
Linkages between Value Addition, Employment and Farmers' Income

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ABSTRACT

India has made significant strides towards growth, so much so that today it is well beyond a self-sustained unit – it is one of the world's fastest growing economies and a vital cog in the world economic engine. There is sufficient data available on this which breaks down the growth numbers into sectors showing clear contributors towards national gross domestic product. India's services sector is the biggest contributor, followed by industries and allied sector and finally agriculture. If one analyses the agriculture sector's growth, one clear fact that emerges is, that we have achieved very high levels of productivity and in fact our farmers are matching the increasing demands across all products (food grains, fruits and vegetables, meat, poultry, livestock and milk, etc.). Despite high productivity and record bumper outputs, our agricultural sector remains in a constant state of distress. To top it all up, the limited employment options in agriculture sector has almost stagnated with abysmally low incomes, wastage of produce and a lack of appropriate infrastructure hurting our farmers badly. Rapid changing texture of agricultural production, rising input costs and food inflation has resulted in non-remunerative returns to the farmer. Therefore it becomes imperative to study and devise feasible strategies on how farmer's incomes can be improved. This can be done partially by means of favourable policy formulation and partially by generating enough incentives for the potential investors and farmers on the ground. This is where value addition in agriculture can play an important role in enhancing the economic value of the agri-produce. The study emphasises why it is pertinent to move from "agriculture" to "agri-business" mindset, how value addition on farm produce can generate rural employment and significantly improve farmers' income. It has also touched upon other critical success factors like agri-marketing in the value chain process.

Keywords: Farmer's income, agri-business, agri-produce.

JEL: Q11, Q13, Q18

I

INTRODUCTION

The Indian economy has witnessed a sequential and steady transformation in last two-three decades. The economic transformation is not just in size but also in terms of its basic structure, i.e., from being an agriculture-driven economy, to an economy now driven predominantly by services and industries. In 2018, India's gross domestic product (GDP) stood about \$2.69 trillion and it is expected to touch around \$2.97 trillion in the year 2019. Despite this economic transformation agriculture still contributes about 16.4 per cent of the total gross value added (GVA) and is a source of livelihood for a vast majority of the population (about 52 per cent of the national workforce).

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To begin with, we look at how Indian agriculture itself has transformed by shifting from subsistence farming to a state of surplus. Starting with Royal Commission of Agriculture in 1926, through to the National Commission on Agriculture 1970 and subsequently down to National Commission for Farmers 2004, the primary goal from government has continued to focus on rapid inclusive growth for all the farmers. In summary, historically our policies have focused more on enhancing production of staple grains such as rice and wheat, thereby establishing food security. One might argue that despite all this, millions of poor still suffer from hunger, but the fact remains that if Indian agriculture had not invested in productivity improvement initiatives such as the Green Revolution, the number of people going hungry without food would have been far more. It would have been a grave situation which would have pushed India in dire circumstances. It is important to mention a severe side-effect of the policy push on productivity of staples – it made other non-staple/perishable agri-products such as fruits, vegetables and livestock less attractive, thereby, farmers are unable to diversify their production systems in response to rapidly increasing market demands (Pingali, 2019). However, evidences from developing countries emphasise the adoption of agricultural diversification as a significant component for realising higher output growth, higher farm income, employment generation, sustainability of natural resources and poverty alleviation (Kumar and Gupta, 2015)

Majority of the Indian states have adopted the practice of crop diversification and are actively involved in production of various agricultural commodities and if this surplus is processed and marketed domestically and internationally, it will create opportunities for income enhancement for farmers and generate employment. There have been significant increases in marketed surplus ratio of various food grains during the last decade. In case of rice, marketed surplus ratio increased by 15.5 percentage points (from 61.7 per cent in 1999-2000 to 77.2 per cent in TE 2011-12), wheat by 13. per cent, maize 16 per cent, barley 16.9 per cent and gram by 13.5 per cent (Sharma and Harsh Wardhan, 2015) hence it becomes imperative to take steps towards reinforcement of link across production, processing, marketing and crop management.

