

## ANALYSIS OF RESILIENCE IN INVESTMENT OF AN IRRIGATION SYSTEM BASED ON THE COMPARISON OF CLIMATE SCENARIOS

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### ABSTRACT

This document shows the Investment Resilience Analysis (ARI) of an irrigation system in the Cauchi Titiri Community, according to the comparison of climate scenarios (CCSM4 and MIROC). Also, the variability of the temperature and precipitation considering the scenarios of representative concentration trajectories (RCP): 2.6\_2020; 4.5\_2050 and 8.5\_2050. This area frequently suffers from floods, droughts, frosts and hailstorms. It is located in a semi-arid area, in which there is a medium level of threat in terms of droughts. Therefore, this area has a high water deficit. So, the implementation of an irrigation system is required to improve the yield of agricultural production and guarantees the availability of water for irrigation in the area. The results obtained from this analysis indicate that there is an increased threat of droughts and frosts, which were considered as main risks for the ARI. According to the corresponding analysis, which is based on three study modules, Risk Analysis, Climate Resilience Analysis and Benefit / Cost Analysis, risk exposure mitigation measures were proposed, such as changing the location of the reservoir and strengthen not only the cleaning capacities of the irrigation system, but also the capacity to deal with climate change events. Consequently, as a result of the implementation of these measures, a 40% reduction in the risk of the system will be achieved, considering the current risk and the risk of climate change. For its part, an avoided cost of Bs. 1,526,668 will be reached due to reconstruction losses and attention to the emergency.

**Keywords:** Climate Change, Analysis of Resilience in Investment (ARI), Mitigation, Resilience, Representative Concentration Pathway (CPR), Climate Models, Irrigation System.

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