

## **Confederation of Indian Industry**





# **CII - Rabo Equity Report**

## July 2015

**KNOWLEDGE PARTNER** 



Rabo Rabo Equity Advisors

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खाद्य प्रसंस्करण उद्योग मंत्री भारत सरकार MINISTER OF FOOD PROCESSING INDUSTRIES GOVERNMENT OF INDIA



MESSAGE

The food processing industry is one of the largest and fastest growing industries in India. Food Processing Industry offers significant opportunities to elevate the agricultural economy, raise farmer incomes, generate employment and help in controlling inflation.

A developed food processing industry will reduce wastages, ensure value addition and generate additional employment opportunities and thus lead to better socio-economic condition of millions of farmer families – thus aligning fully with the Make in India campaign of the Government of India. The growth of food processing sector would need to be a significant component of this strategy.

With changing lifestyle, hectic work schedules and increasing consciousness towards health, the importance of nutritious and hygienic food has increased manifold. In order to enhance the shelf life of the processed food, the demand for appropriate packaging has also increased. This has generated plethora of opportunities in this segment.

My best wishes to CII for having taken this initiative and I hope that the deliberations in the Conference will generate valuable suggestions.

Place: New Delhi

asimur

(Harsimrat Kaur Badal)

Dated: 02.07.2015

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# MESSAGE



Mr Shreekant Somany, Chairman, CII (NR) and Chairman & Managing Director, Somany Ceramics Limited

The International Conference on Food processing as part of the Make in India campaign has been very aptly drawn by CII at this juncture.

India is still low on Food Processing counter. Large quantity of vegetable and fruits is wasted due to non-availability of proper storage / cold chain facilities. A vital part of Food Processing - Cold chain projects are still seen by investors as high on capital, low on volume and requiring a long payback period for the investment. Many a time, to succeed, aggressive marketing and investment on backward and forward linkages also may be required.

CII has been continuously working with the industry on the Food Safety front and catalyzing investments for the creation of integrated infrastructure.

As one of the prerogative in the Food Processing sector, it is vital to identify and focus on specific crops with regard to specific States and develop a model over it with regard to branding and marketing of the crop both in the domestic and international markets.

We do hope that this CII – Rabo report will serve as an intensive valuable tool for the participants to reach out for the best of the Knowledge concerning the Sector.

Wishing all the success to the event.

# MESSAGE



Mr Rajesh Srivastava, Chairman, Regional Committee on Agriculture & Food, CII NR and Chairman & Managing Director, Rabo Equity Advisors

Over the last few years, we in CII and Rabo Equity have been wondering as to why "Food Processing" as a sector has not found its rightful place, despite its uncontestable importance in the food supply chain. Food Processing around the world has proven to have brought in 3 benefits: (1) provide a loop line to farmers who derive higher income for their produce being sold to processors who pay much better than the traders (2) provide value added food to consumers and (3) organize the entire value chain cutting down the middlemen and re-distributing the gains (via extraction of inefficiencies) to farmers and consumers. Between primary and secondary processing the sector should be generating a GDP of at least US \$ 250 billion and growing at over 20% y-o-y. This is without including the "feeding" or "allied" sectors like packaging and machinery which is the real capital seeking segments. I am pleased that the new Government is rightly focused on this sector loans by the Reserve Bank of India.

We have a large number of engineering colleges, research centres, agricultural universities and specialist institutions like NIAM and NIFTEM. Yet we have not leveraged their strengths in showcasing innovations or research or skills related to food business. There are small countries in Europe getting famous due to their food engineering and research capability. I have seen mid-size companies in these countries having developed machines/technologies/processes which can enhance the processing capacities and also remove manual handling of food products. I have also heard some of these promoters grudging high costs, market saturation, high taxes paining them. To my questions if they can set manufacturing facilities in India for catering not just to India but to Asia/Africa from here, their response has been "interested but apprehensive". They find India a very enigmatic country but a country where they cannot easily navigate their plans to fruition. This means that the private sector and the Government have to make coordinated efforts to comfort such Companies, seek out their manufacturing related investments in India and help our own processing sector grow. Likewise for packaging. A mantra in India has to be to increase the shelf life of processed foods where packaging plays a key role, whether plastics, paper, metal or glass. We all know that packaging is a capital intensive sector.

CII and Rabo are committed to create pools of investment opportunities for food processing in India. Clearly it has to be "Team India" as our Prime Minister has envisioned, which can implement these plans. Hence it is important for the State Governments to jointly pursue and facilitate investments in what I would refer to as "Food Processing +"plan.

With this above objective, I am very pleased to present a CII-Rabo Equity Report on the "Make in India in Food Processing Sector" in India. Today's Conference is our first attempt to bring the huge opportunity in a generic sense to the attention of stakeholders and thus some of the North Indian States will be represented in this Conference. Next round will be more country/company targeted project specific, sector oriented and location bound discussions in the State Capitals.

I hope that our report will be found useful as a pre-cursor to the milestones lying ahead of us.







# INTRODUCTION

India, with the second largest arable land in the world, and with diverse agro-climatic zones across the country, has tremendous production advantages in agriculture, with the potential to cultivate a vast range of agricultural products. This strong base in agriculture provides a large and varied raw material base for food processing. These advantages if leveraged optimally, can lead to India becoming a leading food supplier to the world and become a significant player in global agricultural and food trade. Also, a vibrant food processing industry is an important catalyst for crop diversification.

At the same time, with a population of over 1.2billion, growing at about 1.25% per annum, India is a large and growing market for food products. Food products are the single largest component of private consumption expenditure. With a significant shift in India's demographic profile in favour of younger population, increasing surplus incomes and changing socio-economic environment, food consumption patterns are set to change, in favour of processed foods which are convenient, hygienic and of consistent quality.

Given this scenario, the food processing sector lends itself perfectly to the 'Make in India' initiative of the Government of India. It is therefore critical to develop a detailed strategy and implementation-oriented action plan to realize this potential of this initiative, which can lead to improved farmer incomes, employment generation, value addition and increase in exports.

However, the agri and food processing sector faces several challenges which hamper realization of its true potential. On the supply side, there are issues with respect to productivity improvement vis-à-vis global peers, limited access to finance, poor levels of infrastructure facilities, including cold storage availability and management; all leading to high costs, low value addition and low international competitiveness. On the demand side, the high cost structure for many processed foods, largely due to the lack of scale of operations and high tax structure, often leads to low consumer demand at high prices. Moreover, in India there is a cultural preference for fresh foods. Although significant initiatives have been taken by the government, regulatory distortions have cumulatively resulted in several deficiencies. Comprehensive supply chain solutions are critical to ensure that the 'Make in India' initiative in Food Processing sector becomes a success.

**CHAPTER 2** 

# IMPORTANCE OF THE FOOD PROCESSING SECTOR

The food processing sector has emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and investment. During the five years ending 2012-13, Food processing industries has been growing at an Annual Average Growth Rate (AAGR) of around 8.4% as compared to 3.3% in Agriculture and 6.6% in manufacturing<sup>1</sup>. The sector has a total of 36,881 registered units with fixed capital of nearly Rs 1.45 lakh crore and producing end output of around Rs 7.34 lakh crore in value terms. The GDP of Food Processing Industries (average for five years ending 2012-13) was 11% of the GDP in Agriculture and 9% of the GDP in Manufacturing.

