

**BOLIVIA NATIONAL CLIMATE CHANGE
ADAPTACIÓN MECHANISM
(Building an adaptation strategy to
climate change)**

National Climate Change Programme
Bolivia

Introduction

Bolivia is highly vulnerable to climate change. It identify in lose in last time in occurrence El Niño South Oscillation (ENSO). In addition every year has high level of the lost in different ecological productive systems, sometime also affect important cities in most poor sectors of population considerate like more vulnerable.

North east part of the country in lowland regions is often flooding occurrence, in other to in high land, valley, and Chaco regions have droughts. Both condition are in last time more intensity and frequency every year national government move important economic resource to assist emergency in mayoralty in disaster condition.

North east part of the country in lowland regions is often flooding occurrence, in other to in high land, valley, and Chaco regions have droughts. Both condition are in last time more intensity and frequency every year national government move important economic resource to assist emergency in mayoralty in disaster condition.

Because the National government although the National Climate Change Programme of Bolivia prepared this response strategy call “National Adaptation to Climate Change Mechanism”.

Strategic objectives

- To reduce vulnerability to climate change in different sectors identifying like vulnerable.
- To promote planning adaptation to climate change in the framework program by sectors.
- To reduce risk to climate change.

Mechanism adaptation structure

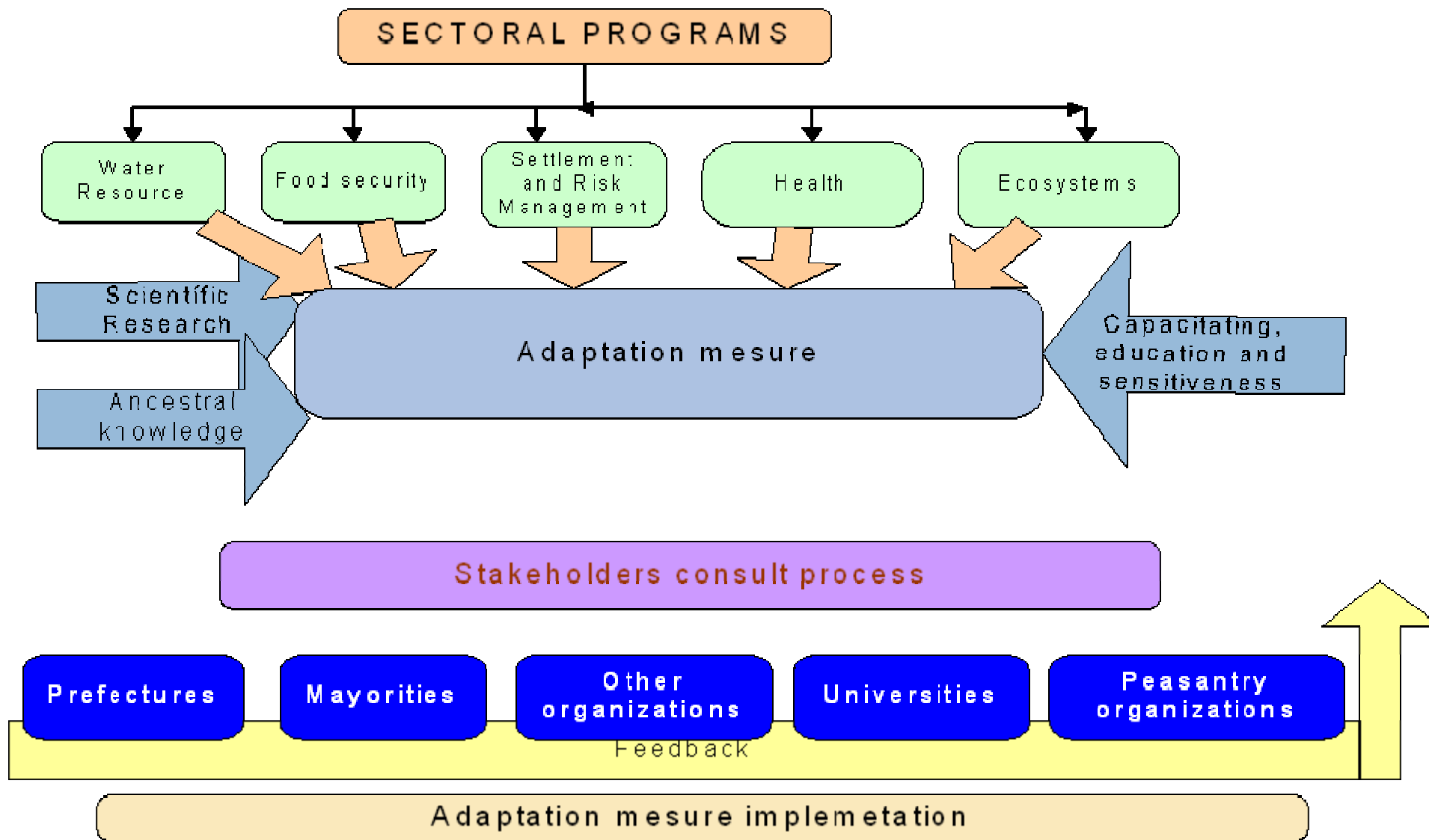
The Adaptation Mechanism document has five programs in every sector indentify as vulnerable to climate change these programs are:

- a) Water resource adaptation;
- b) Human heath adaptation;
- c) Food security adaptation;
- d) Ecosystems adaptation;
- e) human settlement adaptation and risk management.

Mechanism adaptation structure

In addition the adaptation strategy has three cross cutting programs that are:

- a) Scientific research;
- b) Diffusion, capacitating and education
- c) Anthropological aspect and ancestral knowledge.



Policy National Development Plan

Policy 5. Adaptation global environment changes (Climate change, Ozone layer Protection, and organic persistent pollutants (Chapter Environment Resources)

In this policy has important adaptation activities like response strategy to climate change.

National adaptation mechanism strategies

Developed institutional framework consistent with National Development Plan and establish to strategic alliance.

Development a framework to it gives dynamic all sectors although supreme Decree to priorities and implement adaptation measure

Support to initiatives by sectors which responded to National Adaptation Mechanism strategies.

Mainstreaming on sectors for that they are including in adaptation measure implementation process.

Water resource adaptation program

In Bolivia there are very interesting water management systems developed by Andean and Amazonas indigenous population. But it does not sufficient valorized neither socialized in stakeholders that settlement in new regions. However, policy not have response in integral form to climate change every time most evident in intensity and frequency with differenced impact by zones.

Water resource adaptation program

In this context, adaptation measure pass by building a policy systems concerted with different stakeholders because the problems emergent to climate change relationship with water resource generates strong conflict. Under climate scenarios all conflict should be most strong.

“War of the water” in El Alto City-Bolivia, conflict generated by increase tariff for water supply service. This city has serious problems because demand curve cross with supply curve, great part of water supply come to Andean glacier

This city has serious problems because demand curve cross with supply curve, great part of water supply come to Andean glacier

Photograph: Newspaper “El Diario, 2001”



In other to glacier retreating was increasing problems with water supply non only for human urban systems, fate also productive agro-ecosystems, natural ecosystems. Because, exist a marked seasonally in distribution rainfall in Andean region, and during dry seasons water supply comes from glacier like water natural stock but if disappear all high mountain glacier La Paz and El Alto cities should have serious problem with water supply.

Adaptation measure pass for hydro-geologic studies identifying recharge areas which this will allow to implement promote introduce water into underground acquirers by both cities will have most water supply in continuous way .



Water use in ancestral technology it has special name in Aymara native language “Suka kollo” It system allow regulate around plant environment low temperatures frequently in high land agriculture systems (Photo: Edwin Yucra, 2006)

- Water efficient use is very important in different regions because there aren't systems that allowed available this resource.
- The seasonally character of distribution of rainfall demand a basin integral management this measure is overlap with ecosystems adaptation program.
- Food security adaptation program
- Aim this program is establish early warning for food security, genetic resources management to climate change responding in medium and long time this measure will allow in future the available improvement seed with important characteristic for face to climate change impact.

