



## RESEARCH PAPER

### Laws, Issues, Challenges, Analysis of Livestock Sector and International Best Practices

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PAPER INFO	ABSTRACT
<p><b>Received:</b> February 28, 2022</p> <p><b>Accepted:</b> April 10, 2022</p> <p><b>Online:</b> April 15, 2022</p> <p><b>Keywords:</b> Animal Quarantine Department and Dairy Development Department. Livestock, Management, Potential, Veterinary</p> <p><b>*Corresponding Author</b> Zyakh@hotmail.com</p>	<p>Approximately 35(M) people in rural areas are attached with Livestock Sector. The average distribution of livestock holdings per family is 2-3 cattle/buffalo, 3-4 sheep /goats and 10-12 poultry, and its share in the income of those families is approximately 40% (Ministry of Finance, 2020). Development strategy for livestock sector in Pakistan requires technological production, scientific processing and establishment of proper collection/ distribution networks with improving cattle market facilities. Livestock development on scientific basis i.e. adoption of modern techniques of breeding, selection of proper breeds of animal and availability of modern veterinary services at town level will also open enormous avenues for increase in exports of livestock and its by-products. The market of Middle Eastern dominated by countries like India, European Union and Canada could be captured by Pakistan by adoption of proper planning and appropriate policies in accordance with international standards and best practices. In Pakistan livestock sector is struggling with certain issues and challenges which needed to be surfaced out so that these issues could be addressed by the different stakeholders in collaboration of each other.</p>

## Introduction

The Livestock sector is facing so many issues and challenges in Pakistan. The some of these issues and challenges have been discussed in brief which are basically Meat of Bovine Animals (Frozen), Provision of Facilities, Female Participation in Management of Livestock, Livestock Diseases, Global Meat Trade in Pakistani and Meat of Bovine Animals (Frozen). The demand of frozen beef and mutton at national and international level is increasing day by day. In this regard Asian countries imported US Dollars 14 billion of frozen beef and there is about demand of 4 to 4.5 US Dollars billion. The major exporters of Halal beef are non-Muslim countries with Brazil at the top followed by India, Australia, USA, New Zealand, Uruguay, Argentina Paraguay, Poland and Canada. The Pakistan has great potential being agricultural economy with 42.4 million buffalo and 51.5 million cattle as per Pakistan Economic Survey, 2020-21. There is gap exists between production and consumption of beef in 2020-2021. The production of beef is 2.38 million tons and on other hand consumption is 1.44 in 2017. It could be utilized for export to importing counties after processing in meat parks. The average price of meat in world market is about \$4.2 per kg and Pakistan has this potential to fetch this price. Pakistan has to get comparative advantage in export of frozen meat against other competitors in international market. Pakistan has also to get approval of Animal Quarantine Department (PAQD) to compete in the market. However, Pakistan has got this status from Saudi Arabia, UAE, Malaysia and Iran (Rehan, 2021). The livestock especially, buffalo and cows are an important source to reap wastes, by products of agricultural and crop residues into hair, meat, wool and milk etc. otherwise these wastes and by-products would increase the level of environmental pollution which is basic issue at

moment (Jahanzaib, 2020). So far the Legal Frame Work of Livestock in Punjab is concerned, the relevant Legal Acts regarding the functioning of Livestock and Dairy Development Department are , Punjab Halal Development Agency Act, 2016, Punjab Animal Slaughter (Amendment) Act, 2016, Animal Quarantine Act, 2019, Punjab Livestock Breeding Act, 2014, Punjab Animal Health Act, 2019.

### **Literature Review and methodology**

During the course of this research and literature review, it was focused to identify that how the livestock is important in economy of Pakistan and considered as backbone of agriculture sector. As it is acknowledged that the livestock Sector is an important sub sector of agriculture sector. Therefore, both the agriculture and livestock sectors are interlinked and correlated with each other and have been studied through the different policy documents and data of Federal and Provincial Governments of livestock sector. Moreover, the most recent relevant articles are studied and interviews of concerned experts, farmers and government officers attached with sector are conducted. Websites/ newspapers searched and after the detail study it emerges out that most of the articles regarding this topic only emphasized on academic viewpoint. The area of livestock had got immense importance since inception of Pakistan and number of studies and researches were done in this area in the context and comparison with status of livestock sectors of developed and developing countries. What can be deduced from these articles and what kind of frameworks or tools of these articles suggest for this purpose? In this background, I tried my level best to focus on important areas of this sector to cover the study.

