



BOLIVIA: STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE



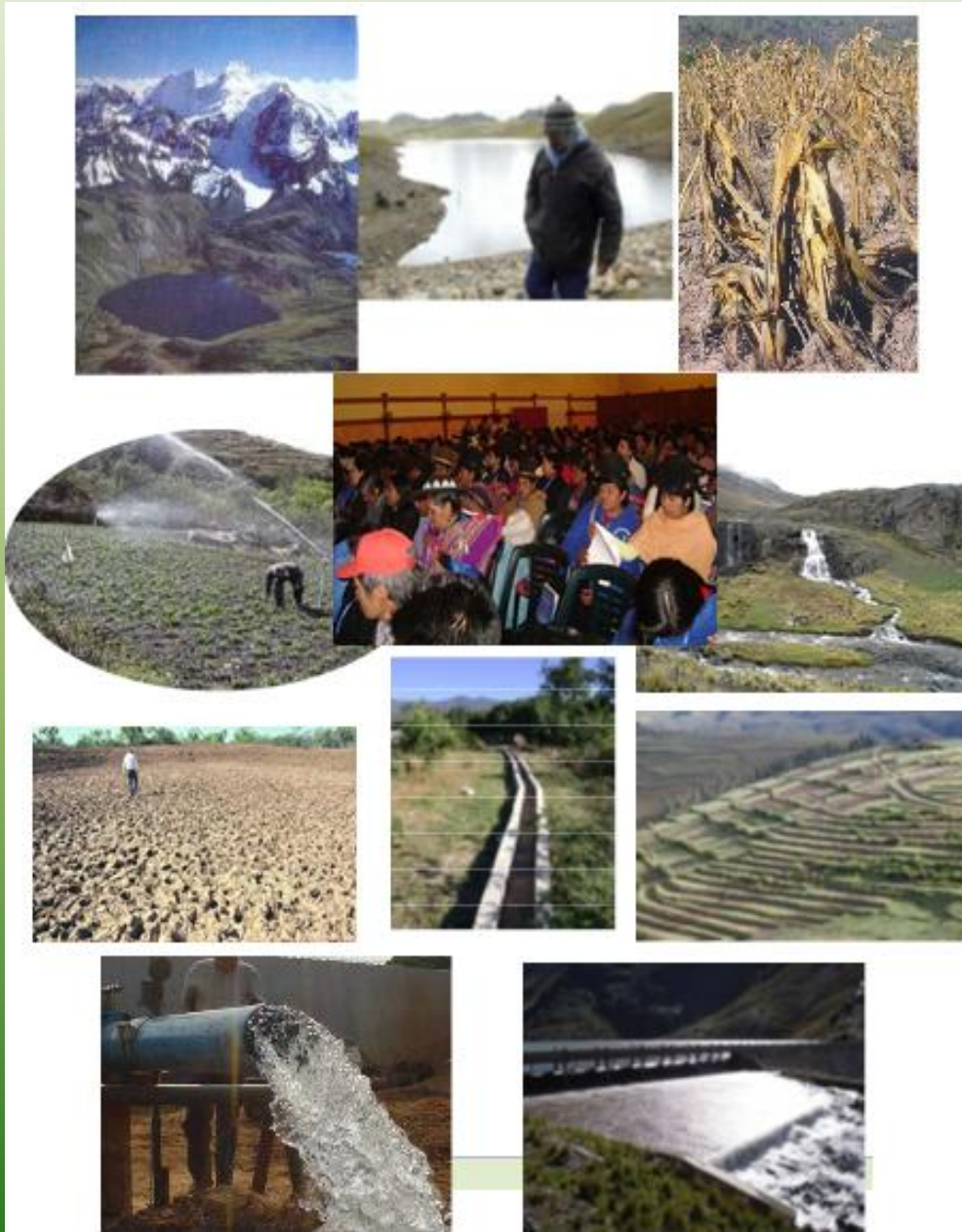
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Minister of
Development Planning

**PILOT PROGRAMME FOR
CLIMATE RESILIENCE (PPCR)**

CLIMATE INVESTMENT FUNDS

PRESENTATION TO THE PPCR SUB-
COMMITTEE MEETING

Washington, DC
November 2, 2011



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1. Regional and Country Context

The Andean Region

- Major continental water source
- High biodiversity
- Cultural diversity
- Geographic constraints for economic development
- High vulnerability to climate variability and change

Country	GDP per capita (US\$)	GDP growth rate (%)	Human Development Index	Gender Inequality Index
Perú	4.477	8.0	0.723	0.614
Ecuador	4.056	3.2	0.695	0.645
Colombia	5.416	4.3	0.689	0.658
Bolivia	1.720	4.2	0.643	0.672



BOLIVIA: SOCIO-ECONOMIC INDICATORS



Population, total (millions)	9,9
Population growth (annual %)	2
Indigenous people (% of total population)	62
Surface area (sq. km)	1.098.581
Life expectancy at birth, total (years)	66
Mortality rate, infant (per 1,000 live births)	42
GNI (current US\$) (billions)	18,9
GNI per capita, Atlas method (current US\$)	1.810
Unemployment, total (% of total labor force)	5
Public and Publicly Guaranteed (PPG) External Debt stock (% GNI)	13
Literacy rate, adult female (% of females ages 15 and above)	87
Literacy rate, adult male (% of males ages 15 and above)	95
CO ₂ emissions (metric tons per capita)	1

Bolivia: Development Context

Main economic axis:

La Paz – Cochabamba – Santa Cruz

Development Zones:

- North Amazon: forests products
- Mutún: Steel
- Tarija: Oil; vineyards
- Southeastern Highland: Lithium
- Potosi: Mining



Milestones of the National Development Plan 2006-2011:

- Nationalization of strategic industries
- State control over Strategic Natural Resources
- Social welfare programs (women, school youth, elderly)
- Alphabetization
- Elimination of all forms of colonialism

2009: Approval of the New Constitution of the Plurinational State of Bolivia:

- Recognition of 36 nationalities of native people
- Decolonization of the economy
- State control over Strategic Natural Resources
- Decentralization
- Water a fundamental human right
- Vivir Bien - “Living Well”

2010: Peoples Conference on Climate Change and the Rights of Mother Earth:

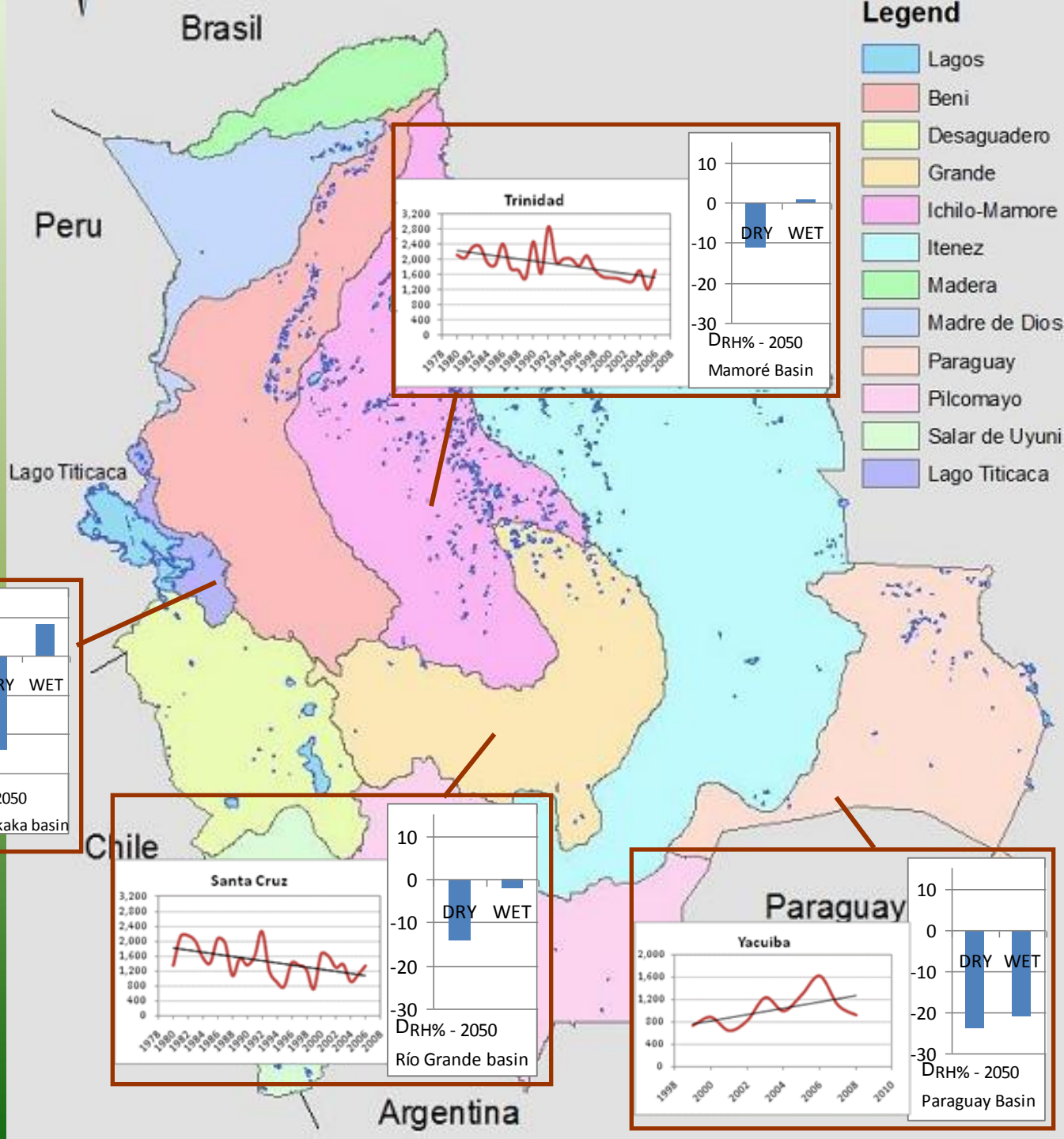
- Collective welfare in harmony with and respect for Mother Earth
- Complementarity, solidarity and equity
- Respect for the Rights of Mother Earth and Human Rights.

