

Dr. Verghese Kurien Memorial Lecture
Michigan State University

India's Milk Revolution

Verghese Kurien and the Story of Amul

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Dr. Satish Udpa, Executive Vice President, Michigan State University, Dr. Bobby Bringhi, Ms. Nirmala Kurien, Respected Deans, Administrators, Professors, Scholars of MSU, ex-colleagues and former associates of Dr. Kurien from his days at Amul; distinguished guests, Ladies & Gentlemen, it is indeed a great honor and privilege for me to be invited to deliver the Dr. Verghese Kurien memorial lecture, dedicated to the memory of an illustrious alumnus of Michigan State

University, from the batch of 1948, who was instrumental in transforming the lives of 15 million farmer families across India. Dr. Kurien is remembered by many names; he is popularly called the 'Milkman of India'; Father of 'White Revolution'; doyen of dairy cooperative movement in India; institution-builder par excellence who ushered in a socio-economic revolution among rural farmers.

I was fortunate to be closely associated with Dr. Kurien for 32 years, since I joined the first batch of the Management Institute founded by him, called Institute of Rural Management Anand (IRMA), in 1980. After graduating from IRMA in 1982, as I started to work for the farmers, as an employee of GCMMF, I was blessed to have the opportunity to work directly under the visionary leadership of my hero.

Who would have imagined that a cooperative formed by small and marginal farmers of just two tiny villages located in the heart of Gujarat, 70 years ago, would one day transform into

India's largest food organization with business of U\$5.8 Billion per annum.

Even with a crystal ball, no one could have predicted that a fledgling enterprise, which started by collecting just 250 litres of milk per day in 1946, will one day become a dairy giant handling 22 million litres of milk on a daily basis.

It takes a lot to visualize how a bunch of farmers, many of whom did not even have the privilege of seeing the insides of a primary school and lacked even the basic literacy skills would be able to create an organization that successfully deploys cutting edge manufacturing technology and innovation across 69 large scale dairy factories.

Who could have predicted that milk could become the instrument of development, that would transform the most vulnerable sections of society, landless laborers and especially rural women into successful entrepreneurs and

owners of India's biggest food brand, decorated with most coveted honors, accolades and awards from around the world.

What does it really take for rural women living in remote areas of India, to gain financial independence, status of economic equality within the family and remunerative livelihood, overcoming centuries of social barriers and severe scarcity of resources?

How does a four letter acronym; A.M.U.L become one of the most loved brands in India, inducing almost blind faith and trust in millions.

How did a milk deficit country, which was dependent on import of dairy commodities from New Zealand and Europe till 1970s, become the largest milk producing nation in the world, self-sufficient in fulfilling the nutritional requirements of its own citizens, at least in terms of milk and dairy products?

How does milk, the most perishable agricultural commodity with life of just a few hours, become the most price-stable commodity in India, where continuous increase in milk production is actually accompanied by continuous increase in milk procurement prices to farmers?

All this was because of just one alumnus of this esteemed academic institution in 1948, who decided that it would be his mission in life to change the fortunes of millions of underprivileged and less fortunate amongst his own fellow countrymen, in turn, transforming the destiny of his mother land.

Born on 26th November 1921, third of the four children of a highly educated family belonging to the Syrian Christian community of Calicut, Kerala, Verghese Kurien was a brilliant scholar and an outstanding athlete, in fact, a boxer. After graduating with an engineering degree from Chennai, young Verghese Kurien received a scholarship from the Government

of India to complete his Masters degree in Mechanical Engineering and Dairy Science, from the Michigan State University, in 1946.

Dr. Kurien used to fondly remember his days at MSU and as he himself narrated much later, he spent good, productive days in the University, which prepared him for his life's mission ahead. He had vivid memories of his research at MSU on a fascinating subject of 'heredity in cast iron' and his joint discovery of 'colloidal iron' with his Professor here. He used to talk about the many stimulating evenings, he spent here with his friends, debating and arguing vociferously, responding emphatically whenever the competence of the Third world was questioned. A sportsman at heart, he perused his love for tennis here and even won a championship. Most importantly, he found some of his closest friends here, Pheroze Medora and Harichand M Dalaya, who went on to play a major role in his life's journey and work.

