एपीडा
APEDA

सत्यमेव जयते
Ministry of Commerce and Industry
Government of India

सत्यमेव जयते
MOFPI
Ministry of Food Processing Industries
Government of India

FICCI
Federation of Indian Chambers
of Commerce and Industry

Flavours of incredible India

Opportunities in the food industry

ERNST & YOUNG
Quality In Everything We Do

Table of contents

Message from the Chairman 1

Foreword 2

1. Introduction 3

    An overview of the Indian food landscape 5

2. Executive summary

3. Value chain stakeholders 14

    i. Consumers: defining demand 37

    ii. Creators: producing to meet demand 52

    iii. Contributors: supporting the consumers and creators 93

4. Tertiary stakeholders

About FICCI

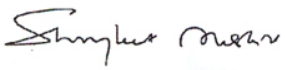
Message from the Chairman

The food processing industry in India is one of the largest in terms of production, consumption, export and growth prospects. Buoyed by a favorable policy environment and demand push impact of a young consuming class with growing disposable incomes, India offers significant investment opportunities in the food and agri- business sector and is likely to become a world player in this business.

By 2015, the Indian food industry is expected to reach USD258 billion from the current level of USD181 billion. This growth is expected to be sustained till 2020, where the industry size is expected to touch USD318 billion. India is making an important mark in the global food arena – both as a large producer and exporter of agriculture products and as a very large and growing market for processed foods.

Considering the growth witnessed by the sector in the last decade, and further improvement in growth rates in the years to come, this sector presents varied opportunities for investment across the entire agri-value chain.

I am confident that this joint effort by FICCI and Ernst & Young will be instrumental in further strengthening the global ties between India and global food business, by highlighting the investment attractiveness and business potential in the agri-food business sector.



Mr. Shrijeet Mishra
Chairman, FICCI Food Processing Committee

Foreword

The Indian food industry is a significant part of the Indian economy with food constituting about 30% of the consumer wallet. With a vast consumer base that is growing and with a strong base for food production, the sector presents a good opportunity for all players. If we look at the food sector, there are some clear opportunities for growth in the future.

1. An increase in per capita disposable income by 8% over last five years which has led to an increase in per capita consumption expenditure on food by 20% over the same period. A large part of the increase in income will go towards expenditure on food as the data clearly suggests. The current per capita expenditure on food is 1/6th that of China and 1/16th that of US with a significant opportunity for growth in the future.
2. Growth in the size of the middle to very rich class which is projected to increase at more than 300% between 2005 and 2015. During the same period the youth population (age group 15 – 25) in India is expected to grow by 11%. This will lead to an increasing demand for food products to meet demands of convenience, variety, health and a changing palate.
3. Emergence of Tier 1 and Tier 2 cities which will present a key opportunity for future growth due to rising income, increased awareness and limited availability of products currently in these markets.

India is a one of the largest producers of agri, milk and meat products. Considering the current yield which is the lowest amongst the BRIC countries, this presents a significant opportunity for growth to meet the increasing demand for food. The contributors or producers can look forward to increase yield substantially through better technology and processes. As a result, this sector presents opportunities for participation amongst players in farming, infrastructure, storage and logistics, etc. to meet the demand of food products both locally as well as the international markets.

Some of the key opportunities in the food sector in India include:

- Driving growth in food consumption and spending through increased market penetration, addressing new emerging markets and launch of new value added products to meet the needs of convenience, health and variety.
- Supporting the Indian creator by providing technology to improve yield, faster and improved access to credit and better sourcing to maximize returns for the creator.
- Re-organizing the supply chain to enable reduction of post harvest losses especially in fruits and vegetables which now amounts to up to 25% by value. This would mean an opportunity to set up warehouses, cold stores and logistics infrastructure.
- Launching products and increasing penetration of tertiary and processed foods which has a huge potential for growth. Tertiary processed foods currently account for almost 26% of the consumption with a large part of just beverages and oil.
- Creating a base for exports of value added food products with current exports of tertiary food products only at 9% of overall food exports.

We have spoken to a number of industry experts and organizations to validate some of our findings and I would like to take this opportunity to express our gratitude to all of them. I would also like to thank the Ministry of Food Processing and APEDA for their support and to FICCI for partnering with Ernst & Young for this report.

We hope the report will be useful and look forward to your inputs and feedback. We also hope this report will encourage a greater participation by international companies in the Indian food sector.

Pinakiranjan Mishra,
Partner & National Leader
Retail & Consumer Products Practice

1.

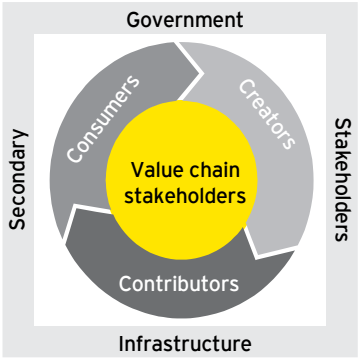
Introduction

The Indian food industry represents an important and socially impactful business within the country's economy. With an addressable population of more than one billion individuals and food constituting a major part of the consumer's budget, this sector has a prominence next to no other businesses in the country. India is also one of the largest producers of food products, which are largely consumed locally. There is a tremendous scope for improving production, introducing new food products to suit the changing tastes of the Indian consumer and for future export.

This report, an effort by Ernst & Young and FICCI, aims to highlight the following:

- The current and future landscape of the Indian food industry and its key stakeholders
- The opportunities it presents
- The challenges associated and the key requirements for success

The Indian food sector can be analyzed by using a model based on key stakeholders, primarily consisting of the two categories of stakeholders, one that is included in the value chain and the other that plays a key role in supporting or influencing the value chain.



- **Value chain stakeholders** – The value chain stakeholders are the three Cs of the food business viz. consumers, creators and contributors.

  "Consumers" – This includes the consumers of various food products either in the domestic or the export market.

  "Creators" – The creators are the ones producing to meet customer demand, covering the agricultural and farming landscape in India. They would include all the farmers growing food products, raising livestock, etc.

  "Contributors" – The contributors are defined as those supporting the creators to connect with the consumers. They would include delivery intermediaries, commodity exchanges, processing and manufacturing companies and retailers.

- **Tertiary stakeholders** – The tertiary stakeholders primarily cover the following :

  "Infrastructure" – This includes the infrastructure used by the food sector including the delivery and storage infrastructure.

  "Government" – The government policies that impact the sector either in a direct or indirect way.

An overview of the Indian food landscape

India, with access to a large natural resource base and diverse agro-climatic conditions, offers favorable conditions for food production to flourish

Land resources	Area	Global rank
Arable land (million hectares)	161	2
Irrigated land (million hectares)	55	1

- Globally, India has the largest irrigated area under cultivation.
- 52% of this irrigated area can be cultivated as compared to a world average of 11%.
- 46 out of 60 soil types are present in India.

Water resources	Length/ area	Global rank
Coastline (km)	8,041	19
Fresh water reservoirs (million hectares)	15	

- Ample supply of fresh water for human, plant and animal consumption.
- Over 1,350 landing centers and 3,300 villages from 13 states engaged in fishing as their secondary activity.

Animal resources	Number	Global rank
Cows (millions)	176	1
Buffaloes (millions)	98.7	1
Goats (millions)	125	

- India has the largest livestock population.
- It has a balanced bio-diversity.
- In India, there is easy access to domestic animals such as cows, buffaloes, goats, chicken, lamb, sheep, fish, etc.

Climatic conditions	Types
Variety in climatic zones	26

- India has over 26 types of climatic conditions, which provides a competitive edge for naturally cultivating a large variety of farm produce.

Source: Ministry of Food Processing Industries, Vision Document 2015

The Indian food industry has been analyzed into three broad categories:

1. Agri-products: covering grains and cereals, oils and oilseeds, fruits and vegetables, and beverages
2. Milk and milk products
3. Meat, poultry and marine products

These products are consumed through three levels of processing, depending on the food category and the product.

1. Primary processed – relates to products which are consumed in the original state, as they are produced with no value additions being made
2. Secondary processed products – relates to basic level of processing of products which may include grading, sorting, cleaning, cutting, etc. before they are consumed
3. Tertiary processed products – relates to high value addition to the products which results in the output being in a different form and shape as compared to the original production

Indian food industry

	Food processing		
	Primary processed – Basic	Processed – Secondary	Processed – Tertiary
		Examples of key products	
Agri products	Fruits and vegetables	Pulp, flakes, dried, flavored, preserved, paste, sliced, etc.	Ketchups, jam, juices, pickles, preserves, candies, chips, etc.
	Grains and cereals	Rice puff, flour, malt, rawa,[1] brokens, etc.	Biscuits, noodles, flakes, cakes, namkeen[2]
	Oilseeds	Oil cakes	Sunflower, groundnut, mustard, soya, olive oil, etc.
	Beverages	Powder, dust, leaf etc.	Tea bags, flavored coffee, soft drinks, alcoholic beverages
Milk and milk products	Milk	Khoya,[3] cottage cheese, cream, etc.	Processed milk, spreadable fats (butter and cheese), yoghurt
Meat and marine products	Meat and poultry	▸ Cut, dried, preserved, frozen, chilled ▸ Eggs	▸ Preparation such as ready-to-eat meals
	Marine products		

1. Rawa – milled wheat
2. Namkeen – Indian snack food
3. Khoya – reduced milk derivative used in a variety of Indian snacks

2.

Executive summary

India is one of the world's largest producers as well as consumers of food products, and the sector plays an important role in the Indian economy. This industry is supported by the agriculture sector, which is a significant economic component, employing nearly 60% of the country's population and contributing to around 25% of India's gross domestic product. With access to a large natural resource base of 161 million hectares of arable land, 15 million hectares of fresh water reservoirs, the largest livestock population in the globe and diverse agro-climatic conditions, India is a favorable destination for growth in the food industry.

However, there is much which remains to be known about India's food industry and how it will evolve in the future. What are the current consumption patterns of the Indian consumer? How will the industry grow? What opportunities will this growth offer? How can India meet these future requirements?

We have provided a brief outline here of our key findings. A detailed analysis of these findings can be found under the individual main chapters of the report.

Food is the biggest consumption category in India with spending amounting to about 21% of India's GDP

The overall consumer spending on food stands at USD181 billion currently and constitutes the largest portion of the Indian consumer's spending — more than a 31% share of the wallet. During the period of 2004 to 2008, there was high growth recorded in the Indian food industry, from USD141 billion to USD181 billion, a compounded annual growth rate (CAGR) of 6.4%. This increase was driven by the growth in India's GDP which resulted in an increase in consumer disposable income.

Along with the strong fundamental growth of the economy which provided a push to consumption, there was an increased market penetration by domestic and international food players which resulted in availability of products and provided the required impetus for consumption.

Agri-products remains the largest consumption category, while milk and milk products and meat and marine products have shown higher growth

As much as 70% of the current food spending by the Indian consumer is on agri-products. Additionally, two-thirds of this spending is on primary and secondary processed products. In agri-products, fruits and vegetables (F&V) is the largest consumption category and accounts for over 50% of the total consumption.

While, milk and milk products and meat and marine products contribute the remaining 30% of consumer food spending, they have been growing at a faster rate as compared to agri-products. This has been driven by the rise in disposable income along with a steady rise in the youth population where the acceptance of meat and marine products is higher. Further, in case of milk and milk products, the presence of established and organized players has resulted in increased availability and accordingly increased consumption of these products.

A low consumption base of tertiary value added processed products offers a potential to drive and increase usage

Of the total Indian consumer spending on food, USD47 billion (26%) is on tertiary value-added processed products. Of this spending, beverages and oil and oilseeds account for more than a 50% share since these products are mostly consumed in the tertiary processed form. The traditional habit of the Indian consumer is to buy products in the basic or primary form and then process them at home. This is largely due to the fact that Indian women or the available domestic help have time at home to cook and freshness is considered an important element of the Indian diet. The availability of cheaper alternatives in the unbranded or the primary form has also impacted the consumer's spending on these products and resulted in more consumers spending on unbranded/primary products.

Total domestic food spending is expected to reach USD318 billion by 2020 from the current level of USD181 billion, at a CAGR of 4.8%

By 2015, the Indian food industry is expected to reach USD258 billion from the current level of USD181 billion. This growth is expected to be sustained to 2020, where the industry size is expected to touch USD318 billion

Socioeconomic and lifestyle changes are expected to drive the growth of the industry and also result in a transition of the Indian consumer's consumption patterns

The key socioeconomic changes which will impact the growth of the food industry are:

1. A fourfold growth in the size of Indian households in the middle to very rich class which will result in the Indian household consumption to doubling by 2015
2. An increase in the youth population in the country
3. A growing migration of population from rural India to urban India

Along with the socioeconomic changes, there are key lifestyle changes expected which will result in a transition of the consumer's consumption patterns

- A growing number of nuclear working families who have limited time for cooking and hence are driven by a high need for convenience.
- An increasing incidence of lifestyle diseases such as diabetes, asthma and obesity resulting in a demand for heathy products.
- A growing level of international exposure, which has led to consumer awareness of newer concepts in international cuisines along with an acceptance of such products.
- An increased consumer awareness driven by media penetration and celebrity chefs promoting new cuisines and product categories. This phenomenon is not restricted to urban areas, because rural Indians are often exposed to such processed products through their urban family members.

These lifestyle changes are expected to create a demand for products which meet the needs of convenience, health and variety. This also provides an opportunities for companies to increase consumption in new and high value added processed products and to reach and target beyond the Indian metro cities.

- Food companies can look at increasing the per capita consumption and spending of the Indian consumer through new product introduction, improved availability and targeted consumer education. While India's consumption of grains and cereals is comparable to global levels, an opportunity exists for companies to drive and increase the consumption of fruits and vegetables, milk and milk products and meat and marine products.
- Additionally, companies can leverage on the low penetration of tertiary processed products and introduce products in this space. However, companies would need to focus on meeting the three key consumer requirements of convenience, health and variety (in terms of international cuisines).
- Also, companies can look beyond the metro cities of India to tap the potential offered by the Indian food industry. Companies can look to build and focus on new emerging consumer markets in the upcoming Tier I[1] and Tier II[2] cities of India.

However, there are three key critical success factors which need to be considered to tap the opportunity offered by the Indian food industry.

- **Local market delivery incorporating local tastes and preferences** – The consumption habits of the Indian consumer are diverse across the different regions of the country. Hence new product launches should incorporate the local preferences.
- **Price-value offering** – Price being one of the most important considerations for choice of food, the price/value equation has to be carefully evaluated before any new product launch.
- **Communication to increase consumer awareness** – Investment in increasing consumer awareness and marketing is essential to reach target consumer across all geographies. With different languages in each state, the task of reaching consumers is a unique challenge in India.

There is a significant potential for value-added food product exports from India, which are now less than 10% of the overall exports in terms of value

India's total food exports was about USD13.6 billion in 2007-08 which comes to just about 1.4% of the overall food trade of the world. Given India's dominant share of world food production, its share of exports is miniscule, and there is huge potential in increasing the share of world trade. Moreover, the share of tertiary processed food products is about 9% of the total food exports. Given the abundant availability of food products in India and its low cost of processing, India can become a hub of exports for tertiary food products. Consolidation, quality standards, production of processable varieties and non-tariff barriers are the key challenges for exports. However with focus on products such as tropical fruits, where India is a leading producer and there is a distinct cost advantage, the level of exports can be increased.

1. Tier I cities – Twelve cities covering Ludhiana, Nagpur, Coimabatore, Chandigarh, Faridabad, Amritsar, Surat, Kanpur, Cochin, Lucknow, Jalandhar and Goa
2. Tier II cities – Fifteen cities covering Jaipur, Indore, Vizag, Vadora, Vijaywada, Rajkot, Trivandrum, Tiruchirapalli, Kozhi, Salem, Bhopal, Varanasi, Nasik, Asansol and Madhurai

India is in a favorable position as a producer to service demand – both of the domestic and international market, considering it is the largest producer in the world

India is a key producer of food products. In the case of agri-products, India is the second largest producer of grains and cereals and fruits and vegetables. In the case of milk and milk products, India is the largest producer, accounting for 20% of the world's production. Even in the case of meat and marine products, India is among the top five producing nations of the world. This results in India having an adequate production base which can be used to serve both the domestic and international markets.

However, the productivity levels are low in the country, which offers a potential to further increase the production quantities

While India remains a top producer of food, the production yield levels are among the lowest amongst the BRIC countries. If we benchmark the yield improvement of various food categories across the BRIC countries, India probably has the largest potential for improvement, especially considering its low base.

A combination of uncontrollable and controllable factors has affected the productivity levels in India:

- The uncontrollable factors include fragmentation of land holdings which has resulted in lack of scale and has made investments in automation unviable; regional climatic variations which impact the production; and the constraints in land availability due to competing pressure from urbanization, constructions and industrialization.
- The controllable factors which can be addressed by companies are the low labor productivity due to the limited and slow adoption of technology and the inadequate support infrastructure that is available to farmers/producers in terms of transportation, warehousing and credit facilities, which impact the production levels and the extent of wastages in production.

This creates opportunities for companies to introduce modern farm practices and improve consistency in quality and quantity

Significant value addition can be achieved by improvement in farming practices such as seed management systems, soil health and nutrition systems, water management, bio measures for pesticides, technology upgrading, cross-breeding, habitat improvement and others.

However, the key requirements for success in tapping these opportunities are:

- **Farmer education** – Companies would have to invest in educating the farmer on modern farming practices through demonstrations and trials which could be used as a key marketing tool. Companies would have to partner with the farmers and adopt a 'social' rather than a 'commercial' approach. The farmer would have to be educated and assured on the benefits of adopting the improved farm practices.
- **Access to credit** - The biggest challenge for the farmer/producer is the access to credit. However, the government and several non-governmental organizations (NGOs) and micro-credit organizations are actively working in this area, and companies need to leverage their presence to provide better credit access. Companies could also, provide credit for inputs, which can be paid for after the harvest.

While there is a strong expected domestic and international consumer demand for processed food and a large production base, the processing activities in India are limited and at a nascent stage and they provide a huge opportunity for growth

The processed food industry in India is at an early stage with low penetration and high potential. The level of processing is currently low across the product categories. For example, only 2.2% of the total production of food and vegetables is processed, as compared to 65% in the US or 23% in China.

The current low penetration levels in the processing activities across categories is being driven by the presence of unorganized and unintegrated players who lack scale and adopt low technology, which affects the production efficiency and the price at which the product is manufactured.

This creates opportunities for companies to set up manufacturing bases for tertiary processed products across agri-products, milk and milk products and meat and marine products

There are two types of opportunities players can tap in the Indian processed food space, one is to substitute/replace the unorganized/unintegrated players with setups of large and integrated manufacturing bases, and second is to participate in the growing market demand for these products, – both from a domestic and international perspective.

The key categories in the processed food space from an Indian market perspective are potato chips, confectionery, cereals and bakery, spirits, spreadable fats, processed milk, frozen and chilled meat and marine products. Companies should also focus on products which meet the consumer requirements around convenience, health and variety (in terms of international cuisines).

Even in terms of servicing the international market demand, companies can consider setting up manufacturing bases in India to take advantage of the large available production base. In addition to this production base, India offers other distinct advantages such as low farm gate prices, limited competition and low investment levels.

To support companies in setting up such manufacturing bases, the government is also taking initiatives such as inviting foreign direct investments in food related manufacturing units and support infrastructure like food parks, cold chains and warehouses. Additionally, to enable these setups to have access to a secure sourcing base which meets their quality requirements, the government has facilitated reforms whereby companies can directly source from the producers.

However, there are key requirements which these processing companies need to keep in mind

Backward linkages for sourcing – Companies in the processed food manufacturing space face problems on the inbound supply chain side in terms of inconsistency of inputs quality, high level of wastages as the product reaches the manufacturing base and unwanted cost additions with minimal value additions. This is due to the long and fragmented supply chain which results in these wastages and price escalations. This creates the requirement for companies to invest in creating backward linkages through contract farming, which would enable the company to control the inputs at an assured quality level with minimal wastages.

Investments in supply chain for forward distribution - In terms of the outbound distribution, i.e., from the company to the consumer, the retail distribution setup in India is fragmented and unorganized. There are modern retail formats which are emerging but they are still nascent and highly underpenetrated. This creates a requirement for the company to invest in building the supply chain, which would integrate the different stakeholders and ensure timely reach of the product to the final consumer.

Support infrastructure – A key requirement for the processed food products would be access to support infrastructure such as cold chains, warehouses and specialized transport equipment to ensure a proper management of these products and hence to increase their shelf life. Considering that there are gaps in the Indian infrastructure to meet these requirements, companies would have to evaluate investments or tie-ups with local partners to setup such infrastructure.

Backward linkages — Contract farming is more viable in fruits and vegetables than in grains and cereals due to higher wastages in the traditional fruits and vegetables supply chain

The supply chain between the farmer/producer and the manufacturer and from the manufacturer to the consumer is long and involves interactions with multiple delivery intermediaries. This prevents companies from having a direct link with the producer and hence an assurance of timely and quality supplies.

This fragmented supply chain has a two-fold impact:

1. There is a high level of wastages which can range from 10-25% in case of fruits and vegetables and 2-5% in case of grains and cereals due to the increased time in reaching the consumer affecting the freshness and quality of the products.
2. It also impacts the price at which the product reaches the consumer — e.g. in the case of grains and cereals, there is about a 70% price escalation between the farm gate prices and the final consumer price. For fruits and vegetables, where the wastage is higher, this price escalation reaches beyond 100%. In case of milk and milk products, this price escalation is about 50%, due to the organized nature of the supply chain.

To overcome the long and fragmented supply chain, contract farming can emerge as a significant opportunity for companies whereby they can create direct farm linkages to source appropriate quality, quantity and varieties of inputs. Currently, contract farming is supported by the governments of 12 key producing states in India. A few companies have been successful in linking up with farmers, and some models of contract farming based on profit sharing or social investment may emerge in the future. These models need to keep the following requirements in mind:

Transparency and information exchange — Companies must ensure the growth of trust within the farmer group by providing complete information on the clauses prevailing in the agreement, along with knowledge of the prevailing prices for the farm produce.

Farmer support mechanism — To secure the quality and quantity of produce obtained under contract, companies would need to provide farmers with assistance in terms of key inputs, such as seeds and, information on farm practices. Also, since the farming activity in India is a credit-deficient activity, companies would have to evaluate a mechanism to provide adequate credit line facilities to the farmer/producer.

"Social" approach – Relationships between farmers and buyers in a contract farming environment need to be conducted with a combination of a social and commercial approaches, with the intent of achieving mutual benefit for both parties. It is vital to create a framework at the grassroot level for resolving disputes largely related to prices and quality. One of the effective ways which companies can consider is to instill an element of social pressure for the farmer/producer to fulfill the commitment.

Profit sharing – Companies need to innovate and come up with a sourcing model that incorporates some means of sharing profits with the producer. This could be through either individual payments to farmers for their produce or community investments in the sourcing regions/villages. This would additionally help build trust in the model and also improve compliance with the agreements.

The support infrastructure and other enablers for the food industry are also fast evolving in India, due to concerted efforts by the government and investments by corporates

Modern retail will play a significant role in providing consumer access and trials and contribute to changing the taste of the Indian consumer

The current level of penetration of organized retailing in food and grocery is around 1%, which is very low compared to other developing and developed countries of the world. However, during the last five years, there have been a number of new entrants in this space attempting to establish a foothold in the market dominated by over 1.4 million mom and pop retailers. Future Group, Reliance Group, Aditya Birla Group and Bharti Enterprises are a few of the big names currently establishing a presence in this highly fragmented industry. Although foreign direct investment is prohibited in multi-brand food retailing in India, big international retailers like Walmart have already forged relationships with Indian companies to establish cash & carry business in the country. While having a local partner is required by regulations, the partner also provides key insights into the local market preferences and demand, operating conditions and access to established local relations. Hence, it becomes imperative for an international retail company to tie up with a sound local partner who will meet the regulatory requirements as well as provide valuable local market knowledge.

A string of government initiatives around logistics infrastructure is attracting significant investment into this sector

Expenditure in logistics in India accounts for about 13% of GDP, which translates to over USD130 billion and encompasses the cost of transportation, warehousing, material handling, consolidation/deconsolidation and data management. This cost is significantly higher as compared to some of the developed economies of the world.

The logistics set up in India is at a nascent stage and is characterized by a high level of inefficiencies, resulting in wastages and delays in shipments. In case of warehousing and specialized storage activities such as cold chains, India is highly underdeveloped as a market with a mismatch between the demand requirements and the supply availability.

However, Indian government has initiated a number of activities to facilitate growth of the logistics and warehousing sectors.

Warehousing Act

In 2007, the government enacted the Warehousing (Development and Regulation) Act 2007 to ensure that farmers are able to keep their goods in certified warehouses and use warehouse receipts (WR) as a negotiable instrument. These WRs have the backing of the Warehousing Development & Regulatory Authority (WDRA), with a view to protect the interests of those involved in issuing, trading or collateralizing these WRs.

Implementation of goods and services tax (GST)

In India, the warehousing and distribution network is not geared to the fulfillment of customer demands at optimal costs. Most food companies operate with at least one distribution center or carrying and forwarding agents (CFA) in each state, where they sell their merchandise, to avoid interstate taxes. Indian companies use the services of 25 to 50 warehouses at the national level, which is a very high number compared to developed economies (less than five). The GST is a comprehensive value added tax (VAT) on goods and services. GST is collected on value-added goods and services at each stage of the state or purchase in the supply chain through a tax credit mechanism.

In India, a dual GST is being proposed wherein a central GST and a state GST will be levied on the taxable value of a transaction. The target date of implementation of GST is 1 April 2010.

Logistics parks and free trade warehousing zones

The government's policy to invite the private sector to build logistics parks and free trade warehousing zones (FTWZs) is one of the most important drivers of growth in warehousing in India today. Although there are distinctions between Logistics parks and FTWZs, they share a common function to provide state-of-the-art warehousing facilities, multimodel connectivity and services pertaining to domestic and export/import (EXIM) trade.

The Government of India announced the FTWZ policy as part of its foreign trade policy from 2004 to 2009, to actively promote India as a major international trading hub and logistics center. The aim of FTWZs is to create world-class trade-related infrastructure that is at par with established trading hubs in Hong Kong, the United Arab Emirates etc., so as to facilitate import and export of goods and services with the freedom to conduct trade transactions in free currency.

Infrastructure development

Development of transport infrastructure, such as rail, roads, ports and airports, through enhanced budget outlays and public-private partnerships has been a major growth driver for the logistics sector. Closing the gaps in the infrastructure would make the sector more attractive for foreign investors and also increase the efficiency of the value chain. Transport infrastructure is expected to increase the infrastructure development spend from 4.7% to more than 8% of India's gross domestic product. Projects that are expected to give an impetus to the growth and development of warehousing space include road projects, dedicated rail freight corridors, ports capacity expansions and modernization of airports.

India's food standards gearing for international standards

India is now reorienting its food laws to emphasize food safety as well as food quality. The Food Safety and Standards Act passed in August 2006 consolidates the laws relating to food and establishes a Food Safety and Standards Authority of India to set science-based food standards and regulate the manufacture, import, processing, distribution, and sale of food.

Additionally the Directorate General of Health Services in the Ministry of Health and Family Welfare is working to integrate CODEX standards into national food laws as much as possible. Because CODEX standards are increasingly used as a benchmark for global trade, India has increased its participation in several CODEX committees to ensure that domestic conditions are reflected in the development of international safety standards, thereby facilitating acceptance of Indian products in global markets.

The CODEX hazard analysis and critical control point (HACCP) and food hygiene standards have been adopted by the Bureau of Indian Standards, the national standards body in India. Food processing units are being encouraged to adopt these systems on a voluntary basis.

India offers a huge potential for returns on investment for players having a medium-to-long term outlook

To conclude, the Indian food industry presents a very large opportunity to every stakeholder. This is primarily driven by a robust consumer demand, the changing nature of the Indian consumer who is more informed and willing to try new product and the strong production base of the country. Needless to add, the several gaps in the current production and delivery systems actually present a huge opportunity for the growth of companies willing to bet long term in this sector.

3.

Value chain stakeholders

Consumers: defining demand

Summary

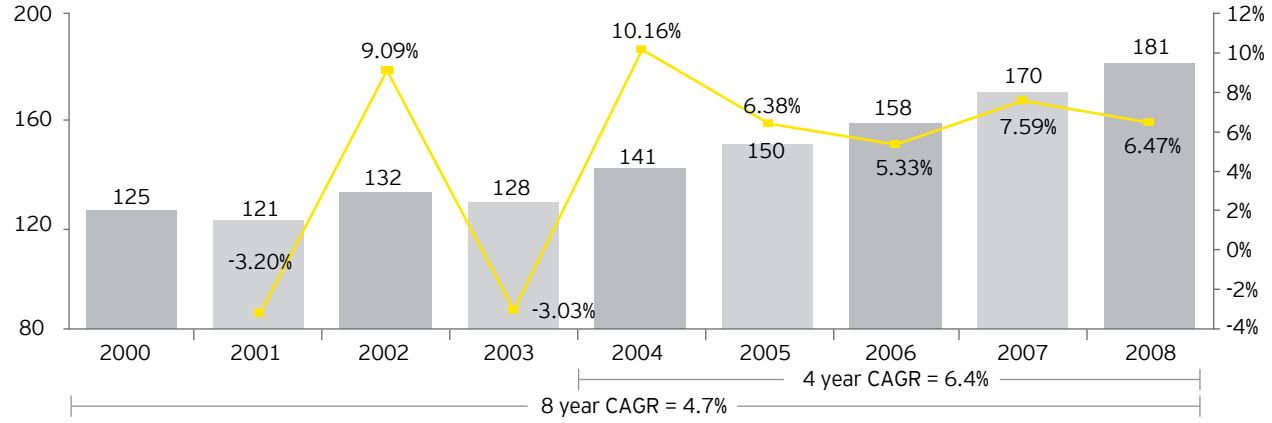
- The Indian food industry, at USD181 billion, is the largest consumption category in India, accounting for a 31% share of the consumer wallet.
- An analysis of the Indian food industry provides a few key insights into the consumption patterns of the Indian consumer:
  1. Being a predominantly agrarian economy, 70% of the spending is on agri-products, with fruits and vegetables (F&V) accounting for 36% of the total spend. Most of the F&V consumption in India is of the primary processed form.
  2. Milk and milk products and meat and marine products have shown a higher growth in consumption, albeit on a small base, driven by increase in per capita income, changing consumer taste and entry of organized players.
  3. The consumption patterns and tastes change significantly across regions and also within a particular region and across income class.
  4. 26% of the spending is on "tertiary" processed products, with beverages and oil and oilseeds forming 50% of this spending.
  5. The growth in consumption has been fueled by increasing availability and supply of food and food products by both domestic and international players who have entered this market.
- Going forward, the Indian food industry is estimated to grow by 40% of the current market size by 2015. This growth is expected to be driven by two key factors:
  1. Socioeconomic changes across India's population base, in terms of growth in size of households in the higher income classes resulting in a growth of household consumption, along with increasing youth population and a shift from rural to urban areas
  2. Changing and evolving lifestyle trends such as emergence of nuclear families, rising incidence of lifestyle diseases, growing exposure to international markets and increased awareness due to media proliferation

  These two factors are expected to create a demand for processed food products, especially products which meet the convenience and health requirements of the consumer.
- This provides some key opportunities for growth in the Indian food industry.
  1. Increase in per capita consumption and spending on food through new product introduction, improving availability and consumer education
  2. Increase in consumption of high-growth and high-value products across agri-products, milk and milk products and meat and marine products
  3. Introduce value-added products in the processed product space to meet the needs of convenience, health and variety
  4. Focus on new emerging consumer markets beyond the metro cities of India
- However, there are challenges converting this opportunity into a market
  1. Price sensitivity affecting consumer demand, especially in case of agri-products
  2. Diverse market conditions and need for investment in consumer education
- Hence, providing effective local delivery incorporating local tastes and preferences would be critical to success in this market

An analysis of the Indian food sector

The Indian food industry, at USD181 billion, is the largest consumption category in India, accounting for a 31% share of the consumer wallet

India's food private final consumption expenditure (PFCE) (USD billions)



Year	Per capita food PFCE (USD/person)
2000	122
2001	116
2002	124
2003	118
2004	127
2005	132
2006	137
2007	145
2008	153

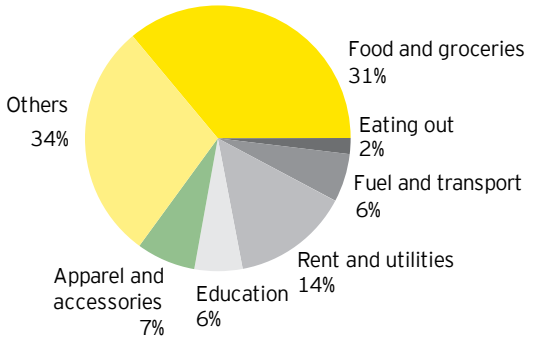
Note: the above consumption data is at nominal price.

The spending on food in India has grown at a steady rate, with a high growth recorded between 2004 and 2008. During this period, the spending increased from USD141 billion to USD181 billion, a CAGR of 6.4%.