The following points further highlight the importance of the Food Processing sector:

## a) Food processing sector is highly labour absorptive and less capital intensive

As per the 12th Five year plan document, within the overall Manufacturing sector, the sub-sector of Food products and beverages had an employment of 5.5 million (mln) in 2009-10. In fact, as per the 12th Five year plan, the Ministry of Food Processing Industries (MoFPI) was one of the key sectors identified for employment generation as it is dominated by MSMEs. The employment in this sub-sector has the potential to increase to 7.29 mln (by 2016-17) and 9.5 mln (by 2024-25) if it grows at a GDP CAGR of 8.8% as per the manufacturing plan laid out in the 12th Five year Plan.

# b) Food processing plays a key role in addressing inflation

Most agri commodities are seasonal with prices being quite low at time of harvest and increasing in the off season. It therefore makes sense to purchase the produce during adequate supply and convert it to a processed food product, which could then be sold in the off season, thereby providing a hedge against rising prices. For example, while the onion prices have been fairly volatile, processing of onion and sale as dehydrated onions can provide a good hedge against inflation. In India, there are 90 active onion dehydration units. Of these, 75 units are located in Gujarat mostly in Bhavnagar, Mahuva, Vadodara and Gondal (Rajkot). Goods and Service Tax (GST) on food processing if kept at NIL or lowest slab would further help control food inflation and encourage consumption of processed food.

# c) Food processing helps reduce wastages along the agri value chain

A nation-wise study on quantitative assessment of harvest and post-harvest losses for 46 agricultural produces in 106 randomly selected districts was carried out by CIPHET.

## Exhibit 1: Extent of wastages across food and agri segments

CROP	CUMULATIVE WASTAGE (%)
CEREALS	3.9 - 6.0%
PULSES	4.3 - 6.1%
OILSEEDS	2.8 - 10.1%
FRUITS AND VEGETABLES	5.8 - 18.0%
MILK	0.8%
FISHERIES (INLAND)	6.9%
FISHERIES (MARINE)	2.9%
MEAT	2.3%
POULTRY	3.7%

Source: CIPHET, 2010

Most of the wastage is taking place in fruits and vegetables, pulses and cereals. With improved focus on post-harvest practices and adequate processing facilities, much of this waste can be reduced thereby increasing price realisations to the producer as well as ensuring greater supply to the consumer. Thus, food processed is food saved. This is extremely important in the context of India, where food and nutritional security is a key concern. Processed foods ensure that consumers eat healthy, safe and nutritious and packaged food. Moreover, organised retail chains currently accounts for less than 1% of total sales of fruits and vegetables. As they grow, these chains are likely to source from vendors who can set up the required back end infrastructure for sorting and grading of produce and climate controlled transportation there by reducing the wastage /value loss.

<sup>1</sup>Annual report 2013-14 Ministry of Food Processing, Government of India

# d) Food processing leads to better farm incomes and higher rural growth

Agriculture is key to India's economy with more than half the people employed in agriculture and allied sectors. The food processing industry through backward linkages can help the farmers with inputs and better farm practices so that the industry gets good quality raw material and farmers get better prices for their produce in a win-win partnership. If processed food industry grows, agriculture GDP will grow which will lead to inclusive growth. For example, oranges from Brazil, pineapples from Philippines, palm oil from Malaysia and Indonesia, wine from Italy etc. have had a multiplier effect on the farm incomes and led to significant investment along the entire supply chain. Food processing can do for rural India what Information Technology (IT) did for urban India.

# e) Food processing can tap into the vast potential of self help groups

Processing levels in food processing could be improved by setting up low cost processing centres across India through use of the vast infrastructure of self-help groups. These centres could focus on basic processing (packing /grading, basic processing and packing). For example, the 'Lijjat Papad' model has involved a large number of mass households and is now a household name in India. In fact in countries such as South Korea, the entire electronic industry has been spread across self-help groups. Big industries outsource the routine /low technology jobs to vast number of households which become part of the industry.

## f) Food processing can fuel "Value added" exports

All agricultural produce when exported undergo an element of processing. The value of exports in the sector has touched USD 37.8 bln and growing at a CAGR of 26.4% over the last 4 years. There has been a robust growth in export of marine products, rice (basmati and non-basmati), meat related products and guar gum. India has recently emerged as the world's largest exporter of rice, replacing Thailand and Vietnam. Rice and wheat exports have also helped reduce huge stockpiles of over 50 mln tonnes. Agri exports (including marine products) as a share of total exports from India has increased from 8.2% (2009-10) to 11.9% (2013-14 estimates). Also agri exports as a share of Agri GDP has increased from 9.1% (2008-09) to 14.1% (2013-14). There is a huge potential to move from commoditized to value-added exports across product segments.

## g) Food processing sector can drive Foreign Direct Investment (FDI) into India

Foreign Direct Investment (FDI) is permissible for all processed food products up to 100% on automatic route except for items reserved for Micro and Small Enterprises (MSEs) subject to applicable laws/regulatories, securities and other conditionalities. The sector saw FDI of USD 401.5 mln in 2012-13, with potential to grow exponentially on the back of increased domestic demand for branded packaged foods as well as export demand for value added food, where India has a strong production advantage.

# h) Food processing has a key role in enhancing nutritional security

In India, food security focuses only on food availability (largely wheat and rice). India's progress in improving nutrition has been unacceptably slow. Almost one in two Indian children is stunted and 40% are underweight. One-third of all Indian women are underweight. Rates of micro nutrient deficiencies are extremely high, with almost 80% of children and 56% of women being anaemic. Globally, food security index (based on a report by the Economist Intelligence Unit) assesses food security across three internationally designated dimensions: affordability, availability and nutritional guality/safety of food. India is ranked 66th out of 105 countries on Global Food Security Index. It is imperative that India focuses on the global definition of food security. In this context food processing has an important role to play in terms of enhancing nutritional security e.g. food fortified with healthier ingredients, iodized salt etc

## CHAPTER 3

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# CONSUMER TRENDS IN FOOD PROCESSING

India is a large and growing market for food products. The consumption growth story is here to stay and may even accelerate with the increasing aspirations of the Indian middle-class.

The factors driving the growth in demand of processed foods are as follows:

**Favourable demographics:** With a population estimated at 1.27 billion (July 2014)<sup>2</sup> and growing at 1.25% per annum, India accounts for approximately 17.5% of the global population. It is set to be the world's most populous country by 2028 and already has a younger population as compared to the world's top ten economies. More than 50% of the population is below 25 years of age<sup>3</sup>. It is estimated that urban population in India will increase from 29% of total population in 2008 to 40% by 2030<sup>4</sup>. Further, migration has resulted in formation of urban agglomerations/'clusters' of cities e.g. Greater Mumbai, National Capital region ("NCR").

**Shift in consumption habits:** Over the last decade a shift in food habits has been observed. In line with most developing economies, food spends as a percentage of total spends is showing a declining trend in both urban and rural India. For developed economies such as the US and Japan, the food spends is less than 10% of total spends. With increase in incomes, the proportionate expenditure on cereals has largely declined while an increase has been seen in case of milk and milk products, meat, egg and fish, fruits and beverages.

