

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

POLICY RECOMMENDATIONS PAPER

TRADE RELATED TECHNICAL ASSISTANCE PROGRAMME



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Contents

EXECUTIVE SUMMARY	5
MAIN FACTS.....	5
KEY FINDINGS	6
THE DAIRY VALUE CHAIN & DOMESTIC SUPPLY	6
DAIRY FARMING PRACTICES.....	7
PRODUCTIVITY CONSTRAINTS	7
SOCIETAL IMPACT AND CONSTRAINTS.....	7
DIRECTION OF EXPORTS.....	8
KEY RECOMMENDATIONS	9
THE DAIRY HUB CONCEPT	9
THE DAIRY VALUE CHAIN & SUPPLY SIDE CONSTRAINTS	10
<i>Farm Management & Productivity.....</i>	10
<i>Training and Awareness Stakeholders.....</i>	11
<i>Animal Management and Welfare.....</i>	12
TRADE POTENTIAL OF DAIRY PRODUCTS	14
<i>Generating Exportable Surplus</i>	14
<i>Standardization, Compliance and Traceability Issues.....</i>	14
<i>Border Measures.....</i>	15
POLICY AND REGULATORY FRAMEWORK FOR DAIRY DEVELOPMENT	15
<i>Taxes and Tariff Regime.....</i>	15
<i>Reform in Pricing Mechanism.....</i>	15
<i>Revisiting the 18th Constitutional Amendment.....</i>	16
<i>Revamping Food Safety Regime</i>	16
<i>Improving Outreach of Financial Support.....</i>	17
<i>Environmental Regulations.....</i>	17
INTERVENTION MATRIX FORPOLICY RECOMMENDATIONS ON ENHANCING TRADE OPPORTUNITIES FOR DAIRY AND DAIRY PRODUCTS OF PAKISTAN.....	18

EXECUTIVE SUMMARY

Despite being one of the largest milk producers in the world, Pakistan has been unable to efficiently utilize its large supply base to fully cater to its domestic demand. The dairy sector plays crucial role in the socio-economic uplift of a majority of the population engaged in agricultural activities in Pakistan. Dairy sector has huge potential to alleviate poverty and provide a source of livelihood and financial insurance to the small farmers against crop failures and climatic changes. However, the major obstacle to the development of the dairy sector emerges from the fact that it is largely informal and operates mostly on the subsistent levels where geographically dispersed small and landless farmers are raising one or two animals, uneconomically, mainly to meet their own domestic needs. These farmers are generally unaware of modern and commercial farming methods and face issues such as productivity, hygiene, access to veterinary services and supply chain that could help them to commercialize their activities and increase their income levels.

On the export side the sector needs to overcome issues such as value addition, standardization & compliance, marketing and export supply chain where government policy intervention and private sector's initiative is required. This also includes revamping of the current domestic regulatory framework covering food safety & quality, pricing & taxation regime, investment & the environmental impact of dairy farming. In the absence of these, there is less likelihood for the country to increase export competitiveness of its dairy products in potential and present export markets.

The study conducted on "Enhancing Export Competitiveness of Dairy and Dairy Products of Pakistan" concludes that in order to enhance competitiveness of the Pakistani dairy products in the present and potential export markets, it is imperative to take a developmental approach to enhance domestic productivity and quality. It is foreseen that the sector can only be developed through clustering of the large majority of small holders and dairy farmers on a 'One Farm Concept' which has gained much success in countries such as India. This can be achieved through creation of 'Dairy Hubs' that would ensure a direct and accountable provision of livestock development services by the public sector coupled with a unique procurement mechanism to be established by the private sector ensuring a consistent supply of quality milk for processing and further value addition. The study further recognizes the need to encourage dairy farmers to adopt better dairy farming techniques and increase awareness on animal welfare and quality control which may result in better economic gains.

MAIN FACTS

Pakistan, being an agrarian economy and blessed with the most appropriate weather and soil conditions is ranked 4th amongst the milk producing countries of the world. The livestock sector, with approximately 35 million cattle and 32 million buffalos, makes up almost 55.1% of the agriculture value added and contributes upto 11.6% of the GDP. Therefore, the future high growth in agriculture is expected to be led by this sector. The above animals produce 47.95 million tons of milk besides producing other products such as hair, skins, furs and meat. The major milk producing livestock categories are cows and buffalos, besides sheep and goats.

Milk is the major commodity produced by the dairy sector in Pakistan. Its demand is increasing by an annual average of 20% (Afzal, 2008) in the organized dairy industry, which requires milk production and supply to keep pace with the growing demand of the population through maintaining efficient supplies. However, since more than 83% of milk animals in the national herd are raised and bred by subsistent farmers who have limited interest in increasing productivity and have limited outreach to the support institutions in the public and private sector, the overall goal of achieving higher productivity in milk production seems to be a daunting task for the policy makers.

There is large dependence on imported products in the dairy sector due to the fact that the quantity, quality and variety of locally produced milk and dairy products do not fully cater to the needs of masses. Pakistan is also exporting milk in powdered form, but it is mainly to Afghanistan which is

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

facing issues of food security and shortage due to ongoing war on terrorism. Export of processed & packaged milk from Pakistan is also high, particularly to Afghanistan again, due to the same reasons as above and only by the large producers. It is pertinent to mention that export to Afghanistan is need based and does not involve Pakistan's own competence to export processed milk to the world; as the country, despite being one of the largest producers of milk in the world, still has issues relating to productivity, hygiene & standardization and ability to produce value added dairy products that can be exported on larger scales.

Dairy sector of Pakistan is a mix of producers including small, medium and large farmers with varying land and animal holdings and having different productivity levels. The sector, despite its economic importance, suffers from debilitating supply constraints, market distortions and distribution inefficiencies. Other limitations include (i) limited outreach of public sector initiatives to distantly located farmers, (ii) sustainability issues with projects undertaken in the public sector, (iii) conventional methods of raising animals & poor farm management, and, (iv) limited awareness of productivity, hygiene and breeding practices in the farmers' community. These issues and their inappropriate handling have made it difficult to achieve desirable growth in the sector and to set out export targets, unless some drastic policy measures are taken to foster growth in the dairy and livestock sectors.

In view of the fact that other businesses are facing competitiveness issues with tight profit margins, the dairy sector still offers greater opportunities to the investors and market players to undertake farming projects and earn high returns on their investments. Plentiful opportunities are available in the dairy farming business and ancillary industry to integrate and produce high value added products that would not only cater to the domestic demand of a large customer base, but may also provide opportunities for exporting them to international markets where food security is a rising concern.

