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Cooperación Internacional - COSUDE
Hub Regional Lima

Andes Resilientes al Cambio Climático

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Design of a proposal for a financial mechanism and a microfinance product directed at small and medium producers from the camelid sector of the Bolivian Altiplano to support agricultural production and adaptation to climate change

1. Objetive

The study conducted a comprehensive analysis of the prevailing supply and demand of suitable financing options within the camelid sector, specifically focusing on Small and Medium Producers (SMPs) and their breeding and processing activities. Furthermore, the study assessed the influence of climate change on both current and future breeding endeavors. Drawing upon this evaluation, the study formulated a financial mechanism proposal along with potential microfinance products. These initiatives are designed to empower SMPs by granting them access to climate finance, enabling them to implement vital adaptation measures, and bolstering their resilience against present and future climate challenges.

2. Impacts of Climate Change

Most families involved in economic activities centered around Andean camelids reside in the Bolivian Altiplano, a region facing two distinct impacts due to climate change. The first is drought, resulting from a blend of rising temperatures and decreased overall precipitation across various parts of the Altiplano. The second is unseasonal frost, brought about by heightened climate variability. These changes primarily manifest as water and thermal stress on camelid livestock and their primary food sources, including native grasslands and forage crops. These stresses significantly hinder the growth and proper development of camelid livestock and can even lead to fatalities due to food scarcity. Consequently, these factors substantially reduce the potential yields of camelid livestock, profoundly affecting the potential income Small and Medium Producers (SMPs) can derive and challenging the financial sustainability of the historic and culturally important activity.

The impacts mentioned above become significantly worse when current and future climate change scenarios are taken into account. In this study, projections from the "Shared Socioeconomic Pathways" (SSP) 7.0 and SSP 8.5 were utilized for the period 2081-2099. According to annual temperature anomalies, the temperature in the Bolivian Altiplano could potentially rise by 4 to 6.5°C. Precipitation anomalies are expected to result in a deficit of up to 20% in the Central and Southern Altiplano. However, the most urgent concern is the clear indication of water and thermal stress events, potentially leading to extreme drought events lasting up to 6 months in the Southern and Central Altiplano of Bolivia.

Therefore, it is crucial for the country to establish supportive processes, including financial aid, capacity building, technology assistance, and public policy frameworks. These measures are essential to enable Small and Medium Producers (SMPs) in the camelid sector to adapt and achieve climate-resilient production practices.

3. Adaptation to Climate Change

Climate change is leading to more frequent and severe droughts, heightening the **demand for water** in human consumption, camelid livestock, and crop irrigation, particularly for forage production. Addressing this challenge requires the implementation of efficient irrigation systems, such as drip irrigation, micro-sprinklers, and hydroponics to sustain crop and forage yields. Additionally, water pumps are essential for transporting water from sources to fields.

Simultaneously, a different set of adaptive measures is focused on preserving and increasing food supply. This involves conserving native grasslands and wetlands, introducing drought-resistant forage seeds, and identifying and introducing camelid breeds resilient to drought from other regions. Moreover, frost or cold weather events can pose health risks and even fatalities among camelid livestock, particularly among young animals and pregnant female camelids. Adaptation strategies encompass establishing protected areas, implementing proper pasture rotation, and constructing covered sleeping areas (shelters) to shield against low temperatures.

In this study, a set of measures has been developed and categorized, forming **models that represent current best practices in climate adaptation,** while also holding promise for the future. These measures have been specifically tailored for various activities associated with the rearing and management of camelid livestock. These activities encompass a wide spectrum, including grazing, calving, initial treatment, mating, culling, weaning, shearing, pregnancy diagnosis, categorization, examination of breeders, and subsequent treatments.

It is key to highlight that these adaptive measures have been classified into two distinct categories: "hard" and "soft." Hard measures entail *infrastructural or technology-related solutions*, often eligible for financing through traditional financial channels or microfinance credits. In contrast, soft measures involve *modifications in practices without necessitating technological changes,* such as training, extension services, or coaching interventions.

