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CRITICAL ANALYSIS OF EXPORTS : MANGO AND PROCESSED MANGO PRODUCTS BY INDIAN MANGO PROCESSING INDUSTRY

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Abstract :

India ranks first in the world (production of 10.5 mmt) when it comes to mango production. India contributes 45% of the total mango production of the world. In spite of the India's strong hold on the production of mango it is alarming to know that India processes just 2% of the total mango production with an alarming loss of around 40%. Only 20% of the production of processed mango products is being exported. India's share of global exports of fresh mangoes and processed mango products is quite meager when we compare the same with other major mango producers of the world, i.e., China, Thailand, Mexico, Pakistan, Phillipines, Brazil, Indonesia, and Nigeria.(in the same order).

The research undertaken is purely secondary in nature. The critical analysis of the exports undertaken by the Indian mango processing industry has been made using secondary data. The data is analyzed to know the per cent contribution and CGR of exports of each processed mango product to aggregate (total) exports of processed mango products and region / country wise contribution towards exports of every processed mango product including fresh mangoes. The effort was made to know the causes for the particular export pattern found in this industry along with recommendations on policy front to strengthen Indian mango processing industry.

Indian mango processors should manufacture high value added processed mango products and export them to rich countries like; USA, UK, Canada, Australia, other European countries so that value realization will be much higher. To achieve this Indian mango processors need to improve their quality standards and bring in lot of innovation to meet the stringent quality standards set by importing countries (like FDA standards of US). Indian mango processors must also utilize the byproducts like mango kernels to manufacture innovative products like; mango margarine, facial cream, other cosmetic products, piggery feed ingredient, etc., so that total processing loss will be curtailed and profitability of the processors will be strengthened.

Key words :

Exports, Mango processing industry, India, processed mango products

Introduction :

It becomes evident from the table-1 (displayed on the following page) that India, an emerging economy, is predominantly a agriculture based economy where-in 18.60% of the GDP comes from agriculture sector and which employs 60% of labor force. Of the total arable land of 1703000 sq kms, 100000 sq kms is covered by permanent crops and 22.80% of the total land area is covered by forests. India is one of those few countries that enjoy tropical and temperate climatic conditions, which is quite ideal for fruit cultivation in general and mango cultivation in particular. Almost all varieties of fruits are being grown in India. This is the reason India ranks second in the world (production of 45.91 mmt), next only to China (production of 72 mmt), when it comes to fruit production. India contributes 9.54% of the total fruit production of the world.

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India ranks first in the world (production of 10.5 mmt) when it comes to mango production. India contributes 45% of the total mango production of the world. In spite of the India's strong hold on the production of mango it is alarming to know that India processes just 2% of the total mango production with an alarming loss of around 40%. Only 20% of the production of processed mango products is being exported. India's share of global exports of fresh mangoes and processed mango products is quite meager when we compare the same with other major mango producers of the world, i.e., China, Thailand, Mexico, Pakistan, Philippines, Brazil, Indonesia, and Nigeria.(in the same order).

Indian Mango Processing Industry seems to be in its infancy stage and growing at a very slow pace. In year 1998-99 there exist over 4000 Fruit Processing units in India with an aggregate capacity of 1.2 million metric tons which was less than 4% of total fruit production. This industry is growing at around 20% every year. Moreover the industry is dominated by large no of smaller units (cottage scale / home scale / small scale) having small capacities ranging from 20 tons to 250 tons per year.

Hence there is a strong need for a critical analysis of exports of mango and processed mango products by Indian mango processing industry.

TABLE-1

Key recent economic, agronomic, demographic, and agriculture related parameters of India

Key recent parameters	India
Total area in sq km	3287590
Total land area in sq km	2973190
Total area covered by water in sq km	314400
Climate	Tropical in south to temperate in north
Total arable land in sq km (2008)	1703000
Total arable land under permanent crops in sq km	100000
Total non arable land in sq km	1270190
Total irrigated land in sq km	558080
Total forest area (%)	22.80%
Total forest cover in sq km	677010
Total population (2008) in million	1110
population growth rate	1.70%
Urban population (%) (2008)	84.70%
GNI (PPP) (2008) in USD billion	2726
GDP (Official exchange rate) (2008)in USD billion	911.8
GDP per capita (2008) in USD	821
GNI Per Capita (PPP) (2008) in USD	2726
GDP real growth rate (2008)	9.20%
% of GDP from agriculture sector (2005)	18.60%
% of GDP from industry sector (2005)	27.60%
% of GDP from services sector(2005)	53.80%

Country status	Under developing
Total labor force (2005)	496.4 million
% of labor force in agriculture	60%
% of labor force in industry sector	17%
% of labor force in service sector	23%
Unemployment rate	8.90%
Population below poverty line (2008)	29%
Total exports f.o.b.(2005)in USD billion	99.45
Total imports f.o.b.(2005) in USD billion	138.09
Net exports f.o.b.(2005) in USD billion	-38.64
Total Investment (gross fixed) (2005)	28.1% GDP
Industrial production growth rate (2005)	7.90%
Forex reserves and gold	USD 136 billion
Official exchange rate(2005)	Rs.44.1011 per USD
No. of airports	341
Internet users	60.0 million
Constitution of the government	Federal republic
History	Was Portuguese colony & got independence in 1822
Natural resources	Coal, iron ore, manganese, mica, bauxite, NG, limestone, diamond, Petroleum, arable land

Source: The little green and red book series of world bank and FAO statistical year book series of UN publications

Literature review :

Literature discussed in this chapter, which throws light on the contributions made by some of the prominent researchers in this study area, will set the guidelines for this particular research project and indicate the tremendous scope for the further research in this particular area. Literature available pertaining to subject matter of this research work is being discussed in brief.

NFI Archive Report (2003), reported that the fruits and vegetables that are grown only on 6-7 percent of gross cropped area have contributed more than 18.8 percent of the gross value of agricultural output and 52% export earnings out of total agricultural produce. They further opined that during the last few years considerable emphasis has been given to this sector. Accordingly, areas under fruit production has increased by 172 percent from 1961-1993, productivity per hectare was nearly doubled leading to an increase in production to the tune of 320 percent. The average labor requirement for fruit production is 860 man-days per hectare per annum as against 143 man-days for cereals crops. Crops like grapes, bananas, and pineapple generates much larger employment roughly from 1000 to 2500 man-days per hectare per annum, the researcher added.

MOFPI (Ministry of Food Processing Industries) Report, (1999), reported that India is the largest producer

of fruits (41.5 mmt) and second largest producer of vegetables (67.28 mmt) in the world. The country tops in production of banana, mango, potato, tomato, onion, green peas and coconut. **Only 2% of the fruits/ vegetables produced are being processed at present.** The installed capacity of fruits and vegetables processing industries has increased to 21 lakh tons in 1999 with 4589 fruit/ vegetables processing units. Exports during 1998-99 were worth Rs. 678 crores.

TIFAC Report (2003), the task force on Agro food processing of TIFAC on the sub group on fruits and vegetables, has given the technology status and future vision for India. The report states that the total production of fruits in the world is around 370 mmt. India ranks first in the world with an annual output of 32mmt. Further while discussing about the future trends, the report highlighted that fruits and vegetables would continue to be harvested manually in the future. While small land holdings and non availability of good quality planting material have been the major issues of concern, it is expected that quality of planting material would improve in the long run due to right selection, hybridization, proper breeding and adoption of tissue culture.

MOFPI (Ministry of Food Processing Industries) in its annual report (2000-01), reported that the country's share in the world trade of processed fruits and vegetables is still less than one per cent. As such, abundant investment opportunities are there in the expanding domestic market and export arena. An increasing acceptance of new products together with innovative market development efforts is seen.

Manish Jain (2002), in his article noted the trend that out of the horticultural crops produced in the country, approximately 60% is consumed by the local population or marketed in the nearby market yards and only about 40% of the produce is channeled through the regulated markets for the consumption of urban population in the cities. Export markets account for less than 5% of the total production except in some commodities like cashew, spices, onion, etc. He noted further that the bare minimum infrastructural facilities are lacking even in the regulated markets. The horticulture produce suffer significant post harvest losses due to lack of adequate post harvest and marketing infrastructure viz. Processing units, packaging and grading facilities, cold storage facility, refrigerated transport vehicles/ containers, storage and phytosanitary facilities, etc.

Researcher strongly recommends for an integrated development of horticulture industry in order to meet not only the requirements/ demand of the domestic market but also to exploit the export potential to maximum extent. Emphasis on quality production needs to be strengthened together with sound post harvest management of the highly perishable horticultural commodities.

MOFPI Report, (1998), in their documentation on fruit processing submitted to Ministry of Food Processing Industry, highlighted that fruit and vegetable processing industry in India is highly decentralized. A large number of units are in home scale sector, cottage scale sector and small scale sector having installed capacity of 50 tons to 250 tons a year, where as a smaller number of large scale Indian and multinational companies have larger installed capacities in the range of 05 to 30 tons per hour. Due to effective liberalization policies and withdrawal of excise duty on fruit and vegetable products there has been significant rise in the growth rate of production of this industry.

Katar Singh *et al.* (2002), in their study on role of Banks in promoting India's export of fruits and vegetables, explained that banks have played an important role in extending finance for agricultural exports since nationalization, i.e.1969. In 1969 commercial banks provided only 14.6 percent of their total credit to the priority sector and the same had gone up to 43.00 percent in 2001. Similarly the percentage of credit disbursed to agriculture sector has gone up from 5.4 percent to 18 percent over the same period. They further opined that, to achieve substantial increase in exports of fruits and vegetables we require continuous flow of better eco friendly technologies, easy availability of institutional finance for production and post

production operations and higher level of investment in creating basic infrastructure such as roads, markets, power, airports, etc.

Research methodology :

The research undertaken is purely secondary in nature. To begin with, secondary research on global mango production is made. Then macro level study about exports of mango and processed mango products within the mango processing industry of India is made using secondary data that was available. This data is then analyzed to know the pattern of exports of mango and processed mango products by Indian fruit processing industry along with suggestions on the policy front to strengthen this industry.

The primary objectives of this exploratory research are;

1. To study the production pattern of mango across the world over the past years and to know their relative share and CGR (Compound Growth Rate).

2. To study the export pattern of mango and processed mango products, i.e. complete product line (country wise per cent contribution and CGR) by the MPI (Mango Processing Industry) of India over the past years.