While Dr. Kurien joined the Michigan State University in 1946, half a world away, certain historical events were unfolding in rural Gujarat, which would later have a profound influence in his life. India was abuzz with the cry for freedom from British rule. The birth of Amul, was an offshoot of India's national struggle for Independence. The organization took roots in 1946, when the freedom movement was at its peak. The farmers of Kaira district, a remote rural area in western India, went on strike to protest against economic exploitation at the hands of private milk contractors, who enjoyed a monopoly over milk-procurement in the region. The colonial government of what was then known as Bombay province, granted this monopoly to the contractors. The story goes that in early 1940s. Britishers living in Bombay started falling ill and after investigations, the British government sent milk samples from Bombay to a lab in London for analysis. The lab report stated that the milk available in Bombay in 1940s was more contaminated than the gutter water of London. Immediately

the provincial British government of Bombay started the Bombay milk scheme wherein milk was to be supplied from the milk-rich Kaira district of rural Gujarat to Bombay city. A private contractor, named Polson, was given monopoly over milk collection and supplies. He purchased milk at the lowest price from farmers and then supplied it to Bombay milk scheme, making a good profit in between. The farmers were economically exploited and marginalized to a remote end of the value chain.

Led by Tribhuvandas Patel, a visionary leader of farmers from Kaira district of Gujarat, the farmers sought inspiration and advice from eminent national leaders such as Sardar Vallabhbhai Patel and Morarji Desai. For those not too familiar with Indian history, it is important to note that Sardar Patel went on to become the first deputy Prime Minister of independent India and is largely credited with creating modern

India, as it exists today. Morarji Desai also went on to become Prime Minister of India, three decades later.

It was Sardar Patel who advised the farmers to form their own cooperative and to go on strike, if the British colonial government refused to register their cooperative. The words of Sardar, contain the basic management tenets that remain relevant even today.

- He told the farmers that only if they exercised complete control over the entire value-chain of dairy business, will the profits come back to them.
- The farmers should control not only milk 'production', but also 'milk procurement', 'processing' and 'marketing'.
- In others words, he exhorted the farmers to 'eliminate middlemen' and the only means of achieving the same would be to set up their own 'cooperative organization'.

The strike succeeded in its objectives as monopolistic restrictions on procurement were removed. The colonial government condescendingly agreed to let the farmers form their cooperative, under the false premise that “illiterate farmers – who could not read or write English – would not be able to run their cooperative beyond two days. After all, “Kaira district wasn’t exactly New Zealand or Denmark ”. That an organization which started with two small village-level societies, could one day become a 5.8 Billion Dollar organization was beyond their wildest imagination.

In the meantime, Dr. Kurien acquired his Masters degree from MSU and returned to India. Since Dr. Kurien had come to MSU on a Government of India’s scholarship, he was obliged to serve the government for some years and he was accordingly assigned to a Government creamery in Anand, then a remote sleepy town in Western India, with population of around 10,000 people. Dr. Verghese Kurien arrived in

Anand on Friday, 13th May 1949, with the intention of packing his bags and leaving at the earliest opportunity. Little did he know that he would find his life's calling there and end up spending rest of his life; another 63 years, in Anand.

Dr. Kurien was not too happy with his initial days in Anand and repeatedly offered to resign from his position but his resignation was repeatedly rejected by the Government. From the lively, vibrant, liberal environment at MSU, he found it extremely difficult to settle down in a tiny town, where he had no productive work to do in his Government dairy and where no one would even give a house on rent to a non-vegetarian, bachelor. Such was his plight that he was actually had to live in a tiny garage, a building which has been preserved till this date in Anand, in the fond memory of the man who generated global fame for this little town. It would be noteworthy to remember that his uncle, Mr. John Matthai was then the Finance Minister of India and could have easily released him

from the Government bond to serve in Anand, but the ethical standards in his family were so high that his family did not misuse their influence to get him out of this situation.