2. Climate Change

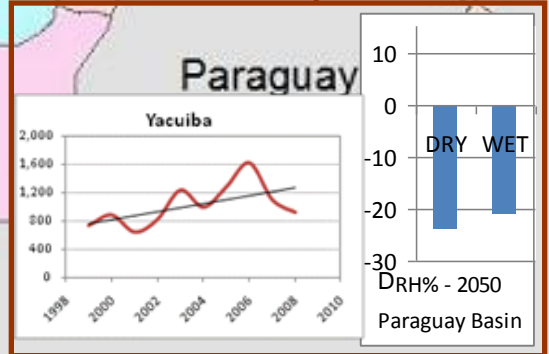
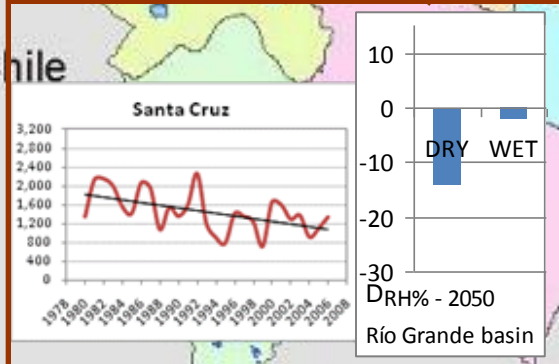
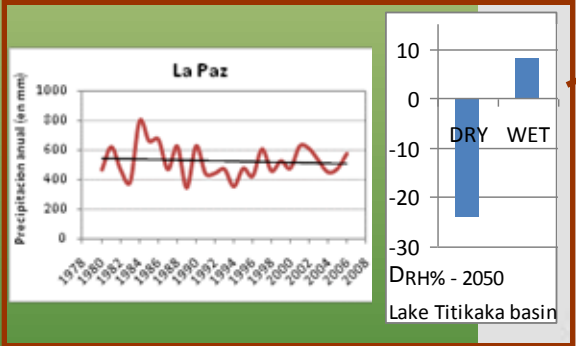
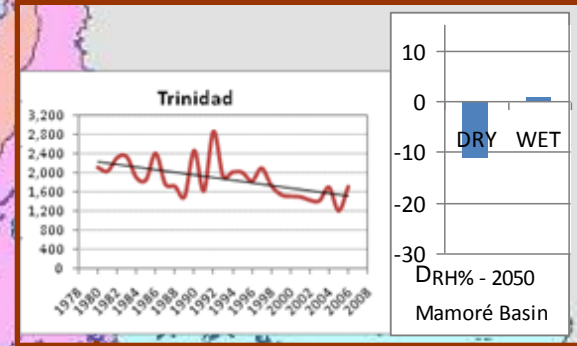
Climate trends:

*Precipitation 1978-2008:
heavier rainfall concentration in shorter periods

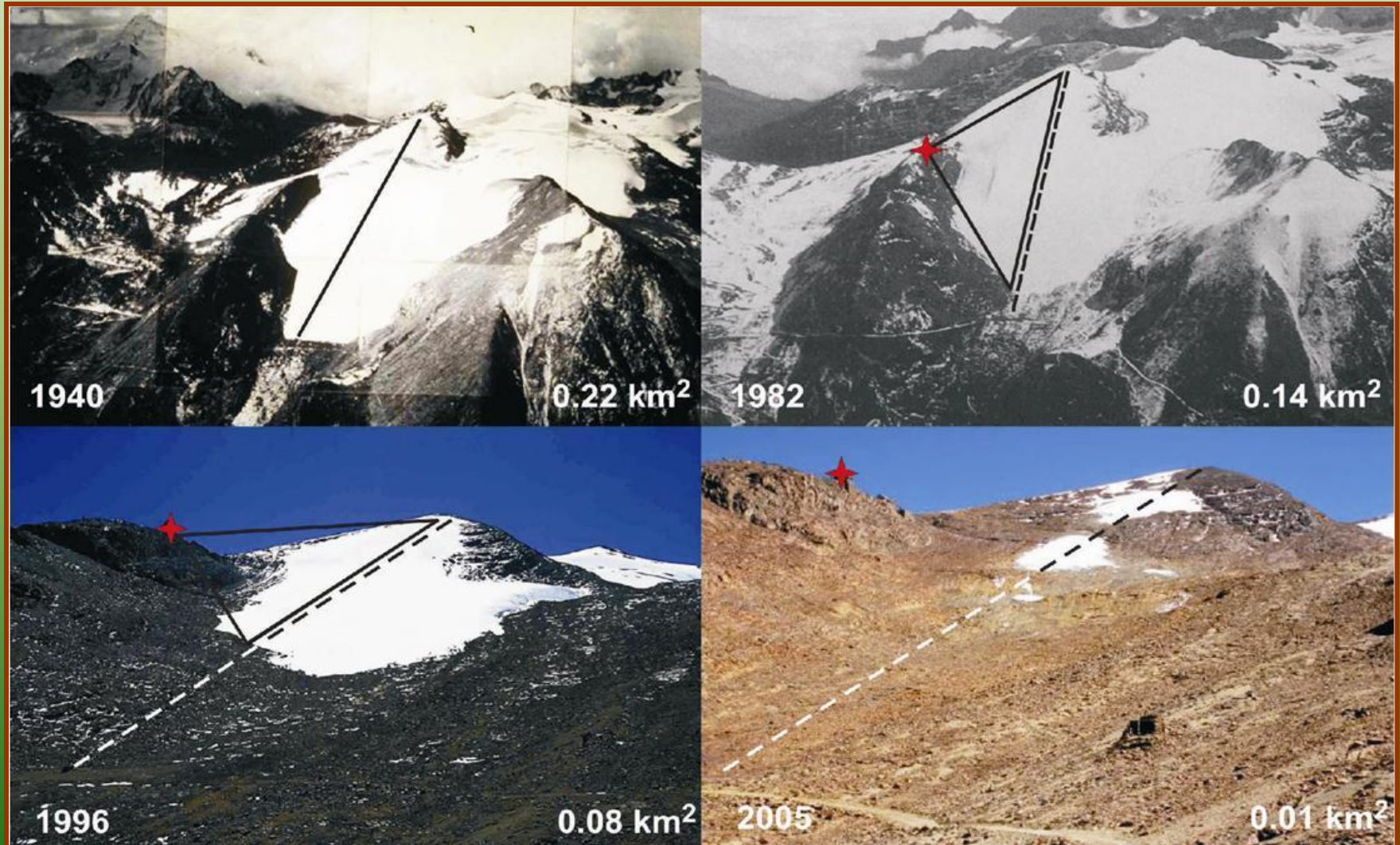
* Expected 2050 deficit in water balance at the basin level (%), both in wet and dry scenarios



- Legend**
- Lagos
 - Beni
 - Desaguadero
 - Grande
 - Ichilo-Mamore
 - Itenez
 - Madera
 - Madre de Dios
 - Paraguay
 - Pilcomayo
 - Salar de Uyuni
 - Lago Titicaca



Deglaciation: retreat of the Chacaltaya glacier (Titicaca Basin)



