

Pastoral Development & Its Relevance to Large Ruminants' Production in Pakistan

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Introduction

Seventy per cent of all farmers in Pakistan are considered 'small farmers', people characterised not only by the size of their land and animal holdings but also by a host of factors that influence their productive potential and income-generating capacity. Livestock raising is an integral component of small farming systems. Large ruminants raised by small farmers in Pakistan include cattle, buffaloes, and camels. Animal husbandry is integrally linked to local cropping systems. Fodder production, for example, is one portion of the annual crop rotation cycle. Large ruminant production systems depend on crop residues, cultivated fodder, fallow, and wastelands to meet animals' nutritional and grazing requirements.

Any rural poverty alleviation programme in Pakistan should focus on improving small farmer livestock holdings and production levels. Some minor progress has been made in this regard, primarily with large ruminant populations. Intensive selection and crossbreeding programmes, the development of cheap feed supplements, and efforts to broaden the gene pools of large ruminants by introducing exotic breeds has significantly altered — and helped improve — traditional production systems. Although a National Breeding Policy for cattle and buffa-

loes has been outlined, detailed analysis of previous crossbreeding experiments in different agro-ecological regions of Pakistan need to be analysed. The gap between actual and potential productivity levels of native animals remains wide. Interventions intent on closing this gap are required if economic development in Pakistan's farming communities is to be realised.

Profile

Quraishi et al. (1993) reported that about 50 per cent of Pakistan's total livestock lived in Punjab province. Sindh, the North West Frontier Province (NWFP), and Balochistan host 21, 11, and 13 per cent of this total, respectively. The highest populations of cattle (45%) and buffaloes (66%) are found in Punjab, although Balochistan boasts the highest camel population (42% of the country's total).

Tables 1 and 2 illustrate that cattle and buffaloes are the most abundant large ruminants in Pakistan. They are mainly raised in the irrigated flood plains of Punjab and Sindh, rendering their dependence on dry mountain grazing lands negligible. Pakistan's most significant camel population, on the other hand, is found in the dry mountain regions of Balochistan. Effects on agricultural activity and grasslands are significant.

Table 1: Large Ruminant Populations in Pakistan

Province/Unit	1976	1986	1992
Pakistan			
Cattle	14.8	17.5	17.8
Buffaloes	10.6	15.7	18.7
Camels	0.8	0.9	1.01
Punjab			
Cattle	8.1	8.8	
Buffaloes	7.9	11.1	
Camels	0.34	0.32	
Sindh			
Cattle	2.8	3.9	
Buffaloes	1.8	3.2	
Camels	0.14	0.22	
NWFP			
Cattle	3.0	3.3	
Buffaloes	0.8	1.3	
Camels	0.09	0.07	
Balochistan			
Cattle	0.7	1.2	
Buffaloes	0.03	0.06	
Camels	0.2	0.35	
Northern Areas			
Cattle	0.21	0.41	
Buffaloes	0.003	0.003	
Camels	-	-	

Table 2: Large Ruminant Distribution According to Province

Province	Cattle (%)	Buffaloes (%)	Camels (%)
Punjab	50	71	34
Sindh	22	20	23
NWFP	19	08	07
Balochistan	07	01	36
Northern Area	02	-	-

GOP 1988

According to available quantitative data, Pakistan's cattle population is decreasing, while the buffalo population continues to rise. This trend could be partially explained by the fact that cattle used to be bred primarily for draught purposes in cultivated areas. The mechanisation of farming has contributed to the declining cattle population. Similarly, the people of Pakistan tend to prefer buffalo milk to cow's milk. Buffaloes are also more adaptable to riverain

land tracts where only coarse fodder is available.

It is estimated that buffaloes and cattle will increase at the rate of 4.0 and 1.8 per cent a year, respectively. Given these growth rates, the buffalo population will reach 27.1 million and the number of cows will total 22.46 million by the year 2000. At present, buffaloes and cows combined are producing 803,000 tons of beef and 16.3 million tons of milk annually. Yet Pakistan's milk and meat products are not sufficient to meet the human population's daily nutritional needs. The daily per capita availability of milk (290ml) and meat (35g) only satisfy about 50 per cent of the total demand. This situation is further aggravated when human and livestock populations are forced to compete for food, given the country's static land resources.