This increase has been driven by the strong growth fundamentals of the Indian economy:

1. Over 8% year-on-year growth in the Indian gross domestic product
2. Increase in the per capita disposable income of the Indian consumer – from USD464 in 2004 to USD500 in 2008

India's share of consumer wallet (2007-08)



Source: Central Statistics Organization, India Consumer Trends

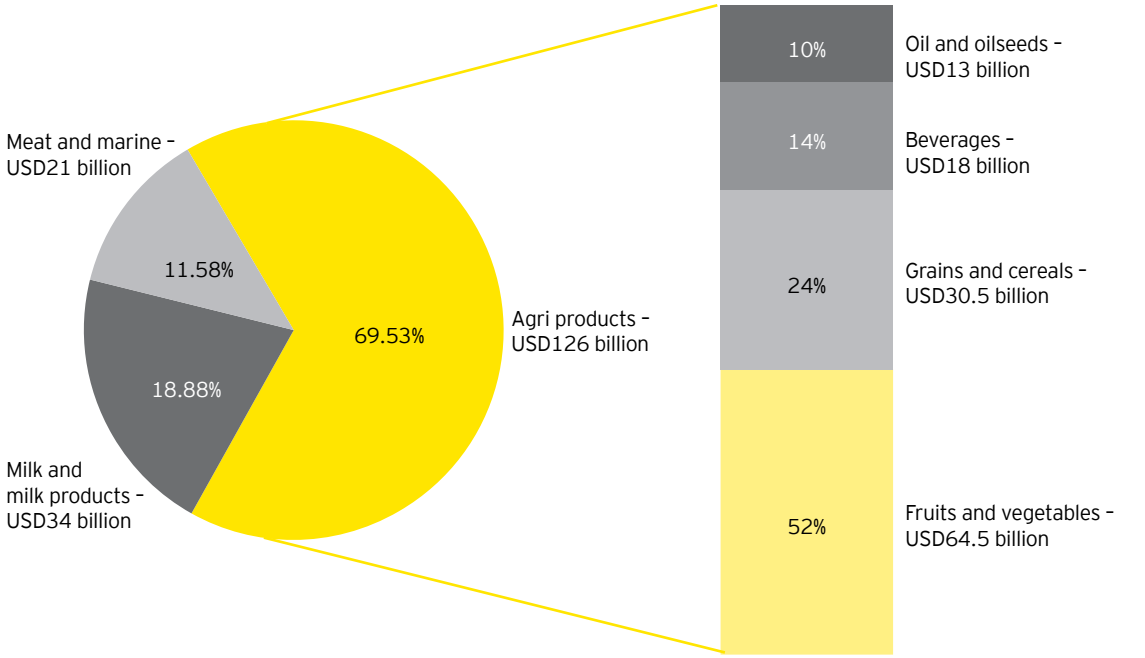
The USD181 billion spending on food accounts for 31% of the consumer's wallet, approximately twice as high as any other category. In addition to the food spending, an extra 2% is spent on "eating out" – an amount of USD12 billion.

As the Indian economy developed, while the overall spending on food increased, its share in the consumer wallet has been decreasing, with a shift towards discretionary consumption categories like entertainment.

An analysis of the Indian food industry provides a few key insights into the consumption patterns of the Indian consumer

1. 70% of the spending is on agri-products with fruits and vegetables accounting for 36% of the total spend

Total food private final consumption expenditure (2008) – USD181 billion



Source: Central Statistics Organization

In 2008, the spending on agri-products stood at USD126 billion. Grains and cereals accounted for USD30.5 billion (24%) and fruits and vegetables accounted for USD64.5 billion (52%).

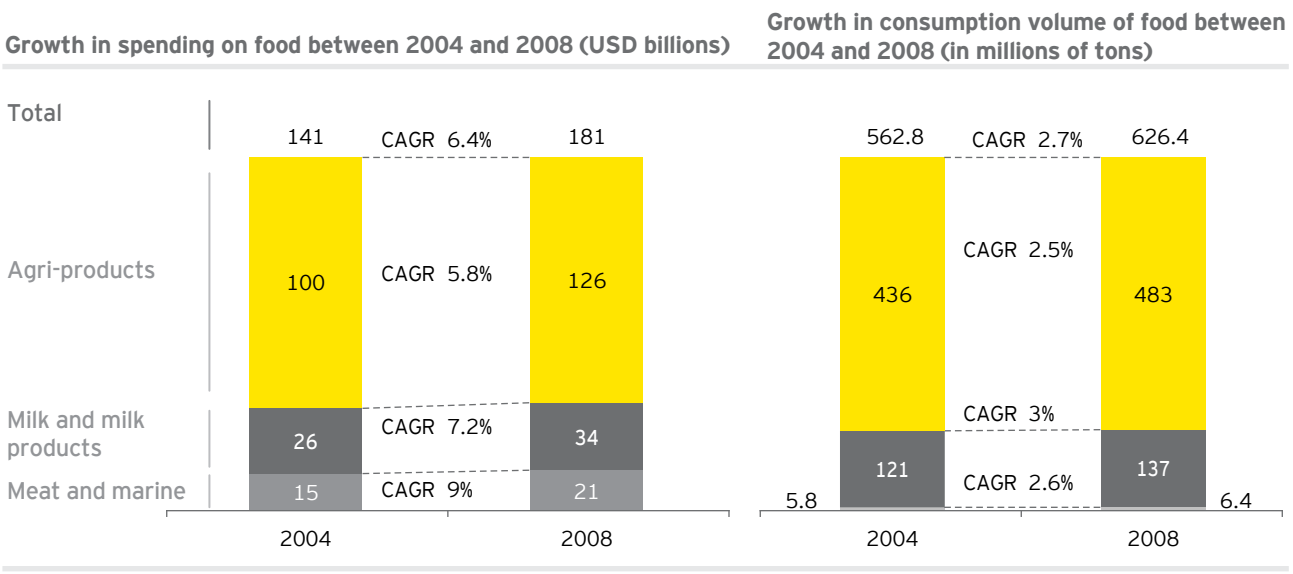
With nearly 60% of India's one billion population being predominantly agrarian, this has lead to the significant consumption of agri-products in the country.

Milk and milk products and meat and marine products make up the other 30% of the food pie. In 2008, the spending on meat and marine stood at USD21 billion (approximately12% of total food spending) and milk and milk products accounted for USD34 billion (19% of the total food pie).

When viewed in the global context, India offers an opportunity in the milk and milk products and meat and marine products spaces, since the consumption of these products is significantly lower.

In case of milk and milk products, India's per capita consumption was 115 kgs in 2007 as compared to 231.7 kgs in Brazil and 269.3 kgs in Russia. Even in terms of chicken and meat, the per capita consumption in India was at 5.4 kgs as compared to 69.7 kgs in Russia and 49.7 kgs in Brazil. This presents a significant opportunity to increase consumption of these products.

2. Milk and milk products and meat and marine products have shown a higher growth in consumption, albeit on a small base



Source: Central Statistics Organization

From 2004 to 2008, the spend on milk and milk products and meat and marine products grew at a CAGR of 7% and 9% respectively, which was higher than the growth (CAGR 6%) of the overall food spend.

During this period, the consumption volume of milk and milk products also increased from 121 million tons to 137 million tons at CAGR of 3% and meat and marine from 5.8 million tons to 6.4 million tons at CAGR of 2.6%.

This growth in milk and milk products and meat and marine products has been driven by the following key factors:

1. Rise in per capita personal disposable income – which grew from USD464 in 2004 to USD500 in 2008
2. A steady rise in youth population (between age groups of 15 to 24 years) where the acceptance of meat and marine products is higher
3. In the case of milk and milk products, the presence of established and organized players, which has resulted in higher availability of these products and thereby increased the consumption of these products

Further, considering the low consumption levels of milk and milk products and meat and marine products in India as compared to the global levels, there is an ample opportunity to further drive the growth of these products going forward.

3. The consumption patterns and tastes change significantly across geographies and income class

North:
- Wheat forms the staple grain, with high consumption of milk and milk products
- High consumption of meat products

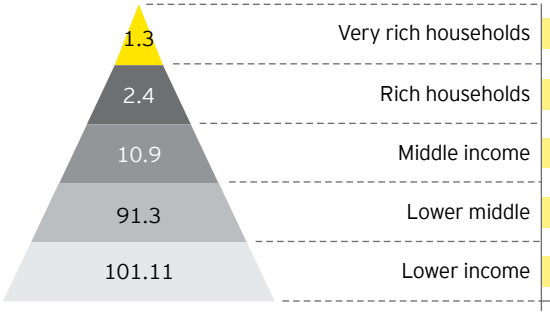
West:
- Mixed consumption of both rice and wheat as staple food
- High consumption of vegetables and marine products

East:
- Mixed consumption of both rice and wheat with rice being more predominant in a few states of the region

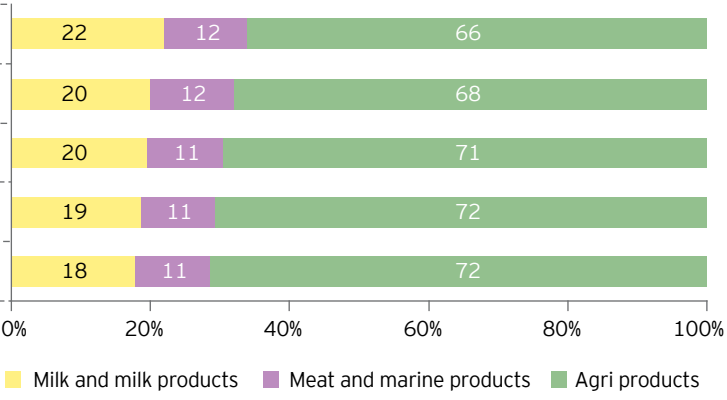
South:
- Rice forms the staple grain, with high consumption of fruits and vegetables
- Consumption of both marine and meat products

As we can see above, the consumption patterns are varied across regions and could vary also within a particular region. For instance, Maharashtra has a much higher consumption of rice (32%) than Gujarat (21%) and Rajasthan (2%) as a share of the overall grain consumption. With growing availability of food grains and increasing awareness of health issues across the population, the consumption pattern of cereals has also changed over a period of time.

Number of households (in millions) – 2005



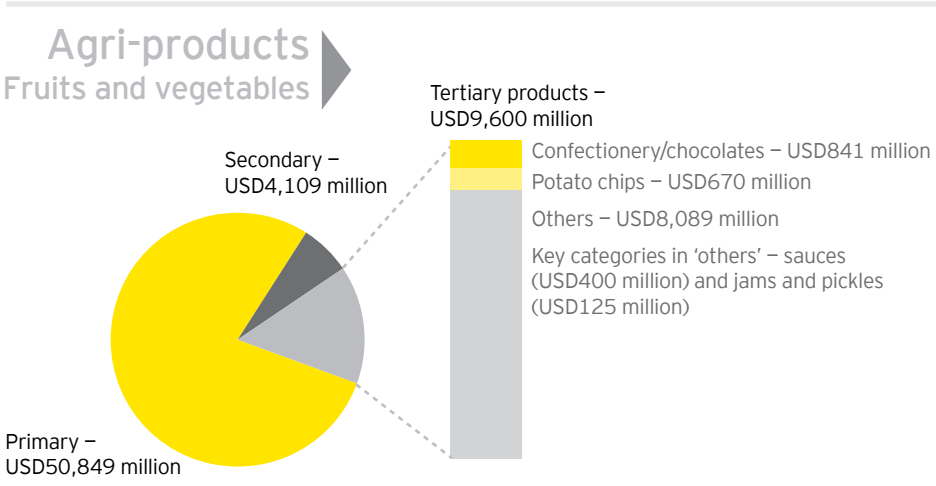
Percentage consumption spend across categories



As we move from the lower income class through rich or very rich income classes, the spending shifts away from agri-products to milk and milk products and meat and marine products.

Income class classification by annual income
- Very rich households: greater than USD20,800 per annum
- Rich households: between USD10,400 and USD20,800 per annum
- Middle income households: between USD4,100 and USD10,400 per annum
- Lower middle households: between USD1,875 and USD4,100 per annum
- Lower income households: less than USD1,875 per annum

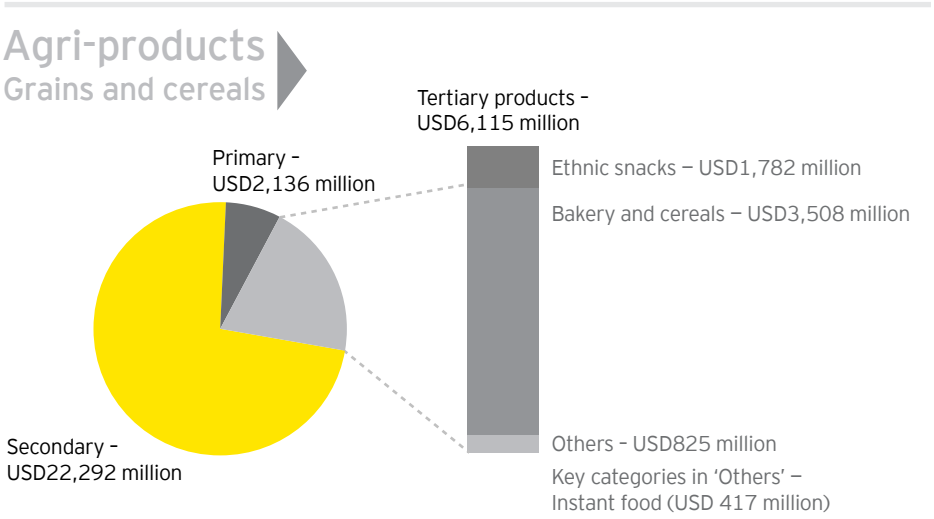
4. 26% of the spending is on "tertiary" processed products driven by beverages and oil and oilseeds



Source: Ernst & Young analysis, Ecomonic Survey 2007-08

Fruits and vegetables consumed in India are largely in the primary processed form, with consumers used to buying fruits and vegetables in the basic primary form and then processing them at their homes. Households spend significant amount of time cutting, cleaning and sorting before cooking them.

This provides an opportunity to offer tertiary processed products which can substitute the home-based processing – such as soups, ready-to-eat meals and canned food among others. These products also meet the convenience needs of the consumer.



Source: Ernst & Young analysis, Ecomonic Survey 2007-08

In the case of grains and cereals, secondary processed products account for 73% of the spending of Indian consumers.

This is due to wheat flour and rice (part of secondary processed products), which are part of India's staple diet.

Since this category is dominated by unorganized/unbranded players with the presence of a few branded players, there is an opportunity to tap into this category.

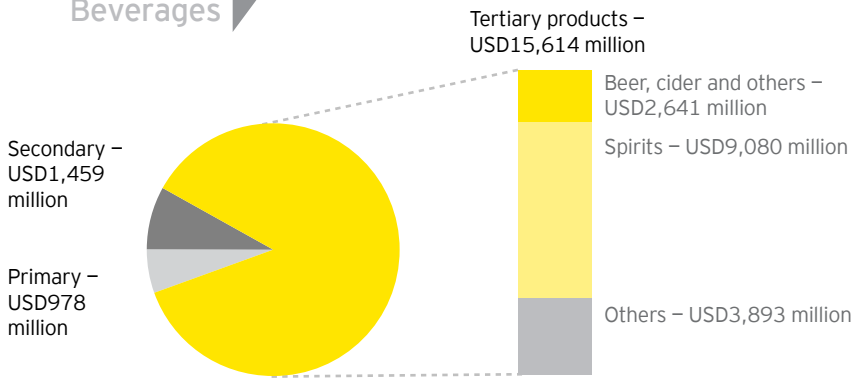
With tastes changing, consumers are looking at more and more tertiary processed products. Additionally, the tertiary processed category is underdeveloped and underpenetrated in India and thereby offering opportunities for players to penetrate and grow this market.

Beverages are mostly consumed in the tertiary processed form.

Alcoholic beverages, part of spirits, has a major share in the tertiary processed category, with unorganized/ unbranded liquor market accounting for nearly USD8,340 million.

For other categories in beverages, the market is highly organized with a number of established Indian and international brands.

Agri-products
Beverages

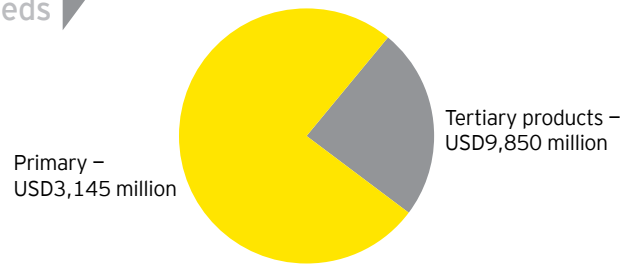


Source: Ernst & Young analysis, Economic survey 2007-08

The tertiary processed products are predominantly edible oils, which are used as a secondary cooking medium in India.

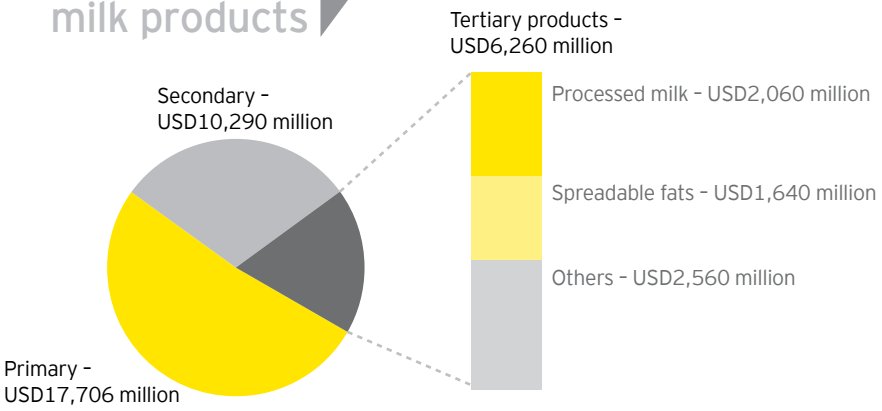
The primary processed products of oil and oilseeds, are used as animal feed – for example soya is used as feed for poultry.

Agri-products
Oils and oilseeds



Source: Ernst & Young analysis, Economic Survey 2007-08

Milk and milk products



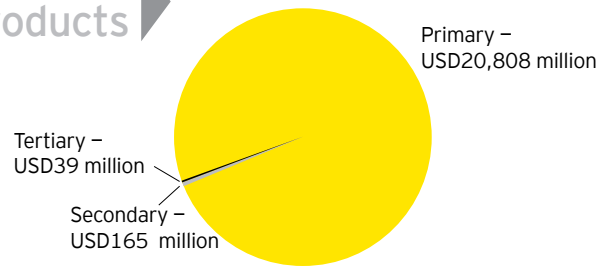
Source: Ernst & Young analysis, Economic survey 2007-08

Milk in India is largely consumed in its original form, resulting in the high spend on primary products.

In the case of secondary products, Khoya (reduced milk derivative) and Ghee (hardened oil) are high-consumption products since they are important ingredients in making Indian sweets.

Considering the high awareness and preference for tertiary processed milk products coupled with the low availability, there is an opportunity to grow the spending on this category.

Meat and marine products



Source: Ernst & Young analysis, Economic survey 2007-08

In the case of meat and marine products, they are primarily purchased from unorganized/ wet markets and are then further processed at home.

This results in the high spending on these products in the primary processed form.

There is a growing awareness and preference among consumers for tertiary processed products driven by the need for convenience.

But the limited availability of products in this category has affected the spending levels.

This provides an opportunity to tap and build the potential of the tertiary processed category.

Overview of the commonly consumed brands in the processed form across the different food categories

	Processed form	Key categories	Key brands	Comments
Agri-products	Tertiary	Potato Chips	Lays, Bingo, Musst	Brands have included offerings which have India specific flavors and priced as per customer spending (smaller stock-keeping units (SKU) size)
		Confectionery	Cadbury Dairy Milk, Munch, Happy Dent, Mango Bite, Alpenlibe	
Agri-products: grains and cereals	Secondary	Wheat flour	Ashirvaad, Shaktibhog, Pillsbury	Depending on the region, specific blends are manufactured and sold
	Tertiary	Bakery and cereals	Britannia, Parle G, Monaco, Sunfeast, Krackjack, Priya Gold Butter Bite	These players have introduced and promoted smaller SKU sizes to drive growth in consumption
		Ethnic Snacks	Haldirams, Bikaji	Offerings by these players include typical Indian homemade snacks
Agri-products: beverages	Tertiary	Spirits	Royal Challenge, Signature, McDowells, Smirnoff	This market includes a split in terms of spending between domestic and international brands
		Carbonates	Coke, Thums Up, Pepsi, Fanta, Limca	Like other categories, smaller SKUs are being introduced to induce usage and growth

Source: Ernst & Young analysis

Note: Only a selective list of brands have been mentioned

Overview of the commonly consumed brands in the processed form across the different food categories

	Processed form	Key categories	Key brands	Comments
Agri-products: oil and oilseeds	Tertiary	Edible Oils	Fortune, Sundrop, Saffola, Nutrilite	Strong regional preference for choice of oil: North (Mustard, Soya), South (Sunflower), West (Groundnut, Cotton seed)
Milk and milk products	Secondary	Milk	Amul, Mother Dairy, Paras	The consumption of milk in a pouch format is very common
	Tertiary	Processed Milk	Amul, Britannia, Nestle	Growing demand and consumption of ultra-high temperature (UHT) milk in tetra packs
		Spreadable Fats	Amul, Britannia, Nutralite, Mother Dairy	Spreadable fats (such as butter, cheese) have become a part of the Indian diet
Meat and marine products	Tertiary	Frozen meat	Al Kabeer, Sumeru, Yummiez	In line with customer lifestyle trends, demand for these products is increasing

Source: Ernst & Young analysis

Note: Only a selective list of brands have been mentioned

5. The growth in consumption has been fueled by the increasing availability and supply of food and food products

Increased activity by domestic and international players has resulted in an increased availability of products, leading to a growth in consumption. Additionally, the government has launched a number of initiatives to drive consumption.

Increase in the depth of distribution

Indian companies, which were earlier focused only on back-end processing and manufacturing, have extended their activity into the processed foods space.

This shift has occurred due to the unavailability of such products in the market along with the potential to earn higher margins by offering such value-added products.

Existing Indian companies have seen significant growth due to focus on, as well as reaching to new markets and consumers.

Ruchi Soya, a company earlier involved in the manufacture of edible oils, now is India's largest producer of tertiary products of soya, such as meal additives and soya milk.

In 2008, driven by the demand, Ruchi Soya produced over 40,000 million tons of soya protein with a value of over USD20 million.

Entry of international companies

With the opening up of the Indian economy, along with the growth opportunity offered by this market, major international food product manufacturers have entered this market and have introduced multiple processed products in the agri-products and milk products space, contributing to their availability in the Indian market.

Danone, the French food giant, initially entered the Indian market through a joint venture to sell biscuits in this market.

However, now the company is launching its milk products in India.

Government initiatives in promoting nutrition programs

With a view to improving the nutrition levels of individuals, especially of children and infants, the government has actively been promoting the use of tertiary processed products in key categories like milk and cereals. Several state governments have "mid-day meal" programs for school children.

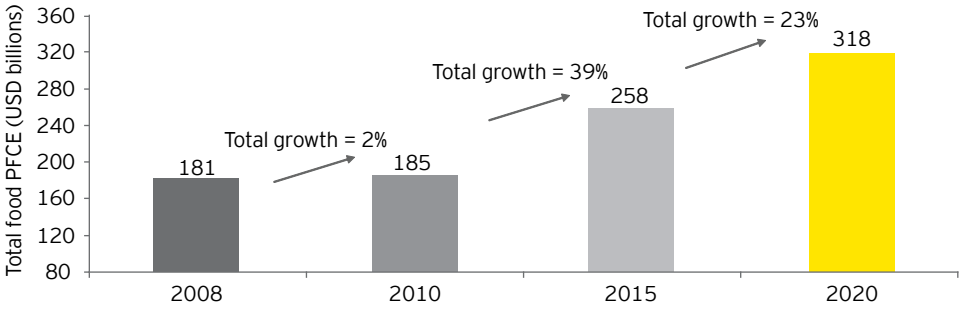
Anganwadi, or "infant nutrition" programs introduced in 2004-05 through pan-India by the government had the mandate of enriching the nutrition of infants and newborns by making available processed milk powder and baby food.

Future potential of the Indian food sector

Going forward, the Indian food industry is estimated to grow by 40% of the current market size by 2015

Growth in food private final consumption expenditure is set to reach USD318 billion in 2020, with a near-term forecast of USD258 billion by 2015.

Expected growth of food private final consumption expenditure (PFCE) (USD billions)



Source: EY analysis

The above consumption is at nominal price.

Growth forecasts of food PFCE over the years are expected to follow changes in India's socioeconomic and demographic landscape

Key contributors to this shift are expected to be the following:

- **Socioeconomic changes:**
  - The transition of India's population across income classes – a movement of population from lower income classes to higher income classes
  - A rise in India's household consumption levels
  - The growing youth population in India
  - An increasing migration of population from rural to urban cities
- **Lifestyle changes:**
  - The emergence of nuclear families
  - A rising incidence of lifestyle diseases such as diabetes and obesity among others
  - A change in the consumer palate due to growing awareness

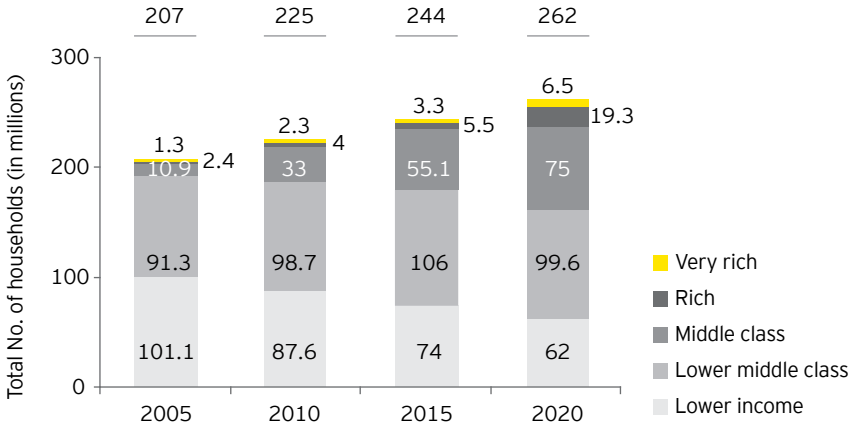
This growth in the Indian food market is expected to be driven by several factors

1. Socioeconomic changes across India's population base

Rising economic growth in the country is expected to result in a the transition across income classes, with the very rich and middle class households growing from 14.5 million in 2005 to nearly 64 million by 2015 and 100 million households by 2020.

Growth in size of households in middle to very rich class

Number of households by annual income classification (in millions)

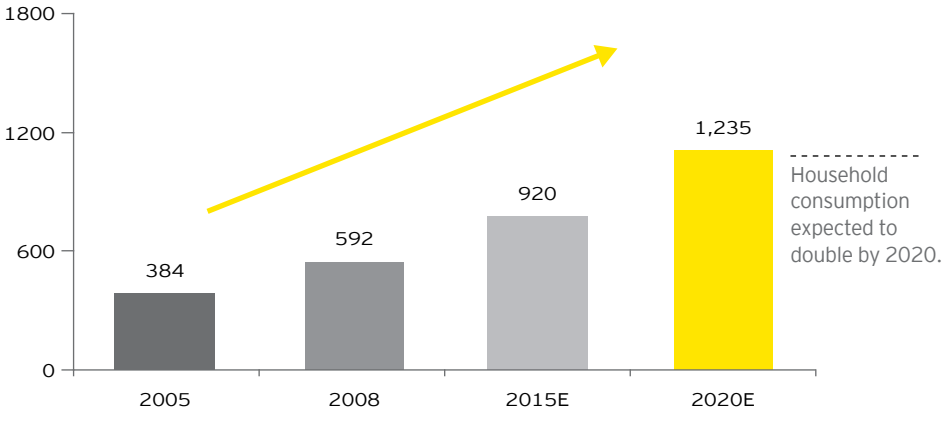


Source: McKinsey Global

Due to the transition of households from lower to higher income classes, a growth in household consumption is expected from USD592 billion in 2008 to USD1,580 billion by 2020

Growth in household consumption

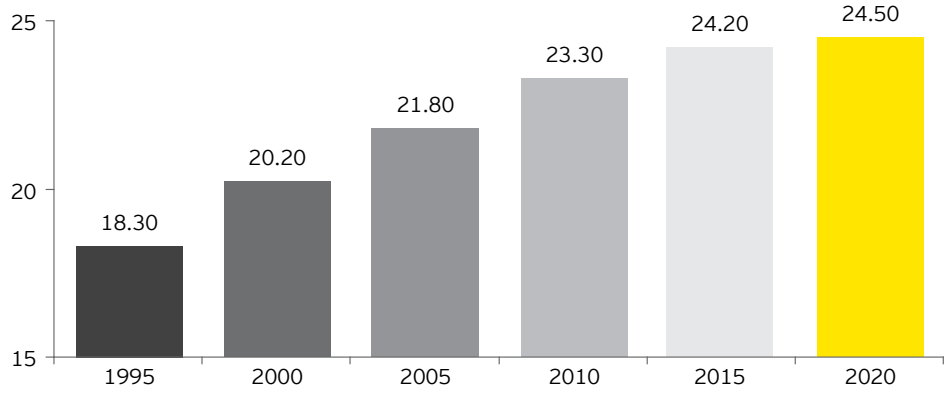
Growth in household consumption (USD billions)



Source: McKinsey Global

Growth in youth population

India – Growth of population in the age groups 15-25 (in millions)



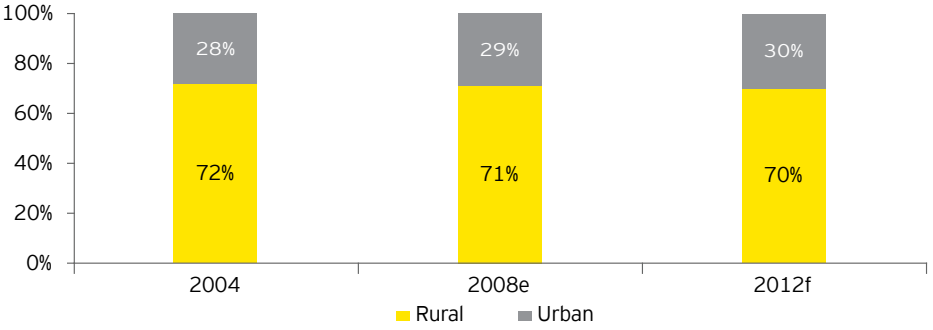
Source: MckInsey Global

India is a young nation with a young population, with two thirds of the population under 35 years of age. While the global median age for population is 33 years, India's median age is just 23 years.

The youth population in India is estimated to reach 24.2 million by 2015. The high percentage of youth is expected to drive the demand for tertiary processed foods due to their preference for such products and their propensity to try newer products.

Migration of population from rural to urban areas

India – Percentage split of population, urban and rural



Source: McKinsey Global Institute

India's population in rural areas are increasingly migrating to cities and towns on account of rising education levels among rural youth and better job opportunities that are offered in the cities.

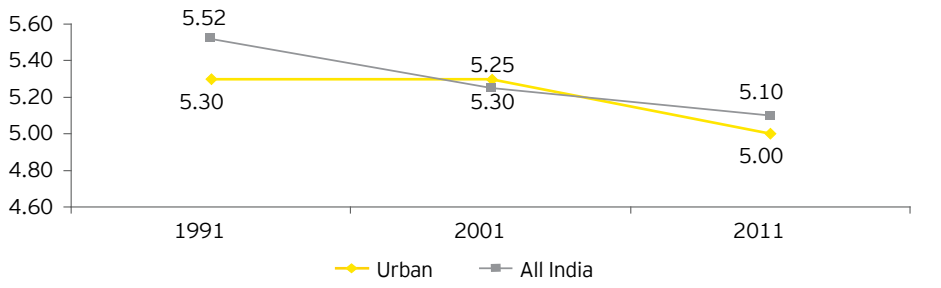
This is expected to result in higher income, more exposure to tertiary processed products and a resultant increase in consumption for such products.

2. Changing and evolving lifestyle trends leading to demand for processed food which meets requirements of convenience and health

A shift has been observed in societal trends, with larger families of multiple generations of individuals being replaced by small, working families.

Nuclear working families

Trend in household size in all India and urban India



Source: CRISIL Retail Report, 2007

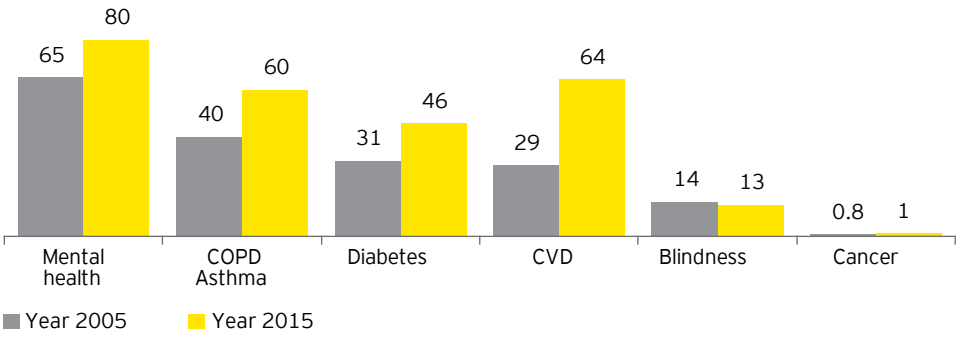
The falling household sizes, especially in the urban households, marks an increase in the number of nuclear families, with an increasing household income being spent among fewer family members.

For these nuclear working families, convenience emerges as a key determinant for their buying behavior. In India's top eight cities, there are approximately 30 million people who fall in this category.

As a result, these nuclear families have begun to increasingly consume value-added tertiary food products such as ready-to-eat meals, showing a change of preference away from basic products.

Rising lifestyle diseases

Projected number of cases in lakhs



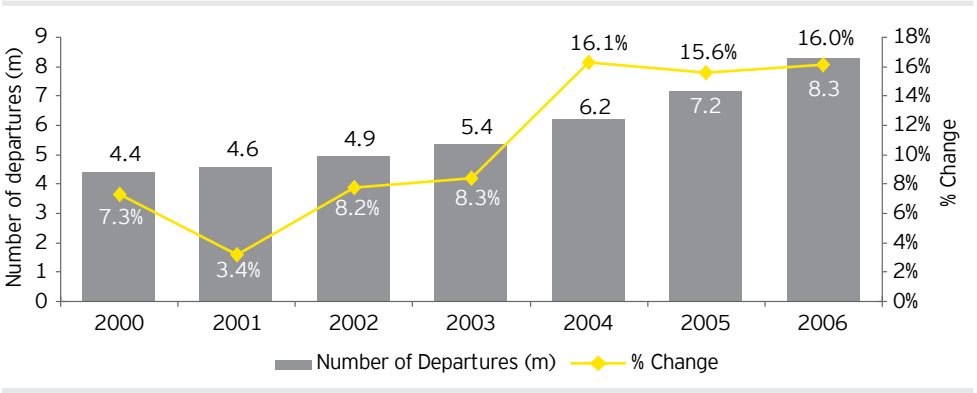
Source: *Report of the National Commission on Macroeconomics and Health – 2005*

The high prevalence of lifestyle diseases such as diabetes, cancer and cardiovascular disease is influencing the India food consumption patterns. There has been a growing demand for healthier products across categories, on account of these health needs.

However, currently, there are limited options available in the processed food segment which can meet these health needs of consumers, resulting in a demand-supply gap and thereby creating an opportunity that can be explored by food companies.

