

# VISION FOR DEVELOPMENT OF RANGELANDS IN PAKISTAN - A POLICY PERSPECTIVE

Javed Afzal\*,  
Maqsood Ahmed\* and  
Irshad Begum\*\*

## ABSTRACT

*The paper deals first with the importance of range management, then discusses constraints in rangeland development, and finally overviews the recommendations of different expert-forums set-up from time-to-time for the formulation of range policy in Pakistan. The forums gave comprehensive recommendations and suggested creation of an independent range-management agency/organization vested with authority, responsibility, and accountability, both at federal and provincial levels, for the development of rangelands in Pakistan. However, the implementation of these recommendations is lacking. In addition to the recommendations, other suggestions in the present rangeland scenario have also been discussed for charting detailed and effective rangeland policy in the country.*

## INTRODUCTION

Total area of Pakistan, including Northern Areas and Azad Jammu and Kashmir, is 87.98 million ha. About 50.88 million ha, constituting almost 58 percent of the area, are rangelands (Mohammad, 1989). Out of this 58 percent rangeland area, only five percent lies in the high-rainfall rangelands of Alpine pastures (1.68 million ha) and Himalayan grazing lands (0.67 million ha). Rest of the rangelands are situated in arid and semi-arid areas of the country where annual precipitation seldom exceeds 300 mm. Due to climatic and topographic limitations, these areas are not fit for other land-uses like forestry or permanent cultivation. Hence, livestock grazing on rangelands constitutes the biggest land-use in the country. Rangelands provide nearly 60 percent of feed for sheep and goats; about 40 percent for horses, donkeys, and camels; and only five percent for the cattle and buffaloes (Zafaruddin, 1985). Based on these estimates, the livestock population, in terms of animal units grazing on rangelands, has been given in Table-1.

Animal population in Table-1 is the estimated figure based on inter-census growth-rate of Livestock Census of 1996 and 2006. From the Table-1, it can be derived that about 19 percent of livestock population is dependant on rangelands. So, the contribution of rangelands in livestock production is significant and it can be at least doubled by managing rangelands on scientific lines. In addition to forage for the livestock, rangelands also have a variety of cultural, ecological, and economic implications for the society. For

example, these provide a wide array of goods and services, such as: water and habitat for wild and domesticated animals; clean water for cities; open space for recreational activities like hunting, fishing, camping, hiking, and observing wildlife; plants for economic and medicinal use; water for recharging aquifers, through infiltration and percolation; variety of plants for enriching floral and faunal biodiversity; climate moderation; and environment cleaning, are the important ones to be mentioned here. The extent of multiple rangeland-uses suggests that development and conservation of this natural resource is vital for sustainable economic development in the country.

Rangelands, although a potential resource since long, have been experiencing continuous process of land degradation, due to gradual increase both in human and livestock populations coupled with frequent occurrence of profound droughts. Consequently, the fragile arid ecosystems have got disturbed, as evident from the degradation of vegetation cover, the deterioration of soil and reduction in animal productivity. Such a state of affairs is not only adversely affecting human beings, but is also creating environmental and health hazards. This situation has further impoverished the pastoral communities of Pakistan, who are already living in desperate economic conditions. This situation signals the need to investigate and take corrective actions for conservation and enhancement of productivity, sustainability, and ecological health of rangeland ecosystems.

## CONSTRAINTS IN RANGELAND DEVELOPMENT

Some of the major constraints encountered in the development of rangelands in Pakistan are given as follows:

- i. Low-Priority on National Planning:* Rangelands in Pakistan are victims of neglect and apathetic attitude, both at stake-holding communities and public-sector levels. For example, "Tragedy of Open Access (resource is owned by everyone or no-one, exploitation is open)" prevails among the stakeholders in the utilization of rangelands. Everyone has open access to utilize the resource, but no one is responsible for its improvement. Similarly, at public-sector level, this vast resource is not given due attention. For example, forests cover only five percent of Pakistan's total land area, but there are well-established and full-

\*Rangeland Research Institute (RRI), NARC, Islamabad-45500, Pakistan. \*\* Pulses Programme, Crop Sciences Institute (CSI), NARC, Islamabad-45500, Pakistan.