The **climate best practices models** encompass customized measures designed to meet the specific requirements and preferences of producers. These models also involve evaluations conducted by specialized livestock extension workers within the camelid sector. Ideally, each model is tailored to represent a distinct set of climate best practices applicable to the unique environmental conditions of the North, Central, or South Bolivian Altiplano. Moreover, these models can be further refined to cater to different types of producers, distinguishing between small and medium-scale operations. Additionally, they can be adapted based on the specific climate risks faced, acknowledging that varying herd sizes of camelid livestock require diverse management strategies.

4. Climate Financial Mechanism for the camelid sector

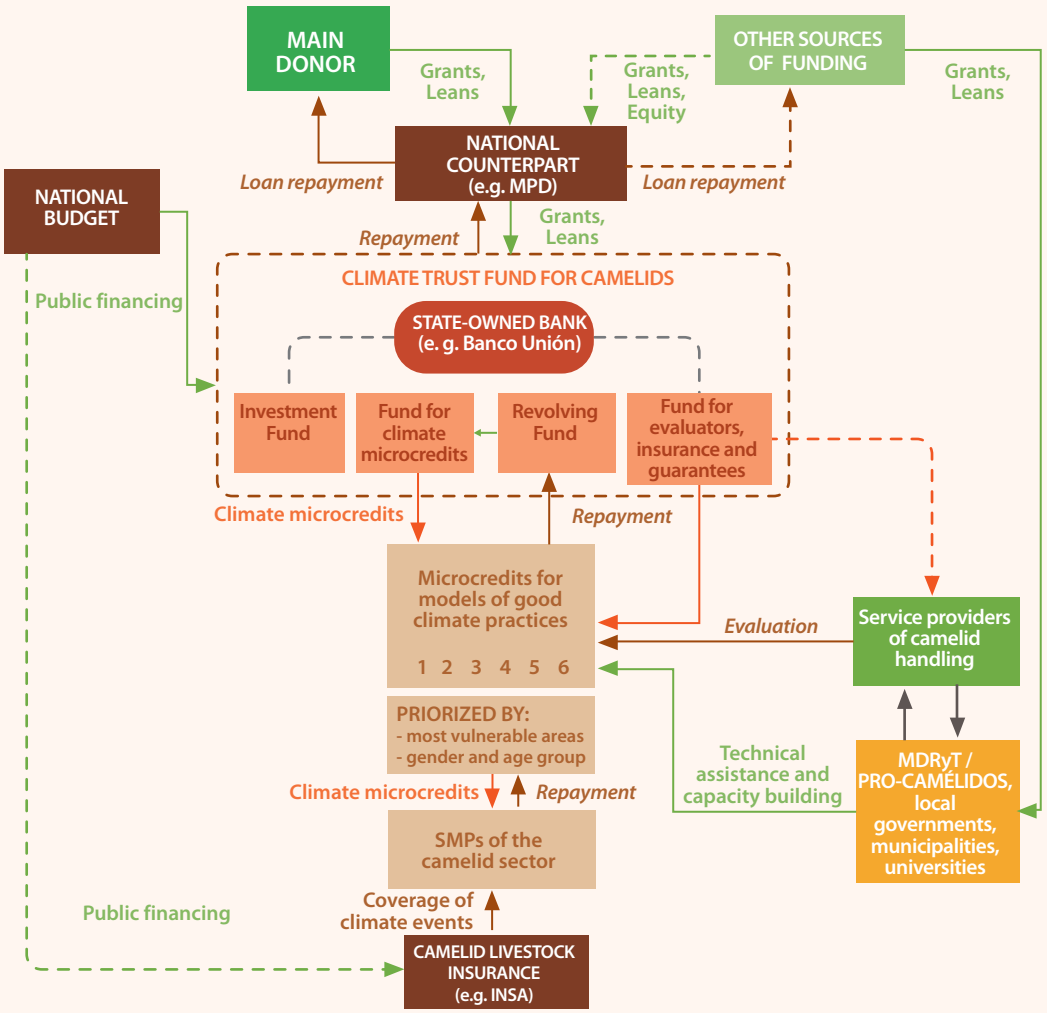
At this moment, Bolivia lacks a specific climate financing option for the camelid sector. To address this gap, the establishment of a tailored financial mechanism is imperative. This mechanism will serve as the foundational framework, facilitating the flow of financial resources to bolster the climate change adaptation capabilities within the sector. The proposed financial mechanism design includes the reception of funds, which will be disbursed in the form of microcredits, along with climate assessments and technical assistance (Figure 1).

