

An Analysis of Opportunities and Challenges of Indian Dairy Industry



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Abstract

Indian dairy industry is an example of production by masses rather than mass production. Milk production comes from the large number of small farmers dispersed in the rural regions of India. Milk production is a supplementary work for rural people. The main objective of this study is to explore the insight of Indian dairy industry and compare with the world. Production of milk in India is 155.5 million ton milk in 2015-16 and per capital per day availability of milk 337gm, which is commendable. By carefully analyzing the secondary data various positive and negative aspects of Indian dairy industry has been explored to predict future prospects of it. This research paper highlights the opportunities and challenges faced by Indian dairy industry. By analyzing status, by comparative analysis with the world and by opportunities and challenges some analytical points are discussed to make industry successful. The Indian dairy industry is looking forward and promise to achieve something greater.

Keywords: Dairy Industry, Per Capital Availability, Productivity, Opportunities, Challenges.

Introduction

India is a country of villages. The main occupation of People of rural area is agriculture and allied services. Dairy industry is one of the most important component for the livelihood and food for the majority of people in India. India is number one producer of milk in the world (central statistical office, 2015-16, GOI) from the past many years. Indian dairy industry is an example of production by masses rather than mass production. Milk production comes from the large number of small farmers dispersed in the rural regions of India. It contributes significantly towards the gross domestic product of India. Milk production is a supplementary work for rural people. They keep dairy animals along with agriculture and other occupation. No doubt India is number one producer of milk (NDDDB, AR, 2015-16), but there are many obstacles which hinder the progress of Indian dairy industry. In spite of many strength of Indian dairy industry there are some loopholes. There is a dare need to resolve these challenges and take some strong steps to make Indian dairy sector successful. Present research paper is an effort to understand the development and present situation of Indian dairy industry by comparative study with the milk production of world. Some initiatives are suggested by evaluating challenges and opportunities of dairy industry of India.

Review of Literature

According to the report of NDRI Vision 2030, (Aug, 2011) India is number one producer of milk. In this report National Dairy Research institute, Karnal emphasizes on the future prospects of Indian dairy industry. With the help of SWOT analysis, present situation of dairy sector was analyzed and various suggestions for resolving the loopholes of dairy industry have been provided for the next thirty years. M.S. Bhat (2014) studied on the strength weakness opportunity and threat analysis of Indian dairy industry. According to the study India is agrarian based country. Dairy industry had been worked from the very ancient time but its progress speed up with the time of white revolution. Now India rank number one in milk production. Another study on Indian dairy industry is done by Bhaskaran Suku (1997). Author worked on the opportunities which Indian dairy market can obtain. This study basically concentrates on the consequences of culture on dairy market. In the concern of India number of animals, high production, high per capital availability, high demand of dairy products etc are the main opportunities got by India. Report published by National Dairy Development Board for the year 2015-16 fully explores the situation of dairy industry of India. NDDDB is the government owned board established to monitor the progress of milk and milk added products. Every year

statistical data published by NDDB is the benchmark for preparing future vision for Indian dairy industry.

Prabhakar B. (2014) conducted a study on dairy industry of India. This study deals with statistics of dairy industry as production of milk, livestock population, cost of milk production etc. emerging trends in Indian dairy industry has also explained. Dairy industry of India is a topic of concern from very early age. One more study was conducted by Rajendren K. (2004) on the dairy cooperatives and milk marketing in India. In this study dairy cooperatives are targeted with its constraints and opportunities. India does not have strong cooperative based dairy industry. There are lots of hindrances in the path of milk marketing and dairy cooperatives as constraints of finance, technology, awareness etc.

In the series of old researches in the field of Indian dairy industry, one more study is done by Hurián (1980). Study represents critical analysis of development in dairy sector. These critical issues are quality and quantity of milk production along with food and feeder of animals. The situation analyzed in this study regarding the poor condition of animals is still same as before. In India, food and feeder for milch animals are not up to the mark and it provides low nutritious value to the animals. So it is also a topic of concern for Indian dairy industry.