Globalization, combined with attitudinal changes, has resulted in a greater awareness of newer food products.

Growing international exposure



Source: Ministry of Tourism, Government of India

The number of Indians travelling out of the country has increased from 4.4 million in 2000 to 8.3 million in 2006. As more and more people travel abroad, they are exposed to newer concepts, especially processed foods. This will lead to increasing acceptance of such foods.

Increasing awareness

The level of awareness of the Indian consumer is on the rise. This has been contributed by factors such as:

1. **Media penetration**

   Print media: a number of food guides/magazines have been launched in the Indian market. Magazines like *Time Out* publish up-to-date information on restaurants, latest cuisines as well as celebrity recommendations.

   Television: there has been the emergence of lifestyle channels like NDTV Good Times, Discovery Travel and Living, Zoom and others, which cover and provide information on cuisines, food products, etc. Access to foreign channels has only increased the knowledge of such food products.

   Celebrity chefs: are propagating specialty cuisines, nutritional and healthy options around eating. Celebrity chefs such as Tarla Dalal and Sanjeev Kapoor are reaching out to a wide consumer base, through books, television shows, newspaper columns and personal web portals

2. **Working patterns of the rural population**

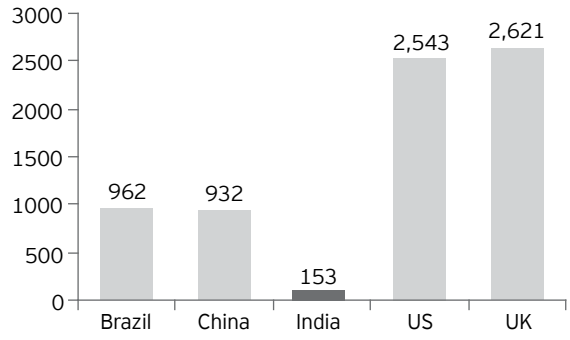
   In the rural areas, the media penetration tends to be limited. However, still there is a growing awareness of processed food products. This is driven by the family members of the rural population who travel and work in urban areas and are exposed to such types of foods and who in turn purchase them for their families back home.

Opportunities for growth

1. Drive and grow per capita consumption and spending on food products

The low food spending level in India provides an opportunity for players in this space.

Per capita spending on food and food products (USD/person/annum)



Source: Food and Agriculture Organization (FAO), Ernst & Young analysis

GDP per capita	6,616	2,427	616	45,960	36,311

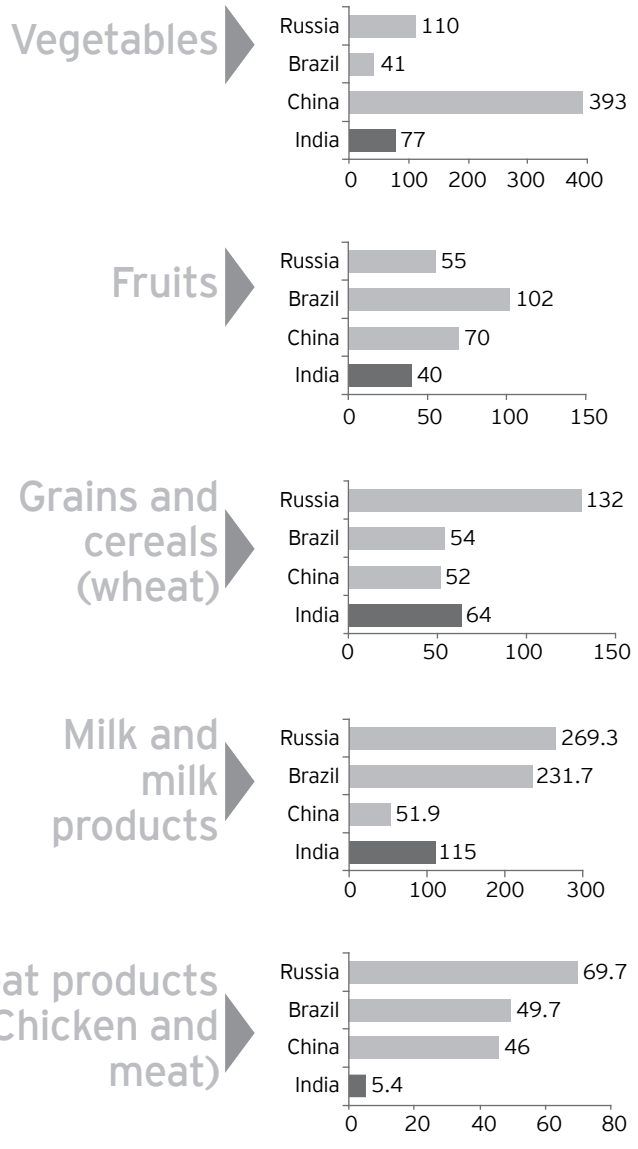
Amounts in USD per person

Per capita consumption as of 2008 for India and 2007 for the remaining countries

The per capita spending on food in India is 1/6th that of China and 1/16th that of the US.

While India's consumption of grains and cereals is comparable to global levels, an opportunity exists to drive and increase the consumption levels in milk and milk products, and meat and marine products.

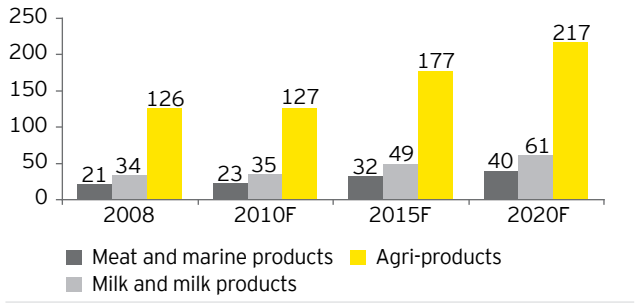
Per capita consumption of select food and food product categories (kgs/capita/annum)



Source: FAO

2. Focus on high-growth and high-value categories across agri-products, milk and milk products, meat and marine products

Change in overall consumption spends across product categories (USD billions)



Source: Ernst & Young analysis,
National Sampling Survey Organization (2006-07)

This provides some key opportunities for growth in the Indian food industry

	2008	2010F	2015F	2020F
Agri-products	69.53%	68.93%	68.64%	68.19%
Milk and milk products	18.88%	18.85%	19.02%	19.27%
Meat and marine products	11.58%	12.22%	12.34%	12.54%

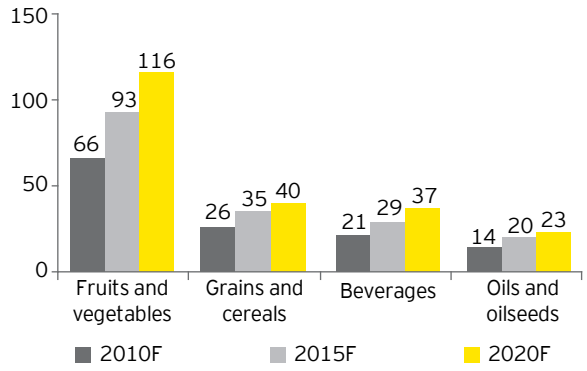
Milk and milk products are expected to increase their share in the total consumption from 18.88% to 19.27% to reach an addressable size of USD61 billion by 2020.

This growth is expected to be driven by the phenomenon of replacing homemade products like khoya/cottage cheese, yoghurt, etc. with branded offerings.

The share of meat and marine products is expected to increase from 11.5% to 12.54% to reach an addressable size of USD40 billion by 2020.

This growth is expected to be fuelled by the growing youth population (estimated size of 24.2 million by 2015) which has a preference for and is more receptive to such products.

Change in consumption spends across key subcategories in agri-products (USD billions)



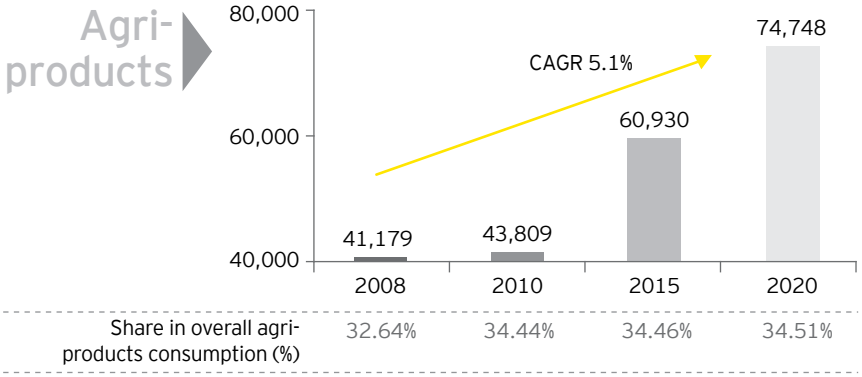
Source: Ernst & Young analysis,
National Sampling Survey Organization (2006-07)

Within agri-products, fruits and vegetables are expected to grow by a CAGR of 5.8% from 2010 to 2020 and reach an addressable size of USD116 billion.

3. Introduce value-added products in the processed food space to meet requirements of convenience, health and variety

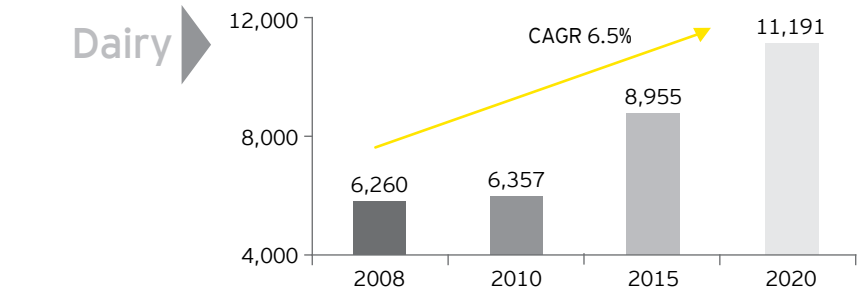
The magnitude of spending on processed products, especially tertiary products, is expected to grow from USD47 billion in 2008 to reach USD70 billion by 2015 and USD86 billion by 2020.

Projected growth in spending on tertiary products (USD millions)



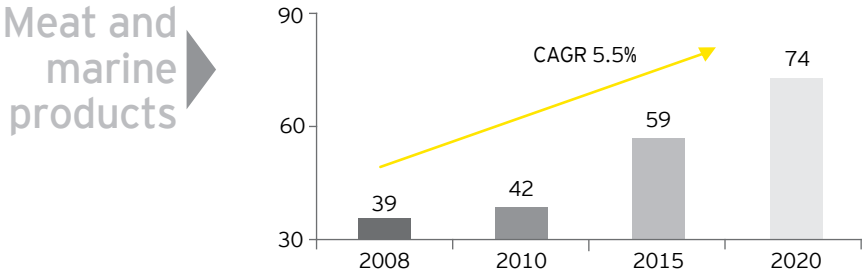
Share in overall agri-products consumption (%)	32.64%	34.44%	34.46%	34.51%

Product	USD millions in 2015
Confectionery/ chocolates	1,441
Potato chips	2,134
Bakery and cereals	6,836
Indian snacks	3,939
Spirits	17,694



Share in overall milk and milk products consumption (%)	18.28%	18.28%	18.28%	18.28%

Product	USD millions in 2015
Processed milk	5,479
Spreadable fats	2,307



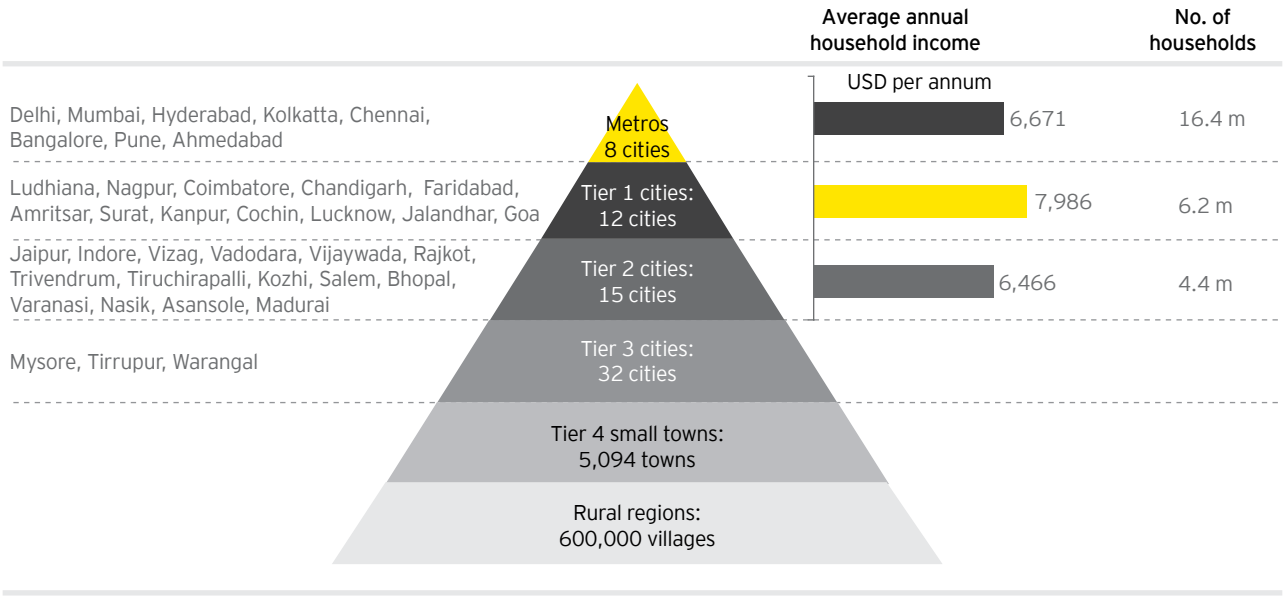
Share in overall meat and marine products consumption (%)	0.19%	0.19%	0.19%	0.19%

Ready-to-eat meat and marine products, which is part of the tertiary processed food category is expected to grow at 20-25%

Source: Ernst & Young Analysis, Economic Survey (2007-08)

4. Focus on new and emerging consumer markets

An untapped potential exists for processed tertiary food products in the Tier 1 and Tier 2 cities of India, due to the high household income and the current low diffusion.



Source: McKinsey, India Consumer trends

High household income levels has led to the growth of modern format retail chains in the metro cities, which in turn has contributed to the proliferation of processed foods in these markets.

However, Tier I and Tier II cities are regarded as the emerging cities for growth in India. This emergence is contributed by the growing awareness, high income levels and a shift in the palate, especially among the youth. This opportunity coupled with the limited availability of products in these markets makes these markets attractive to target.

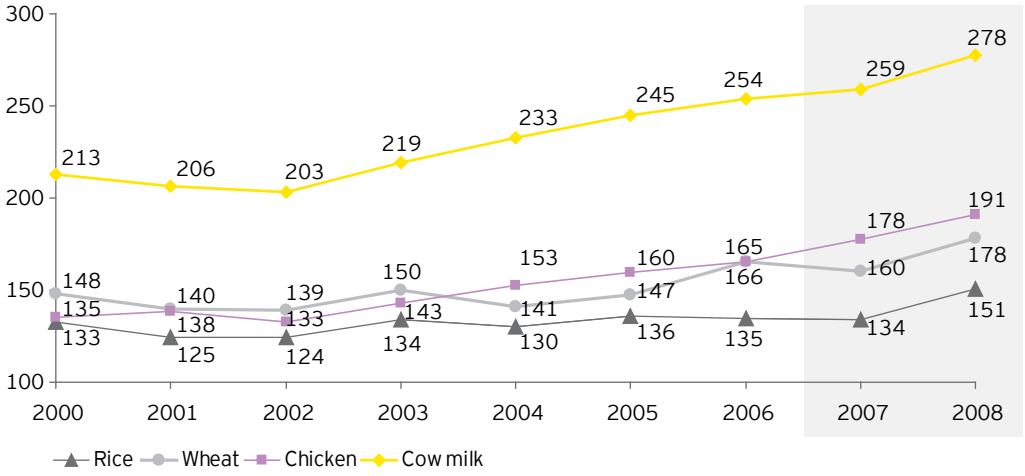
While the cost of reaching to these markets could be high, they present a long-term opportunity for food companies that are able to provide the right products at the right price point.

Challenges in growth

However, there are challenges converting this opportunity into a market.

1. Price sensitivity could affect consumer demand, especially in case of agri-products

Growth of average wholesale price for key categories in (USD/ton)*



* Prices for chicken (per quintal) estimated for 2007 and 2008

Source: FAO

Between 2004 and 2008, prices of agri-products such as wheat and rice witnessed a growth of 6% and 3.7% respectively. This resulted in a slowdown in the quantity consumed of these categories. For example, in the case of rice, the quantity consumed dropped by 1.9%.

In the case of cow milk the prices increased by over 4% on year-on-year (YoY) basis between 2004 and 2008. Despite a higher rise in price than the considered agri-products, growth of cow milk in terms of consumption was higher.

Also, the consumption of chicken registered a robust growth of 9.8%, inspite of the 5.8% increase in prices.

This shows that there is a high price sensitivity for the Indian consumer within agri-products.

For milk and milk products and meat and marine products, price changes within a certain level have not affected the consumption of these products.

Category	CAGR % change in price (2004-08)	CAGR % change in consumption (2004-08)
Agri-products (wheat)	6.0%	0.61%
Agri-products (rice)	3.7%	-1.9%
Milk and milk products (cow milk)	4.5%	1.65%
Meat and marine products (chicken)	5.8%	9.8%

2. Diverse market conditions driven by local preferences and need for consumer education

- Indian micro-markets are very diverse and people have adapted their food habits in terms of preferences largely driven by availability.
- Local consumer knowledge, language barriers, weather conditions, understanding demographic and psychographic diversity are some of the challenges faced by new entrants.
- For example, the type of oil purchased differs across regions – in the north region, mustard and soya oils are preferred; in the south, sunflower oil and in the west, groundnut or cotton seed oil.

- While the Indian consumer's awareness is increasing, there is still a strong need to educate the consumer about the food value and benefits such as quality, ingredients, etc.
- This requires investments from brands in terms of communication and advertizing.
- Established companies (with operations over 10 years) currently spend upto 12-14% of their sales on advertizing and promotion.
- In case of new product launches, the investment in advertizing and communication can be significantly higher for the initial few years.

- The Indian customer is very price-sensitive – mostly driven by price consideration rather than quality.
- There is a strong commodity perception about food products in most categories.
- Income levels of most consumers especially in the rural areas continue to be low.
- As a result, brands have launched smaller SKUs to promote usage and match the willingness level of the consumer to spend.

- Considering the price sensitivity of consumers, bargaining or value hunting is a common practice.
- Driven by this requirement, Indian retailers are increasingly following frequent sales promotions like "everyday low price" (EDLP) across categories.
- Additionally, there are customers who prefer smaller packaging vs. others who prefer bulk discounts on large packaging, or consumers who visit large retail set-ups for bulk purchases or the mom-n-pop stores for frequent and regular purchases.

Critical success factors

Key critical success factors for harnessing the opportunity in the food and food products space

Accounting for local tastes and preferences

Consumption habits of food products in India are diverse across the different regions of the country.

The decision to launch any product, thus must carefully assess the extent and potential of the market that can be targeted for high revenues.

Pillsbury, the international food product manufacturer, identified "Atta", or whole wheat flour, as a key product for its India entry, instead of refined baking flour, on account of the high usage of whole wheat flour across India. Accordingly the company launched its "Atta" brand in India a few years back. This brand now has a revenue base of over USD17 million.

Price-value offering of the Indian consumer

Indian consumers are driven by the price-value quotient. This requires the right balance between the offering of the product and the level at which it is priced.

Further, considering the current low consumption along with the price sensitivity, there is a high need to introduce smaller SKUs to induce usage and attract a larger consumer base.

Frito-lay customized its offerings in the potato chip space for India, bringing in smaller product packs for USD0.10 (INR5) to target the value customer.

The Indian Biscuit Parle-G emerged as the largest-selling biscuit in the world (in volume terms) due to targeted packaging, with its lowest SKU costing 10 cents for 80 grams

Drive awareness and education of the product

Considering that the Indian consumers are still in a transition phase and their awareness about processed products is on the rise, it is critical while introducing a product in this market to educate the customer and raise awareness about the quality, value and usage of the product.

In the process of introducing its breakfast cereals into India, Kellogg's embarked upon a nationwide campaign to educate consumers on the benefits of a healthy cereal breakfast, as against a typical Indian breakfast.

Sustained communication over the years has established the product as a healthy breakfast option for the Indian consumer.

Creators: producing to meet demand

Summary

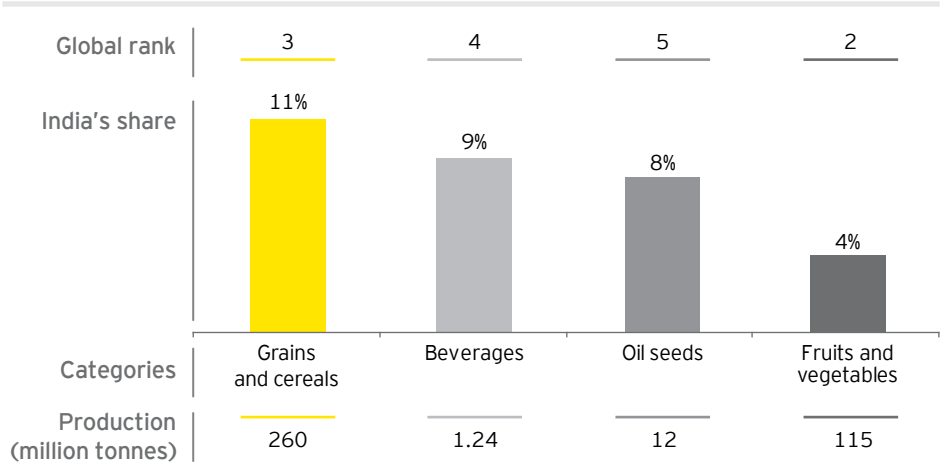
- India plays an important role in the international market scenario as a key producer of food products:
  1. Agri-produce — India is the second-largest producer of agri-products
  2. Milk and milk products — India is the largest producer of milk in the world
  3. Meat and marine products — India is among the top five nations in terms of chicken and meat production
- The food production in India across categories has been growing steadily over the years to match the consumer demands. Categories like milk and milk products and meat and marine products have grown at a faster rate than agri-products to match the increased demand from domestic and international consumers, facilitated by the entry of organized players
- There exist a significant opportunity to improve productivity in India which is one of the lowest among the BRIC countries
- The factors which affect this productivity include a combination of uncontrollable and controllable factors
  1. Fragmentation in holding patterns
  2. Impact of region specific factors impacting productivity along with constraints in land availability
  3. Low labor productivity with slow adoption of technology
  4. Inadequate support infrastructure
- This creates a range of opportunities which can be tapped by private players to drive and improve output — both in terms of quantity and quality
  1. Improvement of farming practices
  2. Better utilization of land
  3. Consolidation of creators
- However, there are some key requirements to convert this opportunity
  1. Awareness and education of the farmer
  2. Ease in access to credit
  3. Investment in the partnership model with a social focus

Indian food production scenario

India plays an important role in the international market scenario as a key producer of food products

1. Agri-produce – India is the second largest producer of agri-products

India – Category wise global rank in agri-produce



Source: FAO

Key producing regions

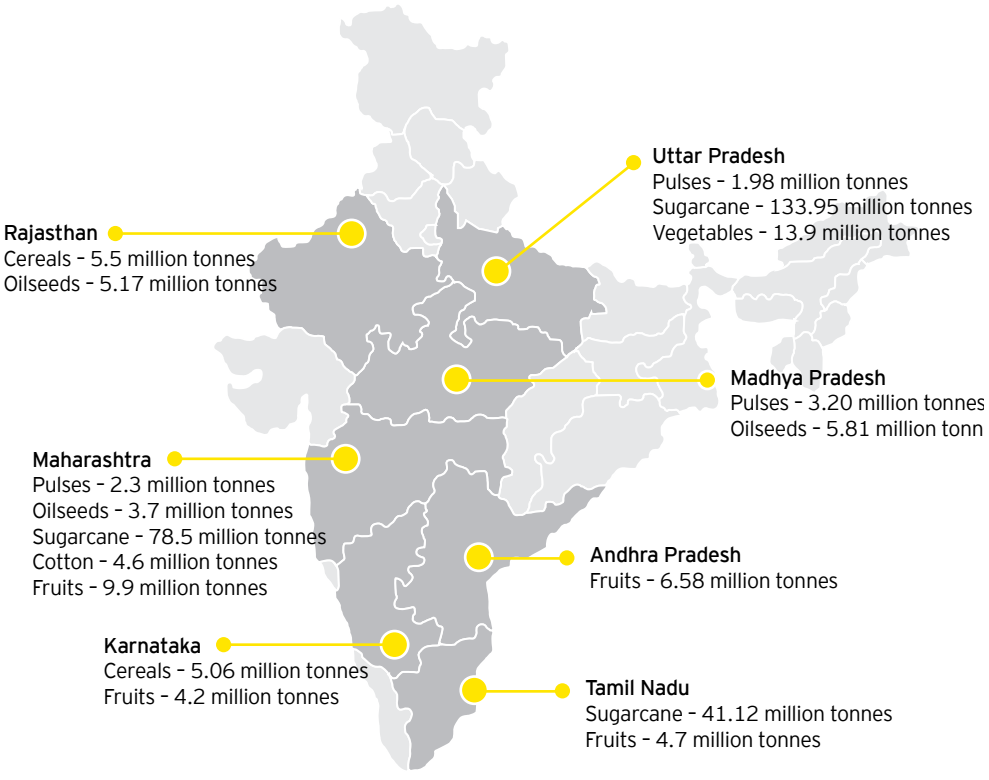
In terms of grains and cereals, wheat production stretches from central to northern regions of India which also mirrors the consumption pattern.

The southern and eastern states of India dominate the rice production.

Pulses and oilseeds are grown primarily in the central and western regions of India.

In terms of fruit production, the leading states are Maharashtra, Andhra Pradesh and Tamil Nadu.

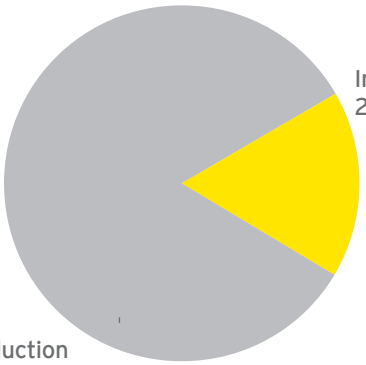
In case of vegetables, the production is mainly concentrated in the north and east regions of the country.



Source: Ministry of Agriculture

2. Milk and milk products – India is the largest producer of milk in the world

India's production in 2008 – 102.8 million tonnes



Source: Department of Animal Husbandry, dairying and fisheries

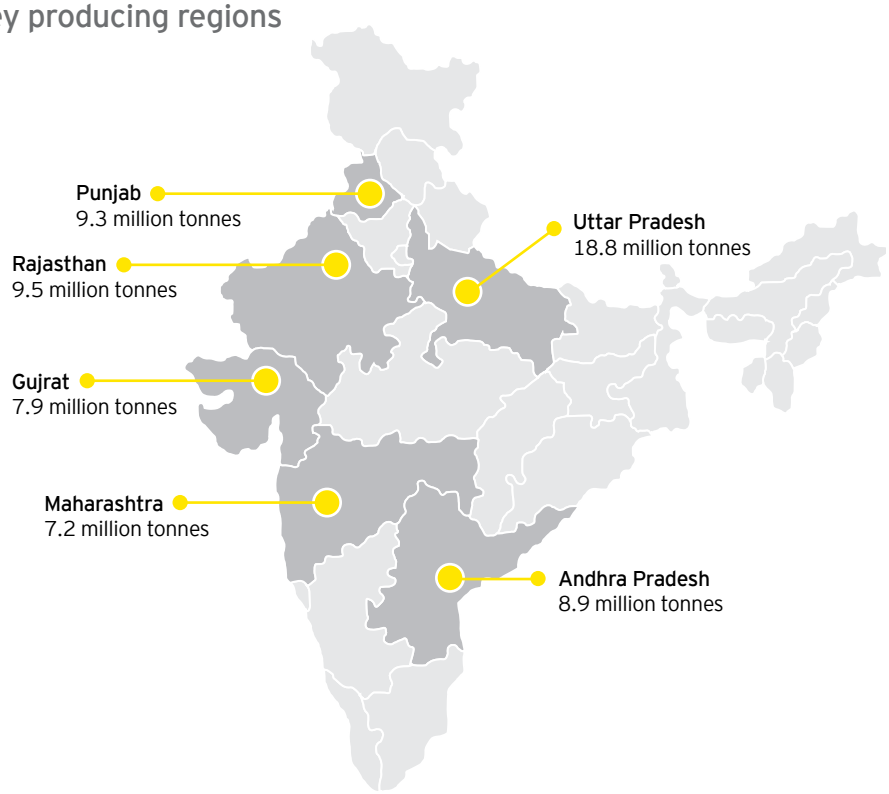
The production of milk in India has increased from 80.6 million tons in 2000 to 102.8 million tons in 2008.

This has resulted in the per capita consumption increasing from 106 kgs to 115 kgs in 2008.

This increase in the milk production can be attributed to 'Operation Flood' started by India's National Diary Development Board in 1970 which helped to reduce malpractices by milk traders and helped improve productivity levels.

However, the per capita consumption in India is still low as compared to the BRICs average of 184 kgs.

Key producing regions



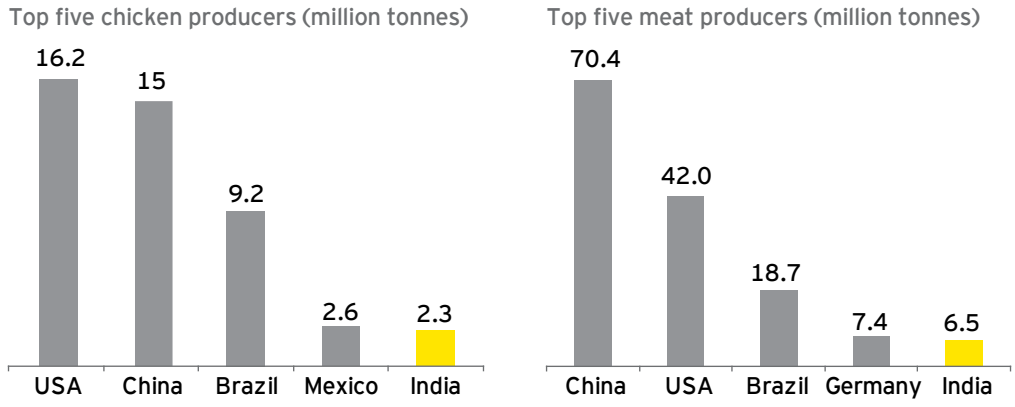
Source: Department of Animal Husbandry, Ministry of Agriculture

The key producing states of milk is concentrated in the north, west and south.

For the eastern regions, the milk is converted into powder and then reconstituted for consumption.

3. Meat and marine products – India is amongst the top five nations in terms of chicken and meat production

India is among the top five nations in chicken and meat (including chicken) production



Source: FAO

Buffalo meat and poultry are the biggest types of meat produced in India.

Mutton and lamb are relatively small segments where demand outstrips the supply and which has resulted in the high prices in the domestic market.

Buffalo meat production is mainly export driven with about 20% of the total produce being exported.

In case of the poultry industry, there is a high level of integration especially in Southern India which has resulted in greater production efficiencies and accordingly lower prices in those regions. This has resulted in the southern states' (Tamil Nadu) per capita consumption being over 3 times the national average.

With India being among the top meat producers in the world, there is an opportunity in terms of production improvement, implementing integration and accordingly further increasing the production and lowering prices.

In case of marine production, 62% is on account of capture production and 38% is on account of aquaculture. Marine fish in India primarily includes shrimps, finfish, tuna, cuttlefish, squids, octopus, red snappers, lobsters amongst others.

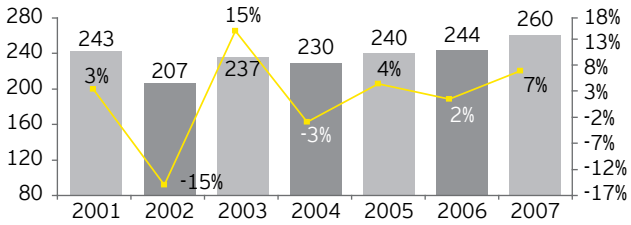
Of the total, 60% is obtained from marine sources with coastal fishing constituting the bulk. Deep sea resources account for only 12% of the output.

Considering its natural resources, India has a high potential for developing the production of marine products – in terms of promotion of deep sea fishing and increasing the share of aquaculture activities.

The food production in India has been growing steadily over the years to match the consumer demands

Change production (in million tonnes) of cereals across (2001-07)

Agri products
Cereals



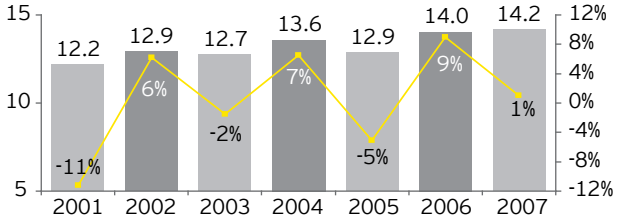
Country	CAGR (2001-07)
India	1.2%
Brazil	3.3%
China	2.3%
Russia	(0.6%)

The production of cereals in India has increased from 230 million tons in 2004 to 260 million tons in 2008. Increase in selling price and growing demand from the export market have been the key drivers for this increase in production.

Source: FAO

Change production (in million tonnes) of pulses across (2001-07)

Agri products
Pulses



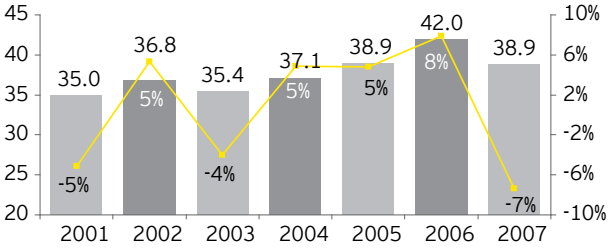
Country	CAGR (2001-07)
India	2.6%
Brazil	4.4%
China	(5%)
Russia	(5.5%)

In case of pulses, however, there was a marginal increase in production from 13.6 million tons in 2004 to 14.2 million tons in 2007. Price fluctuations, government interventions along with demand-supply gap have resulted in a change in the land acreage under pulses.