## Vision for Development of Rangelands in Pakistan - A Policy Perspective

Table - 1: Animal Units (A.U.) Feeding on Rangelands in Pakistan (in million)

Livestock	Livestock Population 2007-08*	AU** Equivalent	Total A.U.s	% Grazing on Rangelands	AUs Grazing on Rangelands
Cattle	31.8	1.0	31.80	5	1.59
Buffalos	29.0	1.5	43.50	5	2.18
Sheep	27.1	0.2	5.42	60	3.25
Goats	56.7	0.3	17.01	60	10.21
Camels	1.0	1.7	1.70	40	0.68
Horses	0.3	1.3	0.39	40	0.16
Asses	4.4	0.6	2.64	40	1.06
Mules	0.2	1.0	0.20	40	0.08
<b>Total: 102.66</b>				<b>Total: 19.21</b>	

\*Source: Pakistan Economic Survey 2007-08 (GoP, 2008).

\*\*Animal Unit. An A.U is taken as a young cow weighing about 425 kg and consuming nine kg of air-dry forage per day.

fledged independent Forestry Departments at provincial and federal levels to take care of forest development in the country. On the other hand, rangelands constitute 58 percent of the land area, but there is still no independent organization or authority that is responsible for the development and management of such an important natural resource. In general, rangeland development is considered a low-priority issue at grassroots level as well as by the planning and development authorities of Pakistan.

**ii. De Jure and De Facto Rangeland Status:** In Pakistan, except for a very small fraction of communal and private lands, the Government owns all rangelands. In 1894, the British Government of India adopted a forest policy, in which pastures and grazing grounds were merely counted as one of the four classes of forests (Rafi, 1961). Since then, rangelands have been under the administrative control of the Forestry Department but, in fact, there is no control of the Forestry Department over the rangeland areas, except for a few rangeland sites that are being intensely managed under some project funding. According to the legal status, rangelands are declared as protected forests whereas, in fact, these are open to everyone for unrestricted grazing, cutting, and uprooting of plants.

**iii. Lack of Independent Range-Policy:** Although rangelands constitute the largest land-use, yet these have not been recognized as a distinct land-use. Being an adjunct to the Forestry Department, these are not given the required priority in policy and financial matters. Until now, no independent Range-policy has been formulated for the development and management of rangelands. Consequently, we could not make any significant

progress towards realization of ecological potential of our vast rangeland resources.

**iv. Management Issues:** i) Since rangelands are managed by the Forestry Department, it is considered as a low priority and secondary activity, as compared to forest management. Being comparatively less attractive, tough and difficult job, range-management assignments are not liked by most of the forest personnel. In general, forest workers join range-management duties unwillingly or sometimes as a punishment; hence their performance remains far below expectation. ii) Range improvement and development activities are carried out by the Forestry Department in isolation, without involving grazing communities at any stage of planning and development. As a result, the work carried out by the Forestry Department is not understood and owned by the local communities. iii) Failure to replicate the lessons learnt from the earlier national-level range-management projects, like that of Maslakh Range Project, Quetta, Balochistan. For example, wind-mill technology worked well for livestock-watering, but it was not extended to other similar areas where wind-speed favours the technology. iv) Poor implementation of the governmental policies is another managerial problem. Each year, afforestation campaign is launched across the country and millions of seedlings are planted, yet due to the lack of after-care mechanism at the public as well as private-community levels, it results in almost total loss of the efforts.

**v. Technical Issues:** i) Baseline data on soil and range vegetation, including soil depth and nutrient status, plant density, composition, seasonal changes, grazing potential, ecological status, etc.,