B.Jha (2000) worked on the concept of globalization in context of Indian dairy industry. Globalization is a concept which is related to import and export of dairy product. Due to increasing milk productivity, Indian dairy has a bright way to globalization. WTO (world trade organization) imposed various restrictions on import of Indian dairy products as various tariffs and quotas. Now WTO is liberalize towards India for the free and less tariff imports and exports. It opens the way of India towards the whole world. Rakotoarisoa Manitra (2006), deals with power of competitiveness of Indian dairy industry. It also explains the potential of dairy sector. Results of the study shows that India is lag behind the export competitiveness, but it has potential to compete. It can be a competitive and can become the large exporter of milk and milk added products.

Ashraf Imam (2011), through light on the marketing strategies adopted by dairy industry of India in the context of globalization. There are various challenges and opportunities associated with the global scenario of Indian dairy industry. Globalization is a process by which Indian dairy products got identity, popularity and prosperity. Indian dairy industry can become an important source of income inflow for economy. Various hurdles like poor animal health, lack of sanitation, degrade food and feeders etc. are challenges in the way of Indian dairy industry. For going globalization dairy sector requires strong marketing strategies to promote Indian dairy industry. Avinash K. Ghule(2012), gives emphasis on financial portion of Maharashtra dairy industry as cost of milk production, pattern of investment and profitability. Results of the study revealed that dairy farming requires large amount of capital. Cost of milk farming involves cost of animals, feeder cost, labour cost and veterinary cost. Profitability of dairy firm is the

difference between the cost of farming and income from dairy farming. Income can be generated by selling milk and cow dung. No doubt, a fair level of income can be generated by dairy farming but moreover it also depends upon scale of production. high scale of production leads to Larger income.

Objectives of the Study

The main objective of this study is to diagnose the present status of Indian dairy industry and future prospects for the same. For this purpose few sub objectives has been formed.

1. To find out the share of livestock sector in GDP of India
2. To examine the status of dairy industry of India in comparison of world.
3. To find out the opportunities and challenges faced by dairy industry of India.
4. To evaluate steps for future progress of Indian dairy industry.

Research Methodology

This paper is descriptive in nature. The main purpose of this paper is to explore the insight of Indian dairy industry by diagnoses its status, compare with the world, analysis main opportunities and challenges. Area of study has been chosen as India. For this purpose research papers have been reviewed from reputed journals and secondary data has been taken from research papers, government publications and reports. Simple statistical tools as percentage, average etc have been used. The major objective of the study was to explore the Indian dairy industry. This broad objective was split into five sub objectives as to find out opportunities and to find out challenges faced by Dairy sector.

Share of Livestock Sector in GDP

Gross domestic product is sum total of goods and services produced by a country in an accounting year. Both goods produced and services rendered include in the calculation of GDP. GDP is an indicator of country's progress and wealth. Livestock sector includes all the production produced during a year from the livestock as milk, egg, wool etc. Milk and milk added product or dairy industry occupies an important place in share of GDP by livestock sector.

Year	GDP Total	GDP (Livestock Sector)	
		Rs.Crore	% Share
2011-12	8195546	324013	4.0
2012-13	9252051	367318	4.0
2013-14	10477140	406035	3.9

Source : National Accounts Statistics-2015; Central Statistical Organization; GOI

Data reveals that livestock sector of India contributes 4% of total Gross Domestic Product of India. In the year 2011-12, 2012-13 and 2013-14 share of GDP is 4%. Table 1 explains the importance of livestock in the progress of India. Dairy industry also plays significant role in Indian economy.

Status of Dairy industry of India**Production of milk**

As the number of livestock is very high in India, so the production is also so high. India is basically a rural country. Most of the people live in villages and their livelihood mainly depends upon agriculture and livestock. Almost every family of rural areas has their own cattle for milk production. This production is used to fulfill their own demand and remaining production used for milk added products.

Table:2 Milk Production in India

Year	Production (Million Tons)	Percentage change
2006-07	102.6	-
2007-08	107.9	5.16
2008-09	112.2	3.98
2009-10	116.4	3.74
2010-11	121.8	4.63
2011-12	127.9	5.00
2012-13	132.4	3.51
2013-14	137.7	4.00
2014-15	146.3	6.24
2015-16	155.5	6.28

Source: Dept. of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GoI

Table 2 shows the production of milk in India from 2006-07 to 2015-16. There is constantly increase in the productivity. During the year 2006-07 production is 102.6 million tons and in the year 2007-08 it was increased to 107.9. There is 5.16% increase in production. Table 2 shows a percentage change in milk production for the last 10 years. India continued to be the largest milk producing nation of the world. India's estimated milk production during year 2015-16 is 155.5 million ton, which is 6.28% higher than the previous year. Same as per capital per day availability of milk is 337 gram which is 4.7% higher than previous. With an in general production of 155.5 million ton milk in 2015-16 and per capital per day availability of milk 337gm, the Indian dairy industry is looking forward and promise to achieve something greater. Through constantly increasing population, it is estimated that by year 2030 total milk production should be up to 200 million tons to meet demand.

