

Dynamics of Livestock Population in Ic Hyper Arid Partial Irrigated Zone

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ABSTRACT

Animal husbandry is a major economic activity of the rural people, especially in the arid and semi-arid regions of Rajasthan. Development of the livestock sector has a significant beneficial impact in generating employment and reducing poverty in rural areas. Livestock contributes a large portion of draft power for agriculture with approximately half the cattle population and 25 percent of the buffalo population being used for cultivation. This study presents the temporal growth of livestock population in Ic Hyper Arid Partial Irrigated Zone. The livestock population of hybrid cows, buffaloes and goats has increased while the population of sheep and camel decreased during 2007 to 2012. It indicates the commercialization of animal rearing with shrinkage in grazing land in the study area.

Keywords: Animal rearing, Growth, Livestock, Temporal

INTRODUCTION

Livestock is the oldest form of agricultural activity, with the evolution of man to more conscious forms of life and the multiplication of human population. The need arose for him to hunt animals in the forest and then understand the necessity of rearing animals for his food. The beginning of agriculture lies in the pastoral form when man started domesticating animals for meeting his food requirements (Singh, 1979). All the agricultural operations are based on livestock and they are the chief source of power and manure (Kaystha, 1961). As the land is of little use to the farmer without the poor creatures that draw the plough and scratch the soil. They are the keystone in farming. Therefore, in addition to crops, drought and milch stock are raised and maintained by an individual farmer. They are his constant companions in the field by day and alive beside his house or even under his roof at night. However, his treatment towards his livestock is rather niggardly (Singh, 1974). It is a well known fact that India has the largest number of livestock in the world. India is at the top of having 17 percent of total livestock population which is less than one-fifth of cattle, half of buffaloes and over one-fifth of goat and sheep.

Livestock sector not only provides essential protein and nutritious human diet through milk, eggs, meat etc. but also plays an important role in the utilization of non-edible agriculture by products. Livestock also provide raw material by products such as hides and skins, blood, bone etc.

This sector plays a prominent role in the rural economy in supplementing the income of rural households, particularly the landless and small, marginal farmers. It also provides subsidiary occupation in semi-urban areas and more so far people living in desert areas where crop output may not sustain the family.

About 10 percent of G.D.P. of the state is contributed by livestock sector alone. This sector has great potential for rural self employment at livestock development is a critical pathway to rural prosperity. As per the livestock census 2012, Rajasthan has about 7 percent of country's cattle population and contributes over 12.72 percent of total milk production, 2.46 percent of meat and 34.46 percent wool produced in the country.

STUDY AREA

The Hyper Arid Partial Irrigated Zone (Zone Ic) lies between the irrigated North-Western (Ib), Ia-Arid Western and IIa-Plain of Inland Drainage. In Rajasthan, it spreads from Rajgarh tehsil in Churu district in the North-East to Sam tehsil in Jaisalmer district in the west. It covers the areas of Bikaner, Jaisalmer and Churu districts. The zone lies between 26°24' to 29°00' north latitudes and 69°29' to 75°41' east longitude by covering an area of 82,499 sq km with the altitude ranging from 229 to 292 m above mean sea level. The length of international boarder attached to the zone is 632 km (Figure 1).

It is characterized by rocky-gravelly pediment, flat buried pediment, older and younger alluvial plains and riverbeds produced by the fluvial processes within the desert. The pediment is invariably flat, rocky or slightly veneered with sharp interface with the adjoining hill slope.

OBJECTIVES OF THE STUDY

To study the temporal changes in livestock population in Ic Hyper Arid Partial Irrigated Zone.

REVIEW OF LITERATURE

Deshmukh (2012) observed that livestock generates massive employment opportunities to rural populations, particularly rural self-employment at lowest possible investment compared to others. The women have contributed to care of newborn, feeding, milking and other management practices. Women from tribal and hilly areas have also participated in this activity.

Iqbal (2010) concluded that the growing population, increasing urbanization and the changing food habits of people is enhancing the demand of livestock products worldwide. Therefore, the livestock sector is growing at a higher rate in developing countries. He reported that about 83