KEY FINDINGS

The research on assessing trade potential of dairy and dairy products reveal following: -

The Dairy Value Chain & Domestic Supply

- a. Dairy sector in Pakistan consists of three types of producers;
 - 80% small farmers raising more than 50% of total milk animals (herd size < 5),
 - 14% medium-sized farmers/producers raising 29% milk animals (herd size 5-10),
 - 3% large-scale producers sharing 21% of milk animals (herd size >10).
- b. Animals are raised in agricultural lands spread over an area of 263,000 sq. Km. and almost 1/5th of this land is used as pasture land to raise animals including milk animals.
- c. Medium and large size producers are mostly located in peri-urban areas with better farm-market access.
- d. Marketable milk is mainly obtained from cows and buffalos and distributed to the consumers through use of various conventional and modern marketing channels. It accounts for 96% of total milk produced from cows, buffalos, sheep and camels.
- e. Urban population consumes 29% of milk while rest goes to the rural population.
- f. Only 3% of milk is processed and marketed through formal supply channels.

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

- g. Domestic supplies of milk and other dairy products are insufficient to meet home market's needs and therefore Pakistan imports dairy products including Powdered Milk [US\$ 24m (2009), US\$ 52m (2010), US\$ 89m (2011)], Cream Powder [US\$ 17m (2009), US\$ 12m (2010), US\$ 6.9m (2011)], cheese and curd [US\$ 3.9m (2011)]
- h. The demand-to-domestic supply gap is likely to widen further due to increasing demand for milk and insufficient and low value added domestic supplies.

Dairy Farming Practices

- a. Large majority of milk producers is located in rural areas and uses old methods of farming resulting in low productivity and marginal value addition.
- b. 97% of milk is produced in the informal sector with low hygiene.
- c. In recent past, increase in milk production has resulted due to appropriate farming of imported and mix bred cows from Australia, Denmark and Sweden with higher yields. However the quantum of increase is marginal keeping the limited number of farmers adopting such business practices as against a huge sized informal sector.

Productivity Constraints

- a. Productive feed including fodder, concentrate feed, silage and mineral mixtures remains mostly unavailable to the subsistent farmers due to limited knowledge, high cost, and limited accessibility.
- b. Small farmers are unable to make use of modern machinery due to their low economic conditions and high cost of technology leading to issues of hygiene and productivity. Large farmers though use machinery and equipment, yet they are unable to match international production and sanitary standards.
- c. In the informal sector, the labour is found to be inefficient as mainly the families are involved in raising and milking animals. Large farmers have better trained work force that result in efficient management of farms and animals with better supply chain.
- d. Limited knowledge of vaccination and affordability costs restrict small farmers from its use though these are provided by the provincial governments on payment basis. Limited use of Artificial Insemination (AI) by the farmers also restricts productivity and growth.
- e. The geographical dispersion of the large number of smallholders in the dairy sector and use of conventional transportation, inappropriate storage and inefficient calving practices results into wastage of almost one-fifth of the milk collected.

Societal Impact and Constraints

- a. Due to a large livestock population, the country faces serious environmental concerns with regard to management of its solid and organic wastes.
- b. A national level policy is lacking in the implementation of a **biogas** or **bio-slurry** production initiative.

Direction of Exports

- a. Pakistan export basket for dairy sector is dominated by three product categories contributing 93% of total dairy products' exports namely:
- **Dairy Milk** (HS 040120) – predominantly directed to Afghanistan up to 99.9% followed by nominal export to Tunisia.
 - **Milk & Cream Powder** (HS 040221 & HS 040229) – predominantly directed to Afghanistan upto 99% followed by nominal export to UK.
 - **Buttermilk** (HS 040390) – predominantly directed to Afghanistan upto 99% followed by nominal export to USA.
- b. Analysis of exports of the dairy milk from Pakistan to the EU reflects that Pakistan might not be able to find place in the EU markets since the intra EU trade in dairy milk was recorded at US\$ 4,685 million as against its total import of US\$ 5,584 million in the same category. This accounted for about 84% of EU's total import of dairy milk. On the contrary, the EU's import from Asian countries in dairy remained at US\$ 0.643 million or 0.01% of its total imports in the same category.

Market analysis on export of dairy milk from Pakistan to Gulf Region reflects that in these countries also, Pakistan might not be able to gain immediate market share due to the fact that intra GCC trade in dairy milk is very strong. It was recorded at US\$ 17.239 million which was almost 72% of total imports of GCC in dairy milk. GCC countries imported dairy milk to the level of US\$ 0.076 million that accounted for 0.32% of their total imports in the same product category.

For short and medium term, Pakistan's potential exports markets for dairy milk can be Singapore, Hong Kong and Philippines, mainly due to market size and geographical location of these countries. Table 9 reflect time series export value, quantity and unit value of dairy milk imported by these countries from 2007 to 2011. The statistics show that all targeted/potential markets provide desired profitability that can be compared with the prices offered in Afghanistan. But since Pakistan has already taken major share in Afghanistan's market, the most viable markets that could be explored in the short run are Singapore, Hong Kong and Philippines.

- c. Analysis of exports in milk and cream powder products from Pakistan to EU reflects that Pakistan may not be able to find an easy entry into the EU market due to strong intra EU trade in the said product category. The intra EU trade during 2011 in milk and cream powder was recorded at US\$ 1,099 million, almost 99% of total EU's imports of US\$ 1,110 million) while imports from the Asian countries remained 0.06% of the total or US\$ 0.659 million.

The analysis of export of milk and cream powder from Pakistan to GCC (6 countries) reflects that Pakistan may be able to find its space in GCC as Intra GCC trade in 2011 stood at US\$ 146 million, which was almost 18% (total import of GCC stood at US\$ 808 million), while GCC imports from Asia excluding GCC stood at just US\$ 12 million (almost 1.49% share). For short and medium term, Pakistan's potential exports markets for milk and cream powder products can be Indonesia, Singapore, Nigeria and Sri Lanka.

Market analysis for export of buttermilk from Pakistan to EU reflects that Pakistan may not be able to find its place in the EU as intra EU trade in 2011 was recorded at US\$ 993 million that was about 99 % (total import of EU stood at US\$ 997 million), while EU imports from Asia stood at merely US\$ 175 thousand (almost 0.02% share).

- d. The potential market analysis for export of buttermilk from Pakistan to GCC (6 countries) reflects that Pakistan may not be able to find a handsome market share in the GCC as intra GCC trade in 2011 was recorded at US\$ 30 million that was almost 65% of total trade between these countries (total import of GCC stood at US\$ 47 million). Imports of the GCC countries from Asia (excluding intra GCC trade) stood at just US\$ 10 thousand (almost 0.02% share). For short and medium term, Pakistan's potential exports markets for butter milk can be Philippines, Thailand and Bahrain, primarily due to market size and geographical location of these countries.

KEY RECOMMENDATIONS

The authors extensive research¹ and policy reform proposals received through the Public-Private Dialogue (PPD) from various stakeholders have firmly established the urgent need to organize the 83% small-scale, subsistent farmers as the major stakeholders and to institutionalize their representation in the government policies.