Per Capital Availability of Milk

In this section, discussion is based upon the amount of milk a citizen able to get. In other words table explains how much milk is available for every citizen of India on daily basis. Per capital per day availability of milk can be calculated as under.

Per capital per day availability= Total Milk Production/Total population*365

Table: 3 Per capital per day availability of Milk in India

Year	Per Capital Availability (gm/per day)	Percentage change in Per Capital Availability (gm/per day)
2006-07	251	-
2007-08	260	3.58
2008-09	266	2.30
2009-10	273	2.63
2010-11	281	2.93
2011-12	290	3.20
2012-13	299	3.10
2013-14	307	2.67
2014-15	322	4.88
2015-16	337	4.65

Source: Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GOI

Table 3 shows per day per capital availability of milk from year 2006-07 to 2015-16. During the year 2006-07 milk availability is 251 gm per day and in year 2007-08, it was 260 gm per day. There was 3.58% increase in availability. By carefully analyzing the table, it is depicted that there is continue increment in per capital per day availability of milk. Percentage change in per capital availability is 3% averagely.

Comparative analysis of Milk productivity of India vs. World

India occupies first rank in the overall production of the world. India is also one of the leading countries in terms of number of milch animals. Table explains the production of milk both in India and world. Seven years are shown in the table with five year gaps expect last year. Data has been taken from year 1985 to 2013 for both India and world in units of million tons. Change in the production of India and world is also shown in the form of percentage.

Table 4: Milk Production

Year	Production in India (Million Tons)		Production in world (Million Tons)		Share of India's production in world's production
	In Million ton	In %	In Million Tons	In %	In percentage (%)
1985	44.02	-	512.98	-	8.58
1990	53.68	21.94	544.20	6.08	9.86
1995	65.37	21.77	542.17	-0.37	12.05
2000	79.66	21.86	582.09	7.36	13.68
2005	95.62	20.03	650.87	11.81	14.69
2010	121.85	27.43	724.80	11.35	16.81
2013	135.60	11.28	768.64	6.04	17.64

Source: FAOSTAT, 2014

Table 4 shows that the production of the milk in India was 44.02 million tons in the year 1985. But in the year 1990 production went up to 53.68. That showed an increase in production approximately 22% which is appreciable. In the year 1995 production was

65.37 million tons which also shows approximately 22% shifted upwards. The path of progress did not stop at that stage only. But in 2010 percentage change in production was crosses the limit and achieved 27.43% increase which is remarkable.

A next column of table shows the production of world from 1985 to 2013. Table shows that the production of the milk in world was 512.98 million tons in the year 1985. But in the year 1990 production went up to 544.20. That showed an increase in production

approximately 6.1%. In the year 1995 production was 542.17 million tons which also shows approximately 0.37% shifted downwards. In the year 2013 production of the world were 768.64 which showed growth percentage was 6.04%.