3. Vulnerability

Social and Economic Impacts in Water Resources due to Climate Change



La Paz, "Black February" 2002



Trinidad, La Niña - 2008

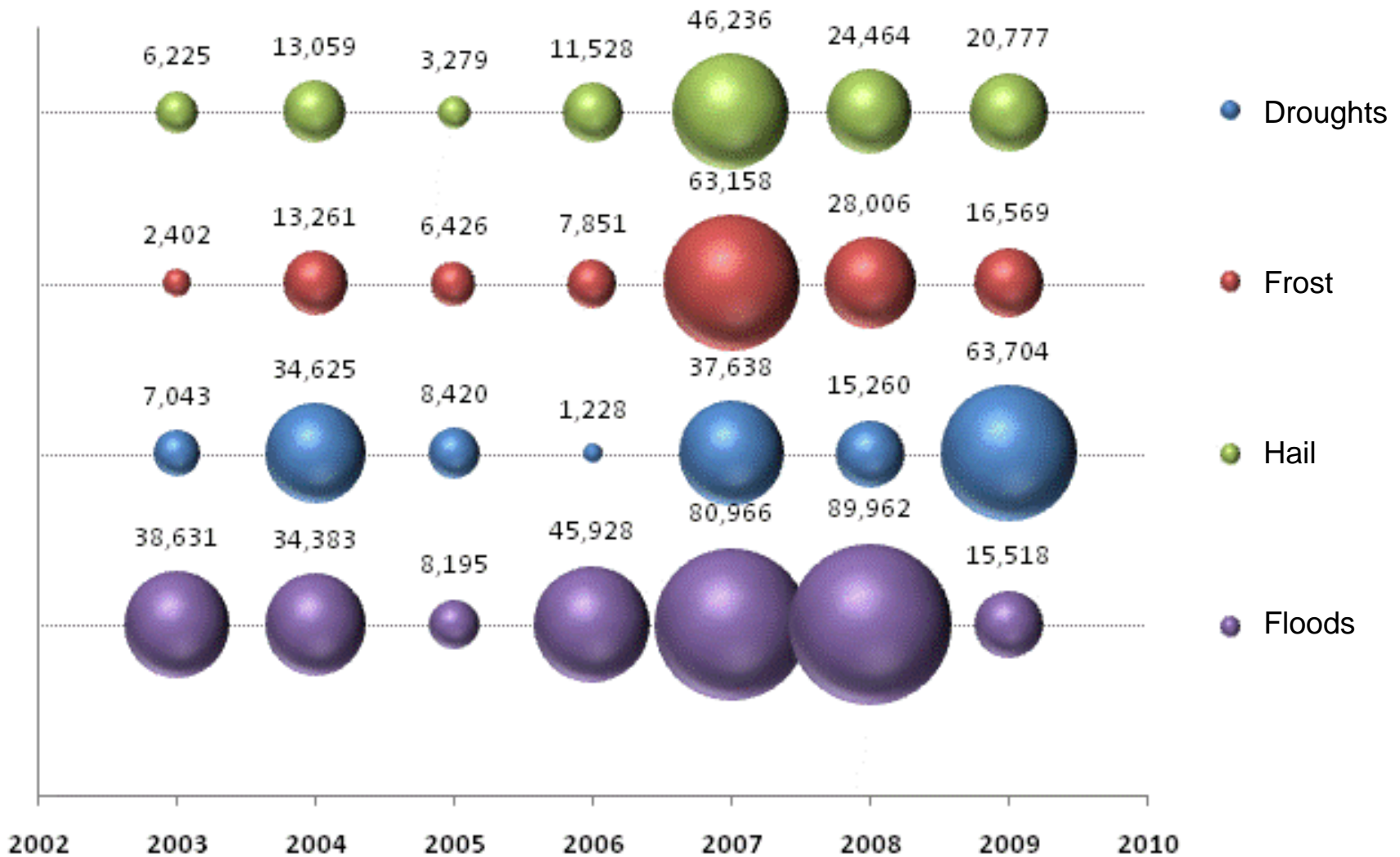


Cochabamba, drought 2010

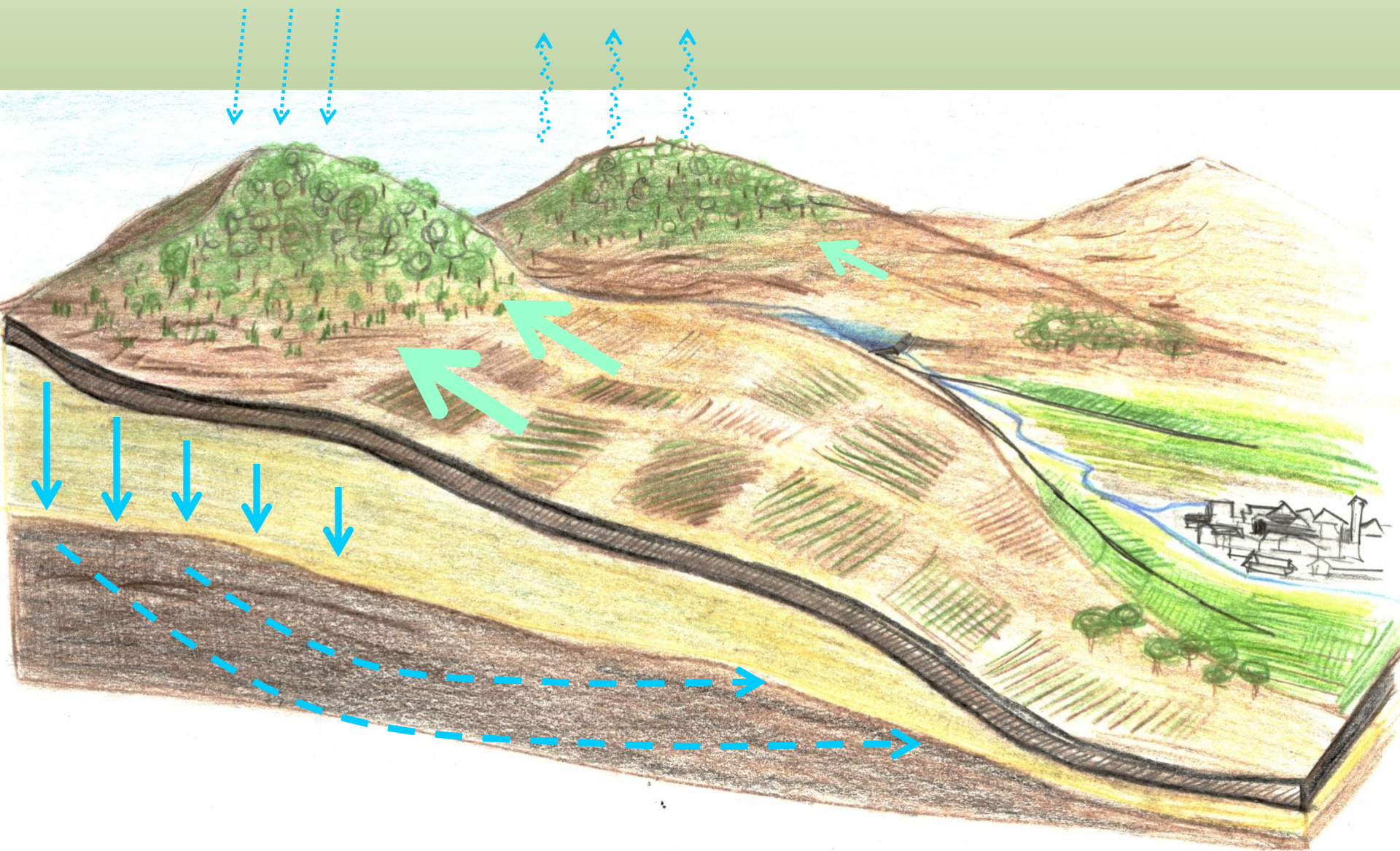


El Chaco, drought 2010

Numbers of families affected by natural disasters







4. Impacts and Responses

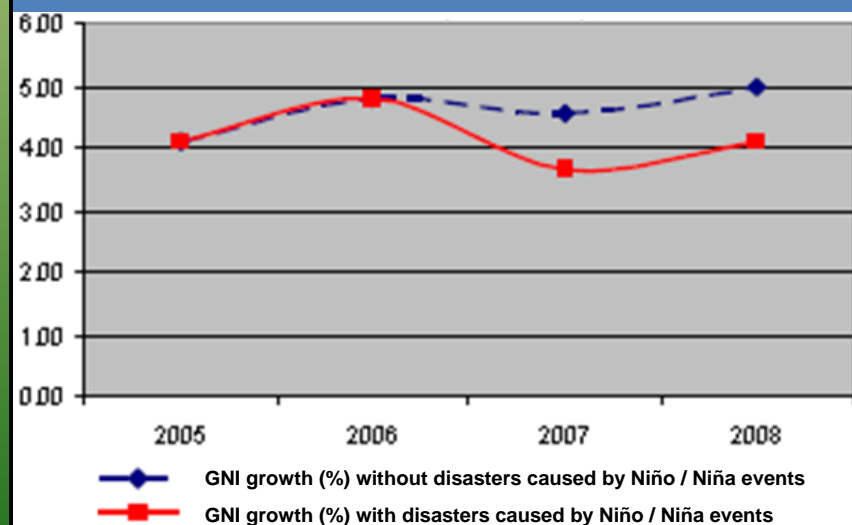
Santa Cruz: Rio Grande Basin Economic impact