are not updated at regular intervals that are important tools for managing rangelands on scientific lines. Application of modern scientific tools like Geographic Information System (GIS) is missing for range inventory and data analysis. ii) Appropriate grazing strategies for different rangeland types have not been developed. Over-grazing and deforestation have badly destroyed range-plant biodiversity and productivity. In many areas, plant cover is depleted to the magnitude that any desirable ecological change/recovery through protective measures may not be possible within a foreseeable time-period. In addition to that, the parching droughts in arid/semi-arid areas adversely affect plant-growth and reproduction, which result in further loss of primary productivity and ecosystem disturbances. iii) Introduction of exotic plants may pose serious threats in the introduced area, as did Mesquite (*Prosopis juliflora* and *Prosopis glandulosa*) in Pothohar and other forest plantations. Being unpalatable and having faster growth-rate, it has gradually replaced slow-growing and palatable native tree-species, like *Acacia modesta*, *Olea ferruginea*, *A. nilotica*, *Zizyphus* spp., etc. Due to Mesquite invasion, the grazing potential of our rangelands has decreased noticeably. iv) Lack of incentives and career development for the highly qualified, motivated and devoted range-professionals is another issue that needs proper attention. Posting of irrelevant technical persons as heads of range-management research units is another bottleneck that slows down the pace of progress. These irrelevant heads do not give priority to range research and development work, which results in deprivation and discouragement of the concerned technical staff.

**vi. Socio-Political Interference:** Unnecessary socio-political interference is another compelling and valid reason for range-degradation in the country. It is not uncommon that the tribal or influential people graze their livestock or cut the trees from the rangeland area that is otherwise protected from exercising these rights. Such types of untimely interferences by the local people are not only harmful to the range vegetation, but also demoralize the confidence of the personnel associated with the work of rangeland improvement.

**vii. Land-Tenure System:** Since rangelands are a state-owned enterprise, the pastoral people miss the sense of ownership. There is hardly any

incentive for them to conserve or develop their own lands.

**viii. Economic Issues:** i) Planning and development authorities give low priority to range-development projects, as these do not meet the viability criteria fixed on the basis of direct-economic returns. So, the projects for range-development in the country have remained inadequately financed and, thus, could not have the desired impact on development of rangeland of Pakistan. ii) Inadequate marketing facilities and the mechanism of middlemen deprive the livestock-producer of adequate economic returns. All the marketing processes are in the hands of middlemen. Thus, hardly any facility, like transportation, livestock handling, marketing, and slaughtering, etc., is extended to the livestock producer by the government. This has resulted in low off-take rate and extra build-up of livestock on the already overstocked rangelands. It was estimated in a survey that, due to lack of marketing facilities, services of intermediaries (commission-agent and butcher) represented 32 and 30 percent (for sheep and goats, respectively) of the price paid by the consumer (Mahmood and Rodriguez, 1991).

**ix. Nomadic Grazing:** Nomads are another threat to the rangelands of Balochistan and Pothohar plateau. On the onset of winter, nomads start moving from Afghanistan and Himalayan mountains towards the hot plains of Balochistan and Pothohar areas, respectively. This is the most crucial time, as the native flora become dry and the nomadic livestock causes additional loss of the existing vegetation by grazing the left-over range forage. On the other hand, when they start moving back to Afghanistan and Himalayan mountains, at the start of the spring season, the range-plants have just started growth and consumed the reserved carbohydrates in making early growth (FAO, 1983). If plants are grazed at this early-growth stage, these become more susceptible to mortality. Therefore, departure of nomads just on the onset of spring season from the hot plains results in an early defoliation and mortality of the young range-plants.

## STEPS TO A RANGE-MANAGEMENT POLICY

In 1894, when the British Government of India adopted a forest-policy, men and cattle were few and grasslands were extensive, having plenty of nutritious

## Vision for Development of Rangelands in Pakistan - A Policy Perspective

grasses for livestock grazing. At that time, even the protection of pastures and grazing grounds was considered too expensive to justify their control by the Forest Department. However, soon after independence, the Government of Pakistan recognized the need of scientific management of rangelands. A start in this direction was made during 1954 with the initiation of Maslakh Range and Pasture Improvement Scheme near Quetta. The scheme served as a demonstration of suitable range-management practices and also as a training-ground for the forest technicians involved in range-management.

From time to time, the Government of Pakistan has issued a number of policy directives and recommendations for the effective management of rangelands in the country. The Ministry of Agriculture and Works, Government of Pakistan, issued the first Range Policy Directive in 1962. In this directive, the government recommended the leasing out of ranches for development purposes. They felt that the development of rangelands should be programmed on the basis of associating the public through: the allocation of land to private parties with credit facilities; assistance in exploration of underground water, and sinking of tubewells; provision of technical know-how for livestock rearing, and pasture-development; provision of medical and veterinary facilities; and also through the establishment of better marketing, especially through cooperative efforts. They also realized that normal facilities necessary for settling people in new lands should be extended to areas of this type.

