

Role of Livestock in Controlling Desertification

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Abstract – Historical observations and various studies reveal that desertification is the result of both climatic and anthropic factors but recently the focus has been shifted towards the relationship of livestock and desertification. For centuries people believe that a major cause of desertification is the increasing number of livestock. Overgrazing done by the animals invites the natural or anthropogenic phenomena to occur freely. The more the number of animals, the great pressure it imposes on land. Recent studies show a wider picture. Rejuvenation of land is possible by pastoralism or by the adequate grazing behavior of animals. The focus of this paper will be towards the comparative study of livestock in the state of Rajasthan in the last two censuses that are 2007 and 2012. The opportunities which lay hidden due to the ignorance of people and study of recent desertification report given by ISRO suggest that there is a close relationship between livestock and desertification data. Allan Savory, who is a Zimbabwe Borne biologist, farmer, Game rancher and founder of Savory Institute has been leading entire desertification efforts in Africa and he uses an unorthodox approach for land rejuvenation. He believes in increasing the number of livestock on grassland or in any area rather than fencing them off for conservation.

Keywords – Livestock, Ranching, Pastoralism, Desertification, Anthropic Factors, Overgrazing, Land rejuvenation.

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INTRODUCTION

Rajasthan is the biggest state of India with an area of 342,239 square kilometers. It is located between 23°30' to 30°12' North latitude and 69°30' to 78° 17' East longitudes. The Aravalli Range which runs diagonally across Rajasthan from North East to south-west direction divide the state into two parts. The north-Western part which is about 61 % of the total area is either desert or semi-desert and depends on rainfall. The main districts in this region are Sri Ganganagar, Churu, Hanumangarh, Baramer, Bikaner, Jaisalmer and Jodhpur which receives about 20 to 35 cm rainfall. In the remaining districts of North Western parts namely Jhunjhunu, Sikar, Nagaur, Pali and Jalore experience up to 30-50 cm rainfall. The population of this arid or semi-arid area depends on animal husbandry/livestock. A big part of this state is occupied by tribal people. Livestock plays an important role in the economy of Rajasthan. Farmers have been inclined towards livestock rearing since the early days.

Grazing by animals is must on land as it protects the land from desertification. Allen Savory conducted an experiment years ago where he proved that when a herd eats up grasses as it moves along, it leaves behind a protective layer of trampled dung, dust and soil which is important for healthy soil which produce more grass every year for the grazers and in return

the herd provides food for the predators and human beings. Controlled grazing can prove beneficial but overgrazing can be an issue.

A LOOK AT 19TH LIVESTOCK CENSUS 2012

Animal husbandry is a major economic activity of the rural people especially in the arid and semi-arid regions of the Rajasthan. Development of livestock sector has a significant beneficial impact in generating employment and reducing poverty in rural areas. As per the 19th livestock census 2012 there are 577.32 lacs livestock which includes cattle, buffalo, sheep, goat, horse and ponies, mules, donkeys, camel, pig and poultry is about 80.24 lacs.

Livestock is classified into two categories-

1) Milch livestock-

From the nine categories of livestock cattle buffalo and goat are included in this. The total livestock in this category is 47 9.66 lakh which is 83.03 % of the total livestock.

2) Commercial livestock -

Remaining species such as Sheep, horse, ponies, mules, donkeys' camel and pigs are included in this category. According to the livestock census, 2012 total livestock here is 97.6 lacs which is 16.92% of the total livestock population.

Milch Livestock

Cattle, buffalo and goat species are included in this category. The table below shows a comparative study of 2012 census with the 2007 census. There is an increase of 6.78 % milch livestock in 2012 since 2007. According to the 2012 census, the total milch population of Rajasthan is 83.08% of the total. The maximum milch population is found in Barmer that is 3899154 and the minimum is found in Dhaulpur that is 508350.

Cattle

Cattle makes 23.08% of the total population while it is 27.78% of the total milch livestock population. Since 2007 there has been an increase of 9.94 per cent population. Maximum cattle is found in Udaipur while minimum cattle is found in Dholpur.

Buffalo -

The population of Buffalo is about 22.4 8% of the total livestock. It is about 27.05 % of the total milch population. Since the last census, there has been an increase of 16.9 9%. The maximum population of Buffalo is found in Jaipur while the minimum is found in Jaisalmer.

Goat-

The population of goat species is about 37.5 3% of total livestock while about 45.17% of the total milch livestock. There has been an increase of about 0.76 % of goat population. Maximum goats are found in Barmer while minimum in Dhaulpur.

Commercial livestock -

In this category sheep Horses and ponies' mules, donkeys camel and pigs are included. The total population of this category is about 97.66 lakhs. There has been a decrease of about 18.27 % population as compared to the 2007 census.

Sheep-

The population of sheep is about 15.73 % of the total population. It is about 92.98 % of the commercial livestock population. As compared to 2007 census there has been a decrease of 18.8 6% population in 2012. Maximum sheep population is found in Barmer while the minimum is found in Banswara.

Horse and Ponies-

Horse and ponies make about 0.07 % of the total population of livestock in the state. It is about 0.39 % of the total commercial livestock population. There has been an increase of 48.5 % of these species in 2012 as compared to 2007 census.