While he was wondering how to spend his time at the Government creamery where there was hardly any work for him, he used visit the neighboring dairy of a fledgling cooperative which was struggling to operate its rundown machinery and would fix their equipment in case of breakdowns, which were actually quite frequent. He was deeply moved by the efforts of farmers of Kaira district in Gujarat, who were struggling to keep their fledgling cooperative alive. Their leader, the great patriot and visionary, Tribhuvandas Patel, had the foresight to recognize that the young Verghese Kurien had both compassion and competence to not only help their cooperative survive but also enable it to scale unprecedented heights. The success of Tribhuvandas in motivating Dr. Kurien to stay on and help the

farmers led to a chain of historical events that unfolded at Anand, ultimately helping to give the Indian dairy industry, a position of eminence on the Global map. The spirit of 'cooperation' that emerged from Anand, engulfed the entire nation, galvanizing our farmers into breaking the shackles of oppression and making India, the largest milk producing nation in the world.

In the long list of distinguished guests to grace the premises of Amul at Anand, one man went to extraordinary lengths to seek the seeds of success. That in 1964, then Prime Minister of India, Lal Bahadur Shastri chose to spend a night as a guest of a humble farmer in a village near Anand, is as much a testimonial to the character of the man, as to the intense curiosity that the '*spirit of Amul*' generated in him. His voyage of discovery and subsequent discussions with Dr. Kurien led him to unearth another three basic tenets of management,

that contributed to the success of this cooperative. These are

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- A farmer's cooperative will succeed only if the ownership and control lies in the hands of the real stakeholders – the farmers themselves.
- The recipe for success lies in combining the conventional wisdom of farmers with the expertise of professional managers and technocrats. The farmers should retain control over the cooperative through their genuinely elected representatives. The professional managers should be granted adequate operational freedom to perform their functions, while making them accountable to the farmers for their performance.
- To succeed, the cooperative should remain free of governmental control and any form of intervention from state-bureaucracy would adversely affect the performance of the organization.

Prime Minister Shastri integrated the various lessons to conclude that if these basic principles were adhered to, there was no reason why '*Amul-Pattern*' could not be cloned and transplanted in other states, outside Gujarat. He invited Dr. Kurien to lead this effort. At his behest and inspiration, Dr. Kurien established National Dairy Development Board, with a mandate to replicate the *Amul model* in other states of India. This unleashed 'Operation Flood' which ushered in the '*White-Revolution*' in our country, catapulting the nation into its current position of eminence on the global dairy map.

In fact, there are several important lessons that academicians can learn from the success of dairy cooperative sector across India and 'Operation Flood'. Dairy cooperative movement eliminated middlemen in the value-chain, thereby protecting Indian farmers from any form of economic exploitation. This ensured that our farmers retain control over the entire value chain and that as much as 80% of consumer's rupee flows

back to the farmers. In 1970's, milk production in India was only 20 Million MTs and we were heavily dependent on import of dairy products to fulfill demand in this country. Till 1970's, per capita milk availability in India was only 110 gm per day, much less than the minimum level of 275 gm per person per day, prescribed by WHO for optimum nutrition. I remember that during my school days in Delhi, every morning people would queue up to purchase their quota of milk, with their assigned milk tokens, such was the milk scarcity in urban cities, during that era.

Thanks largely to the vision & foresight of Dr. Verghese Kurien, 'Operation Flood' propelled milk production in India, to 156 Million MTs by 2016. Since 1998, India has been the largest milk producing nation in the entire world, far ahead of USA which is at the second position with 96 Million MTs of milk production. Despite rapid increase in population over the last seven decades, we have also succeeded in enhancing

per capita milk consumption to the current level of 340g per day. This factor has partly contributed towards increasing life-expectancy of Indians from 32 years in 1940s to 68 years in 2016.