An efficient, competitive and accessible market with adequate post-harvest and marketing infrastructure can potentially achieve its core objective of generating net positive returns to the producer thereby handling the surplus thus produced. However, the existing markets have their own set of issues related to infrastructure, a report by Government of India (2013) says that covered and open auction platforms exist only in two-thirds of the regulated markets; just one-fourth of the markets have common drying yards. Cold storage units exist in less than one-tenth of the markets and grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets. The report also added that the post-harvest losses of various commodities ranged from 6 to 18 per cent. Therefore, farmers have no choice but to demand higher minimum support price (MSP) and procurement. Additionally, it is a

well-established fact that agricultural marketing in India suffers from inefficiency, there is a clear disconnect between the prices received by producers and the prices paid by consumers, there are fragmented marketing channels, made worse by poor infrastructure and policy distortions (Chand, 2012), all of which contributes negatively towards farmers' income growth. In the light of the Government's vision to double farmers' income by 2022, it entails an urgent need for putting in place better farmer-market linkages through developing and upgrading Gramin Haats as Gramin Agricultural Markets (GrAMs) and declaring warehouses/cold storages as market sub-yards, promoting scales of economy in production and post-production activities through active participation of Farmer Producer Organizations, squeezing food supply chain through direct marketing in every forms of wholesale and retails (farmer-consumer market), symmetrising market information, promoting market driven production through a demand based market intelligence and price forecasting system and promoting quality management of farmers' produce (NABARD Operational Guidelines 2018). Further, by selling agriculture and allied products in more marketable and processed form by farmers themselves in the market may considerably enhance their income.

It is to be accepted now, that investments in post-production and market connectivity are key to advancing agricultural growth, as well to ensure the resilience of the sector (Government of India, 2017). In countries like India where the existing infrastructure for agro-processing is inadequate, but demand for processed food is increasing, multiplier effect of institutional and infrastructure development in terms of income and employment generation in the primary, secondary and tertiary sectors would be enormous (Birthal *et al.* 2005).

II

EXISTING CHALLENGES IN THE AGRICULTURAL MARKETING SYSTEM IN INDIA

Some of the key challenges being experienced in the agricultural marketing in India are listed as follows:

- (A) Post-harvest losses – The first and the foremost challenge comes in the form of post-harvest losses incurred by Indian agriculture. The extent of the problem can be gauged by the stupendous post-harvest loss of Rs. 76,000 crores per annum. Most of these losses are preventable by establishing efficient agro-processing centres having backward linkage with farmers. That will ensure there is uninterrupted supply of quality input food materials. Post-harvest processing aims to minimise losses (reduce wastage) and perform value addition on the raw input food material via preservation and processing. At a high level, there are two stages in food processing. Stage one is where the raw food materials are washed, cleaned, graded for further processing or storage. In stage two, processing is performed to make raw food edible via primary and secondary processing and

further 'ready to eat' via tertiary processing. As the term implies, at each stage the commercial value of the food commodity is enhanced. Roughly, the value additions to the raw food materials through primary and secondary/ tertiary processing in India stand at approximately 75 and 25 per cent respectively.

- (B) Markets far or few - There is a huge variation in the density of regulated markets in different parts of the country, which varies from 118.78 sq km. in Punjab to 11215 sq. km. in Meghalaya. The all-India average area served by a regulated market is 487 sq. km, against recommendation of National Commission on Farmers (2006) that a regulated market should be available to farmers within a radius of 5 Km (corresponding market area of about 80 sq. km.). Data indicate that to meet the norm as suggested by NCF, there is a need to have about 41000 markets in the country in place of existing 6746 regulated markets. Developing new markets may neither be feasible nor economically viable; therefore, these existing periodical markets need to be adequately developed by Panchayati Raj and Rural Development Ministries in planned and time bound manner to bridge up this gap."
- (C) Product type – Given the very nature of agricultural produce, most of the commodities are perishable, which means, the produce should be stored in time for future use else it will simply perish. Lack of process knowledge in this area is absent amongst majority of the farmers, which eventually leads to post-harvest losses.
- (D) Crop diversification – Most of the farmers continue to stick to traditional production of food grains and or vegetables. Those who are able to diversify their produce by switching/rotating commercial cash crops or crops that meet seasonal market demands can withstand poor demand/crop losses shocks and sustain their farming in the long run. Many farmers unfortunately still are unable or do not want to diversify their produce which needs to change.
- (E) Farmers leaving the profession – Owing to multiple reasons, labour force in villages is steadily moving towards industries, low or unassured income from agriculture and generational shift in job preferences is making many farmers abandon agriculture. Whatever knowledge they acquire over the years on agricultural marketing also goes with them.
- (F) Poor marketing information systems – What to produce and when to sell, this information should ideally be easily available to the cultivators so they can produce and market their produce for handsome returns. However, majority of farmers in India do not have reliable sources of market information. They rely on experience or their farming community for guidance on market demands, which is not accurate and can be misleading at times.
- (G) General lack of awareness on “branding” amongst majority of farmers – Farmers lose lots of potential business opportunities because they do not know about the concept of product branding. Their produce might be unique in one way or the