### **Provision of Facilities**

Government of Punjab is claiming to be keen towards the provision of best facilities to farmers and farm owners in more less all the districts of Punjab by covering far flung areas having a challenge. The better facilities have been provided in model markets as compared to traditional markets. The model cattle markets have enhanced the bargaining power of farmers and there is less involvement of middleman as result of which farmers are fetching better prices (Ghafoor, 2019). As per details provided by DLG&CD, there is sharp increase about 82% in Bid price viz-a-viz final bid price and fetched of Rs. 4116 million in all 104 cattle markets in Punjab during the year 2021-21. The contribution of livestock towards food security is enormous and one of the biggest challenge. However, on the other side lack of veterinary clinic facilities, dogmatic methods and orthodox, lack of knowledge can result to disturb the efficiency of the animals (Khalid, 2021).

### **Female Participation in Management of Livestock**

In rural and some extent in urban areas the women are important factor at household level in production and management related matters. The participation of women varies from cleaning and feeding to their animals and spend major portion of time in looking after activities of livestock. Without the help and good participation of women the production and maintenance of livestock will not become result oriented therefore, their education and knowledge is required to be enhanced through technological training in livestock management and cultural taboos in rural areas are also needed to be curb (Babar, 2018).

### **Livestock Diseases**

The livestock diseases are very much important for the health production and growth of livestock and these diseases also impact income of farmers and considered as

challenge. In animals there is presence of *Candidatus R. amblyommii* infection in *Rhipicephalus microplus* and *H. dromedarii* ticks, which also carried *T. annulata* in animals. There is about estimated loss of US \$ 13.9 to 18.7 billion due to tick and tick borne diseases and there is also annual loss of 3 billion of pieces of hide and skin in animals alone. Both tick and tick borne diseases have negative impact on livestock and human health and these are able of transmitting pathogens including viruses, protozoans and bacteria like spirochetes (Shahid, 2018). Anti-Brucella antibodies in goats and sheep and age, location and reproductive disorders played important role for brucellosis sero-positivity in livestock (Ullah, 2021). There is importance of spatial distribution regarding prevalence of tick species and risk factors in Pakistan. These are tick species in Pakistan, *R. turanicus*, *R. microplus*, *Hyalomma dromedarii* and *H. anatolicum*. The many factors are associated with tick prevalent in livestock farms as traditional rural housing systems and graze, not performing acaricide treatments and absence of rural poultry (Parasitesandvectors, 2021).

### **Global Meat Trade in Pakistani Prospective**

There is issue that the market share of Pakistan in global meat market is very low as 2.09% and in present days meat is evaluated on mainly on three parameters, safety, quality and nutritional status of meat. Pakistan is getting advantage of its pastures, variety of cattle and sheep breeds and apt environment for rising of livestock in this country and there is need to brought efficiency and standards in meat exports to compete with USA, Australia, China, Brazil and even India (Sohaib, 2017). When we compared Pakistan with Netherlands, the cultivable area of Pakistan is twenty million hectares and Netherlands only two million hectares. In 2016 Netherlands exported about 94 Billion EUR in agriculture and food sectors and Pakistan exported only 3.3 billion EUR. Our agriculture and food exports are not on that scale which must be achieved. Pakistan far behind Netherland, Brazil, Germany, India and China in terms of export of livestock related things (Jahan, 2021).

Presently about 1.3 billion population of developing countries directly and indirectly depend upon livestock. Moreover, 675 million farmers worldwide are relying on animals farming, raising and production. The daily need of average animal protein is about 27 grams and Pakistan there is use of only 14.25 grams per capita and deficiency of about 48.7% which could be achieved through increase in production of livestock investment and development in this sector (Khan, 2018). Ten browse species consisting of seven bushes and three trees were observed to have preference, accessibility and abundance for grazing animals. The grazing animals comprise of mix herds of goat, sheep, camel and cattle. The animal preference is different parts of plants like fruits, leaf, flower and shoot (Abdullah, 2021).

Through the application of internet-based technologies microcontrollers and microprocessors which are efficient and cost-effective livestock production and management would be undertaken and these technologies with cheap sensors to internal activates of farm and animals are beneficial for small- and large-scale farms to solve the issue on communication. This system will provide information about feed, water, temperature in the sheds to protect the animals from heat and humidity and feed situation (Mateen, 2021).

