

Sustainable Livestock Production in Alignment with the Sustainable Development Goals

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ABSTRACT

The livestock sector is a key component of the global food system, contributing to food security, poverty reduction, and agricultural development. It accounts for about 40% of the global agricultural output and supports the livelihoods of nearly 1.3 billion people. However, increasing population growth and rising demand for animal protein have intensified pressure on livestock production systems. Sustainable livestock production aims to meet this growing demand while minimizing environmental, social, and economic impacts. Sustainability involves balancing environmental protection, social well-being, and economic profitability to ensure that present needs are met without compromising future generations. Achieving this balance is essential for the long-term viability of the livestock sector.

INTRODUCTION

Livestock sector is a pillar of the global food system and a contributor to poverty reduction, food security and

agricultural development. Coping with the rising demands and public importance of sustainability of livestock production has now

become a big challenge for all animal farmers and more industrialized operations especially. According to (FAO, 2018) the global demand for livestock is increasing and this is due to both increasing population and the need for high-quality protein in human diets. According to the FAO (2020), livestock contribute 40% of the global value of agricultural output and support the livelihoods and food and nutrition security of almost 1.3 billion peoples. According to United Nations Brundtland Commission (1989) defined Sustainability as “Meeting our present needs without compromising the ability of future generations to meet their needs”. Sustainable farming is a broad, umbrella term for growing food using method that will also nurture society, the environment and the economy. (Kim, 2021). Sustainable livestock production means making livestock systems economically more efficient and striking balance between meeting the growing demand of animal-origin products and reducing to the minimum the negative side effects and externalities from the livestock sector. (L. Scudiero and A Diaz, 2019).

Concept of sustainability

Common words associated with sustainability are “environment,” “social,” and “economic.” Sustainability is a holistic concept that jointly considers ecological, social, and economic dimensions of a system or intervention for long-lasting prosperity. (Sethumadhavan, 2016).

- **Environment sustainability:** it is the use of goods and natural resources to meet our needs without depleting them for future generations.
- **Social sustainability:** it is defined as all the actions aimed at improving the quality of life of all individuals, reducing social inequalities and increasing access to the basics rights and services.

- **Economic sustainability:** it is a set of economic and financial administrative practices aimed at maintaining production processes, which lead to profit, without causing damage to the environment.

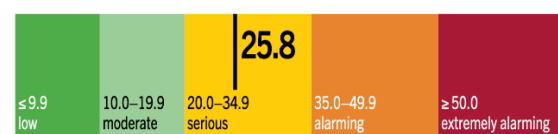


Importance of sustainable farming:

- It makes effective use of land.
- It works in harmony with nature.
- It reduces pollution.
- It creates a stable food supply.
- It promotes local communities.

India's position in Global Hunger Index

According to Global Hunger Index, (2025), India ranks 102nd out of 123 countries. With a **score of 25.8**, India has a level of hunger that is “serious”



- **Undernourishment:** 12% of India's population is undernourished (2024). It was 14% during 2017-19.
- **Child Wasting:** 18.7% (2025 data of GHI) it was 17.3% in 2015-19.
- **Child Stunting:** 32.9%, it has improved significantly, from 34.7% in 2000 to less than 35% now.

- **Child Mortality:** 2.8%, it was 3.7%, (37 deaths per 1000 live births) in 2023

(Source: Global Hunger Index)

Livestock resources of India

Livestock plays an important role in Indian economy

- About 20.5 million people depend upon livestock for their livelihood.
- Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.
- There are about 303.76 million bovines i.e cattle-193.46, buffalo- 109.85, mithun-0.39 and yak- 0.06 millions.
- World's highest livestock owner at about 53.76 million.
- India is the largest producer of milk in the world.
- Milk production during 2019-20 is 198.40 million tonnes showing an annual growth of 5.68%.
- The per capita availability of milk is around 406 grams/day.
- ICMR recommendation for daily intake of milk is 300 grams/day but the national average of per-capita consumption is about 185 gm and 146 gm a day respectively in urban and rural India.
- Poultry production in India has taken a quantum leap in the last four decades, emerging from conventional to commercial production system.
- As per 20th Livestock Census, the total poultry production is around 114.38 billion numbers during 2019-20.
- The per capita availability is around 86 eggs per annum.

