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Ecosystem services provided by agricultural terraces in semi-arid climates.

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Since ancient times, agricultural terraces are common features throughout the world, especially on steep slope gradients. Nowadays many terraces have been abandoned or removed and few new terraces are build due to increased mechanisation and intensification of agriculture. However, terraces are amongst the most effective soil conservation practices, reducing the slope gradient and slope length, as well as runoff rate and soil erosion, and without terraces, it would be impossible to cultivate on many hillslopes. Moreover, their scenic interest is undeniable, as in some cases, terraced slopes have even become part of UNESCO World Heritage.

In order to highlight the potential benefits, requirements and limitations of terraces, we reviewed different types of sustainable land management practices related to terraces and characterised their implications for provisioning, regulating, supporting, and cultural ecosystem services. We centred our review on terraces in semi-arid environments worldwide, as were documented in the WOCAT (World Overview of Conservation Approaches and Technologies) database.

Our results show that the most important ecosystem services provided by terraces relate to regulation of the on-site and off-site effects of runoff and erosion, and maintenance of soil fertility and vegetation cover. The presence of terraces also favours the provision of food, fiber, and clean water. In short, our results stress the crucial environmental, geomorphological and hydrological functions of terraces that directly relate to improving the quality of life of the people that use them. These results highlight the need for renewed recognition of the value of terraces for society, their preservation and maintenance.