THE DAIRY HUB CONCEPT

The authors extensive research² and policy reform proposals received through the Public-Private Dialogue (PPD) from various stakeholders have firmly established the urgent need to organize the 83% small-scale, subsistent farmers as the major stakeholders and to institutionalize their representation in the government policies.

The Dairy Hub concept provides an impetus to organize these farmers into clusters or cooperatives based on vertical integration of the dairy supply chain with a focus on provision of livestock development services. The concept finds its background in the largest dairy development program in the private sector; called the Dairy Hub, which has been initiated by Tetra Pak Pakistan and is being implemented through large milk processors such as Nestle, Engro Foods and Haleeb Foods. This community development programme aims at providing training, consultancy and veterinary services to rural dairy farmers on one-herd basis of 20 villages located within a radius of 15-20 km and making up one Dairy Hub.³ Some of the initiatives taken under this program on the farm management include provision of mechanized milk machines and on-farm consultancy services by a field service officer posted in the area.⁴

It is assessed that implementation of the *Dairy Hub* concept could prove to be very effective in organizing the dairy sector of Pakistan through active and coordinated participation of the public sector and dairy processors with a sense of ownership. The rationale is to implement the “*one herd-one farm*” concept within a pre-determined livestock-concentrated region⁵ focusing on implementing an efficient milk collection and chilling mechanism. It is proposed that the government may define areas at the Divisional level⁶ with 50-60 villages in one hub and extend livestock services such as

1 Extensive interviews held with public sector organizations including livestock and dairy departments, dairy producers, dairy processors and the academia

2 Extensive interviews held with public sector organizations including livestock and dairy departments, dairy producers, dairy processors and the academia

3 There are currently three dairy hubs operational under this concept established by Engro Foods (2009), Nestle (2009) and Haleeb Foods (2010) and encompassing 16-24 villages in the areas of Kassowal, Mian Chunnu and Chuchak Renala respectively. The hubs have successfully achieved targets in improved average animal yield, establishment of disease-free areas, quality assurance of milk (TPC < 500,000), reduction in production costs, capacity building of farmers and less reliance on the middlemen. (Solve Agri Pak Private Limited)

4 The consultancy for the project was provided by Solve Agri Pak Private Limited, a dairy consultancy based in Lahore.

5 The data on livestock and dairy farms in the country is marinated regularly and is currently available with the livestock departments of each province as per the report's findings.

6 In the administrative setup of the country, one Division generally comprises of 8-12 Union Councils (UCs) and each UC in turn comprises of 5-6 villages.

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

breed improvement & management, feed and fodder production & provision, veterinary care, extension services, and credit availability in a concentrated manner. The two most positive effects of this concept which can be foreseen are; increased and active participation of the smallholder in community development and the ability of the public sector to assess results of its development initiatives in a transparent and accountable manner.

The model calls for close coordination between the public sector, private sector and international donor agencies for its successful implementation and sustainability. The government needs to focus on (i) developing a national level policy in alignment with the provincial departments, (ii) provision of existing physical infrastructure and specialized human resource, (iii) ensuring purchase guarantee of milk to the farmers, (iv) engaging and lobbying with international donor agencies for funds and marketing of investment opportunities in dairy research, policy reviews, genetics & technology and capacity building with them and (v) in playing a regulatory role in terms of breed management and preservation, semen, feed and vaccine quality in coordination with the provincial departments. On the other hand, the private sector's role in foreseen in the areas of (i) innovation and technology transfer, (ii) participating effectively in the implementation of dairy hubs and taking ownership of the supply chain and in (iii) ensuring participation from other domestic and international stakeholders.

Keeping above in focus, following recommendations have been prepared covering the aspects of value chain & supply chain constraints, trade potential issues, and regulatory reforms in the dairy industry of Pakistan.

The Dairy Value Chain & Supply Side Constraints

Farm Management & Productivity

The provincial governments urgently need to establish model farms in the dairy concentrated areas of Pakistan preferably replicating the Dairy Hub concept provided by Tetra Pak.

Cooperative farming system is the only solution to organizing and formalizing the livestock sector. These cooperatives need to be established at the Union Council (UCs, consisting of 5-6 villages) or Divisional levels (consisting of 10 UCs) and therefore can address the basic issues of the small scale farmers through effective provision of livestock services, technology and financial assistance. The successful cooperative movement in the dairy industries of India and Turkey can be modelled for revamping the domestic industry.^{7,8}

A consortium of public, private and donor organizations is required to be established. Terms of agreement between them may be drafted as per stakeholders' requirements and satisfaction and keeping the larger interests of society in focus.

It is also observed after assessing feasibility studies and current experience of entrepreneurs in the dairy sector that this the sector is capable of offering return of investment of about 16-19% as compared to other sectors where most of the businesses are unable to generate comparable benefits and profits. This provides that dairy farming and production can be a very profitable business venture for new investors.⁹

Government owned livestock farms should not be privatized as they are specifically carrying out research and development (R&D) and are also acting as hubs in preserving precious genomes of livestock breeds.^{10,11}

7 Arid Agriculture University, Rawalpindi; Department of Commerce, Industries and Investment, Government of Punjab; Directorate General (Extension Services), Department of Livestock, Government of Punjab, Lahore University of Management Sciences (LUMS)

8 Through concerted efforts, even if milk productivity can be increased by 1 litre/ animal only, Pakistan can potentially become the largest milk producer in the world. (Industry estimates)

9 Small and Medium Enterprise Development Authority (SMEDA)

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

Successful implementation of the project for the production of biogas on commercial basis requires ownership and commitment between the public and private sector and for acquiring technological expertise. Provincial and federal governments may seek assistance from the private sector¹² in maximizing impact of the programme and also prepare some model biogas plants that can be used as success stories for the farmers. Again, media campaign and use of technology can be effective means of approaching the target audience. The initiative could be the potential solution to the energy crisis that is badly affecting the country at the moment. Once the value of this resource is realized at the national level, only then its value can be translated to the dairy and livestock farmers.

The biogas and bio slurry production can be successfully implemented in the dairy hubs at least at the household levels. It is estimated that 1 kg dung can produce upto 1 cubic meter biogas. At least 10 animals are required to produce the required level of bio waste which could result in the production of 15 cubic meters a day to run a small household. The estimated cost of production is PKR 60,000-65,000.¹³

Training and Awareness Stakeholders

Efforts are required to be made to enhance outreach through involving opinion leaders and assigning greater responsibilities to the heads of villages and Panchayats.¹⁴

Training programmes for the government functionaries are also required to be conducted. These workers should be chosen from the village communities and after training they should be posted in their own vicinities by assigning targets. A monitoring and evaluation system should be established to oversee the progress and offer rewards and reprisals to the workers. These training programmes can also be conducted with the help of existing government and private sector vocational institutions. This will ensure appropriate and cost effective use of available resources and also build capacity of these training institutions.