3. To locate disparities across the product line (various processed mango products) and trace causes for the same.

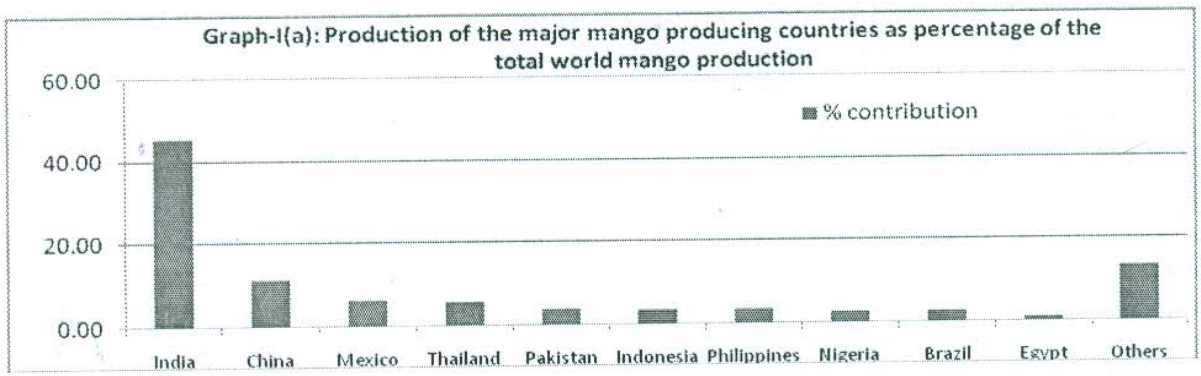
4. To make recommendations on policy front to strengthen Indian mango processing industry.

Sources of secondary data collection include; FAO commodity year books, International trade statistics from www.trademap.com, FAO Production year books, FAO statistical year books, the little green and red data book series of WB (World Bank), etc. have all been explored to get the required information. Nevertheless, official websites of UNCTAD, ITC, DGFT (Directorate General of Foreign Trade of India), WB, FAO, etc., have been explored deeply to get hands on the required information. Tabulation techniques are used for collecting secondary information.

Various statistical, mathematical and computational tools and techniques including Average per cent increase or decrease analysis, Average per cent contribution analysis, CGR (Compound Growth Rate) analysis, etc. using MS-EXCEL (2007 version) are used to analyze the secondary information.

Important research findings and discussion :

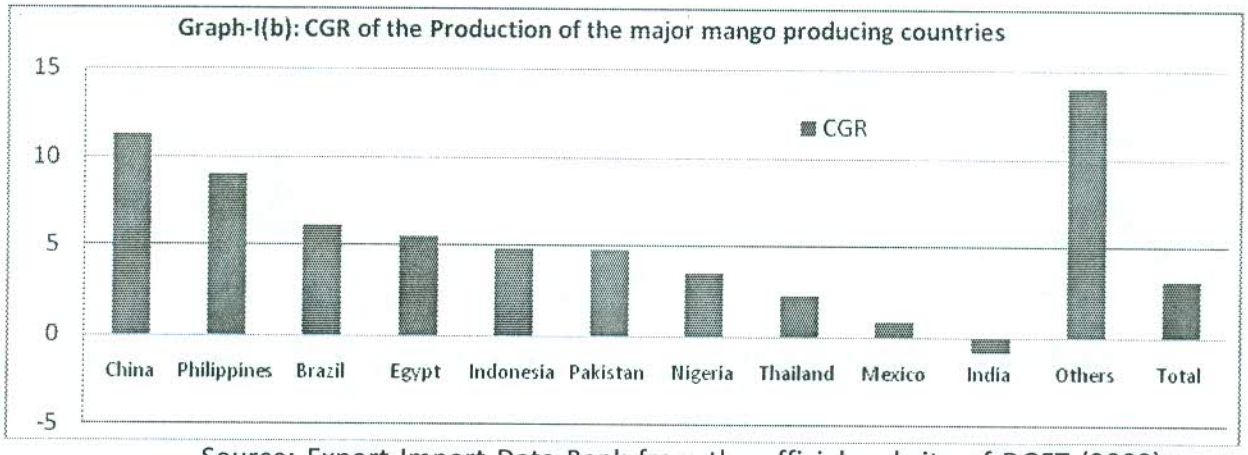
I. Avg. % contribution of major countries producing mango towards total mango production of the world and CGR of each country:



Source: Export Import Data Bank from the official website of DGFT (2008)

The graph [i(a)] shown above, undisputedly, rank India as the top most producer of mango in the world, contributing to nearly 46% of the total world production. China, Mexico, Thailand and Pakistan together account for nearly 28% of the total world production. Brazil stands at ninth position with a contribution of 2.63%.

India has an edge over other countries when it comes to mango production. India has the right soil, climatic condition and other required resources to produce mango. In fact the Indian 'Alphonso' is the most sought after fruit in the world – known popularly as the 'king of all fruits'. There is a great demand for Indian mangoes and also the processed mango products, especially the mango pulp, pickles, chutneys, juices, jams, slices in brine, etc, in the international markets. This should be seen as a great opportunity to be exploited by Indian mango processors.

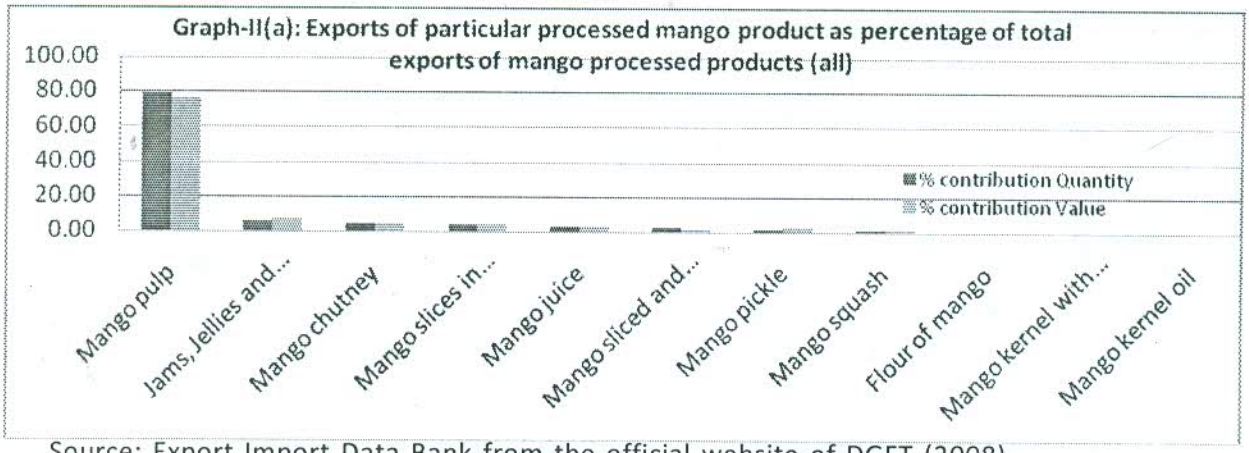


Source: Export Import Data Bank from the official website of DGFT (2008)

The graph [i(b)] depicted above reveals that China and Philippines have experienced highest growth rate, even in the mango production also. This clearly indicates the fact that China has realized the tremendous potential that is being hidden in this specialized sector, i.e. mango processing industry, and is trying to exploit the same before any other country does. Brazil, Egypt, Indonesia, Pakistan and Nigeria are the countries that are experiencing significant growth between 4 and 6%.

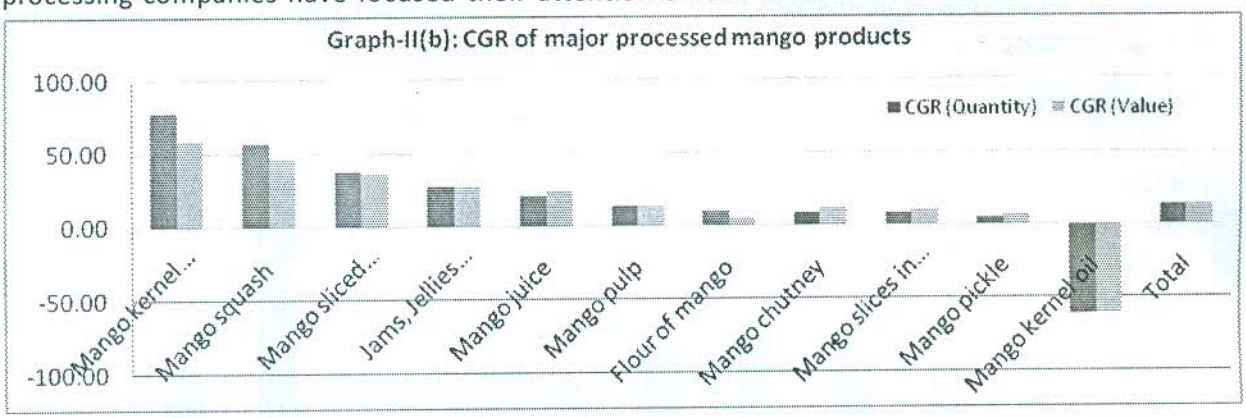
India, unfortunately, is the only country that has experienced a negative growth of -0.86%, in spite of her being the topmost producer of mango. This indeed is a matter of grave concern for India, which needs to be addressed.

II. Exports of particular processed mango product as percentage of total exports of processed mango products (all) and CGR of each: India



Source: Export Import Data Bank from the official website of DGFT (2008)

From the graph [ii(a)] shown above, it is clear that nearly 79% of the exports of processed mango products are constituted of mango pulp. Jams, chutney, mango slices in brine, and juice account for 3 to 6% each towards total exports. Huge and growing demand for mango pulp (especially the pulp of Alphonso and Totapairi varieties of mango) in the international markets is the reason production of mango pulp has grown many fold. Many big companies like; Jain group of companies, Godrej, Vadilal, etc., have entered in to pulp manufacturing, in a big way. Earlier this sector was primarily composed of numerous Small and Medium scale Enterprises mushroomed around mango growing areas. But now the equations have changed. There appears to be a promising and super natural growth for pulp manufacturing industry of India. Hence all the big food processing companies have focused their attention on this sector.



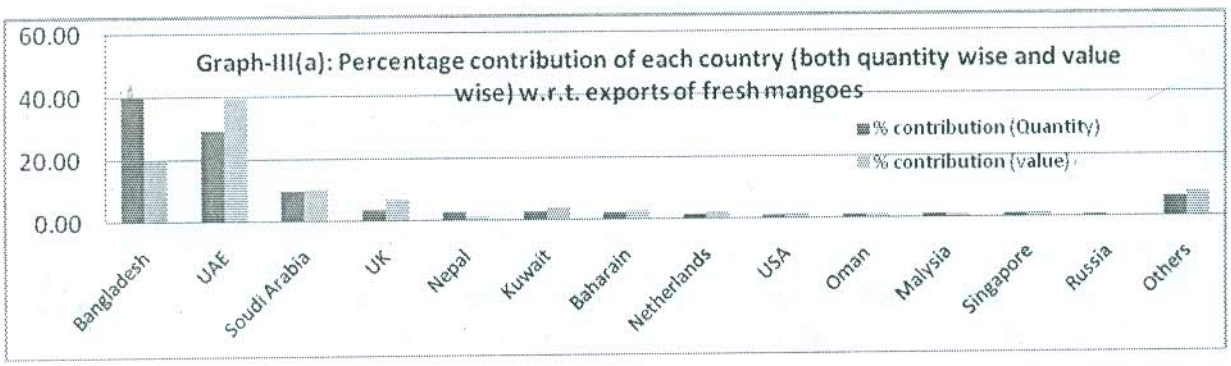
Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the graph [ii(b)] shown above that exports of mango kernel with nut broken and mango squash have experienced a very high compound growth of around 79% and 58% respectively. Mango sliced and dried, jams, juice and pulp have experienced a double digit compound growth ranging from 37% to 14%, in their respective order. Except mango kernel oil, all the other prominent processed mango products, naming; flour of mango, mango chutney, mango slices in brine and mango pickles, have experienced a significant positive growth.