Let me share with you the case of 'Operation Flood', which will be of immense interest to all academicians. In the 1960's, Europe was saddled with mountain of surplus Milk powder & butter stocks. In order to protect their market, they were trying to dump these stocks into market of some developing country, in guise of free aid. Acknowledging that aid is a double edged sword, with great difficulty Dr. Kurien managed to convince Government of India to monetize this aid and use generated funds to develop Indian dairy industry. 4,41,000 MTs of milk powder and 1,51,700 MTs butter was received under the 3 phases of this program, which was then monetized to generate funds for 'Operation Flood'. Total Operation Flood program lasted from 1970's to 1996. By 1998, this program

succeeded in elevating India to the position of No.1 milk producing country in the world. Operation Flood was a perfect example to successful top-down approach as opposed to the more commonly preferred bottom-up approach. Investment of USD 1 Billion in Operation Flood, is now yielding returns of US\$ 30 Billion per annum. Based on its evaluation of Operation Flood, World Bank subsequently decided to invest US\$ 2.6 Billion in India's National Dairy Plan. India is now well-placed to play a pivotal role in global dairy industry. Demand for milk products is either stagnant or on a slow-growth trajectory, in developed countries. On the other hand, India is the largest consumer of milk products in the world, with one of the fastest growth rates in dairy consumption; as well as the largest dairy producer, with milk production growing at 4.5% CAGR in recent years. Today is India is the largest and the fastest growing dairy market in the world, with current consumption of US\$ 80 Billion per annum. However, thanks to Dr. Kurien and Operation Flood, India produces as

much milk as it consumes. It would also be interesting to note that milk is the largest agricultural crop in India, with much higher production as compared to wheat, rice and other crops.

Through Operation Flood, Dr. Kurien created dairy cooperative societies, in 162,800 villages across India, with 15.4 million farmer families as members, handling 42 million litres of milk every day. These are constituents of nearly 200 district level milk producer's cooperative union in India, each with at least one dairy factory, with the mandate of processing and adding value to milk collected by village level dairy cooperatives. At the apex level, State-level cooperative marketing Federations were created in 28 states of India, each with its own brand with clearly defined mandate of handling marketing, sales and distribution on behalf of district cooperative unions within their state. In short, the three-tier, Amul-pattern of Gujarat, with the functions of milk collection, processing and marketing allocated separately to village,

district and state-level cooperatives, was replicated across India, through Operation Flood. At his point, I must pause and acknowledge the contribution of policy-makers both within India and also at various international organizations such as UNICEF, World Bank and in EU for their positive roles in India's Operation Flood program. This clearly demonstrates that if a person works genuinely for any noble cause, he or she will definitely get help, even from unexpected sources.

The amazing socio-economic transformation in rural Gujarat, as a consequence of Amul cooperative movement has been documented in thousands of case studies. I recently met two ladies in Banaskantha district of Northern Gujarat, who were being felicitated for their outstanding contribution to their local village dairy cooperative societies. One of them, Mrs. Parbadiya Aminaben, age 55 Years, started off decades ago pouring just 50 litres of milk per day into the local village cooperative. Over a period of time, she reinvested part of her

earnings from dairying into increasing her herd size to 70 animals and building proper infrastructure for taking care of animals. Now, she pours almost 550 litres of milk into the cooperative every day, earning US\$ 90,000 per annum. Similarly, I met another lady from the same area, Mrs. Menat Ishaben, age 56 years. She also upscaled her dairy business from 27 litres per day to 600 litres per day, earning almost US\$ 100,000 per annum. Along with millions of other women living in rural India, these ladies have experienced the positive transformational impact that Dr. Kurien and Amul movement have had on their lives.

In the process, Dr. Kurien also demolished the theory of Comparative advantage which some economists hold so dear. He successfully demonstrated that earned advantage can be equally effective. Compared to others states and regions of India, such as Punjab or Uttar Pradesh, Gujarat did not have ideal natural conditions for dairying industry to

flourish. There was neither adequate water or rainfall or fertile soil, as compared to North Indian states. Yet, the entrepreneurial spirit of the farmers in Gujarat and their understanding of the concept of cooperative dairying, was more than sufficient to overcome these natural disadvantages.