Source: FAO

Change production (in million tonnes) of vegetables* across (2001-07)

Agri products
Vegetables



Country	CAGR (2001-07)
India	1.8%
Brazil	3%
China	1%
Russia	1%

The production of vegetables has been growing steadily, touching 42 million tons in 2006 as compared to 37 million tons in 2004.

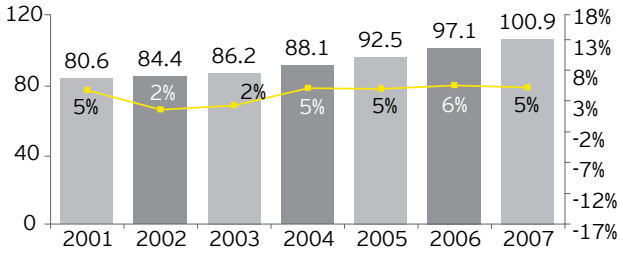
*Vegetables includes potatoes, tomatoes and onions

Source: FAO

During 2001 to 2007, there was an increase of ~1.3% in the harvested land in the country.

Change production (in million tonnes) of milk across (2001-07)

Milk and milk products



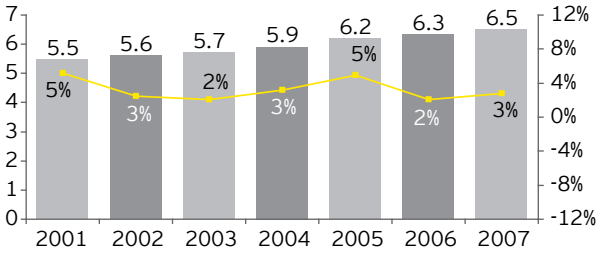
Country	CAGR (2001-07)
India	3.8%
Brazil	3.5%
China	15.5%
Russia	(0.3%)

The milk and milk products segment is highly organized with a presence of established players resulting in the steady growth in the production of these products. The udder quality of milk produced in India is of very good quality and matches the best in the world.

Source: Ministry of Agriculture – Department of Animal Husbandry, Dairying and Fisheries

Change production (in million tonnes) of meat (including chicken) across (2001-07)

Meat and marine products
All meat



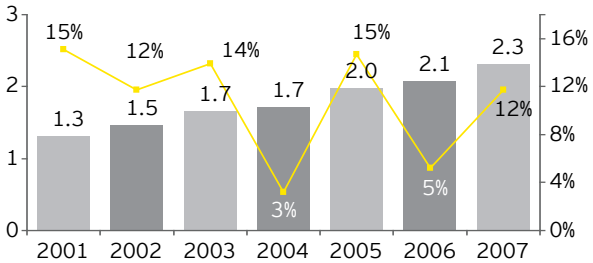
Country	CAGR (2001-07)
India	2.8%
Brazil	2.5%
China	1.6%
Russia	3.7%

In case of meat products, the rising export demand for bovine meat has resulted in the growth in production of these products - the production increased from 5.9 million tons in 2004 to 6.5 million tons in 2007.

Source: FAO

Change production (in million tonnes) of meat (including chicken) across (2001-07)

Meat and marine products
Chicken



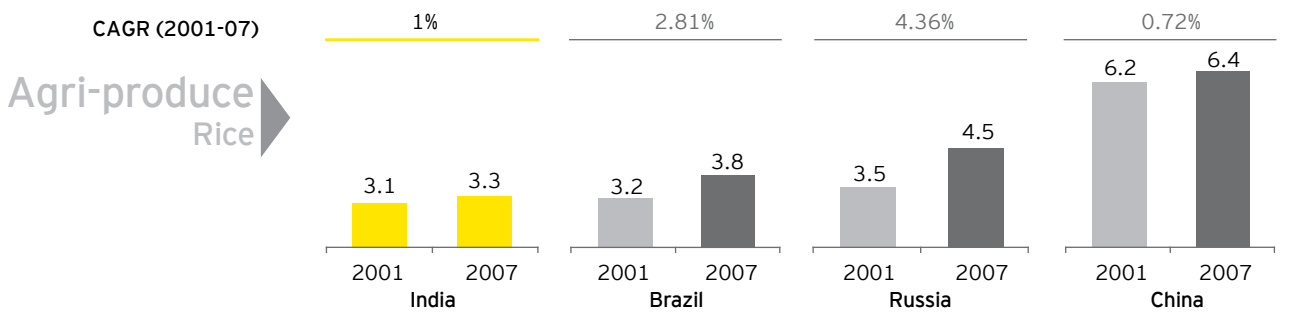
Country	CAGR (2001-07)
India	9.7%
Brazil	5.4%
China	2.6%
Russia	11.7%

Reflecting the consumption demand, driven by rising disposable income and acceptability of these products by the youth population, the growth of production of these products has increased over the years.

Source: FAO

There exists a significant opportunity to improve productivity in India which is one of the lowest amongst the BRIC countries

Change in yield (tonnes/hectare) of rice across BRIC countries (2001-07)

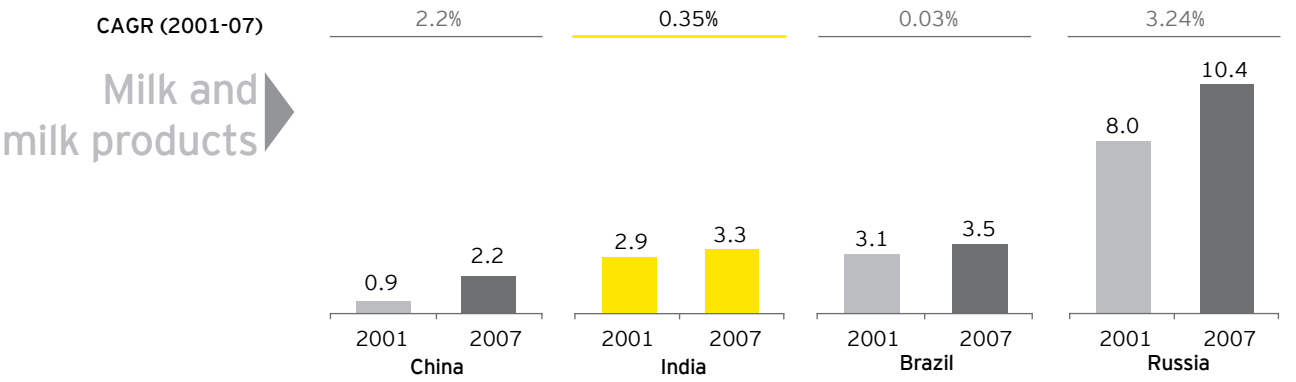


Source: FAO

Change in yield (tonnes/hectare) of wheat across BRIC countries (2001-07)

Source: FAO

Change in yield (milk in kg/animal) of milk across BRIC countries (2001-07)



Source: FAO

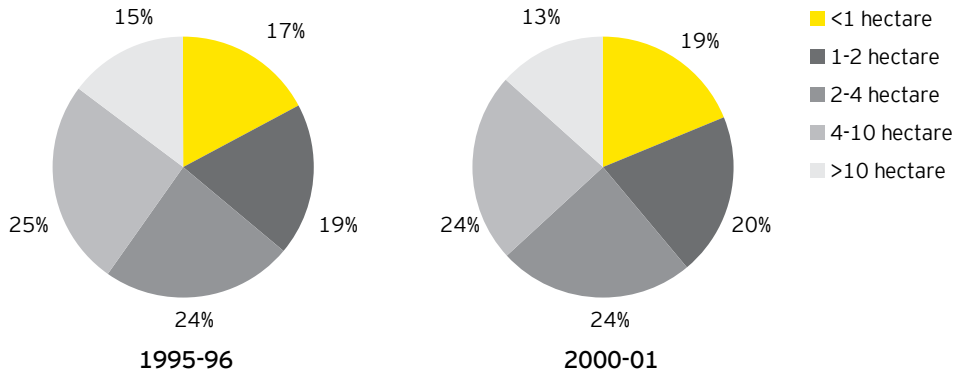
India has the lowest yield in rice among the BRIC nations and the lowest yield growth in all other products considered above

Key factors impacting growth of food production

Some key factors affecting this levels of productivity – uncontrollable factors

1. Fragmentation in holding patterns

The size of average area under cultivation has decreased between 1995-96 and 2000-01



Source: Ministry of Agriculture, Directorate of Economics & Statistics

Average farm size in India is 1.4 hectares. Such small operations make investments in automation unviable and also complicate coordination and integration between farmers, processors and the end consumer. Even in case of milk producers, an average producer has 3-4 cows producing 4-5 litres per cow as compared to the international standard of a producer having more than 15 cows with a production of 18-20 litres per cow.

Major reasons for fragmentation in land holdings

Division in land holdings	Holdings have become fragmented as the farms are divided through inheritance
Restrictions in land ownership	Few states and union laws impose certain restrictions (except for approved purposes) on private companies to own agricultural land
Restrictions in land holding size	There are restrictions about the size of land holding in the name of a single entity – regulations are dependant upon individual state policy

Some key factors affecting the levels of productivity – uncontrollable factors

2. Impact of region specific factors impacting productivity along with constraints in land availability

Region specific factors impacting productivity levels

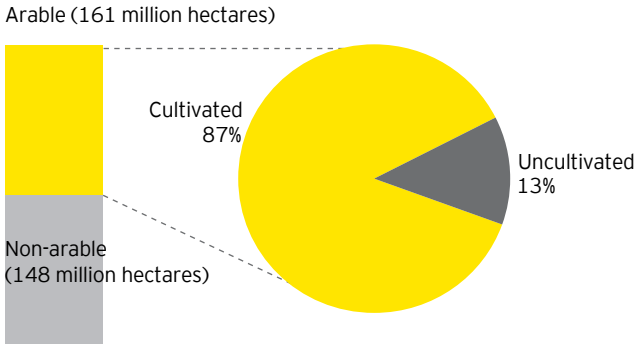
Agro-climatic region	States/parts of states	Region-specific constraints
Western Himalayan region- I	Jammu & Kashmir, Himachal Pradesh, Uttaranchal	Severe soil erosion, degradation due to heavy rainfall/floods and deforestation, low SRRs*, poor road, poor input delivery, inadequate communication infrastructure and marketing
Eastern Himalayan region- II	Assam, North Eastern states, Sikkim	Aluminum toxicity and soil acidity, soil erosion and floods, shifting cultivation, low SRRs*, non-availability of electricity, poor road, poor input delivery system and communication infrastructure
Lower and middle gangetic plains regions – III & IV	West Bengal, Bihar, Eastern UP	Flood/water logging, improper drainage, salinity/alkalinity, arsenic contamination, low SRRs*, non-availability of electricity, high population growth, poor road and communication infrastructure
Upper and trans-gangetic plains region – V and VI	Western Uttar Pradesh, Punjab and Haryana	Groundwater depletion, decreasing total factor productivity, micronutrient deficiency, non-availability of electricity, and high population density
Eastern plateau and hills region - VII	Orissa, Jharkhand, Chattisgarh	Moisture stress, drought and soil acidity, iron toxicity, low SRRs* non-availability of electricity, high population growth, poor road, poor input delivery and communication infrastructure

*SRR – Soil respiration rate

Source: Cited in report of the working group of sub-committee of National Development Council on Agriculture and Related Issues on Region/Crop Specific Productivity Analysis and Agro-climatic Zones, Planning Commission, Government of India (February 2007)

Constraints in land availability

Distribution of arable land (in million hectares)



Of the arable area, the net sown area is around ~140 million hectares and the non-arable area is around 148 million hectares

Source: Ministry of Food Processing industries, Planning commission working report (2006)

There are several constraints of land availability for agriculture due to competing pressures from urbanization, constructions and industrialization, due to which the agriculture space has witnessed a declining trend of acreage for most of the crops.

India is under constant pressure to utilize its agricultural resources optimally, given that on one hand the population is growing and on the other hand, land under cultivation is stagnant and yield growth is largely flat across major categories

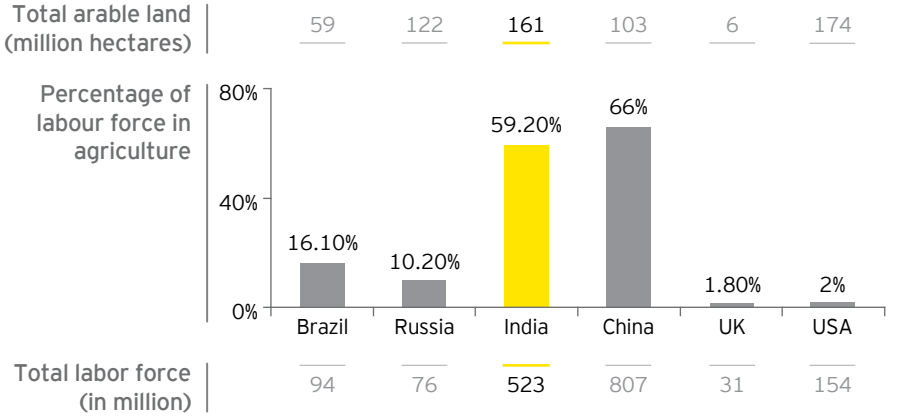
Some key factors affecting the levels of productivity – controllable factors

3. Low labour productivity with slow adoption of technology

India's 161 million hectares of land, has a yield of 751 million tons, employing a workforce of 310 million, while China has a yield of 1,182 million tons with an arable area of 103 million hectares.

Labor force participation in agriculture and allied activities (%)

Low productivity of labor



Slow adoption of technology and inputs

The high dependence on labor for agricultural activity has affected the speed of technology adoption. Mechanical tools such as tractors, threshers and automated abattoirs/dairies have not proliferated across India, affecting yield.

Farmers have been slow in adopting new farm practices such as drip irrigation, high yielding seeds and high density plantations. Moreover, an imbalance in the usage of fertilizers has resulted in the drop of fertilizer efficiency over the years from 17.1 in 1980 to 6.5 in 2000.

Dairying and animal husbandry has largely been a backyard operation for Indian farmers. For example, for most farms even basic cooling facilities to avoid contamination are missing. With the Indian weather and passing time, the bacteria count increases exponentially which affects the output . Similarly in the case of meat and chicken, adoption of technology at breeding, rearing and feeding are rudimentary at farm levels

In spite of efforts by the government in subsidizing new technology adoption, challenges in educating the farmers of their benefits has affected their adoption

Poor maintenance of natural resources

Depletion and degradation of production resources mainly land, water and soil has resulted in a poor response of these natural resources to inputs. Also, Indian agriculture is highly dependant on the performance of monsoon, which has not been consistently favourable.

4. Inadequate support infrastructure

Impaired access to credit

Volatility of farm loan advances, combined with the high transaction costs involved in disbursement (typically 6 to 7% of the loan amount) has limited the activity of private organized institutions largely to top section of the farmers, thus choking credit for marginal farmers at the bottom of the pyramid.

This forces the marginal farmer to avail loans from private money lenders at exorbitant interest rates, affecting their cash flow.

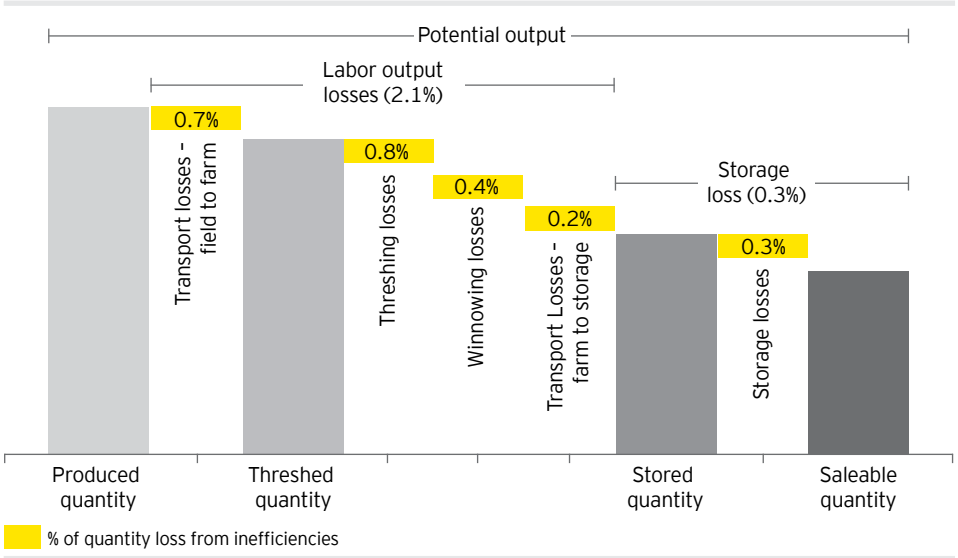
The lack of credit access to farmers limits the working capital available, hindering investments in technology and high yielding inputs.

Transport and processing inefficiencies leading to wastage

Wastage due to post harvest/pre sale transport, processing and storage contributes to a loss of nearly 2.3% of the total produce quantity.

The poor transport and storage infrastructure, along with use of labor for post harvest processing affects the farm productivity by reducing the quantity available for sale.

Illustration of poor production practices leading to post harvest/pre sale wastage – a typical flow across grain and cereal farming



Source: EY analysis of post harvest processing for grains and cereals

Opportunities for improvement

These challenges offer several opportunities to drive and improve output — both in terms of quantity and quality

1. Improvement of farming practices

a). Seed management system

Enhancement of production and improved efficiency through easy and assured availability of advanced seeds (hybrids) and, seed multiplication mechanisms. Even though the government has partnered with private players for the purpose of seed management, a lot still needs to be done in this field.

- A majority of certified/qualified seeds consumed were old seeds whose validity was re-notified beyond their use period
- Additionally, states like Orissa, Bihar, Uttar Pradesh which are high producing regions have still not adopted seed management with no improvements in seed production and seed replacement rate

b). Soil health and nutrition management

There is an opportunity to introduce and manage of different types of cost efficient fertilizers for balanced use, and which are appropriate for the soil conditions

Example for the need of soil health and nutrition management

- One of the main factors which has affected the nutritional soil status is the imbalance in the use of NPK in fertilizers. As against the recommended proportion of 4:2:1 of NPK, the aggregate national averages at 7:2:1
- The imbalanced use of fertilizers by the farmers can be attributed to two factors:
  i) lack of his awareness on the aspect of soil health and its nutrition balance and
  ii) subsidized pricing of these fertilizers

c). Water management

- Ensuring maintenance and sustainability of water resources through the modernization of existing irrigation facilities and introduction of new technologies

d). Bio-measures for pesticides and insecticides

Use of healthy bio-friendly pesticides and insecticides and gradually adopting a practice of no-pesticides and insecticides

e). Technology upgradation (soft and hard)

Effective usage of biotechnology, information and communication, renewable energy technologies and nanotechnology can not only improve production but also protect the environment.

Adoption of latest technology and equipment will support the long-term farm productivity initiative. Basic farming equipment such as tractors and electronic farming equipment can lead to improvement in short and medium term.

Case study 1

Jain Irrigation Systems Limited (JISL) is a player in providing farm related practices and inputs.

India is one of the leading producers of bananas in the world. Economically, it is one of the most important fruits in India, especially in the state of Maharashtra. JISL adopted a "Tissue culture" instead of traditional methods in the farming of bananas. This resulted in an increase of yield by two times along with a reduction of other input costs.

Case study 2

Driven by the growing concern by environmentalists at the continuous lowering of water levels in the state of Punjab (north India), Pepsi Co. introduced a solution in the form of direct seeding for paddy (rice) to save water by atleast 40%.

An experiment was conducted across 25 acres of land which indicated that the technique resulted in the water consumption being reduced by 40% (1,000 kl/acre) and the cost of production by USD20 — USD25 per acre.

2. Consolidation of Creators

In case of agriculture, there is a high fragmentation in the land holding pattern. This is also applicable in case of meat and marine products where the creators are highly unorganized and fragmented

This drives a high opportunity for consolidation and collaboration among these creators. This would however, require both private and public intervention in providing managerial support, fund availability, agriculture science etc.

This collaboration would work favorably for companies looking to secure their input sourcing, by directly dealing with creators and obtaining inputs at desired levels of quality and quantities.

In case of milk and milk products, this collaboration and consolidation has been highly successful and has proved to be a boon for the sector.

Case study: Amul India — Truly integrating and consolidating the creators in the milk and milk products space

Background of the movement

Started in 1970, called as 'Operation Flood' it was the biggest wave of development which took place in the milk and milk products space. The operation was focused towards upliftment of the farmer with his protection from malpractices and at the same time drive and increase the production of milk.

Introduction to the present system:

Every day, Gujarat Co-operative Milk Market Federation (GCMMF) collects ~8.4 million liters of milk from 2.79 million farmers (many illiterate), converts the milk into branded, packaged products under the brand name of Amul, and delivers goods worth over USD4 million to more than 0.5 million retail outlets across the country.

The core activity of dealing with the farmers is managed by GCMMF. All other activities are entrusted to third parties such as the logistics of milk collection, provision of animal feed, and veterinary services.

Given the large number of members in the supply chain with their decentralized responsibilities, coordination is critical for efficiency and cost control.

Sourcing from farmers

Milk is collected on a daily basis from farmers in Gujarat. Farmers are assured of collection and the value is paid in cash. Milk collection contractors collect the milk from villages and deliver it to either a aggregation location or a processing house.

GCMMF on the other hand monitors milk collection contractors, the supply of animal feed and other supplies, provision of veterinary services, and educational activities for the farmers.

This coordination is achieved through years of organization-wide implementation of best practices. People work in small work groups at the village, union and federation levels.

Its latest initiatives include the spread of technology, for example:

- Installation of chilling stations at the village society level
- Information to farmers relating to markets, technology and best practices in the dairy industry
- Implementation of the Geographical Information System (GIS) across the supply chain and distribution network

3. Better utilization of land

India can evaluate and bring additional waste land such as semi-arable land under cultivation.

This would however, require the introduction of modern technology and investments and will be feasible mostly for large organized players.

Case study – Utilization of non-arable land in Israel

In Israel, only 17% of the total land area is arable, most of which is located in the central part of the country which is under pressure from growth in housing. To overcome this limitation, Israel started with cultivation activities in the sparsely populated desert area of Arava and Negev.

Now more than 40% of the country's vegetables and field crops are grown in this region. For example, in Negev, the cultivation of new citrus varieties have resulted in yields 50-100% higher than those in other regions in the country.

4. Other improvement activities

a). Cross-breeding

Currently, cross breeding practice is a nascent and underdeveloped practice. For example in case of cows, the cross-breeding level is less than 20% of the total population.

Therefore, this creates an opportunity to establish breed improvement programs and indiscriminate crossbreeding with descript indigenous breeds which in turn will help improve the overall milk and farm productivity

b). Animal fodder

The science of animal food is under developed in India. Most herds either depend on the limited land available (~5% of cultivable land) for grazing or indigenously prepared animal food.

c). Habitat Improvement

Greens contribute to over 50% of India's animal feed and fodders. Judging by the requirements and availability of green fodder, a deficit of more than 25% may persist and may be further aggravated unless adequate measures are undertaken.

Even as the share of other animal feed increases, India has to maintain and improve the existing resources for sustenance in the short to medium term.

Key success factors for productivity improvement

However, there are some key requirements to convert this opportunity

Agriculture literacy

Educating the Indian farmer on modern farming practices through demonstrations and trials which could be used as a key marketing tool.

Case study : 'Samridhi' center by Mahindra

Background of Mahindra and Mahindra

The USD6 billion Mahindra group is a diversified conglomerate with presence across agriculture, financial services, real estate and infrastructure, automobiles among others. It is the largest manufacturer of tractors in India and third largest in the world.

Mahindra Samridhi centers

The objective was to offer a host of agri-related services under one roof. It launched the first center in Raipur and now operates over nine centers presently.

Mahindra Samriddhi Centres were conceptualized to educate the Indian farmer about various technological inputs to keep him abreast with contemporary solutions to farming issues.

What it offers

The centres provide:

- Soil and water testing facilities to farmers
- Information about innovation in farming technology
- Agri counseling for better product yield
- Finance, tractors, tools and equipments and other services

Access to credit

The biggest challenge for the farmer/producer is the access to credit. While the government and several NGOs and micro-credit organizations are actively working in this area. Companies need to leverage their presence to provide better credits access, companies could also provide credits for the inputs that can be paid for post the harvest.

Partnership model with a 'Social' approach

Considering the level of fragmentation in the Indian scenario, there are several stakeholders who influence the decision making of the creator. Approaching a set of creators with a value proposition of assured off take and fair prices can provide a large opportunity to a company in sourcing. Additionally, the use of local talent to execute this activities would be imperative.

The player would have to adopt a 'social' rather than a 'commercial' approach. Often societal pressure works best in enforcing such arrangements rather than an agreement.

Contributors: Supporting the consumers and creators

Summary

Delivery intermediaries

- The supply chain between the Creator and Consumer is long and involves interactions with multiple delivery intermediaries
- This fragmented supply chain has a twofold impact :
  - The extent of wastages in the supply chain due to the multiple layers of intermediaries resulting in increased time taken to reach the consumer affecting the freshness and quality of the product. In case of fruits and vegetables the wastages can range from 10% to 25% due to the short shelf life and depends on the type of product. In case of grains and cereals, this wastage is lower at 2-5%.
  - The price at which the product reaches the consumer — in case of grains and cereals and fruits and vegetables there is over 75% escalation impact that gets applied as the product moves from the farm gate to the consumer. However, in case of milk and milk products, the escalation impact is only about 50% considering the structured and controlled nature of the supply chain due to the presence of organized players.
- To address these inefficiencies, opportunities are available to processors/manufacturers to adopt contract farming processes whereby, they can source directly from the farmers and accordingly optimize the supply chain.
- However, several key factors need to be taken into consideration for achieving success in contract farming, such as, transparency in information exchange with the farmers, farmers' support mechanisms, a well defined dispute resolution framework and a profit-sharing mechanism.

Commodity exchanges

- Commodity exchanges are a nascent concept in India to assist in the price discovery mechanism
- Key factors which would be required to drive the usage of these exchanges provide multiple opportunities for growth

Processors/manufacturers

- The processed food market in India is at an early stage with low penetration and high potential
- In terms of domestic consumer spending, tertiary processed products account for 21% and tertiary processed products account for 26% of the spending. However, beverages and, oil and oilseeds form close to 50% of the tertiary processed consumption.
- In terms of international trade, tertiary processed products account for 33% and tertiary processed products account for only 9% of the export value.
- As a result of the above, the proportion of high value added tertiary processed foods in India is quite low.
- Majority of the players in food processing do not have scale and are not integrated with very few integrated Indian and international players.
- Some of the processing units demand very low technology and investment and this has led to the proliferation of unorganized players in the processed food segment. This has resulted in lack of scale and efficiency thus increasing the cost to the consumer.
- Additionally, the applicable taxation regime has affected the pricing levels of these products which in turn has impacted its consumption
- However, going forward, the government of India has outlined a plan to promote the development of the processing sector in India.
- This creates an opportunity for growth in the processing industry to service both Indian and international markets.
- To tap this opportunity, players need to implement certain initiatives which are crucial for success such as, backward linkages for sourcing, investments in supply chain, support infrastructure and technology adoption

Retailers

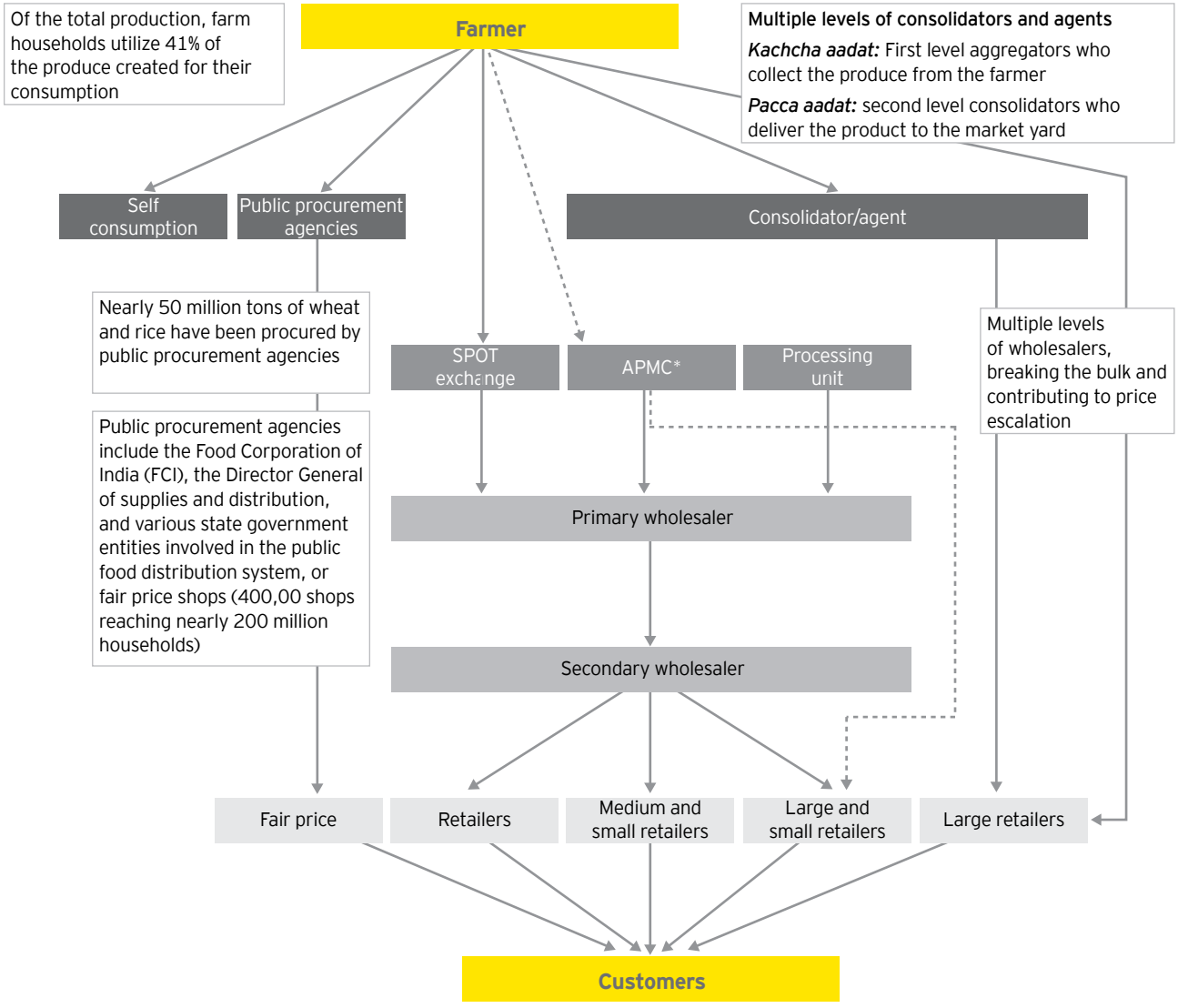
- Indian retail has been dominated by traditional trade/grocery outlets, with modern retail being a new phenomenon in the country with penetration level of about 5%.
- This provides an opportunity to build modern retail chains and provide a platform for effective distribution of food and food products which has been explored by several international retail companies.
- However, the success in organized retailing in food & food products is governed by key critical success factors like effective supply chain management, understanding of local tastes and preferences and finding a sound local partner.

Supply chain of key products and their impact

The supply chain between the Creator and the Consumer is long and involves interactions with multiple delivery intermediaries

The delivery intermediaries play a key role in getting the product to the consumer. They also make the process long and complex and hence present opportunities for improvement. We have analyzed some key food categories to better understand their role and the potential improvement opportunities in this area.