Different applications of byproducts of mango have been emerged, like; mango kernel is being used to extract oil from it, which is primarily used in manufacturing feed for piggery industry in western countries like US. Pigs will put on weight very fast, if we add substances like mango kernel oil in their feed.

Mango processing industry is a promising and fast growing industry. This was primarily composed of numerous Small and Medium scale Enterprises mushroomed around mango growing areas. But now, it is dominated by big companies like; Jain group of companies, etc.

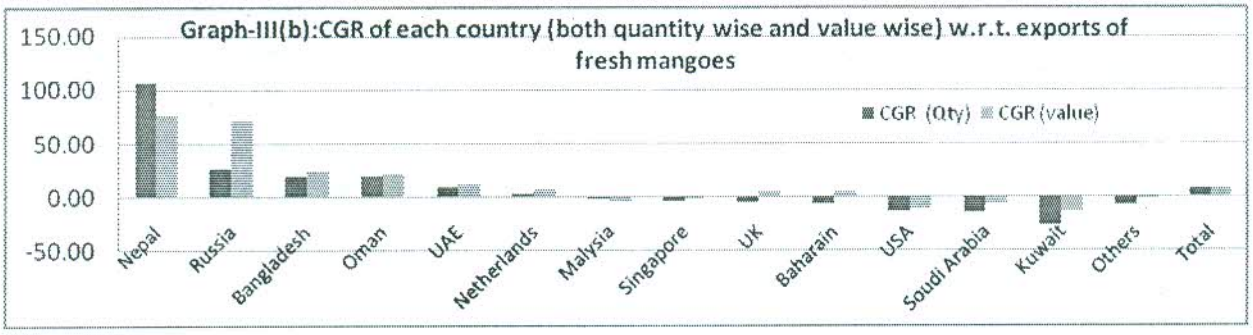
III: Avg % contribution of each country w.r.t. exports of fresh mangoes and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the graph [iii(a)] depicted above that Bangladesh, UAE and Saudi Arabia, collectively, account for nearly 80% of the total exports of fresh mangoes. But it can be noticed that Bangladesh which accounts for nearly 40% (quantity wise) of total exports yield value contribution of just 20%, whereas UK which accounts for 3.16% (quantity wise) of total exports yield a value contribution of 6.66%.

So, Indian exporters will be better off, if they export to those countries which yield higher value contribution, like UK than Bangladesh. The other alternative could be to process fresh mango in to high value added processed mango products like mango pulp and then export. The second alternative yields multifold benefits to India like; higher FOREX earnings, higher local employment, higher profits, etc.



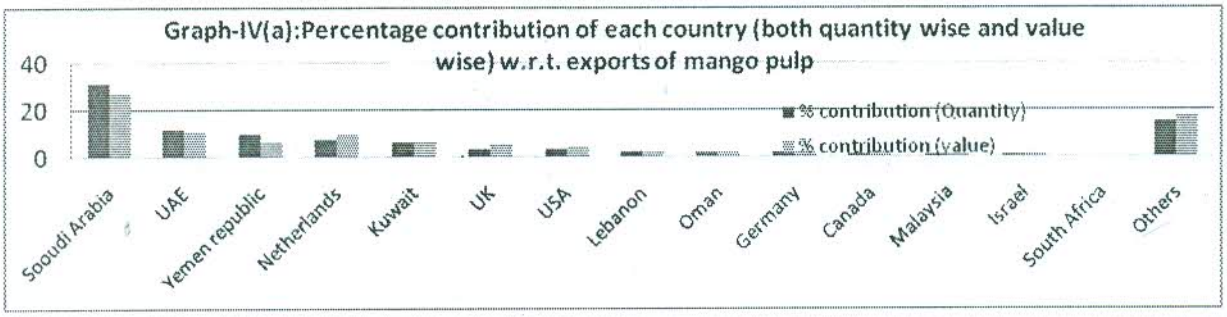
Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the graph [iii(b)] depicted above that export of fresh fruits to Nepal is growing at a phenomenal rate, i.e. 106%. Next in the list are Russia, Bangladesh and Oman, which are growing at 27%, 20% and 19% respectively.

Many countries like; Malaysia, Singapore, UK, Bahrain, USA, Saudi Arabia and Kuwait have all experienced negative growth. This is primarily due to stringent standards set by importing countries (like FDA standards of US) against quality parameters of fresh fruits like; percentage of pesticide residue, percentage of deceased fruits, nutritional values, pulp content, etc.

So it has become must for India; to grow fruits in an organic environment, to have the necessary infrastructure to preserve the freshness of fruits for a very long time, to grade and pack the fruits very neatly and properly, and to have facilities like cold chain, air cargo, etc. for enabling quick shipment of fruits.

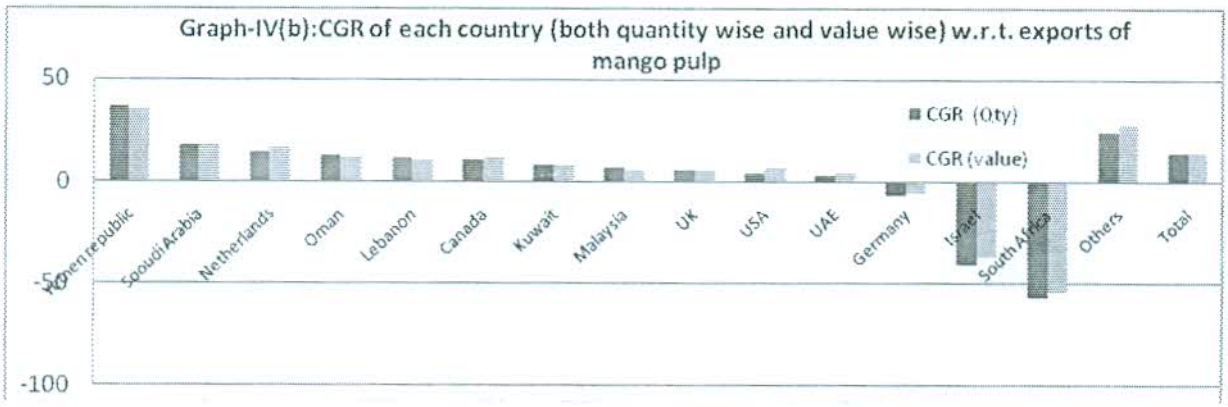
IV: Avg. % contribution of each major country w.r.t. exports of mango pulp and country wise CGR:



Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the above graph [iv(a)] that Saudi Arabia accounts for nearly 31% of total exports of mango pulp. UAE, Yemen Republic, Netherlands and Kuwait account for 12%, 10%, 7% and 6% respectively. Other countries like; UK, USA, Lebanon, Oman, Germany, etc. account for the rest. It can be noticed that value wise contribution of exports are less than quantity wise contribution for major importing countries

like; Saudi Arabia, UAE and Yemen. Whereas for some countries like; UK, USA, Netherlands, etc., value contribution is higher than volume wise contribution. This indicates that developed countries, like; US and UK fetch better prices than the Middle East countries. So Indian mango processors should focus on the quality requirements of developed countries like US and UK, and meet those requirements by improving their existing quality standards. The quality standards of developed countries are definitely much stringent than the ME countries, but simultaneously they are much rewarding.

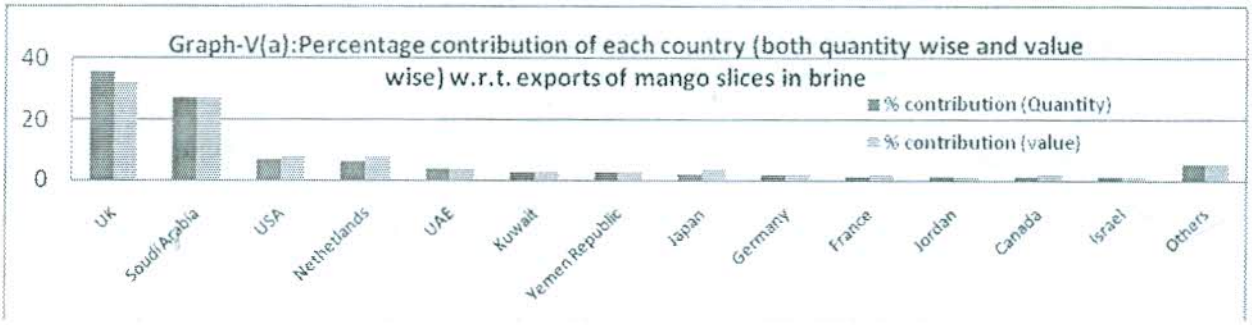


Source: Export Import Data Bank from the official website of DGFT (2008)

As reflected in the above graph [iv(b)]; Yemen republic has experienced the highest growth as far as exports of mango pulp are considered. Saudi Arabia, Netherlands, Oman, Lebanon and Canada have all experienced double digit growth ranging from 18% to 11% in their respective order. Overall, exports of mango pulp have evidenced highest growth (14%), indicating great export demand for Indian mango pulp.

This is the reason production of mango pulp has grown many fold. Many big companies like; Marico, Godrej, Parle, Pepsico, etc., have entered in to mango pulp manufacturing, in a big way. This sector was primarily composed of numerous Small and Medium scale Enterprises mushroomed around mango growing areas. There lies a promising and super natural growth for mango pulp manufacturing industry of India. Hence all big food processing companies, even MNCs have set their attention on this sector.

