

**Corporate and Business Response to  
Climate Change - From Awareness to Adoption  
Transcending the Boundaries**

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# ROLE OF DAIRY SECTOR IN ENSURING FOOD SECURITY (WITH REFERENCE TO KSE LTD-KERALA)

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## INTRODUCTION

Dairy is a place where handling of milk and milk products is done and dairy technology refers to the application of scientific knowledge for practical purposes. Dairy technology has been defined as that branch of dairy science, which deals with the processing of milk and the manufacture of milk products on an industrial scale.

In India, dairying has been practiced as a rural cottage industry since the remote past. Semi-commercial dairying started with the establishment of military dairy farms and co-operative milk unions throughout the country towards the end of the nineteenth century.

During the earlier years, each household in those countries maintained its 'family cow'. Gradually the family cow in the city was eliminated and city cattle were all sent back to the rural areas. Gradually farmers began delivering milk over regular routes in the cities. The fluid milk-sheds surrounded the large cities of today. Prior to the 1850s most milk was necessarily produced within a short distance of the place of consumption because of lack of suitable means of transportation and refrigeration.

## Role of cooperatives

The presence of milk cooperatives all over the country helps to organize the industry and give this sector a distinct advantage. Cooperatives assure the farmer of a market for milk and take care of transportation and containers. The farmer is spared these costs and well as the cost of a retail outlet. Cooperatives allow for stable selling rate which does not change even when they yield is surplus. Payments are guaranteed to milk producers and ensured within a maximum of 30 days. Cooperatives play an important role

by eliminating middlemen and their costs.

## Role of State and Central Government

There are several financial incentives provided by the governments for setting up infrastructural facilities for milk production. The tenth plan outlay for animal husbandry and dairying was Rs. 2500 crores.

The National bank for Agricultural and Rural Development (NABARD) assists farmers with loans and refinancing facilities for dairy farming. The interest charged ranges between 12% to 13% depending on the amount of loan taken. Loans are to be repaid in monthly installments usually within a period of 5 years.

India has now become one of the largest producers of milk and value-added milk products in the world. The dairy sector has developed through co-operatives in many parts of the State. During 1997-98, the State had 60 milk processing plants with an aggregate processing capacity of 5.8 million litres per day. There are 123 Government and 33 co-operatives milk chilling centers operating in the State.

## Objectives of the Study

This research study was conducted in Thrissur District, Kerala during 2007-2008.

- To study the working of the industry by analyzing its growth and working conditions.
- To analysis the SWOT on KSE Ltd (Dairy Industry) and suitable suggestions.

## Research Methodology

The research design of the study is both descriptive and analytical.

## Period of Study

The study covers a period of 2003-2007 and 2010-2011.

## Source of Data

The study is based on the secondary data provided from the Irinjalakuda unit Thrissur District, Kerala. The important source of data was collected from the published annual reports of concern, consisting and other reports of KSE Limited. The other necessary details needed for the study were obtained from the officials of the organization.

## PROFILE OF KSE (KERALA SOLVENT EXTRACTIONS) LIMITED -KERALA

### Greater Success, Greener Future

Kerala Solvent Extractions Ltd. now known as KSE Ltd entered the solvent extraction industry in 1963 by setting up the very first solvent extraction plant in Kerala. The solvent extraction plant went on stream in 1972 and in 1976, a new plant was set up to manufacture ready mixed cattle feed.

The last three decades have seen KSE emerging as a leader in solvent extraction and ready mixed cattle feed in the country. Today KSE commands the resources, expertise and infrastructure to manufacture a range of livestock feed in high volumes, coconut oil from coconut oil cake and refined edible oil. Driven by a commitment to high standards of quality, KSE has not only won customer confidence but also national recognition through several awards and accolades. With modern manufacturing facilities spread over three states, KSE caters to the vast belt stretching across southern India and enjoys a significant presence in exports too.

