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India's Whey Protein Market: Demand and Supply Conundrum

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This discussion document explores India's whey protein deficit due to high demand and low domestic production. It recommends enhancing private sector involvement, improving dairy quality, and lifting import restrictions.

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Executive Summary

This discussion document provides an analysis of the demand and supply conundrum in India's whey protein market. It examines the competitive advantage of India's dairy sector, the role of private players and the factors that hamper whey protein production.

Due to increased demand and lower domestic production capacity, India faces a whey protein deficit. India's import restrictions exacerbate the supply issues in the market. The dominance of the unorganised sector in India's dairy market further limits the ability of private players to address the demand-supply imbalance in whey protein. Additionally, low productivity, poor yield, and substandard products further impede the sector's growth, along with various tariffs and non-tariff barriers against dairy exports.

Therefore, India's whey protein market must enhance its competitiveness by boosting private sector participation, improving productivity and quality in dairy products, and removing import restrictions to achieve growth in this sector. The discussion document suggests several policy measures to enhance quality and innovation in the sector, including corporatising cooperative societies and fostering greater competition.

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I. Introduction

Whey Protein is emerging as a niche market, with its popularity increasing among urbanised, fitness-oriented consumers. Whey is a residual product that arises during the cheese manufacturing process. In the last five to ten years, India has dramatically shifted towards consuming value-added products such as cheese, yoghurt, ultra-heat treatment (UHT), flavoured milk, and whey.[1] Due to the increased demand and lower domestic production capacity, India faces a whey protein deficiency, and India's import restrictions further exasperate the supply in the market. The dominance of the unorganised sector in India's dairy market further limits the capacity of private players to address the demand-supply conundrum in whey protein. Hence, India's whey protein market depends on improving its competitiveness by enhancing private participation and improving the productivity and quality of its dairy products, while removing the import restrictions to achieve growth in this sector.

The Indian whey protein market is expected to expand from US $91.78 million in 2023 to US $120.29 million by 2028, exhibiting a Compound Annual Growth Rate (CAGR) of 5.56 per cent during the forecast period (2023-2028).[2] However, India faces a significant deficit in locally produced sports category whey proteins, including Whey Protein Concentrate (WPC)

grade 80 and Whey Protein Isolate (WPI) grade 90. These supplements are only accessible via imports from the US, the UK, Ireland, Germany and New Zealand.

Since 1997, India has maintained its first position as the world's largest milk-producing country and the largest consumer of milk and dairy products. Indian dairy sector is the world's most extensive milk production system, producing 187.70 million tonnes (Mt) of milk, where about 70.0 per cent of the milk is produced by smallholders having 1 to 3 animals per household.[3] India accounts for over 24 per cent of global milk production, followed by the US, China, Pakistan and Brazil. However, half of the nation's dairy market comprises liquid milk. The value-added products contribute to ~35-40 per cent of the total dairy market in India. It is predicted that the consumption of fluid milk will increase by around 16 per cent, while cheese, flavoured milk, lassi, buttermilk, whey, and organic milk are expected to increase by more than 20 per cent annually.[4] However, one crucial question is whether the Indian dairy market is competitive enough to tap into the advantages of changing consumer food preferences and address the Whey Protein deficiency.

Value added products are produced by some modification or enhancement via addition or segregation of liquid wholesome milk. Value-added products include cheese, paneer, ghee, yoghurt and probiotic drinks etc.

Box 1. India's Dairy Industry

India's contribution to world milk production is nearly 24 per cent, with almost 100 per cent consumed domestically. US Department of Agriculture's Foreign Agricultural Service (FSA) in New Delhi forecasts domestic consumption of fluid milk in 2024 to grow to about 90 Million Metric Tonnes (MMT), up three per cent from the 2023 estimate of 87 MMT.[5] Monthly per capita consumption expenditure on milk and milk products in rural India represents 19 per cent of the total food expenditure, and the figure is 20 per cent for urban India.[6] The organised sector currently accounts for 41 per cent of the market for liquid milk, up from 32 per cent three years prior.[7] Of the produced milk, 34.0 per cent is sold in the unorganised market, whereas 46.0 per cent is consumed locally.[8] India's milk and milk product exports have been growing, but export volumes are low compared to other milk and milk product exporters.[9] India's fluid milk export markets are Bangladesh, the United Arab Emirates (UAE), Sri Lanka, and Bhutan. India exported dairy products worth Rs 2423 crore during 2018-19, in which butter and ghee contributed the highest share of 58.91 per cent, followed by milk powder (26.70 per cent) and cheese (10.31 per cent).[10] Other dairy products, such as milk, whey, and buttermilk, play a very nominal role in exports. Despite being the largest producer of milk globally, India's share in global dairy products export is negligible. As per the Agricultural and Processed Food Products Export Development Authority (APEDA), India's share is currently only