V: Average % contribution of each major country towards exports of mango slices in brine and country wise CGR: India

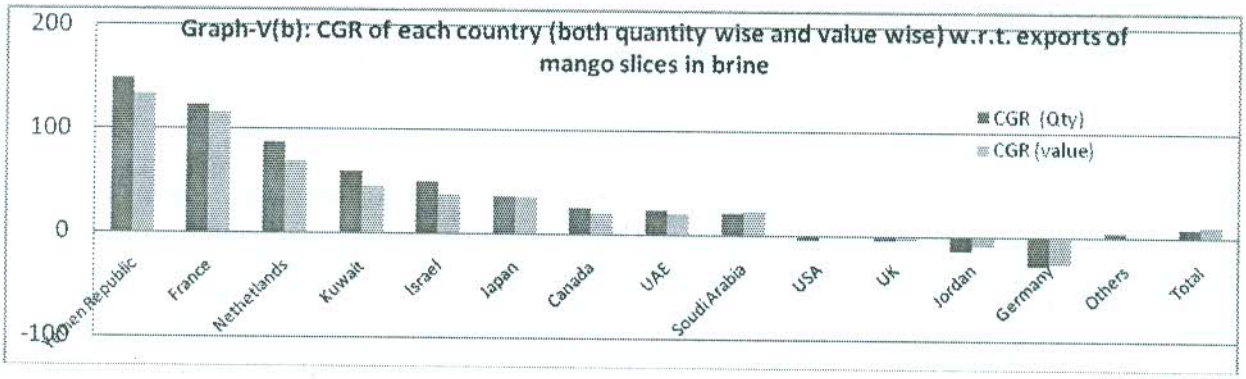


Source: Export Import Data Bank from the official website of DGFT (2008)

It can be noted from the above graph [v(a)] that UK and Saudi Arabia are the major importing countries, accounting for nearly 64% of total exports of mango slices in brine from India. USA, Netherlands and UAE together account for nearly 17 % of the total exports. Remaining countries account for the rest.

It is evident from the above pattern that a few countries account for large chunk of exports. Hence

Indian processors should focus their attention on the quality requirements of these countries like; UK, Saudi Arabia, US, and Netherlands and try to meet those requirements. These countries in turn process the slices and make final products according to their requirements.

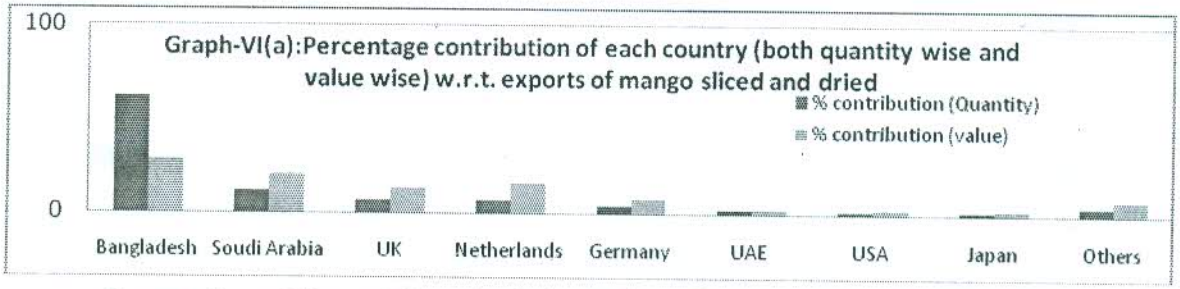


Source: Export Import Data Bank from the official website of DGFT (2008)

From the above graph [v(b)] it is clear that Yemen republic and France have experienced super natural growth as far as imports of mango slices in brine from India are concerned. Netherlands, Kuwait, Israel, Japan, Canada, UAE and Saudi Arabia have all experienced a double digit growth ranging from 88% to 21% in their respective order. Whereas some countries like US, UK, Jordan and Germany have experienced negative compound growth.

Overall, the growth is significant (7.88%) and hence many new MNCs and SMEs have entered in to this sector. There lies a guaranteed future for Indian fruit processors in this sector. India has tremendous potential, waiting to be exploited, in this sector.

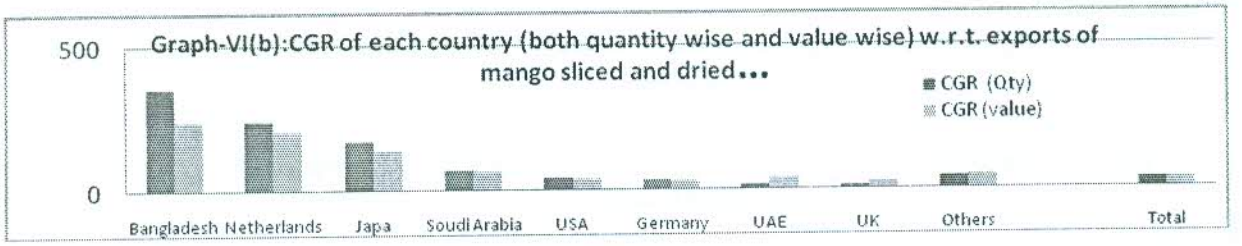
VI: Average % contribution of each major country w.r.t. exports of mango sliced and dried and country wise CGR : India



Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the above graph [vi(a)] that Bangladesh accounts for major portion of exports of mango sliced and dried (62% quantity wise and 28% value wise). Saudi Arabia, UK and Netherlands, collectively, account for nearly 26% of the total exports. It can be seen that relatively few countries import this particular product than the conventional products like; squash, juice and pulp.

Indian processors will be better off, if they export to those countries which yield higher value contribution, like UK (volume wise contribution is 7% whereas value wise contribution is double, i.e. 14%) than Bangladesh (value wise contribution – 28% is much lesser than volume wise contribution -62%). The importing countries use this product as an intermediary product and manufacture final product. The Indian processors can themselves process mango slices further and manufacture end products and then export. This will yield multifold benefits to India like; higher FOREX earnings, higher local employment, higher profits, etc.



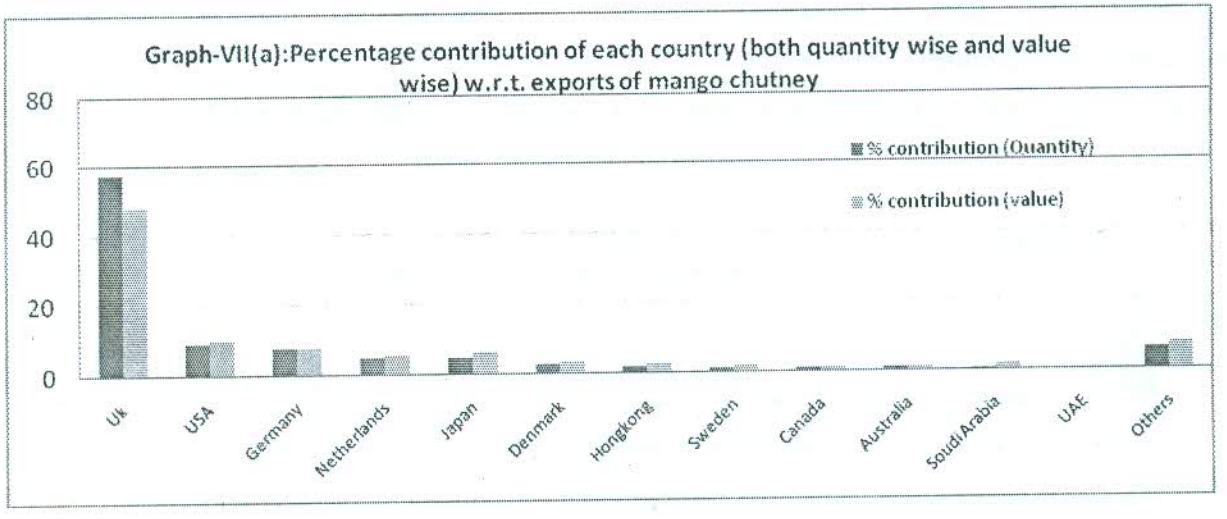
Source: Export Import Data Bank from the official website of DGFT (2008)

It can be noted from the above graph [vi(b)] that the growth rate is phenomenal for some countries like; Bangladesh (353%), Netherlands (240%) and Japan (172%) whereas, other major countries have also experienced significant compound growth ranging from 15.5 to 71%.

The comparison of CGR of exports of different processed products of mango reveals that the growth was highest for this particular product (aggregate CGR of 37%), which clearly demonstrates the export demand for this particular product.

The ever increasing export demand for such processed mango products is one of the reasons for the catastrophic growth of this sector and has lured the interests of many MNCs and SMEs to enter in to this sector. This sector has lot more to offer to India in the days to come and Indian fruit processors should realize this and plan accordingly.

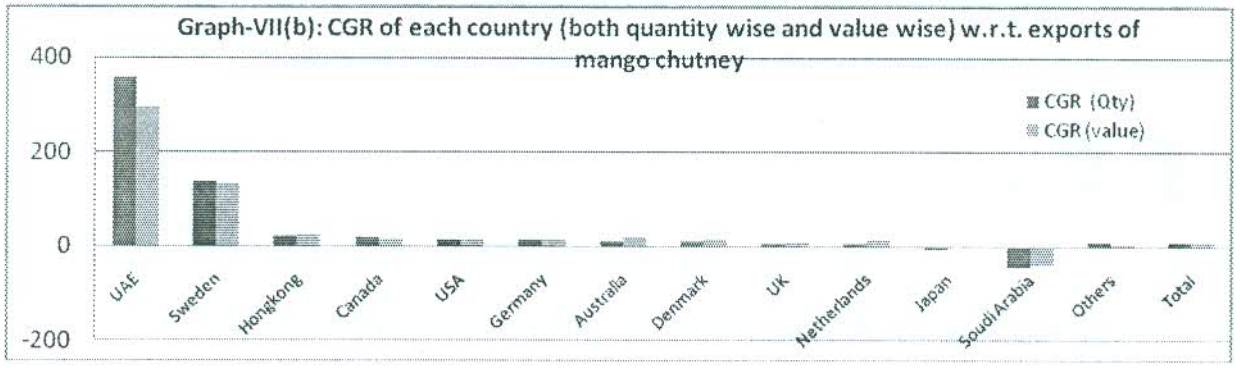
VII: Avg. % contribution of each country w.r.t. exports of mango chutney and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

The history of exports of traditional Indian products like spices, go back to eighteenth century, when India used to barter spices and curry powders for other goods like; textiles and machinery with the countries like Great Britain.

These products, i.e., mango pickles and mango chutneys, generally, are consumed by Indians. So countries where-in significant population of Indian origin resides, like UK and USA, will import these traditional Indian products (as reflected in the above graph [vii(a)]). But due to breaking of national boundaries and national cultures due to globalization, the demand for traditional Indian products has also increased across the world.

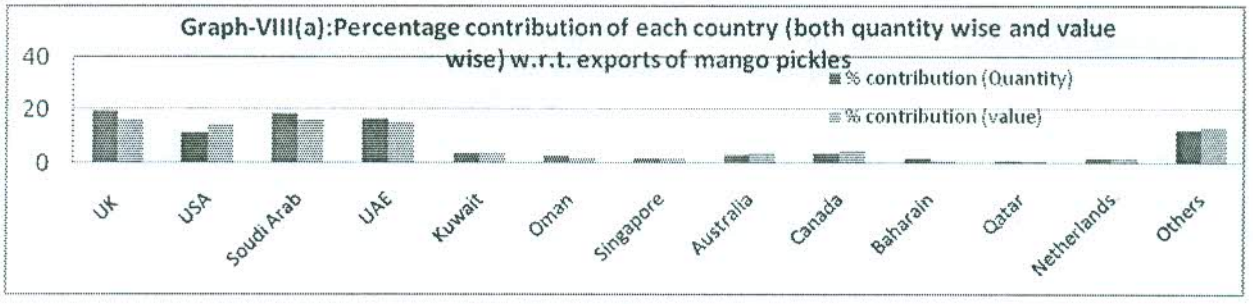


Source: Export Import Data Bank from the official website of DGFT (2008)

As reflected in the above graph [vii(b)]; UAE and Sweden have experienced exceptional growth of 356% and 137% respectively. Whereas other countries like; Hong Kong, Canada, US, Germany, Australia, Denmark, UK and Netherlands have experienced significant growth ranging from 22% to 6% in their respective order, as shown above.