1. Agri products – Grains and cereals

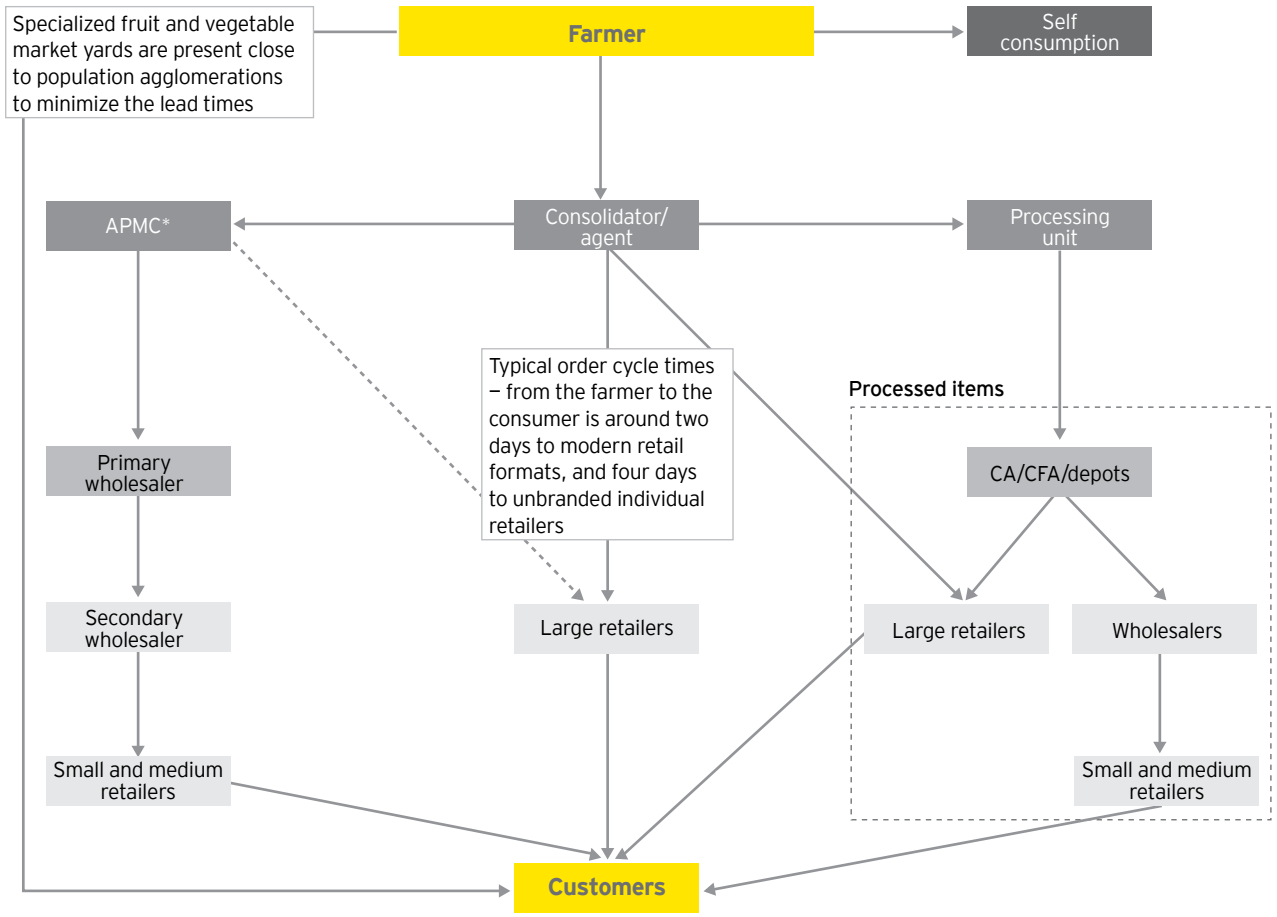


*APMC – Agriculture Produce Marketing Committee

Source: Government of India, Planning commission of India, EY Analysis

2. Agri products – Fruits and vegetables

The complex supply chain present for fruits and vegetables, combined with the lack of cold chains to extend their shelf life contributes to high level of wastage and price escalation by the time the product reaches the consumer

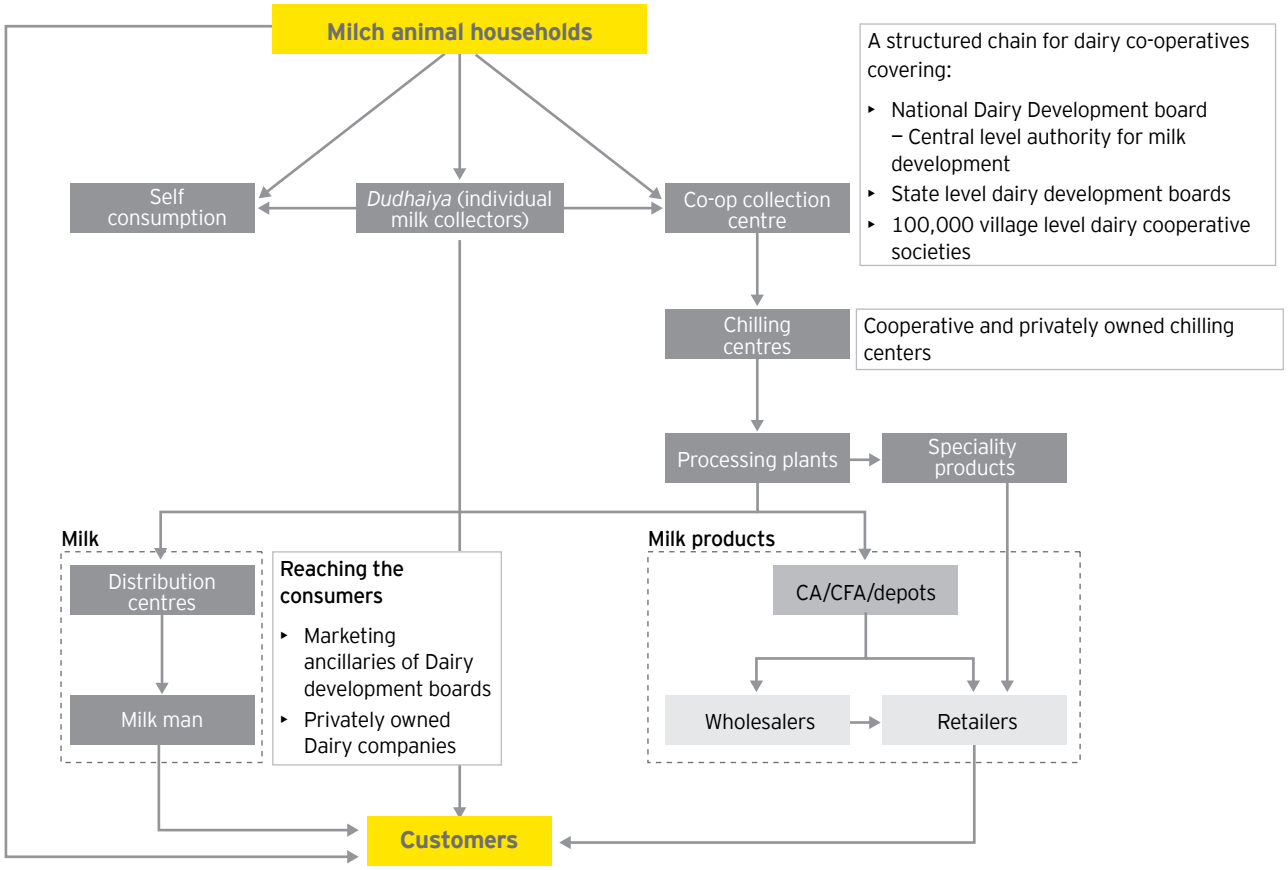


*APMC – Agriculture Produce Marketing Committee

Source: EY analysis

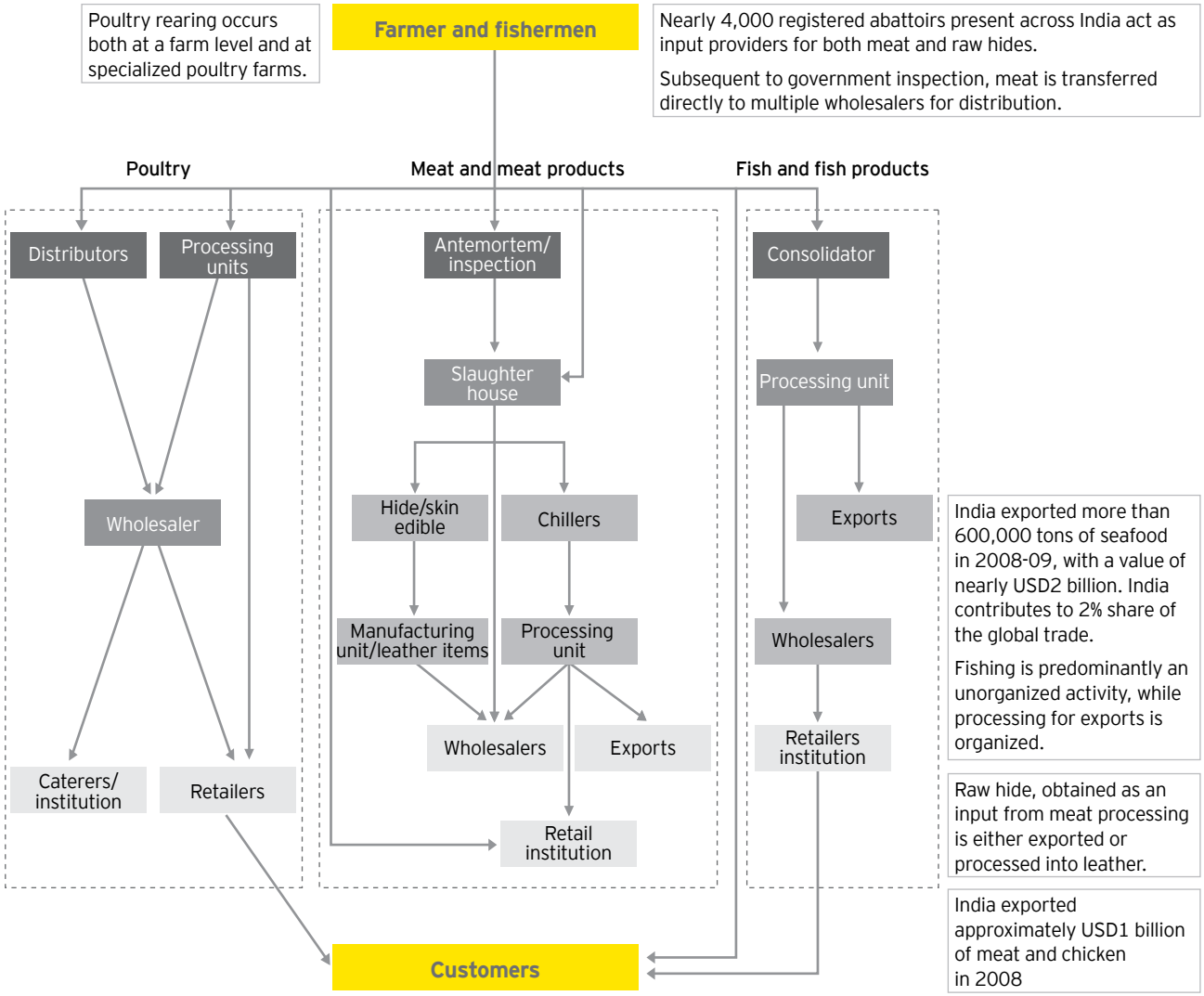
3. Milk and milk products

In case of milk and milk products, the supply chain is structured and driven by the presence of integrated milk co-operative organizations at a national, state and village level



Source: EY analysis

4. Meat and marine products

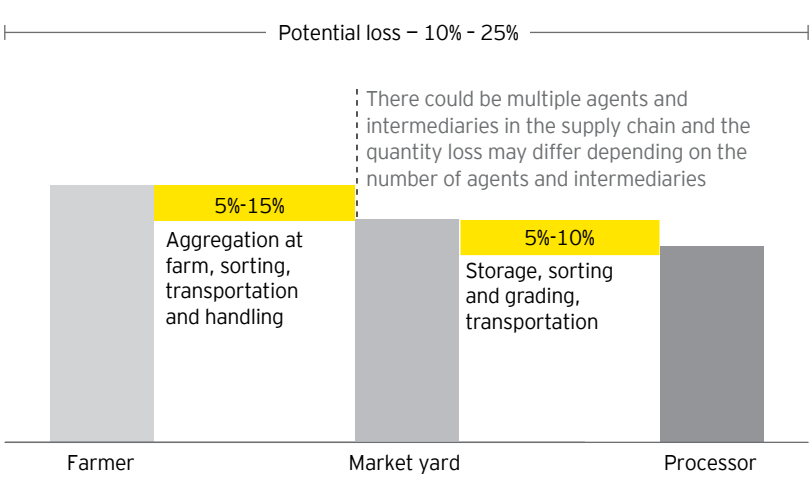


Source: EY analysis

This fragmented supply chain has a two fold impact

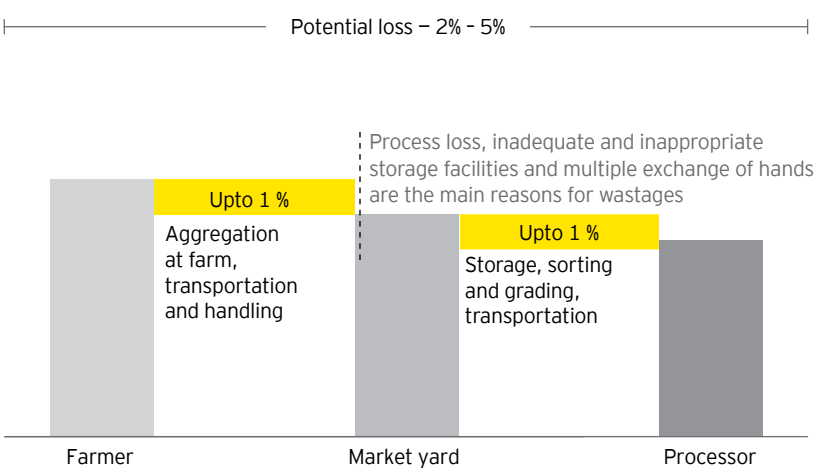
1. It impacts the extent of wastages in the supply chain due to the multiple layers of intermediaries resulting in increased time taken to reach the consumer affecting the freshness and quality of the product

Typical wastage in fruits and vegetables from farmer to processor



The amount of quantity loss from the farmer to the processor will differ based on the attributes of the product category in terms of hardness, shelf life, proportion meant for consumption etc.

Typical wastage in cereals from farmer to processor



The amount of quantity loss for cereals from the farmer to the processor is lower in the supply chain – due to the nature of the product category. However, average quantity loss is high at the farm stage as most cereals go through a process of cleaning, dusting etc.

2. It also impacts the price at which the product reaches the consumer

Intermediaries such as aggregators, brokers, market yards, transport and storage providers typically add nearly 10-20% to the cost of the products

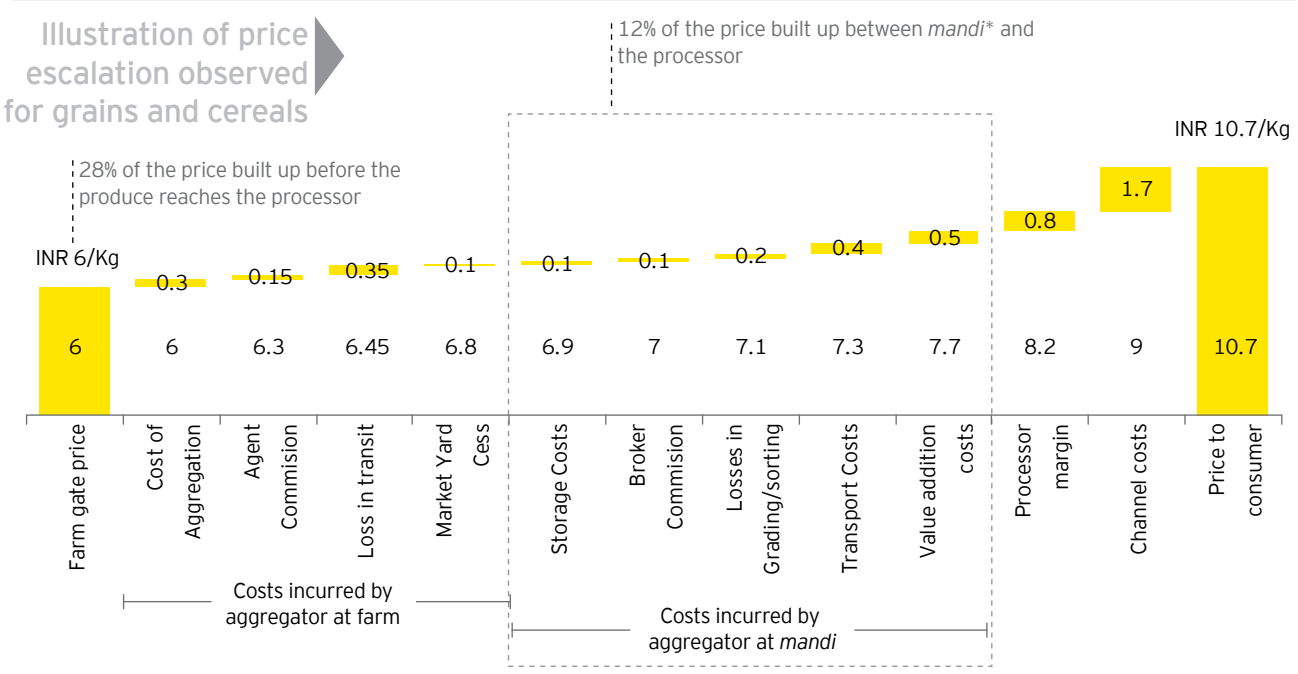


Illustration of price escalation for basic food products with minimal value addition due to processing.
Prices used are only indicative and do not reflect market values
*Mandi = Indian wholesale market

Source: EY analysis

The only value addition between the farm gate and the processor facility is consolidation and transportation

The price built up for these activities is disproportionate to the actual value addition – as much as 28% of price build up is applicable as the product moves from the farmer to the processor.

Transit losses are less for grains due to its long shelf life, the viability of sourcing through the long and fragmented traditional channel is still more attractive than direct sourcing. This will continue until there is a possibility of significant yield improvement or the processor has a presence in tertiary processed consumer products.

Low shelf life of fruits and vegetables result in high wastages and hence, contribute to the escalation in price

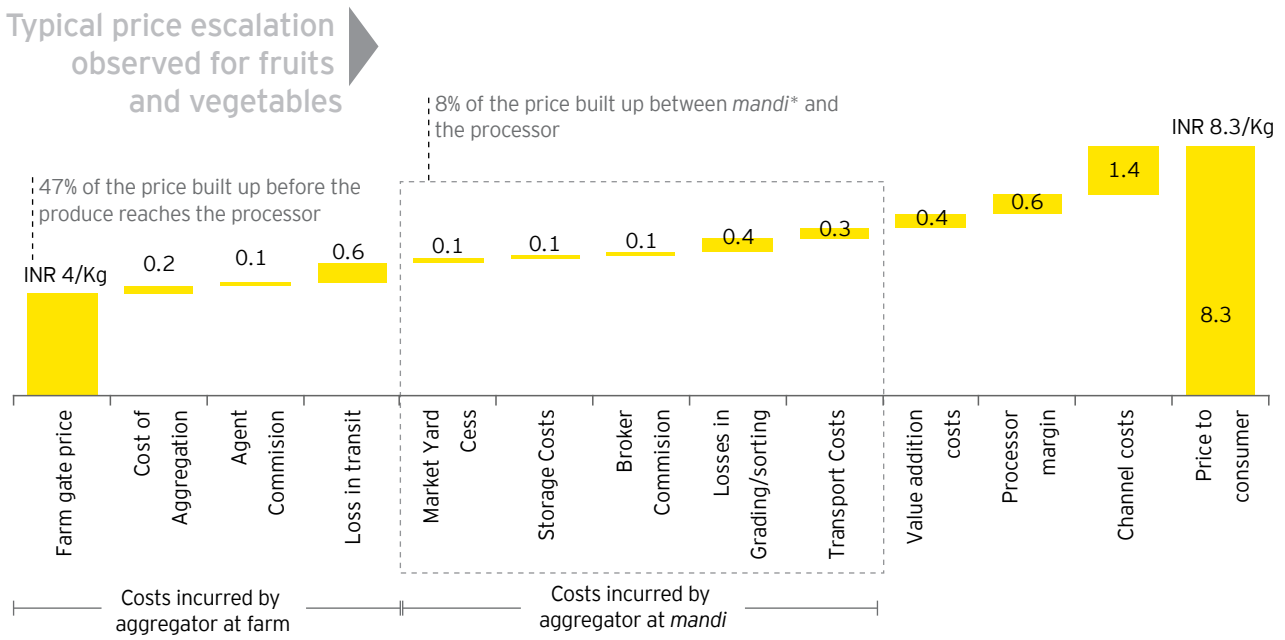


Illustration of price escalation for basic food products with minimal value addition due to processing.
Prices used are only indicative and do not reflect market values
*Mandi = Indian wholesale market

Source: EY analysis

Due to the higher transit losses and the low shelf life of these products, the price built up before the produce reaches the processor is disproportionate to the value addition in the process.

There is enough potential to capture value in a fruits and vegetables supply chain through streamlining the number of delivery intermediaries and sourcing directly from the farmer.

Access to a structured supply chain in the milk and milk products space results in a lower price escalation as the product moves from the farm gate to the consumer as compared to agri-products

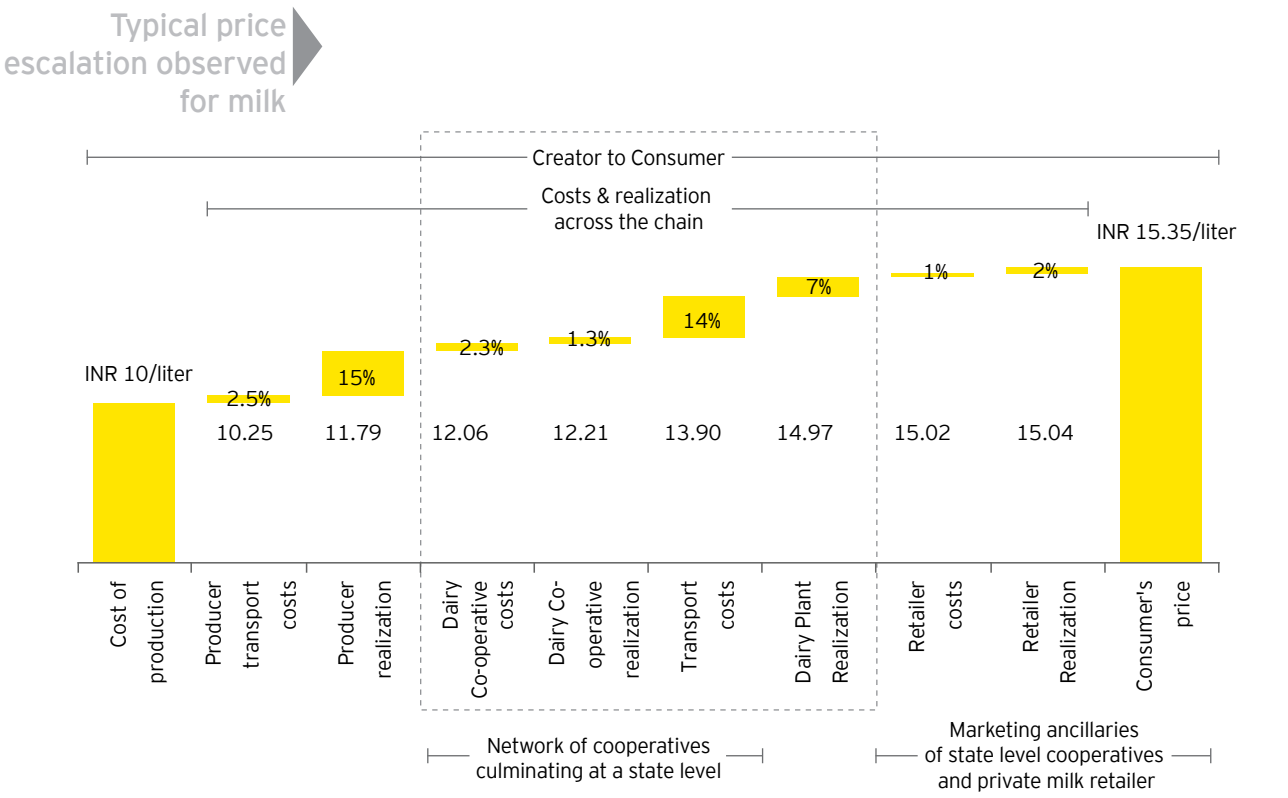


Illustration of price escalation for basic processed milk; Prices used are only indicative and do not reflect market values

Source: Agricultural Marketing Journal

Within the supply chain of milk, a network of dairy cooperatives at the village, district and state level facilitate aggregation of milk from the farmers. Dairy plants owned by cooperatives process the milk, supported by their marketing ancillaries to ensure connectivity to the customer.

While the chain is structured to a greater extent than other agricultural products, private players need to ensure logistical connectivity with village and district level cooperatives with milk procurement, along with infrastructure to process and extend the life cycle of the product.

For private players, lack of logistical connectivity and dependence on co-operative owned dairy plants may increase the cost of delivering the product to the customer.

Opportunities for supply chain optimization

To address these inefficiencies, opportunities are available to processors/manufacturers to adopt practices which can optimize the supply chain

Contract farming

Contract farming is a forward agreement between farmers and buyers for the production and supply of farm produce under a contract, generally at predetermined quantities and prices.

As a part of the agreement, buyers in certain cases also provide support to farmers for inputs, technology and production practices to ensure quality of the produce.

In India, contract farming has slowly gained acceptance among creators in certain areas, facilitated by structural reforms initiated by the government.

State(s)	Crop	Area under acreage	Buyer
Punjab	Basmati	14,700	Satnam Overseas, DD International, Amira Foods
	Basmati, potato, tomato and Chilli	6,000	Pepsico India Ltd
	Basmati and maize	4,000	Satnam Overseas, Mahindra Shublabh services
	Barley	2,270	United Breweries Limited
	Soybean	1,200	ITC
	Tomato & Chilli	250	Nijjer Agro Foods
Karnataka	Marigold & Chilli	4,000	AVT Natural Products Limited
	Ashwaganda	700	Himalaya Healthcare
	Coleus	150	Natural remedies Private Limited
Karnataka, Andhra Pradesh & Tamil Nadu	Gherkins	8,000	Multiple companies
Madhya Pradesh	Wheat, Maize & Soybean	NA	Cargill India Limited
	Wheat	15,000	Hindustan Unilever Limited
	Maize & paddy	1,000	Bhuvi Care Limited
Tamil Nadu	Cotton	570	Super Spinning mills
	Cotton	260	Appachi Cotton Company
Maharashtra	Soybean	134,800	Tinna Oils & Chemicals
	Safflower seeds	NA	Marico Industries

Source: Ministry of Food Processing

Contract farming has been adopted by multiple private players in India chiefly to secure the quality and quantity of the agricultural product inputs

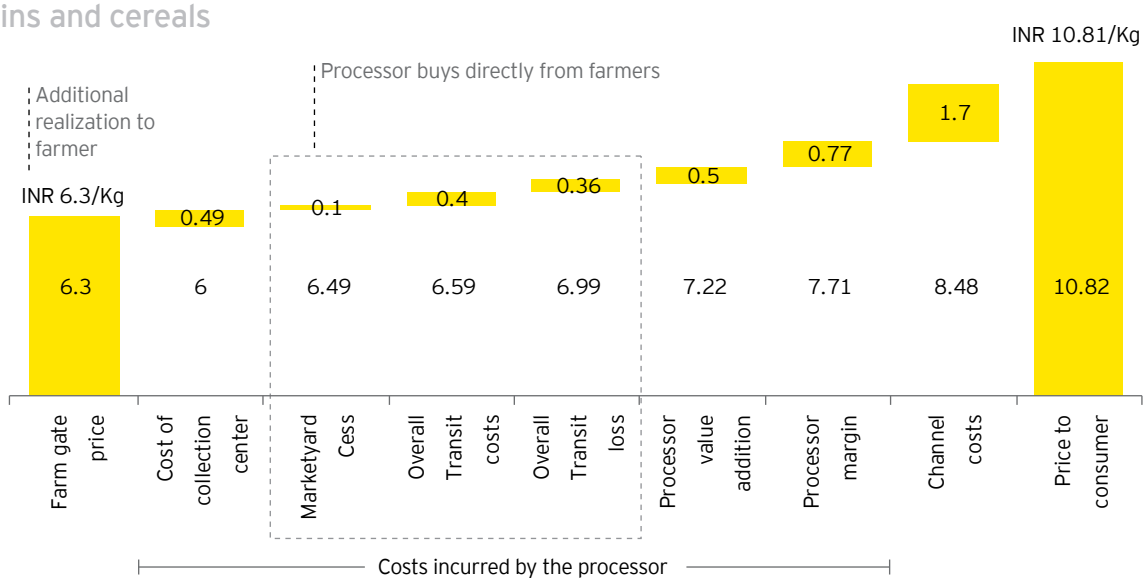
Highest activity in contract farming occurs for export oriented crops such as Basmati, Chilli, Gherkins and soybean

Food product companies such as Pepsico, which produces potato based snacks and Marico, which produces oil based products use contract farming to secure farm inputs for their food products

Contract farming is prevalent only in those states, where the agri produce procurement acts are favorable for procurement by private players. Twelve states across the country favor such contract farming – mainly Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Maharashtra, amongst others.

Contract farming – Limited benefits in case of grains and cereals

Illustration of price built up through contract farming – grains and cereals



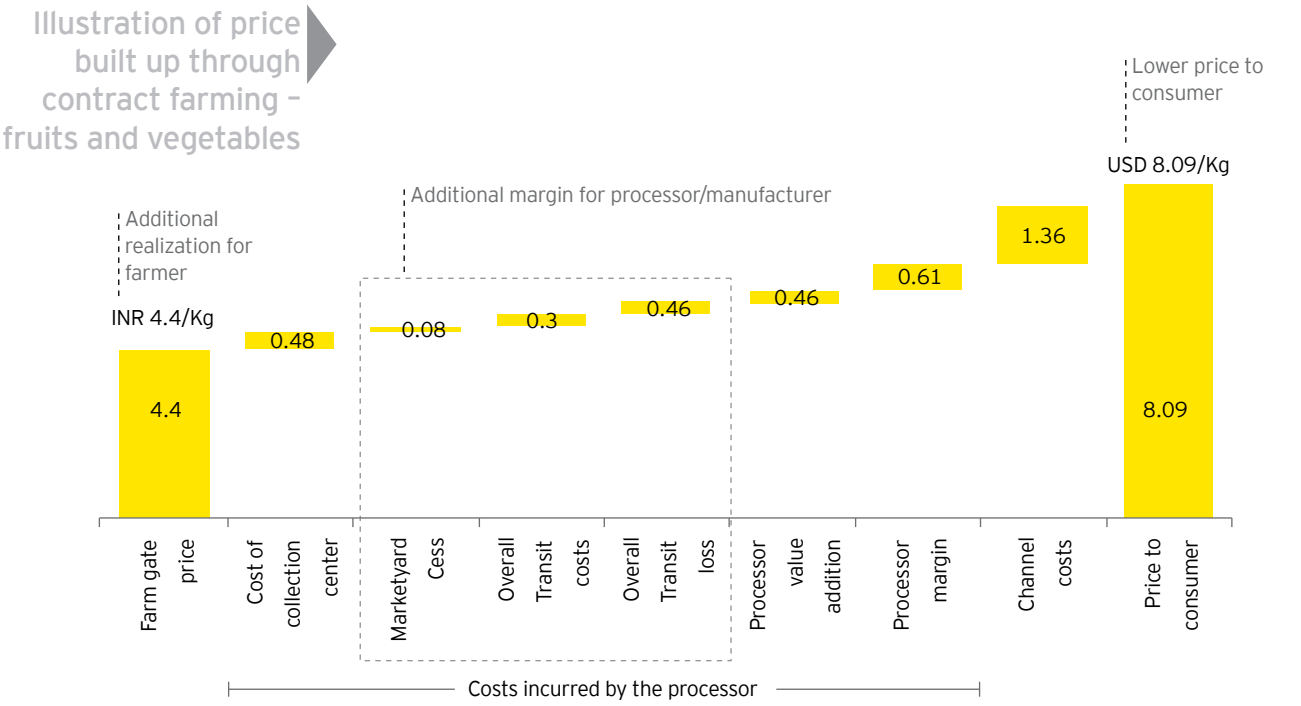
Source: EY analysis

Since the supply chain losses are much lower in case of grains and cereals, contract farming is apparently less viable given the following assumptions :

1. No improvement in the production yield
2. Processor/manufacturer is predominantly into tertiary processed consumer products

As compared to the traditional supply chain, where a 78% escalation is applied as the product moves from the farm gate to the consumer, in contract farming this escalation effect is higher at 80%. This is due to the additional cost associated with contract farming such as collection centers etc. along with the minimal savings due to the low wastage levels. However, if the processor/manufacturer can implement yield improvements and is involved in the manufacturing of tertiary processed products, then contract farming of grains and cereals offers a viable option for the processor/manufacturer.

Contract farming – high benefits in case of fruits and vegetables



Contract farming is apparently viable for fruits and vegetables due to higher value loss (wastages) in the traditional supply chain.

With contract farming, the creator, processor/manufacturer and consumer – are all set to gain even if there is no yield improvement and the processor/manufacturer is involved in the manufacture of tertiary processed products

There could be additional margin upside for the processor/manufacturer in case of yield improvements and presence in tertiary processed products. In many cases, the processor can support the farmer to improve the yield and share the benefits of the extra produce.

Key success factors

However, several key factors need to be taken into consideration for achieving success in contract farming

Relationships between farmers and buyers in a contract farming environment need to be mandated by a combination of a "Social" and "Commercial" approach with the intent of achieving mutual benefit for both the parties.

Transparency in Information exchange

Buyers must ensure the generation of trust within the farmer group by providing complete information on the clauses prevailing in the agreement, along with knowledge of the prevailing prices of the farm produce.

ITC's echoupal which reaches out to four million Indian farmers in 40,000 villages through 6,500 kiosks provides a direct procurement framework so as to enable these farmers obtain real time information on prevailing commodity prices. This facility primarily covers eight commodities.

Farmer support mechanism

To secure the quality and quantity of produce obtained under the contract, companies would need to provide farmers with assistance in terms of key inputs such as seeds, along with information on optimal farm practices amongst others.

Also, since the farming activity in India is a credit deficient activity, companies would have to evaluate a mechanism to provide adequate credit facilities to the farmer/producer.

Pepsi Co. was the pioneer in contract farming under which the company transfers agricultural best practices and technology to farmers and procures at guaranteed prices. To support this, Pepsi Co. setup a 27 acre research and demonstration farm in Punjab (north India) to conducted farm trails for new varieties of tomato, potato and other crops. This initiative has evaluated 25 varieties and hybrids of corn, 100 varieties and hybrids of tomato, amongst others.

Dispute resolution framework

While contract farming is regulated by state level procurement acts, it is vital to create a framework for resolving disputes largely related to the prices and quality of produce generated at the grassroots level. The most effective way to implement the contract is to instill an element of social pressure for its fulfillment.

The echoupal framework of ITC incorporates village heads to play a key role in dispute resolution between the company and the farmers.

Profit sharing

Companies need to innovate and come up with a sourcing model that incorporates some means of profit sharing with the producer. This would be either through individual payment to farmers for their produce or community investments in the sourcing regions/villages. This would also help to build trust of the farmers in the model and also improve the farmers' compliance to the agreements.

Commodity exchanges are a nascent concept in India to assist in the price discovery mechanism

The market for agri commodity spot and futures contracts in India is at a nascent stage, with a limited coverage of agri products and categories

	Cereals	Fruits and vegetables	Oils & oilseeds	Beverages
Basic	▸ Maize ▸ Wheat ▸ Rice ▸ Yellow Gram ▸ Green gram ▸ Barley	▸ Cashew ▸ Chili ▸ Groundnut ▸ Coriander ▸ Cardamom ▸ Jeera ▸ Pepper ▸ Turmeric ▸ Potato ▸ Peas ▸ Almond	▸ Castor Seed ▸ Mustard ▸ Soybean ▸ Cotton seeds ▸ Sesame	▸ Tea ▸ Coffee
Processed	▸ Parboiled rice	▸ Sugar ▸ Jaggery	▸ Castor oil & cake ▸ Coconut oil & cake ▸ Groundnut oil ▸ Mustard oil ▸ Palmolein ▸ Rice bran oil ▸ Soy meal ▸ Crude palm oil	

Source: Multi Commodity Exchange (MCX) and National Commodity Derivatives Exchange (NCDEX)

Commodity exchanges play an important role in price discovery, enabling the stakeholders to gain prior knowledge on the demand for an agri product.

Futures contracts enable farmers to assess the demand and price for key agricultural products, aiding in crop selection for the purpose of production.