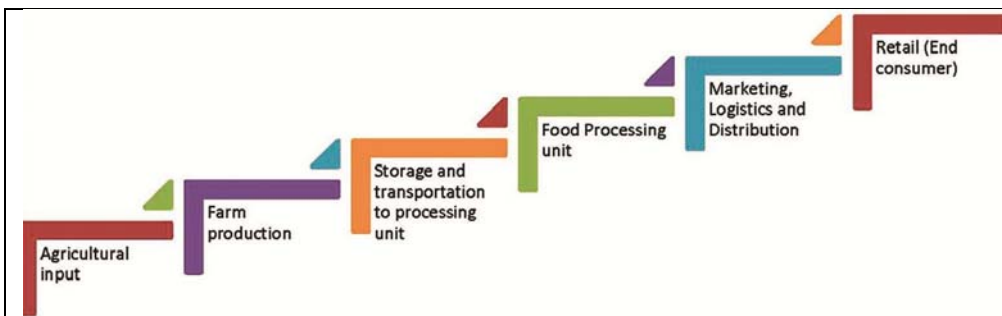
other yet they do not give it their own unique identity or a brand. Hence their produce loses its niche or uniqueness and unable to compete better.

In summary, we have an unfortunate and a grim situation where about 40 per cent of produced fruits and vegetables are simply lost every year in the supply chain. Some of the main factors contributing to this are lack of appropriate storage facilities or warehousing made worse by poor last mile connectivity. With worsening climate changes, things are just going to get far from better. It is amply evident that the states alone cannot transform the agricultural marketing sector as they do not have sufficient funds and lack technology modernisation roadmap. All this would require massive equity investments from various private players, without which improvements will be just too slow to recognise the associated benefits.

III

VALUE ADDITION IN AGRI-PRODUCE: HOW VIABLE A SOLUTION?

By definition, value addition is enhancing the economic value of any raw produce by processing or transforming it into some other shape or form. In the context of agriculture, a raw farm produce (grain/vegetable/fruit/meat/poultry/fish/milk), can be processed in many ways, e.g., by milling or dehydration, after which its shelf life increases and its attributes are enhanced to what is preferred in the market place. So, flour from wheat is actually an input product required by a baker and he pays the value for flour not the wheat. Subsequently, the baker then applies further processing and turns the flour into a cake or bread loaf, thereby transforming the attributes of the wheat flour into something desirable by the end consumer. After every step, the economic value of the raw wheat grain increases. There are many ways in which value can be added to agri-produce –preservation, grinding, freezing, dehydration and fortification to name a few. All these are deployed in the food processing industry worldwide.



Source: Grand Thornton- ASSOCHAM Report 2017-Food processing sector challenges and growth enablers.

Figure 1. Stages in Value Addition in Agri-Produce.

As the Figure 1 depicts, value addition process begins with selected agricultural inputs (soil, seeds, fertilisers, water etc) which is then farmed in large fields by farmers. Once the agricultural produce is ready, it is harvested at the farm, stored for consumption or transported further for processing. At the food processing unit, raw food material is washed/cleaned, weighed in and graded. Post gradation, it is processed (primary/secondary/tertiary processing) and packed for storage (dry or deep freeze as required) and ready for shipping. Logistics and distribution company then picks up the packed and processed food commodity and ships it out to wholesalers or retailers for end consumer sales. While this value addition chain exists in India today, given the surplus and post-harvest losses, value addition processing has immense scope for improvement and application on a massive scale.

