



## Participatory Approach to Common Use Grazing Management in Dry Area Developing Countries

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The XX International Grassland Congress took place in Ireland and the UK in June-July 2005.

The main congress took place in Dublin from 26 June to 1 July and was followed by post congress satellite workshops in Aberystwyth, Belfast, Cork, Glasgow and Oxford. The meeting was hosted by the Irish Grassland Association and the British Grassland Society.

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## **Participatory approach to common use grazing management in dry area developing countries**

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### **Key points**

1. Range restoration technology is available but useless when not followed by management.
2. Institutional mechanisms for grazing management are needed for communal range.
3. Community participatory approaches help pastoralists better manage rangeland grazing.

**Keywords:** communal range, rotational grazing, herders

### **Introduction**

Most rangelands in developing countries are grazed in common, usually overgrazed and severely degraded, producing much less forage than potential. Use rights vary depending upon the region: from completely free access (open to everyone) to exclusive use by tribes, communities or extended families. Livestock numbers are usually not controlled unless by government intervention. Indigenous management systems that were once sustainable such as the 'Hema' system common to the Middle East have broken down for various reasons, but mostly because of increased population pressure or inappropriate government policy and land tenure. Range research and development has focused on range restoration, either by direct seeding or transplanting shrubs, but most fail because of inadequate management once the area is improved. Overgrazing and continuous grazing are usually the causes of degradation, but other factors include over-harvesting for fuelwood and temporary cultivation. These problems are being addressed by ICARDA, which serves all the dry-area developing countries for rehabilitation and management of rangelands.

### **Participatory approach to grazing management used for rangelands by ICARDA**

The International Center for Agricultural Research in the Dry Areas (ICARDA), in collaboration with national agricultural research organizations, have developed and used a participatory approach since 1989 in range research and development. This continues as a central theme within the overall core project 'Rehabilitation and Improved Management of Rangelands in Dry Areas.' The goal of this project is to halt desertification, restore the productivity of rangelands and improve pastoralist income. Most of our experience with the participatory approach was through two agropastoral projects funded by the Swiss Agency for Development and Cooperation (SDC), and the Mashreq/Maghreb (M & M) project funded by the International Fund for Agricultural Development (IFAD) and the Arab Fund for Economic and Social Development (AFESD). From these projects, rangeland restoration technology was developed. However, it soon became evident that management, not restoration technology, was most needed. Restored land rapidly degraded without proper grazing management. For management to change, stakeholder participation was essential. Involving farmers and communities fully in the development and research process leads to success. Government institutions must also participate as partners in the process to empower the herders, and provide the community with assurance that their efforts and investments are

rewarded. Policy reform is often needed. The participatory approach used in range management by these projects can be outlined in the following steps:

- Representative pilot areas are selected based upon existing or new socio-ecological survey data. This is done so that tested technology can be transferred to other areas.
- Education on grazing management is provided to the community via scientists and officials. Traditional management is documented, and potential options that merge science and indigenous knowledge are discussed.
- Existing relevant biological and socio-economic community data is accumulated and analysed. Missing information is gathered using rapid rural appraisals, community or household surveys, ecological inventory, mapping, and range condition assessment.
- Community leaders draw a map of their rangeland area including different types of range and use patterns. Researchers go into the field with the pastoralists to characterise, evaluate condition, and map rangeland types as defined by the community. Data are assembled in GIS layers of both social and biological data to serve as a base map for the community grazing management plan.
- Analysis is done and potential management options tested. A community grazing management plan is developed, implemented and monitored.

The approach was successfully used in Morocco to establish a process of community participation that has led to better planning and grazing management (Bounejmate & El Mourid, 2001). An assessment of the social-ecological conditions was used to develop management plans, and to test alternative approaches and policies to management. The agro-pastoral project at Aïn Béni Mathour (Morocco) is an example of how farmers participated in the ecological assessment and research, and where scientific ecological assessment was combined with farmer interviews. Farmers provided their knowledge of the changes in vegetation and conditions as detected and quantified by scientific studies, remote sensing image analysis and ecological data sampling at ground truth sites. This blend of indigenous knowledge and scientific research has made it possible to assess and characterize the socio-ecological resources used in priority setting and the development of community management plans.

Substantiated change in ecological condition (trend) requires intensive sampling over long periods of time. There is no scientific proof of reduced degradation, but there are visual and measurable increases in vegetative cover on cooperative land – which is a step towards recovery. Morocco (El Harizi, 1998) and Algeria have both recorded 5 times as much biomass on managed, compared to free access rangeland. This is not a change in productivity, but an indication of dramatic changes in vegetative cover that could halt desertification.

The observed change in human behaviour is of much greater significance because such change is necessary to halt desertification. There is now dialogue between government officials and the herders at Aïn Béni Mathour, resulting in the development of joint plans - something that had not occurred previously. This approach has spread and is now applied by the national program throughout Morocco, Algeria (26 communities) and in neighbouring countries.

In eastern Morocco, the vegetation cover of a grazing cooperative improved where members had to pay a fee to use the 'improved' rangeland. During high rainfall years they choose not to use the cooperative land because free grazing was found elsewhere. As a result, the cooperative land is rested from grazing during the growing season, which is the critical time for plants to rest and regain vigour. The cooperative's land and livestock improved (but what happens to the

adjoining land is another story!). Livestock populations increase, and eventually peak at an equilibrium-stocking rate that is too excessive to be profitable. As the land becomes degraded, the point of equilibrium shifts downward in catastrophic events that occur when ecological thresholds are exceeded. Overgrazing problems are often aggravated by subsidy feeding programs, which discourage migration and allow livestock numbers to increase well beyond natural balances, e.g. an emergency feeding program in Tunisia backfired when stock growers imported more livestock in order to increase the amount of subsidy they could claim!

There are only two basic options for grazing management of communal range: controlled stocking rate and rotational grazing. Year-long range rest is an option often applied but is drastic. Partial season rest during the critical growing season can provide the same improvement without wasting the forage - it would increase seasonal forage production, and can be applied every year with rotational grazing. Excluding grazing from one area may increase pressure on nearby areas or alternatively, producing more on-farm fodder may reduce the pressure on adjacent rangeland. This concept must be re-evaluated under free-access grazing, where maximum livestock pressure may have already been reached, and flocks are forced out of the area or fed concentrates once the 'free' forage is gone. Subsidising feed, range restoration, or growing more fodder will not eliminate rangeland degradation. This can only be achieved by a change in management strategy.

By dividing rangeland into paddocks, rotational grazing provides the plants a short rest period to build carbohydrate reserves, produce seed, and grow more forage. In developed countries, private ranches install fences to apply grazing management strategies. On public land, government agencies enforce stocking rate and rotations. Developing countries have a greater opportunity to apply intensive rotations because livestock are herded, so fences are not needed. The problem is that herders must cooperate to apply the rotation. This seldom occurs even in villages where a strong leader maintains control, and is much less likely in remote seasonal pastures. If the means for cooperation in herding are developed, desertification could be halted and rangeland production substantially increased.

## Conclusions

The participatory approach fails to achieve its objectives if all stakeholders are not involved in the decision-making process, or if the community is not granted the authority to manage the resource. There is no point to rangeland restoration if the poor management that degraded the range is not changed. Rotational grazing and stocking rate control are the only known options to sustain the system and stop degradation. Community participatory approaches can help pastoralists and governments find a way to enable them to better manage the land. Herders who cooperate in rotational grazing or stock control can reverse the downward spiral of degradation of common-use range.

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