Federal Government on the national level can involve certain donor agencies to launch a National Awareness programme through media and other intermediate means (also including local cable networks, cellular service providers¹⁵ etc.) and therefore can assist the provinces in fostering their efforts. The financial constraints can be reduced by involving media, private sector, and donor organizations as media partners.

The government must encourage farmers/ entrepreneurs in the country through its various business support organizations, such as Livestock and Dairy Development Board (LDDDB), Pakistan Dairy Development Company (PDDC) and Small & Medium Enterprise Development Authority (SMEDA) to undertake dairy farming as a primary source of income besides crop sector. A shift in the mindset has to be created in the farmer community so that they consider their animals as a potential & valuable investment with financial return rather than a social capital and insurance in times of financial crunch.

Awareness campaigns on development of the dairy sector must primarily be spearheaded by the government rather than merely by the private sector or international agencies since these have their own limitations and capacity constraints when it comes to infrastructure and contacting the target farmers' groups. Government may initiate joint ventures with these organizations and with the media to develop effective outreach themes for attracting the target groups. Awareness campaigns and trainings can be organized with the support of trained extension workers and veterinarians in the proposed dairy hubs at the divisional and union council levels to ensure maximum contact with the farmers.

11Arid Agriculture University, Rawalpindi

12Most of the private companies in dairy business, especially the milk processing units can be helpful in fostering the progress of the biogas initiative due to the fact that they have large milk collection networks and these companies are connected with a large number of farmers who are providing milk to the collection centers.

13Solve Agri Pak (Private) Limited

14 Local system of resolving disputes through involving elders of a village who form a committee for the purpose. These Panchayats are headed by Panch whose decision is considered final and is followed in letter and spirit by the whole village. The Panch can also be approached and used for implementation of various initiatives in the dairy sector.

15Awareness through prerecorded advises can be delivered to the residents of rural as well as urban and peri-urban farmers. The assistance of National Database Registration Authority (NADRA) can also be used to identify target audience.

Currently there are six agriculture universities with a number of campuses are operation in Pakistan¹⁶ that are responsible for providing vocational education on the livestock and dairy development in Pakistan. Considering the fact that there is insufficient human resource on the veterinary side as against the whole livestock and dairy sector, there is an urgent requirement to establish more campuses of these universities with advanced curriculum prepared in line with international standards. The curriculum should also include information on domestic and international regulatory regimes and requirements for development of the livestock & dairy sector especially when these products are considered for exports. These vocational institutions and universities can be established under public-private partnership arrangement at the divisional level and preferably these should be affiliated with international universities of repute so as to attach privilege to these institutions. These institutions can also help in establishing research centres for the livestock and dairy sector in Pakistan.

Animal Management and Welfare

a. Breed Preservation and Management

There is a general consensus amongst the stakeholders that efforts are required on the national level to preserve the local breeds.¹⁷ Up-gradation of the genetic potential of indigenous breeds like Sahiwal Cattle, Cholistani Cattle and Nili-Ravi Buffalo¹⁸ needs to be prioritized by the government as these have the most superior germplasm. Lack of awareness on breed management is the biggest issue that needs to be tackled at the grass root level to ensure that good bulls are bred through appropriate feed and nutrition to produce healthier and superior off-springs.¹⁹ This strategy needs a long-term and continuous planning and implementation to counter the negative attitudes and lack of responsiveness amongst the local farmers.²⁰

Government projects like the CEDSEB are currently facing financial constraints due to lack of public funds. It is proposed that private sector competition as well as joint ventures with internationally renowned companies should be introduced in the project to ensure its early completion and for the provision of high quality semen doses.²¹ This initiative can potentially lead to export of semen doses as there is demand for indigenous breed in the international markets as per industry and governmental sources.

b. Feed and Nutritional Management

Currently imported feed prices are quite low as compared to the ones locally produced. According to industry estimates, 1 kg of imported corn feed costs PKR 20 (USD 0.2) as compared to local corn feed at PKR 30 (USD 0.2). This price difference makes a huge impact on the small-scale farmer.²² Therefore the government should continue its policy of opening up imports of all required types of feed and zero-rate them as much as possible.²³

To cater to the larger domestic demand for animals feed & fodder and to reduce price of high quality concentrates produced locally, the government needs to encourage private investment in this

16The Universities include (i) KPK Agriculture University, Peshawar (Faculty of Animal Husbandry & Veterinary Sciences), (ii) Lasbela University of Agriculture, Water & Marine Sciences (LUAWMS) at Lasbela (Faculty of Veterinary and Animal Sciences), (iii) University of Agriculture, Faisalabad (UAF) (Institute of Animal Nutrition & Feed Technology), (iv) PirMehar Ali Shah Arid Agriculture University, Rawalpindi (Department of Livestock Production and Management), Sindh, (v) Sindh Agriculture University, Tandojam (Department of Livestock Management), Sindh, (vi) University of Veterinary and Animal Sciences (UVAS), Lahore, Punjab.

17Department of Industries, Commerce and Investment, Government of Punjab

18These breeds have the capacity to produce up to 30-40 liters of milk per animal on average during a lactation period

19Punjab Livestock and Dairy Development Board (PLDDB)

20It should be noted that, as discussed above, farming and rearing practices amongst the local farmers are mainly based upon traditional knowledge and experience and therefore a majority of them resist in changing their attitude towards improvement.

21Punjab Livestock and Dairy Development Board (PLDDB) and Punjab Board of Investment and Trade (PBIT) would be required to take a proactive role in this aspect.

22According to government estimates, about 25 kg of silage is required to fulfill the daily dietary requirements of 1 mature milch animal

23Small and Medium Enterprises Development Authority (SMEDA)

industry. There is high potential to earn profits by the private sector in silage production due to increased efficiency as even the government is earning profits on its silage production project.²⁴

Spreading awareness among the farmers' community is an important aspect of making them realize the importance of providing nutritional values to the milch animals and getting more production from them and therefore becoming commercially & economically better off.²⁵ The same can be ensured in the dairy hubs through provision of low-cost technology, silage production training and imparting relevant knowledge among the opinion leaders and progressive-minded farmers in the villages.²⁶

As value of land is very high, the government may lease land on reasonable rates to the farmers interested in growing crop for fodder. Considering large gap between the demand and supply of animal feed, the feed production sector offers lucrative opportunities to the investors.