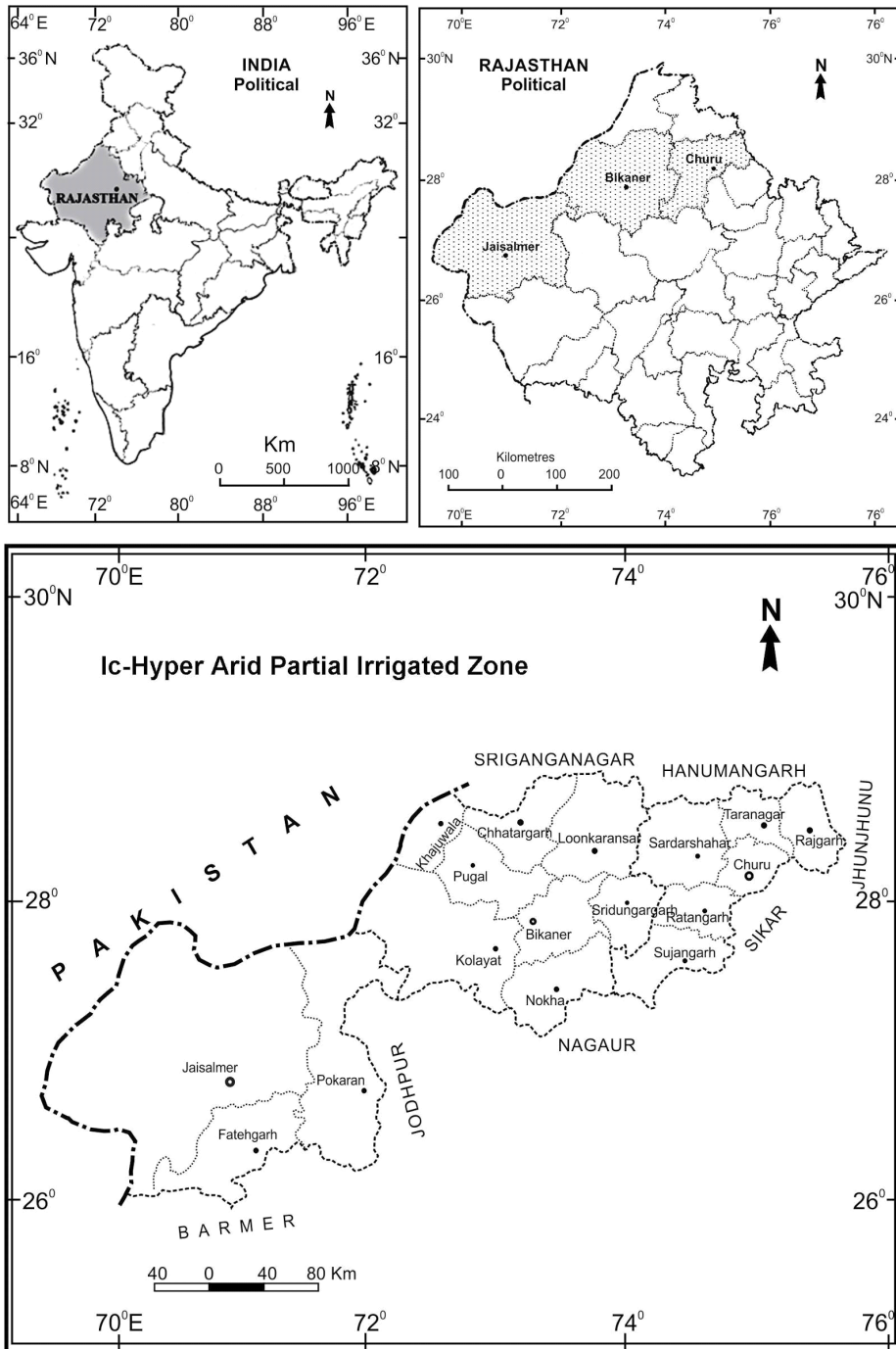


Figure 1: Ic-Hyper Arid Partial Irrigated Zone - Location Map

percent of the workforce of households surveyed in the rural areas of northern India is involved directly or indirectly in livestock husbandry. The participation of women in livestock husbandry is enhancing rapidly but more than 90 percent were unpaid.

Seife *et al.* (2012) concluded that livestock can be an important activity to get out the rural population from poverty in developing countries. However, many farmers of these areas are facing fodder shortfalls (50-60 percent) during the dry season (December to February). These shortages are productivity and provoking conflict over grazing. They have found complex causes of scarcity including limited and erratic rainfall, shrinking grazing lands due to competition for cropping lands and changing land use pattern favouring urbanization and settlement. Therefore, the market manipulation by some cattle traders, some farmers were selling animals for less than the market prices.

RESEARCH METHODOLOGY

The research work comprises primary and secondary data. The primary data have been collected containing land use, cropping pattern, irrigation facilities, use of machineries and equipment, crop combination, crop rotation, crop diversity, crop ranking etc.; whereas the secondary data have been gathered from various census records, journals and government publications. The literature survey on the various aspects of the Ic-Hyper Arid Partial Irrigated Zone has been undertaken in the libraries and internet searching. It also includes the study of respective issues from different governmental and non-governmental organizations, and various academic and non-academic people have been consulted.

