INTEGRATED ASSESSMENT OF CLIMATE CHANGE AND VARIABILITY IN THE CENTRAL PERUVIAN ANDES. RESULTS OF A PILOT STUDY IN THE MANTARO RIVER BASIN

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ABSTRACT

The Geophysical Institute of Peru, in coordination with the National Council of Environment, CONAM, through the Program of National Capacities Building for Impact of Climate Change and Air Pollution Management, PROCLIM, developed the pilot study "Integrated Local Assessment of the Mantaro River Basin", as part of the activities related to the study of vulnerability and adaptation to climate change.

The main objective of the study was to systematize and to extend the knowledge about climate change in the Mantaro river basin, and to evaluate the climatic, physical and social aspects of its vulnerability, as well as to identify viable adaptation options for the agriculture, hydroelectric energy and health sectors, to be incorporated into local and regional development planning.

The Mantaro river basin (34 550.08 Km2), is located in the central Andes of Peru (10º34'30''S-13º35'30''S and 73º55'00''W- 76º40'30''W) which almost 90% of its territory with altitude greater then 3000 masl. The importance of the Mantaro basin is, because the hydroelectric plants installed there, produce nearly 35% of the electrical energy of the country, the agricultural production of its valley is the main source of food for Lima, and its population surpasses the 700,000 inhabitants. Therefore, it is important to assess the impacts of climate change and propose adaptation measures.

In this context, the climatic component of the study consisted in the analysis of the climatic characteristics of the river basin: intraseasonal and interannual variability of rainfall over the basin, the relation of local climate with atmospheric patterns on regional and global scale, the climatic trends in the last 50 or 40 years, and the characteristics of the freezes and trends in their frequency and intensity. On the other hand, the generation of future climatic scenarios for the river basin, constituted one of the most important objectives. These results were used for the analysis of the present and future vulnerability in the Mantaro river basin to climate variability and change, as well as for the proposal of adaptation measures

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