



Livestock Population Trend Analysis in India: A Censual Review of Last Decade

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ABSTRACT

The livestock industry, which employs 8.8% of the workforce, including women, smallholders and landless workers and contributes 4.11% of the country's GDP and 25.6% of its agricultural GDP, is essential to India's rural economy. With 19.46% of the world's cattle and 59.29% of its buffalo, India is home to the biggest livestock population in the world, contributing significantly to both food security and the creation of livelihoods. 535.76 million animals were counted in the 20th Livestock Census (2019), a 4.8% increase over 2012. Sheep (+14.1%) and goats (+10.1%) are on the rise, while cattle (+1.3%) and buffaloes (+1.1%) are on the drop. Pigs (-12%), camels (-37.1%), donkeys (-61.2%) and mules (-57.1%) are on the decline. While native cattle continued to diminish, the numbers of female and crossbred cattle increased dramatically. There was a noticeable regional difference, with Odisha exhibiting significant decreases and West Bengal and Telangana seeing robust development. Overall, the decrease of pigs and working horses reveals structural issues including poor breeding, disease and policy neglect, while small ruminants and buffaloes show encouraging development driven by consumer demand. For sustainable growth and improved rural livelihoods, it will be crucial to close productivity gaps, preserve native breeds and assist underappreciated species. The article has been written to provide a brief overview of the state of livestock in the nation since 2007 by examining the significance of livestock censuses and comparative studies of those.

Key words: % Change, Buffalo population, Cattle population, Livestock census, Livestock population.

Animal husbandry and livestock sector plays critical role in rural livelihood and commercial growth of the country. India possesses one of the largest and most diverse livestock wealth in the World playing an important role in civilization along with economic importance (Unnati *et al.*, 2019). Livestock sector makes multifarious contribution to overall welfare of India's rural population in terms of generating a continuous stream of income and reducing seasonality in livelihood patterns particularly of the rural poor (Birthal and Ali, 2005). The livestock sector adds 4.11% to the country's gross domestic product and makes up 25.6% of the total agricultural GDP. (Yadav *et al.*, 2021). The importance of this sector can be understood by fact that it employs 8.8% of the total population of India (Singh *et al.*, 2022) including many small and marginal farmers, women and landless agricultural labourers (Bhardwaj *et al.*, 2018). India has the largest livestock population in the World, accounting for 59.29 per cent of the World's buffalo population and 19.46 per cent of World's cattle and ranking first in respect of cattle and buffalo population, second in goat, fish and poultry, third in sheep and tenth in camel population in the World (Sharma *et al.*, 2018; Mondal and Mishra, 2022). The livestock sector globally is highly dynamic. In developing country like India, it is evolving in response to continuously rising demand for livestock products.

Livestock population

There has been noteworthy growth in livestock population from 1951 (292.80 million numbers) to 2019 (535.76 million numbers). The livestock population of India showed remarkable growth rate of 4.8% during the intercensal period

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from 2012-2019 (Table 1). Species wise, there was a huge variation in percentage change from 2012 to 2019 ranging from -61.2% of Donkeys to +29.5% of Mithun. According to 20th Livestock Census, a report of which was released in October, 2019 by the Ministry, the total livestock population was 529.69 million in year 2007 and 512.05 million in 2012 with a decrease of about 3.33%. The total livestock population as per 20th Livestock Census, 2019 was 535.76 million which showed an increase of 4.8% over Livestock Census in 2012 (Fig 1). There has been a positive growth in the livestock population along with production and per

capita availability of livestock products during the recent years. Livestock data revealed that Uttar Pradesh had the highest livestock population however, the rate of population growth had declined at rate of 1.35%. However, West Bengal had showed highest increase of 23.32% in livestock population from 2012 to 2019 followed by Telangana (22.21%) and Andhra Pradesh (15.79%) among ten major states of the country. In addition, the percentage contributions of different livestock species in all three livestock censuses are depicted in Fig 2.

Cattle

The cattle population decreased from 199.08 to 190.90 million during the period of 2007-2012 showing a negative growth rate of -4.10% on the contrary from 2012 to 2019, the population increased to 193.46 million showing an increase of 1.3% over the previous census. The 2012 Livestock Census revealed that the female cattle (cows)

population had increased by 6.49% over the previous census of 2007 and again significant increase of 18.06% in population was reported during the period from 2012-2019. At the same time, population of male cattle have been remarkably reduced with by 18.76% during 2007 to 2012 and then again 29.99% during 2012 to 2019 (Table 2). This trend clearly indicates that the livestock owners have a clear inclination for female cattle rearing. The population of exotic/crossbred cattle increased to tune of 20.18 % and 29.27% during the periods from 2007-2012 and 2012-2019 respectively. Nevertheless, there was a decline of 8.94% and 5.99% in the total Indigenous (both descript and non-descript) cattle population during the same periods. There was a sharp decline in indigenous native animals during the period from 2007-2012. However, the decline has been seen to be much lesser from 2012 onwards. Among major states, foremost decrease in cattle population has been noted in Odisha (-15.01%) and highest growth of cattle

Table 1: Population of different livestock species and growth in India during 2007 (18th Livestock Census), 2012 (19th Livestock Census) and 2019 (20th Livestock Census).