After that compilation, calculation and computation of both primary and secondary data; the analysis is done. The final presentation of the same is done using cartographic techniques e.g. bar diagram, wheel diagram, line graph, choropleth and isopleth maps along mean and correlation.

RESULTS AND DISCUSSION

Temporal change in composition of livestock population and different species like cattle, buffalo, goat, sheep and camel and other livestock have been presented in Table 1.

CATTLE

In IC Figure 2, Hyper Arid Partial Irrigated Zone considerably the cattle population is large in number. However, they are poor in quality. Cattle are used both for milk and for drought purposes. Some cows are fairly good yielders of milk while bullocks are good for drought.

Bullock cart is such a vehicle which not only serve as a means of transportation of goods from or to the village from nearby towns but also is well suited and designed to transport agricultural raw materials and implement from the field in the study region. Cows of Rathi, Tharparker, Hariyanis Jersi and Holstein breeds are mainly found in study region.

Table 1: IC-Hyper Arid Partial Irrigated Zone-Livestock Wealth

District	Year	Census	Cattle	Buffaloes	Goat	Sheep	Camel	Other livestock	Total livestock
Bikaner	2003	Number	608597	132732	686507	928892	61861	17681	2436270
		Per cent	24.98	5.44	28.17	38.16	2.53	0.72	100
	2012	Number	906075	193433	961907	653028	46209	12663	2773315
		Per cent	32.67	6.97	34.68	23.54	1.66	0.48	100
Churu	2003	Number	215234	194524	595899	381005	46895	11276	11444833
		Per cent	14.89	13.46	41.24	26.37	3.29	0.78	100
	2012	Number	347470	292571	820043	348522	33959	7267	1849832
		Per cent	18.78	15.81	44.33	18.84	1.85	0.39	100
Jaisalmer	2003	Number	243094	2181	588000	890191	36952	12725	1773143
		Per cent	13.70	0.14	33.16	50.20	2.08	0.72	100
	2012	Number	434623	4057	1513386	1185150	49917	8080	3195213
		Per cent	13.60	0.14	47.36	37.09	1.56	0.25	100

Source: Livestock Census, 2003 and 2012

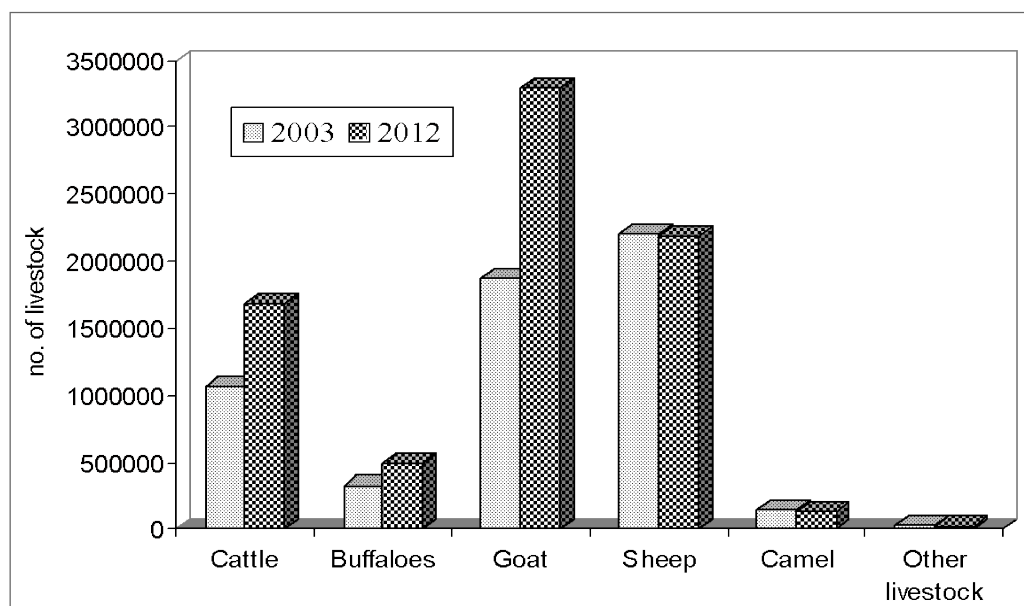


Figure 2: Livestock comparison of study area

Table 1 shows that total cattle population has increased considerably from 2003 to 2012 and has slightly increased in only Jaisalmer district. Cattle population of the study region has increased from 1366925 in 2003 to 1688168 in 2012. Out of the total livestock the percentage share of cattle was below 15 percent in Jaisalmer district and above 15 percent in Bikaner and Jaisalmer district in 2012.

