

ANNEX 9: Independent Technical Review

Title of the investment plan: Estado Plurinacional de Bolivia: Programa Estratégico de Resiliencia Climática / Strategic Program for Climate Resilience (SPCR)
Program under the SCF: Pilot Program for Climate Resilience (PPCR)
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Part I: General criteria:

The main objective of the PPCR is to integrate climate resilience into development planning in an integral manner. Considering its nature as a pilot program, it intends to initiate a transformative process by generating the knowledge and institutional capacity needed to do this on a wider scale.

The Bolivian Strategy complies with this main objective by proposing both institutional capacity building (mainly data generation and inter-institutional coordination) and three pilot projects for knowledge generation. The latter have been chosen to span the three main eco-regions in Bolivia (highlands, valleys and lowlands) and cover the three main climate challenges (droughts, floods, and diminishing water supply from disappearing glaciers). One of the initiatives is targeted at the main urban conglomeration in Bolivia (La Paz – El Alto) while the others are targeted at predominantly rural areas and agricultural challenges. The Strategy uses water management as the unifying concept, as it correctly identifies changes in the hydrological cycle as the main threat arising from climate change in Bolivia.

Although there is considerable uncertainty about exactly what climatic changes to expect in the complex geography of Bolivia in the future, the main studies of the impacts of climate change in Bolivia all conclude that changes in the quantity and distribution of water is going to be the main problem¹. Bolivia already suffers from a very uneven distribution of water, both spatially and temporally, and future population and economic growth will further increase the problems of water scarcity in dry areas and costs of flooding in wet areas, so any investments that help improve the water distribution infrastructure and prevent or reduce the recurrent costs of droughts and floods should constitute no-regrets investments.

The Strategy consists of 3 main components. Component 1 is focusing on institutional capacity building, coordination, data generation and learning, for which a grant of USD 5.5 million is allocated. Component 2 is aimed at increasing the water supply to the urban populations of La Paz and El Alto, both through investments in physical water infrastructure (dams, treatment plants, water pipes, etc.), and through the development of an Integral River basin Management Plan. A grant of USD 54.5 million is allocated for this component. Component 3 is aimed at reducing the costs of extreme climate events in the Rio Grande river basin. It has two main sub-components, the first of which is focused on reducing the recurrent costs of droughts in the dry upper part of the river basin (Río Mizque) and the second of which is aimed at reducing the costs of recurrent flooding in the lower part of the river basin (Río Piraí). A loan of USD 50

¹ Bolivia (2007), EACC-WB (2011), ERECC-BID (2010), UNDP (2011).

million is allocated to the third component.

The total amount requested from the MDBs is USD 110 million, of which USD 50 million would be a loan and USD 60 million a grant. The program provides additional funding of about 10% compared to the projects listed in Annex 6 as relevant for the PPCR in Bolivia, which sum to a bit more than USD 1 billion.

Everybody in Bolivia is affected by water problems, so the choice of making water management the central issue in the Strategy assures that everybody can accept the relevance of the program even if they live outside the pilot river basins. In addition, water problems disproportionately affect women and children and the poorest and most vulnerable parts of the population, so investments to alleviate water problems is likely to be pro-poor and improve especially the lives of women.

While the focus on improved water management makes a lot of sense, the Strategy does not explain how it envisions the transformative impact to take place.

The specific investments in each component are yet to be determined in sufficient detail to allow an evaluation of cost effectiveness. Component 2 currently appears more sustainable and directly beneficial for the country than Components 1 and 3, partly because it is more concrete (structural investments), but also because it uses existing institutions for implementation, instead of creating new, temporary ones as in Components 1 and 3. It is not clear how Component 3 will generate a 12% annual social return, as required by VIPFE for public investments, and the Strategy offers no explanation about how the loan for Component 3 is to be repaid.

Part II: Compliance with the investment criteria or business model of the

PPCR a) *Climate risk assessment*

There is considerable uncertainty about how climate change may affect the hydrological cycle in Bolivia in the future. Different General Circulation Models (GCMs) predict wildly differing impacts, with some models predicting more precipitation all over the country as a result of increased CO₂ concentrations in the atmosphere (e.g. the ECHO-G Model of the Meteorological Institute of the University of Bonn, Germany), some predicting less precipitation over most of the country (e.g. the CM2.0 Model of NOAA Geophysical Fluid Dynamics Laboratory, USA), some predicting more precipitation in the lowlands and less in the highlands (e.g. the HadCM3 model from the Hadley Centre for Climate Prediction, Met Office, UK), and some the opposite (e.g. the MIROC3.2 model of CCSR/NIES/FRCGC, Japan, as well as PCM1 model of the National Center for Atmospheric Research, USA).²