**Increasing disposable income and changing lifestyle:** The consuming class households (i.e. income over Rs 200,000 per year) are likely to increase from 35 million in 2010 (collective disposable income of USD 350 billion) to 137 million in 2025 (collective disposable income of USD 1.5 trillion)<sup>5</sup>. There has been a rise in single and nuclear family households, increased female workforce participation and increased working hours. In addition, increasing outbound travel has led to demand for international standards of product quality as well as a variety of cuisine/taste experiences, especially in urban India. Further 75% of the population by 2020<sup>6</sup> will belong to Generation I<sup>7</sup>, with markedly higher consumption levels. As seen in Exhibit 2, the average Indian household would be at Level 1, where food is seen as an eating and social occasion. The share of household sat Level 3 and Level 4, while currently low is expected to increase steadily over the next couple of decades

2 5 Worldometers | <sup>3</sup>Census of India | India urbanization Econometric model, McKinsey Global Institute analysis, Businessworld Marketing "Whitebook: 2012-13" 6 McKinsey Global Institute "Rise of India's consumer market", Nielson Upper Middle and Rich (UMAR) Survey 2009; Businessworld Marketing "Whitebook: 2010-11" BCG report "Retail 2020: Retrospect, Reinvent, Rewrite", dated Feb 2015 | Individuals who have grown up in the liberalized economy (<14 years of age when economy started opening)

CII - RABO EQUITY REPORT ON DRIVING 'MAKE IN INDIA' IN FOOD PROCESSING

## Exhibit 2: Income and changing lifestyles are driving shifts in consumption patterns



Source: Rabobank analysis

The growth in organised retail: Over the last 10 years, growth of modern retail formats, have enabled entry of products from around the world. Of the total retail market of USD 518 bn in 2012, food and grocery accounts for ~60% (i.e. USD 310 bn). While the penetration of organized retail is ~8% overall, within Food & Grocery it is ~2%. Going forward, we expect to see nimbler execution models along with localized sourcing, backward integration, increasing private label, flexible lease arrangements and manpower rationalization, leading to improved profitability of the sector. Also around 20-25% of total food and grocery category sales of the top-10 retailers is under private label<sup>8</sup>. This roughly translates into a market size of USD 1.0-1.3 billion. Growth of organised retail is expected to further propel the growth of private labels.

Greater awareness of food quality: With the comprehensive new food safety rules finally coming into effect, "safe food" is something every citizen in India can demand and expect. To ensure this, the Food Safety and Standards Authority of India, an autonomous body under the Ministry of Health, has put in place The Food Safety and Standards Act 2006, a law that has integrated all existing food laws in the country and will regulate the manufacture, storage, distribution, sale as well as import of food products. While, for most processed food products, the pack labelling norms have become more stringent, there is a greater need for packaging and labelling laws to be more consumer friendly. Also, greater enforcement is required to ensure that product related claims are well substantiated.

## GROWTH IN PROCESSED FOOD SEGMENTS

Most sub-segments within branded packaged foods are growing in double digits on the back of favorable demographics, increasing disposable incomes, increasing urbanization, changing lifestyles etc

<sup>®</sup>Technopak's private label report, 2012

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## Exhibit 3: Market size (company realization) for 2013 in Rs Billion

Source: Industry sources, Rabo Equity research

Some of the key sectors within branded packaged foods are highlighted below

# a) Bakery products (Cakes, Breads and Biscuits)

Bakery products are an item of mass consumption in view of its low price and high nutrient value. However, the per capita consumption of bakery products is less than 2kg per annum, which is comparatively lower than the developed countries where consumption is between 10 to 50 kg per annum. Cakes, pastries and cookies continue to be largely purchased items and not prepared at home. Consumers are gradually moving towards premium biscuit offerings, cookies and sandwich biscuits.

## b) Kitchen ingredients

Given their busy lifestyles, working women and even homemakers in urban India are increasingly seeking time saving kitchen ingredients such as cooking pastes, pickles and spice blends not only for traditional Indian food but also for global cuisines such as Italian, Chinese and Thai. The unorganised market for these products is estimated at five times the organised market, thereby providing a huge growth opportunity.

## c) Snack foods

Savoury snacks, which includes various forms of

chips and crisps, extruded snacks and Indian snacks, is one of the fastest growing segments within processed foods in India. Indian consumers, especially the young adults in urban areas are having shorter meals and seeking more convenience foods, "meals on the go" as well as more options in the "between meals" segment e.g. soups with real vegetables, instant pasta, instant noodles (whole wheat, innovation around ethnic Indian flavours etc), baked not fried snacks etc. The unorganised market for these products is estimated at four times the organised market, thereby providing a huge growth opportunity.

## d) Fruit based beverages

Many players are exploring launch of new products with local Indian flavours, a segment which is currently dominated by the unorganised market (estimated at ten times the organised market). Along with this segment, fruit based drinks should continue to record high growth rates in the future, since they are perceived as relatively healthier options to carbonated drinks. Premium bottled water brands are also expected to come to the fore as the upper middle class and high-end consumers look for quality products.

## e) Breakfast cereals

Breakfast is an underserved market and widest skipped meal among urban consumers. The category has evolved beyond corn flakes with most of the leading food companies having launched products/plans in this segment. While MNCs may create the category, smaller Indian players continue to benefit with their attractive pricing. Hot cereals such as oats are more in line with the traditional Indian tastes. It is the fastest growing segment within breakfast cereals as it offers both health and convenience ('quick to prepare') for time starved working professionals as well as school and college going students. As per Euro monitor data, hot cereals which accounted for 35% of the breakfast cereals market in 2011 is expected to increase its share to 53% by 2016.

## f) Frozen foods

Along with frozen peas, other products such as sweet corn, beans and carrots are finding increasing consumer acceptance. Organised retail is expected to

## FOOD SERVICE

As per the India Food Services Report 2013, the organized food service industry<sup>9</sup> in India is estimated at Rs 75000 Cr in 2013 and is projected to grow at a CAGR of 16% to reach Rs 157400 Cr by 2018. The chain market (subset of the organized market) is estimated at Rs 12800 Cr in 2013 and accounts for 17% of the organized industry. Currently, Quick Service Restaurants (QSR) and casual dine together account for 72% of the organised market in 2013, which is expected to go up to about 77% by 2018.

### Some key trends

• Café culture is on the rise. For most young adults, cafes are the most common meeting place with the overall experience more important than the coffee itself. Global chains are also increasing their presence in India.

• While still niche, fine dining restaurants are making their presence felt in the key metro cities with many global chains eyeing India. In addition, many homegrown brands offer a fine dining experience to welltravelled Indians with discerning tastes and expats temporarily settled in India. drive growth of frozen and chilled foods. A large export market exists targeted at the Indian diaspora.

### g) Healthier foods

India is currently the "diabetic" capital of the world and has a significant share of other lifestyle-related diseases. There is a slow but steady consumer shift towards "proactive health", especially in urban areas. While the domestic market for health foods (low fat milk, baked-not-fried snacks, low calorie beverages, probiotic drinks, 100% juice, oats, fortified noodles, low glycemic index rice, low sodium salts, cereal bars, fortified wheat flour, green tea etc.) is currently quite small, they find appeal among the growing set of health conscious consumers. However, it must be noted that Indian consumers are reluctant to compromise on taste at the cost of added health.

• In the last few years, in addition to Chinese and Italian cuisine a plethora of other foreign cuisines are on offer, such as Thai, Mexican, Japanese, Lebanese, Indonesian, Korean, Greek etc

• Professionally run regional food chains are already doing well. Also street food is being offered to consumers in hygienic settings with a tasteful ambience.

• Many QSRs are gradually expanding their footprint beyond one or two cities using a combination of own outlets and the franchisee model in some cases.

• Home delivery is now a key growth driver for many restaurant chains, as it helps improve turnover and profitability and requires less real estate vis-à-vis dineins.

• Central kitchens are becoming an integral part of the growth strategy of quick service restaurant chains as they aspire to increase their footprint across India.

• Social media and entertainment are being used for creating consumer connect. There are various websites such as zomato.com, burrp.com, mouthshut.com which provide user reviews to help consumers make informed choices.