Table 1 indicates that 3.89 percent positive change in Churu district and 7.69 percent positive change in Bikaner district 0.10 percent negative change was observed in Jaisalmer during 2003 to 2012.

Buffaloes

Buffaloes are reared mainly for milk but male buffaloes are used as draught animals in certain parts of the study region. The proportion of buffalo population was varied from district to district in Ic Hyper Arid Partial Irrigated Zone. Buffaloes population of the study region has increased from 829437 in 2003 to 490061 in 2012. Out of the total livestock the percentage share of buffaloes was below 10 percent in Bikaner and Jaisalmer district and above 15 percent in Churu district.

It is clear from the above table that 1.53 percent and 2.35 percent positive change has occurred in Bikaner and Churu district respectively. Where as no change was observed in Jaisalmer district. Buffaloes of Murrah and Desi breed are mainly found in study region.

Goat and Sheep

Goat is called the poor man's cow because it can be cheaply reared on meager grass of poor quality. It is the major supplier of mutton along with milk, hair and skin. According to livestock census, 2012, there are about 9079702 sheep and 21665939 goats in Rajasthan. Goat and sheep form an integral part of the Indian agricultural economy. Their distribution is widely divergent mainly dependent upon the climatic conditions. The number being smaller in heavy rainfall areas greater in low rainfall areas (Dubey and Negi, 1968).

Table 1 show that the share of goat and sheep in total livestock was below 40 percent in Bikaner (34.68 percent) and above 40 percent in Churu (44.33 percent) and Jaisalmer (47.36 percent) districts. Goats have first rank considerably to the total livestock in the study region. During the period of 2003-2012, all the districts in study area have positive change in case of goats and negative change in case of sheep population. Table 1 indicates 6.51, 3.09, 14.2 percent positive change was observed in Bikaner, Churu, Jaisalmer while 14.62, 7.53, 13.11 percent negative change was recorded in Bikaner, Churu, Jaisalmer district during 2003 to 2012.

Sheep rearing is the most important occupation of the maximum number of inhabitants. They are reared mainly for their wool. A good average type of sheep has a fairly good hump and

generally medium grade of wool. Though some flocks produce fine grades as well. Jaisalmeri, Naali, Magra, Pugal breeds are found in the study regions. Goats are also extensively bred in the district for milk and meat. Marwari and Lohi are the two important breeds found in the study region.

Camel

The Rabari/Raika are the most numerous pastoral groups in western India which live in Rajasthan and Gujarat, with some fraction living in Punjab, Haryana and M.P. and other states. The term Raika is applied exclusively to the Rabari of Marwar area of Rajasthan which denotes camel breeder with it. Sources from the colonial period describe the Maru Raika as camel breeders and the Godwar Raika as buffalo raisers, but this does not apply any longer. Since groups herd buffalo as well as cows (Kohler, 1997). The Raika have retained their reputation as “Camel people” until today, but only a minority now engaged in camel breeding.

Table 1 shows the total camel population has declined considerably from 2003 to 2012. Camel population of the study region has decreased from 145708 in 2003 to 130085 in 2012. Out of the total livestock the percentage share of camel was 23.54%, 18.84% and 37.09% in Bikaner, Churu and Jaisalmer districts respectively. Table 1 indicates 0.87, 1.44, 0.52 negative changes in Bikaner, Churu, Jaisalmer district during 2003 to 2012. Bikaner, Nachna. Jaisalmer breeds are found in Ic Hyper Arid Partial Irrigated Zone.

Other Livestock

It is clear from the given Table 1 that there are great variations in other livestock population in the study area. It has decreased from 41682 in 2003 to 23010 in 2012. Proportion of other livestock in the total livestock was 0.48, 0.39, 0.25 percent in Bikaner, Churu and Jaisalmer districts respectively. It is clear from the table that 0.24, 0.39 and 0.47 negative change in Bikaner, Churu and Jaisalmer district in Ic Hyper Arid Partial Irrigated Zone.

CONCLUSION

Animal husbandry and dairy development plays an important role in the rural economy and regional development. The present study concluded that an increasing trend in the total livestock population was observed from 2007 to 2012. The study evinced an impressive growth for all livestock species excluding sheep, camel and other animals. The trends in different species of animals in the study region indicate that a shift has taken place in favour of more productive milch animals. It indicated the commercialization of animal rearing with shrinkage in grazing land in the study region. It is found during the sample survey that every farmer owns 2-3 cow/buffaloes with some goats. Although this shifting is one of the good indicators for dairy development but qualitative improvements in breeds of milch animals in the study region was very poor yet.

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