A national strategy is required to be adopted where awareness programmes should be launched for the farmers on the importance of food and nutrition based on the Total Mixed Ration (TMR) technique.²⁷

The root cause for the lack of proper feed and nutrition and water supplies provided by small-scale farmers is their unawareness of its impact on the animal welfare. These can only be overcome through model practises in the dairy hubs. For example, the acceptability of silage production and provision was very low amongst the small-scale farmers. However, under the Dairy Hub concept by Tetra Pak, when farmers were made aware of the nature of feed, methods of its production, and consequential benefits of increasing their animals' productivity, they got motivated to use silage instantly. In another incidence, when farmers were made aware of the value of keeping their animals loose so that they could reach the available water sources on their own and as per their natural requirement, its adoption resulted in an instant increase in the milk productivity of their animals by 1 litre each.²⁸

The animal health needs to be linked directly to public health and this concept has to be inculcated in the dairy farmers and producers to raise the significance of proper veterinary care and animal welfare. If the concept can be streamlined into a general veterinary policy of the country, the same can be used as an effective marketing tool in trade with the partner countries. The cause needs to be championed by the Ministry of Food Security & Research and the relevant provincial departments and further needs to be projected to the local farmers and consumers.

c. *Veterinary Support and Animal Health*

Government at national and provincial levels should activate its available healthcare infrastructure. There are number of animal healthcare hospitals in the country whose effectiveness is far below the required levels. Human resource hiring policy for these hospitals and veterinary care centre has to be ensured with preference to the local inhabitants so that their interest in posting at their home stations should be used as a motivational tool to retain them for provision of quality service to the stakeholders.

The extension workers and veterinary specialists posted at various divisions should be compensated against the level of their performance. This method would provide monetary incentive to increase their veterinary outreach efforts. It is proposed that a bonus may be awarded to those officials having the lowest disease incidence rate in their respective hubs.

²⁴The cost of production of 1 kg currently stands at PKR 5, while it is being priced at PKR 6.5 (Corn Silage) and PKR 7 (Wheat Silage) to cater to the local farmers, especially when there is a shortage in local fodder production during the winter months. The costs do not include depreciation on the imported machinery and the profits are being reinvested into the project. (Source: Punjab Livestock and Dairy Development Board (PLDDB))

²⁵Local farmers generally provide low cost wheat straw to their animals which has very low nutritive value and a subsequent negative effect on their productivity levels. (Small and Medium Enterprises Development Authority, SMEDA and Punjab Livestock and Dairy Development Board, PLDDB)

²⁷TMR ensures that the daily feed quantity provided to the animal should be 3-3.5% of its weight to acquire maximum productivity.

²⁸Solve Agri Pak (Private) Limited

Use of resources of local Panchayat and Daira²⁹ facilities of local village heads can be used while appropriate trained personnel from within the local community can be posted as veterinary attendants under the supervision of the village heads. UC centres under the divisional hub headquarters at union council levels should be established which could monitor the performance of these medical attendants and also provide medicines to them. This effort will greatly facilitate healthcare efforts in the farmers' communities and enhance the outreach considerably.

As suggested above, there is urgent need to establish veterinary training institutions and universities in the country to overcome the dearth of trained medical staff in the veterinary field. This requires medium and long term strategy. The government should form veterinary academies in major Tehsils as a first step and afterwards may form colleges and universities to overcome shortage of trained medical professionals. Again, consortium of medium and big farmers as well as international agencies with the local governments would greatly facilitate this effort.

Trade Potential of Dairy Products

Generating Exportable Surplus

Federal government, using the only trade promotion organization i.e. Trade Development Authority of Pakistan (TDAP) may conduct awareness seminars in various parts of the country in collaboration with the local chambers of commerce, dairy traders and exporter associations, Pakistan Dairy Development Board (PDDDB), USAID, and other related organizations mainly for the awareness of the farmers to produce quality surplus through use of appropriate milking techniques that could ensure less wastages and improved hygiene standards. These farmers should also be made aware of adopting appropriate supply chains so that they are not exploited by local milkmen and big suppliers.

The value added industry producing dairy products such as cheese, butter, condensed milk and other related products should be educated on quality matters as well as on benefits of adopting hygiene standards that may make them internationally compliant. For this, awareness seminars should be organized in major cities of Pakistan by TDAP, local chambers, trade associations and associated organizations.

Standardization, Compliance and Traceability Issues

To increase competitiveness and export potential of Pakistan's dairy products in the world market, it is essential that the Federal Food Safety, Animal and Plant Health Authority bill may be converted into legislation at the earliest since the federal food control system will have a positive and speedy impact on the revision of foods laws and regulations in the provinces as well.

The issue of traceability is central to the provision of safe and hygienic dairy products not only in the international markets but also for the safety of domestic consumers. The dairy hubs would provide a convenient opportunity to the government in launching an action plan including; registration of all animals within the defined region, information on feed provision, insemination³⁰ & vaccination, and disease occurrence amongst the herd population. The data should be gathered electronically and saved at the remote server in the hub headquarters and should be made accessible via internet for regular updates. Upon receipt of the information, the animals may be tagged accordingly.³¹

²⁹ These are usually formed by the medium and large size farmers in their agricultural lands. These *Dairas* are also used as guest houses for guests coming from outside. Storage of grains and other agriculture implements is also done here. Besides, in almost all Dairas, the farmers also house certain animals including cows, bulls, dogs etc.

³⁰ Exotic viruses can be transmitted through cross-breeding with imported animals (Pakistan Agricultural Research Council, PARC)

³¹ University of Animal and Veterinary Sciences (UVAS)

Setting up disease-free zones³² within the hubs is a realistic approach by restricting the movement of animals from one hub to another and thereby containing the occurrence of any disease. The principle of regular testing and culling of infected animals must be encouraged amongst farmers in the hubs to safeguard precious livelihoods.

In the short to medium term, awareness amongst domestic consumers on the traceability of dairy products to strengthen bio-security in the country³³ should also be addressed through employing media and social opinion leaders primarily. The subsequent demand for safe and traceable dairy and other food products would create an environment of regulation in the country which would put pressure on the local producers to follow the principle of “One Step Forward, One Step Back Linkages”. Through this concept, the exact supplier of any contaminated/ unsafe dairy products and its subsequent consumer would be easily identified and the risks contained. This can be achieved through compulsion to process required documentation of the food chain by domestic dairy processors and also through presentation of such information as and when required.³⁴ In the medium to long run, Ministry of Commerce should lobby the establishment and existence of disease-free zones within the country in the international markets; once the same have been declared through self-assessment by the government in the proposed hubs. Bilateral agreements and concessions should then be effectively negotiated with regions like the EU to allow importation of Pakistani livestock (other than animal casings) and dairy products.³⁵

Border Measures

Governments of Pakistan and its neighbouring countries should enter into bilateral arrangements where they should adopt measures to restrict the smuggling of live animals across international borders.

Appropriate legal reforms resulting in prohibitive penalties should be enforced where the illegal trade of live animals should be restricted and punitive measures should be defined for those involved in such illegal trade. This will greatly reduce the informal trade since the local police will also be involved and authorized to curb smuggling by providing a third tier of check on the informal trade.