Losses in soybean production due to flooding, Norte Integrado region

Year	production losses		economic loss (US\$)
	hectares	tons	
2004/05	8 000	14 400	42 997 000
2005/06	26 000	45 240	80 380 650
2006/07	93 000	175 770	111 737 850
2007/08	131 000	255 450	265 905 500
2008/09	10 000	19 800	54 313 600
2009/10	38 561	77 122	56 927 360
Mean annual loss	51 094	97 964	102 043 660



Evolution of GNI with and without disasters (2005-2008, CEPAL, 2008)



Impacts on vulnerable groups



Rural areas:

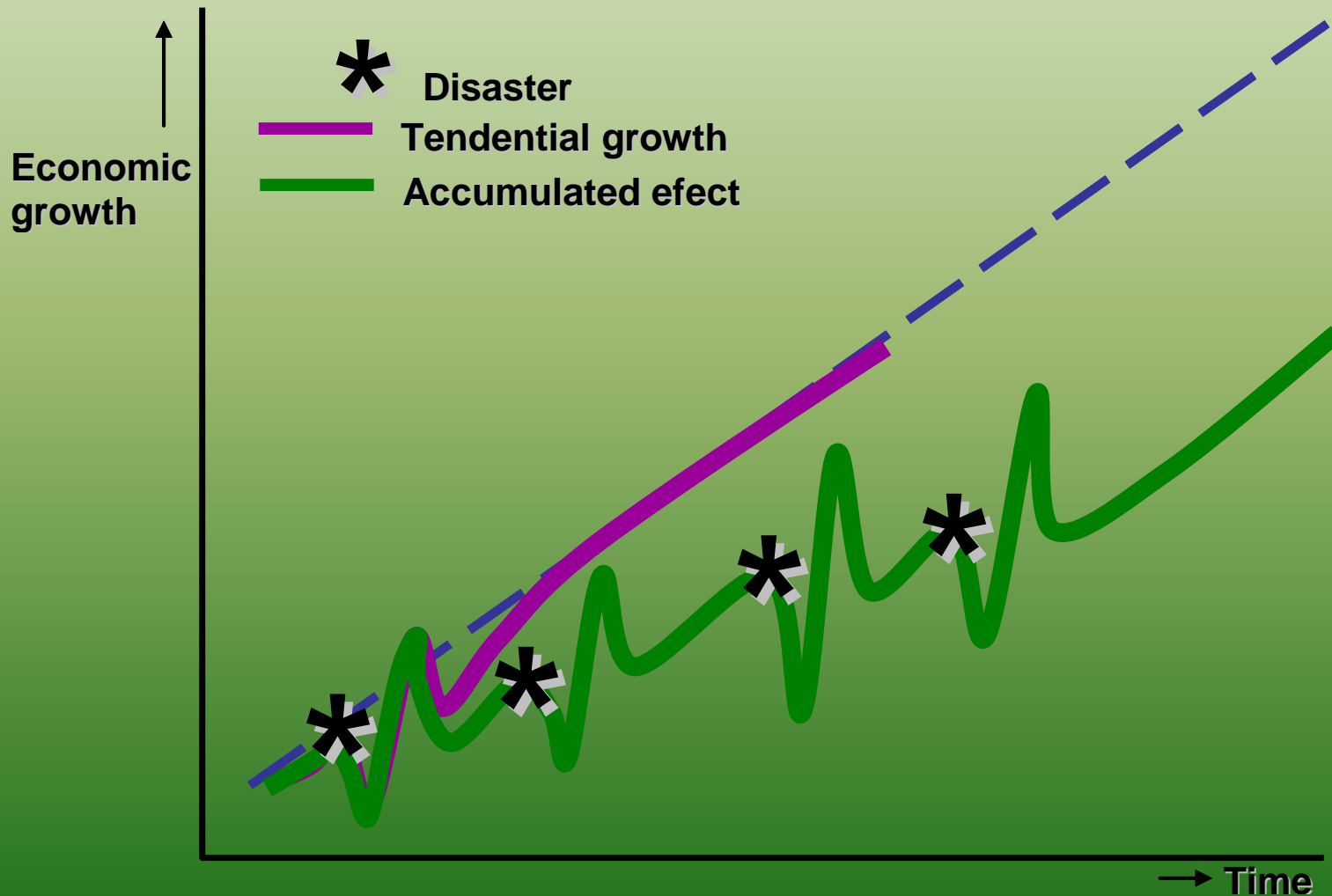
Rural – urban migration dominated by males leave rural settlements with predominantly female, children and elderly populations

Urban areas:

Accelerated urban growth and immigration create unprecedented urban problems and poverty

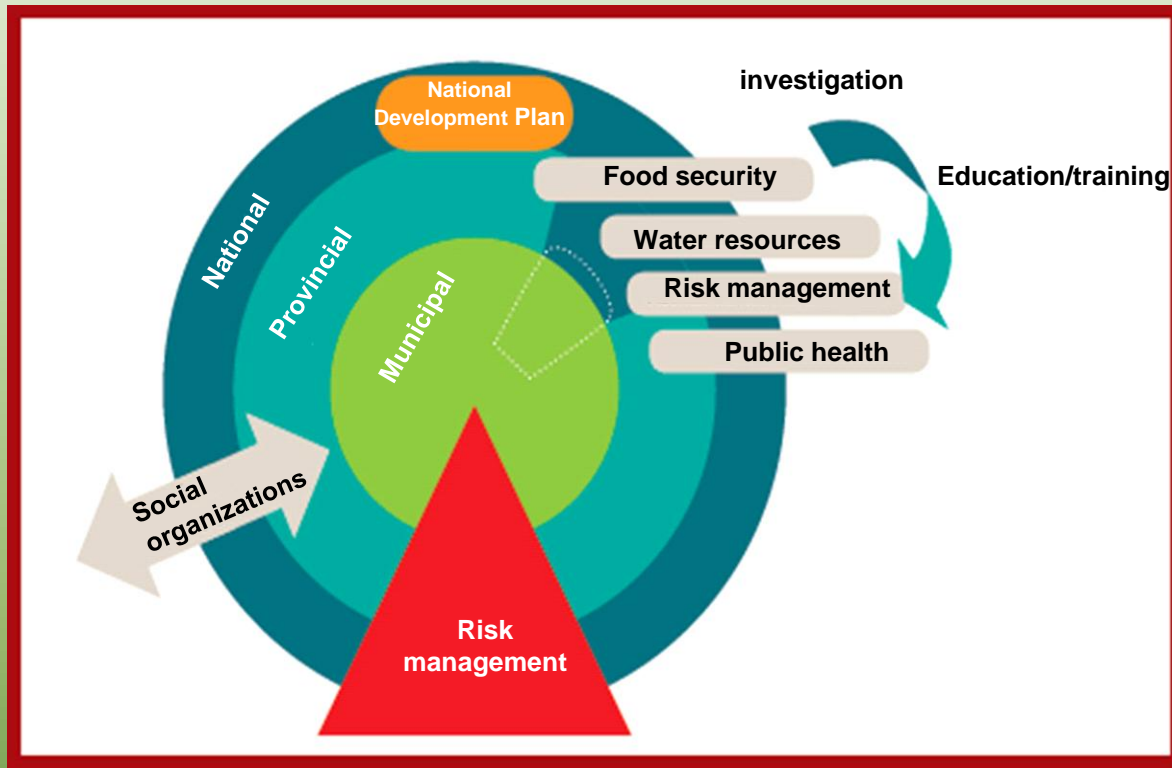


Economic impact of a succession of disastrous events (according to CEPAL - evaluation misión of El Niño 2006-2007 impacts)