Dr. Kurien and the founding fathers built Amul on two operating philosophies :

“*Value for Many*”: Ensuring maximum remuneration to our farmers for the milk poured by them. Our 3.6 million farmer-members have the assurance that their cooperative will take every drop of milk they wish to give, that too, at stable and remunerative prices. Not only that, almost 80% of the consumer’s rupee will flow back to the farmers, quite unlike countries like US or even Europe, where farmers get between 35% to 40% of consumer’s dollar. There’s a good reason for this. Dr. Kurien observed that while world-over, milk business has been in hands of cooperatives, however, dairy

cooperatives have largely confined themselves to milk production and at best processing milk into dairy commodities. Two major differences that he incorporated in Amul model were value-added manufacturing and consumer-marketing. No wonder that while, during the period 2015-2016, slump in global dairy commodity markets led to sharp crash in farmgate milk prices in New Zealand, Australia and EU countries, farmers of Amul actually witnessed healthy increase in their farmgate prices.

“Value for Money”: This was Dr. Kurien’s promise to Indian consumer. Highest quality of milk and milk products, manufactured with latest technology, using pure, natural ingredients, at the most fair and reasonable price. No gimmicks, no short-cuts. His logic was simple:- this was a case of farmers selling directly to consumers through their own cooperative organization. So, maximum value can be delivered with minimum supply chain spread. There is actually

no middleman in the entire set-up, who would be trying to maximize the spread between farmer and consumer. If you think about this carefully, this also creates huge competitive advantage, because once the farmers themselves start marketing directly to consumers, the supply chain operates at peak efficiency and creates a business model that no other entity can easily compete against.

Leveraging on the strong foundation built by Dr. Kurien, Amul Federation is the largest food organization in India, currently, with a group turnover of US\$ 5.8 Billion in 2016-17. We have now set for ourselves the target of crossing sales turnover mark of US\$ 8 Billion by the year 2020. Amul Federation handles an average of 20 million litres of Milk. 3.6 Million farmer families, spread cross 18,540 village-level dairy cooperative societies and 18 district-level Milk-Producers Cooperative Unions, in Gujarat, are part of GCMF family. We have 69 dairy manufacturing plants of our own with a total

milk handling capacity of 30 million litres per day. We also outsource milk from dairy cooperatives in 8 other states of India and some of our Member Union have also set up village level dairy cooperative societies in other states such as Rajasthan, West Bengal, Maharashtra, Haryana & UP.

If Amul has managed to scale such heights today, it is only because of wisdom of our farmers and far sighted visionary leadership of Dr. Kurien. He ensured that everything in Amul should reflect innovation and excellence. He would settle for nothing except the best:- the best quality of milk, best equipment and machinery, best technology, best advertising and marketing professionals, best talent in terms of manpower and best practices in key business processes.

We have taken giant technological leaps ahead in leveraging on information technology and automation across our entire value chain. At one end, we electronically capture animal-wise information related to health and productivity, using the data

collected for over 6 million animals for real-time productivity enhancement programs. On the other hand, technological innovation has helped us in micro-managing the efficacy of our sales and distribution processes in the market, enabling daily information analysis from sales of one million retail stores. All key business processes are seamlessly integrated through ERPs such as SAP.

Amul pioneered the use of mobile veterinary vans in rural Gujarat to ensure best access to animal health care. Scientific farm management practises and use of bio-technology was promoted to enhance milk productivity. Massive extension and training programs have been organized for farmer-members to enable them to increase milk production and their income through dairying. Tehnologies such as Automatic Milk Collection systems and bulk milk chillers are being used at village dairy cooperative societies to ensure best quality, fair & transparent quality-based payment mechanism to farmers

and to minimize possibilities of milk wastage. State-of-the art manufacturing technology is being used for manufacturing and packing of world-class dairy products, which undergo multiple quality checks.

