[01073] WATER GOVERNANCE AND STAKEHOLDERS' INTERACTION DURING WATER SCARCITY PERIODS– CASE STUDY OF NFIS BASIN

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ABSTRACT
The Tensift watershed basin, more specifically the irrigated land of the N'Fis has an important hydraulic history. Water for irrigation of this plain has evolved from traditional practices and tenures of using and sharing water among users to innovative processes built on modern techniques and structured institutions. This transition promoted by the State has led to profound changes in the allocation and sharing of water resources among various uses and users. Various stakeholders are involved in water governance at different levels making the management of water complex and challenging. Water allocation among various users and uses becomes more sensitive and critical during periods of water scarcity induced by structural periods of droughts. When the resource is limited, conflicts of uses and interests around the distribution and allocation of water is more pronounced and latent conflicts tend to be active ones. This study tries to answer the questions related to how such a process sometimes leads to conflicting reactions, and in other cases solutions promoting collective actions, and to how water scarcity motivates negotiation leading to a compromise and a consensus in water allocation. The investigation is carried out using the Rietbergen-McCracken and Narayan and the Mactor methods to carry out stakeholders' analysis. This analysis showed the existence of "multi-shareholders" management that presents some of obstacles characterized by a dispersion of efforts and carries the risk of a "multi-cephalic power" which results in a lack of harmony and cooperation in decision making. Through the interviews conducted at different levels of management in the aim to understand the process of water allocation, it was concluded that the large irrigation equipment controlled by the State has made the agricultural communities dependent on this system, which is not often able to fulfil always their demand on water for irrigation.
Key words: Tensift Watershed, stakeholders' analysis, allocation of water resources.

1. INTRODUCTION

Water management involves a multitude of public, semi-public and private departments. In a context of water scarcity, exacerbated by successive years of drought, good governance and rational management of water resources become difficult. Conflicts of use and interests around the distribution and allocation of water resources are more pronounced when it is limited. According to Houdret (2005), the governance of water reflects the social structures, the established power relations and the specific interests of actors involved. Most frequently, water reallocation among sectors when all resources are used and consumed benefit to sectors/users most financially and / or politically powerful (Tanouti and Molle, 2014). Indeed, the change of water allocation during periods of scarcity raises problems extending beyond the single issue of water distribution to embed social relations and water management institutions (Mathieu, Benali and Aubriot, 2001).

The Haouz of Marrakech is considered one of the most complex sites to describe in terms of hydraulic structures and territories (Ruf and Riaux 2001). The Water of the Haouz of Marrakech is used for potable water for Marrakech and the surrounding urban and rural canters, irrigated agriculture (large and small/medium hydraulics (PMH)), industry and tourism (hotels, golf grounds and other recreational areas). Important issues will therefore be played around the water resource (Molle, 2014).

Water for irrigation is managed through in complex hydraulic structures with the coexistence and superposition of several generations of water distribution networks. We find several schemes of agricultural development and water distribution dating back to different periods which characterise the management of irrigation systems (Ouzine and Kharrou, 2004). Though, the new approaches adopted by the state have led to profound changes in water allocation among various uses and their implementation is confronted to the challenge of water scarcity during drought periods.

This study deals with how the implementation of these approaches is practically carried out during water scarcity years when conflicts of uses are potential and what are the solutions promoting collective action, and how water scarcity motivates negotiation and leads to a compromise and a consensus in water allocation.

2. MATERIAL AND METHODS

2.1 Study area

The Tensift watershed is located in the West centre of Morocco. It occupies an area of 20,450 km² (Cheggour, 2008). It is limited to the south by the crest of the High Atlas Mountains to the north by the small mountains called "Jbilet", to the east by the watershed line and to the west by the Atlantic ocean where the outlet is located.