Quraishi et. al. (1993) reported that there were about 4,000 grazing families in Pakistan — eight per cent of the total farming families in the country. About 45 per cent of all families depend on agro-grazing (crop residues etc) to subsist. The remaining 55 per cent rely on rangelands and forest grasslands to feed their animals. Most of the grazing families (40.5%) live in Punjab, Balochistan, and Sindh; each host about 20 per cent of the remaining grazing-oriented families. The majority of these pastoralists is very poor.

Large Ruminants in Pakistan's Mountains

Cattle

Although sheep and goats are the most common livestock kept by pastoralists in the NWFP, Northern Areas, and Balochistan, cattle are common throughout Punjab and Sindh, predominating along river banks and

uncultivated plains. Pakistan's plateaus, riverain belts, and deserts all possess distinct cattle breeds. Eight breeds predominate. 'Red Sindhi' and 'Sahiwal' are world-famous dairy breeds that live in irrigated tracts of the Sindh and Punjab provinces, respectively. The *Tharparkar* breed is a dual purpose (dairy and draught) animal found in and around the sandy Thar desert. The '*Bhargnari*' is an excellent heavy draught breed found in Jacobabad district of Sindh and is also a famous breed in the foothills of Balochistan bordering Sindh province. The provincial Government of Balochistan has established a *Bhargnari* cattle farm at Sibi for the development and improvement of this breed. Crossbreeding of this breed with exotic breeds is also being carried out with the aim of creating a superior beef breed in Pakistan. Any significant outcome of this breeding programme may increase the role of *Bhargnari* cattle in traditional economies of poor, rural pastoralist communities in the dry western mountains.

The *Dajal* breed is considered to be an offshoot of the *Bhargnari* breed. These animals are relatively smaller in size and lighter in colour. This breed is found in the southern part of Rod Kohi area (Sulaiman foothills in the districts of D.G. Khan and Rajanpur). *Rojhan* cattle are medium-sized draught animals commonly found in hilly areas of the Dera Ismail Khan, Kohat, and Bannu districts and in Waziri territory (northern Sulaiman mountain ranges). *Lohani* is a light draught breed found in the Loralai district in Balochistan and D.I. Khan in the NWFP province. *Dhanni* cattle are famous medium-sized draught animals from the Pathowar Plateau (Attock, Rawalpindi, Chakwal, and Jhelum districts, Punjab).

All these mountain breeds are suitable for light draught work typical of mountainous agricultural activities and can survive un-

der harsh environments and poor feeding and management conditions. About 12.6 per cent of the country's cattle depend on agro-grazing. Agro-grazing refers to herding livestock on cultivated lands as well as along water channels, farm roads, canal banks, river banks, etc (Quraishi *et al.* 1993). About 33.4 per cent of the country's cattle depend on range grazing to meet their fodder requirements. Due to increasing mechanisation of farming in Pakistan, draught breed populations are gradually decreasing. Yet this genetic pool should be conserved and their potential for beef production should be explored.

Buffaloes

There are two important buffalo breeds in Pakistan: *Kundi* and *Nili Ravi*. *Nili Ravi* are found in Punjab's irrigated areas, whereas *Kundi* buffaloes dominate the Indus flood plains. Both are very good dairy breeds, contributing more than 70 per cent of the total milk supply to the country's human population. The role of buffaloes in Pakistan's mountainous regions is negligible.

Camels

Camels are found throughout Pakistan, except in high altitude mountain regions. They constitute about two per cent of the country's total livestock. Most camels are found in Balochistan (42%), whereas Punjab and Sindh maintain 27 and 25 per cent of the total population, respectively. The Thal and Cholistan sandy deserts are the largest camel habitats in Punjab. *Tharparkar* and *Nawab Shah* sandy deserts are major camel-producing regions in Sindh.

As many as fifteen breeds of camel have been recognised in Pakistan. These animals are either riding camels or loading camels. *Mahra* (*Bekeneri*) camels are excellent

for riding and found in the sandy desert of Cholistan. *Booja* varieties are racing camels found in Cholistan and Thal. *Brela* camels are common in the cultivated plains of Punjab. *Sindhi* camels are named for the Sindh province. *Kacchi*, *Mekrani*, *Brohi* and *Pashin* camels are found in Balochistan.