KSE, a company having an annual turnover of Rs 187 crore, is the largest manufacturer of cattle feed. It provides employment to around 1500 numbers directly and another 5000 indirectly. Its shares are being listed in three stock exchanges in Cochin, Chennai and Mumbai. The Company commenced its production in the year 1972. KSE is in the oil extraction Industry for the past 31 years. It is having two solvent plants with processing capacity of 100 tonnes per day. The Company has also a chemical oil refining plant of 20 tonnes per day. It was in 1963 that Kerala Solvent Extractions Ltd. now known as KSE Ltd. entered the Solvent Extraction Industry, setting up

the very first solvent extraction plant in Kerala. We are the largest manufacturer of compound cattle feed in Private sector in the country. The last three decades have seen KSE emerging as a leader in solvent extraction and ready mixed cattle feed in the country. Today KSE commands the resources, expertise and infrastructure to manufacture a range of livestock feed in high volumes, coconut oil from coconut oil cake and refined edible oil. Driven by a commitment to high standards of quality, KSE has not only won customer confidence but also national recognition through several awards and accolades.

### Dairy Division

KSE started operation of its dairy division on 22 January 2000. The idea of diversification into dairy industry was the outcome of desire for forward integration of the cattle feed business of KSE Ltd. The company markets a wide range of dairy products in the market. Its main area of operation is Thrissur and also some parts of Ernakulam and Malappuram. The products are toned milk, toned homogenized milk, Ghee, Curd, Sambharam and ice cream. KSE has milk processing units in Thalayuthu (Tamil Nadu) and Konikkara in Thrissur having processing capacity of 20,000 litres and 30,000 litres per day respectively. The Konikkara plant also manufactures ghee, curd, sambharam and Ice Cream. The brand name of milk and milk products is "KS" and the brand name of Ice Cream is "Vesta". It has five modern cattle-feed factories, two solvent extraction plants and two dairy plants in Kerala and Tamil Nadu.

From a single unit, KSE was grown into multi-unit, multi-product organisation. Developing the right infrastructure for growth was always been viewed as a priority at KSE. The different units that born from the manufacturing base of KSE stand testimony to this, among them, the Irinjalakuda unit, Swaminathapuram unit and Vedagiri unit exemplify the KSE spirit of enterprises.

### Irinjalakuda Unit

The pioneering plant of KSE at irinjalakuda is unit in many ways. It was the first solvent extraction plant in Kerala. It was the first major factory in

the locality, spread over 15 acres. It was here that KSE set up its first cattle feed plant. The plant embodied the spirit of enterprises of a group of committed people, who wanted to ushering an era of modernity into a traditional society and change in industrial landscape of the state.

Naturally, today the Irinjalakuda plant enjoys a flagship status and commands an edge of infrastructure strength. Taking great strides in technological development, the process of computersation in plant and office was initiated way back in 1987. Microprocessor has been in use in production line since 1989.

Research and development place an important part in the activities of KSE. The central R&D unit is located here. The plant housed a modern laboratory. The Quality Control cell her leads and guides other units and formulates stringent standards. The Chief Nutritionist and Assistant Manager Quality Control also based here.

#### KSE Ltd-Product Profile

KSE Limited produces and markets various kinds of products to satisfy the needs of all customers. Only those products that can be profitably marketed are produced. Changes will have to be made in quality, size, color, shape etc, the main customers of Extracted Coconut Oil are local mills in Kerala. The important products that are produced by the company are:

KS	One of the whole time favorites in cattle feed.
KS Super	A special cattle feed that has own immense popularity.
KS Deluxe Pallets	The choice of caring farmers for better results.
KS Supreme Pallets	A bypass protein feed with ISI mark specially mad for cattle
	with superior Green Plasmas and high production potentials.
Jersy	Protein rich, tasty, de-oiled coconut cake.

Keyes Fort	An invigorating feed supplement for cattle.
KS Supreme	Refined sunflower expeller oil.
Solvent Extracted Coconut Oil	
Refined Solvent Extracted Coconut Oil	

#### Dairy products

Ghee, Curd, Sambharam Butter Milk and Ice Cream.

The brand name of milk and milk products is "KS" and the brand name of Ice Cream is "Vesta".

#### Types of Milk

There are many different types of milk. Some depend on the amount of milk fat present in the finished product. Others depend on the type of processing involved. Still others depend on the type of dairy cow that produced the milk. Other types of milk are based on the type of processing involved. Pasteurized milk has been heated to kill any potentially harmful bacteria. Homogenized milk has had the milk fat particles reduced in size and uniformly blended to prevent them from rising to the top in the form of cream. Vitamin fortified milks have various vitamins added. Most milk sold in markets is pasteurized, homogenized, and vitamin-fortified. Grade A milk refers to milk produced under sufficiently sanitary conditions to permit its use as fluid milk. About 90% of the milk produced is Grade A milk. Grade B milk is produced under conditions that make it acceptable only for manufactured products such as certain cheeses, where it undergoes further processing. Certified milk is produced under exceedingly high sanitary standards and is sold at a higher price than Grade A milk.