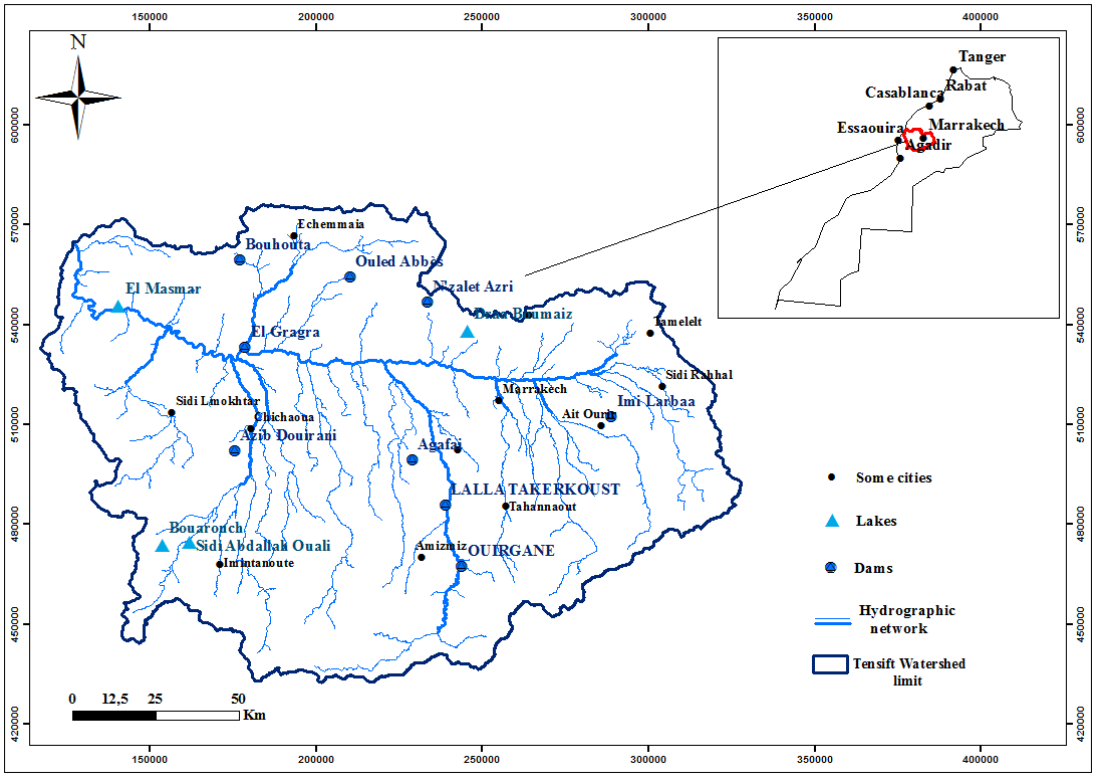

Figure 1. Location map of the Tensift Watershed

The river basin is divided into two parts, the High Atlas Mountains and the semi-arid central Haouz lowland where modern irrigated agriculture is located.

2.2 Methodology

In order to identify the main stakeholders and to involve them in this study, in order to facilitate the collection / clarification of the information and data they possess and to know their point of views, we carried out a stakeholder analysis (Mayers, 2005). This analysis was performed at the beginning of the study to understand the game and the power balance between various actors and their degree of involvement, and the roles and concerns of each stakeholder. The methodology adopted was the Rietbergen-McCracken and Narayan (1997) matrix and the Mactor method (Godet, 1991) to assess the balance of power between various stakeholders and study their convergences with respect to differences in water management related issues and objectives associated with them. Based on the results of the stakeholder's analysis, we conducted semi structured interviews with major and critical actors in order to prospect water governance, water allocation, water conflicts, how much adjustment of allocations is taking place in case of drought years, procedure and processes used to allocate or reallocate water among different users, the flexibility of the process and the reaction of users to reallocation.

3. RESULTS

The investigation carried out showed the existence of "multi-shareholders" management that presents series of obstacles characterized by a dispersion of efforts and carries the risk of a "multi-cephalic power" which results in a lack of harmony and cooperation in decision making. From this analysis we can generally say that potential horizontal and vertical conflicts on water uses and allocation are existing. The results show also that sectoral approach to water management, centralized decision-making and a lack of institutional mechanism for effective consultation among stakeholders are still persistent even though an integrated water management is promoted since the promulgation of the water law in 1995.

Moreover, throughout the study area, several factors impede the harmonious organization of users for implementing sustainable water resources conservation actions. A lack of clarification on respective responsibilities

of different actors is also noticed among water producers, mangers and users. The beneficiaries' representation structures (associations of users of water for irrigation) are not really operational due to lack of training and financial means, among other reasons. Their involvement in decision making regarding water allocation is not effective, according to their assessment, even though their representatives maintain a permanent contact with the State Office responsible for water allocation for irrigation.

Through the interviews conducted at different levels of management in the aim to understand the process of sharing water, it was concluded that the establishment of large irrigation equipment under the State control has made the irrigation communities dependent on this system, which is not often able to fulfil always their demand on water. This situation has exacerbated social tensions related to water resources access.

4. CONCLUSION

The Haouz plain located in the river basin of Tensift has benefited for a long time from water for irrigation, evolving from traditional practices and tenures of using and sharing water among users to innovative processes built on modern techniques and structured institutions. This transition promoted by the State has led to profound changes in the allocation and sharing of water resources among various uses and users. Indeed, water management in the Haouz becomes more sensitive and critical during periods of water scarcity induced by structural periods of droughts. When the resource is limited, conflicts of uses and interests around the distribution and allocation of water become more pronounced and latent conflicts tend to be active ones.

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