### **Economic and Social Impact for Rural and Urban Population**

In the presence of good opportunities available to our livestock sector and working on these would bring more positive improvements in our livestock sector ultimately this will positively impact the population on economic and social fronts both in urban and rural areas. This sector has huge consumer market present in both rural and urban areas and the population is ever on the rise indicating to always increasing demand for milk and meat, thus measures are to be taken and investments done in this sector is definitely going to

better pay off in the long run. Our culture is such that it will always support this industry, we have our Eid-ul-Azha during which time the demand for sacrificial animals is at its zenith.

The estimated population of livestock in Pakistan for the last three years 2017-18, 2018-19, 2019-20 is about cattle 46.1 M, 47.8 M, and 49.6 M respectively. Buffalo population is about 38.8 M, 40.0 M and 41.2 M. The other big population is of Sheep having numbers 30.5 M, 30.9 M. These figures of livestock from 2017 to 2020 are showing trend in increase of population of livestock in Pakistan and potential increase in animal rearing, meat and milk (Agriculture, 2021).

We have raw materials to support the industry to large extent, like manure and the materials needed for the production of animal feed, we have favorable environmental factors as well as our geographical location is ideal to support our industry, we have pretty good four seasons with summer and spring being the dominant and most supportive seasons for livestock, fertile land and a good range land area for grazing with a decent irrigation system as well, which needs improvement but is still sufficing currently.

Currently there is a trend in these days that increasing number of investors are shifting towards the livestock sector, trying to learn the mechanisms of the market, employing more people and setting up animal farms. The same is also catering towards the increasing demand of the population and also leading to the increase in sale of related products; for example export of carpet, leather and wool and will be economically and socially beneficially for urban and rural population (Zain, 2021).

Export of by products are increasing automatically like wool and leather but what we observe is that export of new value addition products are ever on the rise too and their demand is increasing as we can observe our leather shoes have a great demand worldwide moreover our carpet industry is also doing well, then comes the garments like woolen sweaters and hats are also in great demand and further innovations are making them more at par with the international markets. We have a large animal population as well with our breeds of livestock well recognized and in demand in foreign countries and there is especially demand of mutton in the Middle-East (Zargham, 2021).

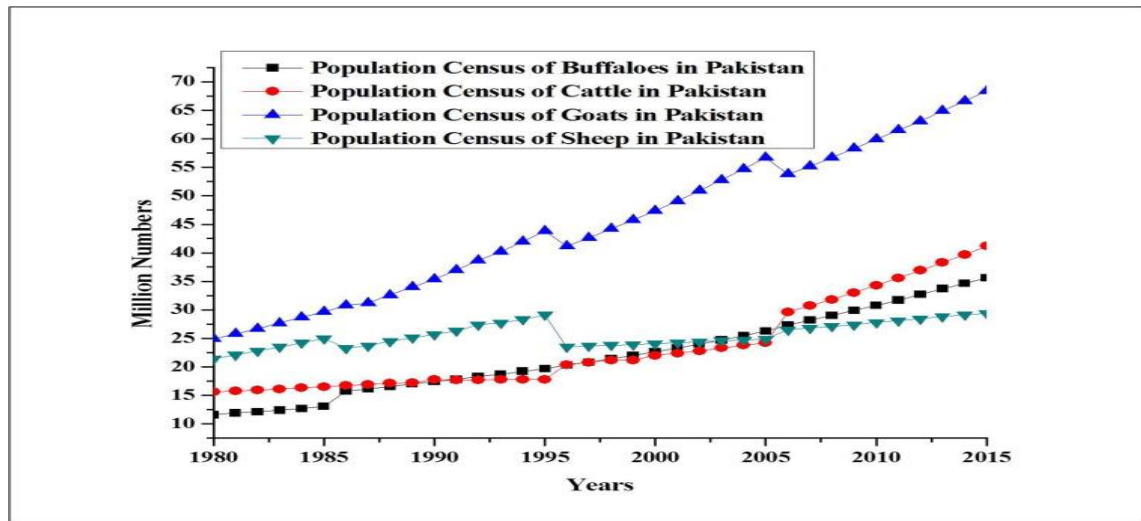
The duties imposed on import and exports are not too extravagant on machinery and equipment, moreover we have access to both the sea and air route of transportation. Therefore, all makes this industry a very profitable one to invest in it and huge potential for growth and ultimately contributing more to our economy and beneficial socially and economically for rural and urban population attached with sector (Numan, 2021).