A true marketing genius, Dr. Kurien created brand 'Amul' and shaped it into one of India's strongest brands through innovative branding, advertising and marketing initiatives. In 1950's when the cooperative started searching for a brand name for its products, almost every company in India, in those days, opted for English-sounding brand names, but Dr. Kurien, who always loved to stay away from the beaten path, selected Amul, partly because of its Sanskrit root *Ámulya'*, which meant priceless. While he spent his entire life working for the interests of the farmers, he always kept the interests of consumers in mind. He ensured that the core identity of brand Amul was value for money – highest quality at the most reasonable prices. If today, millions of consumers in India and

abroad have blind faith in brand Amul, it is because Dr. Kurien ensured that core values of the brand are strictly adhered to on consistent basis. In his own words, if we remain faithful to our values and always keep consumer's interest at the forefront, they will repay the trust & develop blind faith in our brand, just as they have blind faith in their own religion.

Way back in 1956, he appointed professional advertising agencies to handle advertising and brand-management functions for brand Amul. At the same time he also appointed specialized distribution agencies such as Voltas and Spencers to handle physical distribution for Amul products. With immense foresight, he created a Central Marketing organization for all dairy cooperatives in Guajrat, so that they could combine their strengths to market their products under a common umbrella brand – Amul. This single move not only helped to pool resources and reduce marketing overheads, but it also paved the way for transformation of Amul into a mega-

brand. Gujarat Cooperative Milk Marketing Federation (GCMMF) was formed in 1973 as the apex marketing organization for all dairy cooperatives within Gujarat state. Dr. Kurien remained the Chairman of GCMMF or Amul Federation, as it is also called, since its inception, right until 2006. Even thereafter, his benign presence in Anand continued to be a great source of comfort, guidance, courage and inspiration to all of us.

Dr. Kurien taught us that building a brand is very much like building a personal relationship – staying committed, making realistic promises and then keeping those promises. Long lasting relationships do not get built overnight. It takes both time & commitment to gain consumer's trust, since ultimately 'trust' is the basis of long-term commitment. Amul has succeeded in gaining trust and faith of Indian consumers, because we delivered what we promised – consistently. We have resisted the temptation of resorting to short-term

gimmicks in order to get short term gains. Dr. Kurien taught us to always keep in mind that the customer is smarter than us; so never try to shortchange the customer.

Dr. Kurien always believed that consistency in communication over a long period of time is a must, if we want brand identity to be firmly ingrained in perceptual mind-space of consumers. Since the launch of brand 'Amul' in 1956, we have ensured consistency in core brand communication. Our highly popular Amul topical campaign is one of our most visible dimensions of consistency in brand communication. The success and iconic stature of this campaign is a testimony of the fact that consistency in communication over a long period of time, is definitely one of the key pillars of brand-building. Amul has been on the few rare brands across the world, which has persisted with its CCC – 'Central Continuing Character' for almost 50 years. Our beloved mascot, the little Amul girl has helped us remain young, vibrant and energetic for five

decades. Our Topical campaign is widely recognized as the longest running outdoor advertising campaign in the entire world.

Dr. Kurien always believed in limiting advertising expense to within 1% of business turnover, a rule that Amul has never violated, till this day. The topical campaign was also his unique strategy of creating maximum top-of-mind brand salience with minimum expenditure.

In the 1990s, with competition multiplying after liberalization of Indian economy, Dr. Kurien realized the need for sharper brand positioning and along with Amul's advertising agencies, he came out with Amul-The Taste of India, as the umbrella brand positioning. In fact, umbrella branding as a strategy worked wonderfully for Amul, we were able to generate high brand connect, while limiting our advertising expenditure within our 1% thumb rule. Since consistency was always the hallmark of Amul's communication strategy, we have retained

Ámul – the Taste of India, as our masterbrand positioning and have created several memorable ad campaigns around this theme.

With the entry into Ice-cream category in 1996, the next manifestation of Amul was 'Real Milk, Real Ice-cream. After this, the next phase of our journey was establishing and consolidation our presence in packaged, fluid milk and fresh products category, for which Amul took its next avatar – *Ámul Doodh peeta hai India*', which in English translates into *Éntire India drinks Amul Milk*". The jingle of this Ad campaign has become so popular that you will find people on streets of India, including children, humming this jingle. Our most recent umbrella branding campaign is *Éat Milk*'- a way of reconnecting urban Indian youth with milk and dairy, encouraging them to include dairy products, as part of every meal.