Forward contract activity is highly prevalent in categories like spices (falling under fruits and vegetables), oils and oilseeds, sugar and wheat.

In India, the Multi Commodity Exchange (MCX) and the National Commodity Derivatives Exchange (NCDEX) are the two biggest players in the agri futures market.

To drive the usage of commodity exchanges, NCDEX is planning to implement an e-mandi (online wholesale market) which would enable participants to trade through NCDEX terminals across the country. The mechanisms would allow the trader/ producer to obtain a warehouse receipt for the goods that are stored at NCDEX nominated warehouses and which is quality certified by NCDEX. This receipt can then be traded by the participant on the e-mandi.

Key factors which would be required to drive these commodity exchanges provide multiple opportunities for growth

Need for backend warehousing infrastructure

Regulations for commodity exchanges involved in agri futures contracts stipulate the requirement of adequate physical warehouse space for the total volume of commodities under contract, in order to guarantee physical delivery.

The increasing volume of commodities being traded creates a growing need for back end warehousing infrastructure exclusively for futures contracts.

Additionally, the e-mandi proposed to be setup by NCDEX is expected to create a requirement of world-class warehousing facilities to ensure low storage losses of the grains being traded.

Yes Bank, in association with MCX, has embarked upon creating a network of warehouses in key agricultural clusters across the country

A predominant share of the warehousing space would be utilized for storage of commodities under futures contract, during the time of their harvest

Educating the farmer to facilitate inclusion

With a view to increasing the usage of commodity futures trading by farmers, the major exchanges in India are now focusing on educating the farmers on the concepts of futures trading.

NCDEX, in association with state agricultural agencies, has created training programs for farmers to increase awareness of futures trading

Increasing diffusion with innovative use of technology

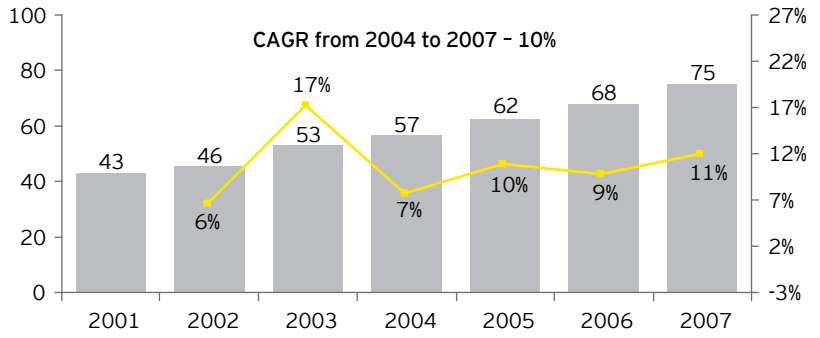
On account of the vast geographical spread of India's agricultural population, innovative technology practices need to act as a vital enabler to connect farmers and traders in rural areas to the commodity exchanges.

MCX's online portal for commodity trading is now available in multiple regional languages (two regional language and English), to facilitate the use of the portal by farmers & traders with little to no knowledge of English in the rural areas

Processed food – current scenario

The processed food market in India is at an early stage with low penetration and high potential

Growth in output of processed food (USD billion)



Source: Annual Survey of industries, CSO, EY analysis

The value of food processing in India has increased from USD57 billion in 2004 to USD75 billion by 2007.

During this period, the number of registered operating units increased from 24,000 to 25,725 units.

Factors such as growing urbanization, rise in consumer disposable income and changing lifestyles along with growing export demand, entry of international players and government impetus have contributed to this growth in the processed food segment.

Overview of processing activities across categories

Segment	India*			World*
	Organized	Unorganized	Total	
Fruits and vegetables	1.4%	0.8%	2.2%	USA – 65 % Philippines – 78% China – 23%
Milk and milk products	13%	22%	35%	More than 60% in developed countries
Meat & poultry				
Buffalo meat		21%	21%	
Poultry		6%	6%	
Marine products		8%	8%	

Source: Industry sources
* Share of total production volumes

When India is compared in the global context, however, there is a low penetration of processing activities across product categories in India.

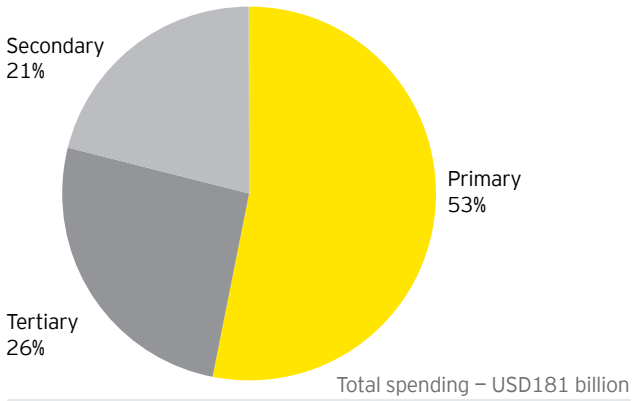
This is especially true in the case of fruits & vegetables, where the processing level in India is a mere 2.2% as compared to 65% in the US and 23% in China.

Additionally, a significant share of the current processing activity is being undertaken by unorganized/un-integrated players.

- This indicates two types of potential opportunities in this space – to increase the share/penetration of processing activities across the different categories and substitute/replace the unorganized/un-integrated players
- Additionally, an opportunity also exists for companies to tap into the future expected growth in domestic demand and international trade

In terms of domestic consumer spending, tertiary processed products account for 21% and tertiary processed products account for 26% of the spending

Split of spending on food in the India market (USD billion – 2008)



Source: Economic Survey 2007-08, Ernst & Young analysis

As of 2008, 26% of the domestic consumer spending was on tertiary processed foods – mainly driven by spending on beverages and oil & oil seeds.

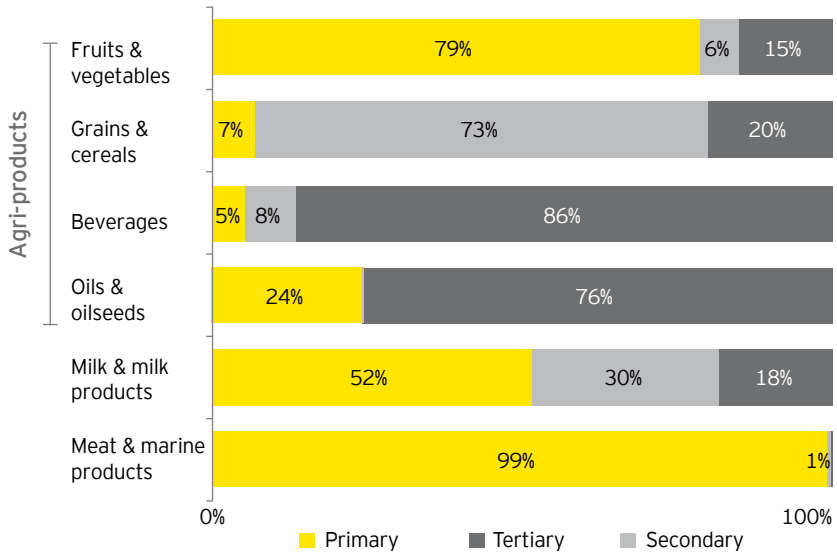
The extent of spending on tertiary products in other categories such as agri-produce and milk and milk products was low.

Apart from consumer preferences and eating habits, the level of spending on tertiary processed products mirrors the availability of these products.

With a strong expected domestic consumer demand over the coming years, the consumption and accordingly, the share of spending on these tertiary processed products is expected to increase.

For example, the spending on tertiary processed products is expected to increase by 1.5 times from USD47 billion in 2008 to USD70 billion by 2015.

Split of spending within the key categories



Source: EY analysis

In case of fruits and vegetables, a large share of the spending is on primary products.

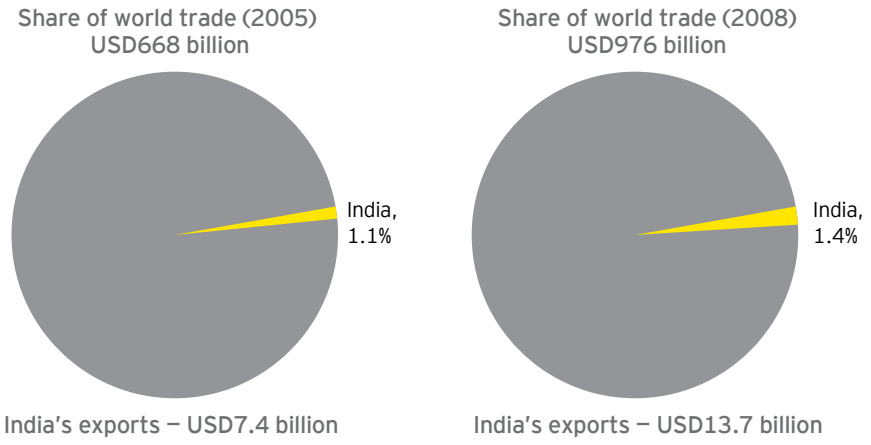
For grains and cereals, since rice and wheat are part of the Indian staple diet, a large share of the spending is on these products in the tertiary processed form.

In case of milk and milk products, majority of the spending is on milk in its original form.

Similarly in case of meat and marine products, preference to purchase these products in the original form from the wet/unorganized market has resulted in a large spending on the primary processed products.

In terms of international trade, tertiary processed products account for 33% and tertiary processed products account for only 9% of the export value

Share of India's food trade vs. global counterparts



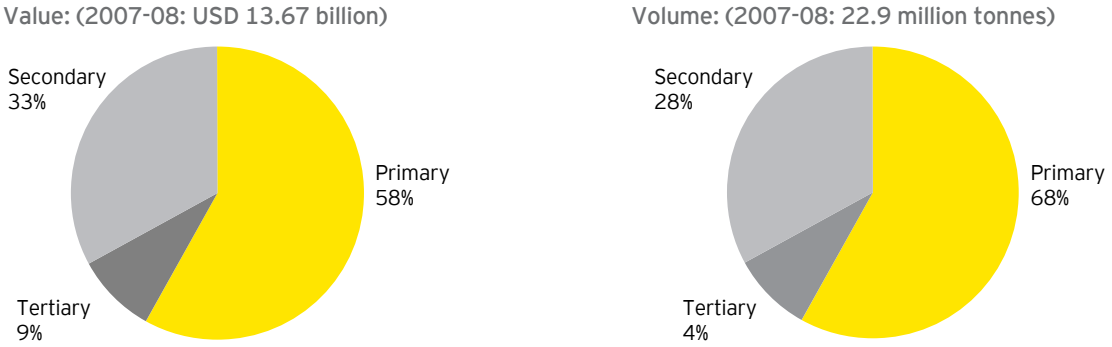
Source: Ministry of Commerce, WTO and EY analysis

Country	Share (2007-08)
EU	54.4%
USA	9.6%
Brazil	4.6%
China	3.6%
Canada	3.5%
Argentina	3.1%

Although India has the largest land area under cultivation and ranks among the top five producers in most food categories, India's share in global food trade is less than 1.5%

Overview of India's food export

Breakup of India's exports



Source:Ministry of Commerce, EY analysis

Excluding non-food agricultural products (such as paper, cotton and jute), tobacco and seeds, marine exports constitutes the single largest category in agricultural and food exports followed by rice (basmati and non-basmati), oil meals, wheat, etc. The top five items in terms of export quantity in 2008 were rice pan-boiled, maize (corn), cane sugar, refined sugar and basmati rice

Marine products which has the highest share in India's exports, accounts for a 2% share of the global trade.

However, a majority of the exports are currently in the primary form – though the share of these primary products have been showing a declining trend in the overall pie.

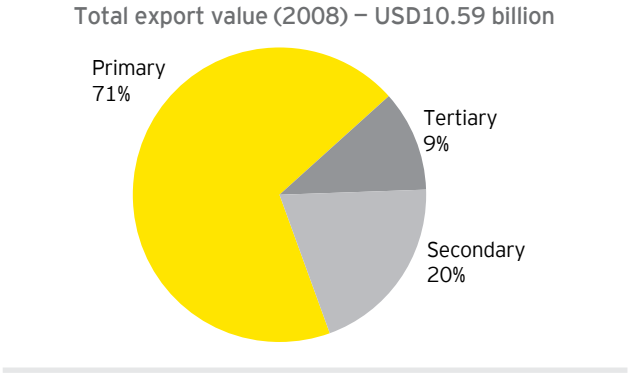
This has been mainly driven by:

1. The limited level of processing facilities and activities

2. Inability of the Indian processing facilities to meet international trade quality requirements and specifications

1. Agri products

Split of agri products exports across unprocessed and processed products



Source: Ministry of Commerce & Industry, EY analysis

A large share of the exports in case of agri-products is in the primary form, being mainly rice, and fruits and vegetables such as bananas etc.

The balance is split between secondary processed products and tertiary processed products.

Key export markets for the Indian agri products

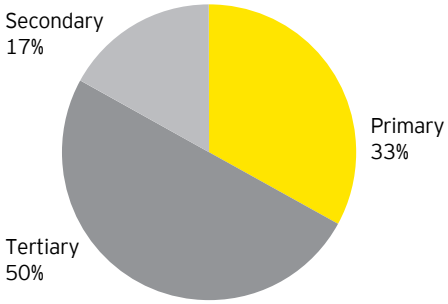
Type of products	Value (USD m)	Volume (tons)	Key markets
Apple juice	0.13	225	Turkey, UK, Australia, USA etc
Bananas	6.45	16,662	UAE, Saudi Arabia, Bahrain, Qatar, UK, USA etc
Confectioneries	2.2	760	Nepal, Sri Lanka, USA, UAE, South Africa etc
Dried potatoes	0.03	100	Sri Lanka, Nepal, Norway, Germany, etc
Frozen peas	1.2	1,870	Germany, Italy, UAE, Kuwait, USA, UK etc
Onions	256	1 million tons	Bangladesh, UAE, Sri Lanka, Nepal, Singapore etc
Dried fruits	0.15	357	UAE, USA, Switzerland, UK, Australia, Kuwait etc
Basmati rice	1,073	1.18 million tons	UAE, Kuwait, UK, USA, Netherlands etc
Biscuits	8.79	9,931	Iran, Nepal. Australia, USA, Singapore etc
Corn flakes	1.16	1,517	Sri Lanka, Malaysia, Bangladesh, UAE, Japan etc

Source: Ministry of Commerce & Industry, EY analysis

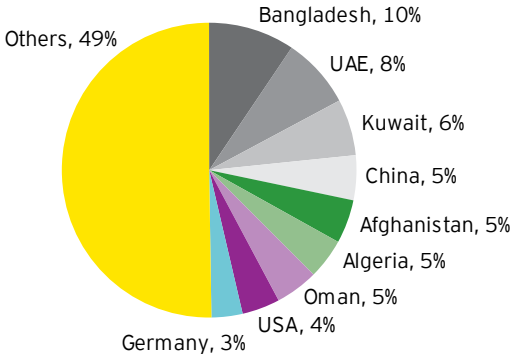
2. Milk and milk products

Split of milk and milk products export across unprocessed and processed products

Total export value (2008) –
USD345 million – product category wise



Total export value (2008) –
USD345 million – country wise



Source: Ministry of Commerce & Industry, EY analysis

India's milk exports have an insignificant share in global trade even though India is the largest milk producer.

Whilst India enjoys the benefits of low price at the farm gate and proximity to milk deficient markets such as Sri Lanka, Bangladesh etc, it has not been able to fully capitalize on this potential and build its international trade in milk and milk products.

The key reasons driving this are:

- Low quality and hygiene standards across the value chain
- Lack of experience in marketing of products
- Significant growth in consumption of milk and milk products in the domestic market

These reasons are controllable and can be addressed through investment in proper infrastructure and technology along with an improvement in production yields. They provide an opportunity for players to build and invest in infrastructure and technology and thereby, grow India's export value of milk and milk products.

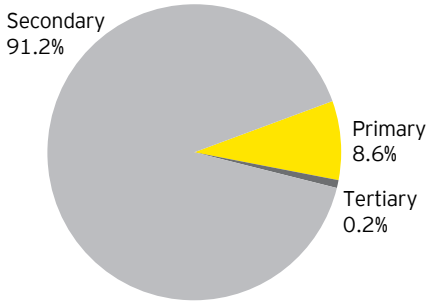
In terms of the current exports, tertiary products account for 50% of the total export value due to the perishable nature of milk.

Exports of primary processed milk also form a substantial share of the total exports – accounting for 33% of the total export value.

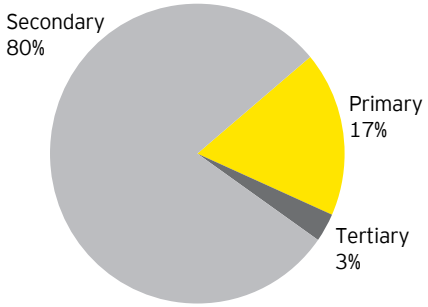
3. Meat and marine products

Split of meat and marine exports across unprocessed and processed products

Meat and chicken
Total export value (2008) – USD1.04 billion



Marine
Total export value (2008) – USD1.69 billion



Source: Ministry of Commerce, EY analysis

Most meat is exported in the secondary form which is defined as cut, preserved or frozen. Secondary processed mainly comprises of eggs and tertiary processed involves the food preparations made of meat

In terms of marine products, the export has been largely constant over the years and is driven by tertiary processed products which are essentially in the frozen and chilled form

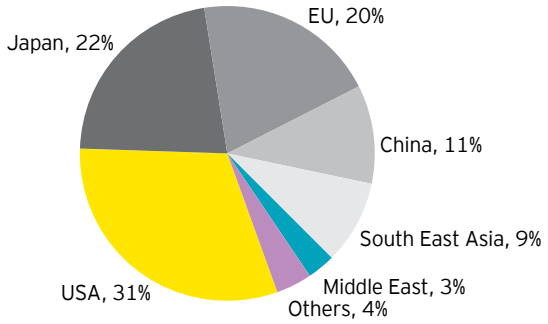
Secondary processed products are largely live fish and other marine products whereas tertiary processed are predominantly preparations made from marine products

Key export markets for Indian meat products

Type of meat	Key markets
Meat of bovine animals	Saudi Arabia, Vietnam, Malaysia, Angola, Kuwait, Egypt, UAE, Jordan, Iran etc
Sheep	UAE, Saudi Arabia, Vietnam, Qatar , USA etc
Chicken	Oman, Afghanistan, Sri Lanka, Kuwait etc

Key export markets for Indian marine products

Total export value (2008) – USD1.69 billion

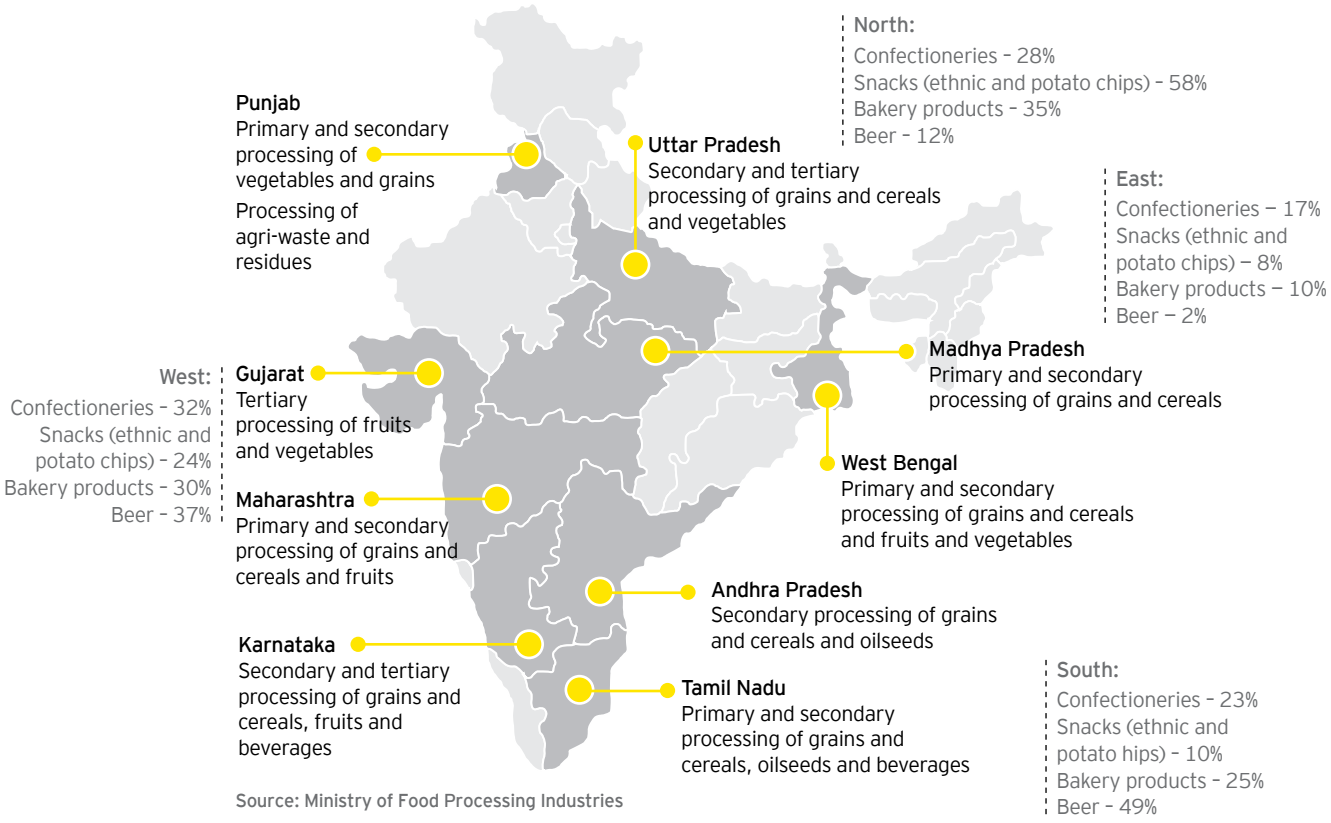


Source: Ministry of Commerce & Industry

Majority of the players in food processing do not have scale and are not integrated with very few integrated Indian and international players

1. Agri-produce

Region-wise share in processing of key product categories



Source: Ministry of Food Processing Industries

Fruits and vegetables – The installed capacity for the processing of fruits & vegetables doubled from 1.1 million tons in 2001 to 2.1 million tons in 2006. The industry is fragmented with a large number of household and small sector units, having capacities of upto 250 tons per annum. Post 2000, there has been a significant increase in the ready-to-serve beverages, pulps and fruit juices, frozen fruits and vegetables products mainly driven by export demand

Grains and cereals – Processing of grains & cereals covers the milling of wheat, rice and pulses. Secondary milling of grains is considered to be an important activity in this segment, though it adds little value to the product. In the organized sector, there are over 516 wheat mills, 139,208 rice mills and 35,088 modernized rice mills

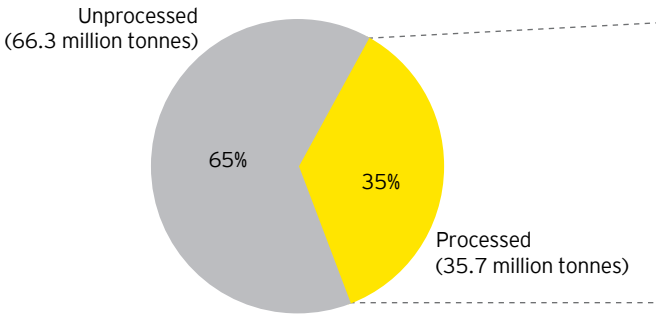
In terms of tertiary processing of grains and cereals, the key products include bakery, cereals and ethnic snacks. There are over 60,000 bakeries and 20,000 traditional Indian food units.

Beverages: Alcoholic and non-alcoholic – India is considered to be the third largest market in the world for alcohol and has around 56 manufacturing units. In case of non-alcoholic drinks, there is high presence of organized Indian and international players.

2. Milk and milk products

Split between processed and unprocessed milk products

India's milk production 102.8 million tonnes



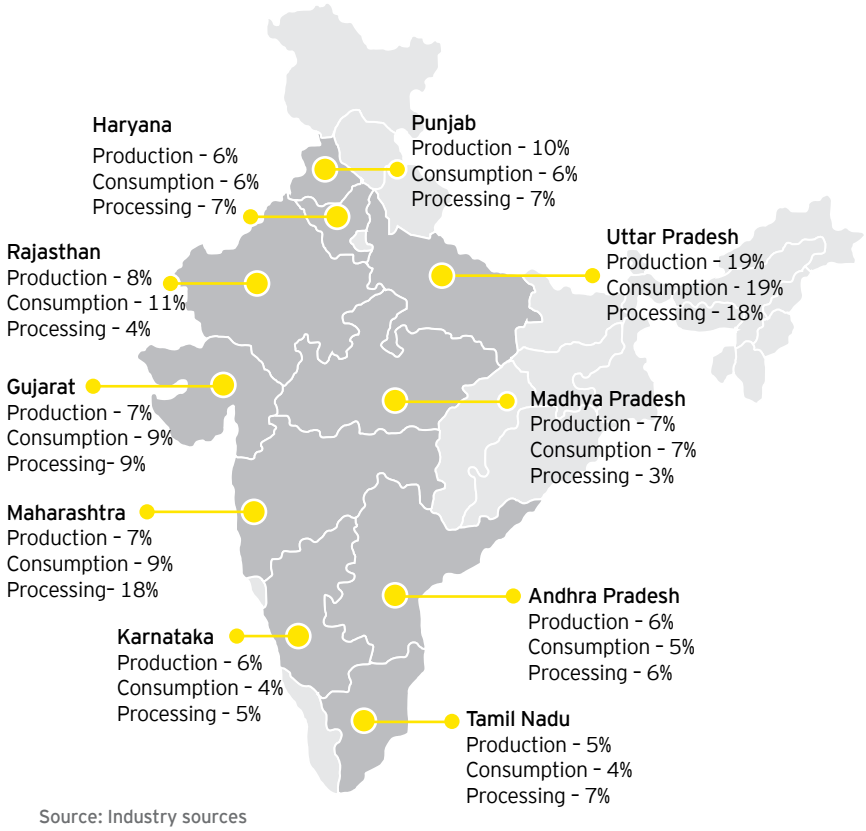
Split between organized and unorganized processors

Unorganized (22.44 million tonnes)	Dominated by small players mostly engaged in packaging and manufacturing ethnic Indian sweets
Organized (13.56 million tonnes)	Dominated by cooperatives and large private players

Source: Ministry of Agriculture

About 35% of the total milk produced in India is processed. The organized sector processes about 13 million tons per annum while unorganized sector processes about 22 million tons per annum. In the organized sector, there are 676 dairy plants in the Cooperative, private and government sectors, registered with the government and the state governments.

Capacity share of key milk processing regions



Source: Industry sources

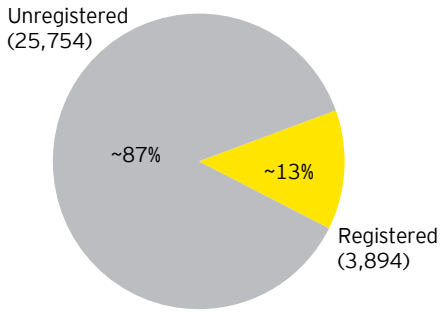
There is a regional imbalance in production and processing capabilities.

Most of the capacity added in the recent years has been in the northern states, Maharashtra and Tamil Nadu.

Capacity expansion is expected to continue driven by the demand and consumption for processed milk products.

3. Meat and marine products

Distribution of slaughter houses in India (2004-05)



Source: Planning Commission Working Group report, 11th Five Year Plan, 2007-2012

Poultry processing capacity

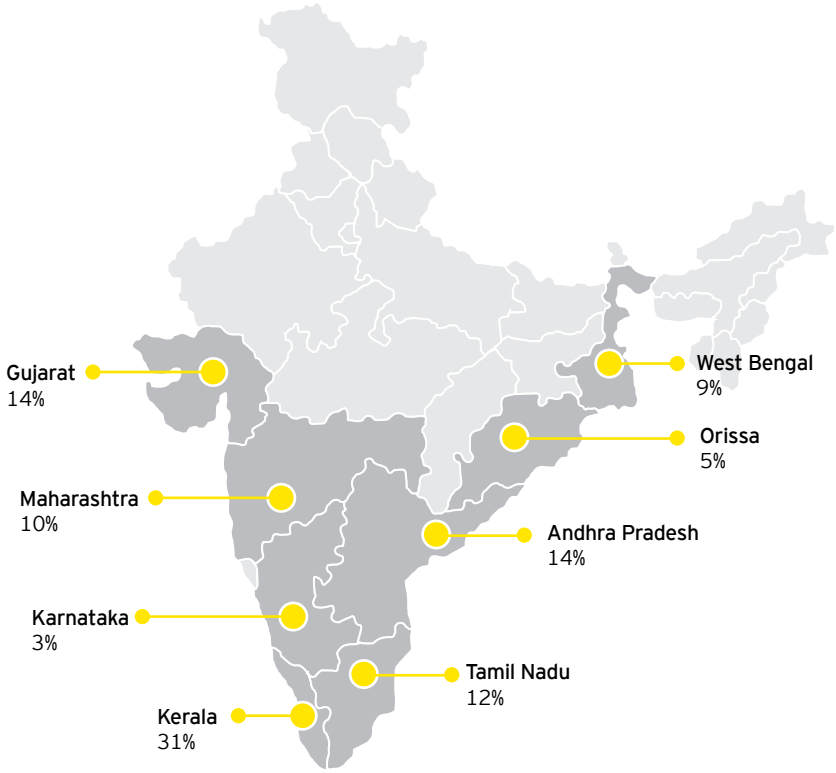
- India has a processing capacity of approximately 25,000 birds per hour
- Average utilization is around 30%
- Several of the operating units are run by small and unorganized players

There are only 12 state of the art integrated abattoir cum meat processing units in India.

Types of slaughter houses

Municipal	Municipal slaughter houses are owned and operated by local and state governments. The infrastructure and facilities at most of these slaughter houses are inadequate and outdated. The fee charged by these slaughter houses which is supposed to be utilized for the maintenance and upgradation of the facilities have not resulted in the desired level of infrastructure. Additionally, the operating authorities are also responsible for providing licenses for operations. The lack of separation of these roles have affected the operating standards of these slaughter houses.
Private	Most of the export houses need to have private slaughter houses to meet the quality standards required for exports. However, there are restrictions around permissions granted for such private slaughter houses. The most difficult license to obtain is the license for the location due to social issues related to allocation of land for slaughter. A possible solution to this is the exporters/ processors be allowed to set up slaughter houses within the premises of municipal slaughter houses. Another issue effecting the slaughter houses is the policies around slaughter time of the buffaloes – buffalo slaughter is allowed in India but only when the buffalo outlives their useful life as a dairy or a draught animal.

Distribution of fish processing units across India



Source: Industry sources

About 85% of India's fish processors are classified as small scale

Type	Units	Capacity (million tons)
Freezing plants	388	8,906
Individual quick frozen	98	721
Canning plants	13	48
Ice plants	156	3,155
Fish meal plants	12	229
Pre-processing plants	561	3,302
Total	1,228	

Most of the processing facilities are located in clusters. Almost 85% of the existing processes is classified as small scale

The processing segment of the fisheries sector in India is entirely export driven. Fish processing for the domestic market is limited due to the following reasons:

- Preference of the Indian consumers to purchase from the wet/ unorganized markets
- Cost of processed products is higher than the wet/ unorganized market due to the high tax incidence (20%-25% on account of indirect taxes)
- Further the retailers of these products face challenges around limited temperature controlled storage facilities

Key organized players in the processing space across agri-products, milk and milk products and meat and marine products

Agri products

Name of company	Revenues	Brands	Categories/products
Dabur India Ltd.	Approx. USD600 million	Dabur, Real, Activ, Vatika, Pudin Hara etc.	Juice, honey, spices, cooking pastes, coconut milk etc.
Godrej Industries Ltd.	Approx. USD1.5 billion	Godrej, Jumpin, Xs etc.	Oils and vanaspati, bakery fats, fruit drinks and fruit nectar. Non food items include chemicals, consumer products etc.
Parel Agro Ltd.	Approx. USD208 million	LMN, Bailey, Appy, Frooti etc.	Water, beverages, confectionery etc.
MTR Foods	Approx USD55 million	MTR	Ready to eat and frozen food, spices, dessert mix, pickle, papads, beverages etc.
Nestle India	Approx USD832 million	Nestle, Maggi, Nescafe etc.	Chocolates, snack foods, milk, coffee, infant food etc.
Pepsi Co.	Approx USD729 million	Pepsi, Frito-lays	Carbonated drinks, juices, snack foods etc.
Cadbury India Ltd.	Approx USD330 million	Dairy Milk, Perk, Five star, Gems etc.	Chocolates, Malt Food, Cocoa powder etc.
Hindustan Unilever Ltd.	Approx USD3.1 billion	Brooke Bond, Annapurna, Kissan, Knor, Kwality Walls	Tea, coffee, biscuits, ice creams, atta, instant drinks, soups, jams and squash and host of other FMCG products
Britannia Industries Ltd.	Approx USD556 million	Britannia, Tiger, Bourbon, Goodday etc.	Biscuits, flavoured milk, dairy whitener, ghee, bread, cheese, cake etc.

Source: EY research

Figures neglect domestic sales

Note: Only a selective range of brands have been mentioned

Milk and milk products

Name of company	Capacities	Brands	Categories/products
Gujarat Cooperative Milk Marketing Federation (GCMMF)	6.6 million liters per day from 19 dairy plants	Amul	Ice-cream, skim milk powder, ghee, dairy whitener, paneer, shrikhand, pizza, cheese, butter etc.
Andhra Pradesh Dairy Development Cooperative Federation (APDDCF)	2.4 million liters per day from 12 dairy plants	Vijaya	Table butter, UHT milk, skim milk powder, ghee, flavoured milk, khoya, pasteurized butter, kulfi, processed cheese
Karnataka Cooperative Milk Producers' Federation (KMF)	2.13 million liters per day from 15 dairy plants	Nandini	Skim milk powder, paneer, pure ghee, badam burfi, gulamjamun, pasteurized butter, khoa, ice-cream, toned milk curd etc.
Maharashtra Rajya Sahakari Maryadit Dugdh Mahasangh (Mahasangh)	3.8 million liters per day from 29 dairy plants	Mahanand, Gokul, Dhawal, Dudh Pandri etc	Pasteurized butter, pure ghee, lassi, shrikhand, butter milk, flavoured milk, paneer peda etc.
Punjab State Cooperative Milk Producers' Federation (MILKFED)	1.6 million liters per day from 9 dairy plants	Verka	Ghee, flavored milk, paneer, ice-cream, skim milk powder, lassi, table butter, sweets, cheese
Tamilnadu Cooperative Milk Producers' Federation Ltd (TCMPF)	2.7 million liters per day from 15 dairy plants	Aavain	Skim milk powder, khoya, milk peda, pure ghee, butter, cheese, yoghurt, table butter, ice-cream, UHT standardized milk, curd, butter milk etc.
Parag Milk Foods	0.8 million liters per day	Gowardhan	Milk powder, cheese, butter etc.