In 1964, CENTO emphasized the need of a range-management policy for Pakistan. They recommended that government should define the types of public lands that should be used for range purposes. They recommended restrictions on the conversion of rangelands, which are sub-marginal for agriculture, to agri-lands. The First West Pakistan Range-Management Conference was organized by Pakistan Forest Institute (PFI) in 1966 (CENTO, 1964). The Conference recommended the formation of 'Grazing Advisory Committee', including representatives of public at provincial, divisional, and district levels, to lay down outlines of range-management policy and programme and to look for ways of the implementation of these decisions. Unless a range-management policy is framed by associating the representatives of the public, it would not be practicable in the field (PFI, 1966).

In 1971, CENTO especially invited the attention of the Government of Pakistan and stressed the urgent need for a national range-management policy that should give full regard to the diversity of conditions in Pakistan. They emphasized the importance of the formulation and implementation of range-management policies with free and open-minded dialogue between government officers and livestock owners (CENTO, 1971).

The Minister for Food, Agriculture and Underdeveloped Areas, Government of Pakistan, formed a National Range-Management Committee in 1973. The Committee suggested the creation of independent and effective organizations at provincial as well as central levels for the development and management of vast rangeland resources. They also recommended suitable economic incentives to enlist people's cooperation and to encourage their participation in range-management programmes (GOP, 1973).

In 1983, the Minister for Food, Agriculture and Cooperatives, Government of Pakistan, convened an inter-provincial meeting of the range and livestock experts. On the recommendation of the meeting, the Government of Pakistan constituted a "Sub-Committee on Range-Management" to streamline the institutional arrangements and to determine the guidelines for the formulation of a strategy for range development in the country. The experts reviewed various constraints, including, technical, institutional, social, and economic. They endorsed in principle the comprehensive recommendations of National Range Management Committee, (1973) and urged for their immediate implementation. They also recommended the post of Range-Development Commissioner, along with necessary technical and secretariat staff, to be immediately created with the Food and Agriculture Division of the Ministry of Food, Agriculture and Cooperatives. A National Range Development Board for policy-making, inter-provincial coordination and review of programmes, was suggested under the chairmanship of the Federal Minister for Food, Agriculture and Cooperatives. Similarly, independent organizations under the relevant administrative secretaries of the provincial governments were recommended. They also urged the recognition of range-management as a distinct land-use as well as a separate sector or a sub-sector for budget allocation (GOP, 1983).

In 1991, the Pakistan Forest Policy, recommended stall-feeding of livestock as a replacement for



rangeland grazing. According to their policy, more fodder from the farms and feed from the agro-industrial wastes should be produced and grazing allotments should be created on experimental basis and legislation should be introduced to support range-management agencies.

The Ministry of Environment, Government of Pakistan, drafted a new National Forest Policy in 2002, which has been submitted to the Cabinet for approval. This policy suggests technical and financial assistance of the Federal Government to the Provincial Governments for rehabilitation and conservation of rangelands in different parts of the country.

### **SUGGESTIONS FOR DEVELOPING RANGE-POLICY**

The aforesaid policy directives and recommendations have yet to be implemented. In general, the outlines of the policy enunciated are equally valid today; therefore, those that appear fit in the present rangeland scenario may also be given due consideration while formulating a detailed national rangeland policy. Looking at the current condition of the rangelands, there is an urgent need to develop a comprehensive range-management policy to save this important resource from further loss and degradation. The following suggestions may be helpful in developing an effective and workable range-policy:

- a. Legislation is an essential tool for implementing range-management policy. Therefore, legislation is needed to support range-management agencies and their programmes. Development of an efficient system of accountability is an urgent need of the times. Rewarding impartially and generously, the committed and honest workers may bring good changes in the system; the lethargic and corrupt persons should be discouraged. Setting good examples of reward and retribution may bring some desired changes in the attitude of the people concerned with the natural-resource conservation and improvement. Such issues may be covered in detail in range legislation.
- b. Participatory range-management approach may be adopted in implementing various range-development projects, because satisfactory progress would not be achieved in natural-resource development work without the active participation of the stake-holding communities. For achieving cooperation of the local people, they

must be involved in decision-making process through conducting Rural-appraisal Survey in different rangeland areas of Pakistan. Based on the survey, grazing associations of local people may be formed that could make local-level decisions and share thematic concerns over the rangeland resource-conservation and development activities. They may be assigned resource-protection rights and given some incentives, like credit facilities for livestock-feeding and management activities, a fixed percentage in revenue obtained from rangeland grazing, or else allowing free grazing of their animals may be helpful to develop their interest in resource- conservation process.