Figure: 1 Percentage Change in Milk Production of World And India

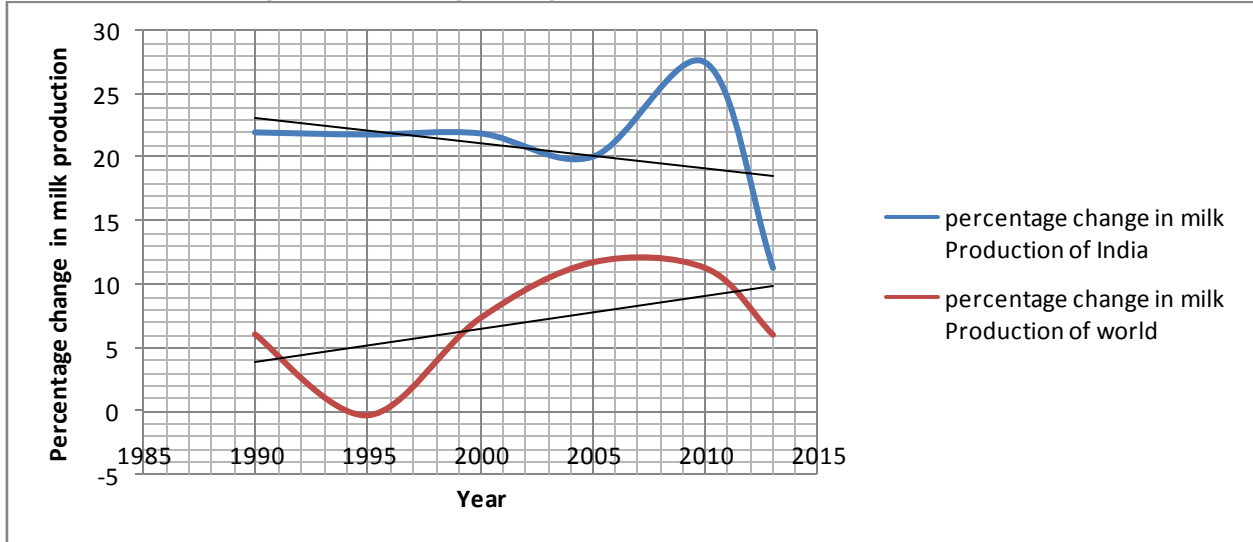


Figure 1 represents the graphical presentation of percentage change in milk production of India and world. X axis has taken years from 1985 to 2013. Y axis has been taken as percentage change in milk production. Figure shows two lines expressing both India and World. Blue Line shows percentage change in milk production of India. Red line shows the percentage change in milk production of world. Figure

clearly shows the trend in the percentage change in production. Blue line which shows trends of India is higher than red line. It reveals that India's growth rate is much higher than world's growth. A graph shows that there is lots of difference between both. So statement can be true that India is more progressive than world in terms of production of milk.

Figure: 2 Share of India's Production in World's Production

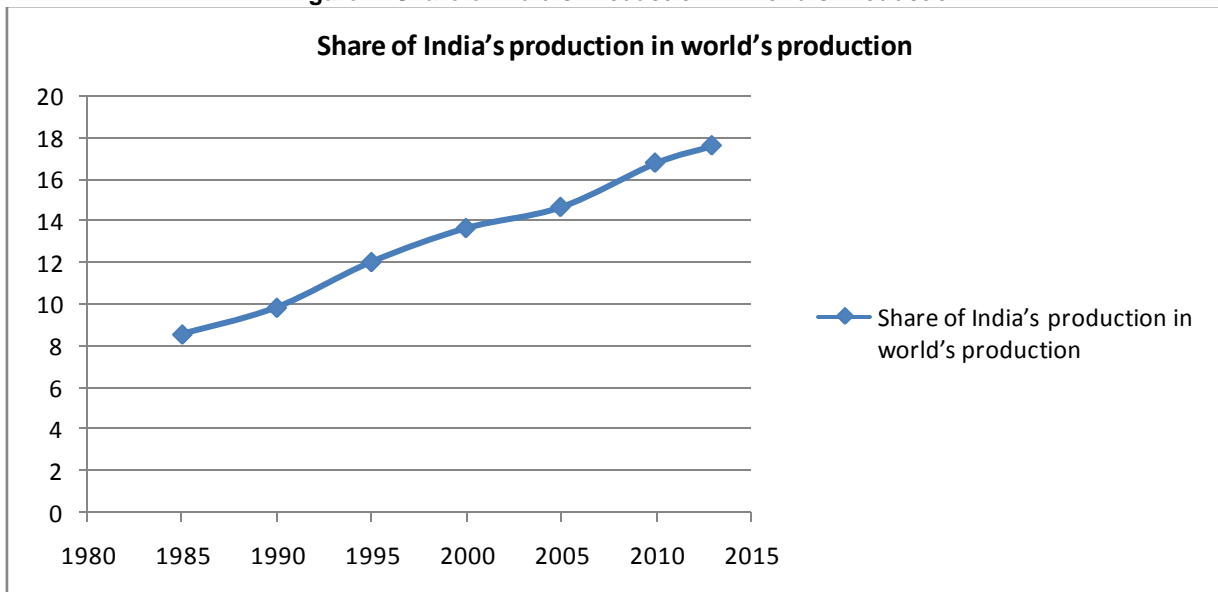


Figure 2 shows the share of India's production in world's production. X axis has taken years from 1985 to 2013. Y axis has been taken as percentage contribution of India in milk production. Blue line shows year wise contribution of India in world's production of milk. Blue line shows constantly increase in the percentage share. So India is

contributing a lot with increasing rate in world's production.