By establishing a credit and investment trust fund, the Bolivian government, operating through a state-owned bank vested with the authority to manage trusts, can allocate resources to camelid producers through a dedicated credit product. The *Climate Trust Fund for Camelids* will source its funds from international sources, supplemented by the allocation of public funds within the country. A portion of these funds will be earmarked for credit operations, guarantees, insurance, and payments to service providers engaged in promoting good camelid management practices and conducting climate assessments. The remaining portion is designated for

investments in securities within the national stock market, ensuring the Fund's long-term sustainability. These investments may include National Treasury Bonds, Time Deposits, and Bonds issued by Financial Intermediation Entities with a favorable risk rating and corresponding reports from these entities.

The establishment of the Fund should be planned for the long term, offering a low-interest rate on the loan portfolio. The repayment from the portfolio will be channeled into investments and new credit placements. As a result, the *Climate Trust Fund for Camelids* will consist of four distinct sub-funds, each serving specific purposes. Refer to Figure 1 for a visual representation of the proposed financial mechanism, including key actors and fund flows.

Figure 1: Institutional framework and financial mechanism for a climate fund for the camelid sector



Source: Vera Franken & Cambiando Paradigmas S.R.L. 2023

A state-owned bank will be in charge of managing the *Climate Trust Fund* with the following sub-funds:

1. **Investment fund:** resources will be allocated for investments in domestic securities, ensuring the trust's stability and longevity. These investments will focus on national financial instruments, including National Treasury Bonds, Bonds, and Fixed Term Deposits issued by reputable Financial Intermediation Entities within the national securities market.

2. **Fund for climate microcredits:** resources to provide microcredits for Andean camelid breeders, enabling the financing of models of good climate livestock farming practices that promote climate change adaptation.

3. **Revolving Fund:** fund dedicated to recuperating microcredit resources through the repayment of loans by producers. The recovered funds will be reinvested into the Fund for climate microcredits, allowing for continuous support to producers through ongoing access to microcredits.