Overall, growth appears to be significant (8.86%) and hence acts as a catalyst to spur growth in this sector in India. This sector is predominantly comprised of SMEs spread across selected states of India, mainly in Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka and Kerala.

VIII: Average % contribution of each country w.r.t. exports of mango pickles and country wise CGR: India

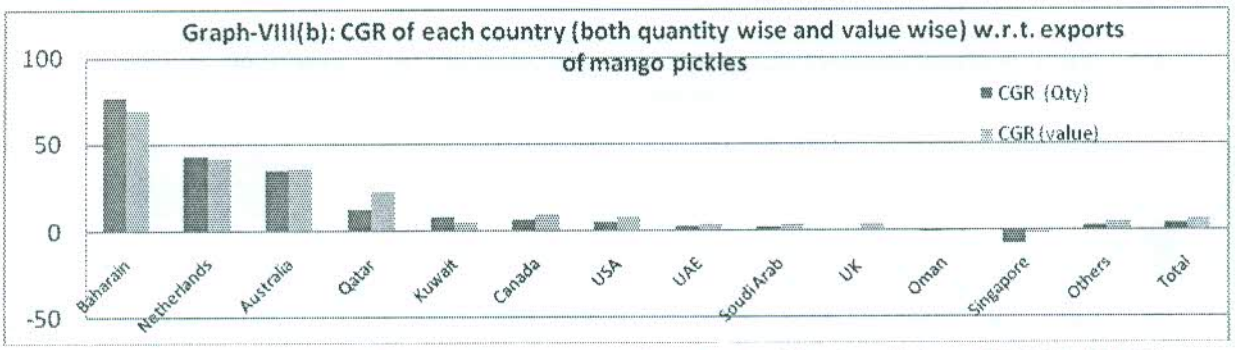


Source: Export Import Data Bank from the official website of DGFT (2008)

As reflected in the above graph [viii(a)]; UK, USA, Saudi Arabia, and UAE together account for nearly 67% of total exports. Other countries, collectively, account for the remaining 33% of total exports.

These products, generally, are consumed by Indians. So countries where-in significant population of Indian origin resides, like UK and USA, will import these traditional Indian products. So the percentage contribution of each country towards total exports is directly proportional to the total population of Indian origin living in that particular country.

But because of breaking of national boundaries and national cultures due to globalization, the demand for traditional Indian products has also increased across the world.

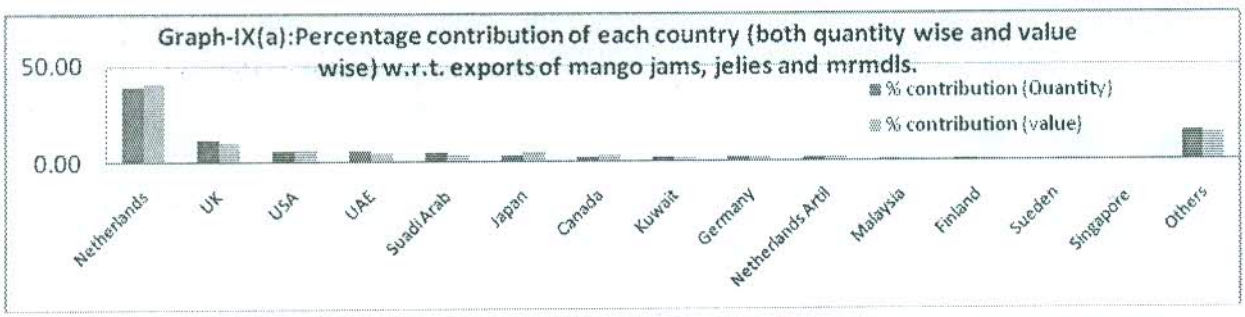


Source: Export Import Data Bank from the official website of DGFT (2008)

As reflected in the above graph [viii(b)]; Bahrain, Netherlands and Australia have experienced exceptional growth of 77%, 43% and 35% respectively. Whereas other countries like; Qatar, Kuwait, Canada, USA, UAE, Saudi Arabia, and UK have experienced moderate growth ranging from 8% to 1%, in their respective order, as shown above.

Overall, growth appears to be significant and hence acts as a catalyst to spur growth in this sector in India. This sector was predominantly comprised of SMEs spread across selected states of India, mainly in; Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka and Kerala. The growth prospectus has lured big companies like; Hindustan Unilever Limited, Nestle, etc. They have started making huge investments in this particular sector.

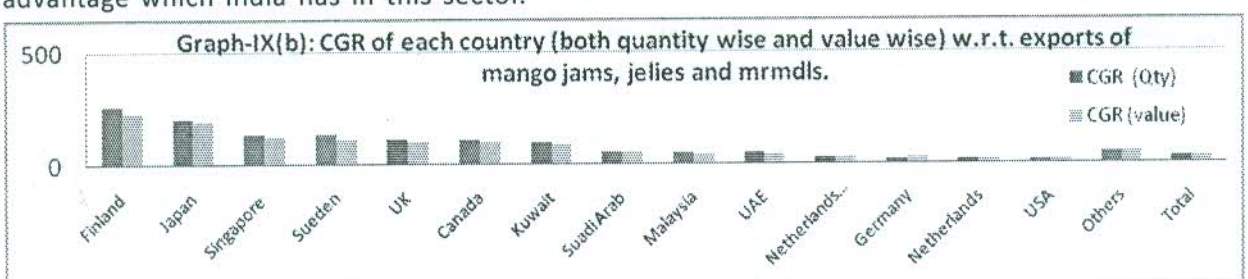
IX: Average % contribution of each country w.r.t. exports of jams, jellies and Marmdls and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the above graph [ix(a)] that Netherlands and UK account for nearly 39% and 12% of the total exports of jams, jellies and Marmdls respectively. Other countries including; USA, UAE, Saudi Arabia, Japan, Canada, Kuwait and Germany account for nearly 30% of total exports, collectively.

It can be seen from the above graph that the demand for these processed and high value added products is wide spread across many countries. This is simply because of the fact that many countries can't grow mango, even if they want to, because of unfavorable climatic conditions. This is a unique competitive advantage which India has in this sector.

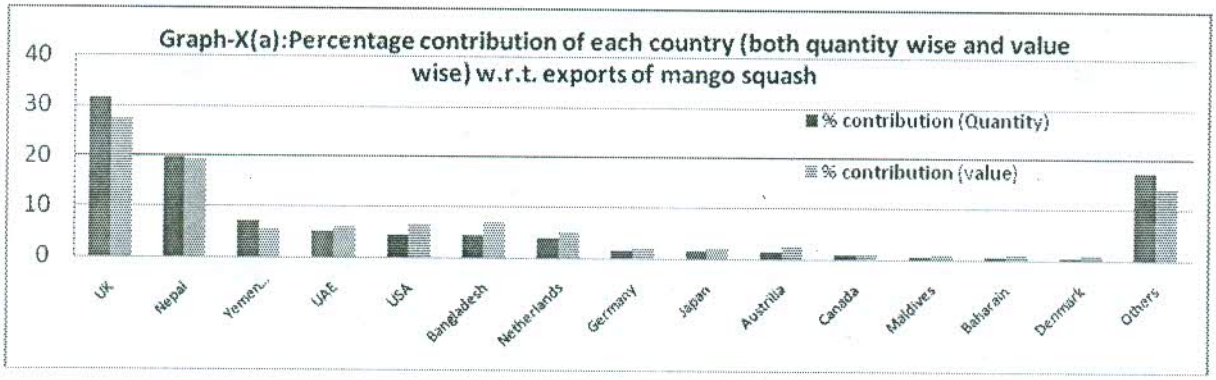


Source: Export Import Data Bank from the official website of DGFT (2008)

It can be noted from the above graph [ix(b)] that many countries including Finland, Japan, Singapore, Sweden, UK, and Canada have experienced phenomenal growth, ranging from 255% to 102% in their respective order, as far as imports of jams, jellies and Marmdls from India is concerned. All the other countries also have experienced a double digit compound growth, ranging from 91% to 13%, as shown above.

Overall growth appears to be very high (28%). Moreover all the major countries have experienced a significant growth in their imports. Indian processors should capitalize on this phenomenal global demand for the processed mango products and should re-direct or re-allocate the resources to meet this ever increasing global demand.

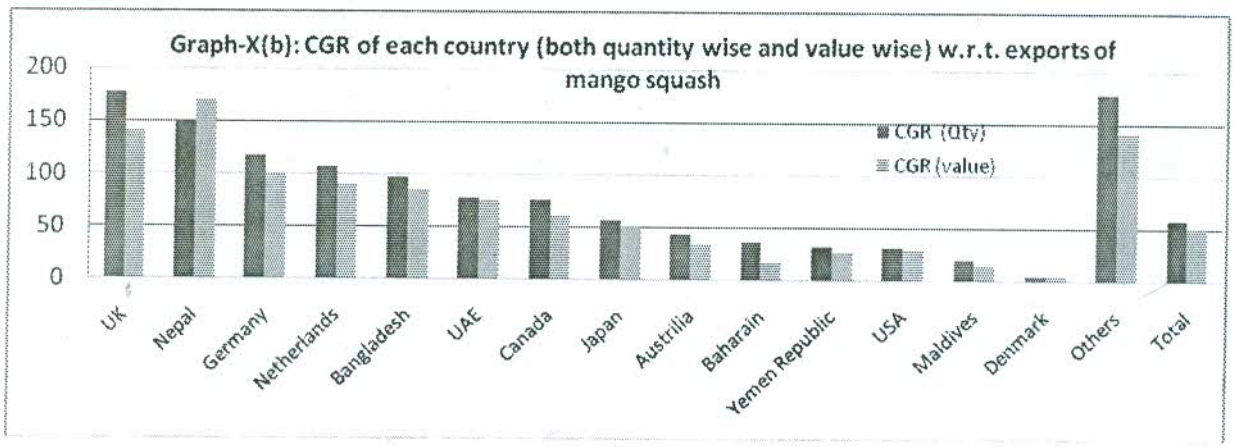
X: Avg. % contribution of each country w.r.t. exports of mango squash and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

As revealed from the above graph [x(a)]; UK and Nepal were the two major countries importing mango squash. These two countries, together, account for nearly 52% of total exports of mango squash from India. Other countries of interest include; Yemen republic, UAE, USA, Bangladesh, and Netherlands, which collectively account for nearly 25% of total exports of mango squash from India.