## FOOD PACKAGING

Packaging is as an important vehicle for product differentiation. There is varied level of sophistication in food packaging across sectors with convenience of usage, freshness, improved shelf life being the key drivers. Growth in organized retail especially in second-tier cities would further provide a fillip to the sector. The fastest growing packaging segments are laminates and flexible packaging, especially PET. As newer packaging materials evolve, there is a need to evaluate these materials for different types of behavior e.g. toxicity, interface with food, strength, shelf life etc.

<sup>9</sup> Chain restaurants and licensed standalone restaurants (including those within hotels)

# BUILDING A CULTURE OF INNOVATIONS IN INDIAN FOOD PROCESSING

Every state in India boasts of its unique food culture. There are a host of once regional products which are now available across India e.g. Roadside Dhabas and Paneer Makhani (Punjab), Idli and Dosa (South India), Dhokla and Khakras (Gujarat), Rosagulla (West Bengal). With greater investment in R&D and development of standard processes, many more regional products can be produced and marketed across India. Also, innovation in processed food has emerged as a focus area for several startups looking to cash in on a booming market for healthy, organic and readyto-eat food items with a range of products, driven by changing consumer preferences. Some examples of innovative food products launched in India in recent vears<sup>10</sup> are highlighted below.

CHAPTER 4

## Y-COOK INDIA



This is a Bengaluru based company focused on processed fruit and vegetables. The products are processed in vacuum-retort process for extended life of 12 months in ambient climate with no refrigeration

required. The company currently processes sweet corn (sold as single whole cob or sweet corn kernels), baby corn, garbanzo beans, baby potatoes, jackfruit, peanuts, cassava etc. The products are retailed across India in the modern retail format stores.

## KOTTARAM AGRO FOODS



Ragi (finger millet) is an integral part of India's food culture. It is rich in fibre and helps in reducing cholesterol and sugar levels. Soulfull (a start-up company

promoted by Kottaram Agro Foods) was launched in 2012 and has introduced the nutritious ragi as a key ingredient in modern, ready-to-cook products such as Ragi Bytes, idli and dosa mixes and Ragi flakes. The company is also experimenting with various millets in order to foray into other food categories.

## ZEA MAIZE



In India people eat limited quantities of popcorn as compared to the US. Delhi-based Zea Maize has launched a brand of gourmet popcorn called 4700 BC. Its offerings include chocolate, cheese, potpourri and caramel popcorn each with a handful of flavor variants, packed in zip lock bags or tins

<sup>10</sup> These are based on data from company websites and news articles

## SHAKTI SUDHA AGRO VENTURES (SSAV)



Gorgon Nut ('Makhana') is a natural fat free food, rich in anti-oxidants and iron with high protein value (12-15%). Makhana is currently grown in 8 disticts of Bihar, which accounts for 90% of the global production. The present production is 20000 tonnes with a potential to increase to 200,000 tonnes. The World Bank has made SSAV, which is the pioneer in this segment, as its partner in the Rural Livelihood project in Bihar.

## LAWRENCEDALE AGRO PROCESSING INDIA



Gorgon Nut ('Makhana') is a natural fat free food, rich in anti-oxidants and iron with high protein value (12-15%). Makhana is currently grown in 8 disticts of Bihar, which accounts for 90% of the global production. The present production is 20000 tonnes with a potential to increase to 200,000 tonnes. The World Bank has made SSAV, which is the pioneer in this segment, as its partner in the Rural Livelihood project in Bihar.

## JACKFRUIT365



Jackfruit365, founded in 2012, is an exclusive, organized venture devoted to jackfruit-based products. As per its founder Mr James Joseph, Kerala alone wastes Rs 550 Cr and Rs 2000 crore worth of jackfruit is wasted across India annually. The USP of Jackfruit365 is easy to cook, easy storage for 365 days, quick rehydration in minutes and consistency in taste through a freeze drying technology which reduces the weight by 82 percent, and offsets the cost of transportation, storage and inventory. Jackfruit365 has partnered with People's Service Society Palakkad for sourcing raw materials, and Kochi-based Amalgam Foods (a leading food processing company in Kerala) for technological support.

Examples of attractive and fun food packaging can also be found in India, (see Exhibit 4)

Product development and innovation are key enablers for Indian food processing sector to benchmark value addition with the global products and processes. There needs to be a lot more focus on comprehensive use of by-products and value addition through new concepts like nano technology, intelligent packaging, phase



Exhibit 4: Quirky buy-on-board ranges of some of the

Source:www.airlinetrends.com

low-cost airline carriers in India

change materials etc. Also, culture of innovation needs strengthening in both policy framework as well as application of technology standards which are globally acceptable. Food technology colleges and agri universities have a greater role to play in fuelling innovation in the area of traditional food. India will have to up their ante to achieve the 'Make in India' vision for Food processing through "out-of-box" innovations.

The food processing sector in India presents an attractive capital and technology investment opportunity for both domestic and foreign investors, leveraging on India's strong food production base. Also, supply chains are giving way to "Quality" chains with large organised retailers, food services players and processed food majors seeking specialist Business to Business (B2B) suppliers that have implemented strict quality standards and offer traceability of various products such as dairy, poultry, fresh produce, etc. on a sustainable basis.

'Make in India' is designed to facilitate investment, foster innovation, enhance skill development and create world class manufacturing infrastructure in India. The Government's vision is to make India the "food basket of the world" with focus on value added exports and taking a giant stride to become a global trade partner. Besides endto-end processed foods manufacturing, there are significant opportunities for India to be the processing hub bringing in ingredients from the East, processing them in India and sending to the West or the other way round. This is to capitalize on the strategic location of India in between the East and the West. With geographical indications (GI) and the academiaindustry link, India has a chance to carve a distinctive place in the food processing sector. For example, ginger, basmati rice, fennel, alphonso mangoes, saffron and black pepper are unique to India and could take the Indian food processing sector forward in a big way<sup>11</sup>.



<sup>11</sup> Dr S K Malhotra, Horticulture Commissioner, Ministry of Agriculture, Government of India

### The primary target audience for the 'Make-in-India' programme in Food Processing could comprise the following

a) Global players who currently are sourcing raw material from India and getting the processing done in other geographies e.g. tea, spices etc.

b)Global players currently exporting finished goods to India, which could potentially get produced in India e.g. olive oil, Frozen ConcentratedOrange Juice (FCOJ), processed oats etc.

c) Indian players who are currently producing low value added produce, largely catering to domestic market and can potentially upgrade their production capabilities to cater to export market (starting with South East Asia /Middle East).

There are various other stakeholders such as Government bodies, global institutions, research organizations, testing laboratories, farmers, traders and supply chain partners who need to active collaborate with each other. The 'Make in India' programme could be further strengthened with assistance for market development, which could be extended to the Food Processing companies that are involved in development of 'Made in India' brand abroad through export of processed foods within the stipulated conditions of quality, distribution infrastructure and track record.

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## KEY CONCERNS WHICH NEED TO BE ADDRESSED

While India has favourable supply side dynamics, thanks to its strong agriculture base, product development and innovation in the sector has taken a back seat due to lack of investments and incentives. Also lack of adequate investments, lack of bank credit facility and long gestation period have been impeding the adoption of newer technologies. Globally, advances and innovations in food processing science have established protocols and techniques for superior retention of flavours, better product integrity and better nutrition benefits. However, India is still at a nascent stage with respect to adoption of global best practices.