### **The Potential of Livestock and its Prospects**

There is potential available in Livestock sector as mentioned in above paragraphs of this paper. The growth rate of agriculture sector remained at 2.9 per cent in 2014-2015. However the growth rate of livestock was 4.1 per cent in the same period (Science Direct, 2021). The total value addition of livestock increased by 3.0% from Rs. 1461 billion (2019-20) to Rs. 1505 billion (2020-21). However, the gross value addition of livestock was about Rs.1430 billion in 2018-19 and Rs.1466 billion in 2019-20 (Livestock Contributes, 2021). This sector has contributed 60.1% to the growth of agricultural sector and 11.5% to GDP of Pakistan during FY 2021. As more than 8 million rural families are engaged in livestock production and earn more than 35-40% of their income from this source and there is still untapped potential which could be fetched further. The total cost of the project rearing of livestock by the Government is about Rs 3.4 billion in all over Pakistan. The second project is calf feedlot Fettering and Rs. 4,000 will be given and used by the farmer to produce healthy

and nutritious calves in the country. The third project is the development of Yalak in Gilgit-Baltistan at a cost of Rs. 54 million.

The estimated population of livestock in Pakistan during the last three years, 2017-18, 2018-19, 2019-20 is about cattle 46.1M, 47.8 M, and 49.6 M respectively. Buffalo population is about 38.8 M, 40.0 M and 41.2 M during the same period. The other population is of Sheep having numbers 30.5 M, 30.9 M and 31.2 M. Goat population is about 74.1 M, 76.1 M, 78.2 M in Pakistan. These figures of livestock from 2017 to 2020 are showing trend of increase of population of livestock in Pakistan and also potential in increase of animal rearing, meat and milk.



The given graph depicts the population of livestock with an increasing trend over the 35 years (Livestock Contribution, 2021). Further from 1994 to 2016, the average annual increase in meat production increased by 3% and exports by 32%. Based on this growth rate, Pakistan's total meat production will be 6,078,000 tons and exports will be \$ 17,477 million by 2029-2030. Demand for halal meat from developed and developing countries is increasing and per capita meat consumption is also on the rise as per capita meat consumption was 14.7 Kg in 2009 and is expected to reach 35.3 Kg in 2025.

In Pakistan milk is harvested by 8 million farmers and then mismanaged because it is scattered across the country and there is a weak value chain linkage among stakeholders. It is important to note that 97% of farmers are not involved in formal and government-run markets. There are about 700 chillers installed in Pakistan out of which only 7-10 are installed in Sindh. Imports data show that from year 2011 to 2016, imports of skimmed milk powder increased from 27,706 tons to 43,068 tons. These figures show that imports of powders have increased and in 2016 alone more than \$ 175 million was spent on imports of these powders. In this regard, Asian countries imported 14 billion US dollars of frozen beef and the demand is about 4 to 4.5 US Dollars billion. So if milk production and processing is managed in a better way, it has great potential to increase income and exports abroad.

Beef production is 2.38 million tons and consumption in 2017 is 1.44 tons. Government of Punjab fetched about Rs.4116 million in all 104 cattle markets of Punjab during the year 2021-21. In 2016, the Netherlands exported about 94 Billion Euros in agriculture and food, and Pakistan exported only 3.3 billion Euros. The average daily requirement of animal protein is about 27 grams and Pakistan consumes only 14.25 grams per capita and there is a decrease of about 48.7% per capita which is achieved through increase in livestock investment and growth in this sector. In world currently, about 1.3

billion people in developing countries depend directly or indirectly on livestock. In addition, 675 million farmers worldwide are dependent on animal husbandry, rearing and production.

Chillers are not available near the milk source, resulting in the loss of about 20 liters of milk out of 100 liters. The price of a single commodity of milk (Rs. 289.12) is higher than the price of three major crops of the country namely wheat, cotton and sugar (Rs. 265 billion). In rural areas, about 35 M people are connected to the livestock sector. There is diversity of the challenges in livestock sector and their inborn links with each other. The socio-economic impact and the unemployed potential of livestock in Punjab and the result is a deterioration of market forces and a non-business process environment in Pakistan. Dairy productivity is only 22% of world standards because the animals are being fed too little, not protected from disease and with poor extension and rearing services. These small percentages of small holders, 90% of the farmers are landless. The government needs to strengthen the business environment and facilitate business endeavors while the private sector needs have to tap the real potential for growth. It is important to mention here that 73% of the potential banking market of livestock sector in Pakistan does not have access to the banking sector.