The demand for natural fruit drinks has increased dramatically across the globe. People, in general, have become more health conscious and shifted their consumption from artificial aerated drinks to natural fruit drinks. This is the reason demand for such natural fruit drinks is wide spread across many countries and is growing at a very high rate.



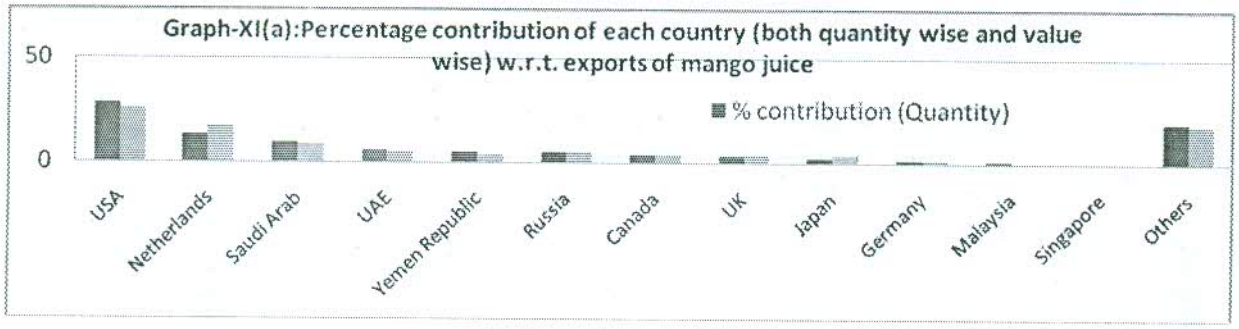
Source: Export Import Data Bank from the official website of DGFT (2008)

As reflected in the above graph [x(b)], many countries including UK, Nepal, Germany, and Netherlands have experienced phenomenal three digit compound growth, ranging from 177% to 107% in their respective

order, when we consider imports of mango squash from India. All the other countries also have experienced a double digit compound growth, ranging from 97% to 21%, except Denmark, as shown above.

Overall growth (58%) appears to be much higher than jams, jellies and Marmdls (28%). Moreover all the countries have experienced a significant growth in their imports. India should re-position itself in the global market as a prime supplier of processed high value added mango products like; squash and juices and should re-direct or re-allocate the resources to meet this ever increasing global demand.

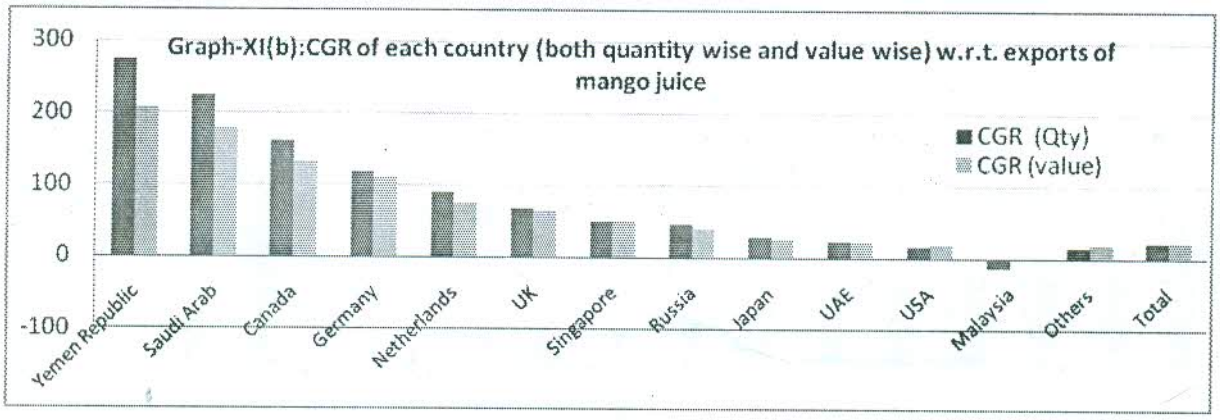
XI: Avg. % contribution of each country w.r.t. exports of mango juice and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

It is clear from the above graph [xi(a)] that USA and Netherlands are the main countries importing mango juice. These two countries, together, account for nearly 42% of total exports of mango juice from India. Other countries of interest include; Saudi Arabia, UAE, Yemen republic, Russia, Canada, UK and Japan which collectively account for nearly 36% of total exports of mango juice from India.

The demand for natural fruit drinks, especially fruit squashes and juices, has increased dramatically across the globe. People, in general, have become more health conscious and shifted their consumption from artificial aerated drinks (e.g. 'Coke' and 'Pepsi') to natural fruit drinks. This fundamental shift in demand is seen not only in developed countries but also in the developing countries like; Bangladesh, Nepal, etc. This is the reason demand for such natural fruit drinks is wide spread across many countries and is growing at a very high rate.

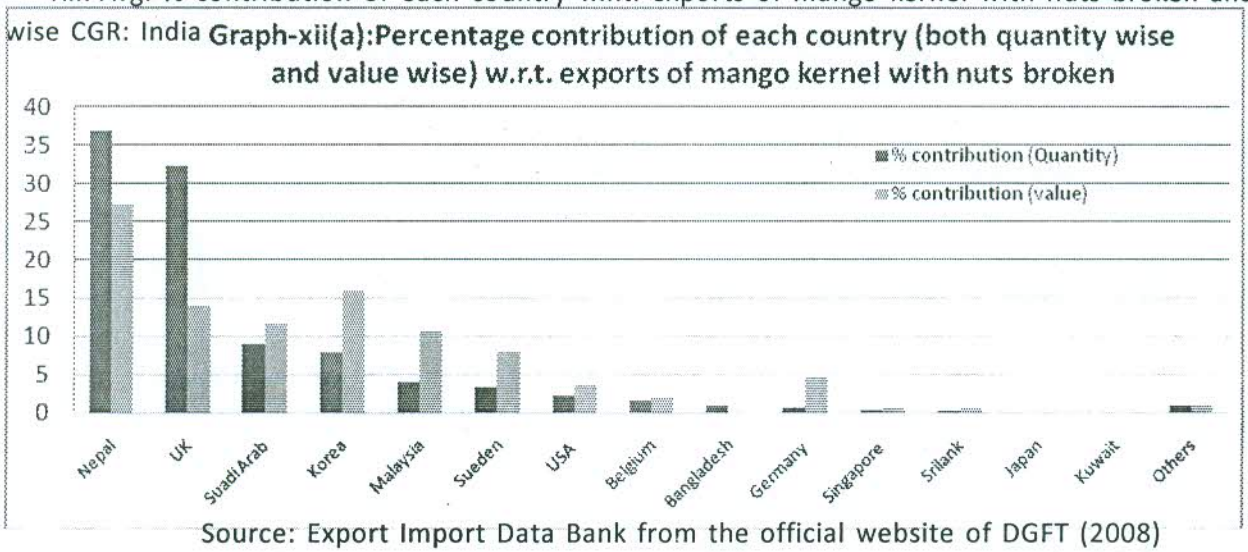


Source: Export Import Data Bank from the official website of DGFT (2008)

It can be noted from the above graph [xi(b)] that many countries including Yemen republic, Saudi Arabia, Canada, and Germany have all experienced phenomenal three digit compound growth, ranging from 274% to 120% in their respective order, when we consider imports of mango juice from India. All the other countries also have experienced a double digit compound growth, ranging from 92% to 16% except Malaysia, as shown above.

Overall growth appears to be very high (22%). Moreover all the countries have experienced a significant growth in their imports. This clearly indicate that aerated soft drinks like; 'Pepsi' and 'Coke', have experienced a falling trend and natural fruit drinks have taken over the sales of aerated soft drinks. India has to strengthen its position in the global market as a prime supplier of processed high value added mango products like; squash and juices through increasing the production of the same and simultaneously maintaining international quality standards.

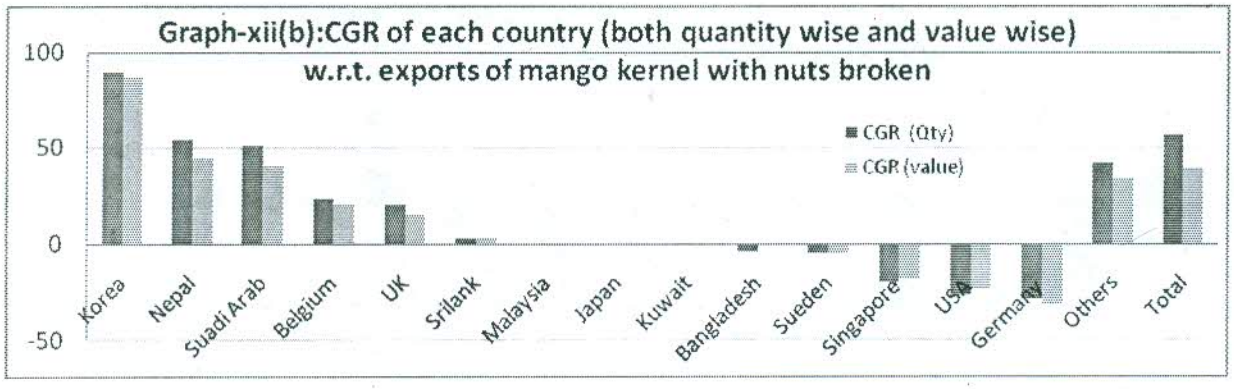
XII: Avg. % contribution of each country w.r.t. exports of mango kernel with nuts broken and country wise CGR: India



Source: Export Import Data Bank from the official website of DGFT (2008)

As revealed in the above graph [xii(a)]; Nepal and UK account for major portion of exports of mango kernel with nuts broken, i.e., 37% and 32% respectively quantity wise and 27% and 14% value wise. Saudi Arabia, Korea, Malaysia, Sweden and USA, collectively, account for nearly 26% of the total exports quantity wise and 50% value wise. It can be seen that value wise contribution is much less for top of the list countries including; Nepal and UK than the other countries in the list including; Saudi Arabia, Korea, Malaysia, Sweden and USA.

So, India will be better off, if it exports to those countries which yield higher value contribution. Other alternative could be to process these mango kernels further and turn them in to still higher value added end products and then export.



