Resilience of a irrigation scheme in a flood context: the case of Chokwè, Mozambique

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Abstract

Classical irrigation schemes are designed and managed in a context of flood control. They are therefore not prepared to such events not in terms of flood crisis management or in terms of infrastructure design. The aim of this paper is to analyze the mindset of stakeholders of an irrigation scheme in a context of a recent major flood event. In this perspective, we assessed the point of view of irrigation scheme managers and farmers on the resilience concepts to change the design and the flood crisis management.

Since the Chokwè irrigation scheme in Mozambique was built, in 1950s by the Portuguese, it suffered three major floods, in 1977, 2000 and 2013. These disasters have exacerbated the problems of operation, maintenance and rehabilitation of the scheme. The management of Chokwè irrigation scheme is no different to a traditional model characterized by a highly hierarchical, the overvaluation of technical expertise/technical solutions and by an ambition to control natural events.

In the field, we followed both a participatory approach through the implementation of several focus groups between local managers and farmers, interviews with key locals’ actors (ONGs, Government Institutions...). We first elaborated participatory flood maps. The maps, co-designed shortly after the flood event, generated a dialogue between farmers and managers on the flood crisis management. Secondly, this dialogue was an opportunity to discuss and share some local farmer’s innovative solutions to design a more resilient irrigated scheme. Even if they do not correspond to the technical standards, these solutions aim to strengthen a new stability system different from the original failed one. However, we also highlighted the manager’s reluctance to bottom-up solutions and, more specifically, to a resilient approach to reduce the irrigated scheme vulnerability. Such an approach runs counter to the engineering approach to design irrigated schemes according a classical command-and-control framework.

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