INSTITUTIONAL RESPONSE

2007-2016: National Climate Change Adaptation Mechanism

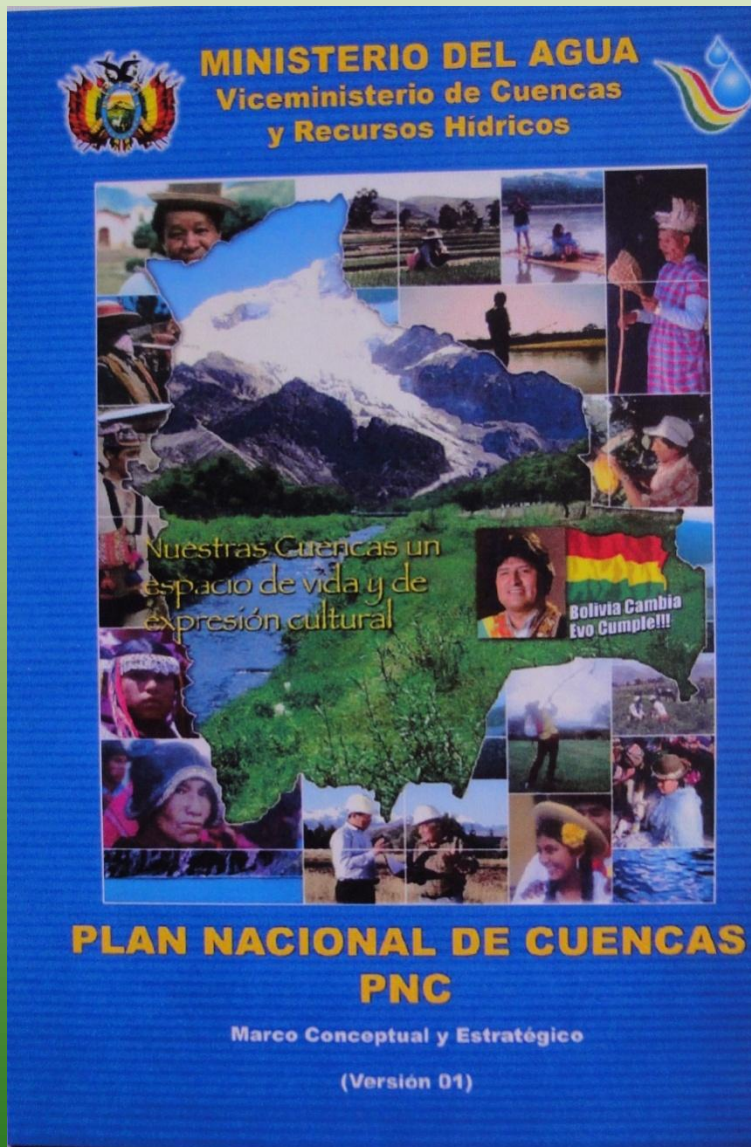


Programs

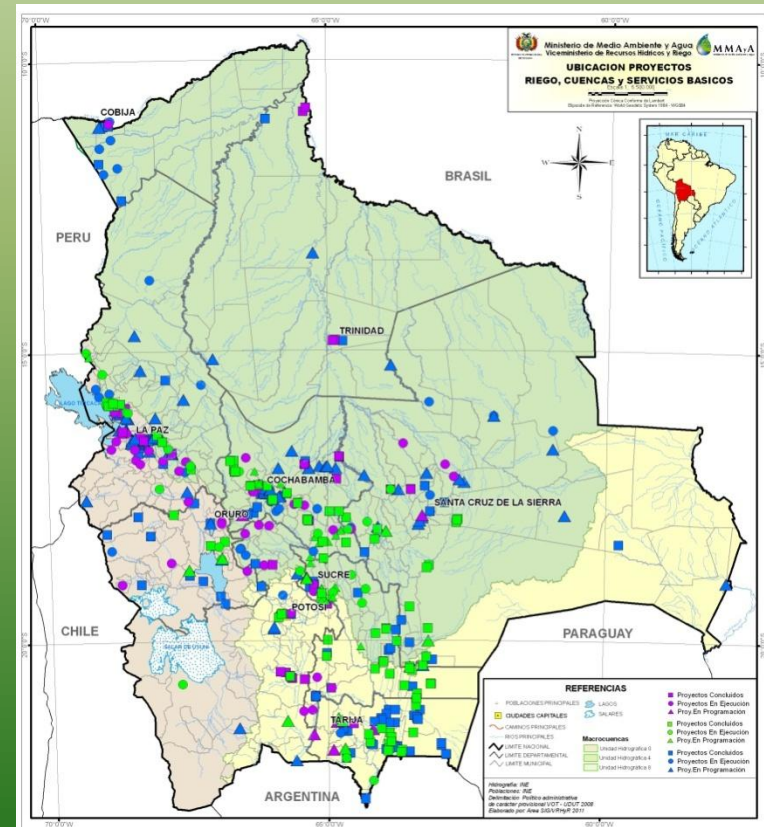
- Adaptation of water resources to CC
- Adaptation of food security and sovereignty to CC
- Adaptation of sanitation to CC
- Adaptation of human settlements and risk management to CC
- Adaptation of ecosystems to CC

Mainstreaming:

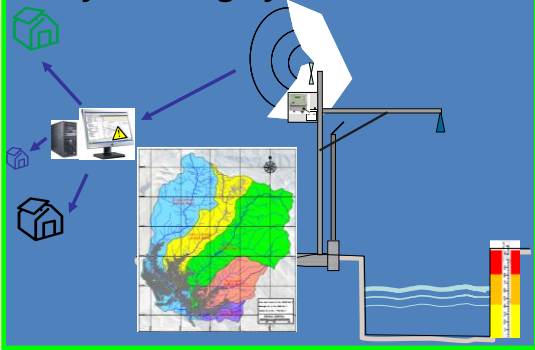
- Research
- Education, diffusion, training
- Anthropological aspects and ancestral knowledge



The National Watershed Management Plan (PNC) was launched in 2006, incorporating many of the earlier experiences in water resources and risk management



Early warning system La Paz



Small reservoir program (PROAGRO/GIZ)



Hydraulic cultures (Kenneth Lee Foundation)



Lake Poopó Basin development (EU)



Water and irrigation MIAGUA



Water harvest (Nacional Watershed Plan)



5. STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE

OVERALL OBJECTIVE

To strengthen Bolivia's capacity to define and implement an Integrated River Basin Management approach as a pivotal element of a strategy of adaptation to climate change at the national level (Component 1) and in two priority river basins (Components 2 and 3).

The SPCR will support efforts to capture lessons learned resulting from the adaptation pilot activities in the priority basins, as well as international best practice examples, for its potential replication in other parts of the country.

Strategic vision

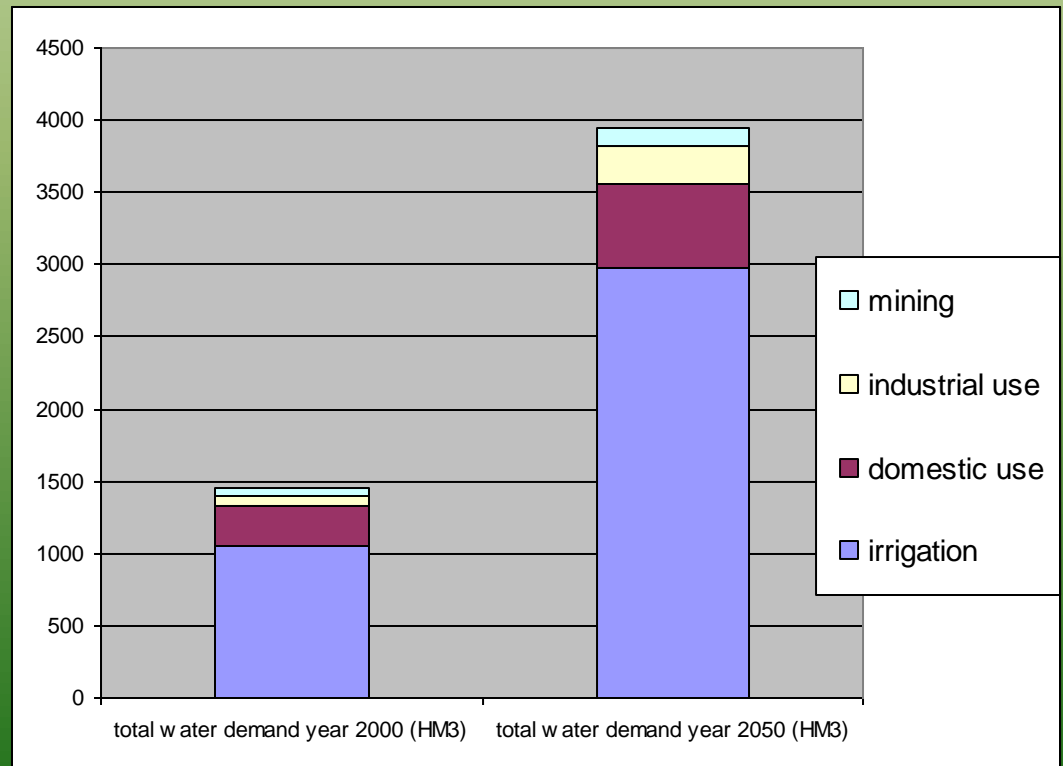
Water resources perspective:

-Water supply for agriculture and drinking water

- Integrated Water Resources and Watershed Management

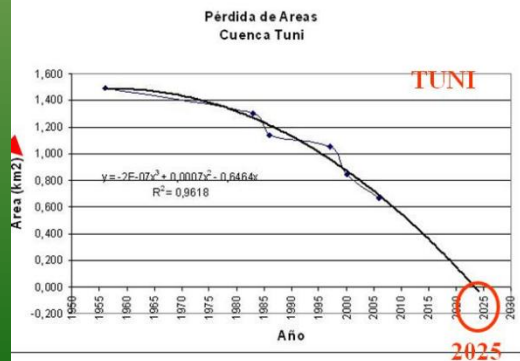
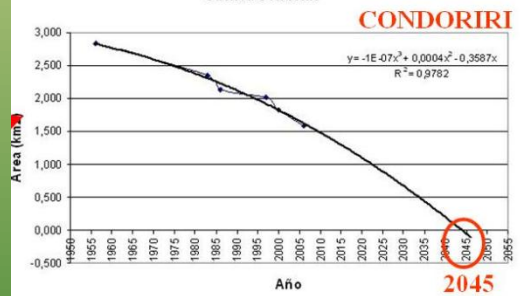
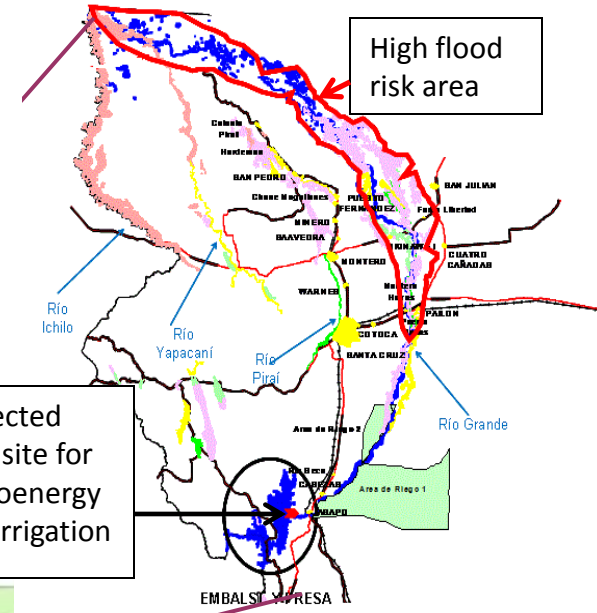
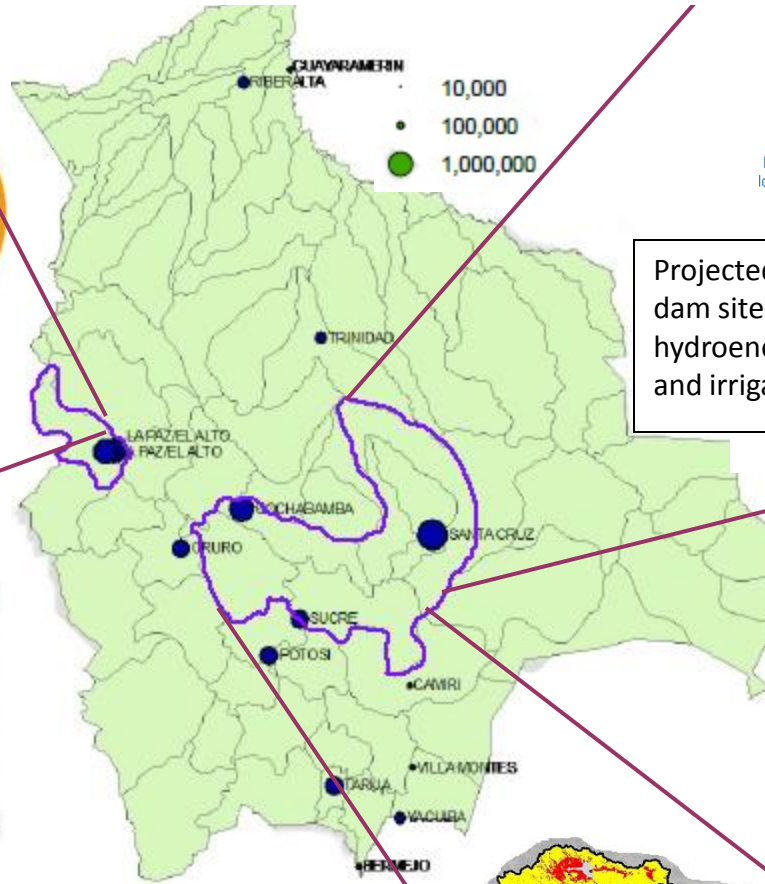
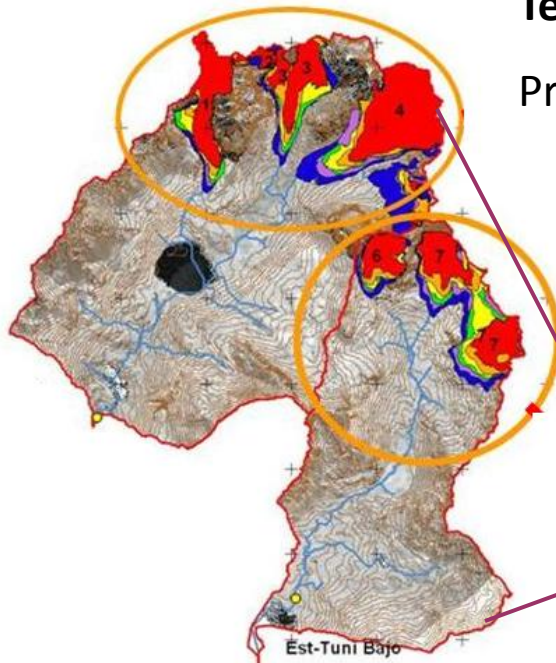
-Improved water use efficiency

- Institution building

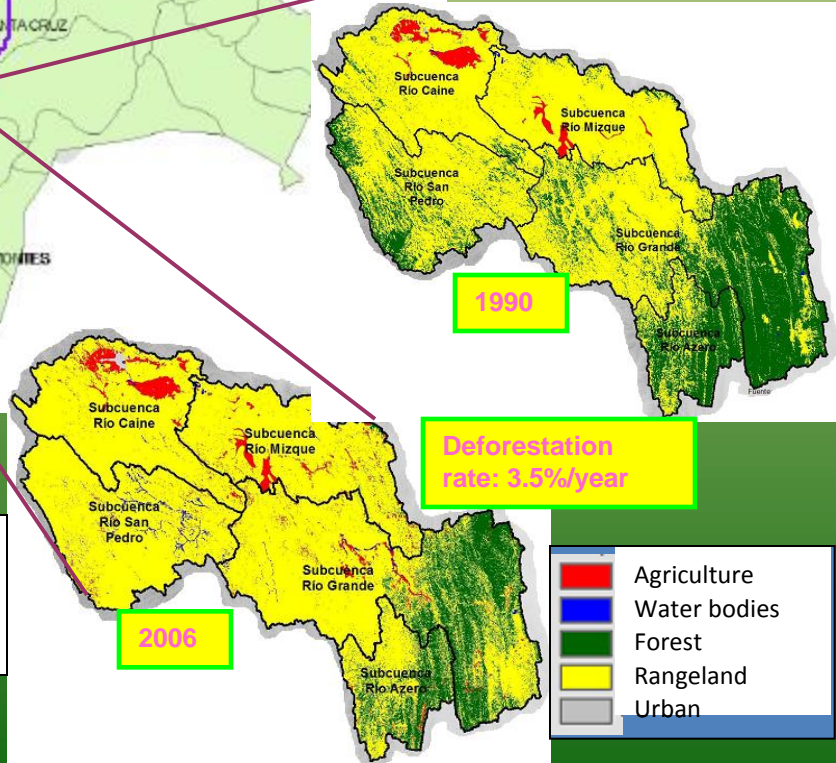


Territorial Perspective:

Prioritization of SPCR pilot areas



Erosion rate upper RG:
2 mm/year
Sediment load RG:
210 million ton/year



6. Main components of the SPCR

SPCR COMPONENTS

1: Strengthening national capacity for managing climate change

2: Climate resilience program on water and sanitation systems for cities La Paz and El Alto

3: Strengthening resilience to climate change in the Rio Grande basin

COMPONENT 1. STRENGTHENING NATIONAL CAPACITY FOR MANAGING CC

Overall Objective:

to strengthen the national capacity to integrate climate resilience in public planning, management and investment, and to mainstream the pilot experiences with the IRBM approach.