IV

LINKAGE BETWEEN VALUE ADDITION IN AGRI-BUSINESS AND EMPLOYMENT

A well developed and technologically advanced food processing sector helps in reduction of wastage, increases value addition, promotes crops diversification, ensures higher returns for the farmers, generates employment and increases the national export earnings. By its very nature (the fact that food processing runs on the lines of manufacturing), the food industry plays a very important role in employment generation. The food processing industry in fact is a vital linkage between agricultural sector and manufacturing sector. Agriculture sector in India is increasingly unable to productively absorb the growing rural labour work force. Simultaneously, non-agricultural activities in the rural areas has grown, especially in construction, trade and services, they have generally offered better earnings than agriculture. However, these employment opportunities have been more of temporary and casual in nature. Compounding the problem, due to technological compulsions and cost pressure, many traditional jobs have become redundant and rural workers are viewed more of casual work force. Hence, the gap between job seekers in rural areas and employment opportunities in the agricultural sector has been widening and non-farm sector has become an increasingly important source of livelihood. The food processing industry hence has an important role to play in bridging the employment gaps in agriculture sector.

As per the annual report for the year 2018 by Government of India (Ministry of Food Processing Industries), during the last 5 years ending 2017-18, food processing sector has been growing at an average annual growth rate (AAGR) of around 8.41 per cent as compared to around 3.45 per cent in agriculture at 2011-12 prices. Food processing sector has also emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and investment. The sector constituted as much as 8.83 per cent and 10.66 per cent of GVA in manufacturing and agriculture sector respectively in 2017-18 at 2011-12 prices.

TABLE 1. CONTRIBUTION BY FPI TO GVA AT CONSTANT (2011-12) PRICES

Economic Activity	2011-12	2012-13	2013-14	2014-15	2015-16
(1)	(2)	(3)	(4)	(5)	(6)
GVA-FPI	1.47	1.33	1.35	1.52	1.62

(Rs. lakh crore)

Source: Annual Report (MOFPI), 2017-18, <http://www.mofpi.nic.in/documents/reports/annual-report>

An analysis of Table 1 above shows that since 2011-12, the gross value addition (GVA) by the food processing industry (FPI) has consistently grown from 1.47 lakh crores in 2011-12 to 1.62 lakh crores in 2015-16.

According to the ASI report 2014-15 (Annual Survey of Industries), in terms of the characteristics of the industries, food products industries top the number of factories (15.79 per cent) and number of factories in operation (16.53 per cent). Hence as supported by forth mentioned data, food products industry has the largest number of factories and engages the largest number of employees as well. The same report goes on to add that food products industry does not appear in top five in terms of fixed capital thereby meaning that this industry continues to be highly labour intensive per unit of capital. Despite low capital intensity, the output of food processing industry is not compromised as it is second largest in the industry. Figure 2 below depicts the employment numbers for period 2009-10 to 2014-15.



Source: Annual Survey of Industries report 2014-15.

Figure 2. Persons Employed in Registered Food Processing Units (in Lakhs).

As shown in Figure 2 above, the number of people employed in the registered food processing units in India, grew from 16.06 lakhs to 17.73 lakhs in 2014-15, a growth of 10.4 per cent.

According to the NSSO 67th Round, unregistered food processing sector supports employment to about 47.9 lakh workers and constitutes 13.72 per cent of

employment in the unregistered manufacturing sector. Indian agriculture has marked its presence at the global level. India is world's largest producer of milk, pulses and second largest producer of rice, wheat, fruits, vegetables, sugarcane. India's food grain production crossed 250 million tonnes during the year 2011-12. Rice production crossed 100 million tonnes and wheat production crossed 90 million tonnes.

Food Processing Industries and Exports: According to available data (shown in Table 2), the processed food is a significant contributor in India's exports. The value of exports of processed food by India in 2016-17 was around US\$ 30.87 billion or 11.19 per cent of India's total exports in that period. In 2018, India's imports of processed foods and related products from all sources were US\$31.6 billion, while the exports totalled US \$59 billion. Food processors, importers, wholesalers, retailers, and food service operators are all part of a developing agribusiness sector; hence food processing industry has a high potential for employment generation.

TABLE 2. YEAR WISE EXPORT OF PROCESSED FOOD PRODUCTS

Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
(1)	(2)	(3)	(4)	(5)	(6)	(7)
FPI-Exports (M USD)	35898.06	38051.43	36171.92	29672.37	30871.47	31600.02
Growth (per cent)		6	- 4.94	- 17.97	4.04	2.36

Source: Annual Report 2017-18 MOFPI, <http://www.mofpi.nic.in/documents/reports/annual-report>.