Species/Livestock Census	2007 (in million)	% growth from 2007 to 2012	2012 (in million)	% growth from 2012 to 2019	2019 (in million)
Cattle	199.08	- 4.10%	190.90	+ 1.3%	193.46
Buffaloes	105.34	+ 3.19%	108.70	+ 1.1%	109.85
Sheep	71.56	- 9.07%	65.07	+ 14.1%	74.26
Goats	140.54	- 3.82%	135.17	+ 10.1%	148.88
Horses and ponies	0.61	+ 2.12%	0.62	- 45.2%	0.34
Mules	0.14	+ 43.07%	0.20	- 57.1%	0.08
Donkeys	0.44	- 27.17%	0.32	- 61.2%	0.12
Camels	0.52	- 22.63%	0.40	- 37.1%	0.25
Pigs	11.13	- 7.54%	10.29	- 12.0%	9.06
Mithun	0.026	+ 12.88%	0.30	+ 29.5%	0.39
Yaks	0.083	- 7.64%	0.08	- 24.7%	0.06
Total	529.69	-3.33%	512.05	+ 4.8%	535.76

Source: Livestock census, Directorate of economics and statistics and animal husbandry statistics division, Department of Animal Husbandry and Dairying, M/O Fisheries, Animal Husbandry and Dairying.

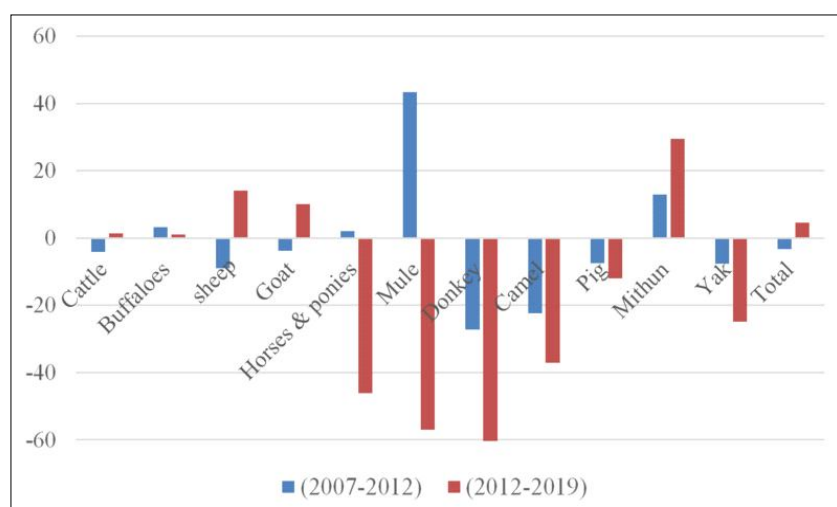


Fig 1: Growth rate (in %) of different livestock species during 2007-2012 and 2012-2019.

population has been in Jharkhand (28.16%) in 2019 as compared to previous census of 2012. The breeds of cattle in our country is divided in three groups based on production and performance: Milch, Drought and Dual purpose breeds (Rai *et al.*, 2023). Increased impetus on conservation of native breeds and various government intervention projects like Gokul mission seems to have played a role in decreasing the sharp decline. The trends over the last five censuses indicate fluctuations in the growth trends of the cattle population of India. The reasons for fluctuations in cattle population in India might be rapid urbanization, decrease in supply of agricultural labour and non-remunerative price for milk. Most of the states have cow-protection laws for many decades. In spite of these protection laws, the growth in cattle numbers has been inconsistent.

Buffalo

Buffalo population has been seen to be growing since 1950 (Dey *et al.*, 2024), however, if we look towards previous three census' scenario, during the period from 2007-2012, the buffalo population increased from 105.34 million to 108.70 million showing a growth of 3.19%. While, according to 20th Livestock Census, 2019, the total buffaloes in the country were 109.85 million after increase of about 1.1% over 2012 census. India stands first in terms of buffalo population with an astonishing share of 59.29% of the World population. The female buffalo population has increased by 7.93% during the inter censal period from

2007 to 2012 and by 8.72% during the period from 2012-2019. However, a decrease of 42.35% has also been noticed in male buffalo population in the period between last two censuses (Table 2). The total buffalo population of India has showed a raised trend in last decade. This raising trend has also been observed in buffalo population over last five censuses. Among the major states of buffalo population, 25.88% increase has been in seen in Madhya Pradesh and Haryana have shown decrease of 28.22% in buffalo population compared to last census of 2012. Indians have a habit of consuming fat rich milk and buffalo milk has nearly double fat percentage as compared to that of cow milk. In a consumer driven market, now-a-day's people have reared buffalo more than cattle and other livestock species. It is also remarkable to note the consistent increase in the numbers for buffaloes, despite no specific ban on slaughter.