The equine population in Punjab has the potential to generate exportable surplus. The required intervention will help in acquiring the intellectual potential of the breeds of local cattle like Nili-Ravi buffalo, Sahiwal cattle, and Nukra/ beetle goats Mundri sheep, and exporting them to international genetic markets. The data and figures mentioned above strengthen the point that there is great potential of livestock in Pakistan to uplift the social and economic wellbeing of rural and urban population attached with sector (Livestock & Dairy Development, 2021).

### **Analysis of Livestock Sector**

The analysis of policies adopted by the different department relevant to livestock sector revealed that there is lack of policy formulation and implementation to enhance the meat and milk production in the country. The aspects, which were very vital for meat production but are not being properly addressed in the past, are needed to be looked into. In late seventies, there was shift from bullock to mechanical power in agriculture sector and from that time the utility and population of cattle is waning. But this change was never realized. There is only one example of Nari-Master breed in Balochistan but it has not been developed or propagated on scientific lines. Our sheep (Lohi, Kajli) and goat (Beetal / Teddy) breeds are very good mutton producers; much better than any goat or sheep breed among the developing countries but it could not enter into any of governmental developmental plan of reasonable magnitude (Nazir, 2021).

In Pakistan the milkmen's milk is often of poor quality for the consumer due to the lack of refrigeration in the supply chain. However, ice is added to chill the milk along with other materials to help fats and solids. The only safe way to control quality is through the use of farm chilling tanks at the farms or village level and to maintain the milk in a chilled state throughout its transportation from farm to processor and consumer. Chillers are not available closer to the source, which results in wastage of almost 20-Litres milk out of 100-Litres marketed human consumption. The trained Veterinarian (i.e. Veterinary Doctors or Technician) are not available in livestock rearing areas. Livestock raising needs to be adopted as a full-fledged business activity separate from agriculture by most of the people involved in carrying out this business, due to this fact full potential of this sector is not yet being realized (Nazir, 2021).

The organized research on meat production starting from genetic to feeding is lacking in meat processing, evaluation and marketing. There is a great need to establish a Meat Research Center in Punjab and similarly in other provinces of the country. The present condition of butchereries is miserable. There is no proper building, no drainage, water supply or arrangement for disposal of waste products. In almost all the slaughter houses have the manual slaughter which is unhealthy and inefficient slaughtering with lot of damage to the by-products, especially the skins.

Pakistan is a developing country and the people associated with livestock are mostly rural based farmers with little or no education, however the world at large is exposed to quickly changing technology and is hungrily searching ways of increasing productivity with the new technology, but sadly our farmers are usually left behind due to their lack of education which hinders their learning capabilities not letting our livestock sector grow at the rate of other technologically advanced countries.

Another challenge faced by the people is loss due to sudden outbreak of a disease, caused by various viral, bacterial, parasitic and fungal pathogens; they usually result in loss of milk or meat production. More over there is no mechanism through which proper prices could be set of livestock products leading to unjust price fixation, profit of which goes to all involved in the chain except the farmer himself.

Whichever laws do exist with respect to livestock farming are either ignored or not understood properly because what we generally lack is enforcement of laws not only with respect to farming. When immediate matters are not given importance there is little room to give importance to framed laws. Lack of proper storage and processing facilities are hindering the value addition of the products. Only the multinationals like nestle have proper milk extraction and processing facilities.

We lack biosafety standards, regular laws are not being applied in our country. In case of Natural disasters like flood no measures are taken to prevent destruction during the natural disasters which leads to heavy losses for our farmers. Land rights are weak which provide little protection to the farmer and farmers have also weak bargaining power. If our policy makers could just sit down and make a list of problems and then prioritize the list and start taking measures to reduce these problems then surely our livestock farming will grow further because Pakistan is basically a developing country dealing in the primary sector, so we should just make sure that we do our best to maximize the potential of this developing sector (Saleem, 2021).

## **International Best Practices**

### **Strategy in India**

The development of Dairy Sector in Pakistan should also incorporate the salient features of the success story of the Amul Dairy Model in India whereby through Participatory/ Cooperative System and the formation of Dairy committees at the District level helped to achieve social mobilization, cooperative dairy development, easy availability of credit, increased employment opportunities, highly developed supply & value chains of product/ processing, chilling and marketing of milk product.