Thus, the range of possible scenarios is very wide and it is clear that Bolivia has to prepare for a lot of uncertainty. However, even in the most favorable scenario (more precipitation in currently dry areas and less in currently wet areas), increased water scarcity in many areas is inevitable due to increased demand, and increased costs of droughts and flooding are expected both due to a probable concentration of precipitation events caused by climate change and due to increased exposure caused by the general expansion of economic activities in vulnerable areas. Thus, the proposed investments are likely to be beneficial no matter which climate model proves

² See "Atlas de Cambio Climático en Bolivia," La Paz: FAM and CI, 2011 (forthcoming).

to be the most accurate.

A preliminary version of the Strategy mentions a plan to train the staff of SENAMHI and PNCC in the use of one of the abovementioned GCMs and create “official climate change scenarios” based on this one model³⁴³. This is not advisable as it would give authorities responsible for implementing adaptation measures and climate proofing investments a false sense of certainty about what to prepare for, and indeed force them to prepare for the “official” scenario, although this cannot be demonstrated to be more likely than any of the other scenarios. Authorities need to understand the full range of possible climatic situations that they should prepare for.

b) Institutions/coordination

The Strategy presents an up-to-date, thorough, and honest evaluation of institutional capacity for implementing the plan. The implementation agency is the Ministry of Environment and Water (MMAyA), which encompasses four important actors in the Strategy: The National Program of Climate Change (PNCC), the National Service of Meteorology and Hydrology (SENAMHI), the Vice Ministry of Water and Sanitation (VASB), and the Vice Ministry of Hydrological Resources and Irrigation (VRHR).

The Strategy proposes that a new autonomous National Unit of Program Coordination (UNCP) directly under the MMAyA will be created to coordinate and implement the plan, and that this unit will set up two regional offices in the pilot river basins of Río Mizque and Río Piraí. In addition, an advisory committee will be established to secure coordination with key ministries outside MMAyA, such as the Ministry of Rural Development and Land (MDRyT) and the Ministry of Development Planning (MPD).

This proposed institutional set-up reflects the current weaknesses of PNCC, which would otherwise have been the logical unit for coordinating this pilot project. At its creation in 1995 under the Ministry of Sustainable Development, PNCC was endowed with the responsibility of fulfilling the technical commitments of Bolivia towards the United Nations Framework Convention on Climate Change (UNFCCC) and of coordinating and orienting efforts to adapt to and mitigate the effects of climate change in Bolivia. However, in 2009, PNCC was moved from the Ministry of Development Planning (formerly Ministry of Sustainable Development) to the Vice Ministry of Environment, Biodiversity, Climate Change and Forest Management (VMABCCGF). As explained in the Strategy, this status below a Vice Ministry makes it very difficult for PNCC to fulfill a mandate of inter-ministerial coordination.

Although the Strategy explicitly says (p.32) that one of its objectives is to strengthen the PNCC, it seems that in reality it will further weaken it. Rather than contributing to overcoming the current weaknesses of PNCC, the Strategy plans to set up a new temporary unit to handle the program, thus taking responsibilities, budget and learning away from PNCC. Since the new unit is a temporary unit (this is clearly reflected in its name: National Unit of Program Coordination), it is difficult to see how it could achieve sustainability and impact beyond the project.

³ This mention was taken out of the latest version, but according to recent conversations with both PNCC and IDB staff it remains the plan.

It is also difficult to see how the planned advisory committee is going to achieve sustained coordination after the project period. As explained in the Strategy, a similar committee (“Consejo Interinstitucional de Cambio Climático”), consisting of 6 ministries and one environmental NGO, was created by Supreme Decree in 1999 and tasked with analyzing and proposing national policies and strategies for implementing the UNFCCC in Bolivia. This committee has not met since 2006, however. In the Second National Communication to the UNFCCC (2009), Bolivia announced that it was in the process of forming a “Consejo Plurinacional de Cambio Climático,” but this still has not happened. This program may provide an opportunity to activate the “Consejo”.

The strengthening of SENAMHI proposed in the Strategy seems better planned, with a good chance of achieving permanent positive impacts. Improving the collection and analysis of hydrological data in Bolivia is crucial for improved river basin management, as is the access to this data for the general public.