Source: EY research

Note: Only a selective range of brands have been mentioned

Meat and marine products

Name of company	Capacities	Brands	Categories/products
Hind Agro Industries Ltd	400 tons	Fast Prax (fast food outlets)	Buffalo, sheep and goat meats
Allana sons Ltd	Sale of over 333,000 tons of frozen food in 2008	Premier (fruits and vegetables) Saffa (meat)	Buffalo meat, goat and fish. Processed fruits & vegetables, coffee cereals, pulses, spices etc
VH Group	194 units across hatcheries and broiler units	Venky's	Chicken and eggs
Al Kabeer	Processed meat – 18,600 tons (as of 2004)	Al Kabeer	Vegetables and fruits, snacks, meat and poultry, ready meals and sea food

Source: EY research

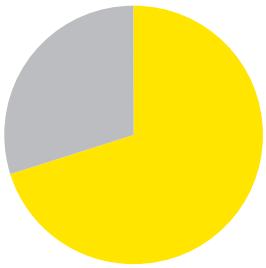
Note: Only a selective range of brands have been mentioned

Challenges in the Indian food processing sector

Some of the processing units demand very low technology and investment and this has led to the proliferation of unorganized players in the processed food segment

Agri-products
Potato chips

Investment value (USD21,000 – 31,250)



Working capital, 30%

Particulars	Units
Manpower	5
Power	6 HP
Water	2,000 liters

Capital expenditure, 70%

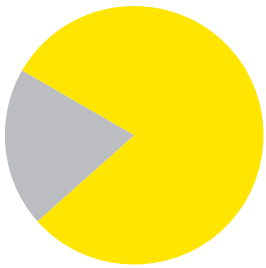
Particulars	Units
Capacity	50 kgs/day
Building	50 sq.m

Potato chips or wafers are one of the most popular snack items in India. It is being manufactured not only on large scale by big firms, but also by cottage/ home scale players.

Source: Industry sources

Milk and milk products
Flavoured milk

Investment value (~USD 47,708)



Working capital, 20%

Particulars	Units
Manpower	20
Power	70 HP
Water	2,000 liters

Capital expenditure, 80%

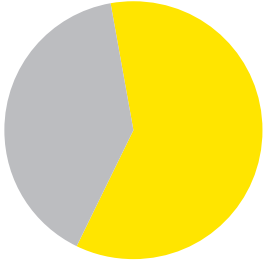
Particulars	Units
Capacity	0.25 m l/day
Building	200 sq.m.
Land	400 sq.m.
Sterilization plant	

Flavoured milk varieties feature prominently in the Indian diet. It is currently being manufactured by medium to large scale cooperatives and private companies. Most common flavours include cardamom, saffron and chocolate.

Source: Industry sources

Meat and marine products
Poultry processing

Investment value (~USD 42,395)



Working capital, 40%

Particulars	Units
Manpower	10
Power	80 HP
Water	5,000 liters

Capital expenditure, 60%

Particulars	Units
Capacity	120 tons
Building	125 sq.m.
Land	300 sq.m
Boiler	

In India, the consumption of chicken meat is increasing faster than any other meat category. It is currently being processed by small and medium sized firms with a presence of a few organized players.

Source: Industry sources

However, this has resulted in lack of scale and efficiency thus increasing the cost to the consumer

While small scale activity in food processing was promoted with a view to foster employment inclusion, it has constrained growth in output and productivity

Absence of economies in scale

Growth of farm processing output is largely dependent on the economies of scale derived out of procurement and logistics. As the processing activity is highly diffused in India, achieving economies of scale to increase output has been constrained.

Impaired access to credit

Typical processing activity involves the purchase of the input produce during harvest time to obtain the best possible price. Lack of timely credit availability to small processors impacts their working capital requirements, making them purchase less, and thereby, produce less.

Lack of market access and focus

With the exception of contract processors, most food processors have weak market facing mechanisms. This prevents the diffusion of information on customer preferences and purchase patterns down to the processor, as a result of which, marketing the processed product becomes a challenge.

Technology upgradation challenges

The small scale of most food processors in India prevents any timely up gradation of technology, which is vital to improve quality of products. Moreover they do not have the means to support the farmers to improve yields of farm produce.

Logistical challenges

Timely procurement of farm produce during the harvest season needs to be supported by adequate cold chain infrastructure, essential to store the produce for utilizing it at a latter stage for processing.

Most of the processors face challenges around storage infrastructure which in turn affects the output and the final product.

Quality issues

While the quality norms and measures for the domestic and international trade have been laid out for processed food, many small scale processors lack the necessary monitoring mechanisms to implement these quality norms. Which results in exports being rejected and returned to India due to non-compliance with the specified quality norms.

Additionally, the applicable taxation regime has affected the pricing levels of these products which in turn has impacted its consumption

	Potato chips (INR)	Packaged juice (INR)	Confectionery (INR)	Branded wheat flour (INR)
Retailer's margin + discount	10-12%	10-12%	10-12%	6-8%
Distributor margin	4-5%	4-5%	4-5%	3-4%
CFA margin	1-1.5%	1-1.5%	1-1.5%	1-1.5%
Freight	4-5%	4-5%	4-5%	4-5%
Central sales tax	2%	2%	2%	2%
VAT	12.5%	12.5%	12.5%	4%
Packaging costs	10-12%	5-7%	15-20%	8-10%

% share of the maximum retail price

Source: EY research

Note: Figures mentioned above are illustrative and are based on industry sources.
Taxes mentioned above differ from state to state.

Processed products are subject to a host of taxes such as:

- Excise duty – a tax which get applied on the manufacture of goods
- Central sales tax/value-added tax – Central sales tax is applicable on inter state sale of goods (@2%) and value added tax relates to intra-state sale of goods (range between 4% to 12.5%)
- Entry duty – is a tax which get applied on the entry of goods in a particular state
- Octroi duty – is applicable on entry of goods into certain specified cities/towns/muncipal corporations

The above mentioned taxes are applicable to processed food products which effectively translates into high tax rates for these products. For example, tax accounts for about 12-14.5% of the maximum retail price of processed fruits & vegetables. Additionally, taxes also get applied on the inputs of these processed products like packaging material etc.

Future outlook for the Indian food processing sector

However, going forward, the government of India has outlined a plan to promote the development of the processing sector in India

Regulations applicable to companies – especially international companies

Foreign Direct Investment in India is typically allowed under automatic route* in agri-products, milk and milk products and marine and meat products except in the following (broadly),

- Proposals that require an industrial license and cases where foreign investment is more than 24% in the equity capital of units manufacturing items reserved for the small-scale industries.
- Proposals in which the foreign collaborator has a previous venture or tie-up in India as on January 12, 2005.
- Proposals falling outside notified sectoral policy/ caps or are generally restricted/ prohibited

Government provides conducive environment for investments in the export sector. Some of the key initiatives include*:

- Repatriation of profits and capital.
- Automatic approvals for foreign investment and technology transfer is most cases
- Agri products based 100 % export oriented units are allowed sell up to 50% in domestic market
- No import duty on capital goods and raw material for 100% export-oriented units
- Exemptions of earnings from export activities from corporate taxes

*Note: Presence of foreign/large player is restricted in few food items

Regulations – in terms of taxes on the consumer prices

Relaxations by the government around taxation		
Item	**Erstwhile excise duty**	**Current excise duty**
Condensed milk, ice cream, preparations of meat, fish and poultry, pectins and Pectates, pasta and yeast	16%	Nil (pastas and pectates are taxable at 8%)
Biscuits (with retail sale price less than INR100 per kg)	8%	Nil
Food mixes	8%	Nil
Ready to eat packaged food	16%	Nil
Meat, fish and poultry products	16%	Nil
Aerated drinks	24%	8%

Note: Duties and taxes might differ for different products under each category

Considering the impact of taxes on the consumption of processed food, a task force on indirect taxes was set-up which recommended a uniform excise duty of 6 % on all processed food products.

Whilst excise duty has not been reduced for all products, the Indian government based on the recommendations, reduced the excise duty on some processed food products over the past few years in an attempt to increase private participation in the food processing industry and drive consumption of these products.

Case study: Impact of excise duty on biscuit growth

Year	Excise duty rate	% change in consumption
199-2000	8%	
2000-01	16%	-3.5%
2001-02	16%	2.75%
2002-03	16%	3%
2003-04	8%	15%
2004-05	8%	18%*

Source: Estimated Federation of Biscuit Manufacturers Association of India

A case study on biscuits, clearly indicates the direct co-relation between the reduction of taxes and consumption of processed foods.

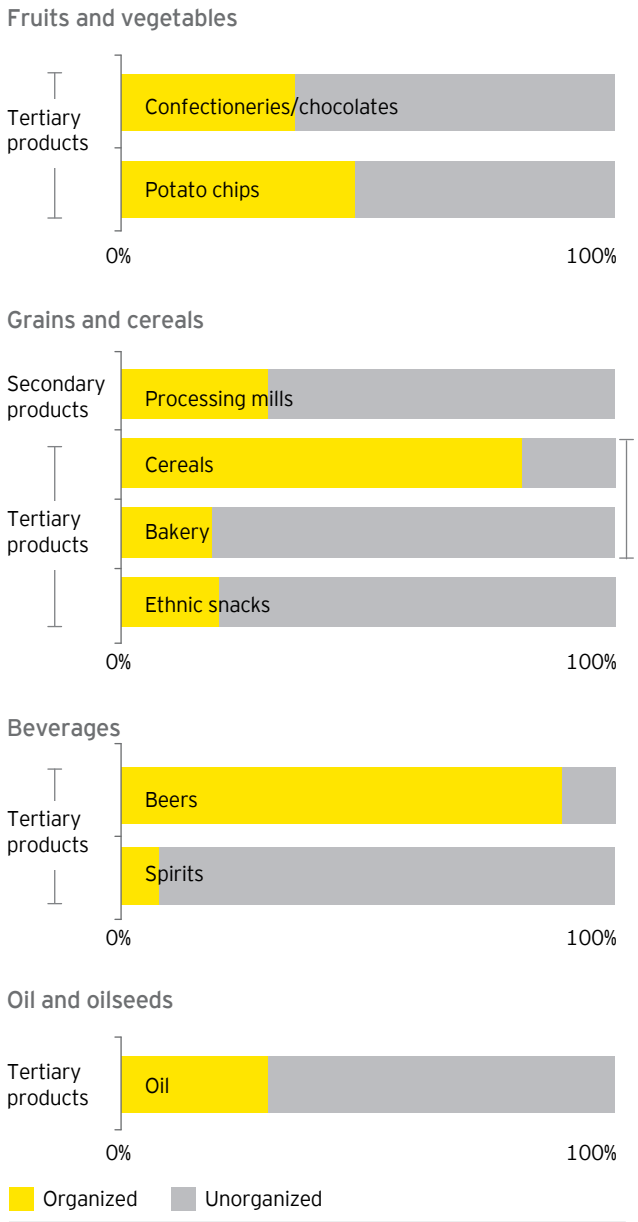
In the year of 2003-04, when the excise rate on biscuits were reduced from 16% to 8%, there was a 15% increase in the consumption of these products.

Opportunities in the Indian food processing sector

This creates an opportunity for players to invest and build processing activities in the Indian market

1. Agri-produce

Split of the market for key products categories in the processed food category (as of 2008)



	Market value in 2008 (USD million)*	Estimated market value in 2015 (USD million)*
Confectioneries/chocolates	841	1,441
Potato chips	670	2,134
Processing mills	22,292	
Cereals	3,508	6,836
Bakery		
Ethnic snacks	1,782	3,939
Beers	2,641	~4,158
Spirits	9,080	17,694
Oil	9,849	

Source: EY research

* Market value for the Indian market

Opportunities available in the processed agri-products space:

Domestic market

- Across the categories, there is a high penetration and presence of unorganized players and this provides a huge opportunity for an organized player to enter and penetrate this market.
- Also, driven by the favorable consumer trends, the demand for tertiary products is expected to grow, thereby leading to the growth of the overall market size that would be available for players. For e.g., the domestic spending on potato chips is expected to increase by three times by 2015 and reach a market size of USD1,441 million.

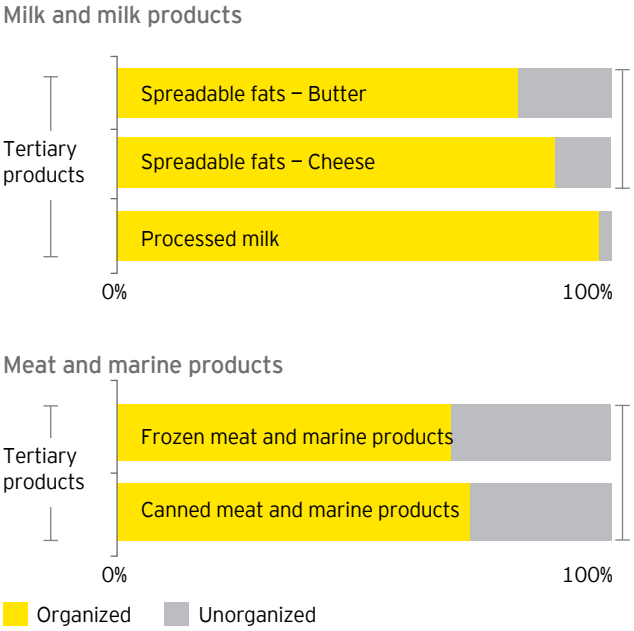
Export market

In terms of exports, while India has a large production base, certain key steps would help to build its competitive advantage in the export market.

- Price competitiveness – While India has a large production base, due to the problems associated with the supply chain and infrastructure, there is an escalation which gets applied to the product prices. Hence streamlining the supply chain would help to control the product price and improve the competitiveness
- Marketing activities – There is a requirement to invest in marketing and promoting the processed products. This could be supported through a combination of product development strategies and promotion efforts in the target market
- Quality compliance as per regulatory requirements – Considering the regulatory requirements which get applied to exports, investment in infrastructure and technology would ensure compliance with these requirements and provide a boost to the overall export volume

2. Milk and milk products, and meat and marine products

Split of the market for key products categories in the processed food category (as of 2008)



	Market value in 2008 (USD million)*	Estimated market value in 2015 (USD million)*
Milk and milk products		
Spreadable fats – Butter	1,640	2,307
Spreadable fats – Cheese		
Processed milk	2,060	5,479
Meat and marine products		
Frozen meat and marine products	39	59
Canned meat and marine products		

Source: EY research

Opportunities available

Milk and milk products space

- The opportunity in the tertiary processed products space is expected to be driven by demand, both in the domestic and international markets. Within India, the consumption of milk and milk products is growing steadily within both the urban and rural areas. Rising consumer disposable income along with growing heath awareness, is expected to drive the consumption of processed milk products
- From an international perspective, India holds a unique geographic advantage of being in close proximity to milk deficient countries like Bangladesh, where nearly 40% of the milk utilized is imported and Sri Lanka, where 65% of the milk is imported
- This advantage can also be extended to milk deficient South East Asian countries such as Thailand, Malaysia and Indonesia

Meat & marine products

- The growth of meat & marine products in the domestic market is expected to be driven by the growing share of the youth population where there is a high acceptance of such products and growing conversion from vegetarianism
- In terms of export market, India's production pricing levels provide a competitive edge to build this segment
- Additionally, the rationalization of tariff barriers under world trade agreements is also expected to open up the lucrative international meat markets for India

Key success factors for Indian food processing sector

To tap this opportunity, players however, need to implement certain critical success factors

Backward linkages for sourcing

Companies in the processed food manufacturing space face problems on the inbound supply chain side in terms of inconsistency of inputs quality, high level of wastages as the product reaches the manufacturing base and unwanted cost additions with minimal value additions. This is due to the long and fragmented supply chain which results in these wastages and price escalations. This creates the requirement for companies to invest in creating backward linkages through 'Contract Farming' which would enable the company to control the inputs at an assured quality level with minimal wastages.

Investments in supply chain for forward distribution

In terms of the outbound distribution i.e. from the company to the consumer, the retail distribution set-up in India is fragmented and unorganized. There are modern retail formats which are emerging but they are still nascent and highly under penetrated. This creates a requirement for the company to invest in building the supply chain which would integrate the different stakeholders and ensure timely delivery of the product to the final consumer.

Support infrastructure

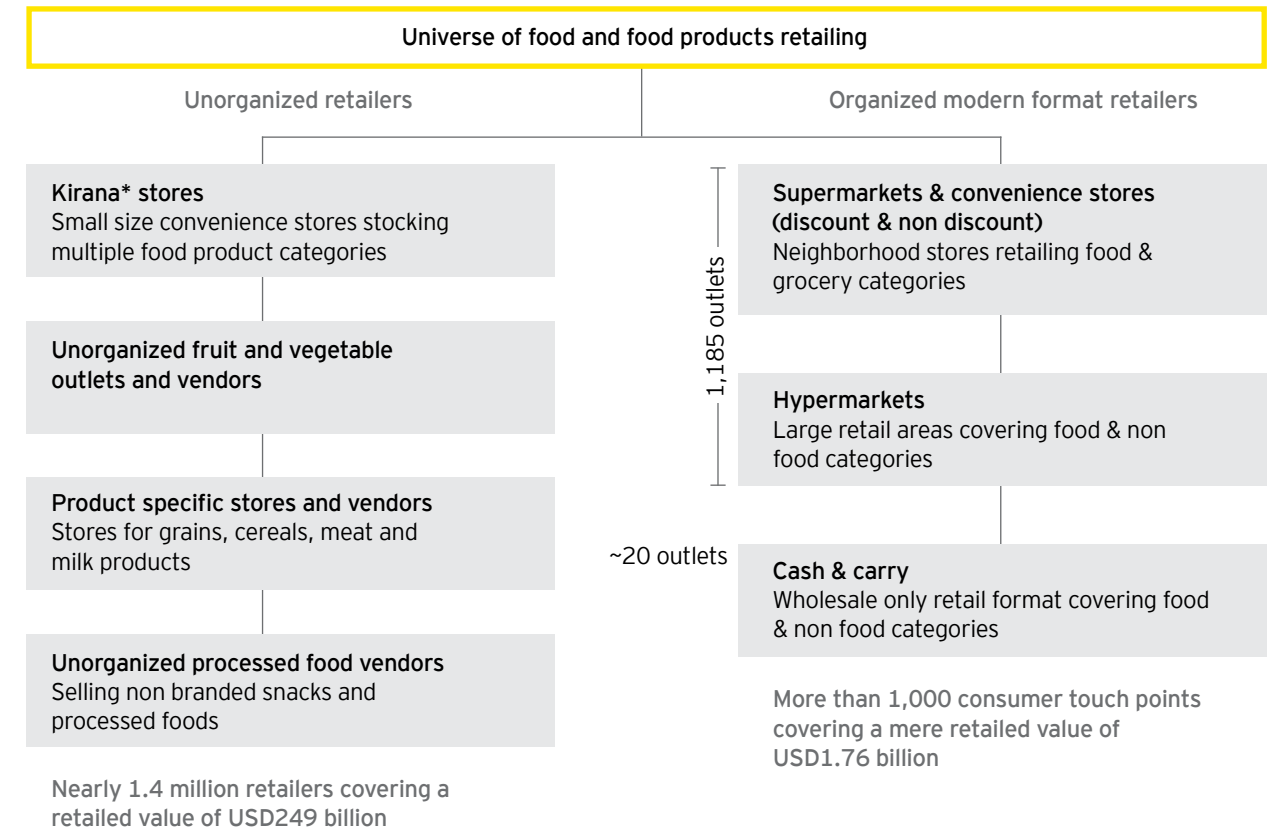
A key requirement for the processed food products would be having an access to support infrastructure such as cold chains, warehouses, specialized transport equipments to ensure a proper management of these products and hence to increase their shelf life. Considering that there are gaps in the Indian infrastructure currently, companies would have to evaluate investments or tie-ups with local partners to set-up infrastructure to meet these requirements.

Technology adoption

A key requirement for processed food products, especially from an export perspective, is the compliance with specified quality norms. This in turn drives the requirement for players to invest in technology which would enable them to monitor, implement and ensure compliance with the specified norms

Food distribution – Current state

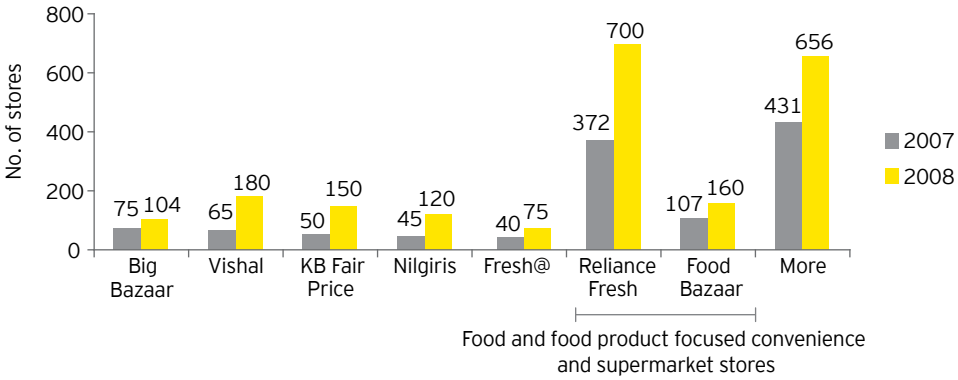
India has been dominated with traditional trade/grocery outlets, with modern retail being a new emergence in the country



* the Indian equivalent of "Mom and Pop" convenience stores

A number of domestic retailers have emerged with offerings in the modern format retailing and have aligned their offerings towards food and grocery, on account of its ability to target the mass consumer and thereby, drive footfalls

Growth in number of stores – 2007 to 2008



Source: EY research

Indian modern format retailers have been expanding their footprint across India since 2005.

Many of them have continued to expand in the current economic environment, albeit at a slower pace.

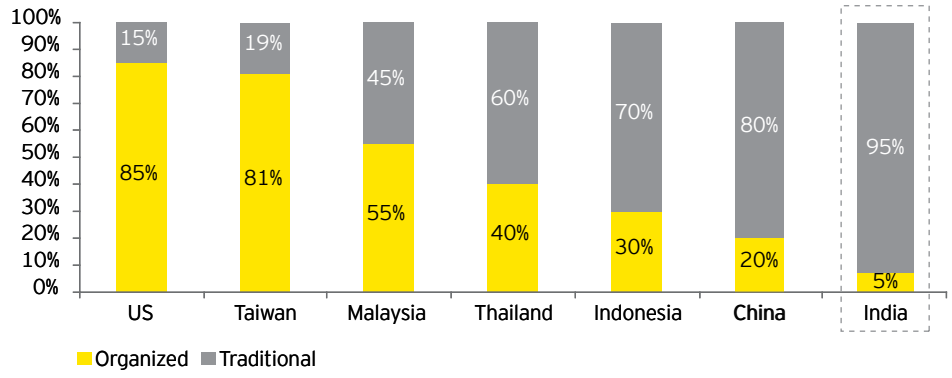
The drive to emerge as the "Price Leader" in food retailing is prompting many players to expand their reach and visibility.

Food distribution – Opportunity and future outlook

This provides an opportunity to build modern retail chains and provide a platform for effective distribution of food and food products

Compared to other countries, India lies at the cusp of growth activity in modern retail.

Growth in number of stores – 2007 to 2008



Low penetration levels of organized retail, combined with a vast addressable population base and rising income and consumption levels provides significant opportunity for growth

Source: EY analysis

Tapping into this growth have been the major international modern format retailers, with each of the companies at different stages of their India entry strategies

Metro

The German retail giant forayed into food and grocery retailing through the "Cash & carry format", and now has a retail footprint of over five stores across India

Carrefour

Europe's largest modern format retailer is in the advanced stages of its India entry strategy, finalizing a local joint venture partner for its operations

Tesco

Tesco announced plans to launch "Cash & carry" stores in India, along with a joint venture partnership with Trent, the retail arm of India's Tata group, to provide supply chain related operational assistance

Wal-Mart

The world's biggest retailer entered into a joint venture with Bharti, an Indian conglomerate in 2005 - 06 to provide supply chain related operational assistance for Bharti's chain of "Cash & carry" retail stores

"Bharti Walmart", as the entity is called, opened its first outlet in 2008, and is in the process of expanding across India

However, the entry of International retailers in the food and grocery space has been constrained by the existing regulations on Foreign Direct Investment in the retail sector

Critical success factors in food distribution

However, the success in organized retailing in food & food products is governed by key critical success factors, the key being a tie-up with a local partner

Strategic tie-up with a local partner

The Indian regulations require an international retail company to tie up with a local partner for the Indian operations. In addition to meeting these regulation requirements, the local partner also provides key insights into the local market preferences and demand, operating conditions and access to established local relations. Hence, it becomes imperative for an international retail company to tie up with a sound local partner who will meet the regulatory requirements as well as provide valuable local market knowledge.

The world's biggest retailer entered into a joint venture with Bharti, an Indian conglomerate in 2005 - 06 to provide supply chain related operational assistance for Bharti's chain of "Cash & carry" retail stores

Use of international supply chain practices

Management of a large network of retail stores with multitudes of stock units along with the need of high fill out rates drives the requirement for an optimized supply chain, involving the use of technology and internationally proven practices.

For its entry into the "Cash & Carry" retailing activity in India, Bharti has collaborated with Wal-mart for providing back end supply chain services to support retailing activity in India

Merchandise planning and assortment

Retailers need to understand the changing consumer preferences and accordingly stock merchandize which is in line with these preferences. A mismatch between the merchandize stocked and the consumer requirements would lead to consumer loss since the consumer would satisfy the requirement from another retailer.

The "Star India bazaar" chain of hypermarkets has an exclusive area within the stores dedicated to tertiary food products of foreign origin, such as pasta, olive oil and salami

Efficient linkages for launching private labels

In addition to distributing third party products, retailers could use their network and drive sales and usage of their own private labels. This would be especially important considering the huge potential offered by the Indian market for tertiary processed products.

The complexity of the farm supply linkages require the retailer to adopt efficient linkage mechanisms such as contract farming, primarily to ensure control over price fluctuations and cost escalation due to storage and transportation.

Reliance fresh, with a footprint of nearly 700 stores across India, uses the Direct procurement mechanism for obtaining fruits & vegetables for retail sale

ITC's food & grocery focused "Choupal Fresh" stores extend the company's backward farm linkages into delivery, supplying produce to the customers sourced from their Direct procurement centers

4.

Tertiary stakeholders in the food industry

Summary

Government

- Due to the importance of the food industry for India, the government has a high involvement in the overall food industry in the form of assistance and regulations.
- The government's intervention in 'marketing & sale' of food products revolves around information sharing and support in terms of production procurement and pricing of products
- The government's intervention in 'processing' of food products is targeted towards providing assistance and undertaking initiatives to develop the processing capabilities
- However, the government may have to address certain key aspects such as the impact of subsidy provision on production volumes of different categories or the effect of government support in one category on the production of another category

Infrastructure

- Logistics in India is at a nascent stage, characterized with high level of inefficiencies and opportunities for improvement
- Road – While being the most preferred mode of transportation, number of issues are impacting its efficiency
- Rail – Emerging as the preferred transportation route but also impacted by operating challenges
- Sea – To support the international trade, focus on building capacity with a need to address operational efficiencies
- Storage - Warehousing – a key requirement in the supply chain, but with a demand and supply mismatch
- Storage: Container Freight Stations – due to international trade, demand expected for specialized port based warehousing services
- However, critical success factors to tap this opportunity lies around local market knowledge and strategic tie-ups with local partners

Due to the importance of the food industry for India, the government has a high involvement in the overall food industry in the form of assistance and regulations

Agriculture in India is the single largest area of economic activity. The involvement of nearly 60% of India's population in farm activity ensures continued government interest in this sector.

The government's involvement in the form of assistance and regulation spans across the value chain, starting from the farming activity i.e. the production of food to the food processing activity i.e. where the primary processed food is converted into secondary and value added tertiary processed products.

A snapshot of the key government interventions in the Food Industry

Value chain	Farming activity	Marketing and sale	Processing
Incentive assistance	Credit assistance		
	Production inputs	Knowledge dissemination framework	Export incentives
	Fertilizer subsidy	Procurement	Initiatives for development of processing capabilities
Regulatory involvement	Land ceiling acts (state specific)	Minimum support pricing	Framework for quality standards
		APMC acts (state specific)	

The government's intervention in 'marketing & sale' of food products revolves around information sharing and support in terms of production procurement and pricing of products

Knowledge dissemination framework

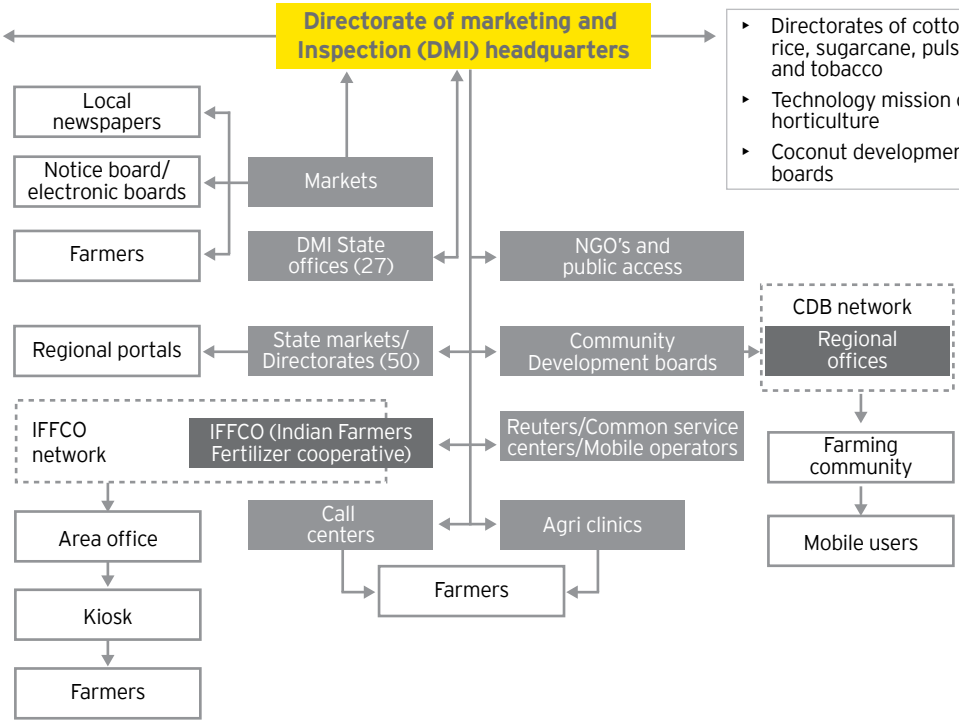
Existence and dissemination of complete and accurate information is critical in achieving operational and price efficiency in the marketing and sale system.

The need for accurate market information is of significant importance to farmers, primarily to assist in their decisions for planning production and marketing of their output.

In order to address these challenges, the Government of India instituted the creation of "Agmarknet", an agricultural marketing information network linking agricultural production centres spread across the country, with state owned marketing and procurement agencies, state owned warehousing facilities and higher institutes for agricultural research.

Agmakrnet

- Automatic data downloading
- Data validation
- Database updation
- Trend analysis
- Monitoring reports
- Commodity profiles for production planning
- Data warehouse and data mining
- GIS based national atlas



In its current state, the network encompasses 2,965 nodes, including 2,784 agricultural production centres, central and state agricultural marketing boards.

Source: http://agmarknet.nic.in

Current elements of the information network

Price and arrivals: The portal provides information on daily prices commodity wise and variety and information on the type of goods that have arrived across the various wholesale markets

Commodity and variety directory: A comprehensive base of 300 commodities and 2,000 varieties, highlighting key characteristics of the products and the appropriate farming practices which can be adopted by the farmer

Weather information: All India weather conditions and weather forecasts and their impact on the production levels

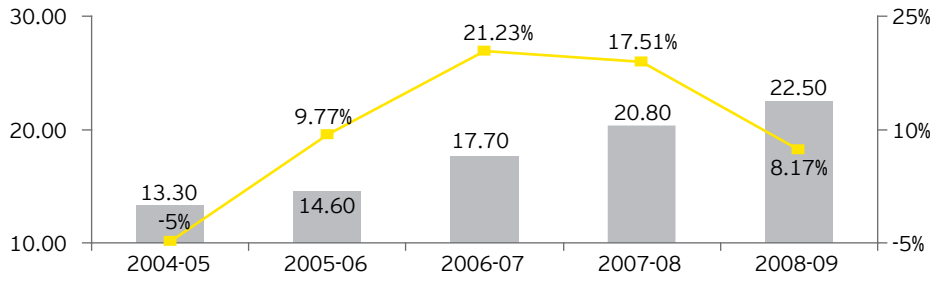
National and international exchange linkages: The portal provides information linkages with various commodity exchanges in India and internationally, along with agencies like the Food and Agriculture Organization

Minimum support prices

Prices of key commodities in India are covered by a price control mechanism implemented by the government known as Minimum Support Prices (MSP).

This minimum price mechanism covers 24 key commodities, including major crops like rice, wheat and cotton and are mandated by the government. The main benefits of this mechanism is the protection to the farmer from price fluctuations that happen in the open market.

Minimum support prices of wheat (USD/quintal) and % growth in total production (Y-o-Y)



Source: CMIE

Case study

In case of wheat, which is covered by the Minimum Support Price mechanism, the increase in minimum support price has aided in the growth of the total production of this commodity. An USD3 increase in MSP led to approximately more than 8% growth in the production volume of wheat.