0.36 per cent. Most of the milk produced in India is consumed in its raw form and only 35 per cent is processed. In the unorganised sector, a large proportion of the processed milk is converted into traditional products like cheese, ghee, cottage butter, khoya, curd, malai, etc.

Approximately 70 million rural households (primarily small and marginal farmers and landless labourers) produce milk. Eighty million farmers are directly involved in the dairy sector. Over 11 million farmers are organised into about 0.1 million village Dairy Cooperative Societies (DCS) (about 110 farmers per DCS). The cumulative amount of milk handled by DCS across the country is about 18 million kg of milk per day. These cooperatives form part of a national milk grid that links milk producers throughout India with consumers in more than 700 towns and cities, bridging the gaps in seasonal and regional variations in the availability of milk. The total number of milch animals (in-milk and dry) in cows and buffaloes is 125.75 million as per the 20th Livestock Census of 2019. As per the FY19 Annual Report of the Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture & Farmers Welfare, GOI, co-operatives and private dairies still procure only about 20 per cent of the milk produced in the country. About 40 per cent of the milk sold is handled by the organised sector and the remaining 60 per cent by the unorganised sector.

II. India's Whey Protein Market

Value-added dairy products have been gaining importance among Indian consumers due to changes in demographic and dietary patterns, leading to higher demand for clean, hygienic, ready-to-eat products. With approximately 30 per cent of the country's population following vegetarianism, products like Whey Protein are increasing in India's dietary preferences.[11] The whey protein market in India, in particular, has experienced substantial growth driven by several critical factors, including the escalating demand for dairy-based ingredients, the rising popularity of health clubs and fitness centres, a growing percentage of elderly individuals throughout the nation, and the keen interest of the youth in sports and nutrition.[12] However, it should be noted that the Indian Council for Medical Research (ICMR) has issued guidance that consuming high levels of protein (especially in the form of protein supplement) powders is not advisable.[13] Still, the impact of this advisory on demand for whey protein needs to be assessed. However, various other food and health regulators have generally marked whey protein as a safe product for consumption.

There has been an increase in Whey protein imports into the country. The import of protein concentrates and textured protein substances to India accounted for about 4.48 million Kg in 2021, which increased from 2.88 million kg in the previous year.[14] The size of the whey protein market in India is US$96.88 million. Due to the rising demand, India experiences a substantial shortage of domestically produced sports-grade whey proteins, such as Whey Protein Concentrate (WPC) grade 80 and Whey Protein Isolate (WPI) grade 90. Consequently, India relies on imports from the US, UK, Ireland, Germany, and New Zealand imports to meet this demand.

Some imports of most livestock and livestock-derived food products from foreign countries were banned due to specific Indian import requirements.[15] India opposes importing dairy products from animals, fed feeds based on internal organs, bone or blood meals, and is premised on religious and cultural grounds.[16] The Food Safety and Standards Authority of India (FSSAI) published an order in 2022 that requires all foreign food manufacturing facilities intending to export milk and milk products, meat and meat products, egg powder, infant food, and nutraceuticals to India to register in India. The livestock products require a Sanitary Import Permit (SIP), which is the products that may be cleared based on No Objection from the Animal Quarantine and Certification Services.[17]

India's applied tariffs on most agricultural and consumer-ready food products range between 30-40 per cent, with bound tariffs as high as 150 per cent.[18] Domestic powdered and dry whey makers now have higher protection, with the government hiking the tariff rate on this product to 40 per cent from the existing 30 per cent in 2018. The tariff rate for condensed liquid or semi-solid whey remained at 30 per cent[19], increasing the overall cost of imported Whey Protein (WPC80/WPI90). Comparing it to other products, such as the import duty of whole milk powder at 15 per cent under a Tariff Rate Quota (TRQ) of 10,000 MT, and fresh and frozen cranberries attracting a 10 per cent import duty, whey protein has a relatively high tariff rate.