- Efficient irrigation in agriculture and pasture measure will allow improve face in better condition climate change impact. This measure overlap with water resource because it not possible separates both sectors. This program has strong emphasis in agriculture and livestock production like to most vulnerable sector to climate change.

Human health adaptation program

- There are an increasing diseases because temperature increase allow better adaptation vector's diseases in regions higher than habitual habitat.
- For this chronic impact to climate change require structural change in public health systems. Strong mains trimming climate change in policy health and develop capacity in health staff and implementation to vigilance epidemiologic systems jointly to early warming, proactive behavior in all the heath system between others adaptation measure.



Stream water is appropriate environment by adaptation vector's diseases in most high region. This condition is consequence to global warming

Human settlement and risk management program

There are a lot of increase to vulnerability not only to climate change fate to risk in general. Emigration process from rural to urban areas deep vulnerability condition, specially in population with less economic resource it avoid comes millennium goals.

Main adaptation measure is territorial planning, security house, are some adaptation measure to climate change but fundamentally integrated risk management and adaptation to climate change communities.

Ecosystems adaptation program

Bolivia has indentify around 20 different ecosystems in all country from 500 meter over level sea up to near 6,000 meter over level sea. It complex configuration keep very rich biodiversity and cultural richness with different practices ancestral that could server like strategies in every sectors identify as vulnerable.

The vulnerability this ecosystems is different by regions and most ecosystems are sensible to climate change but strong anthropologic pressure produce forest degradation, devegetation. These have effect on local micro climatic condition. Because is very important their protection. A lot stakeholders claim their conservation.

- stakeholders claim their conservation.
- The main adaptation measure are: Establishment biological corridors, forest and endemic ecosystems conservation, protect natural of conservation areas and the indigenous people settlement in this areas as most important measure in different ecosystems, Land use, land use change and forestry activities focus to water resource, micro climate and ecosystems conservation.



- *Flooding ecosystems in Amazonia region the image show indigenous population has interesting management systems. (Photo: Centro de Estudios Amazonicos, 2006)*

Cross cutting programs

Scientific research program

To aim these program is obtain scientific information on vulnerability, adaptation options and implementation this identify measure as adaptation project in pilot regions jointly participative methodology. This program also will develop climate regional scenarios.

Capacity develop, education, and sensibleness program

All process that involved changes in behaviors in societies need aggressive capacitating more in a country with divers characteristic of vulnerability. It has three level action in formal education system (school, secondary and university differenced by levels and informal communities although massive diffusion channel and in scientific communities.

Anthropological aspect and ancestral knowledge program

Different indigenous ethnical population have richness in ancestral techniques management of the ecosystems but there are a lot of erosion possibilities because there are migration process and change in new habits in young people actually new government structure are very interested in valorized indigenous practical that it could be used in adaptation measure project.

In the Moxos flats situated in center of Amazonia regions was habited by complex culture called Arawak. This culture developed production systems with adaptation to this conditions often seasonal flooded. During centuries was subsist with strong foods, some systems persist in actually.



In Mamore River view artificial lagoon built by Pre-Columbian culture call Arawak in center of Amazonia region in Boivia. (Photo: Centro de Estudios Amazónicos, 2006)

CONCLUSIONS

- The adaptation strategies there are very expensive in a country like Bolivia and communities not has capacity for pay these cost.
- Due to fast retreating glacier of high mountain, water supply in La Paz and El alto cities these systems need very urgent action in adaptation measure because curves demand an supply cross in 2008 year.
- Food security and other sectors are very vulnerable to climate change and it need structural adaptation measure.
- In adaptation measure Bolivia has important potential in native indigenous knowledge in different regions that should be took advantage of in adaptation measure, implemented systematically.

- Other country could use this experience in your regions.
- There are a lot of other practices in systematic observation as well as effective for forecast time in agriculture use.
- Climate change affects strongly different ecosystems existent in Bolivia like other South American countries because it is very important to introduce in mitigation and adaptation agenda the forest and other ecosystems conservation as high priority.
- Forest and other vegetation type for degradation and/or devegetation in future could change from sink to “natural” emission sources.