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# Traditional practices for sustainable rangeland and natural resources management: A case study of the Barzok Region, Iran

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## Introduction

Livestock husbandry ranks second in importance the agricultural economy of Iran and also underpins the livelihood of many nomadic and sedentary peoples (Farhadi 2001). At the same time many rural locations such as the Bazok district have wide appeal to tourists because of cultural and natural features. This means local Iranian villagers must manage the grassland resources in a sustainable way according to geographical and climatic conditions. In general, utilization systems developed by local villages endeavour to combine social, cultural, economic and technical factors in such a way as to provide an optimal output of agricultural and eco-services (Papeli and Khanyeki 2001). The aim of this study was assess the role of traditional practices to sustain their grassland resources.

## Methods

The Barzok District of Kashan County is located in Isfahan Province with 3529 households and a population of more than 10,000. The region is mountainous (2050 m asl) with a climate classified as mid-latitude desert supporting a cool temperate desert shrub grassland. The low average annual rainfall (<120 mm) and other precipitation shows no distinct monthly pattern. Summer temperatures may exceed 40°C (July) and winter nights in January average -8°C. Due to low rainfall most of the land area is not cultivated, leaving the natural vegetation still intact albeit altered by livestock grazing.

To investigate the role of customary criteria for natural resource management, we used the direct observation method comprising a combination of qualitative surveys and face-to-face interview with target groups that included farmers, pastoralists, and shepherds. We stratified the survey to take account of the different land types in Barzok district.

## Results

### *Livestock management systems*

Local statistics indicated that Barzok District grazed about 3000 livestock in two distinct geographical locations: viz. highland grassland where the villages of Vishnag, Bardariou, Ashare, Kudar and Bon Baraol are found; and lowland grassland where the villages of Ruz, Darrou, Ghashun and Kudar are located. These two grassland types are used in a

transhumance pattern. In autumn and winter shepherds grazing their flocks on the lowlands often using stored forage harvested the previous spring as supplement. Livestock are moved to the highland grassland in late May and remain there until late October. The highland ranges are preserved during this period. The *Ghoroghban* (or warden) together with his employee (or *Padous*) superintend the grazing to preserve the grassland. The alderman selects the *Ghoroghban* whose wage is paid in produce such as milk.

There are two kinds of herding households in the village: (1) Ludari who are pastoralists who have 4-5 livestock which they combine with other households to form a herd with each family taking turns at tending the livestock. Highland and lowland system isn't treated in this mechanism and the pastoralists use environs rangelands. (2) Passaiy are households with more than 5 animals who also combine with other households but in contrast to ludari, the passaiy employ a shepherd to look after the combined herd for which he receives a certain amount of butter or doogh per livestock. Doogh is a yogurt-based beverage. Popular in Iran and also found in Afghanistan, Azerbaijan, Armenia, Iraq, Syria, Turkey, as well as the Balkans. There are 17 *Passaiy* herds in Barzok.

Also there is a common herd in the village called *Bozaghale Cheran* that includes young goats that are separated from their mothers to prevent milk overuse. Autumn and winter are the breeding season for livestock.

### *Economics*

During spring and autumn, the whole produced milk from a herd is divided among the pastoralists households according to the number of livestock own by the household. In the same way that they share the benefits, pastoralists also share the costs. However, since the costs are primarily around the care of livestock while grazing and at night, pastoralists cater for shepherds in turn.

### *Respecting others rights*

Vishnag and Bardariou rangelands which have more palatable plants than other villages have a capacity to supply forage for more herds. However, pastoralists respect each other rights in using these desirable rangelands. For example, if shepherds from adjacent villages want to use Barzok rangelands, they have to obtain a permit from the alderman

and pay for the appropriate grazing fee. The alderman will spend this income for common costs of the village.

#### *Forage conservation*

During April (typically from 9 to 24), pastoralists harvest forage from the grasslands and conserve it for use in next autumn and winter, all under the supervision of the *Padous* to ensure that they do not cut the plants with roots.

#### *Using livestock as a banking system*

The Danduni system exists to provide a borrowing to take place within the village. For example, if a pastoralist wants to travel or if he or family member get sick and they have not the financial ability to employ a shepherd, then the pastoralist lends his/her livestock to another pastoralist for a contract period. At the end of the period, the borrower has to return the herd to the pastoralist comprising the same number and age composition as the herd that was borrowed.

#### *Other eco-services*

Grasslands sub-products such as medical plants which are collected are then sold to Isfahanian merchants by alderman. This provides an income stream to support the general costs of the village including renovation of pathways and maintaining the village bath. Shrublands sub-products such as fruits, firewood, gums and resins are important for villagers. They use these products not only for daily uses but for handicrafts so it can be economically noticeable for them.

## **Conclusion**

The villagers have applied several customary criteria to use natural resources. The criteria have gradually evolved and now formed common laws which have proved useful in managing grassland resources under common use grazing. In many other countries, politicians have based "Grassland Law" and regulations on the customary mechanisms. Unfortunately, in Iran this has not been the case as the Nationalization of Forests and Rangelands legislation passed in 1964 neglected this customary management system which reflects the rural ecological knowledge. Studies over the several decades consistently highlight the value of customary practices in utilizing and sustaining because rural communities have established social networks to make them work due to their common needs.

The results showed that, in this village like other Iranian villages, there are several customary mechanisms in natural resources management. However, this traditional culture management system is under threat because of changes in natural resources ownership. This is remarkable that although this management system is disappearing in many places, the use of cultural and social based natural resources management system still offers the best potential for achieving sustainable planning and policy in arid Iran.

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