Food processing, combined with right marketing strategy has the potential of fixing the prevailing fundamental issues of agricultural surpluses, wastages, rural jobs, and better remuneration to the producers. Blessed with reasonably high cultivable land, varying seasons for producing different varieties of fruits and vegetables and backed by years of traditional knowledge of food preservation/processing and technological advancements, India can be a world leader in food processing industry.

In summary, value-added agriculture generates several billion dollars as a direct impact for India every year. It is a data proven fact that adding value to agricultural products past the farm has multiple times the economic impact of the agricultural production alone.

V

KEY DRIVERS FOR VALUE-ADDITION IN INDIAN AGRIBUSINESS

Some of the key drivers which are pushing the growth of food processing industry in India are briefly covered as follows: -

- *Transformation in Demographics* – The composition and structure of India's population has transformed itself over the last five to six decades. The current population of India is about 1.3 billion and it is a mostly young population. The

median age in India is 27.9 years (2016), this is still much lower than the developed nations which have an ageing population. Furthermore, in 2018 India's urban population was 33.5 per cent of the total population, out of which approximately 61 per cent of population is below the age of 35 years. This young and urbanised population is well informed, has cosmopolitan aspirations, desires and international exposure which has changed their personal dietary preferences.

- *Higher Disposable Incomes* - According to the Government of India, the national per capita income during the period 2016-17 was U.S. \$1,599 (INR 103,291); which is an increase of 9.7 per cent over the previous period. This has been gradually and steadily increasing for some time now. With the growth in income, the consumer's discretionary spending has also increased.
- *Increase in Women Workforce and Urbanisation* - Urbanisation and the increasing number of working women has pushed many women out of the kitchen thereby forcing such consumers to opt for convenient products. More and more households are now buying packaged products against unpackaged and branded products as against unbranded ones. Additionally, modern consumers have are very health conscious, which means they are more informed than ever and make choices based on health and nutritional contents of the food.
- *Increase in Demand from Food and Beverages Industry* – There is a significant shift in demand for restaurants in India. Outside dining is an experience which every consumer in one way or the other experiences more and more frequently these days. Whether it is a casual dining restaurant (CDR) or a quick service restaurant (QSR), people are out in numbers availing their services. Also, the restaurants have moved from serving Indian cuisine to international cuisines with an Indian twist, i.e., fusion food. Many of the restaurants require ready to heat products to quickly serve their customers hence there is a large demand and market for processed foods in these areas.
- *Increase in Organised Retail and E-Retail* – The emergence of modern retailers in a country's food retail markets also effects agricultural production and farmers, as super-markets build new supply chains or modernise existing ones to facilitate the enforcement of stringent quality standards (Trebbin, 2014). Though small, neighbourhood outlets continue to dominate the food retail sector and account for 98 per cent of sales, in parallel new retail chains offering a consumer-friendly shopping experience are emerging especially in the urban areas. The number of organised retail stores exceeded 5,300 in the year 2016. Thanks to a booming mobile penetration, access to online retail stores has also become easy. Many online apps give an easy option for a consumer to pick and order products in the comfort of their homes. These stores offer huge number of processed food options to pick from.
- *Government Initiatives and Favourable Policy Formulation* – Realising immense potential that lies in this sector, government has also taken special interest to encourage private sector investments in agricultural and food supply chains, and

hence successively reduced restrictions against foreign direct investment (FDI) in these areas, and worked towards favourable policy initiatives such as Make in India (Mega food parks with supporting infrastructure), FDI in retail and Make in India with ease of business (Investor portal 'Nivesh Bandhu'), tax holiday/incentives schemes, waiver/discounts on custom duty, food testing laboratories and most recently the Pradhan Mantri Kisan Sampada Yojna PMKSY. All these initiatives are meant to attract adequate investments and promoting the overall industry. In recent years Government of India has initiated a number of reform measures related to agriculture marketing which are likely to have far reaching positive impact on farmers' income. Launching of electronic National Agriculture Markets (eNAM) is one such measure. It would interlink various agri markets within the State and the country by creating a unified market through online trading platform, both, at State and National level. The eNAM is expected to promote uniformity in agriculture marketing by streamlining of procedures across the integrated markets, removing information asymmetry between buyers and sellers and promoting real time price discovery based on actual demand and supply.