Policy and Regulatory Framework for Dairy Development

Taxes and Tariff Regime

Keeping in mind that loose milk in the informal sector is not regulated at all; the formal industry ends up facing the brunt of government taxes. A balanced approach to provide a level playing field should be adopted to nurture appropriate competition between the two sectors. An increase in the cost of production by the formal industry may lead to reliance on imported packaged products in view of future demand.³⁶

Reform in Pricing Mechanism

It is proposed that the relevant government authorities should immediately withdraw their support from fixing and controlling the selling price of loose milk. The practice of using private associations as

32 Livestock and dairy imports into high-end market like the EU are only allowed through countries declared as disease-free zones. (Punjab Livestock and Dairy Development Board, PLDDDB); Department of Commerce, Industries and Investment, Government of Pakistan

33 Punjab Livestock and Dairy Development Board (PLDDDB)

34 Under the EU's General Food Law, 2002, traceability is made compulsory for all food and feed businesses. "It requires that all food and feed operators implement special traceability systems. They must be able to identify where their products have come from and where they are going and to rapidly provide this information to the competent authorities." Documentation requirements include names and addresses of suppliers, and customers in each incidence, nature of the product and the exact date of delivery..

35 Dairy and livestock producers and processors

36 Pakistan Dairy Association (PDA)

forums to negotiate prices and the consequent 'collusion' created by the government is against the spirit of competition and that all such agreements are prohibited under Section 4 of the Competition Act, 2010.³⁷

The intention behind price fixation is to keep milk and dairy products affordable for the local consumers. The same can be achieved in a more effective and sustainable manner through introduction of open competition in both formal and informal sectors. The price of milk will reach equilibrium once the demand for quality milk is driven by consumers and this would also have a subsequent impact on improving production efficiencies of the dairy farmers and producers to effectively compete in the domestic market.

Revisiting the 18th Constitutional Amendment

It is important that the skills of the personnel employed in all relevant provincial departments should be further developed to enable them to formulate and execute policies in agriculture and livestock sectors. Ministry of Food Security and Research needs to take a central role in training of these personnel in the areas of policy development and implementation. Assistance of international training institutions can be obtained.

In the dairy sector, farmers being the producers are to be considered as major stakeholders by the provinces. Therefore, it is imperative to institutionalize their participation in developing policy instruments for the industry. The same can be ensured through implementation of the dairy hubs which would particularly increase representation of the small holders and also create a mechanism for obtaining instant feedback on the developmental initiatives.³⁸

A key element that was central to providing autonomy in the agriculture sector was implementation of a structure by the provinces for collection of agricultural income tax from the producers. It is about time that this initiative may be implemented as the contribution of the sector to the GDP stands at about 25% while its share in the tax collection is less than 1%. The provincial legislators must consider this fact and initiate an effective dialogue with the relevant stakeholders. This would help in increasing the tax to GDP ratio and also ensure increase in provincial revenues which can be utilized for funding of development initiatives for the agriculture sector.³⁹

Revamping Food Safety Regime

It is proposed that international accreditation of food testing laboratories should be undertaken at the federal level and capacity building & enhancement of the food inspection services be carried out under NAPHIS.

The Pure Food Ordinance (PFO) should be amended in view of the Codex standards to include 400 new food items including dairy products in addition to the existing 105 items currently being covered by the legislation.

The food testing laboratories working under the PSQCA and provincial governments should be upgraded to enhance their capacity for microbiological analysis.

Currently there are no laws governing and regulating sale of the unprocessed milk produced in unorganized sector in the domestic market. The producers need to be incentivized through the dairy

³⁷ Section 4(1) prohibits and renders void "all agreements between undertakings, decisions by associations of undertakings and concerted practices which have as their object or effect the prevention, restriction or distortion of competition in trade in any goods or services in the State or in any part of the State". The Act lists some specific types of behaviour which are expressly prohibited. These include "Fixing the purchase or selling price or imposing any other restrictive trading conditions with regard to the sale or distribution of any goods or the provision of any services."

³⁸ Livestock Farmers and Breeders Association

³⁹ Varying estimates place the revenue potential from taxing the agricultural income from PKR 40-60 billion to as high as PKR 250-300 billion. Nevertheless, the potential influx of public funds is significant in view of current economic conditions of the country (Source: Pakistan Institute of Legislative Development and Transparency (PILDAT), Briefing Paper: *Taxing the Agricultural Income in Pakistan*, November 2011)

hubs to produce better quality milk. The regulations should include a mechanism to ensure enforcement of quality standards with the provision of applying prohibitive penalties (civil and criminal) by the local authorities.⁴⁰

The quality of packaged milk produced in the formal dairy industry should be regulated through a mandatory requirement of “Ingredient Labelling” which would show the actual ingredients being used in the UHT/ pasteurized milk and other dairy products and would be open to testing.⁴¹

Improving Outreach of Financial Support

The State Bank of Pakistan should instruct the banking sector to launch facilitation desks at all the branches offering credit schemes for the dairy and livestock sector (mainly covered under agricultural credit). Besides, other branches and banks not offering agricultural credit facilities should also be equipped with proper information so that a maximum number of people are approached and provided information on the agricultural credit schemes offered by certain financial institutions in the public as well as the private sector. Media campaign (electronic and newspapers) can also help in spreading information in the farmers’ community. People should be able to know the cost and benefits of availing a financial facility so that no deceptive marketing should be able to deceive them.

Easy and timely access to loans needs to be ensured to small farmers who are mostly illiterate and do not own any guarantees that can be used as collateral. The credit schemes for these farmers should be on the same footing as these are for the medium and large-scale farmers.

Environmental Regulations

As the dairy sector formalizes over a period of time and investors realize the returns on their investments, the government would need to apply some control measures to regulate the number and size of farms. This is especially required while keeping the environmental impacts of dairying in mind.

A quota system based upon the number and size of the farms (at least 50-100 in number) may be adopted, driven through licensing by the district and local governments in the region. It is recommended that at least a 3 km aerial distance may be enforced in the establishment of adjacent farms to avoid over-crowding of the units in a particular area. This is important to avoid congestion of dairy farms in the urban areas and reduce pressure on land and soil as well as avoid mismanagement of the bio waste.⁴²

⁴⁰Khyber Pakhtunkhwa Chamber of Commerce and Industry (KPKCCI)

⁴¹Currently none of the dairy processors include a mention of the ingredients used on the label of their packaged milk and dairy products. (Source: Punjab Livestock and Dairy Development Department)

⁴²Small and Medium Enterprises Development Authority (SMEDA)

