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Why studying traditional irrigation?

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In the introduction of his last opus on *The formation of the vegetable mould...* Charles Darwin (1882), regarding the action of worms, stated that "the maxim «de minimis lex non curat» does not apply to science". With this assertion Darwin meant that in the Nature great changes are often a consequence of a continuous and unending repeat of minimal steps. This concept, which throws an intriguing light on all Darwin's opera, may be attractively applied also to describe the evolution of natural ecosystems into agroecosystems and anthropogenic landscapes, particularly in water scarcity conditions. Many historians and archaeologists in fact agree on the fact that the birth of the first cities, as Uruk (ancient Mesopotamia), and the settlement of the great oases along the ancient commercial routes of Central Asia (commonly known as Silk Road), were made possible only thanks to the progressive capability of managing the soil reclamation and irrigation. Such irrigation techniques, which deeply adapted themselves to the local soil and environmental conditions, and were performed to coincide with coherent agricultural practices, permeated the traditional agricultural practice for many centuries until nowadays. Traditional irrigation therefore played a key role at developing anthropogenic landscapes, so that we may regard to them -- in the Darwinian sense -- as to a hydraulic «minimum» of the landscape.

In this contribution, aiming at stimulating a discussion on the state and future of traditional irrigation, with particular reference to the area of the Mediterranean basin and of the Central Asia, we discuss eight conjectures that try to answer to the posed question. They are:

- Traditional irrigation in water scarcity is a cultural and identity heritage;
- However it should not only be preserved, by protecting its most relevant artefacts. In fact it innervates the landscape and provides an important key to understand historical and anthropogenic landscapes, and to reconnect the comprehension of important fluxes of mass, energy and labour;
- It allows the arid agriculture being performed. It is therefore an axle for oases and a defence against desertification;
- It is adaptive and coevolutionary with the surrounding environment, and it proved of being able to react to climatic changes;
- Water scarcity conditions may be regarded to as proxies of climatic and hydrological changes also in nowadays humid areas of the Northern Mediterranean basin;
- Traditional irrigation is seldom endogenous. Its capability to diffuse, and to adapt to and to root

in different environments, requires to consider each case both in a local and in an ecumenical perspective;

- It furthermore poses an interesting epistemological question, i.e. whether similar techniques in different contexts were diffused by skilled-labour's migration or treatises, or autonomously developed;
- Finally, it allows to develop labour-intensive landscapes also in marginal and abandoned areas, thus stimulating biodiversity, protecting slopes and mitigating the hydrogeological hazard.

By considering all these conjectures, we might probably conclude that the future of traditional irrigation is yet to be written. The study and the adaptation of the traditional irrigation to modern issues might still deserve important applications to develop agroecosystems in a sustainability perspective.