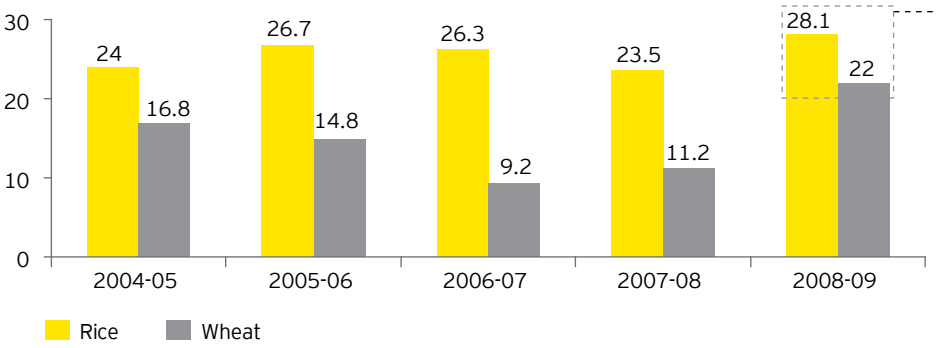
Procurement

The government, through its agencies, procures grains & cereals from the farmers on a large scale from the open market, for distribution as food subsidy to the population below the poverty line.

Rice and wheat are the two predominant products procured directly by the government through public procurement agencies such as Food Corporation of India (FCI).

This procurement by the government is done at the specified MSP.

Government procurement of wheat and rice (million tons)



Increased procurement on account of low demand in open market for wheat & rice

Source: Economic Survey 2008-09

APMC Acts
(state specific)

To regulate the sale of farm produce within a state, APMC, or Agricultural Produce Marketing Committee act was enacted.

The main intention of the act was to regulate the purchase trade between farmers and buyers.

When the act was originally enacted there were restrictions around the participation of private players as buyers and hence private players did not have the opportunity to purchase directly from the farmers.

However, now with the government's focus to drive and promote private participation in the agricultural sector, the government has suggested reforms to the act across the states to the state governments to enable private players to participate as buyers and purchase directly from the farmers.

This reform has facilitated the acceptance and growth of contract farming across India whereby private players deal directly with the farmers to secure their sourcing requirements at assured and pre-determined price and quality level.

However, this mandated reform still needs to be implemented and accepted across the different states in India.

Stage of reform	Number	States and Union Territories
Complete implementation of the suggested reforms	12	Andhra Pradesh, Arunachal Pradesh, Chandigarh, Chattisgarh, Himachal Pradesh, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Punjab, Rajasthan, Sikkim
Partial implementation of the suggested reforms	5	Delhi, Gujarat, Haryana, Karnataka, Uttar Pradesh
An existing act which already incorporates the suggested reforms	1	Tamil Nadu
No existing act and no reforms implemented	7	Andaman & Nicobar Islands, Bihar, Dadra & Nagar Haveli, Daman & Diu, Kerala, Lakshwadeep, Manipur. Bihar has abolished the APMC Act, hence, facilitate direct sourcing by private companies
The process of implementation of the suggested reforms initiated but has to be completed	10	Assam, Goa, Jammu & Kashmir, Jharkhand, Meghalaya, Mizoram, Pondicherry, Tripura, Uttaranchal and West Bengal

Source: Economic Survey 2007-08

The government's intervention in 'processing' of food products is targeted towards providing assistance and undertaking initiatives to develop processing capabilities

Export incentives

With a view of promoting exports, especially of secondary and tertiary processed products, the government has provided multiple incentives across agri-products, milk and milk products, meat and marine products.

Under the aegis of the Agricultural & Processed food products export development authority, or the APEDA, the government provides the following support to agri exporters:

- Provide relevant research & development support to enhance the quality of the products produced
- Financial assistance to exporters & producers to install quality management, quality assurance and quality control systems. This would enable them to meet the international quality norms.
- Assistance for sale and market development of the products through conducting feasibility services and promotion activities in the export market, dissemination of information about international markets requirements etc.

Framework for quality standards

The government has been focusing on its food laws to emphasize food safety as well as food quality

Domestic consumption

- Recent legislation in this regard includes the Food Safety and Standards Act, passed in August 2006
- The law establishes a Food Safety and Standards Authority of India to set and define the food standards and regulate the manufacturing, importing, processing, distribution, and sale of food in the Indian market.

Export markets

- The quality standard for exports is controlled by the Export Inspection Council of India (EIC), the official certification body. Export certification in India is mandatory in some areas such as marine, milk, meat, poultry, marine and egg products, and honey.
- Under the EIC, there are five inspection and certification facilities that carry out inspection and certification activities, with an additional 41 sub offices and laboratories to provide back up
- The main system of export inspection and certification being followed in the Indian food sector is the Food Safety Management Systems – based certification (FSMSC), which is founded on international standards of CODEX laid down by FAO and WHO, Good Management Practices (GMP), and Good Hygiene Practices (GHP)
- All units approved by EIC necessarily have to implement these certifications at all stages of food production, in addition to meeting end product requirements. India has been increasing its participation in several CODEX committees to ensure domestic production reflects international requirement, thereby, facilitating acceptance of Indian food products in the global markets
- Additionally, to facilitate quick turnaround for exports, India is seeking agreements with the health authorities of major trading partners. In such agreements, the EIC in India is designated by the partner country to undertake the inspection and certification of the products in India itself, before it is exported. The EIC in this case, has already been designated as a competent authority by the European Commission (EC) for marine products and basmati rice and by the US for black pepper

Development initiatives for processing

To drive the penetration of the food processing activity in the country, the Government has been actively involved in developing and improving the infrastructure available for processing across the country

Government activity in improving the infrastructure focuses on the following key levers

Infrastructure development

To address the low scale of processing activity in the country, the government has envisaged the development of mega food parks, with integrated facilities for procurement, processing, storage and transport.

Incentives for private investment: To increase the activity of both domestic and foreign players in the food processing space, the government provides incentives in the form of financial assistance for major schemes for food processing industries, raising the limits of direct financing by publicly owned banks to food processors, capital investment subsidy

Food park	Location	Size (acres)	Key promoters
Jharkhand mega food park	Ranchi, Jharkhand	200	Genx venture capital
Rai Food park	Sonipat, Haryana	150	Haryana state industrial & Infrastructure development corporation
Srini food park	Chittoor, Andhra Pradesh	141	Srini food park Pvt. Ltd
Saha food park	Ambala, Haryana	105	Haryana state industrial & Infrastructure development corporation
Patanjai food & herbal park	Haridwar, Haryana	100	Patanjali Herbals Ltd
Western agri food park	Satara, Maharashtra	75	Chordia group
North east Mega food park	Nalbari, Assam	58	Assam Industrial development corporation

Source: Industry sources

Technology up-gradation: With a view to increase the productivity in food processing activity, the government provides incentives to food processing units for technology up gradation.

Additionally, support is also being extended for modernization of abattoirs to create infrastructure required to improve yields, conforming to international quality standards.

Quality Control/R&D: The government aims to raise India's processed product quality to international standards, to address health concerns and harness the export opportunity prevalent.

In this regard, the government is establishing a network of quality control & testing laboratories and testing centers across India, supported by R&D through research institutes.

for projects involved in post harvest processing, among others.

In the 2009-10 budget, the government has announced investment-linked tax incentives for setting up and operating cold chain, warehousing facilities for storing agricultural produce. Under this scheme all capital expenditure other than that on land, goodwill and financial investments will be allowed as deduction for tax. This is expected to help attract investments that are needed in this sector.

In addition, 100 % Foreign Direct investment is permitted in food related infrastructure like food parks, cold chains and warehouses.

However, the government may have to address certain key aspects such as the impact of support on production volumes or the effect of support in one category on the production of another category

Balancing farm support and consumer demand

Government incentives in the form of Mandatory procurement, and MSP could affect farmer behavior towards growing crops with the maximum subsidy, rather than determining the best crop based on market demand and capability of the land.

The lack of demand – supply orientation towards farm subsidies can lead to inadvertent effects in the form of a price glut, caused by over-production.

In September 2008, the government announced an increase in the MSP of seed cotton, ranging from 26 – 48% depending on the variety, which equated to about $0.72/lb for the most commonly produced varieties of cotton.

Compared with international prices of $0.55 to $0.58/lb, the MSP was well above international prices as a result of which, the export of cotton was affected.

This forced the government to purchase as much as 11.7 million bales from the Indian crop in order to maintain the MSP and at the same time ensure the guaranteed returns to the farmer.

Understanding impact of export incentives across products

The effect of incentives by the government for a particular sector could impact the output quantity of another sector especially in case of those products which have the same primary input.

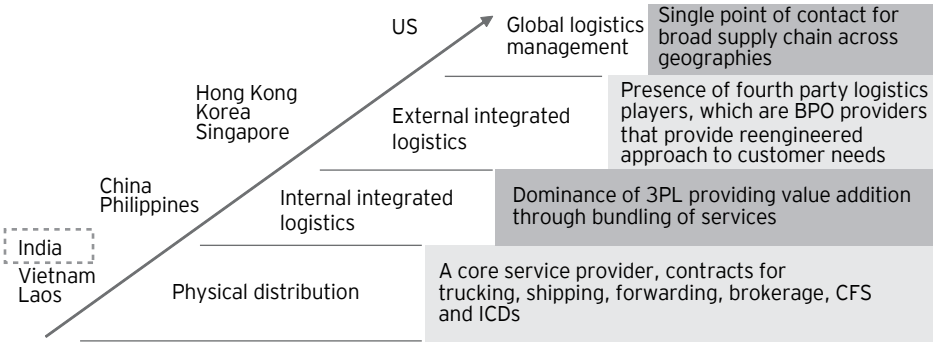
Subsidizing one output product as against the other, may skew production for either of the product categories, resulting in demand supply mismatch and adverse effects on the domestic market.

Export incentives provided to meat exports in the form of duty waivers and increased credit assistance resulted in the growth of meat exports by more than 40%.

The resulting effect of increased slaughter of farm animals impacted the quantity of milk produced, with North India alone accounting for a 22% drop in the milk available for consumers from 45 litres per day to 35 litres per day.

Logistics in India is at a nascent stage, characterized with high level of inefficiencies and opportunities for improvement

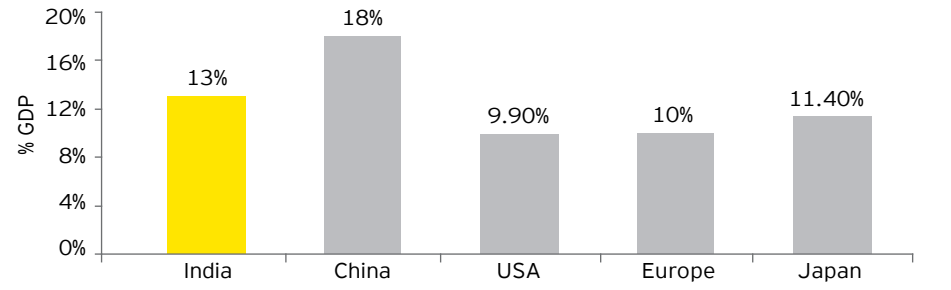
India is at a nascent stage in the logistics evolution cycle and is characterized by a lack of integrated services. The level of integration, coordination and extent of value added services provided in the Indian market is low and under-developed.



Level of integration, coordination and value-added services

This has resulted in a high expenditure on logistics in India which currently translates to about 13% of the GDP, which is significantly higher compared to developed economies.

Logistics cost % GDP

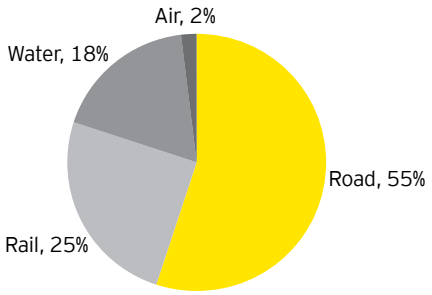


Source: EY research

- There is a high concentration of unorganized players in the Indian logistics market which has resulted in inefficiencies and accordingly a higher spend on logistics
- Considering the potential of this sector, a number of international logistics companies are setting up shop in India
- They seek to differentiate themselves through provision of value-added services such as inventory management and tracking, scanning, just-in-time management, which are new concepts for the Indian logistics players

Road: While being the most preferred mode of transportation, number of issues impacts its efficiency

Percentage of volumes moved by the different modes of transportation



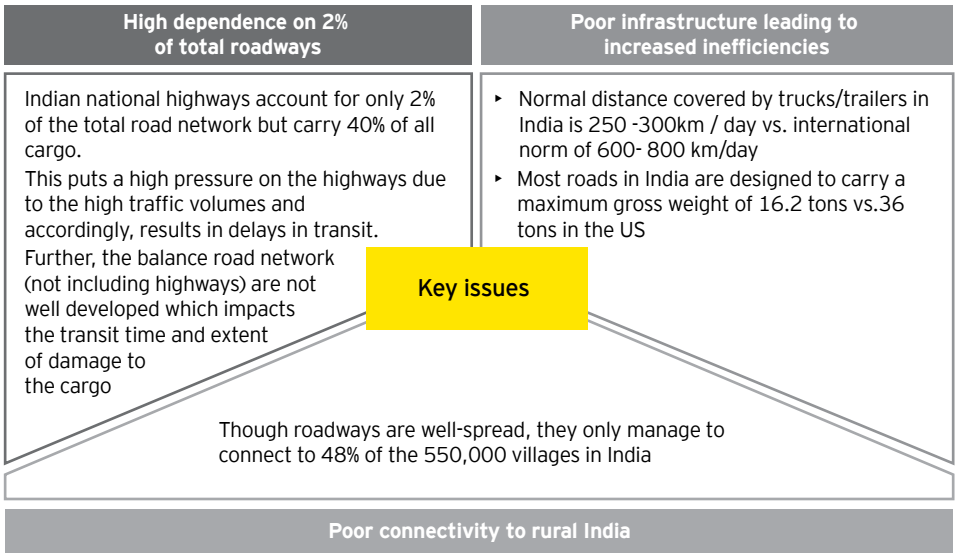
Source: CII

About 55% of all cargo in India is transported by road and 25% is transported by rail

The reason road is the preferred route of transportation is because of high connectivity and reach to the destination points across urban and rural areas. The available road infrastructure are basic trucks, without much availability of refrigerated vans.

A study by Commercial Engineers & Body Builders Co. (CEBBCo), a maker of vehicle bodies and refrigerated vans, has indicated that with the entry of organized food retail chains into India, the country will require at least 4,000 to 5,000 refrigerated trucks in the next three years

There are a number of issues which impact the efficiency of the road network in India



The government has set up the National Highway Authority of India (NHAI) with the purpose of improving connectivity across the country. NHAI is planning to award projects this year for implementing more than 3500 kms with an investment of USD8-9 billion. The overall investment planned for highways is more than USD50 billion between 2009 and 2012. This will provide a strong road network for the sector in the future and will also make the flow of goods smoother and faster.

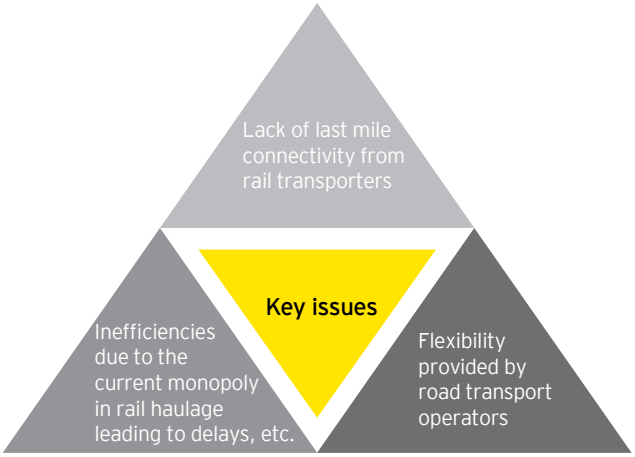
Rail: Emerging as the preferred transportation route but also impacted by operating challenges

Despite being cheaper than road transportation, railways currently contribute to only 25% of the total cargo transported

Port	Distance from Delhi (km)	Haulage cost (INR/TEU/km)	
		Rail	Road
JNPT	1,388	13.5	23.1
Mundra	1,295	12.9	15.4
Pipavav	1,333	12.8	18.0
Visakhapatnam	1,700	13.2	38.8
Chennai	21,00	14.3	33.3

Source: CII Logistics, Concor, Crisil, Nomura research, February 2009

There are a number of issues with the rail haulage network in India



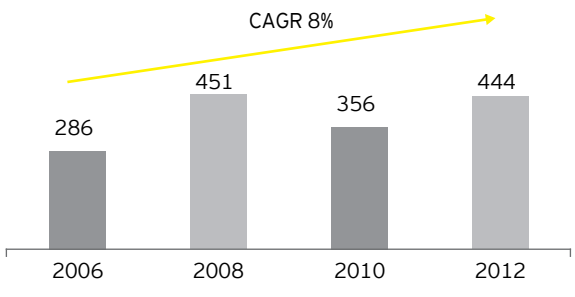
To overcome this issues, the government has initiated several policy measures in the railways

- The railways in India was the monopoly of government agencies. The government has now issued licenses to private companies to run and operate container trains on the railway network. The railway network will however be managed and operated by government agencies.
- Under the 11th Five-Year Plan (2007-2012) , the Railways plan to invest USD55 billion for building infrastructure capabilities – one such project is the Dedicated Freight Corridors (DFCs) which is estimated at a cost of USD6 billion.
- The DFCs are expected to improve the connectivity of the railways, with an increase in carrying capacity and reduction in transit time.

Sea: To support the international trade, focus on building capacity with a need to address operational efficiencies

With an expected growth in the external trade of USD444 billion by 2012, the National Maritime Development Programme (NMDP) envisages to double port handling capacity from 508 million tons in 2007 to 1,002 million tons by 2012.

External trade in India – 2006 to 2012 (Exports and imports in USD billion)



Source: Global Insight

However, several key challenges do exist in creating and managing infrastructure suitable for external trade usage.

Capacity across the major ports in India – 2007 vs. 2012

Major ports	Capacity (million tonne)		
	2007A	2009E	2012E
Kolkata (inc Haldia)	54.8	54.4	94.9
Paradip	66.4	60.1	106.4
Vizag	55.8	74.7	108.2
Ennore	13	35	64.2
Chennai	48.8	73.6	72.3
Tuticorin	20.6	35.6	64
Cochin	19.4	33.5	54.8
New Mangalore	38	47.8	60.5
Mormugao	29.5	41.5	67
Mumbai	43.8	57.9	91.9
JNPT	51.7	59.5	95.6
Kandla	67	77.4	122.2
Total	508.6	650.9	1001.8

Source: Planning Commission (working group – 11th Plan), NMDP and other research

Key challenges for external trade through the port infrastructure

Development of Hinterland connectivity

While port capacity may be increasing, lack of connectivity to these ports leads to cost escalations and delays in the goods transferred

Land acquisition issues

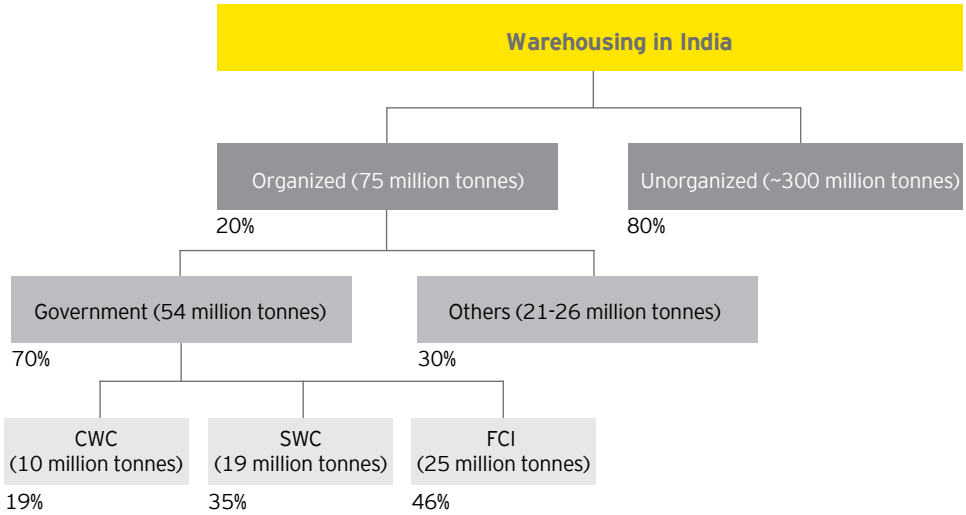
Development of new ports and increase in capacity of existing ones is being affected by environmental and social hurdles such as acquiring land for expansion

Poor productivity

High dependence on manual labor and low technology usage affects the turnaround times at ports, impacting the overall supply chain lead time. This can cause adverse effects especially for food and food products.

For e.g. the cost of an import container in India costs at around USD500-520 per box as compared to USD300-350 in foreign ports.

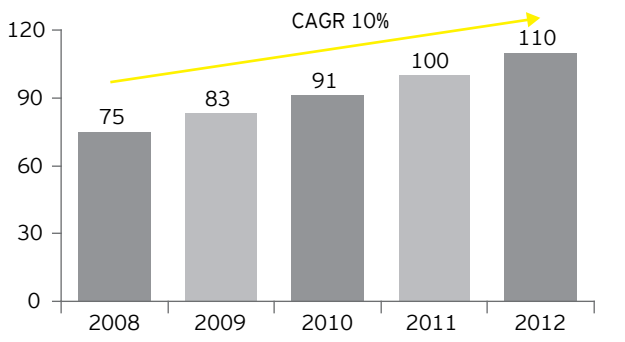
Storage: Warehousing – a key requirement in the supply chain, but with a demand and supply mismatch



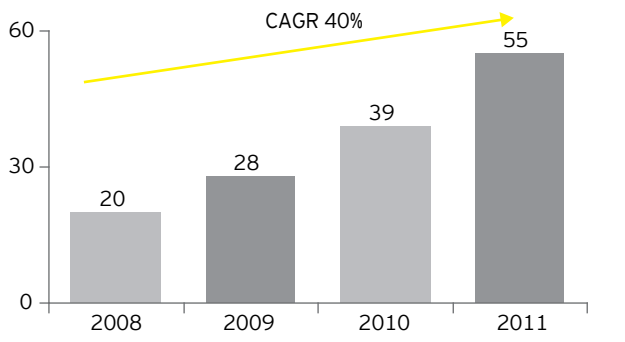
20% of warehousing in India is organized currently with 70% of the organized market controlled by the government. With the increased emphasis on infrastructure improvements especially in terms of storage facilities, this is expected to increase over the next few years. With the government allowing 100% deduction on the investment in warehousing for tax purposes, private sector players are likely to show increasing interest in investment in this area.

The Government's 11th Five Year Plan targets a capacity of 110 million tons by 2012 a expansion of current capacity by 10%, whereas, the market is estimated to grow by 40% by 2011.

Government 11th five year expansion plan (2007-2012) (million tonnes)



Market size and growth in the warehousing space (USD billion)



Source: 'Cushman & Wakefiels "Logistics indusrty Real estate's new power house", August 2008; Colliers International "Logic of logistics"

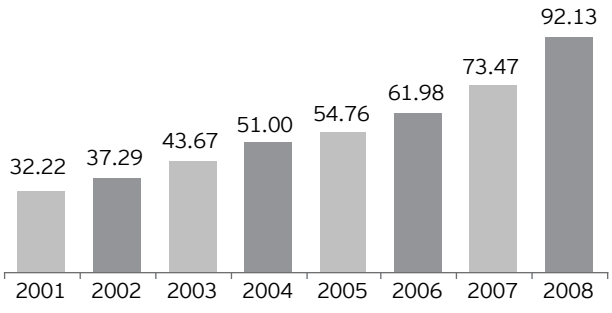
Recent warehouses/logistics parks launches across the country

Date	Company	Place	Key details	Proposed investment
Apr-09	Safexpress	Across India	Safexpress is planning to set up logistics parks and expand its fleet strength to meet the growing demand. They propose to set up 32 ultra modern logistics parks across the country in the next 2 years and will add 0.5 million sq. ft. of warehouse space.	USD208 million
Jan-09	CONCOR	Khodiyarin	The company plans to set up multi modal freight logistics park with a projected EXIM traffic handling capacity of 0.2 million containers. This park is scheduled to be completed by September 2010.	USD17 million
Nov-08	Taneja Developers and Infrastructure (TDI)	Kundli in Haryana	The company will set up a logistics park scheduled for completion in 2012	USD73 million
Nov-08	The Kalpataru Group	Across India	The Company plans to set up 40 warehousing and agriculture logistics parks over the next three years which will provide end to end logistics solutions including processing facilities, office space, auction platforms, testing facilities etc.	NA
Nov-08	TVS Logistics Services	Chennai	The company plans on setting up a logistics park to facilitate trade	USD104 million
Oct-08	Gujarat Infrastructure Development board	Across India	The company signed an agreement with the Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL) to develop five logistics parks across India	USD3.5 billion
Aug-08	Khaleeji Commercial Bank	Navi Mumbai	The company plans to set up a logistics service project with warehouses, truck maintenance depots and other facilities	USD400 million

Storage: Container Freight Stations – due to international trade, demand expected for specialized port based warehousing services

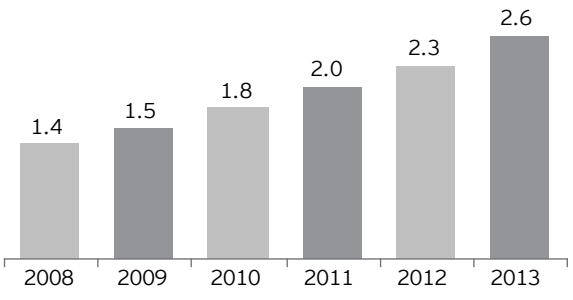
Specialized port based warehousing services such as Container Freight Stations and Inland Container Depots are projected to grow at 14% till 2013

Container traffic at Indian ports – million tonnes



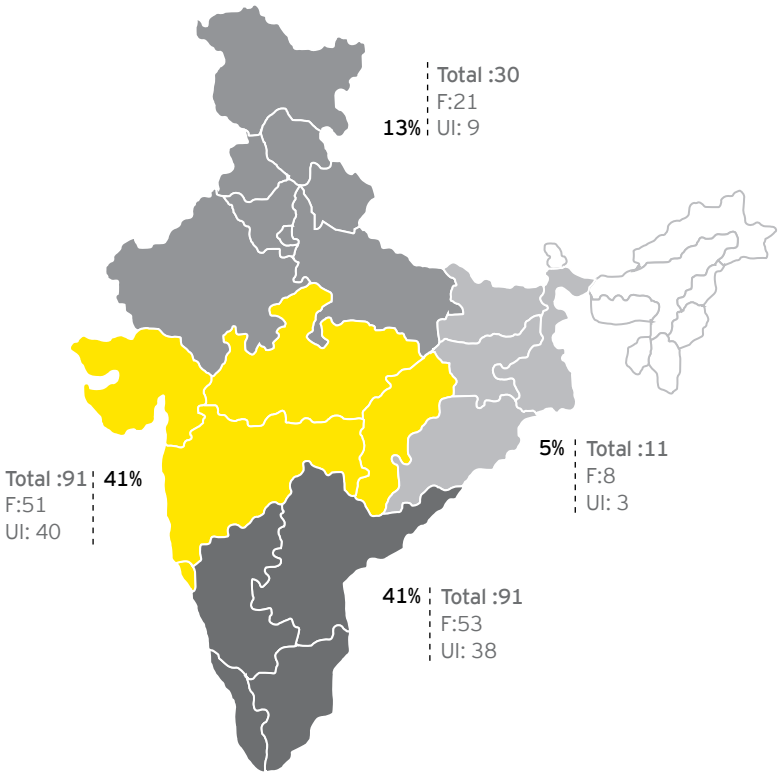
Note: On an all-India basis for FY08, 1TEU = 13.3 tonnes
Source: Indian Ports Association

CFS/ICD projected market size (USD billion)



Source: Netscribes

Spread of Container Freight Stations across India



A total of 133 CFS/ICD are functioning today with 90 new CFS/ICD being planned

Container Corporation of India, Central Warehousing Corporation, All Cargo Limited and Gateway Distriparks Limited are the large players in the CFS/ICD business

F: Functional
UI: Under implementation

Note: Data as of 31st Oct, 2008
Source: Department of Commerce, Netscribes

Considering this landscape, there are ample opportunities which can be tapped in the infrastructure space to support the food industry

Warehousing facilities

- In spite of being one of the worlds leading producers of food there is a high demand supply gap in the country, specifically in cold chain infrastructure. The absence of proper storage and organized cold chain facilities leads to large scale wastages.
- The demand for cold chain infrastructure is set to increase with modern trade expected to grow at 20-25% and the emergence of large Indian and international players in the food chain.
- Increase demand for value added tertiary processed products especially frozen food will also drive the need for improved warehousing and cold storage facilities.

Value added services

- There is significant opportunity to provide value added services. Currently logistics players provide fragmented and basic services such as transportation, storage etc.. There is currently a large gap in terms of availability of value added services like tagging, repacking, promotion packing, 3PL etc.
- Considering this gap, companies , especially international companies present in Indian manage these processes in house with minimal intervention from third parties

Supply chain management

- There is a growing need among retailers and manufacturers to obtain real time data to ensure proper order planning, stocking and manufacturing plans.
- The use of information technology to integrate the point of sale systems with delivery chain to aid inventory management and forecasting is minimal.
- There is a large opportunity in the sector as the Indian logistics space is currently dominated by unorganized players who provide very basic services with a very low use of technology.

However, critical success factors to tap this opportunity lies around local market knowledge and tie-ups with local partners

Local market knowledge

- Extensive experience in servicing domestic clients gears a service provider to offer integrated supply chain solutions. Further, to understand and solve micro localized supply chain management challenges of the industry, it is critical for the service provider to have actual hands-on experience and knowledge of the local market conditions

Strategic tie-ups/ partnerships

- Strong partnerships/strategic tie-ups with an established Indian logistics player would enable the service provider to offer integrated solutions across the entire supply chain without significant investments in infrastructure and also avoid significant lag in development of required infrastructure

  For example, Pro Logistics an end-to-end logistics service provider from Malaysia tied-up with Indo Arya a road transport company in India. As part of the tie-up, Pro Logistics manages the logistics solution designing and Indo Arya manages the implementation and execution of the design in the domestic market. This tie-up leveraged on the skills of both the partners – Pro Logistics experience in designing supply chains and Indo Arya's experience and local market knowledge

State of the art technology

- Technology investments drive operating efficiencies in the form of higher utilization of assets (like truck fleet utilization, warehouse utilization, etc) and coordination of movement of cargo.
- IT based solutions such as track and trace, just in time, inventory management provide high value addition to clients, thereby giving both the users and service providers a competitive edge in their respective businesses

  For example, CONCOR, a government company in rail based services, has invested USD54 million in 2006 and is expected to invest an additional USD87 million by 2009 to create an infrastructure network of warehouses supported by technology

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence and its subsequent emergence as one of the most rapidly growing economies globally. FICCI plays a leading role in policy debates that are at the forefront of social, economic and political change. Through its 400 professionals, FICCI is active in 39 sectors of the economy. FICCI's stand on policy issues is sought out by think tanks, governments and academia. Its publications are widely read for their in-depth research and policy prescriptions. FICCI has joint business councils with 79 countries around the world.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. FICCI has direct membership from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 83,000 companies from regional chambers of commerce.

FICCI works closely with the government on policy issues, enhancing efficiency, competitiveness and expanding business opportunities for industry through a range of specialised services and global linkages. It also provides a platform for sector specific consensus building and networking.

Partnerships with countries across the world carry forward our initiatives in inclusive development, which encompass health, education, livelihood, governance, skill development, etc. FICCI serves as the first port of call for Indian industry and the international business community.

Mr Sameer Barde
Senior Director
Federation of Indian Chambers of Commerce and Industry
1, Federation House, Tansen Marg, New Delhi 110001
011 -23728760-70 (310)
sameer@ficci.com

Ernst & Young Pvt. Ltd.

Assurance | Tax | Transactions | Advisory

About Ernst & Young

Ernst & Young is a global leader in assurance, tax, transaction and advisory services. Worldwide, our 135,000 people are united by our shared values and an unwavering commitment to quality. We make a difference by helping our people, our clients and our wider communities achieve their potential.

For more information, please visit www.ey.com/india

Our offices

Ahmedabad
2nd floor, Shivalik Ishaan
Near CN Vidhyalaya
Ambawadi
Ahmedabad - 380 015
Tel: + 91 79 6608 3800
Fax: + 91 79 6608 3900

Bengaluru
"UB City", Canberra Block
12th & 13th floor
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 4027 5000
+ 91 80 6727 5000
Fax: + 91 80 2210 6000 (12th floor)
Fax: + 91 80 2224 0695 (13th floor)

Chennai
TPL House, 2nd floor
No. 3 Cenotaph Road
Teynampet
Chennai - 600 018
Tel: + 91 44 4219 4400
Fax: + 91 44 2431 1450

Gurgaon
Golf View Corporate Tower B
Near DLF Golf Course
Sector 42
Gurgaon - 122002
Tel: + 91 124 464 4000
Fax: + 91 124 464 4050

Hyderabad
205, 2nd floor
Ashoka Bhoopal Chambers
Sardar Patel Road
Secunderabad - 500 003
Tel: + 91 40 6627 4000
Fax: + 91 40 2789 8851

Kolkata
22 Camac Street
Block 'C', 3rd floor
Kolkata - 700 016
Tel: + 91 33 6615 3400
Fax: + 91 33 2281 7750

Mumbai
6th floor & 18th floor, Express Towers
Nariman Point
Mumbai - 400 021
Tel: + 91 22 6657 9200 (6th floor)
Fax: + 91 22 2287 6401
Tel: + 91 22 6665 5000 (18th floor)
Fax: + 91 22 2282 6000

Jolly Makers Chambers II
15th floor, Nariman Point
Mumbai - 400 021
Tel: + 91 22 6749 8000
Fax: + 91 22 6749 8200

Jalan Mill Compound
95 Ganpatrao Kadam Marg
Lower Parel
Mumbai - 400 013
Tel: + 91 22 4035 6300
Fax: + 91 22 4035 6400

New Delhi
6th floor, HT House
18-20 Kasturba Gandhi Marg
New Delhi - 110 001
Tel: + 91 11 4363 3000
Fax: + 91 11 4363 3200

Pune
C-401, 4th floor
Panchshil Tech Park
Yerwada (Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 6601 6000
Fax: + 91 20 6601 5900

Notes

Notes

back cover inside

back cover