Opportunities and Challenges faced by Indian Dairy Industry

Diverse Milch population

India is very rich in variety of milch animals for the production of milk. There are lots of breed for cows and buffalo. But the most productive breeds of

buffaloes are Murah, Nili Ravi, Mehsana, Hariyana and sahiwal. These breeds of buffalo is worldwide famous for its productivity. So it is an opportunity for India to get maximum benefit from these precious breed.

Low Cost of Milk Production in Comparison of Other Leading Milk Producing Nations

In India old and traditional means of animal rearing are used. Less scientific means of milk production leads to low cost of productivity in comparison to other countries. Of course less scientific methods leads to low productivity also but due to less cost, dairy products are under the reach of people. Not only this, low cost also attracts for the exports to other countries.

Growing organized sector

In India emergence of organized sector is assumed at the time of white revolution. Due to this revolution a systematic production, procurement and processing of milk has been started. First name of initiative under organized sector was 'AMUL'. But now organized sector is growing up rapidly. Organized sector is an opportunity for the Indian Dairy sector.

Presence of R&D and Educational Institutions

India is very rich for the research and development work of dairy sector. Various institutions are engaged for its growth and progress. Due to the constant efforts of these institutions India got first rank in milk productivity. Some of the famous organizations are NDRI Karnal, NDDB New Delhi, LUVAS Hisar etc.

Increased Demand of Milk and Added Products

India is second most populated country of the world. With the increasing population, demand for milk and milk added products going up constantly. This is perceived as opportunities for the growth and prospects of Indian dairy industry.

Challenges Faced by Indian Dairy Industry

Indian dairy industry reached at the significant level of milk production. Quantity of milk produced, provides India 1st rank among all nations of world. But quantity is not a sufficient criterion for analyzing the status of dairy industry. There are many other criterions for analyzing. Under these criterions some loopholes of the industry has been explained as under.

Low Scale of Production

India is a country of villages. Almost each and every household in the villages has one or few cattle for milk. In India there is low scale of milk production, as people have only few cattle. Such a small scale of production can fulfill only the requirement of the family, but not enough surpluses for market. Scale of milk production is positively associated with finance for dairying, number of cattle, land holding and number of dairy farmers. By increasing input for dairy farming output of milk can be increased.

Low Milk Productivity

As we know that India is number one producer of milk. But in India per animal productivity is very low. India got first position due to large number of animals for milk production but their productivity is very low as compared to other nations. In India average milk production by a crossbred cow is only

6.44 Kg/per day respectively (GOI, 2009). So per animal productivity is another loophole of Indian Dairy industry.

Availability of Inputs and Services

Feed and fodder is the main input for the milk productivity of animals. But in India animal food is just the residual part of crops which does not have as much nutritious value as animals required. Services as medical services, credit services, breeding facilities, vaccination etc is not up to the mark. Milch animals have feed with low quality food. Basically animals are provided only residue of crops, which is not sufficient. Animals have very less grazing area. They less and low quality diet degrade the quality and quantity of milk. Financial help is also required for commercial dairy farming. There is also lack of veterinary services for the health of animal.

Value Addition

India has a weak processing and value addition process. Value addition is a technique in which milk is to be processed to add more value in it. After this process milk is converted into milk added product which has more value, more nutritious and long life. Majority of Indian dairy industry is under unorganized sector. So that emphasizes on value addition is less and less economical value too.

Domestic Consumption

India is second largest populated country in the world after china. No doubt India is also number one producer of milk. But India cannot take economic advantage of such a large milk production. The reason behind is huge population. Maximum part of milk produced is consumed by our own country. So due to large amount of domestic consumption of milk and milk added products, there is no surplus milk for foreign trade. Due to growing population India is not able to export milk. India is number one producer of milk but due to high population and growing demand our country consumers almost all the quantity.