Subcomponents:

- 1. Strengthening of the National Climate Information System.*
- 2. Integration of climate resilience in planning, investment, monitoring and evaluation.*
- 3. Program coordination and knowledge management.*

Key results:

- Improved performance of the national institute responsible for climate information
- Government planning and investment practices incorporate CC information and CR criteria
- Public sector performance with respect to water resources, food security and risk management improved

Success Indicators:

- M&E of PPCR established
- Hydro-meteorological information and high resolution CC scenarios available and used
- River basin plans use guidelines on CR
- Trained institution's staff and stakeholders
- Lessons learned diffused and replicated

COMPONENT 2. CLIMATE RESILIENCE PROGRAM FOR THE WATER AND SANITATION SYSTEM OF THE METROPOLITAN AREAS OF LA PAZ AND EL ALTO

Overall Objectives:

Increase resilience of the entire water supply system of La Paz and El Alto.

Specific objectives:

- (i) Guarantee the continuity and the quality of the water system in the metropolitan areas of La Paz and El Alto;
- (ii) Generate experiences and lessons to integrate climate change in the planning, design and implementation of water projects in the high mountain;
- (iii) Implementation of a pilot project of an Integrated River Basin Management plan that is multipurpose; participatory, sustainable, resilient and includes the gender dimension.

COMPONENT 2. CLIMATE RESILIENCE PROGRAM FOR THE WATER AND SANITATION SYSTEM OF THE METROPOLITAN AREAS OF LA PAZ AND EL ALTO

Subcomponents

1. *Increased water supply to El Alto and La Paz.*
2. *Implementation of an integral river basin management (IRBM) program that includes protection and conservation of ecosystems and water provisioning for multiple uses .*
3. *Social program for the protection of vulnerable groups affected by the “Multipurpose water resources project” and for populations affected by climate change in the intervention area .*
4. *Strengthening of capacities to use climate change information in planning.*

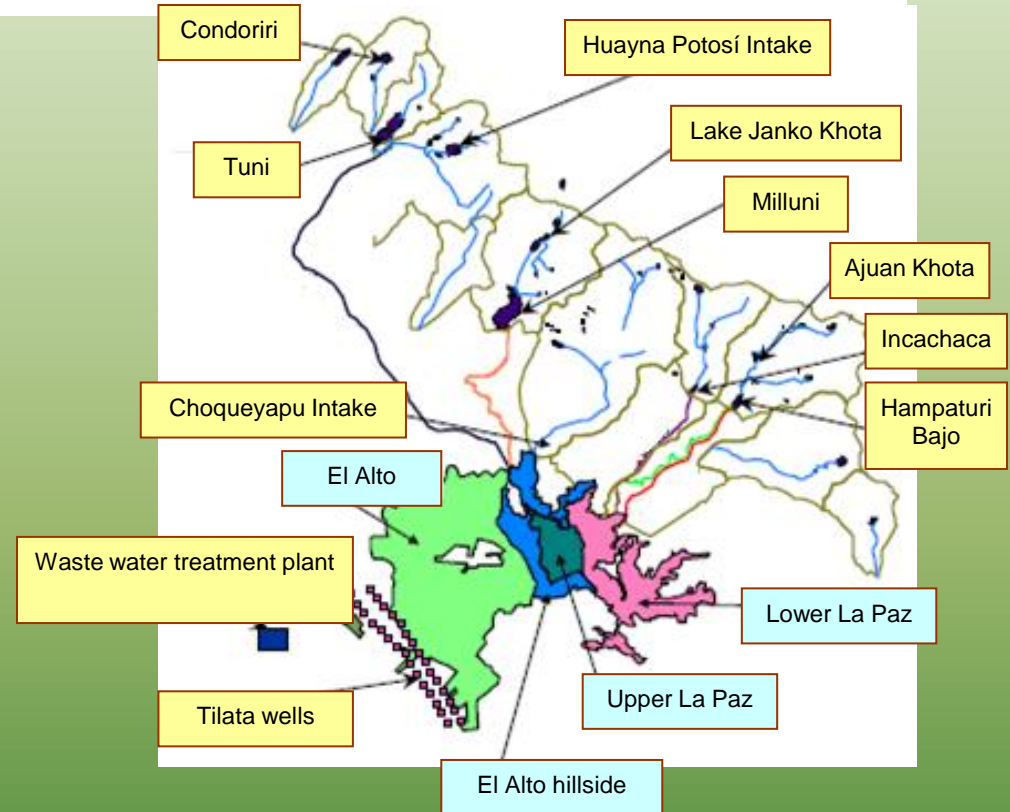
Component 2: Climate resilience program on water and sanitation systems for cities La Paz and El Alto

Key results:

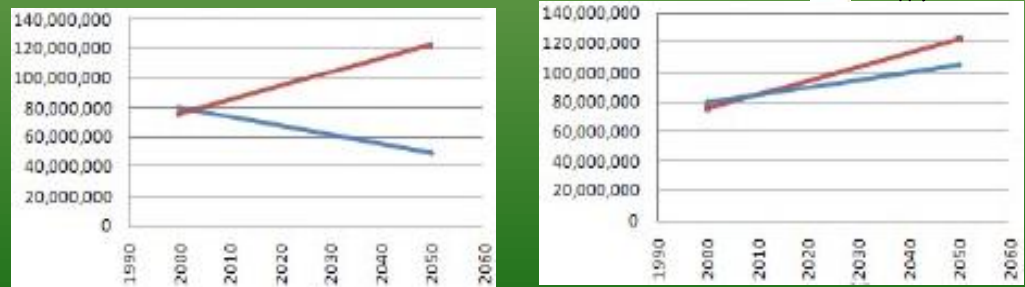
- Increased resilience of the water system in La Paz and El Alto
- Integrated River Basin Management of the El Alto-Titicaca watershed
- Successful adaptation measures are scaled up

Success Indicators:

- Increased HDI, disaggregated by vulnerable groups
- Water availability meeting increased demands
- High quality water and sanitation services
- Improved water regulation capacity
- Lessons learned disseminated



La Paz – El Alto water demand and supply according to predictions based on dry and wet scenarios (World Bank 2010)



COMPONENT 3. STRENGTHENING RESILIENCE TO CLIMATE CHANGE IN THE RIO GRANDE BASIN

Overall Objective:

To increase resilience to climate change in two pilot sub-basins of the Rio Grande basin: the sub-basin of the Mizque River in the upper basin and the sub-basin of the Piraí River in the lower basin.

To generate concrete experiences in the planning, design and implementation of integrated investments that are resilient to climate change. The results and lessons learned will contribute to project project preparation in other regions.

COMPONENT 3. STRENGTHENING RESILIENCE TO CLIMATE CHANGE IN THE RIO GRANDE BASIN

Subcomponents

1. *Formulation/updating of participatory and integrated river basin management (IRBM) plan*
2. *Improving the information system of the sub-basins*
3. *Support to the implementation of structural and nonstructural measures to build resilience to climate change in the basin*
4. *Institutional strengthening for implementation of Sub-component 3...*

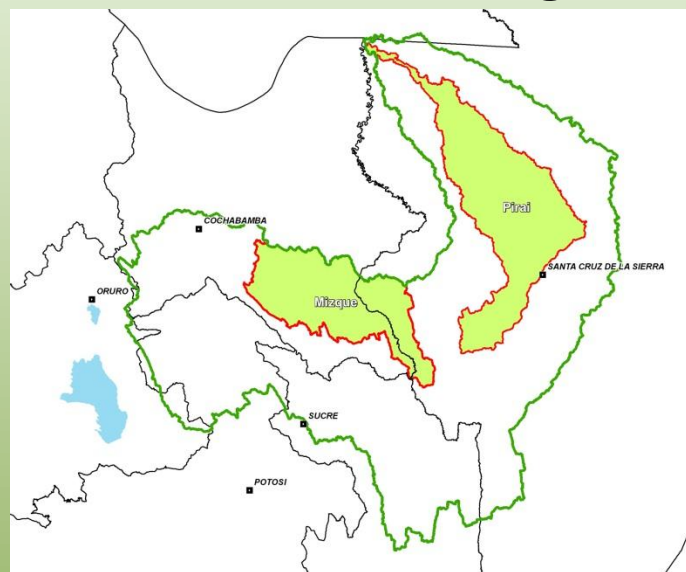
Component 3: Strengthening resilience to climate change in the Rio Grande (RG) basin

Key results:

- Increased CR of production systems and ecosystems through investment projects in two pilot sub-basins: Mizque (upper RG) and Piraí (lower RG)
- Improved tools and institutional capacities for planning and investment in climate resilient water resources management