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>financial assistance.</p> <ul style="list-style-type: none"> ○ Successful cooperative movement in the dairy industries of India and Turkey can be modelled for revamping the domestic industry. ○ A consortium of public, private and donor organizations is required to be established. Terms of arrangements may be drafted in consultation with the stakeholders. ○ Marketing of cooperatives should be done amongst the stakeholders through sharing the fact that dairy sector can provide higher returns of investment between 16-19% returns as against other businesses. ● Government owned livestock farms should not be privatized as they are specifically carrying out research and development (R&D) and are acting as hubs in preserving precious genomes of livestock breeds. ● For successful implementation of the project for the production of biogas on commercial basis, <ul style="list-style-type: none"> ○ <i>Provincial and federal governments may seek assistance from the private sector in maximizing the impact of the programme and also prepare some model biogas plants that can be used as success stories for the farmers.</i> ○ <i>Media campaign and use of technology can be effective means of approaching the target audience.</i> ○ <i>Once the value of this resource is realized at the national level, only then its value can be translated to the dairy and livestock farmers.</i> 	<p style="text-align: center;">Medium Term</p>
	<p>Training and Awareness of Stakeholders</p>	<ul style="list-style-type: none"> ● Provincial governments may use their resources to make efforts in enhancing outreach through involving opinion leaders and assigning greater responsibilities to the heads of villages and Panchayats. ● Federal and Provincial governments may modify and devise training programmes for the government functionaries through use of existing infrastructure and vocational institutions. ● Government may consider posting of government functionaries in 	<p style="text-align: center;">Short Term</p> <p style="text-align: center;">Short and Medium Term</p> <p style="text-align: center;">Short and Medium Term Medium and Long Term</p> <p style="text-align: center;">Short and Medium Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>their home towns giving them targets followed by an appropriate performance check mechanism.</p> <ul style="list-style-type: none"> • Federal Government on the national level may involve certain donor agencies to launch a National Awareness programme through media and other intermediate means (also including local cable networks, cellular service providers etc.) and therefore can assist the provinces in fostering their efforts. • Federal and Provincial Governments may encourage farmers/ entrepreneurs in the country through its various business support organizations, such as Livestock and Dairy Development Board (LDDDB), Pakistan Dairy Development Company (PDDC) and Small & Medium Enterprise Development Authority (SMEDA) to undertake dairy farming as a primary source of income besides crop sector. • Government may initiate joint ventures with these organizations and with the media to develop effective outreach themes for attracting the target groups. • Provincial government may commence and monitor awareness campaigns and trainings with the support of trained extension workers and veterinarians in the proposed dairy hubs at the divisional and union council levels to ensure maximum contact with the farmers. • Federal and provincial governments, considering dearth of trained personnel in the dairy & livestock sectors may consider establishing more campuses of the existing veterinary related universities with advanced curriculum prepared in line with international standards. <ul style="list-style-type: none"> ○ <i>The curriculum should also include ample information on the domestic and international regulatory regimes and requirements for development of the livestock & dairy sector especially when these products are considered for exports.</i> ○ <i>These vocational institutions and universities can be established under public-private partnership initiative at the divisional level and preferably these should be affiliated with international</i> 	<p>Short and Medium Term Short and Medium Term</p> <p>Medium and Long Term</p>
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ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p><i>universities of repute so as to attach privilege to these institutions.</i></p> <ul style="list-style-type: none"> ○ <i>These institutions can also help in establishing research centres for the livestock and dairy sector in Pakistan.</i> 	
	Animal Management & Welfare	<p>I. Breed Preservation and Management</p> <ul style="list-style-type: none"> • Federal & Provincial Governments may upgrade the genetic potential of indigenous breeds like Sahiwal Cattle, Cholistani Cattle and Nili-Ravi Buffalo since these have most the most superior germplasm (long term and continuous implementation required to change attitude of small holders and medium sized farmers) • Government projects like the CEDSEB are currently facing financial constraints due to lack of public funds. The private sector competition as well as joint ventures with internationally renowned companies should be introduced in the project to ensure its early completion and for the provision of high quality semen doses. Punjab Livestock and Dairy Development Board (PLDDB) and Punjab Board of Investment and Trade (PBIT) would be required to take a proactive role in this aspect. <p>II. Feed and Nutritional Management</p> <ul style="list-style-type: none"> • Since the price of imported feed is still lower than the locally produced feed and can be afforded by the farmers in general, the government may continue its policy of opening up imports of all required types of feed and preferably zero-rate them. • Government may encourage private sector to invest in animals feed and fodder which will ensure competition and result in reduction in the price of high quality concentrates especially the silage. • Awareness campaign by the provincial governments in cooperation with international donor agencies, private sector and media on the 	<p>Medium and Long Term</p> <p>Medium Term</p> <p>Short and Medium Term</p> <p>Medium Term</p> <p>Short and Medium Term</p> <p>Medium and Long Term</p> <p>Medium and Long Term</p> <p>Short Term</p> <p>Medium Term</p> <p>Medium and Long Term</p> <p>Medium Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>importance of using high nutritional feed for the <i>milch</i> animals that would lead to high productivity also needs to be launched.</p> <ul style="list-style-type: none"> • The same can be ensured in the dairy hubs through provision of low-cost technology, silage production training and imparting relevant knowledge to the opinion leaders and progressive-minded farmers in the villages. • Government may lease land on reasonable rates to farmers interested in growing crop for fodder. Specific policy to be devised for this initiative. • Awareness campaign on national level to be launched for the farmers on the importance of food and nutrition according to the Total Mixed Ration (TMR) technique. • Ministry of Food Security & Research at federal level may take measures to link animal health directly to public health and with the support of relevant provincial departments, project to the local farmers and consumers. <p>III. Veterinary Support and Animal Health</p> <ul style="list-style-type: none"> • Revamping of existing national and provincial animal healthcare institutions and their human resource through available resources and in cooperation with international donor organizations. • The extension workers and veterinary specialists posted at various divisions should be compensated against the level of their performance. A bonus may be awarded to those officials having the lowest disease incidence rate in their respective hubs. Monitoring mechanism should be established to evaluate their performance. 	
<p>Tapping Trade Opportunities for Dairy Sector</p>	<p>Generating Exportable Surplus</p>	<ul style="list-style-type: none"> • Ministry of Commerce through Trade Development Authority of Pakistan (TDAP) may conduct awareness seminars in various parts of the country in collaboration with local chambers of commerce, dairy 	<p>Short and Medium Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>traders and exporter associations, Pakistan Dairy Development Board (PDDDB), USAID, and other related organizations on the issues of producing quality surplus through use of appropriate milking techniques that could ensure less wastages and improved hygiene standards.</p> <ul style="list-style-type: none"> • The farmers through the same institutions should also be made aware of adopting appropriate supply chains so that they are not exploited by local milkmen and big suppliers. • Through use of same technique and by involving international experts by the above institutions, value added industry producing dairy products such as cheese, butter, condensed milk and other related products should be educated on quality matters as well as on benefits of adopting hygiene standards which make them internationally compliant. 	<p>Medium Term</p> <p>Medium Term</p>
	<p>Standardization, Compliance and Traceability Matters</p>	<ul style="list-style-type: none"> • Conversion of Federal Food Safety, Animal and Plant Health Authority bill into legislation to increase competitiveness and export potential of dairy products and to create positive impact on the revision of foods laws and regulations in the provinces. • Creating a provincial and central database on traceability of animals. This would also help in fostering the efforts of provincial and federal governments in registration of all animals within the defined region, information on feed provision, insemination & vaccination, and disease occurrence amongst the herd population. Dairy hubs can be much helpful in all traceability matters in the medium and long run. • The data should be gathered electronically and saved at the remote server in the hub headquarters and should be made accessible via internet for regular updates. Upon receipt of the information, the animals may be tagged accordingly. • Government may set up disease-free zones within the hubs which may help in restricting the movement of animals from one hub to another and thereby containing the occurrence of any disease. • The practice of regular testing 	<p>Short Term</p> <p>Medium to Long Term</p> <p>Medium and Long Term</p> <p>Short and Medium Term</p> <p>Short and Medium Term</p> <p>Medium and Long Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>and culling of infected animals must be encouraged amongst farmers in the hubs to safeguard precious livelihoods. This would lead to adoption of required parameters by the dairy producers.</p> <ul style="list-style-type: none"> • Launching of awareness programmes amongst domestic consumers on traceability of dairy products through involvement of media and social opinion leaders primarily. • Ministry of Commerce may lobby, in the international markets, on the establishment and existence of disease-free zones within the country in the international markets. 	
	Border Measures	<ul style="list-style-type: none"> • Bilateral agreements between Governments of Pakistan and neighbouring countries on adopting measures on restricting smuggling of live animals across international borders. • Initiating appropriate legal reforms covering prohibitive penalties on illegal trade of live animals. Local police needs to be involved and authorized to curb smuggling by providing a third tier of check on the informal trade. 	<p>Medium and Long Term</p> <p>Short and Medium Term</p>
Policy & Regulatory Framework for Dairy Development	Taxes and Tariff Regime	<ul style="list-style-type: none"> • Loose milk in the informal sector is not regulated at all; the formal industry ends up facing the brunt of government taxes. A balanced approach to provide a level playing field should be adopted to nurture appropriate competition between the two sectors. An increase in the cost of production by the formal industry may lead to reliance on imported packaged products in view of future demand. 	Short and Medium Term
	Reforms in Pricing Management	<ul style="list-style-type: none"> • Relevant government authorities should immediately withdraw their support from fixing and controlling the selling price of loose milk to avert the practice of collusion which is prohibited under Section 4 of the Competition Act, 2010.⁴³ The price of milk will reach equilibrium once the demand for quality milk is driven by consumers and this would also 	Short Term