#### Raw Materials

The average composition of cow's milk is 87% water, 3.7% milk fat, 3.5% protein, 4.9% lactose and 0.7% ash. This composition varies from breed to cow and breed to breed. For example, Jersey cows have an average of 85.6% water and

milk fat. These figures also vary by the season of the year, the animal feed content, and many other factors. Vitamin D concentrate may be added to milk in the amount of 400 international units (IU) per quart. Most low fat and skim milk also has 2,000 IU of Vitamin A added.

**The Manufacturing Process**

Milk is a perishable commodity. For this reason, it is usually processed locally within **Collecting:** Dairy cows are milked twice a day using mechanical vacuum milking machines. The raw milk flows through stainless steel or glass pipes to a refrigerated bulk milk tank. A refrigerated bulk tank truck makes collections from dairy farms in the area within a few hours.

**Separating:** The cold raw milk passes through either a clarifier or a separator; this spins the milk through a series of conical disks inside an enclosure. A clarifier removes debris, some bacteria, and any sediment that may be present in the raw milk. A separator performs the same task, but also separates the heavier milk fat from the lighter milk to produce both cream and skim milk. The excess milk fat is drawn off and processed into cream or butter.

**Fortifying:** Vitamins A and D may be added to the milk at this time by a peristaltic pump, A clarifier removes debris, some bacteria, and any sediment that may be present in the raw milk. The milk is then fortified and pasteurized.

**Pasteurizing:** The milk—either whole milk, skim milk, or standardized milk—is piped into a pasteurizer to kill any bacteria. There are several methods used to pasteurize milk. The most common is called the high-temperature, short-time (HTST) process in which the milk is heated as it flows through the pasteurizer continuously.

**Homogenizing:** Most milk is homogenized to reduce the size of the remaining milk fat particles. This prevents the milk fat from separating and floating to the surface as cream. It also ensures that the milk fat will be evenly distributed through the milk.

**Packaging:** The milk is pumped into coated paper cartons and is sealed. The cartons are stamped with a “sell by” date to ensure that the

retailers do not allow the milk to stay on their shelves longer than it can be safely stored.

**Cleaning:** To ensure sanitary conditions, the inner surfaces of the process equipment and piping system are cleaned once a day. Almost all the equipment and piping used in the processing plant and on the farm are made from stainless steel.

**Achievements/ recognition:**

- Kerala’s first solvent extraction plant
- No:1 in processing coconut oil cake through solvent extraction in India
- Winner of S.E.A. National Awards and State Productivity and Safety Awards for many years
- Front-ranker in mixed cattle feed production in India
- Recognition from Animal Nutrition Society for contributions in cattle feed manufacturing
- Kerala’s first export mixed cattle feed
- First in South India to manufacture and distribute bypass protein cattle feed
- The name trusted by millions of people
- SEA AWARD -2005-06 - received for 16 years consecutively

**ISO Accreditation**

Injalakuda unit has been accredited with ISO 9000:2000 registration by KPGM Quality Registrar. Both the Dairy units at konikkara and Thalayathu have been accredited with 14001:1996 by the same Quality Registrar. For the said Dairy units registration under ISO 9000:2000 and HACCP is at final stage.

**Competitors**

The chief competitors of the company are Kerala Feeds (Govt. initiated cattle feed co.), Godrej Cattle Feed, Milma and minor companies.

**Financial Highlights**

	2002-2003	2006-2007	2010-2011	2009-2010
	(In Lakhs)	(In Lakhs)	(In Lakhs)	(In Lakhs)
Sales and Other Income	18713.89	27551.91	45436.07	37227.89

Gross Profit (Profit before Depreciation And interest)	1096.67	890.53	1359.80	1917.38
Profit before Tax	827.85	356.56	667.31	1266.14
Net Profit after Tax	503.96	101.35	449.81	827.27
Shareholders' Equity (Net Worth)	2302.96	2445.76	3335.34	3257.45
Capital Employed	3034.20	5437.54	6065.52	6419.57
Gross Fixed Assets	3421.64	5334.34	7220.58	6956.64
Shareholders' Equity per Share	71.97	86.32	104.23	101.80
Earnings per share of 10 each	15.75	12.56	14.06	25.85
Dividend Rate	100%	100%	100%	100%

A detail analysis of the financial performance for the 5 years was made. But due to the time and space constraints, the results of all the 5 years are not presented here.

