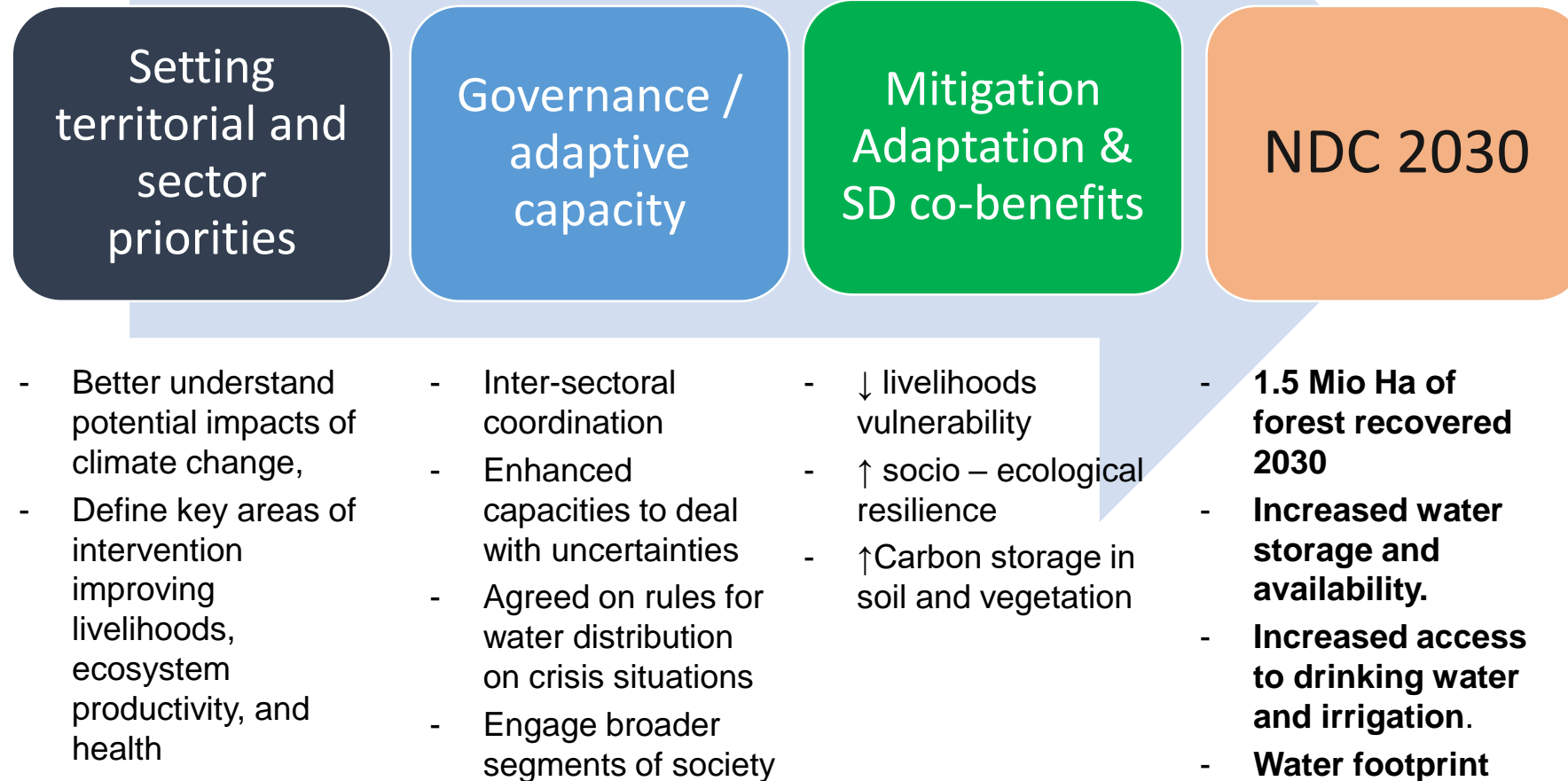


NDC:
Water, Energy, AFOLU, Cities

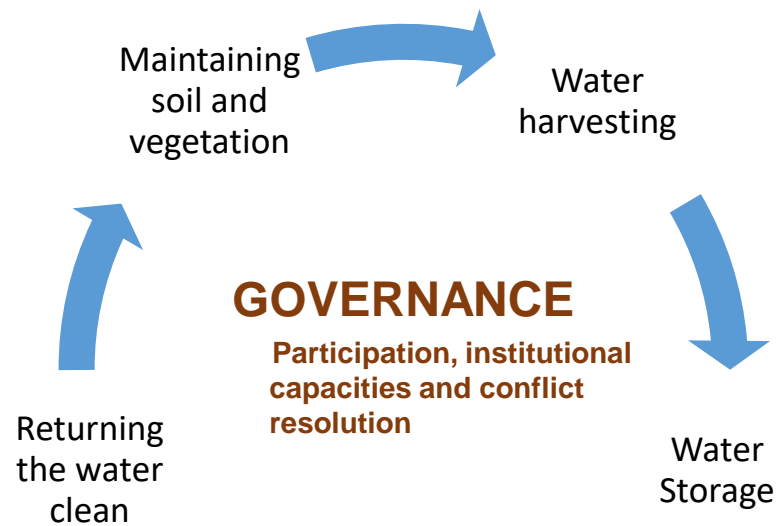


NAP:
Territorial and integrative approaches (EbA, Smart cities, climate Smart agriculture)
Sectors: Water, Agriculture, Human Health

Main recommendations for adaptive capacity in the water sector



The Integrated Water management (IWM) concept in practice



Outcomes:

- Ecosystem robustness - Resilient livelihoods – Empowered communities and institutions
- Water security and better nutrition
- Wellbeing & happiness

Source: Integrated Water Management Project,
Swiss Development Cooperation

I will appreciate your comments and questions!!

Javier Gonzales Iwanciw

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Universidad Nur

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Q&A and Discussion

Please share any questions/thoughts in the chat function





Thank you for taking part in the webinar!

For any questions, please contact
Loreta lruf@worldbank.org or
Hanna hschweitzer@worldbank.org