As a result, the immense opportunity for 'Make in India' in the food processing sector still remains largely untapped because of high cost structure, small scale operations, poor infrastructural facilities, low quality orientation across the supply chain which is not in line with global standards. All these factors lead to low competitive advantage in the global market. There is a need to fully harness its potential and increase processing levels by providing greater incentives, rationalizing of taxes, encouraging scale as well as creating a conducive environment for more investments and exports.

India would need to address the following concerns so as to ensure a successful 'Make-in-India' programme. In fact, there has been limited progress made in the last decade on most of the areas mentioned.

#### a) Low Yields

The average Indian yields are low in comparison with the world's best.

## Exhibit 5: Indian yields vis-à-vis leading producers globally (tonnes /ha) for 2012

	India's yield	World average	Rank 1 in Yield	Rank 2 in Yield	Rank 3 in Yield
Paddy	3.72	4.55	6.78 (China)	6.74 (Japan)	5.63 (Vietnam)
Wheat	3.18	3.09	7.60 (France)	7.33 (Germany)	4.99 (China)
Maize	2.56	4.89	9.21 (Canada)	9.09 (France)	7.74 (USA)
Soybean	1.35	2.30	3.16 (Uruguay)	3.03 (Canada)	2.66 (USA)
Sugarcane	70.93	70.60	81.61 (Columbia)	80.06 (USA)	76.75 (Thailand)

Source: Agriculture Statistics of Government of India, FAO

# Only Top 10 producing countries in each commodity considered for this exercise

With respect to fresh produce, Indian yields are among the best in banana and grapes. However they are extremely low in most other fruits and vegetables. One of the important reasons is the inappropriate varieties being propagated in India. In the case of bananas and grapes, new varieties have been introduced and adopted rapidly and successfully. The key factor contributing to success in these two cases has been the low gestation period for changing the varieties.

### b) Inappropriate varieties

Apart from leading to low yields, India does not have a wide range of fruit varieties which are amenable to processing. For example, India still imports bulk of its requirement for orange juice as Frozen Concentrated Orange Juice (FCOJ). There is a huge opportunity for producing processable grade of oranges along with required technology for extracting juice without crushing the seeds (which leads to a bitter taste). Similarly, mango varieties grown in North India are mainly table varieties, whereas processing is largely restricted to varieties such as Totapuri (Andhra Pradesh) and Alphonso (Maharashtra).Another challenge is the low shelf life for many fruits leading to high cost of transport for domestic as well as export markets. For example, the prized alphonso mango from India is shipped by air to Europe and US as it does not lend itself to sea freight for long duration. As a result, hardier varieties such as Tommy Atkins (Brazil) and Kent, Keitt, Amelia and Valencia (West Africa) have a much larger presence in the EU. Initiatives based on varietal change can have a long gestation period, thus deterring entry of corporates into the sector.

## c) Limited focus on required post-harvest handling practices

Agri infrastructure is key to reducing wastages/ value loss and enhancing food availability. There is a significant opportunity unfolding in back end aggregation as well as storage infrastructure and logistics. However, in India most agricultural commodities are poorly handled post harvest. For example, fresh produce is usually transported in trucks at ambient temperature. The produce is stacked in piles in the vehicle and no scientific storage mechanism is followed, resulting in damage and wastage to fresh produce. Moreover, the labor used for handling fresh produce is not trained in handling further leading to loss in value.

However, in the last few years, we have also seen some focused initiatives in post harvest handling of fresh produce, which could be replicated in other geographies. Consistent innovation that works in the Indian environment will be the critical driver of the efficiency and effectiveness of food supply chains in India.

– The concept of pre-cooling of grapes was introduced in the 1980s, primarily in Maharashtra, a leading grape growing state in India. This helped the farmers to export grapes to Europe and the Middle East. Later this technology was adopted to other fruits like mango, pomegranates and oranges<sup>12</sup>.

 Following the global trends, a number of Controlled Atmosphere (CA) storage infrastructure have already been established in Northern India, close to the apple growing regions.

– There has been considerable interest in scientific ripening and storage of fruits like banana and mango in recent years with units being established in South India, Maharashtra and Gujarat.

– Bihar has some of the largest exporters of litchi thanks to innovative packaging and marketing network. The policy initiatives in the state have also shown excellent results. On similar lines, programmes and subsidies which are cluster based could be implemented across states.

## d) Cold chain solutions still to be widely adopted

In the last few years, there has been a a steady shift towards palletized storage as well as multi chamber storage. The growth in organized retail and organized food service is also leading to increasing demand for cold storage solutions (both chilled and frozen) besides opening up an opportunity for managing back-end storage and logistics for fresh produce. Similarly the number of organized players is increasing in the cold logistics segment with more focus on tracking of vehicles, reverse logistics etc.

However, the cold chain solutions segment faces a number of challenges. It is capital and operationally intensive given the high land prices or cost of lease rentals. In most parts of the country there is a lack of assured supply of grid power which pushes up the energy costs. Further, demand is seasonal and customer willingness to pay a premium is yet to be clearly established.

## e) Limited focus on bulk handling

There is an opportunity to focus on bulk handling of commodities and augment cold chain facilities and container handling facilities at major ports as well as at air cargo complexes for targeting domestic and global markets (see Exhibit 6 below). In addition, the scale of operations needs to increase with movement through railway wagons to lower logistic costs. All this will not only need large scale investments, but also development of appropriate technology more suitable to Indian local requirements.



handling facilities

Terminal handling facilities

## Exhibit 6: Vision 2020 – Bulk handling is the way forward

<sup>12</sup>Food and Beverage news, 1-15 January, 2015

### f) Production not linked to market demand

Production and demand are not well coordinated due to the lack of market information at the farm end. The farmer is not oriented towards commercial demanddriven production, which results in frequent surplus. The production and high demand areas are also not linked for efficient marketing of perishable products. There should be more emphasis on demand driven research as there is repetition of work at different state agricultural universities. Building lab to farm and lab to industry link is necessary to ensure commercialization of technology.

#### g) Low focus on 'Value-added' exports

Strategic geographic and proximity to food importing nations, makes India a favorable location for export of food and agricultural products. However, India still has a share of just 2.7% of total global exports of agri and food products in 2013-14. The reasons for India's insignificant share in global trade include supply side raining factors such as lack of usiness eXDe efficiency consistency in supply analyzing et and quality, lack of t ceamw experience C 0 S ducation knowled competitiveness, and demand ficiency capability side factors eer... such as nonawareness trai ekli tariff barriers. efficiency capabilities Sk na experience short product life cycles and perception of Indian efficiency alyzing food products in cki howled overseas markets. Hence, exporters are not able to establish themselves as long-term players in the export market, rely on opportunistic businesses and are consequently, unable to develop technical and managerial expertise. These factors cumulatively lead to low

investments by exporters in brand building, guality improvement and brand development.

As a result, exports from India are largely commodities with minimal value add. The main export destinations have been Middle East and South Asia. The significant share of raw/primary processed products in exports, renders India vulnerable to fluctuations in commodity cycles. Indian players have not succeeded in establishing direct linkages with buyers in importing countries, as a result of which a large proportion of exports are being further processed and re-exported by other countries. Hence, there is a huge opportunity for India to step up on 'Value-added' exports targeting developed nations.