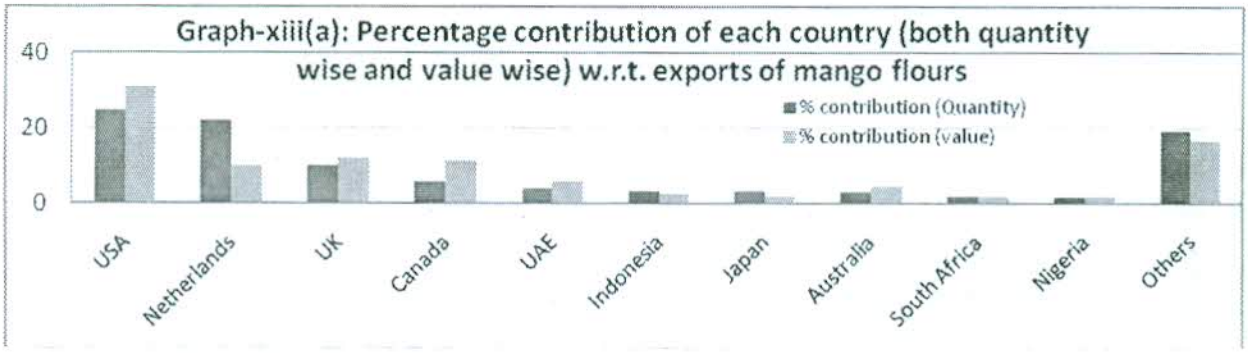
Source: Export Import Data Bank from the official website of DGFT (2008)

It can be noted from the above graph [xii(b)] that many countries including Korea, Nepal, Saudi Arabia, Belgium and UK have experienced a very high double digit compound growth, ranging from 89% to 20% in

their respective order, when we consider imports of mango kernel with nut broken from India. Other countries including; Malaysia, Japan, Kuwait, Bangladesh, Sweden, Singapore, USA, and Germany have experienced a zero growth or negative growth.

Overall growth appears to be very high (57% volume wise and 39% value wise). Indian fruit processors should invest in R&D activities and try to reengineer the business processes involved so that they can undertake vertical integration projects like processing kernels further in to high value added end products like mango butter, which will have a great demand in the global market and fetch higher value.

XIII: Avg. % contribution of each country w.r.t. exports of mango flours and country wise CGR: India

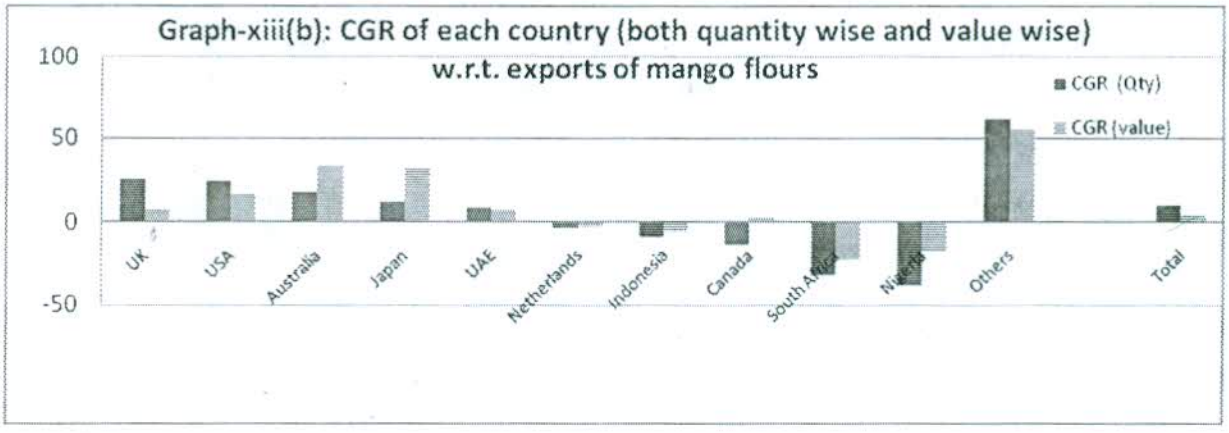


Source: Export Import Data Bank from the official website of DGFT (2008)

From the graph-xiii(a) it is clear that USA, Netherlands and UK account for major portion of total exports of mango flours from India. These three countries account for nearly 57% of the total exports. Other countries including; Canada, UAE, Indonesia, Japan, Australia and South Africa, collectively, account for 22% of total exports.

Some countries like USA yield higher value contribution than countries like Netherlands. So India has to choose those countries which yield higher value. In other words what is more important for the exporting country is value wise contribution than volume wise contribution.

Simultaneously, Indian companies should think of producing high value added end products like feed for the piggery industry, where-in these intermediary products are being used.



Source: Export Import Data Bank from the official website of DGFT (2008)

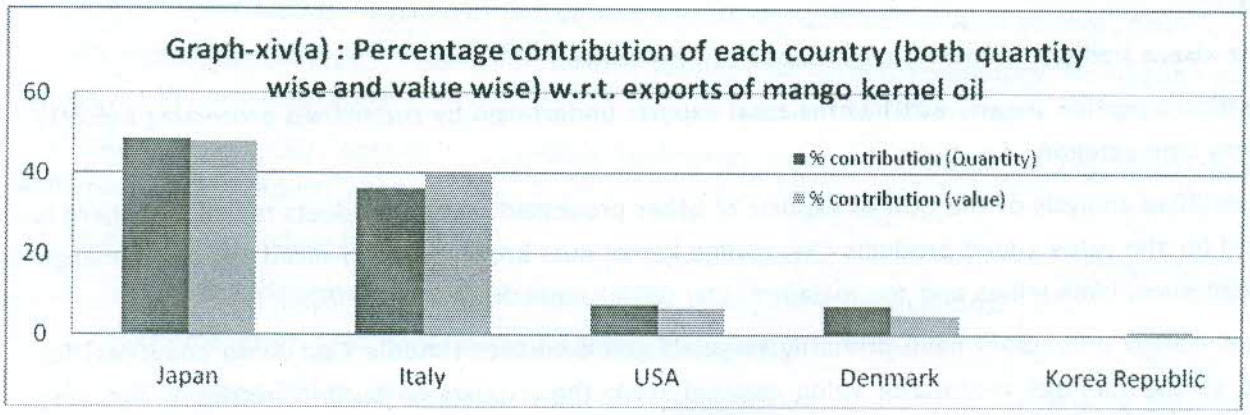
From the graph-xiii(b) it is clear that many countries including; UK, USA, Australia and Japan have experienced a double digit compound growth ranging from 25% to 12% in their respective order, whereas,

other countries except UAE, have experienced negative growth.

The difference between volume wise CGR and value wise CGR is worth noting. Value wise growth is significantly less compared to quantity wise growth. This clearly means exports are fetching lesser price. There is disparity with respect to quantity wise and value wise contribution. So Indian companies have to be choosy while selecting countries, and should choose those countries which yield higher value contribution.

Simultaneously, Indian companies should think of producing high value added end products like feed for the piggery industry, mango butter, mango margarine, cosmetics, etc., where-in these intermediary products are being used.

XIV:Avg. % contribution of each country w.r.t. exports of mango kernel oil and country wise CGR: India

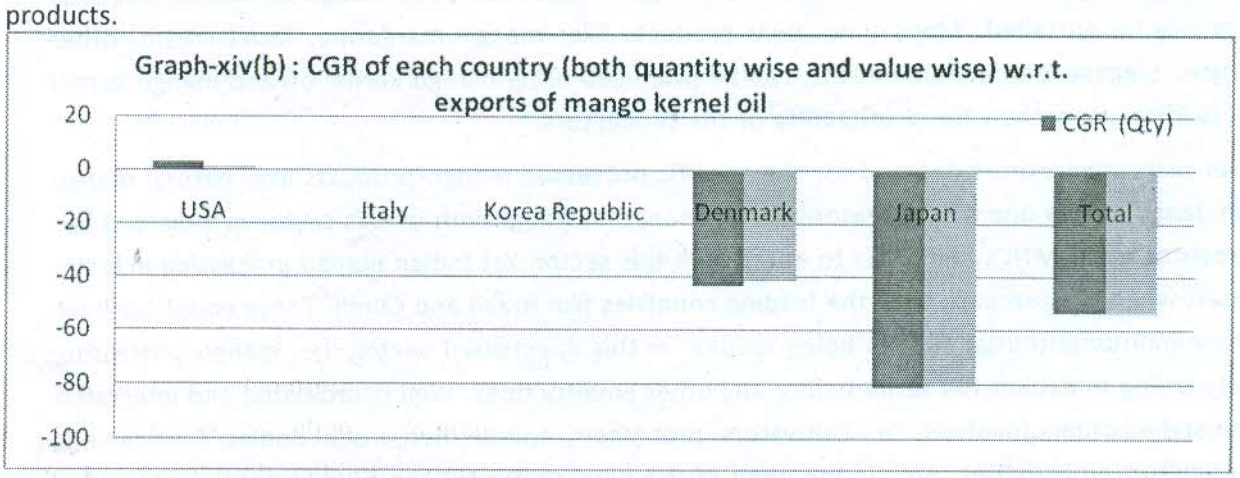


Source: Export Import Data Bank from the official website of DGFT (2008)

From the above graph-xiv(a) it is clear that Japan and Italy together account for significant portion of total exports of mango kernel oil from India. These two countries, together, account for nearly 85% of the total exports. Other countries including; USA and Denmark together account for 15% of total exports.

Relatively few countries (only five) import this particular class of product as it is used in manufacturing very specific end products.

Even though the exports of this particular class of product is not so significant, it indeed is an opportunity for Indian processors to strengthen their R&D wing so that the processors can look for various applications of such intermediary or by products. There lies a most promising scope for Indian processors to come out with different applications in different sectors like; pharmaceutical, cosmetics, food, etc., for such intermediary products.



Source: Export Import Data Bank from the official website of DGFT (2008)

As revealed in the above graph-xiv(b); except USA, all other countries have experienced a zero or

significant negative growth. Overall growth is unattractive and discouraging. Indian processors have to look for different applications of this intermediary product. This calls for possessing state of the art R&D facilities. Indian processors should invest heavily in building necessary R&D facilities.

Higher value addition to existing products, strengthening the R&D base, and scouting for various applications for the intermediary products are some of the important critical success factors for Indian fruit processing industry.

Indian fruit processing industry should follow the footsteps of Brazilian fruit processing industry in this regard and turn it in to the most vibrant and fast growing industry of India.

Conclusion :

From the above findings following conclusions can be drawn.

1. Significant portion (nearly 80%) of the total exports undertaken by the mango processing industry falls in to only one category, i.e. pulp.

2. The detailed analysis of the CGR of exports of other processed mango products reveal that there is great demand for the value added products like; mango kernel nuts broken, mango sliced and dried, mango squash, mango juice, jams jellies and marmalades', etc. (CGR ranges from 79% to 20%).

3. Indian mango processors have primarily targeted gulf countries (Middle East Asian countries) for exports and as the findings reveal the value realized from the exports to such countries is not very attractive.

Recommendations :

1. Hence Indian mango processors should start manufacturing high value added processed mango products and export them to rich countries like; USA, UK, Canada, Australia, other European countries so that value realization will be much higher. To achieve this Indian mango processors must improve their quality standards and bring in lot of innovation to meet the stringent quality standards set by importing countries (like FDA standards of US). Indian fruit processors must also invest a lot in R and D facilities and activities and come out with innovative products and technologies.

