Introduction

Scholars from several disciplines have stressed the importance of locally evolved and culturally specific collective management systems of natural resources for the well-being of local communities and for the conservation of biodiversity and ecosystem services. Environmental history and Landscape ecology highlighted the role of specific practices of resource management in the configuration of heterogeneous landscapes at multiple spatial and temporal scales, and across many different taxa and ecosystems of the Earth (Balee 1994; Benton et al. 2003; Turner 2005). Ethnecologists on their side have showed that these management practices performed by indigenous and rural groups are embedded in particular beliefs and knowledge systems of their local environment. They largely investigated the acquisition, transmission and loss of Traditional Ecological Knowledge (TEK) in relation with factors such as age, formal education and integration to market economies, and how all this affects the sustainability of the socio-ecosystems (Toledo 1992; Reyes-García 2009). In fact, these management systems usually performed by resource-poor farmers have been proven to contribute to the conservation of biodiversity through the use of more varieties, species, and landscape patches than do most of the modern agricultural and food production systems, and to increase the capacity of the socioecological systems to adjust to an increasingly changing environment (Berkes and Turner 2006; Berkes et al. 2000; Ostrom et al. 1999; Dietz et al. 2003; Altieri 2002). Similarly, the science of ecology and its various applied fields have experienced a conceptual shift towards the understanding of ecosystems as complex systems in which humans are an integral part (Berkes 2004; Gomez 2010). Others have supported the idea that biodiversity conservation and human well-being are very often complementary goals that should be tackled together from the ground up (Berkes 2007; West et al. 2006; Adams et al. 2004).

However, despite the increasing scientific recognition of local management systems and at least two decades of increasing awareness by civil society and policy-makers (Reyes-García 2008), the harsh reality is that they are being rapidly eroded in the course of the progressive interconnection of people and ecosystems under the rules and forces of global markets (Sutherland 2003; Maffi 2005). On the basis of such failure there is a misunderstanding of the science-policy interface. This is the reason why the scientific research and the training of young scholars on research-action issues are needed.

Endeavours to halt the erosion of local management systems and the linked loss of bio-cultural diversity largely depend on alternative and critical inquiries driven from within the community’s perception and aimed at gaining a profound understanding of the socioecological transformations experienced by these systems under current global change. From an anthropologic reflexive standpoint on the cultural frontiers and the transgressions that development projects can perpetrate, scientists must have a highly critical spirit on the North-South cooperation actions. What is seen frequently as an act of “goodness” –such as co-development and cultural hybridization between the “developers” and the “developed” (Martínez & Larrea 2010)– may be just a new type of cultural colonisation. In fact, if the take off point of human development are sociocultural systems that do not admit neither a “mixed” ethnic category nor the same concepts of nature and society, the different actors (generally those “in development”) can feel finally invaded or overrun. In this sense, a deep reflection of each other must be taken into account (Ventura coord. 2010). Only when both categories reach to share a certain conception of the actions that we try to put in place, it will be possible to really advance into co-development. These epistemological difficulties must be absolutely taken in account when choosing the
analytical and educational tools of research-action. This is observed to occur even in the newest programs of Community-Based Conservation (CBC) which, masked under the false label of «participative» processes, many times still perpetuate the imposition of external top-down approaches based on expert knowledge and rational planning of resource use to sort out the environmental degradation caused by what in fact, is still implicitly thought to be ignorant peasants (Mansuri and Rao 2004; Ulloa 2002).

**Main objectives and how they will be achieved**

We will show the empirical relevance and practical potential of such a theoretic approach through a research aimed at studying collective management system of natural resources and their potential. These are widely spread and especially alive in Morocco, the Berber *agdals*. These systems of environmental management consist in a temporary prohibition of access to common pastures, forests and other natural resources in order to secure their renewal, and can be even considered as a common Maghrebian heritage resulting from several millennia of socioecological convergence. In the case of the Maghreb, *agdal* systems have secured the long-term survival of local communities thanks to a successful management of common-pool resources, and still do. This is why we will center great part of our research efforts in the Maghreb, where the candidate will be able to find unique and very illustrating case studies, as they are one of the examples still strongly alive in the western Mediterranean.

In any case, these Magrebi systems are also experiencing now dramatic transformations including demographic growth; national and international out-migration; increasing frequency of droughts; introduction of mass media; market integration; overgrazing, encroachment of agriculture in marginal lands and expansion of monocultures; and loss of traditional religious beliefs in local Saints that used to help in their regulation (Auclair et al. 2006; Mahdi 1999; Dominguez et al. 2010). These transformations are taking place in the course of a strong agro-technological change and a neoliberal restructuring–land privatization, agricultural intensification, privatization of the public sector and reduction of state services– that has been partly justified by a declensionist colonial scientific narrative blaming the “natives” for deforesting and overgrazing what was claimed to have been a much more forested landscape (Davis 2006; Davis 2007). It is precisely this socioecological systems in full dynamism and their management characteristics, that we want to make holistically comprehensible and use them as training for co-development for as a Postdoc research, highlighting the benefits that these systems could bring to the local populations and how to address them in the current processes of change.

Also, since without the collaboration of local groups it would be impossible to make research and education on research-action, it is important to highlight that Universities and research institutions of the rich North should recognize the effort that locals’ collaboration means. Only by establishing certain mechanisms of feed-back towards the local populations such as bringing to them a certain monetary or infrastructural income, can one do deep research on these objects and sites. For example through spending the nights, feeding and transport costs in the community, researchers can be given back to the local communities an extra reason to host researchers, NGO’s and companies embarked on co-development projects. At the same time this can also improve the results of our own studies thanks to local acceptation and make a real step towards education on research-action with the local communities.

Concerning the process of erosion of collective management systems of natural resources in the Mediterranean, it is leading to a highly uneven distribution of the costs and benefits of socioecological change among different social groups (Martinez-Alier 2002). There is thus the need to enhance a more inclusive and democratic mode of socioecological transformation through an endogenous, self-organizing and adaptive political process drawing on various knowledge systems in which new socioecological relations and institutional arrangements are to be built to lead the system to a desired and more resilient stability domain. With an experienced interdisciplinary group of scientists from the Center for Biocultural Diversity of the School of Anthropology and Conservation at the University of
Kent, we aim at contributing to such a political process by an approach interested on research-action and stemming from real-life problems of local communities managing collectively natural resources in Morocco. This should be achieved through the training in these terms of the future local and external agents and animators of co-development of which some should be the current postdoctorate candidate.

Another aim of the research will be based in identifying different paths of socioecological transformation experienced by collective management systems of natural resources (CMSNR) in terms of livelihood security; social well-being and equity; cultural identity; intensity of resource use; type of landownership; landscape structure and functioning; use of biodiversity and resilience. By undertaking this postdoctoral research training, we aim to contribute to overcome some of the weakness of expert analysis on local systems of natural resource management, especially those regarding the locals' culture and their comprehension of their own environment, social equity and democracy. For instance, Atlas tribes are characterized by a diffuse power and a trend towards egalitarianism through sovereign assemblies and an elected leader, and it is problematic to extrapolate the western ideas of representative democracy to Berber cultures (Auclair et al. 2006). Regarding the future strategies of conservation of CMSNR’s, special attention will be paid to test and develop a concept of socioecological heritage as a distinctive set of accumulative patterns of socioecological interactions and practices that enhance local self-determination, identity and biodiversity (Auclair, Otero 2010), as well as the role it may play in human well-being and in the conservation of cultural landscapes.