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Analysis of perception of temporary pools in western of Morocco by the local stakeholders and the interest of sustainable development

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Abstract

Within Morocco, temporary pools constitute a major reservoir of biodiversity and they represent an important value for the local population. Previous studies carried out within the Benslimane province revealed a large regression of temporary pools.

At the aim to understand the root-causes of this lost, a socio-economic survey was conducted in order to identify the numerous human land uses and evaluate the perception of vernal pools by the local population and the stakeholders. The perception of local administrations and local population (potential arable lands, wasted land) showed the high threat that hangs over temporary pools in the Benslimane Province in the short term. These results showed that there is a need for new environmental policy making and innovative approaches to reinvent governance of temporary pools.

Keywords: conservation; North Africa; public perceptions; temporary wetlands.

Introduction

Wetlands are among the most valuable and productive ecosystems on earth (Castañeda & Herrero, 2008). However, they are being destroyed and degraded around the world and particularly in the Mediterranean region (Tiner et al., 2002). Public perception of wetlands being wastelands and sources of nuisance are roots causes of wetland loss. Negative views toward wetlands potentially result from misunderstanding of the value and services that they provide for the society and inadequate public policies (Xie et al., 2010) that have led to

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their conversion to intensive agricultural, industrial or residential lands (Grillas et al., 2004). Mediterranean temporary pools, defined as endoreic depressions that fill with water during the rainy season and dry out most frequently during the summer, are recognized as very important habitats for biodiversity. However, they are under high anthropogenic pressure, leading to their conversion or complete destruction particularly in the Maghreb (Grillas et al., 2004). A previous study conducted within Benslimane province (NW of Morocco) highlighted a large decline in the number (23%) and in the surface area (61%) of pools during the last 50 years (1955-2001) (Saber, 2006). This decline might be the result of an erred perception of these habitats by the local population and other stakeholders due to their small size and their inclusion within a landscape dominated by agricultural fields. The present study aims to understand the root-causes of this lost by identifying their perception by the population and local authorities using a socio-economic survey within the Benslimane province.

Methods

The study area is located in the province of Benslimane, on the Moroccan Atlantic coast between the cities of Rabat and Casablanca. Within Benslimane region, a study area of 7 300 ha was selected, including three municipalities where the concentration of temporary pools is the most important. A socio-economic survey was conducted in 2008 within the study area by using semi-structured questionnaires, previously tested during a pilot survey. The questionnaire focused on the socio-economic state of the households, information about the temporary pools, land uses according to the local population, and problems in relation with these temporary wetlands. The target samples consisted of 110 households randomly selected. Three persons from the local administrations (Water and Forestry, Provincial Directorate of Agriculture (DPA), Service of vulgarization in the Centre for Agricultural and Development Work in Benslimane) were included in the sample.

Results

Within 110 households surveyed, 90% are from the Benslimane region and 10% reside in this region for employment purposes. Most respondents (60%) replied that pools were very important to them in terms of usefulness. Approximately, 21% of the respondents indicated that pools were very important in terms of sense of place and non-materialist values and 7% indicated that they were important for both reasons. Almost 19% of the respondents indicated that pools were not important and presented no interest.

➤ The main uses of temporary pools according to respondents: A total of 53% of the respondents replied that they use temporary pools primarily to water their livestock and to irrigate their crops. A total of 46% of respondents used temporary pools for grazing purposes. 78% of respondents replied that they harvest plants within the temporary pools on a daily basis; however, indirect ecological services linked to temporary pools (i.e. water purification, flooding control, etc.) were noted only by 7% of the respondents (**Figure 1**).

➤ Problems linked to temporary pools: A total of 46% of respondents stated that mosquitoes may constitute a significant nuisance for local communities and pool users; 18% of respondents indicated that the use of temporary pools as a sand or rock quarry may be a problem due to increased depth, leading to the drowning of children or cattle in forested areas.

