



Reservoir storage and irrigation in Arequipa, Peru

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In countries such as Peru, irrigated agriculture is not only vital for the subsistence of many but can also be a factor of economic development and by extent social improvement. To answer the local demand and respond to the water scarcity in the sub-basin of Yarabamba, near city of Arequipa, the government decided the construction of a dam for irrigation. The irrigation systems are affected by the lack of water during the dry season for lack of storage and of water distribution between downstream and upstream sectors, among other issues. Water scarcity is the main issue in the basin, leading to poor yields and the inability of growing crops with a high commercial value. Rainfall is available only from November to April, the rest of the year being very dry. Furthermore, the lowest areas of Yarabamba, Sogay and Quequeña are disadvantaged compared to the highest area of Polobaya. By creating a large storage area to regulate the variations of water availability through the year, the dam would allow to at least palliate the lack of water in existing lands, and at best to extend agricultural lands. Farmers would then be able to shift toward higher value crops more easily than without this extra storage. The main focus of the research was the dam which was supposed to improve the water distribution and availability in the sub-basin. From the results of the study, it can be concluded that other factors, related to the irrigation system itself, are involved in the efficiency of the new structure. The farmers, the main stakeholders, believe that more could be done to improve the system and their standard of living. Most of all, the main issue that should be resolved is the fair distribution of water. However, this is not possible without a strong cooperation between sectors, and a potential change in diversion structures. The competition between the districts should be reduced, otherwise the benefits of the dam would not give the expected results. This example shows that the use of the dam is so closely linked to the irrigations systems of the downstream sectors, both on a technical and socio-political plans, that it is hard to give recommendations without considering the system itself.