Trade

According to Central Statistical Office import of milk and milk added products increased from the last few years while exports has been decreased by 30% during 2014-15 to 2015-16. Due to high population and high domestic consumption India is not able to export milk to other countries. Although India imports milk added product from outside country to meet the demand of huge population.

Climate Change

Due to change in climate, food and feeder for the animals are not sufficient. Some part of Indian region has no or very less vegetation. climatic conditions as drought, flood, extremely high or low temperature gives an adverse effect on the dairy sector.

New Global Trade Regulations

In India dairy industry is mainly occupied by unorganized sector. Usage of low quality food, unscientific technique of milk production, traditional methods of milk processing leads to below standardized milk and milk added products. But the other countries of the world adopt various standards regarding safety and hygiene. Due to this gap India is not as much preferable importer for other countries.

Low Awareness among Producers

Milk producers of India are very less aware about the proper care, food, vaccination, and breeding of animals. They are also using very traditional method of milk production, procurement and processing. Most of the producers in villages are not aware about the diseases of the animals and their treatment. This is one of the biggest challenges for the dairy industry of India.

Lack of Commercialization of Milk

Indian Dairy industry is not properly marketed. Major portion of dairy sector is in the hands of unorganized sector which is traditional and not up to date. The less portion of dairy industry i.e organized sector is not using marketing tools and techniques properly.

V Discussion on Steps for Future Progress

India is facing lots of challenges for the growth and up gradation of dairy industry. These challenges of dairy industry can be shaped by using innovative tools and techniques. The opportunities for dairy industry explained above will be helpful for resolving challenges of dairy sector and for exploring the new heights of success in near future.

Cooperative Investment is an initiative by which Indian dairy industry can cope up with the challenges and use their strength. In India there are numbers of small producers of milk producing very less amount of milk. The reasons are less number of animals, less finance and less manpower. Cooperative system is a solution by which these small farmers deposit milk to the cooperatives and work cooperatively. Government Initiatives is another step which move Indian Dairy sector towards success. Governments have to take some serious steps as large budget for dairy sector, strict regulations, strong ministry and research and development.

Import innovative technique is the solution of many challenges as less export, low quality products and less per animal productivity. Government of India can import high tech and innovative tools and technology from other countries to maintain the quality and quantity of dairy products. Setting up more R&D institutions is very necessary for the growth of dairy industry. Research and development institutions will help to sort out the challenges facing by Indian dairy industry. Present institutes are working with a good zeal. More and more these type of institution can support the development of dairy sector. Strong regulatory framework for the concern of safety and hygiene of milk and milk added products is urgently needed. There must be some regulatory authority which builds up strong regulation for the up gradation of quality of dairy products.

Private veterinary services are also required for maintenance of animal's health. Government veterinary services are not sufficient for the large livestock in India. So private sector should take initiative and provide nationwide veterinary services to the animals. Food safety policy for the milk processed food is also required to meet the standards to export other countries. In India there is FSSR (Food Safety and standard regulations, 2011), Agmark standard, MMPO (Milk and milk product order, 1992) for dairy

products. But there is a dare need to revise these standards according to the standards to other countries.

Indian dairy industry is growing up rapidly. It has many opportunities to grow along with several challenges. In recent scenario the main task of Indian dairy sector is to get the benefit of opportunities and cope up with the challenges. Some steps have been discussed to improve the situation of dairy sector and look forward to better future.

Last but not least Government of India should initiate mass dairy farming. A large number of milch animals can be kept under one roof with high tech methods of production, procurement and processing of milk. Proper hygiene, proper veterinary facilities, proper food and feeder for animals should be arranged in a common place. There are lots of benefits of mass dairy farming as high productivity per animal, hygiene and standardized milk products, good health of animals, proper application of international standards, proper place for R&D.

Conclusion

India is very progressive in dairy sector but there are some limitations which must be resolved to get more progress. India is not lag behind the production and processing of milk. Due to large number of milch animals production of milk is approaching new heights. But in terms of exports India is playing a role of minor player. There are lots of reasons behind it but India can resolve the hindrance of dairy industry with the help of initiatives taken by government and R&D institutions. No doubt, in the near future India will be emerged as a superpower in the field of milk and milk added products.

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