Considering the primary objective of integrating climate resilience into development planning, it is surprising that the Ministry of Development Planning (MPD) has hardly any role in the program, except as part of the advisory committee.

c) Prioritization

The pilot activities in the Strategy have been adequately chosen to cover both rural and urban areas, the three main eco-regions in Bolivia, and the three main climate challenges that we need to learn more about. It has identified water management as a unifying concept, as water affects all geographical areas and all the sectors vulnerable to climate change. The main prioritizations made in the Strategy thus seem very well justified.

d) Stakeholder engagement/participation

The Strategy has been elaborated through a participative process including comprehensive stakeholder consultations both across sectors and across regions. In addition, there has been special gender oriented consultations, and numerous meetings with the donor community. Given the risk of a long list of scattered demands from all the diverse stakeholders consulted, it is impressive that the team behind the Strategy has managed to come up with a unifying theme and a small selection of pilot activities which should make all main interest groups feel represented, and especially the most vulnerable.

Part III. Recommendations

The Strategy is very well written, and certainly complies with the criteria and priorities of PPCR. The following are a few suggestions that may contribute to some last-minute improvements.

First, since the main objective of the PPCR is to integrate climate resilience into development planning, the Ministry of Development Planning should be more involved in this program and receive training just like PNCC and SENAMHI. VIPFE, for example, has to approve all public investments in Bolivia, so it would be good if the staff received training that would qualify them to judge whether proposed investments are climate resilient. Strategic Planning staff also needs to be more aware of climate change impacts and strategies to reduce adverse

effects. In the current institutional setup, the program is very much concentrated in the Ministry of Environment and Water, which is a good choice as implementing agency, but it should not be limited to that. The proposed institutional setup reflects the widespread perception in the Government that climate change is mainly an environmental problem, while in reality it is a development and planning problem.

Second, it is important that the Strategy explains how it envisions its transformative impact to take place, especially considering the temporary character of the National Unit of Program Coordination (UNCP) and the ad hoc advisory committee. It would be good if the Strategy could propose a way to overcome PNCC's current weaknesses and thus contribute to a real institutional strengthening, as this program (at least Component 1) ideally should be managed by a permanent government institution with the mandate of promoting climate change adaptation. Since climate change is really a development and planning problem, it would greatly advance the main objective of the PPCR if PNCC could be moved back to the Ministry of Development Planning, instead of languishing under an environmental viceministry, and the Strategy could try to open a door for that opportunity.

Third, the Strategy should make an effort to estimate the returns to the investments in Component 3, and explain how the loan is going to be repaid. This could, for example, be done by listing the losses incurred by droughts and flooding in the pilot river basins in recent years⁴, and showing that an X% reduction in these costs facilitated by the program will be enough to repay the loan within a period of Y years.

Fourth, rather than putting an emphasis on the generation of official, high-resolution climate scenarios for local level adaptation, PNCC and SENAMHI need to highlight the large uncertainty that exists in climate projections and focus on encouraging adaptation to increased climate variability. It is very dangerous to generate an official scenario and work to get this incorporated into local level planning and investments, since this scenario may not play out. It would be much more useful to encourage a comprehensive analysis of all the 17 downscaled GCMs that exist for Bolivia, in order to get an impression of the full range of possible climates that each locality needs to prepare for and possibly rule out some of the models as inadequate for the Bolivian geography. In any case, real data is much more important for investment decisions, so the generation and analysis of real hydrological data is of highest priority.

Fifth, in Component 1, the Strategy mentions support to improving the web site of SENAMHI. This web site is very important for users of all kinds, so although it is already working quite well and contains a wealth of information, it is worth setting aside resources for this. The strategy does not mention the web site of PNCC, however, and this site is badly in need of improvement.

Sixth, one of the indicators for Component 2 is a reduction in the demand for water in La Paz and El Alto, as expressed by a 7% reduction in billing by the 5th year (p. 61). This seems unrealistic and not advisable, since Bolivians are currently using only a third of the recommended daily minimum domestic water use of 100 liters per day per person⁵. In order to reach the levels

⁴ A municipal level data base of damages from El Niño and La Niña events during the 2006-2008 was created for the "Plan Nacional de Rehabilitación y Reconstrucción." This information is available from VIPFE.

⁵ International recommendation by Falkenmark & Widstrand (1992). See Bolivia analysis in ERECC Agua BID (2010).

needed for optimal health and hygiene, the demand should increase rather than decrease. Thus, rather than counting on a decrease in demand, the Strategy should plan for an additional expansion of supply.

Seventh, although the gender analysis is a donor requirement, it would be useful if the Strategy could provide an estimate of the additional costs this gender focus would imply and explain what the benefits would be.

Finally, no timeframe is presented anywhere in the Strategy.