- c. Training of grazing associations for provision of basic animal-health services may help to improve livestock health and income of the livestock-producer. Promotion of education and awareness-building in nutrition, immunization, disease-control, safe drinking-water, and sanitation may be a part of any programme working for the development and prosperity of the pastoral communities of Pakistan.
- d. Alternate-energy sources at subsidized rates may be provided, to the livestock-producer, to save rangelands from further cutting/uprooting of plants.
- e. Development of forage reserves of evergreen plants, through installation of tubewells at appropriate sites, will ensure forage supply for the livestock during the winter or drought periods when supply of forage becomes a critical issue.
- f. Droughts are a common phenomenon in arid/semi-arid ecosystems. Afzal and others reported a sharp and drastic decline in the livestock population due to the continuous drought that prevailed for four years in Balochistan (Afzal, et. al., 2001). Therefore, necessary incentives to the livestock- producer may be provided against drought losses. The appropriate livestock-insurance mechanism may be developed, or agricultural subsidies may be provided to the livestock-producers to save them from unexpected financial losses.
- g. Installation of photo-voltatics and facilities like solar-heated bathrooms and cookers may be introduced in order to reduce the dependence on the use of firewood in the range area.

## Vision for Development of Rangelands in Pakistan - A Policy Perspective

- h. Changes in land-tenure system are desirable to improve interest of the local people in conserving and developing range-resources. Land-ownership system may be transferred from tribal to individual ownership. Privatization of grazing area will help invoke interest of the livestock-producer in improving rangeland area.

### REFERENCES

- Afzal, J. Afzal, M. and Asghar, M. 2001. Resource Analysis of Sindh Ibex (*Capra aegagrus*) Habitat at Tobattee Mountain, District Kalat, Balochistan. Technical Report. World Wide Fund for Nature-Pakistan, Quetta. 36 pp.
- CENTO. 1964. CENTO traveling seminar on range management. CENTO, Ankara. 54 pp.
- CENTO. 1971. A report of a CENTO traveling workshop on range management held in Pakistan, Iran and Turkey from 17 September to 15 October 1970. CENTO. Ankara. 32 pp.
- FAO. 1983. Report of the Assistance to Rangeland and Livestock Development Survey in Balochistan. TCP/PAK/0107. FAO Technical Cooperation Program, Food and Agricultural Organization of the United Nations, Rome, Italy.
- GoP. 1973. Rangelands of Pakistan - A Study. National Range Management Committee. Govt. of Pakistan. 146 pp.
- GoP. 1983. An Institutional Strategy for the Development of Rangeland Resources. A Report by Sub-Committee on Range Management. Ministry of Food, Agriculture and Cooperatives, Govt. of Pakistan, Islamabad. 33 pp.
- GOP. 2008. Pakistan Economic Survey 2007-08. Govt. of Pakistan. Finance Div., Economic Adviser's Wing, Islamabad. p. 32-33.
- Mahmood, K. and Rodriguez, A. 1991. Marketing and processing of small ruminants in highland Balochistan. MART/AZR Research Report No. 71, Quetta-Pakistan.
- Mohammad, N. 1989. Rangeland Management in Pakistan. The International Center for Integrated Mountain Development (ICIMOD), G.P.O. Box 3226, Kathmandu, Nepal. 193 pp.
- PFI. 1966. First West Pakistan Range Management Conference. October 5-7, 1966. Proceedings. PFI, Peshawar. 159 pp.
- Rafi, M. 1961. A critical review of West Pakistan range policy. Pak. J. Forest. 3:220-224.
- Zaffaruddin. 1985. Constraints and strategy for development of rangelands in Pakistan. Pak. Agric. 7(11):20-23.