Donkey and Mules-

Donkey and mules make about 0.15 % of the total livestock population. In total commercial population, the share of donkey and mules is about 0.87 %. There has been a decrease of 17.64 per cent in their number in 2012 since 2007. A maximum number of donkey and mules are found in Barmer while the minimum is found in Tonk.

Camel-

The population of the camel is about 0.56 % of the total livestock population while it is 3.34 per cent of the total commercial livestock population. There has been a decrease of about 22.7 9% in 2012 since 2007. The maximum population of Camels are found in Jaisalmer while minimum in Pratapgarh.

Pigs-

The total population of pigs is about 2.38 % of the total livestock population. It is about 2.34 % of the total commercial population. There has been an increase of 13.96% in 2012 since 2007. The maximum population of pigs is found in Bharatpur while minimum in Dungarpur.

Desertification report of Rajasthan-

Thar Desert Alluvial plain and the Aravalli Range are the major Geographic features of Rajasthan. Chambal, Luni, Banas, Maahi, Sabarmati et cetera are the major rivers of the state. The western part of Rajasthan is arid while the Eastern part is semi-arid. The weather here is extreme with very scanty rainfall. Rajasthan has the highest area under desertification with respect to the total geographical area of the country. The state is observed with 62.90% of the total geographical area under desertification for the period of 2011 to 2013. The desertification area in Rajasthan has decreased by about 0.29 % since 2003-2005. The most significant process of Land Degradation or desertification in the state is wind erosion (44.4 1% in 2011 to 2013 and 44.8 0% in 2003-2005) followed by vegetation degradation (7.62% in 2011-2013 and 7.59% in 2003-05) and water erosion (6.18% in both 2011-13 and 2003-05)

OBJECTIVES

The objective of this research paper is to find out the relationship between the rate of desertification and the number of livestock. Identification of the areas where the rate of desertification is increasing has been studied and the number of livestock in that area is studied for the past few years.

RESEARCH METHODOLOGY AND DATA COLLECTION

Secondary data is collected from various sources to study this research paper. Desertification data released by ISRO has been collected from the desertification Atlas released by ISRO. Livestock census 2012 data released by the Rajasthan government has been collected from secretariat Ajmer.

A comparative study of the census data of 2007 and 2012 has been done. Simple percentage change has been calculated between the data of 2007 and 2012 census. Percentage increase or decrease has been calculated for each category of livestock species. By looking at the calculations done in the above table it is clear that the population of sheep, donkeys' camel shows a negative change. The population of the species was more in 2007 as compared to 2012 so the percentage change is negative for these species. The population of cattle buffalo goat horse and ponies' mules and donkeys and pigs show positive change. The percentage of these species has increased in 2012 as compared to 2007.

RESULTS AND DISCUSSION

| S. No. | SPECIES | 2007 | 2012 | CHANGE | % CHANGE |
|--------|------------------|----------|----------|----------|----------|
| 1 | Cattle | 12119512 | 13324462 | 1204950 | 9.94 |
| 2 | Buffalo | 11091974 | 12976095 | 1884121 | 16.99 |
| 3 | Sheep | 11189855 | 9079702 | -2110153 | -18.86 |
| 4 | Goat | 21502996 | 21665939 | 162943 | 0.76 |
| 5 | Horse and Ponies | 25438 | 37776 | 12338 | 48.5 |
| 6 | Mules | 886 | 3375 | 2489 | 280.93 |
| 7 | Donkeys | 102130 | 81468 | -20662 | -20.23 |
| 8 | Camel | 421836 | 325713 | -96123 | -22.79 |
| 9 | Pigs | 208556 | 237674 | 29118 | 13.96 |
| | Total | 56663183 | 57732204 | 1069021 | 1.89 |

The table of comparison of last two livestock census shows that there is a positive change overall. The total population of 2012 census is more than the 2007 census and there is a positive change in the data of livestock population. There is an increase of about 1.89 % of the total population where few species of animal have decreased considerably in the recent years. If we study the desertification report released by ISRO India has approximately 96.40 mha area under Land Degradation. In Rajasthan the rate of desertification has decreased when compared to 2003 to 2005 data. The state is observed with 62.90 % of the total geographical area under desertification for the period of 2011-13. The desertification area in Rajasthan has decreased

about 0.29 % since 2003-2005. The livestock density per square kilometer in Rajasthan is 169 animals.

SOLUTIONS

As we know controlled grazing can prove to be very fruitful for our environment, but it is not easy to maintain. Allon Savory states that Overgrazing is a function of time. It depends on the number of days of exposure of plants to grazing and the repetition of grazing. We simply had to find a way of managing livestock, that catered for many variables, such as the rate of plant growth, number of herds, types of animals, while ensuring repeated, high physical animal impact (to mimic past herd behavior under threat of predation), and cater for wildlife, crops, other land uses, as well as for erratic seasons. Only by doing this could we begin to reverse desertification. Educating Shepherds, herders and livestock keepers is an important task which needs to be done. We have to educate them that they should not take their herds at the same place for grazing. They should understand the concept of controlled grazing. Proper training if given to the herders can prove to be a boon for our environment. Government can establish training institutes or dedicated NGO's for this cause which can provide various facilities.

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