It is crucial to analyse the role of major players in the Indian dairy sector to understand how producers are trying to address this demand-supply gap in the whey protein market. The next section tries to analyse the role of various players in the dairy sector and the factors that hamper the growth of whey protein production in India.

III. Role of Private Players in the Dairy Industry

After Independence, the government of India monopolised the supply of milk to provide milk products to urban consumers at a low price. From the pre-and post-Operation Flood period till the mid-1990s, the government followed various policy measures to protect the infant industry. All the dairy imports were canalised through the National Dairy Development Board (NDDB) until 1994 to shield the sector from competition from cheaper imports.[20] Only imports through food aid were allowed to enter the country, and NDDB exclusively had the authority to sell the food aid to finance its cooperative development efforts. The Industries Act (Development and Regulation) of 1951 restricted competition from domestic private players by licensing private companies' entry.[21] However, in the post-1990s liberalisation era, delicensing opened the dairy industry to private entrepreneurs.

The critical aim of the sector's delicensing was to promote competition in the procurement and marketing of milk, which would increase its value for farmers and consumers. Delicensing attracted considerable private investment in the dairy sector. Within a year of liberalisation, more than 100 dairy processing plants had been established in different parts of the country, most

of which were designed for higher-value-added product manufacturing. As the private sector was setting up the new dairy processing plants, there were criticisms that private companies were entering areas where cooperatives were operating. Subsequently, the Central government promulgated the Milk and Milk Products Order (MMPO) in 1992 under the Essential Commodities Act (ECA) to regulate the production of milk and dairy products and reintroduce licensing. Only in 2001 did the government again amend the MMPO, which allowed state governments to grant a one-time license to the private sector and abolish the need to renew licenses. In 2003, restrictions on setting up milk processing and milk product manufacturing plants were eliminated—the amended order emphasised sanitary, hygiene, quality and food safety aspects of milk and milk products.

Due to the opening up of the Indian economy in the 1990s, there has been an increase in private sector participation in dairy processing. According to an NDDB Report, the 'Status of Milk Processing Infrastructure of Dairy Cooperatives', 2014, the registered processing capacity of private dairies in 2010-11 at 689 Lalk Litres Per Day (LLPD) was higher than the 406 LLPD of cooperatives for that year. India's private sector currently has a total processing capacity of 73.3 million litres per day.[22]

Private dairy processing units are functioning in all the states; the highest concentration is in Uttar Pradesh and Maharashtra, accounting for over half of the total plants in the country. In Maharashtra, private and co-operatives

have an almost equal share in milk procurement, while in Gujarat, the co-operatives have a monopoly on milk purchase. The country's organised private sector coverage is 10.2%, while the organised cooperative sector accounts for 10.3 % of total milk production. However, cooperative organisations remain the dominant players in the Indian dairy market because about 60% of the installed processing capacity is in their hands.[23]

Fourteen cooperative federations in India control dairy societies at the village and district levels. The Gujarat Cooperative Milk Marketing Cooperation (GCMMF), known for its Amul brand, has been acclaimed as a successful model. At the same time, other cooperative organisations generally have been unable to claim particular success. Of the 14 primary state cooperatives in the country, 10 have state government equity, of which 6 have government equity over 51 per cent.[24] Twelve of the 14 cooperatives have government officers as managing directors appointed by the state government, which affects the functioning of the entire chain due to the constant bureaucratic change.[25]

Several issues related to milk pricing policies require serious review and reconsideration. Milk pricing in the organised sector receives a price based on some specified quantitative parameters constituting the percentage of Fat, Solid-not-Fat and Protein in milk. In India, organised milk markets commonly follow the double-axis or two-axis milk pricing system in which the state cooperatives base the price paid to farmers on milk's fat and solid-

not-fat (SNF) content. Milk producers who are members of cooperative societies are paid based on the two-axis method, which considers both fat content and Solid-Not-Fat (SNF).[26] These cooperatives ensure regular and fair prices for their members, with rates decided and frequently revised by the district cooperative union's board of directors. This system operates effectively in well-managed cooperatives in Gujarat. However, in most dairy cooperatives, with exceptions like the GCMMF, the village society president holds significant power and determines the prices paid to farmers.[27] Farmers with a specific influence sometimes receive higher prices while others receive less. As the lead organisations, the cooperatives often set the benchmark for prices paid by other buyers, including private players, affecting the competitiveness of market pricing.