All the above factors are making the food processing industry more attractive and commercially viable investments, thereby spurring the growth of this segment.

VI

KEY ISSUES AND CHALLENGES IN THE VALUE-ADDED AGRI-BUSINESS IN INDIA

- 1) *Inadequacies in Supply* – The small and marginal farmers with less than two hectares of land account for 86.2 per cent of all farmers in India, but own just 47.3 per cent of the crop area, according to provisional numbers from the 10th Agriculture Census 2015-16. Further, these 126 million farmers together own about 74.4 million hectares of land, an average holding of just 0.6 hectares each which is not enough to produce surpluses which can financially sustain their families, explaining the rising distress in Indian agriculture. On top of this, the high dependency of monsoons results in varying farm outputs thereby affecting steady supply of raw materials to the food processing industry.
- 2) *Food Wastage* – According to a study done by CIPHET (Central Institute of Post-Harvest Engineering and Technology) in 2015, food wastage (food considered unfit for human consumption) losses amounted to a staggering Rs.92,651 crores (ICAR-CIPHET, 2015). Most of the wastage is in fruits and vegetables produce. With adequate food processing storage and facilities, this wastage can be minimised thereby giving decent remunerative prices to the farmer and also ensure sustained supply to the industry.
- 3) *Gaps in Supply Chain Infrastructure* – Lack of primary processing, storage and distribution facilities still exists which needs to be addressed by the government.

There is also institutional gap as procurement is highly dependent on APMC markets, which leads to delays in start of food processing itself.

- 4) *Shortage in Skilled/Trained Manpower* – There are strong deficiencies in the technical know-how/support, shortage of skilled, semi-skilled and unskilled workers in the market which needs to be fulfilled to match the market demand potential. There is also a lack of product development and Innovation in the industry, companies can stretch their R&D expenditures to address key issues. The role of the market as knowledge and information exchange amongst the converging farmers needs to be appreciated and harnessed. There is a need for greater synergy between extension services and market. State Marketing Departments and Boards, APMCs, Krishi Vigyan Kendras (KVKs), Marketing Cooperatives, NGOs and PRIs should pay increasing attention to train the farmers in marketing related skills like quality standards.
- 5) *Inadequate Focus on Quality and Safety Standards* – Instead of standard quality and safety laws, in India, there are multiple food safety regulations and laws governed by different ministries. This leads to inadequate focus on the expected international standards due to which our industry is unable to fulfil international demand.

VII

CONCLUSION

There was an increase in the number of small and marginal farms by 9 million in the period 2011-15. This meant, consolidating the size of holdings for all farmers, the size of average land holding declined from 1.15 hectares in 2010-11 to 1.08 hectares in 2015-16. “The rise in the number of small and marginal farmers signifies that the rest of the economy is unable to absorb the surplus... India has to live with its small-sized farms for the next two decades and the way out is to provide them access to the best technology and markets, the way China did it,” according to Ashok Gulati, an agriculture chair professor at the New Delhi-based Indian Council for Research in International Economic Relations.(Press Information Bureau of India). This has led to a constant agrarian distress, hunger, poverty, malnutrition, climate change and many unemployed youths in the country.

In order to reap the demographic dividends, end to end linkage between all components of the value-added agri-business has to be established and employment will generate itself. This seems to be the only practical and sustainable way ahead. Migration of agricultural labour to non-farm sector will continue for decades to come and the economy should be able to absorb all such labour into more constructive and productive activities. The demand for processed foods is also set to grow every year as urbanisation picks up pace. Ultimately, if we are not able to cope up with the rapid pace of growth, we will miss out on golden opportunity to bring rural workforce in the mainstream.

Despite the immense possibilities the food processing sector possess, all the potential largely remains untapped. All this requires a change in mindset of relevant stakeholders in the industry and increased investments from the private sector. The government has to continue to play its crucial role as the facilitator and policy maker to support intensive and inclusive growth in this industry. India is poised to take a lead in the processed food market with right investments in technological innovations, sufficient investments, govt support and right logistical infrastructure. However, the challenge is to ensure that these drivers of growth are associated with the creation of more decent jobs that are accessible to youth, women and social groups across the country, particularly in rural areas.

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