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## Securing the environmental services of mobile pastoralism : policy and investment options

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**Key words** pastoralism , economics , valuation , environmental services

**Background** Livestock production plays a role in preserving wildlife and biodiversity , maintaining soil fertility and nutrient cycling , and in generating amenity value of the rangelands for other users (Mearns 1996) and livestock have multiple beneficial impacts on rangeland environments and pasture quality , raising primary pasture productivity and forage quality (McNaughton 1979 , Walker et al . 1989) . Mobile pastoralism is highly adapted to the environmental variability of arid lands and pastoralists use a wide variety of adaptive mechanisms to manage the risks that are implicit in such environments (Spencer 1973 , Dyson-Hudson 1966 , Bovin and Manger 1990) . Such mechanisms are supported with elaborate land-use strategies for conserving natural resources , such as managed grazing regimes , stocking regulations and pasture conservation in many pastoralist societies (Ruttan and Borgerhoff Mulder 1999) .

Although pastoralism arose in evolutionary terms relatively recently , pastoralist land management and herding strategies have also modified many rangeland ecosystems and removing pastoralism now can be detrimental to grazing ungulates and rangeland biodiversity (Lamprey and Waller 1990) . Where degradation of pastoral lands occurs it is frequently an outcome not of overstocking , but poor management brought about by constraints to pastoralist customary institutions and the application of traditional management practices , and in particular constraints to livestock movement and the imposition of fixed stocking rates (Niamir Fuller 1999 , Behnke et al . 1993) .

It should follow that , if constraining pastoralism leads to environmental degradation , then supporting pastoralism can lead to environmental improvements . However , although much has been made of development and environment policy failures that have undermined pastoralism and thus led to degradation , less has been done to show the positive outcomes of supportive policies . This paper is based on 6 country studies that illustrate environmental improvements that have come about as an outcome of supportive policies for mobile pastoralism .

**Findings** This study by the UNDP/GEF/IUCN "World Initiative for Sustainable Pastoralism" (WISP) highlights positive environmental outcomes as a result of pro-pastoralist policy and planning in six countries : Sudan , Tanzania , Mongolia , Bolivia , Niger , Spain and Switzerland . Policies include the Spanish Act of Parliament on Cattle Trails (1995) , Sudan's Presidential Decree on Transhumance routes (20/2005) , Mongolia's Land Law (2003) and its amended Law on Nature and Environment (2006) , Tanzania's Bill of Rights , and Switzerland's Federal Act on Aid to Investment in Mountain Regions (901.1 of 1997) . These policies have contributed to increasing biodiversity and reducing land degradation as a result of enabling community decision making , devolving power and control to resource users , protecting land rights and economically empowering producers .

**Discussion and conclusion** The role of mobile pastoralism in reversing land degradation has already been recognised by the Convention to Combat Desertification (CCD) . However , the logical step from this understanding to recognition of the role pastoralism can play in conserving biodiversity is still ongoing , and even less progress has been made in taking the third logical step : if pastoralism reverses land degradation and increase biodiversity , to what extent does it improve soil carbon capture ?

Policies continue to constrain pastoralism and lead to land degradation and poverty , yet this situation is not universal . The experiences in this study illustrate ways to sustainably reduce poverty in drylands areas , and highlight values of pastoralism that are not routinely considered , or compensated . Where such values are ignored , governments incur important opportunity costs and overlook important investment opportunities .

In order to achieve the mutually supportive goals of sustainable dryland management and pastoral poverty reduction it is necessary to overcome anti-pastoral prejudice and bring an end to damaging policy and practice . Key policy gaps include regulation of transhumance , investment in production , mobile (or otherwise appropriate) social service delivery , conflict resolution , decentralisation and democracy adapted to mobile populations , alternative and complementary income generation opportunities and "exit strategies" for those pastoralists wishing to leave the system . Pastoralists need to be enabled to capture the economic benefits of their livelihood , for example through improved marketing of livestock products , processing of non-timber forest products and being able to benefit more responsibly from tourism . To encourage investment in these sectors , it is incumbent upon government to ensure that the full range of values of pastoralism are recognised and protected .

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