For most private dairies, agents procure the milk from farmers. Some private dairies have established village societies for milk collection that follow the cooperative model. However, this model requires a much more significant investment and is not economically feasible for private players, considering that cooperatives receive considerable development support from the government (such as feed subsidies).[28] It is not common for private dairies to provide loans to farmers, which is a crucial reason for the large share of milk directed through the cooperative channel, not the private one.

Despite these challenges, post-liberalisation, many private players emerged in the dairy sector. Leading brands like Amul, Nestle, Mother Dairy, and

Britannia are in the race to tap into the growing Indian dairy market.[29] SmithKline Beecham Consumer Healthcare, Nestle India, Jagatjit Industries Ltd, and Heinz India are large MNCs in high-value milk products. Animal Husbandry Infrastructure Development Fund (AHIDF) announced recently was the first of its kind scheme to support private sector players in the livestock sector. Notwithstanding the growth in the private sector in dairy processing, especially in the last two decades, the government has provided financial support mainly to the cooperative sector.

In the whey market, in particular, there has been much interest from the private sector. In February 2023, a prominent Indian active nutrition brand introduced a unique blend of whey and plant proteins, marking a first in global product formulation. Additionally, companies in the market are forming strategic joint ventures to quickly capitalise on the rapidly growing nutrition industry, which is expected to evolve significantly in the coming years. Numerous small and global players manufacture and distribute whey protein ingredients in India. However, the Indian whey protein market remains highly fragmented due to the prevalence of a largely unorganised sector.

IV. India's Competitive Advantage in the Dairy Sector

Most of India's milk and milk products are consumed domestically. The Indian government aims for a 9% increase in milk production, targeting 33% of global milk production to increase export opportunities. To boost milk production, the government has allocated US$ 1.32 billion over five years (2021-2026) for special schemes and programs to enhance the dairy sector's growth and profitability.[30] However, India's dairy sector faces significant challenges related to low productivity. Despite rising milk yields per animal, India lags behind milk productivity compared to other major producer countries, including Pakistan, Latin American states, China, Russia, Australia, the European Union (EU), the United States, and Canada.

The Indian dairy sector faces ongoing challenges in improving its competitiveness and transitioning to value-added products like whey protein. Despite being the world's largest producer of milk and milk products, no major Indian dairy company ranks among the top 15 global dairy giants, and only one makes it to the top 20. This is due to the sector's largely unorganised nature.

The Indian dairy sector also struggles with issues arising from milk's perishable nature and seasonality, leading to shortages and price fluctuations. Characterised by small-scale, scattered, and unorganised operations, the sector needs more productivity, adequate infrastructure, better animal feeding and healthcare practices, and a lack of supply throughout the year. Despite a higher growth rate, India's per capita milk availability (229 grams per day) is below the world average (285 grams per day).[31] Several factors challenge India's milk production, including lower productivity, water scarcity, a fragmented market structure, insufficient feed and fodder resources, outdated farming techniques, small herd sizes, and inadequate veterinary services. Additionally, buffalo milk, which accounts for 57% of India's total milk production, is preferred by only some Western countries, limiting export opportunities.

India's share in global dairy exports is a mere 1% compared to major exporters such as Germany (12.4%), New Zealand (12%), the Netherlands (11.6%), France (8.3%), and the USA (5.3%)[32]. India also faces import tariffs, quality barriers, and quota restrictions imposed by high-income countries that affect its dairy exports. Heavy subsidies in the farm sectors of developed countries and the potential dumping of dairy commodities in the domestic market have been significant concerns for less developed trade partners.[33] Under the WTO international trade regime, India's dairy products face trade barriers due to sanitary requirements and certification issues, particularly in developed markets (as demonstrated in the Annexure). These factors limit

the scope of expanding the Indian dairy sector's product base, limiting the competitive advantage in value-added products such as whey protein.