### **Livestock Sector of other Countries**

## **India**

A large number of farmers in India mainly rely on livestock for their livelihood just like Pakistan. India ranks first with the average milk production of 75.3 billion liters per year, whereas Pakistan ranks third with the average milk production of 39.5 billion liters per year. The yearly production of livestock in India is as; cattle 205M, buffaloes 84M, poultry 800M, sheep 50.8M. India has encouraged their local producers to expand and capture their livestock market, their biggest brand Amul has made India the world's largest producer of milk and milk products, which means that it has contributed a lot towards India's economy, where as in Pakistan there is no such dairy which dominates and regulates the market like Amul does. The share of processed milk industry in Pakistan is mere 1.71 billion liters out of 39.5 billion liters which represent only 4% of the total dairy sector which is not enough to cater the local demand (Kitey, 2021).

## **USA**

In the US, total number of milk-giving animals is 3.9 million; however, smart dairy farming helped the country produce 52 billion liters of milk annually. This results in a yield of 13,333 liters of Milk per animal per year. In Pakistan, the total number of animals is around 52 million and the total milk production is 39.5 billion liters. Thus the yield of Pakistani Livestock is around 760 liters of milk per animal per year. This shows that we are adversely lacking in livestock as USA has 18 times more yield as compared to us that is why it is 2nd largest producer of milk in the World. Even if we manage to get 10% the yield of USA we could manage to get around 69 Billion Liters of milk and become the 2nd largest producer of milk in the world (National Agricultural Statistics Service, 2021).

## **Afghanistan**

In Afghanistan major source of income of farmers, their families and Kuchi nomads is Livestock production. There are about 8.8 million sheep, 3.7 million cattle, 1.6 million donkeys, 7.3 million goats and 180,000 camels. The livestock condition in the country is very poor. Draught and war has majorly affected the livestock of Afghanistan, it has not only destroyed their existing sources but has also hampered the fertility. The major challenge Afghanistan facing now is re-stocking their herd naturally before anything else. Due to open borders with Pakistan millions of livestock is smuggled in every year in the country to fulfill its demand thereby adversely affecting Pakistan resulting in the increase in prices of livestock animals (USAID, 2021).

## **Analysis of India and USA with Pakistan**

The world population of livestock is increasing from 989 Million in 2020 to one billion in 2021 with the increase of human population of this world (Statista, 2021). When we discussed about the leading beef and veal producing countries, United States is at top with production of 12.60 Million metric tons of 23.49% of total world's beef and meat production. India has produced about 4.0 million metric tons and Pakistan could only be able to produce 1.84 million metric tons in the year 2021 (Startup Talky, 2021). The US cattle herd is about 100.9 million in 2021 and USA succeeded in exporting of about 12 per cent of its beef production in 2021 (Rehan: 2021) (USDA, 2021). The total beef production of USA in 2021 is about 27.54 billion pounds in the year 2021 (Statista, 2021). From all over the world India is the biggest livestock country having population of livestock about 535.78 million animals (Vedantu, 2021). The world data of beef exporting countries depicts that Brazil succeeded in exporting of 14.9 per cent of US\$7.4 billion, USA 13.1 per cent of \$6.6 billion and India 5.4 per cent of \$2.7 billion of livestock and Pakistan is not included in first



top 15 exporting countries despite having great potential in milk, dairy products, meat and live animals (World Stop Exports, 2021). During the year 2020-2019 Pakistan has only exported US \$ 303.3 million of meat and meat related products by private sector. Moreover per capita meat consumption had been increased from 11.7 kg in 2000 to 47 kg in 2020 (TDAP, 2021).

In the light of Amul Dairy Model in India and USA model of good quality breed animals, therefore there is need to study and compare these models more realistically and implement these models in Pakistan with certain changes where ever required with opinion of relevant experts. Unfortunately, in Pakistan no solid initiative has been taken to empower the poor farmer either by the Government or the Civil Society. In India social mobilization movement took place. No infrastructure even after the devolution plan has been created for social mobilization, which can organize the poor and make optimum use of their resource/services to empower them.

Further, farmers must be pursued for high quality breeds of animals for good quality and quantity of meat and milk in Pakistan as in case of USA. The program of Doodh Darya is in some extent similar to Amul Dairy Model in India. However, there is need to reform the Pakistan Livestock model to get good production of meat and milk like USA and India to earn more foreign exchange to improve difference of balance of payments in foreign trade. The experience shows that the credit program constitutes the major element of holistic development. Success has been even greater where credit and savings have been integrated. The facility of micro credit can facilitate formation of viable cooperative societies in Pakistan (Kitey, 2021).

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