All of Pakistan's camels are single-humped (*C. dromedarius*). Camels are economical and efficient animals on the arid and semi-arid rangelands of tropical and subtropical Pakistan. A camel is an integral component of most nomadic families in Balochistan and is used for ploughing, drilling, transportation, etc. Unfortunately, very few livestock research and development efforts have focussed on this most useful large ruminant.

Very recently, the National Aridland Development and Research Institute (NADRI) and the Ministry of Food, Agriculture and Livestock (MINFAL) in Islamabad have collaborated with the Arab Centre for the Studies of Arid Zones and Drylands (ACSAD) in Damascus, Syria, in order to establish a Camel Research and Development Network in Pakistan. A workshop was held at Islamabad on November 3, 1996, to assess the status of camel research and development in Pakistan. Experts outlined strategies and recommendations for future courses of action.

Issues and Challenges

The production of large ruminants in Pakistan remains a traditional, subsistence level activity. Major issues and challenges relating to large ruminant development are summarised below.

Low Animal Productivity

Pakistan's livestock produce considerably less than their genetic potential. Numer-

ous factors handicap their productivity. The dairy potential of local cattle and buffalo breeds is much lower than exotic breeds, primarily due to insufficient fodder. The majority of Pakistan's native cattle population (76%) is made up of non-descript draught animals born as a result of unplanned breeding practices. Lactation yields do not exceed 600-800 litres per cow. A lactating buffalo may produce 2,000-2,200 litres of milk per lactation cycle, but the buffalo's total lifetime production levels are very low due to their sub-optimal reproductive efficiency.

Fodder Shortages

The present nutritional state of Pakistan's indigenous breeds indicates that there is acute shortage of animal feed in the country. Animals are suffering from energy and protein deficiencies of up to 40 and 60 per cent, respectively. Animals are getting about 40 per cent less green fodder from pastures and rangelands than they once did; fodder is also as much as 19 per cent deficient in dry roughage. Concentrate deficiencies are far worse, as high as 80 per cent in some farming communities. These fodder and nutrient shortages have a great negative impact on milk production and work performance.

Poor Reproductive Efficiency

The low reproductive efficiency of Pakistan's livestock has precipitated great economic losses for the country's farmers. Late sexual maturity and long calving intervals are two major constraints on reproductive rates. These problems are particularly serious for the dairy industry and for those who are involved in buffalo production. Modern technology aimed at improving productivity and methods of genetic improvement of local breeds remain scarce.

Disorganised Marketing System

Pakistan's cities are becoming overcrowded as a result of large-scale migration from rural areas to urban environments. Consequently, urban demand for livestock products is increasing. In contrast, due to poor communication, transport facilities, and the lack of proper marketing systems, most livestock and livestock products from rural areas are locally consumed, never reaching big cities. More than 90 per cent of the country's livestock are maintained in rural areas. Yet it is estimated that only 25-30 per cent of the milk produced in rural areas of Punjab, for example, is supplied to urban markets. The situation in other provinces is presumed to be similar.

Dairy production and marketing research is marginal, as is training in the proper handling, preservation, and efficient use of milk and meat products. At present, there is no exclusive beef breed of cattle raised in Pakistan. Lack of livestock production extension systems, and demonstrations of new technologies to small farmers further weakens marketing potential.

Improper Veterinary Care

Veterinary services in Pakistan are limited to the public sector and have not been able to effectively protect livestock against various infectious diseases and parasites. Common diseases like Foot and Mouth Disease, Hemorrhagic Septicaemia, Rinderpest, and Enterotoxemia contribute to the low productivity of indigenous livestock. No regular monitoring system for the surveillance of livestock diseases exists in Pakistan.

Lack of Incentives for Improvement

Pakistan's livestock industry has been neglected by the government. Raisers of live-

stock are unable to shift from primitive techniques to modern livestock production technologies due to lack of incentives, particularly at the small farmer level. The governmental agricultural loan policy does not include loans for establishing village chilling centres to check conversion of surplus milk into ghee (clarified butter), nor does it provide economic incentives for small farmers to become involved in feed lot operations or to establish rural livestock farms and veterinary clinics.

All of these problems contribute to the low production levels and poor economic realities of large ruminant pastoral systems in Pakistan.

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