V. Conclusion and Policy Recommendations

India's dairy sector is the world's largest producer and consumer, and faces significant challenges in meeting the rising demand for value-added products like whey protein. Despite the liberalisation of the dairy sector since the late/mid-2000s, the sector remains dominated by cooperatives, which benefit from government support and set benchmarks in dairy pricing. However, India's domestic production of whey protein needs to be more efficient, leading to increased costs due to import restrictions and duties on cheaper imports. Additionally, low productivity, low yield, and low-quality products further impede the sector's growth, alongside various tariffs and non-tariff measures against dairy exports.

To enhance the competitiveness and growth of India's dairy sector, particularly in value-added products like whey protein, the following policy recommendations are proposed:

1. **Corporatise Existing Cooperatives**: Transitioning cooperatives into corporate entities can improve their efficiency, productivity, and ability to compete in the global market. Corporatisation can lead to better management practices, access to capital, and the adoption of advanced technologies.

2. **Reduce Subsidies/Financial Support to Cooperatives**: Gradually reducing government subsidies and financial support will encourage cooperatives to become more self-reliant and market-driven. This can lead to increased competition and innovation within the sector, benefiting consumers through better quality and lower prices.
3. **Allow for Cheaper Imports with Proper Labelling**: Permitting cheaper whey protein products with appropriate labelling will provide consumers with more choices and potentially lower costs. This can help bridge the gap between domestic production and demand, ensuring consumers can access high-quality whey protein at affordable prices.
4. **Negotiate Better Trade Deals with Foreign Countries**: Negotiating to secure more favourable trade deals with countries that produce whey protein can reduce import costs and improve supply chains. Such agreements should focus on reducing tariffs and non-tariff barriers, ensuring that Indian consumers have access to competitively priced whey protein.
5. **Enhance Innovation in the Dairy Sector**: Fostering innovation requires investing in research and development within the dairy sector. This includes developing new, higher-quality products catering to evolving consumer tastes and preferences. Encouraging collaboration between academic institutions, private companies, and cooperatives can lead to breakthroughs in product development and production techniques, enhancing the overall quality and competitiveness of Indian dairy products.

By implementing these policy recommendations, India can address the demand-supply gap in whey protein, enhance the productivity and quality of its dairy products, and support the growth of the private sector in the dairy industry. These measures will contribute to the overall competitiveness of India's dairy sector, ensuring sustainable development and better nutrition for the population.

VI. Annexure

Tariffs and non-tariff measures against dairy exports from India by various countries (Source: FICCI Report).[34]

Country	Import Restrictions Against India
China	The world's largest importer of dairy products does not permit import from India due to a reciprocal ban.
Russia	Requires their veterinary control team to approve India's plants. For the last four years, there has been no approval for the Indian dairy industry
European Union	Do not approve any Indian dairy plant (for exports) under the pretext of veterinary control, Antibiotic and Pesticide residue, etc.
Canada	The Canadian Food Inspection Agency does not permit the import of dairy

	products from India and imposes an Import duty of around 250%.
Indonesia	It requires approval from the MUI (Halal) and Agricultural Departments—the MUI team visits for plant inspection.
Malaysia	Requires JAKIM (Halal) approval. Visits for plant inspection once in 2-3 years and inspects the minimal number of plants.
USA	Import duty of 40 to 60% on dairy products from India
South Africa, Mexico, and Venezuela	Do not allow the import of dairy products from India.
Australia	Do not permit the import of dairy products from India due to Foot and Mouth Disease (FMD). Only retorted products are allowed.
Egypt / Saudi Arabia	Follow EU standard for Aflatoxin and have stopped Indian milk powder imports.

Pakistan	45 % import duty on SMP and does not permit import of other dairy products.
Sri Lanka and Bangladesh	30% import duty on dairy products
Myanmar and Philippines	There is a lengthy registration process for dairy imports
Afghanistan	Though a large importer, the goods have to be routed via Karachi (because banks do not permit the Iran route)
Thailand	More than 40% import duty

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