- Meat production in India has shown positive growth to 8.60 million tonnes during 2019-20.

- During the COVID 19 pandemic GOI has approved different schemes to support dairy cooperatives.

(Annual report 2020-21, DAHDF, Govt. Of India)

Role of livestock sector:

Livestock proved to be crucial link in nutrient recycling on small farms, maintaining viability and environment sustainability of agricultural production. Mixed crop-livestock farming contributes stability and sustainability, where stability is promoted by keeping of animals which serve as a form of insurance and on the other hand sustainability is promoted because of mixed crop-livestock system which is environmentally the most desirable system. Livestock sector is an important segment for expanding and diversifying agricultural sector in Indian economy. Livestock have provided crucial contributions for the human wellbeing in **environment, social** and **economic** terms since the time of civilisation, domestication of animals and sustainability. The livestock sector makes a significant contribution to the economy of India in terms of income, employment, equity, sustainability and foreign exchange earnings. Animal products, even in less quantity support physical and intellectual development of children and pregnant mothers. Livestock farming facilitate recycling of nutrients and reduce environment pollution as well. The consumption of meat, milk, fish and eggs contribute to meet amino acids and trace elements for human.

A sustainable future.

It is crucial to make livestock, ecologically sustainable in a way that promotes equity, meets the nutritional needs of the community, and maintains financial stability for farmers

and other stakeholders, all while meeting the needs of our growing population. These goals are guided by the United Nations Sustainable Development Goals, which include “**zero hunger by 2030**” and “**increased production of food while conserving available land, water, and available resources and reducing GHG emissions by 2050**”. (CGIAR, 2020)

The CGIAR Community of Practice is working to create sustainable and resilient food systems that will promote food security and reduce poverty through research. Its objectives include “reducing the environmental footprint of livestock production,” “improving livestock health,” and “increasing livestock nutrition. The goals of this flagship include promoting the role of livestock in food security and poverty reduction, while reducing the environmental footprint to stay within environmental boundaries.

Transforming the livestock sector through the sustainable development goals

- **Livestock and no poverty.**
 - Livestock play a catalytic role in strengthening the assets that rural households use to achieved their livelihood objectives.
- **Livestock and zero hunger.**
 - It contributes at household levels and increases the direct consumption of food and also help in income generation.
- **Livestock and healthy lives.**
 - The “One Health” concept (2018) concept is considered actions and policies for livestock sector to ensure good health.
- **Livestock and quality education.**
 - Consumption of Animal Source Food improves children’s cognitive and physical

development as well as school attendance and performance.

- **Livestock development and gender equality**
 - To enable women to meaningfully operate in and benefit from the livestock sector and to make a pathway out of poverty.
- **Livestock and sustainable management of water.**
 - 30% of global agricultural water is used to produce livestock.
- **Livestock and clean energy.**
 - Livestock sector is contributing to the provision of clean, renewable energy by converting manure into biogas.
- **Livestock and industrialization.**
 - It has the best opportunities for value addition of ASF, greater potential to increase the value of export, promote economy and improve livelihood.
- **Livestock and sustainable cities.**
 - The urban livestock production includes the generation of income, creation of jobs and improved food security and nutrition.
- **Livestock and life on land.**
 - Livestock sector plays a part in biodiversity reduction, land degradation and deforestation, but also provide invaluable service to protect the environment.

CONCLUSIONS:

The livestock sector plays a major part in reducing poverty, improving resilience as well as combating food security and malnutrition. Livestock has been directly contributing to livelihood and food security of more than a billion people in different parts of the world.

(Hedge, 2019). All 17 Sustainable Development Goals including Goal 2, ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture should be achieved by 2030. (IFPRI,2016). Sustainable livestock systems contribute to food security, economic, environmental stewardship, and socio-cultural needs and are vital for achieving most of the UN SDGs. (Padmakumar *et al.*2019). Various nutritional, genetic, management, and health-related strategies exist for reducing the environmental impact of livestock and making them contribute positively to sustainable livelihoods. Livestock production contributes to environmental sustainability through conversion of human-unusable energy into highly nutritious animal-sourced foods, thereby contributing to the reduction in organic waste and pollution in the world, but also provide food and nutrition security.

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