4. Fund for evaluators, insurances and guarantees: resources allocated to

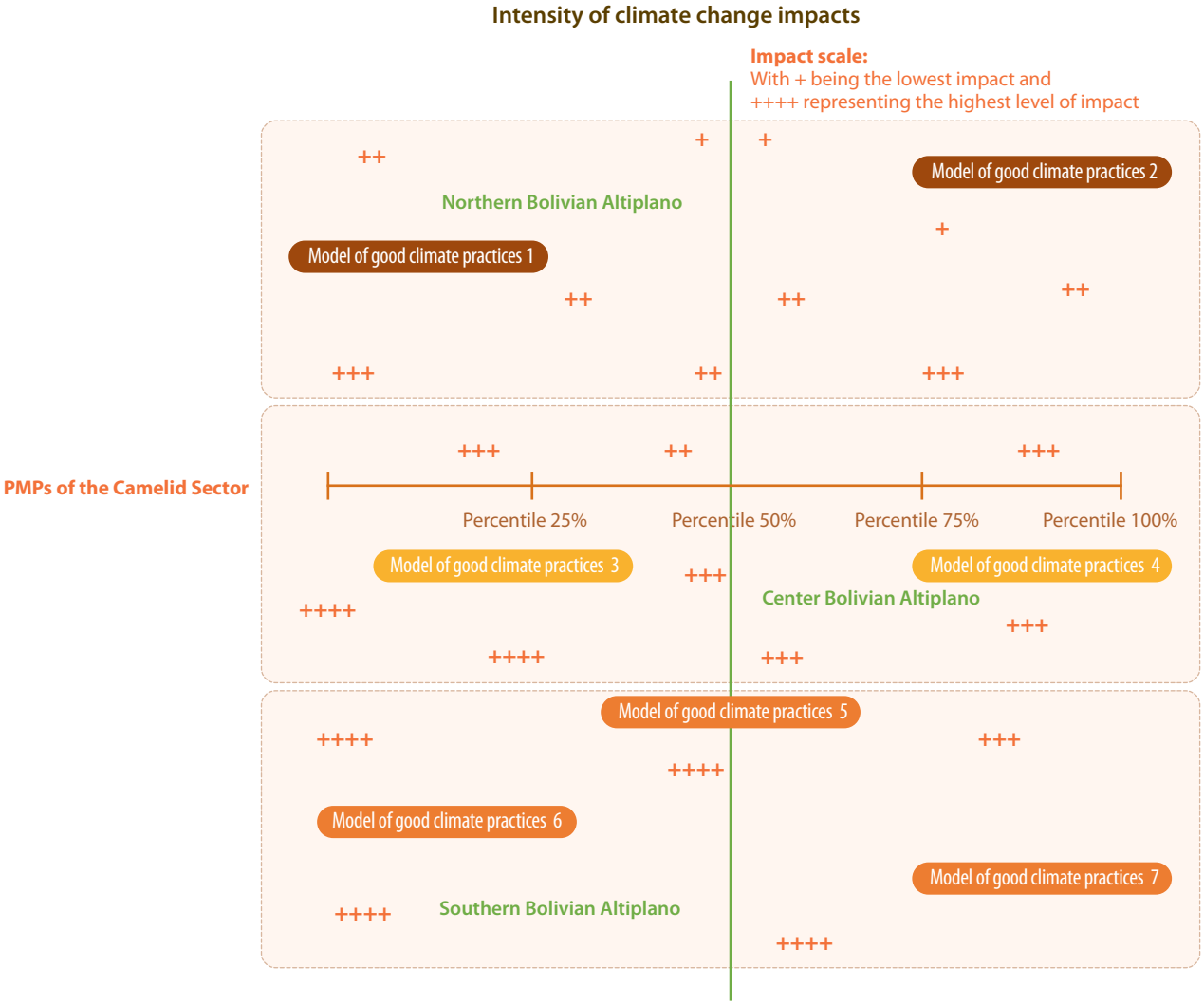
a. **Credit loss insurance:** provides coverage against the risk of non-repayment of debts incurred with a financial institution in the unfortunate event of the death or total and permanent disability of small and medium-sized producers.

b. **Guarantees:** support to producers to cover the guarantees necessary to acquire loans, especially for those most vulnerable to the impacts of climate change.

c. **Hiring of technical experts in good camelid livestock management and climate change** that will provide assistance and evaluation of investment plans, technologies and other services to the bank and the SMP requesting a microcredit.

The resources from the **fund for climate microcredits** will be utilized to finance exemplary climate practices, *models of good climate practices,* that aid SMPs in adapting to the ongoing and future impacts of climate change. The fund's primary goal is to provide microcredits for breeding activities and essential productive infrastructure, with a focus on supporting SMPs that are most severely affected by climate change and possess limited adaptive capacity. To achieve this objective, the development of a prioritization matrix for the best practice models to be funded is imperative, adhering to the strategic approach illustrated in Figure 2.