### Distinction That Make KSE Ltd Leader In Cattle Feed Industry

- Kerala 's first solvent extraction plant
- No.1 in processing coconut oil cake through solvent extraction in India
- Winner of SEA national awards and state productivity and safety awards for many years
- Front ranker in mixed cattle feed production in India
- Recognition from animal nutrition society for contribution in the cattle feed manufacturing
- Kerala's first export mixed cattle feed

- First in south India to manufacture and distribute bypass protein cattle feed
- The name trusted by millions of people

### SWOT ANALYSIS

Within the framework of the competitiveness drivers and issues, the smallholder dairy sector's strengths, weaknesses, opportunities and threats have been assessed. The strengths and weaknesses are factors that are directly controllable, while opportunities and threats derive from the external environment. The SWOT analysis entailed matching each of these elements with an appropriate action.

Strengths	How to build on them
<ul style="list-style-type: none"> <li>• Large number of small and marginal farmers involved in dairying</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen economic viability of dairy farms by interventions on the input side as well as ensuring more fair farmer prices</li> </ul>
<ul style="list-style-type: none"> <li>• An effective marketing channel helps to meet the demands of the urban consumer</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the link between rural production areas and urban markets</li> </ul>
<ul style="list-style-type: none"> <li>• Very large number of animals and huge scope to enhance productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on strengthening the indigenous breed to help significantly enhance productivity</li> </ul>
<ul style="list-style-type: none"> <li>• Self-sufficiency in medicine production and do not have to rely on exports</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure availability of quality medicine by strengthening regulatory framework for quality</li> </ul>

Weaknesses	How to correct them
<ul style="list-style-type: none"> <li>• Large share of milk (70-85%) of marketable surplus goes through informal channel where quality is a big concern</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on quality issues even in the informal channel by training traders and by enforcing food quality regulations</li> </ul>
<ul style="list-style-type: none"> <li>• Sometimes quality is an issue in the formal channel as well</li> </ul>	<ul style="list-style-type: none"> <li>• Develop infrastructure and training for clean milk production</li> </ul>

Weaknesses	How to correct them
<ul style="list-style-type: none"> <li>• Very little competition to cooperatives because private sector was not allowed to participate in until recently</li> </ul>	<ul style="list-style-type: none"> <li>• Support a fair playing field for the private sector</li> </ul>
<ul style="list-style-type: none"> <li>• Farmers do not share in the benefits of high demand because of poor governance of cooperatives</li> </ul>	<ul style="list-style-type: none"> <li>• Bring about changes in cooperatives to make them true representatives of farmers instead of functioning as parastatals.</li> </ul>
<ul style="list-style-type: none"> <li>• Milk production is scattered over a large number of farmers producing miniscule quantities</li> </ul>	<ul style="list-style-type: none"> <li>• Support to dairying as an enterprise to encourage commercial dairy farming and encourage production and productivity by extension and breed development</li> </ul>
<ul style="list-style-type: none"> <li>• Milk distribution is limited to urban and semi-urban areas</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance packaged milk distribution in more areas</li> </ul>
<ul style="list-style-type: none"> <li>• Low milk prices because of lower prices declared by cooperatives, which results in low prices of milk paid by all players</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen dairy farmer cooperatives to enable farmers to get a higher price for milk</li> </ul>
<ul style="list-style-type: none"> <li>• Ad hoc export policies and a ban on exports</li> </ul>	<ul style="list-style-type: none"> <li>• Create rational export policy to enable farmers to take advantage of higher prices</li> </ul>
<ul style="list-style-type: none"> <li>• Quality of milk and milk products are a barrier to entry to the export market, especially the EU and the USA</li> </ul>	<ul style="list-style-type: none"> <li>• Strictly implement quality regulations and improve infrastructure and training for quality</li> </ul>
<ul style="list-style-type: none"> <li>• Lack of policy focus on strengthening indigenous breeds</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen the breed development programmes</li> </ul>
<ul style="list-style-type: none"> <li>• Non-existent extension facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen extension facilities</li> </ul>