Sheep

During the period from 2007-2012, the total sheep in the country dropped from 71.56 million to 65.07 million, a decline by about 9.07%. The total sheep population in the country was 74.26 million recorded in 2019, which was an increase by 14.1% over 2012 Census. India ranks third in terms of sheep heads which is approximately 6.4% of the World sheep population. The exotic/crossbred sheep population of India increased by 1.64% during the period from 2007-2012 and by 8.12% during the period of 2012 to

Table 2: Category (females, males, exotic/crossbred and Non-descript/Indigenous) wise population and % change in different livestock species during 2007, 2012 and 2019 Livestock Census.

Species	Category	Population in 2007 (in million)	Population in 2012 (in million)	% change (from 2007 to 2012)	Population in 2019 (in million)	% change (from 2012 to 2019)
Cattle	Females	115.43	122.92	6.49%	145.12	18.06%
	Males	83.6	67.92	-18.76%	47.55	-29.99%
	Females(Exotic/Crossbred)	26.2	33.7	28.63%	46.95	39.32%
	Exotic/Crossbred	33.06	39.73	20.18%	51.36	29.27%
	Females (Non-Descript/Indigenous)	89.23	89.22	-0.01%	98.17	10.03%
	Non-Descript/Indigenous	166.01	151.17	-8.94%	142.11	-5.99%
	BuffaloFemales	85.7	92.5	7.93%	100.57	8.72%
	Males	19.5	16.103	-17.42%	9.283	-42.35%
Goat	Females	99.7	97.5	-2.21%	116.78	19.77%
	Males	40.7	37.617	-7.57%	32.105	-14.65%
Sheep	Females	53.67	49.89	-7.04%	60.9	22.07%
	Males	17.8	15.213	-14.53%	13.36	-12.18%
	Females (Exotic/Crossbred)	2.58	2.57	-0.39%	3.26	26.85%
	Exotic / Crossbred	3.72	3.781	1.64%	4.088	8.12%
	Females (Non-Descript/Indigenous)	51.09	47.32	-7.38%	57.64	21.81%
	Non-Descript/Indigenous	67.8	61.288	-9.64%	70.172	14.5%
Horse	Females	0.276	0.275	-0.36%	NA	NA
	Males	0.47	0.35	-25.53%	NA	NA

NA= Not available.

Source: Livestock Census, Directorate of Economics and Statistics and Animal Husbandry Statistics Division, Department of Animal Husbandry and Dairying, M/O Fisheries, Animal Husbandry and Dairying.

2019, while the population of indigenous/non-descript sheep population decreased by 9.64% and increased by 14.50% during the period of last two censuses. There has been a sharp increase in sheep population during last five years and the increased demand and export of mutton might be the driving force for the population rise in the last five years. State wise, highest population (19.1 million) of sheep is found in the state of Telangana with highest increase of 48.51% compared to previous census, whereas major decrease in sheep population have been noticed in Uttar Pradesh with the change of -27.25% related to 19th Livestock Census.

Goat

Goat population in India is comprised of more than 1/4th of total livestock population in the country. However, The Goat population decreased from 140.54 million (2007) to 135.17 million (2012) with a change of -3.82%. According to 20th Livestock Census, the Goat population in the country was 148.88 million showing an increase of 10.14% over the previous census. Milch goat animals' population also found to be increased in 2019 from 61.56 millions in 2012 to 69.65 showing change of 13.15%. There has been a remarkable increase in goat population during the last five years. The reasons for the increasing trend in goat population in India might be associated with increase in demand for chevon by the consumers, increase in export of the same, awareness regarding medicinal value of Goat milk as well as easy management practices for goat over other livestock species. Rajasthan is a major state having highest population of 20.8 million goats but highest increase has been noticed in West Bengal with 41.49% change in Goat population.

Pigs

During the period from 2007 to 2012, the pig population in the country declined by 7.54% (11.13 million to 10.29 million) and the population further declined to tune of 12.03 % and

the reported pig population in 2019 was 9.06 million. Thus, the pig population of the country has been showing a decline in last ten years. It has been estimated that there is a deficit of 50% in terms of production-demand of pork. A comparatively lesser quality indigenous pigs' breeds have been at core of breeding programme and pig rearing faces challenges like inbreeding and poor reproductive ability. Moreover, outbreaks of Classical Swine fever is also one of the reasons for the decline in population.