Figure 2: Prioritization matrix for climate microcredits



Source: Mauricio Zaballa & Cambiando Paradigmas S.R.L. 2023

The ability to adapt is closely tied to a producer's financial capacity. Those with higher financial resources exhibit greater adaptability. Producers positioned in the 75th and 100th percentiles on the financial scale demonstrate superior adaptive abilities. Conversely, those at the lower end of the scale necessitate financing with more favorable terms and support systems.

Meanwhile, the extent of climate change impact is denoted by the number of "+" signs. More "+" signs indicate a more significant impact from climate change. The interplay between these factors, encompassing both climate impact and the percentile of payment capacity, shapes the priority for financing initiatives.

In addition to the factors that vary from producer to producer (SMP), gender, and age, there is another crucial aspect for prioritization. The goal is to ensure equal access to loans for both women and men, promoting the active involvement of women and young individuals in applying for microloans. To achieve this, these specific groups of SMPs are offered more favorable credit terms as an incentive. This initiative is supported by a learning process rooted in practical experience, developed by the "Access to Financial Services" component of PRO-CAMÉLIDOS.

Thus, a microfinance product tailored for SMPs in the camelid breeding sector is suggested. This product would offer very low-interest rates and provide support to meet banking requirements. The microcredit would be contingent upon the exclusive use of funds for models implementing measures aimed at adapting to both current and future climate change impacts.

The selection and support for implementing the measures of the model would be overseen by climate evaluators. Their expenses would be covered through resources allocated from the **fund for evaluators, insurance and guarantees.** Livestock experts would assist SMPs in effective livestock management, while climate experts would evaluate proposed investment plans. They would also propose and assess the technologies eligible for financing, adhering to the guidelines outlined by the *Climate Trust Fund for Camelids* and the **fund for climate microcredits.**

This fund will also allocate resources to streamline access to climate microcredit by facilitating compliance with the banking system's requirements. It will also provide funding for loan loss insurance and guarantees as needed (depending on the SMP). Moreover, it is recommended to offer more favorable terms to groups with limited access to the financial system, such as women and young people, potentially including lower interest rates and other benefits. For a more detailed outline of specific proposals for microfinance products, please refer to the dedicated section in the study report.

In addition to the financial mechanism, it is essential to establish affordable **camelid livestock insurance** to cover damages, losses, and expenses resulting from climate-related events. Furthermore, an institutional framework should be established to deliver technical support and capacity building in climate change adaptation for the camelid sector.

5. Recommendations

The vulnerability of SMPs dedicated to camelid livestock to both current and future climate change impacts is significant. To enhance their resilience, dedicated funds and tailored support are essential, addressing both climate change challenges and financial constraints. Updated training programs are necessary to enhance existing livestock practices, along with continuous technical assistance programs and funding for pilot models customized for diverse regions and types of SMPs.

Furthermore, funding should be allocated to measures that genuinely enhance climate resilience, such as climate models, aiding in the strategic allocation of microcredits to SMPs. It is crucial to assess the specific climate risks faced by SMPs in each case to accurately gauge the climate vulnerability of producers. Establishing standardized methodologies for evaluating applications based on good climate practices is imperative to ensure effective assessments.

It is recommended to integrate microfinance products with sound agricultural and livestock climate practices, coupled with appropriate technical support. This integration is essential to enhance the adaptive capacity and climate resilience of producers, particularly in regions like the Southern Altiplano in Bolivia, where livestock and quinoa production activities are intertwined. However, to achieve this integration successfully, consistent and robust support from a continuous technical assistance service is crucial.

Finally, the study underscored the critical importance of livestock insurance for camelid producers, driven by two key factors. Firstly, it enables producers to assign a tangible economic value to their livestock, facilitating their access to credit. Secondly, given the escalating impact of climate change, marked by rising instances of drought and extreme events like frost, such insurance becomes pivotal. These climatic challenges pose substantial economic threats to producers, making the need for insurance coverage more pressing than ever.

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