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➤ The perceptions of pools by local authorities: it varied according to the services. The State forest service representatives indicated that the temporary pools constitute a landscape element useful for rural communities and for hunting activities. Both the Agriculture regional service and the popularizing agriculture practices service, indicated that the temporary pools are only a lack of leveling in a field causing flooding or stagnant water.

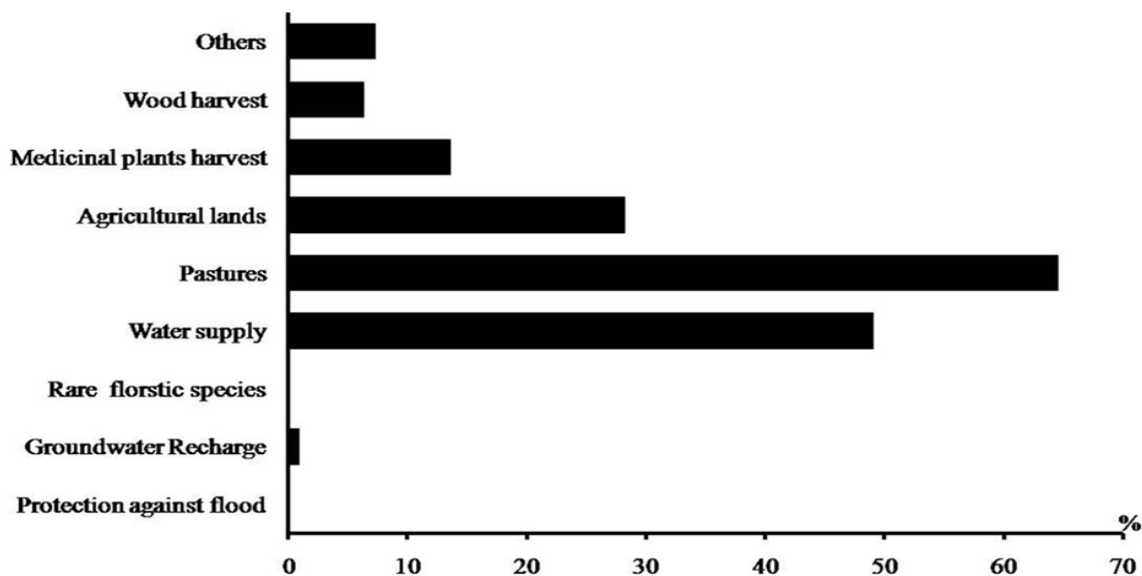


Figure 1. The direct and indirect services supported by Benslimane temporary pools according to the local population.

Discussion

Within Benslimane province, we identified different perceptions of temporary pools by local community members. The perceptions were based principally on anthropocentric and utilitarian concepts. However, we can categorize four common perceptions:

- (1) the pool as a «collection of natural and renewable resources»: Our study supports the finding of Odalele (2008), where wetlands in developing countries are regarded for the multiple services that they provide to the local community. The predominance of this utilitarian and materialist perception in the study area may be explained by the fact that most of the respondents are dependent on natural resources located within the pools.
- (2) the pool as «potential arable land»: This perception is widespread in Morocco where wetland conversion for farming purposes is frequent (Green et al., 2002). The “use it or lose it” mentality is evident as people convert or use lands because there is no security of resources for the future, and they perceive few alternatives.
- (3) the pool as a «nuisance source»: These perceptions lead to the drainage and filling of pools; the two principle causes of wetland disappearance in Morocco and around the world (Morgan, 1982).

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(4) the pool as a «living place»: this perception underlined that pools had an important positive sense of place (Kunstler, 1994).

Most of the administration and state services representatives perceived the pools as potential arable lands. They constitute an opportunity to feed the local and growing population. According to these respondents, several national projects have been elaborated to drain pools for farming purposes, and only low budgets limited the development of drainage networks.

Conclusion

The position of local administrations and the dominant perception of the local population showed the high threat that hangs over temporary pools in the Benslimane Province in the short term. Therefore a new environmental policymaking and innovative approaches to reinvent governance of temporary pools should be applied in Benslimane province at the aim to guarantee a sustainable development of temporary pools.

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