2. Indian mango processors should also think of utilizing the byproducts like mango kernels so that total processing loss can be curtailed. Many innovative products like; mango margarine, facial cream, other cosmetic products, piggery feed ingredient, etc. can be produced using mango kernel oil and mango kernel flour. This will further strengthen the profitability of the processors.

3. The ever increasing export demand for the specific processed mango products like; natural mango juice or squash, jams, etc., is one of the reasons for the supernatural growth of this sector in India and has lured the interests of many MNCs and SMEs to enter in to this sector. Yet Indian mango processing industry is still miles apart when we compare with the leading countries like Brazil and China. These countries have realized the tremendous potential that is being hidden in this specialized sector, i.e. mango processing industry, and are trying to exploit the same before any other country does. Well coordinated and integrated effort by all the stake holders involved, i.e., cultivators, processors, middle men, nodal bodies, Government Institutions, agriculture universities, etc., is the need of the hour to exploit the huge potential which this sector has.

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'EFFECTS OF MODERN TECHNOLOGY IN THE PRESENT WORLD'

* Mr. Shashank M. Hiremath
** Dr. Purushottam Bung

As it is widely said "Necessity is the mother of all inventions", welcome to the 21st Century! Here we can find that there is need to dial a ten digit number to call someone (Speed dialing on mobile phones saves you your valuable time). Just one click and your mail travels across continents in few minutes rather than few weeks and you can turn your lights off without getting up from your chair. That's right people; here in the 21st Century we have vastly advanced that crazy concept called technology. No more video cassettes, tape drives, floppy disks or tape recorders. No more wasting your money on music or movies. With just a click of a button you can have anything your restless mind wishes.

There are certain questions which need to be addressed before explaining the prospects and consequences of modern technology. What we have to ask ourselves now is, as technology advances, are we slowing down? Are we becoming victims of laziness and potential danger because of computers and cell phones? Are machines running or possibly ruining our lives? And so on. Here we present before our readers some prospects and consequences of modern technology:

Prospects: Technology has made living very comfortable and cozy. Electronic gadgets, cell phones, computers, even coffee vending machines are now so much more efficient, quick and easy to use for most people. Not to deny the fact that they are also lots of fun. We've got robots to vacuum our carpets and to scrub our floors. We have everything in our homes just a click of button away. It's really amazing how quickly technology is developing and how far it has come. Had we ever thought that a single chip would replace an entire assembly line of workers? This has helped in eliminating human errors and made work faster and more efficient. There was a time when a person diagnosed as HIV positive was not accepted within the society as people thought that they would be infected too, even if they touched the infected person. But thanks to the advancements in the field of medicine science and health care, now these people are treated with love and care and have a hope to live. New researches about human anatomy are done every day. Doctors and researchers all over the world are working hard to introduce new medicines and treatments which can cure even the deadliest of diseases. This has surely added some years to the average life span of humans.

Consequences: When we watch any movie in any theatre, at the end of every movie it says "Don't download the music, Buy it". Even after reading such a message, we come back to our homes and download the film songs of our choice within minutes. We have all the songs we wanted. It's not that we can't afford a CD, but it is our laziness which gets first priority. Sometimes we get late to go to our offices. The reason is: we were trapped in a traffic jam. Why? Because someone was talking on the cell phone while driving and

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met with a brutal accident. Hacking is the most widespread and sophisticated crime nowadays. It has engulfed a major chunk of the young and talented pool of today. Every alternate day there is a new type of software virus, worms and trojans which we are made aware of. Modern inventions and techniques are not for everyone. It's only a rich man's dream to fly a personal jet with all the latest gadgets fitted in it. On microscopic level, technological advances are also widening the gap between the various classes of the society. There is a fear that this might cause unrest amongst the underprivileged or the less privileged section of the society and lead to more crimes and disparity. And how can we forget Hiroshima. Throughout most of the world, the name Hiroshima has come to represent man's technological capability for massive destruction. Hiroshima was the result of high-altitude bombing and long-range killing that came ever more to characterize World War II. Hiroshima opened the doors to a new world, a world in which it is possible for humanity to destroy itself by its own inventions of highly destructive ammunitions and weapons. Hiroshima was the world's first stare at a technology which could destroy countries, end civilization, and exclude a human future. What is unfortunate is that Hiroshima seems to be recreated every day with more and more scientists extravagant about their talents to improve weapons of mass destruction. Nuclear weapons do not distinguish people. They kill innocent men, women and children. The problem is if the disenchanted and disillusioned extremists of the world obtain nuclear weapons, they will use them to destroy everyone.

Perspectives on modern technology :

Today, we can't imagine ourselves without technological advancements such as airplanes, cars, microwaves, cell phones, computers, televisions and so on. However, technology doesn't stop here, but develops further. As technology develops, there are not only advantages, but disadvantages also from them. A few advantages of modern technology are that, one can save time and money and life will be made easier as a result of not having to do all the hard work. In contrast, the disadvantages of modern technology are that people may lose their jobs to machines that will do the work for them. In addition, machines and robots are too complex for most people to use.

We all would want a developed world with advanced technologies. But following are the reasons why we actually want a more advanced world with advanced technologies. Some major considerations are when you have advanced technologies, life is much easier as robots and machines would take over your daily life tasks. For example, daily life tasks might be serving your breakfast, cutting your lawn, or cleaning your room. With robots and machines doing one's responsibilities, one has time to relax. Another reason is because unlike humans, robots and machines do not make mistakes when programmed correctly. They always carry out tasks perfectly so you won't have to worry about making a mistake and receiving trouble.

Some other reasons why we want advanced technologies are because they save a great deal of time and money. For example, if you are a rich man who always had trouble employing talented employees, you can buy an industrial robot and use it for the rest of your life. Therefore, you won't have to use all your time employing talented people. Also, you will save a lot of money from not having to pay the employees. Another example of benefits from superior technology is that if there are new, developed vehicles that will transport people to anywhere speedily, so that one would not need to spend all those boring and restless

BOOK REVIEW
18 MINUTES : FIND YOUR FOCUS, MASTER DISTRCTION AND GET THE RIGHT THINGS DONE

* Dr. Purushottam Bung

Peter Bregman (2011). 18 minutes: Find your focus, master distraction, and get the right things done, The Orion Publishing Group Ltd, Price: Rs.495.00, Pages 261, ISBN:9781409130574.

Author's profile :

Peter Bregman advises and consults to CEOs and their leadership teams in organizations ranging from Fortune 500 companies to start-ups and nonprofits. He speaks worldwide on how people can lead, work and live more powerfully. He is a frequent guest on public radio, provides commentary for CNN and writes for *Harvard Business Review, Fast Company, Forbes and Psychology Today. He lives in New York City.*

Review :

Goal setting, time management and task management have become the most sought after soft skills amongst executives/entrepreneurs of all cadres irrespective of their functional domain. The pressures on executives/entrepreneurs to achieve maximum in shortest span of time has become order of the day. There are so many books available on the above topic which tell about the importance of goal setting, time management, and task management and how one can manage these in an abstract manner like; classifying activities to be done or tasks to be accomplished into four categories, i.e. Important and Urgent, Important but not Urgent, Urgent but not Important, and Neither Urgent nor Important and then allocating time and delegating work accordingly and so on. But Peter Bregman in this book has in fact explained what one has to do or can do to ensure the honing of above mentioned soft skills to achieve maximum in the shortest span of time.

As the title says very clearly, one has to dedicate eighteen minutes out of four hundred eighty minutes of a working day as per the following;

Five minutes before the start of the day: for setting specific targets for the day and planning.

One minute every hour as the day passes: for monitoring the progress made in that hour with respect to the targets set for the day.

Five minutes at the end of the day: for total retrospection with regard to goals set for the day and accomplishment of the same.

This investment of eighteen minutes, every day, will result in enhanced focus and getting the right things done.

The four parts of the book give reader a complete tool kit as to how to manage the time effectively and efficiently. The first part is all about slowing down, stopping or pausing for a while and doing some serious introspection with regard to; what are the priorities of one's life, what is that one wants to achieve in his life, and so on. Such pauses will in fact refuel one's body and mind and help in creating time and space to aim one's efforts more accurately.

* Prof. Dr. Purushottam Bung, Professor and Director, KLS IMER, Belgaum, Karnataka, India

The second part focuses on analyzing Strengths, Weaknesses, Differences and Passions of oneself, and then setting the focus/goals/aims for the year through leveraging the Strengths, embracing the Weaknesses, asserting the Differences, and pursuing Passions. Author emphasizes that one should focus on maximum of five specific goals (goals can be work related or personal) that matters most and not too many. Everything that one does must fit in one of these five areas.

The third part focuses on translating and slicing down the yearly goals in to measurable and meaningful daily objectives. Spending five minutes before the commencement of the day on creating a daily to-do list through listing of the tasks to be accomplished during a given day and putting them under the five broad goals that one wants to accomplish in a given year. This will reduce the overwhelm and make one's efforts more focused. According to Peter, what one shouldn't do or ignore (e.g. frequent checking of the mail box for emails, message box in cell phone for smss' and so on) is more important than what one should do. Detailed scheduling of the tasks is another important aspect. He says not to leave things on one's to-do list for more than three days. Setting hourly alarm for timed interruption will help in monitoring the progress on hourly basis. Spending five minutes at the end of each day, thinking about learning happened in that day and on people with whom one should connect to make one's life more meaningful. These eighteen minutes a day, according to Peter can save hours of inefficiency.

The fourth part deals with simple tips for effective task and time management like; creating the right work environment, self motivation, making work a fun filled activity, resisting the temptation to say yes too often, learning to say no convincingly, keeping the forum open for discussion without actually waiting for too long, considering transition time while planning a task, taking time off (vacation) from the routine activities on regular basis, using right intentional distraction techniques, avoiding switching of the tasks (in the name of multitasking) as it is inefficient and unproductive, not seeking perfection (in fact encouraging imperfection) in all the work that one does, staying alert and quicker adaptation to changing situations/circumstances, and so on.

In total the book provides a simple, powerful and effective approach to managing each year, each day, each hour and each moment to ensure that you get the right things done. By setting out what is most important in one's life and creating a daily 18-minute ritual spread across an eight hour working day, one can learn to concentrate on the things that really matter. According to the author, the ritual is the key, and its power is its predictability; if one do the same thing in the same way over and over again then the outcome becomes predictable too.

The author while explaining the detailed process of goal setting, time management, and task management and simple tips to gain mastery in the same has delved deeply into his personal experiences as a management consultant and executive trainer. Large number of small chapters, each chapter focusing on specific learning is the unique feature of this book. This book is must read for all the working executives/entrepreneurs and students from management stream to gain valuable insights in goal setting, time management and task management and to hone these soft skills.

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