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BUILDING CLIMATE-CHANGE RESILIENCE IN RANGELAND SYSTEMS IN UZBEKISTAN

An integrated rangeland restoration project in Uzbekistan is restoring degraded rangelands and helping pastoralists in Uzbekistan develop climate-change-resilient livelihoods systems

The rangelands of Central Asia, extending to some 260 million hectares, are facing imminent effects of climate change: temperature increases in the region are 40% above the global average. Average air temperature in Uzbekistan has already risen by 2°C over the last 80 years, and rainfall is predicted to decline by 25% by the middle of the century.



Before and after: the degraded rangeland (left) is devoid of cover, while restored areas (right) are beginning to show signs of recovery and promise for increased rangelands carrying capacity.

Source: "pictures from project managers"

Points to Consider

- The approach depends on land-tenure institutions that permit pastoral user groups to have secure long-term land rights.
- Strong effective governance institutions (e.g. pastoral user groups) are required to manage restoration efforts and ensure sustainable use of restored rangelands.
- Seed of rangeland species must be available; ideally, a market for seed should be developed.
- Research and extension agents must be trained in the approach to help villagers to assess the climate change impact in their livelihoods, to develop alternative scenarios and to build a common purpose to restore rangelands.

Rangelands in Uzbekistan is owned by the state and divided between agricultural cooperatives, areas leased by entrepreneurs, and open access areas used by villagers. Governance mechanisms are weak in control of open-access areas, and this has resulted in extensive overgrazing and degraded areas are at risk of intensified desertification. Plant cover and diversity are declining, largely as a result of changes in livestock management since 1990 and the effects of climate change.

Purpose

This brief describes work on a pilot project aimed at restoring degraded rangelands in Uzbekistan and increasing climate-change resilience of local communities. It is aimed at policy-makers, donors, and other partners and supporters.

Suitability

The approach described is best suited to rehabilitation of sparsely-inhabited rangeland areas at risk of desertification. The low-cost method helps villagers adapt to climate change and contribute to three Rio conventions.

The project in numbers

- 500 people in 2 villages
- 1200 hectares
- € 100,000 over 2 years
- 56.000 ha

Partners

- Ministry of Agriculture and Water Resources, the Republic of Uzbekistan
- Navoi Branch of Uzbek Scientific Production Center for Agriculture
- District and regional administration of Navoi province
- Malikchul Shirkat farm
- 1 entrepreneur
- 2 villages (Gulbog and Obihyot)
- ICARDA
- Samarkand State University
- Uzbek Research Institute of Karakul Sheep Breeding and Desert Ecology

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Need to change

Many villagers in the study area (Qiziltepa region, Navoi province, the province with the greatest degree of rangeland degradation) keep cattle, growing alfalfa and sorghum under irrigation on their home-garden plots (0.08-0.2 hectares) to feed them. But summer water supplies in the area depend extensively on melt-water from glaciers, many of which are projected to disappear by 2050. The current livestock production system, which is a major source of income in the region, is thus unsustainable even in the relatively short term, and efforts need to be made to develop a sustainable alternative.

The project worked with villagers to raise awareness of the impending effects of climate change on their agricultural and livestock production systems, to develop ways to raise the productivity of the rangelands, and to build mechanisms to manage the rangelands for sustainable livestock production. Participatory workshops involving residents in two villages (Gulbog and Obihyot) were used to raise awareness of the likely impact on villagers' livelihoods in the absence of any adaptation measures, and to encourage the villagers to envisage alternative scenarios. These highlighted the need to rehabilitate the rangeland and implement measures to manage it sustainably. Villagers established pastoral user groups (PUGs), discussed and agreed on collective action to restore range vegetation, and developed rangeland management plans based on seasonal grazing.

Rangeland rehabilitation is key

There is currently no mechanism whereby a collective group such as a PUG can lease land, though the regional administration encouraged the project to work.

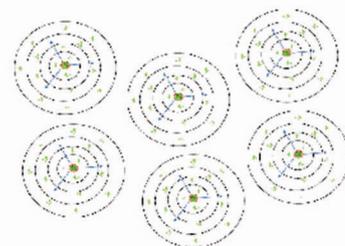
Seed isles—the approach selected for restoring rangeland vegetation—consist of small (0.05-0.15 hectare) scattered patches of land sown with the desired rangeland species and protected from grazing and seed isles were seeded with perennial, drought-tolerant, productive native forage plants, all of which have wind-dispersed seeds.

Seed isles were established in 2012 on one third of the grazing area in the first year of the project, and this whole area is closed for grazing the first three years to allow the vegetation to gain a foothold and establish green biomass. The deep rooted plants produce little aboveground biomass in the first year, focusing their energy on developing their root system. The restoration plan leaves two-thirds of the grazing area, currently unimproved, on which villagers can graze their livestock. In the fourth year, the area on which seed isles have been established will be opened for grazing, seed isles established, and the process repeated. Thus, after nine years seed isles will have been established on the whole grazing area.

Initial results are promising. The PUGs are functioning well and members are following the grazing management plans agreed. Seed isles are well established and signs of regeneration of the rangeland flora are apparent. Trials suggest that forage yields of over one tonne per hectare are achievable with careful long-term management of the restored range.

Only way forward

Restoring the rangelands and shifting from cattle fed on irrigated forage to range-fed sheep is the only way to sustain livestock production in the medium- and long-term in this region. This change will also free up home-gardens and the limited irrigation water for villagers to grow high-value crops such as tomatoes



Seed isles—the central «dots» here are small, scattered areas seeded with rangeland species that will restore the productivity and diversity of the rangeland. Seed is dispersed by the wind, gradually reseeding wider areas.

Source: "pictures from project managers"

and other vegetables, either for sale or for home consumption, increasing the overall productivity of the production system.

Extending this pilot effort to wider areas will require a change in land-tenure policy in Uzbekistan, allowing PUGs to lease land and benefit from their efforts to restore the productivity of the range. Local officials and approach if it is to become the foundation of a sustainable development effort across the central Asian region.