### h) Ambiguity in Food standards

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While the comprehensive new food safety rules have finally coming into effect, there is ambiguity, lack of dialogue and absence of a well-articulated framework when it comes to rules and regulations regarding the food industry. Lack of consumer awareness on food quality parameters benefits the unorganized segments. In this context, there could be Government spends on creating "food quality" awareness on the lines of polio campaigns. promoting egg consumption etc. Secondly, the farm extension work undertaken by input companies focus largely on yield improvement with limited focus on educating the farmers on guality related issues such as pesticide residues. Directing of CSR funds for this activity could be useful in sensitizing farmers and aggregators to quality issues and transforming supply chains into "quality" chains. This could be on the lines of improving Financial

Literacy using CSR funds.

## i) Skill development

The advent of new eness and improved has meant ining analyzing greater efficiency sophistication education food o f teamwork business ience processing units, higher education skills efficiency levels. advanced R&D work and innovative marketing. Shortage of skilled. semi-skilled and d workers is a impacting the s of Indian

food industry. This gap needs to be bridged by finding the right balance between applied research, capacity building, training and development in the area of policy and regulatory frameworks, ensuring a strong, publicprivate partnership and by making technologies more accessible to the workers. This not only requires fresh skilling but also up-skilling periodically.

Some of the areas which require additional focus include:

· Establishment of more education centres and quality food labs in PPP for imparting technical & managerial skills particularly in rural areas.

· Develop a comprehensive programme for training

of small and medium enterprises in the unorganized sector. Also the training of food inspectors on GMP, GHP & HACCP should be made mandatory

· Demand driven R&D centres on the lines of CFTRI to be developed across India

• Increasing competitiveness of SMEs by facilitating their access to best practices, technology, capital and marketing activities.

## j) Enhancing access to finance

At present, access to finance is one of the key challenges faced by various players across subsectors within food processing. Banks and financial institutions adopt the same risk models relevant to the manufacturing sector, for assessing food processing companies. For food processing companies the working capital requirements are high, given the seasonal availability of raw materials and high inventory holding period. Interest rates for food processing companies are high, on account of the (often wrongly placed due to inadequate understanding of the activities) high risk perception associated with the nature of the operations.

It is recommended that an autonomous Food Processing Bank of India (FPBI) be set up along the

lines of National Housing Bank/HDFC for funding all post-harvest activities of the food processing industry. The initial capital could come from Government of India but supplemented by DFIs, Banks and large corporates. The Government of India could have a minority stake. FPBI should be managed professionally and should have

• Specialised techno-commercial skills for food & agroprocessing

• Project evaluation skills for funding specialised activities

• Specific lending norms customised for each subsector which takes into account the seasonality, working capital cycle and scale of operations

## k) Rationalization of tax structure

There is a need to increase affordability of processed food products by reducing costs through rationalization of tax regime and increasing supply chain efficiency. In this context the Goods and Service Tax (GST) on food processing should be at the lowest slab. Also, fresh produce should be fully exempted from APMC Act.



CHAPTER 6

# DRIVING MAKE IN INDIA IN NORTH INDIAN STATES

The North Indian states have significant production strengths across various agri commodities and fresh produce as detailed below.

## Exhibit 7: Products where North Indian states have Top 5 production ranks (2013-14)

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Paddy	West Bengal (14%)	UP (14%)	AP (12%)	Punjab (11%)	Orissa (7%)
Wheat	UP (32%)	Punjab (18%)	MP (15%)	Haryana (12%)	Rajasthan (9%)
Dairy	UP (18%)	Rajasthan (11%)	AP (10%)	Gujarat (8%)	Punjab (7%)
Potato	UP (33%)	West Bengal (22%)	Bihar (16%)	MP (6%)	Gujarat (6%)
Mango	UP (23%)	AP (15%)	Karnataka (10%)	Telangana (9%)	Bihar (7%)
Apple	J&K (66%)	HP (30%)	Uttarakhand (3%)	Arunachal Pradesh (1%)	-
Aonla	MP (30%)	UP (29%)	TN (16%)	Gujarat (9%)	AP (5%)
Guava	MP (23%)	UP (17%)	Bihar (10%)	Maharashtra (9%)	West Bengal (5%)
Peas	UP (46%)	MP (12%)	Jharkhand (9%)	HP (7%)	Punjab (5%)
Seed spices	Rajasthan (43%)	Gujarat (39%)	MP (7%)	Assam (5%)	Haryana (1%)
Guar seed	Rajasthan (70%)	Gujarat (11%)	Haryana (12%)	Punjab (3%)	-
Buffalo meat	ΙIP	Puniah	Maharashtra		

Source: Ministry of Agriculture, NHB, NDDB, Rabo Equity research

Note: For seed spices, aggregate data considered for cumin, coriander, fennel, fenugreek, ajwain and dill

## Segments offering potential for 'Make in India' in North Indian states

Based on the above production strengths, some initial thoughts for the Make-in-India initiative in Food Processing for North Indian states are outlined below.

## i. Rice and Wheat (Uttar Pradesh, Punjab)

There exists an opportunity in the following areas • Set up modern integrated rice mills to get better rice, bran and other by-products. For example, Thailand has integrated rice mills (with white ash production, particle board manufacturing, energy generation plant, animal feed mill, briquette makingplant, with fish/poultryfarm etc).

• Rice bran is used in Japan, Korea, China and South East Asia as a "Premium Edible Oil / Health food". In India, there is a need to create a greater awareness of rice bran oil and its benefits.

• In India, the branded rice segment acounts for only 2% of the total rice market. This also largely comprises basmati rice. There is an opportunity to segment the non-basmati rice market as well and launch differntiated offerings.



#### Exbibit 8: Share of branded packaged rice

Country	Share of branded packaged rice
Malaysia	65%
Indonesia	64%
Japan	44%
China	8%
Vietnam	6%
Thailand	4%
India	2%

Source: Mintel research, 2012

• The Indian Roller flour mills (RFMs) are operationally far inferior to mills in developed countries in terms of scale and efficiency norms. The typical size of a RFM in India is 70 tpd vs 1000 tpd in North America. The high energy consumption of some mills, due to obsolescence is also adversely affecting the efficiency of milling in the country. There is a need to encourage larger Roller Flour Mills.

• Identity preservation is key to reward farmers for quality output. A standardized grading and storing system needs to be implemented by the Government as this would also be an important measure for India to establish a firm foothold in the export markets. Further, Identity Preservation will gain importance on the global platform, in the context of Genetically Modified Crops.

• Global expertise in bulk handling of food grains should be leveraged

## ii. Dairy (Uttar Pradesh, Rajasthan and Punjab)

India is one of the largest and growing market for milk and milk products. As per Rabo bank, the organized dairy market in 2012-13 was estimated at USD 10 billion and expected to grow at a CAGR of 13-15% until 2019-20. With rising incomes and changing lifestyles the demand for both milk and value-added dairy products is on the rise. There is a steady consumer shift towards branded packaged dairy products such as curd/yoghurt, cheese, paneer, flavored milk and infant food on the back of assured quality and need for convenience.

There exists an opportunity in the following areas:

• The dairy sector in North India is of strategic interest to many global dairy majors given its production strengths coupled by a huge consumption market. Global dairy majors could explore a strategic partnership with dairy players in North India with strong procurement base. There is also an option for a contract manufacturing arrangement with an Indian dairy company.