Weaknesses	How to correct them
<ul style="list-style-type: none"> <li>• Farmers' prices are not based on fat measurement, which affects their profitability</li> </ul>	<ul style="list-style-type: none"> <li>• Create policy regulations to make mandatory testing as a basis for setting milk price</li> </ul>
<ul style="list-style-type: none"> <li>• Because of low access to credit and risk-taking ability, farmers cannot increase their herd size</li> </ul>	<ul style="list-style-type: none"> <li>• Increase access to credit through dairy farmer organizations and other agencies</li> </ul>

Opportunities	How to pursue them
<ul style="list-style-type: none"> <li>• Increased farmer income by exploiting the high demand</li> </ul>	<ul style="list-style-type: none"> <li>• Create policies and activities geared towards enhancing dairy farming activity by increasing, production, productivity and ensuring fair farmer price of milk</li> </ul>
<ul style="list-style-type: none"> <li>• Increased consumer sophistication and awareness of quality reception of quality packaged products (though slowly)</li> </ul>	<ul style="list-style-type: none"> <li>• Establish enabling policy environment to enhance investment</li> </ul>
<ul style="list-style-type: none"> <li>• Entry of large corporations in retailing, which can lead to more investment</li> </ul>	<ul style="list-style-type: none"> <li>• Create policy support to enhance governance of producer companies</li> </ul>
<ul style="list-style-type: none"> <li>• Immense scope to enhance governance of dairy farmer organizations and thus enable dairy farmers to demand higher prices</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on quality issues that are a barrier to exports</li> </ul>
<ul style="list-style-type: none"> <li>• Potential for exports due to low cost of production</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage private sector to increase investment in dairying</li> </ul>
<ul style="list-style-type: none"> <li>• Overall positive growth environment, which is triggering the Government to enhance infrastructure</li> </ul>	

Threats	How to avert them
<ul style="list-style-type: none"> <li>Large portion of the population does not care about quality issues in milk</li> </ul>	<ul style="list-style-type: none"> <li>Initiate consumer education about the negative health impacts of unpackaged products</li> </ul>
<ul style="list-style-type: none"> <li>Because of high price sensitivity for dairy products, people are not willing to pay for quality</li> </ul>	<ul style="list-style-type: none"> <li>Develop packaging in small quantities to meet the needs of the poor</li> </ul>
<ul style="list-style-type: none"> <li>Significant increase in maize prices can increase feed prices</li> </ul>	<ul style="list-style-type: none"> <li>Increase milk prices in accordance with feed prices</li> </ul>
<ul style="list-style-type: none"> <li>Large informal markets that extend credit are constraining farmers</li> </ul>	<ul style="list-style-type: none"> <li>Support expansion of dairy farmer organizations</li> </ul>
<ul style="list-style-type: none"> <li>Low productivity and scattered production leading to high cost of transportation</li> </ul>	<ul style="list-style-type: none"> <li>Enhance productivity by breed improvement and extension</li> </ul>
<ul style="list-style-type: none"> <li>Emphasis on milk fat and not on SNF content maintaining relatively lower prices of milk</li> </ul>	<ul style="list-style-type: none"> <li>Enforce price setting of milk based on fat and SNF content to encourage production of cow milk</li> </ul>

### CONCLUSION

The dairy sector should come out with a time-bound action plan in arming itself with globally available latest technology tools. Simultaneously, research and developmental efforts should be initiated for indigenization-cum-innovation of technology, as it had done. Significantly, the dairy sector is primarily environmentally

compatible home-grown technology reliant and once it acquires the micro-enterprises status, it would be in advantageous position also to derive the benefits of the global carbon credit trading. Such initiatives would enable the Indian dairy sector, as a whole, to adhere the prescribed international sanitary and hygiene standards. Although environmental awareness has not yet made any major impact on the consumers' purchasing behaviors, but the way the environmental initiatives are catching up globally, the days are not far away when carbon footprint labeling on food products, including milk and milk products, will be strictly enforced by the global trade bodies like WTO. Thus Dairy Sector is significantly contributing to the food security of our growing population. KSE Ltd, contributes significantly to the growth of dairy sector and economic development of India

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