

Drawing on traditional ecological knowledge for better water management

"Harnessing indigenous knowledge for climate change-resilient water management - lessons from an ethnographic case study in Iran" is an article by Mehdi Ghorbani, *et al* published on 4 February 2021 in the journal *Climate and Development*. In order to cope with climate change and population pressure, the inhabitants of Jiroft County in Iran use traditional ecological knowledge (TEK). This knowledge and know-how form the basis of a so-called "hydro-social" model that can serve as an inspiration for better water governance.

#1 In Iran, the government is responsible for the sale of water, which is distributed to citizens under a regional plan. In Jiroft County, TEK plays a major role in the governance of this resource. Indigenous people are under pressure from land use for food security, centralisation of water governance for industrial and agricultural purposes, and declining water resources due to climate change. In response, local people advocate the use of TEK that offers environmental sustainability and economic and energy efficiency benefits. These include indigenous knowledge such as planting short-rooted trees such as thorny olive and poplar at a significant distance from the canals so that the plants do not draw water from them. This TEK is part of a cultural, environmental and social context that must be considered.

#2 In order to facilitate water governance in this region, all communities have adopted the same hydro-social model based on decentralised water management and sharing. It is based on an equitable participation by local people according to their respective water needs. The villagers are divided into five categories, each with specific tasks, such as dredging ponds, managing *qanats* (underground irrigation tunnels) and watercourses, or arbitrating conflicts. The land is divided into 6 *Dang* formed on a basic unit called *aHabe* (1 *Dang* = 16 *Habe*) which is the unit of division of property and therefore of water distribution in the village. One *Habe* is equivalent to three hours of water use, which is stored in ponds. The duration of water storage granted to each inhabitant also depends on the *Habe*. In addition, each landowner must participate in a dredging process proportional to their share of agricultural land and

Habe, and those who break the rules of this system are denied water.

#3 The TEK employed in this hydro-social model involves cooperation at village level and allows for the establishment of a system of 'bilateral compensatory mutual assistance' where the capital gains are used to finance the poorest farmers in the community. Surplus labour is used in maintenance work and ensures self-sufficiency. The sharing of agricultural stocks also provides for the basic needs of the poorest. This type of organisation gives common resilience and therefore avoids conflicts that might emerge due to shortages. The hierarchical system not only allows for better control of water stocks at a much lower cost than large centralised initiatives, but also, via an appropriate range of sanctions, for fair participation of everyone in its governance.

What is the situation in France?

Although French management of water policy around the notion of watersheds is recognised, climate change is causing tensions between users. For example, there is strong opposition to mega-basins that store water in winter to irrigate crops in summer. They are filled by collecting rainwater, but mainly by pumping from rivers and groundwater. Water loss due to evaporation is estimated to be between 20% and 60%. This agricultural model, which is centred on maize cultivation and promoted by the supporters of these infrastructures, is contested because it consumes a lot of water. Opponents are campaigning for shared governance of water, distributed equitably and sustainably, at the service of a relocated peasant agriculture that respects ecosystems.

The opinion of Pauline Bureau, the Vice-Chair of La Fabrique Écologique.

Increased pressure on water resources means that new strategies must be found for the equitable sharing of this resource. The cooperative approach of the hydro-social model is a valuable source of inspiration in this respect.