⁴³ Section 4(1) prohibits and renders void "all agreements between undertakings, decisions by associations of undertakings and concerted practices which have as their object or effect the prevention, restriction or distortion of competition in trade in any goods or services in the State or in any part of the State". The Act lists some specific types of behaviour which are expressly prohibited. These include "Fixing the purchase or selling price or imposing any other restrictive trading conditions with regard to the sale or distribution of any goods or the provision of any services."

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>have a subsequent impact on improving production efficiencies of the dairy farmers and producers to effectively compete in the domestic market.</p>	
	<p>Revisiting the 18th Constitutional Amendment</p>	<ul style="list-style-type: none"> • Ministry of Food Security and Research needs to take a central role in training livestock related personnel for the development of policies and their implementation in coordination with international training organizations. • In the dairy sector, farmers being the producers are to be considered as major stakeholders by the provinces and should be consulted while forming policy instruments for the industry. • A key element that was central to providing autonomy in the agriculture sector was implementation of a structure by the provinces for collection of agricultural income tax from the producers. It is about time that this initiative may be implemented as the contribution of the sector to the GDP stands at about 25% while its share in the tax collection is less than 1%. The provincial legislators must consider this fact and initiate an effective dialogue with the relevant stakeholders to increase tax to GDP ratio and increase provincial revenues that can be further used to funds dairy development initiatives. 	<p>Short and Medium Term</p> <p>Short Term</p> <p>Medium and Long Term</p>
	<p>Revamping Food Safety Regime</p>	<ul style="list-style-type: none"> • International accreditation of food testing laboratories should be undertaken at the federal level and capacity building & enhancement of the food inspection services be carried out under NAPHIS. • The Pure Food Ordinance (PFO) should be amended in view of the Codex standards to include 400 new food items including dairy products in addition to the existing 105 items currently being covered by the legislation. • The food testing laboratories working under the PSQCA and provincial governments should be upgraded to enhance their capacity for microbiological analysis. • Currently there are no laws governing and regulating sale of the unprocessed milk produced in unorganized sector in the 	<p>Medium and Long Term</p> <p>Short and Medium Term</p> <p>Medium and Long Term</p> <p>Medium and Long Term</p> <p>Short Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>domestic market. The producers need to be incentivized through the dairy hubs to produce better quality milk. The regulations should include a mechanism to ensure enforcement of quality standards with the provision of applying prohibitive penalties (civil and criminal) by the local authorities.</p> <ul style="list-style-type: none"> The quality of packaged milk produced in the formal dairy industry should be regulated through a mandatory requirement of "Ingredient Labelling" which would show the actual ingredients being used in the UHT/ pasteurized milk and other dairy products and would be open to testing. 	
	Improving Outreach of Financial Institutions	<ul style="list-style-type: none"> State Bank of Pakistan should instruct the banking sector to launch facilitation desks at all the branches offering credit schemes for the dairy and livestock sector (mainly covered under agricultural credit). Other branches and banks not offering agricultural credit facilities should also be equipped with proper information so that a maximum number of people are approached and provided information on the agricultural credit schemes offered by certain financial institutions in the public as well as the private sector. Media campaign (electronic and newspapers) may also be initiated on creating awareness in the farmers' community on financial support that is being provided for the dairy sector. Easy and timely access to loans needs to be ensured to small farmers who are mostly illiterate and do not own any guarantees that can be used as collateral. The credit schemes for these farmers should be on the same footing as these are for the medium and large-scale farmers. 	<p>Short Term</p> <p>Short Term</p> <p>Short Term</p> <p>Medium and Long Term</p>
	Environmental Regulations	<ul style="list-style-type: none"> As the dairy sector formalizes over a period of time and investors realize the returns on their investments, the government would need to apply some control measures to regulate the number and size of farms to protect the environment. A quota system based upon the 	<p>Short and Medium Term</p> <p>Short and Medium Term</p> <p>Short and Medium Term</p>

ENHANCING DAIRY SECTOR EXPORT COMPETITIVENESS

		<p>number and size of the farms (at least 50-100 in number) may be adopted, driven through licensing by the district and local governments in the region.</p> <ul style="list-style-type: none">• It is recommended that at least a 3 km aerial distance may be enforced in the establishment of adjacent farms to avoid overcrowding of the units in a particular area.	
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