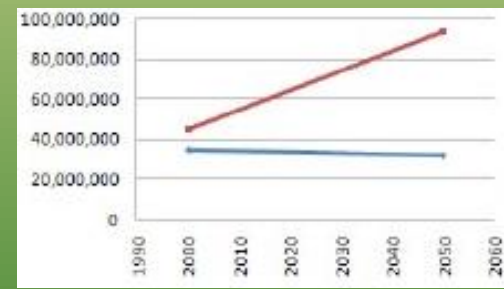
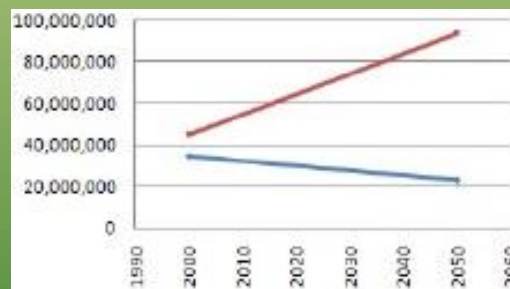
Success Indicators:

- Increased mean agricultural family income
- Reduction of annual economic losses by flood or drought
- Number of (micro)watershed management plans, mainstreaming CR, implemented
- Impact studies on CR measures, generated by M&E
- Investment guidelines updated with CR dimension



Río Mizque sub-basin water demand and supply according to predictions based on dry and wet scenarios (World Bank 2010)

— Demand
— Supply



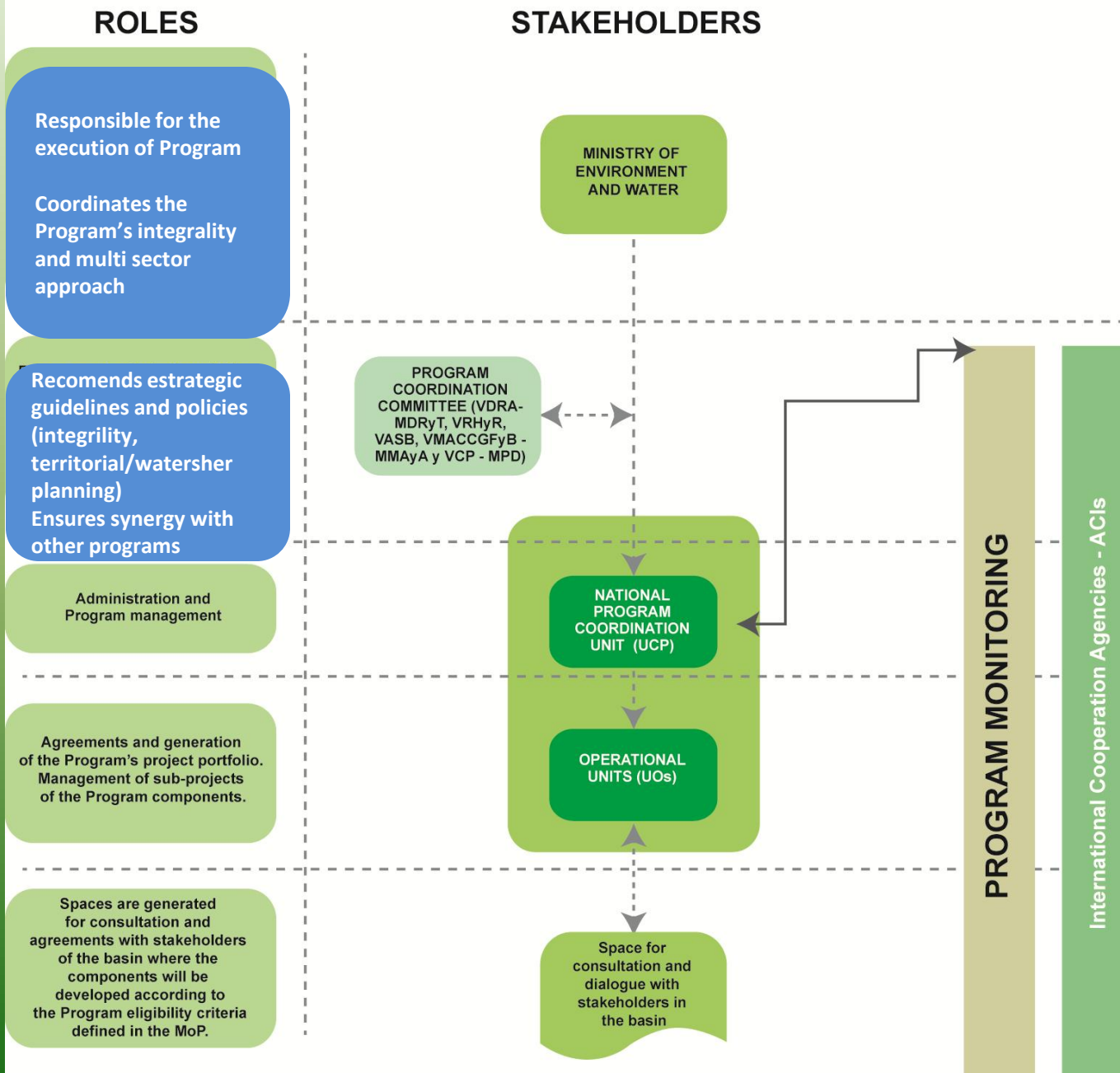
Río Piraí sub-basin water demand and supply according to predictions based on dry and wet scenarios (World Bank 2010)

— Demand
— Supply



7. Institutional arrangements for the SPCR

IMPLEMENTATION SCHEME OF THE SPCR



8. Consultation Process

CONSULTATIONS

National consultations (Nov-Dec 2010): 2 workshops in La Paz with research institutions, national and regional governments, NGOs, indigenous organizations, donors and civil society organizations of all the country (total of 333 participants).



Regional consultations (June-September 2011): 3 Workshops in El Alto/Suriquiña, Piraí and Mizque sub-basins with stakeholders, municipal governments, civil society organizations and NGOs (140 participants)



CONSULTATIONS



Gender approach consultations (March 2010-September 2011): 4 workshops in Cochabamba y Santa Cruz (481 participants)

Sectoral consultations (June 2010-April 2011): Multiple workshops to develop sectoral proposals



Donor Agencies (February-September 2011): 4 meetings in La Paz

10. Budget and finance

Financial resources required for the SPCR (US\$ million)

Components	Implementing Agency	Estimated investment requirements	Resources from the PPCR	National counterparts (*)	Additional funding needs
Component 1: Strengthening the national capacity for managing climate change	WB	6.11	5.50 (Grant)	0.61	0.00
Component 2: Climate resilience program for the water and sanitation systems of the metropolitan areas of and El Alto	IDB	206.00	44.50 (Grant)	103.30	58.20
Component 3: Strengthening the resilience to climate change in the basin	WB	74.10	60.00 (Loan)	14.10	0.00
TOTAL		286.21	110.00	118.01	58.20

10. Next Steps: Project Preparation

After endorsement of the proposal by the Sub-Committee:

- Develop a strategy to ensure a substantive level of participation of all stakeholders, including CSOs, women's groups, vulnerable groups, during detailed project preparation and program implementation.
- Investment Project preparation for each component with wider stakeholder participation.
- Finalize and establish institutional arrangements for each component, with inter-agency collaboration.

Main activities of Project/Grant request preparation under components 1 and 3:

- Action plan to strengthen hydro-meteorological information system
- Rapid diagnosis of the PNCC and action plan to reinforce it
- Base line study for sub-river basins of Mizque and Piraí
- Diagnosis and action plan to improve flood warning system of Piraí river basin
- Consolidation of Project's components, costs and financial/economic analysis
- Arrangements for implementation, manuals, schedules and M&E system

Main activities of Project/Grant request preparation under component 2:

- Assessment of climate vulnerability and impact on water sources, including hydrological/climate modeling
- Socio-economic, financial and environmental impact assessments (with focus on gender issues)
- Focus group discussions and stakeholder engagement
- Engineering projects, impact indicators and structure of MRV

11. Independent Technical Review Findings

Independent Technical Review Findings

- SPCR complies with PPCR main objectives and criteria
- It uses water management as the unifying concept, as water affects all geographical areas and all the sectors vulnerable to CC
- Investments to alleviate water problems are likely to be pro-poor and improve especially living conditions for women.
- The pilot activities have been adequately chosen to cover both rural and urban areas and climate challenges
- The main prioritizations made in the Strategy thus seem very well justified
- The Strategy has been elaborated through a participative process including comprehensive stakeholder consultations both across sectors and across regions

Independent Technical Review Findings

Recommendations:

- The national structure responsible for the coordination of Climate Change Adaptation (PNCC) should be reinforced and consolidated in order to assure that effective adjustments needed will be guaranteed in the long term.
- The strategy should make an effort to estimate the returns to the investments in Componente 3, and explain how the loan is going to be repaid.