Horses and ponies

During the period from 2007 to 2012, the total population of horses and ponies increased from 6.1 to 6.2 lakhs (increase of 2.12%). However, the total horses and ponies in the country was 3.4 Lakhs in 2019. The number of horses and ponies across the country declined significantly by nearly 45.2% between 2012 and 2019. All major states of country having population of horses of ponies showed variable decrease according to 20th Livestock Census except Gujarat where population of these species increased by almost 19.42% compared to precious census. The horses and donkeys are dwindling species both by decrease in number and also by the dilution of the breeds as a result of indiscriminate breeding due to non-availability of purebred stallions in want of organized breeding.

Mules

The population of mules was 1.4 lakhs in 2007 and showed an increase of 43.07% (2 lakhs in 2012) over the previous census. The total population of mules in the country was just 80 thousand in 2019 which was a major decrease of 57.1% over 2012 Livestock Census. Highest mule population is seen in the state of Uttarakhand followed by Himachal Pradesh and Jammu and Kashmir.

Camel

During the period of 2007-2012, the camel population decreased by 22.63% over the previous census (5.2 lakhs

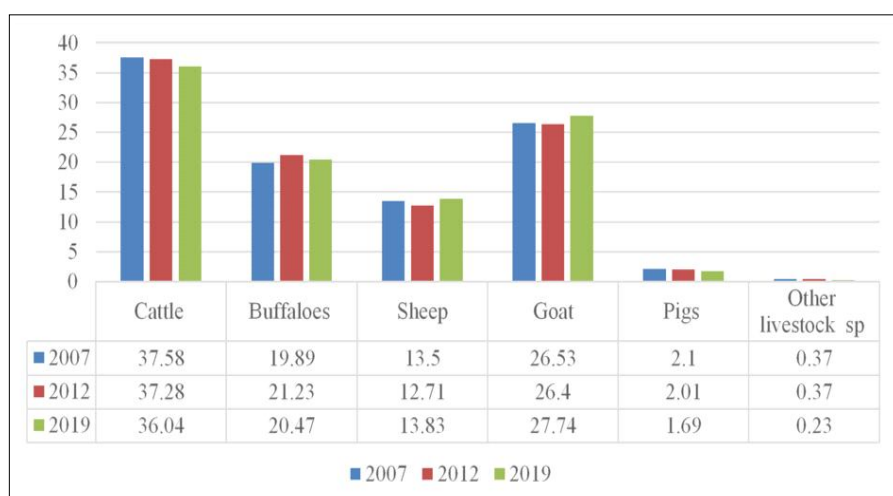


Fig 2: Percentage share of different species to total livestock population.

in 2007) and the total camel population in the country was 4.0 lakhs in 2012. The total camel population in the country was 2.5 Lakhs in 2019, a significant decrease of 37.1% over 2012 census. There has been a worrying decrease in camel population over the last decade. Reasons like change in life style, other means of transport and poor incentives for rearing communities like raikas have complicated the scenario. Major states having camel population are Rajasthan, Gujarat, Haryana and Uttar Pradesh.

Donkey

During the period of 2007 to 2012 to 2019 (4.4 lakhs to 3.2 lakhs to 1.2 lakhs), the donkey population in the country showed a decrease of 27.17 % and 61.2% during the period from 2007-2012 and 2012-2019, respectively. The sharp decline in donkey population in India over the last decade might be allied to emerging demand of donkey hide in the Chinese market.

CONCLUSION

After an initial decline of 3.33% from the period of 2007-2012, the livestock population has shown a remarkable upsurge of 4.6% during the period from 2012-2019. The number of livestock has increased due to increase in population of sheep and goat even though indigenous cattle has declined. The decline in the indigenous cattle during 2012-2019 has been at slower rate as compared to 2007-2012. The overall cattle population during the last decade has shown fluctuating trend. The buffalo population has shown an increasing trend during both periods. The 2019 census evinced the favourable growth rate for all livestock species excluding pig farming provides immense opportunities for poverty alleviation through employment generation and nutritional security. Proper planning and policies should be framed and swine development programmes and disease eradication should be implemented in the country with a focus on increasing genetic potential of indigenous breeds, taping the export potential of pork and organization of piggery sector.

There has also been a striking decline in population of working equines in India that contribute much to the various sustainable development goals through supporting the livelihood of poorest communities. They are highly resilient and capable of covering long distances without feed and water. Donkeys and mules are under acknowledged and neglected in the policies and development programs in India due to lack of information and data to support their contribution. Despite large and diverse livestock, productivity of the individual animal is quite low due to many factors like dominance of the population with local low yielding breeds, shortage of food and fodder, improper management and disease control measures, increased rate of urbanization etc. Keeping the above factors in mind, appropriate interventions and support by the government and stakeholders can play a very vital role to overcome the above hurdles.

Conflict of interest

The author(s) declare that there is no conflict of interest regarding the publication of this article.

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