### iii. Potato (Uttar Pradesh and Punjab)

India is the third largest producer of potatoes (46.4 mln tonnes in 2013-14)<sup>13</sup>. Consumption of processed potato in the form of French fries, chips and snacks is increasing with the required potato varieties suitable for these products now being grown in India. Opportunities exist for global players to explore production tie-ups with Indian players, wherein they could help develop suitable varieties, support farmer

• Most bakeries in India produce limited varieties of bread or biscuits. A variety of products can be made by changing the shape, recipe, and by incorporating other ingredients or processing conditions. In countries such as West Germany as many as 200 varieties of breads are made, both in large and small scale bakeries. The use of technology has made it possible to offer differentiated products. There are opportunities for global players in the following areas

» business possibilities with Indian players who are contract manufacturers for large multinational players » franchisee arrangements can be looked for food service chains – bakery cafes (breads, sandwiches, cookies etc.)

» suitable arrangements wherein global companies can bring in the technology for producing differentiated bakery products (bread, cookies, cakes, grain bars etc).

• Global learnings in large scale dairy farms needs to be adapted to Indian conditions, where the potential exists for relatively smaller farms with 20, 50 or 100 animals. There is opportunity for global players to help set up dairy farms not only in exotic breeds but also in native North Indian breeds and cross-breeds of the two.

• Genetic improvement of native breeds and proper animal husbandry techniques is also a big opportunity area.

• Indigenous products made from milk are widely consumed across India. There is a large, unorganized market for these products in India. Since these are mostly manufactured through manual processes, there is a need to automate the process to increase the throughput, yield, efficiency of operations and to reduce the energy, and manpower costs. There is an opportunity to introduce technology and packing that will extend the shelf life of indigenous milk products. For this to happen, foreign investment is required to automate technology for manufacturing such products.

education through contract farming of potatoes and eventually setup a low cost sourcing base for processable varieties of potatoes in India. On the processing side, high quality diced potato and flakes are still an untapped market with high potential. Companies could look at integrated operations from tissue culture to food processing, with own brands of potato based ready to eat (RTE) snacks.

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<sup>13</sup>National Horticulture Board

### iv. Apples (Jammu & Kashmir, Himachal Pradesh)

India has an annual apple production of over 2 million tonnes and currently imports close to 200,000 tonnes of apples annually. Demand for imported apples is growing at 10-15% year on year, despite being priced at a premium of over 50% over domestic apples. This is largely because of the good quality of imported apples (firm and crunchy). Since India produces the same variety of apples, there is a huge opportunity for value addition in Indian apples, through increased focus on post-harvest practices, farm level training and use of Controlled Atmosphere (CA) storage, as practiced globally. CA storage in India can contribute significantly to extending the post harvest life and maintaining the quality of Apples. The CA Market in India is still in its nascent stage with a total capacity of 50,000-60,000 MT.

### Exhibit9: Stonefruits -India vs World yields

Stone fruits	Average Indian yields (tonne/ha)	Average World yields (tonne/ha)
Plums	3.27*	4.23
Peaches	5.17*	14.05
Apricot	3.60	8.04
Cherries	4.09	5.62

Source FAO 2012, \*NHB data for 2013-14

## v. Other fruits (Jammu & Kashmir, Himachal Pradesh, Uttarakhand)

#### a)Stone fruits

Given their climatic conditions J&K, Himachal Pradesh and Uttarakhand also have huge potential for focusing on stone fruits (plums, peaches, apricots and cherries).

Like most other temperate fruit production in India, supply side remains weak and there exists ample opportunities for intervention across the value chain, with support from global players as listed below;

• Varieties with high keeping quality: This would enable access to large consuming markets such as New Delhi and Mumbai

• High density planting techniques could be adopted: The current production is traditional and of low productivity and therefore does not generate a commercial interest especially with the perishable characteristics of the produce and high intermediation. High density planting of these produce is required to be adopted.

• Micro irrigation technology: The current production is mostly rain fed and hence to ensure consistent production, appropriate micro irrigation technology is required.

• Diversification of maturity: The stone fruits produced from various locations to be marketed at different timings to avoid glut and distress sale

• Good Agricultural Practices: Scientific production and post-harvest practices are crucial for quality

production which is currently lacking

• Market access: High perishability of stone fruits compared with other temperate fruit crops is limiting the market access of the stone fruits considering the cold chain infrastructure required to reach the main markets such as New Delhi and Mumbai. Consequentially, the growers need to be incentivised to invest in commercial cultivation with targeted markets. This is also a deterrent for retailing due to low volumes and high prices.

## b)Strawberries, blueberries and raspberries

There is limited data available on the strawberry production in the country. However, we estimate the production to be in the range of 20000-25000 tonnes per year with 80-85% of production centred in Maharashtra. Availability of quality strawberry seedlings, which is usually imported from California is a limitation for strawberry production. It is estimated that 15% of the current production is utilized for processing of crushes, syrups and jams etc.

There are no market estimates for blueberries and raspberries as the consumption in India is currently negligible. The suitable growing regions are the high hills ranging from Kashmir to Himachal Pradesh as these regions offers a chilling season required for the berries. Current channels mainly focus on elite hotels and gourmet restaurants. In case of imports, the short life cycle and low shelf life of the fruits requires airfreight which adds to the cost.

This would present an opportunity for global players to adopt a production tie-up route for building the market. In case of strawberries, it has been witnessed that the adoption of new high yielding attractive varieties has led to market development. The production tie-up would comprise;

 Identify strategic partners with specific areas of interest in commercial production and expertise in similar fruits and long term investment to develop the supply chain

• Set up model orchards (e.g. in Himachal Pradesh)

Market build-up of products could be achieved through;

• Institutional channel tie-ups with hotels and food service industry

Creation of brand with focus on health benefits

• New processing technologies with berries to be used as fruit fillings, ice creams

## vi. Opportunities in frozen vegetables (Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab)

It is estimated that in 2013, frozen peas accounted for nearly 70% of the market followed by mixed green vegetables and baby corn with shares of 14% and 7%, respectively. Over 95% of the All India production of frozen peas is consumed by the local market. The market is estimated to be growing at 10-15% per year. As per industry estimates, the total processed annual capacity of green peas in India is at 170,000 to 180,000 tonnes. Many small players are operating in Punjab, Himachal Pradesh and Uttarakhand. With the processing of peas taking only two months (from December to February) a year, the units can be used to process vegetables like cauliflower, baby corn, carrots and other product development in frozen snacks.

For frozen products, maintaining a standard temperature is most important as any temperature variance from that stipulated for storage leads to



reduced product shelf-life and safety issues. Today, there are very few specialised distribution companies providing refrigerated transport and warehousing for perishable produce/processed food products. Global players could provide technology for advanced freezing process and equipments. New product variants of peas such as sweeter varieties and green peas based snacks could be introduced in niche urban consumer markets e.g. The marketing of Green Giant Sweet Corn of US in India had targeted the snack segment of the processed vegetables.

## vii. Buffalo Meat (Uttar Pradesh and Punjab)

Buffalo meat is one of the cheapest sources of animal protein globally, and has traditionally had huge appeal in lower income strata of Muslim countries. China demand (through Vietnam) is a recent game changer and will be the key driver of growth for this industry. Given the huge exports opportunity for meat exports from India, Indian players (largely based in Uttar Pradesh) are expanding fast and is looking to enhance its capacities by setting up new units and also developing acquired and leased units into an integrated complex.



There is immense scope for development of India's meat sector and ushering in the pink Revolution in the form of a quantum jump in production and exports. There is a need to encourage private sector export-oriented integrated abattoircum-processing units with strong focus on hygiene, traceability and food safety as well as by-product utilization.

### viii. Guar Gum (Rajasthan)

India accounts for ~80% of global guar production. In India, it is grown primarily in the Western and Northwestern States. Rajasthan accounts for 70% of India's guar production. Guar is a seasonal crop with one crop cycle per 12 months. Guar seeds are mechanically processed to separate out guar-meal (used as cattle feed) from guar gum (obtained as guar splits). Guar splits are processed to extract guar gum powder. Guar gum is a water soluble polymer and forms a thick viscous solution in water. The industry is made up of several SME as well as large scale producers. Several small scale manufacturers are involved in guar splitting. The guar splits are further processed by larger value added producers of guar gum. Globally, the use of guar gum in the hydraulic fracturing process for natural gas extraction has increased significantly. It also has use in foods as a stabilizer (dairy, bakery, sauces), in personal care (shampoos and creams), pharmaceuticals, textiles as well as paints.

The entry barrier for a "plain vanilla" guar gum is not high. But for finished products higher up the value chain (guar gum derivatives, guar gum for specific applications), the complexities and know how needed for the manufacturing processes increase significantly. There is a huge opportunity for innovation, driven by R&D capability and resultant ability to offer customized products. Consistency of product (linked to farm level traceability) as well as assurance of supply could also be a key differentiator.

### ix. Seed spices (Rajasthan)

Most of the seed spices grown in Rajasthan such as cumin, coriander, fennel, fenugreek, ajwain and dill are sold in the domestic market as raw spices for both household and institutional applications. Only a small portion is converted into curry powder, spice extracts, oleoresins and value added targeted at specialty food ingredient end-user segments in the overseas markets such as flavours and food supplements. There are huge opportunities for value addition in produce like Methi (fenugreek), known for its saponins which find use in nutraceuticals. Opportunities are also available for cumin seed oil and coriander oil.

However, the Indian varieties contain less percentage of essential oils and therefore at present, the market for these derivatives is limited in the international market. To compete in the international market the state government needs to promote the varieties that contain high percentage of essential oil. This can be done through, research institutions, NGOs, private companies and the Spice Board.

Due to increased food safety norms and stringent stipulations of destination markets fueled by consumer interests, there is increasing demand for raw material of organic origin. Within the food ingredient industry, the organic constituents are fast replacing products which are made from

inorganically grown raw materials. This is an opportunity for Rajasthan to differentiate itself as a destination for spices of organic origin. This entails enormous organizing efforts especially with the help of the Agricultural and Horticultural departments, NGOs and voluntary multilateral organizations supporting organic initiatives. A contiguous, designated area within the designated Agri Export zones for seed spices could be earmarked for encouraging organic production. The Horticulture department could redesign the agronomic protocols for this designated area so as to conform to organic standards. Given the small holding size, farmers can be grouped into Product Market Organizations (PMO) and certification could be carried out in conformance with widely accepted Internal Control Systems (ICS) standardized by The International Federation of Organic Agriculture Movements (IFOAM)

### x. Medicinal and aromatic plants (Rajasthan, Himachal Pradesh, Uttarakhand)

The domestic market of Indian Systems of Medicine & Homoeopathy is estimated to be INR 65billion of which the Ayurveda market alone is estimated at INR 50 billion. Further, there is also a growing demand for natural products including items of medicinal value/pharmaceuticals, food supplements and cosmetics in both domestic and international markets. According to WHO, the international market of herbal products is estimated to be USD 120 billion which is poised to grow to USD 5 trillion by the year 2050. India's share in the global export market of medicinal plants related trade is just 0.5%. India is the second largest exporter of Medicinal Plants (raw and processed), next only to China. USA is the principal market for Indian medicinal plants, accounting for about 50 percent of exports.

Rajasthan, Himachal Pradesh and Uttarakhand have significant production strengths in various medicinal and aromatic plants (MAP). However the exports are largely in the form of basic ingredients with value-add taking place in the destination markets. There is a huge opportunity to offer customized solutions based on specific end use and thereby increase the realisations for the Indian farmer and processor. Also dedicated mandis could be developed (taking into account specific storing and handling requirements for MAP), which could serve as aggregation and sourcing points for MAP. Separately a Centre of Excellence could be set up in North India, which could become a nodal agencyfor MAP, and some of its important functions would include:

- Looking into variety and yield improvement of MAP
- Sensitizing the farmers to increase MAP cultivation
- Sensitizing of entrepreneurs and processors about the potential
- Collection and maintenance of International and domestic market data (market regions, pricing, demand supply, etc.)
- Facilitation of buyer-seller meets and trade fairs Internationally and domestically

# Proposed Road Map for promoting 'Make-in-India' in Food processing in North Indian states



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India is making an important mark in the global food arena - both as a large producer and exporter of agricultural products and as a very large and growing market for processed food products. Given its significant production strengths across agricultural commodities, India should be positioned as the 'Food Factory' to the world with strong focus on promoting the "Made-in-India" initiative. This could drive the next wave of processing growth ensuring better quality for consumers and economic surplus for farmers and processors. This would require a shift in approach from supply driven to demand driven, thereby catering to specific customer needs. Large players would need integrated cold chain hubs and transportation to make this happen. Also, there is a need to work with global institutions and replicate global best practices adapted to Indian conditions. All stakeholders across the supply chain needs to be completely aware and internalize the specific quality requirements at each stage as per global standards in order to succeed at the marketplace. There are huge opportunities for 'Make in India' across food sub-sectors for enhancing the value addition, provided India can become

globally competitive.

There is a need for favourable policy environment and increase the interest of global and domestic corporates in food processing to ensure that India is well on track to becoming one of the leading food nations of the world. The Government could catalyse investments across the food value chain and adopt a focused approach on end-to-end requirements starting from harvesting, post-harvest management, logistics and cold chain as well as export. The Government can play a role in creating an enabling environment (by rationalizing tax structure, encouraging scale, focusing on skill development, increasing awareness of food quality and enforcing quality standards etc).



CONCLUSION





Rabo Equity Advisors is a subsidiary of Rabo bank and is the Investment Advisor for the India Agri Business Fund No 1 and No 2, with collectively USD 320 million in commitment. The Fund No. 1 was the first private equity fund in Asia dedicated to the food & agribusiness sector. Rabo Equity Advisors, with offices in New Delhi and Mumbai helps the Fund in identifying and evaluating potential investment opportunities, providing economic and market intelligence to portfolio investments and creating liquidity events for its investors including exit opportunities.

The team at Rabo Equity Advisors brings together significant Food & Agri (F&A) sector expertise and relationships that are essential for an Indian F&A sector focused fund along with a cohesive set of experiences across strategic advisory, operations, fund management, structuring, M&A, capital markets, etc. Majority of the Investment Team members have significant F&A sector specific investment experience.

In order to provide a further edge to its operations, Rabo Equity Advisors has an agreement with Rabo bank to leverage its globally acclaimed Research capability as well its network and product outreach for the benefit of the portfolio companies.

The Team in Rabo Equity Advisors, led by Rajesh Srivastava, actively engages with industry, Governments and Embassies/High Commissions as a pro-bono advisor on investment opportunities across 42 odd sub-sectors of food and agribusiness, including Agri-infrastructure.

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The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has over 7600 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 100,000 enterprises from around 250 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

In its 120th year of service to the nation, the CII theme of 'Build India – Invest in Development, A Shared Responsibility,' reiterates Industry's role as a partner in national development. The focus is on four key enablers: Facilitating Growth & Competitiveness, Promoting Infrastructure Investments, Developing Human Capital, and Encouraging Social Development.

With 66 offices, including 9 Centres of Excellence, in India, and 7 overseas offices in Australia, China, Egypt, France, Singapore, UK, and USA, as well as institutional partnerships with 300 counterpart organizations in 106 countries, CII serves as a reference point for Indian industry and the international business community



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