Over the years, we have worked on transforming our product portfolio, anticipating evolving consumer preferences. We have redesigned the positioning of milk from a plain white commodity to a wide range of trendy milk based beverages in contemporary packaging formats. Through a series of marketing initiatives in digital and conventional media, we have been trying to enhance our youth connect. Based on the emerging 'wellness' trend, we have launched several probiotic, sugarfree & other functionally-enhanced products. Innovation has always been integrated within Amul's DNA. Early adoption of cutting edge technology and innovative breakthroughs have played a major role in Amul's journey. The ball was set rolling by two alumni from Michigan State University itself, obviously Dr. Kurien and his close friend H M Dalaya, who proved the world wrong, when they made high quality milk powder out of buffalo milk. Some years later, they replicated the same magic and stunned the world once again by making high quality cheddar cheese from buffalo milk. The

journey continues as we now introduce at least one new product in the Indian market every month, sometimes even more than one !!

Some of our latest innovation include Lactose-free milk and lactose-free icecreams, liquid creamer for Tea & coffee, ready to eat Indian desserts, milk beverages in PET bottles, garlic butter, frozen snacks and most recently chocolate butter.

We have designed our entire product portfolio based on human life-cycle segmentation. We have created branded, packaged products for each and every phase of human life cycle. This has ensured that brand Amul remains relevant across every phase of human life-cycle.

When Indian economy underwent liberalization in 1991, Dr. Kurien inspired Amul to embrace change-management, in order to continue thriving in the post-liberalization era. The transformational Total Quality Management (TQM) program

had three key pillars: Total Waste Elimination, Total Employee Involvement and Total Quality Control, which helped us overcome challenges of the new economic environment and prepared us for the next phase of growth.

Amul is the only organization in India to have created & successfully maintained a highly sophisticated, Information technology enabled, 'cow to consumer' supply chain linking 3.6 million farmers to millions of consumers in India, through 18540 village level cooperative societies, 69 dairy plants, 180 distribution warehouses, 10,000 redistribution stockists and millions of scattered retail stores. This unique supply chain runs on 4 unique and distinct distribution highways created by Amul, based on temperature requirements for storage and transportation. The highways are Frozen, Chilled, Fresh and Ambient.

Thanks largely to the strong foundation built by Dr. Verghese Kurien, Amul has successfully quadrupled the income of its

dairy farmer-members in the last seven years, demonstrating the efficacy of the Amul model in exceeding India's national goal of doubling farmer's income in six years.

During the last seven years, Amul's milk procurement prices paid to its farmer-members more than doubled from US\$ 0.38 per litre for buffalo milk (US\$ 5.3 per kg fat) in 2009-10 to US\$ 0.77 per litre (US\$ 10.6 per kg fat) in 2016-17. Since the cooperative's total milk procurement also doubled during this period, from 9.1 million litres to 17.7 million litres per day, this effectively increased the income of its dairy farmers four-fold in the last seven years. The turnover of GCMMF registered a quantum growth of 238 per cent in the last seven years, implying a cumulative average growth rate (CAGR) of 19 per cent during this period. The organization has been on a rapid expansion spree during this period, expanding its milk procurement network, expanding the processing & manufacturing capacities and also enhancing distribution

footprint across India to cover even the smallest towns and cities. We call this, our 3E Strategy. Our ultimate objective is to become the largest dairy organization in the entire world, ensuring health, nutrition and wellness of people across India and then around the globe, thereby ensuring continuous prosperity and remunerative livelihood for Indian dairy farmers. This would be our fitting tribute to the legacy of Dr. Verghese Kurien.

If I were to crystallize the critical success factors in Amul's journey, I would probably list these five factors:-

1. Selfless, dedicated and visionary leadership, both in terms of professional leadership as provided by Dr. Verghese Kurien and political leadership as provided by Tribhuvandas Patel – the founding fathers of Amul movement.
2. Combining the competence of professionals and wisdom of farmers

3. Investing in latest technology across the entire value chain.
4. Creating a culture of innovation and excellence
5. Long term stability and consistency in strategizing & execution.

From these Critical Success Factors, also stem the key challenges that we are likely to face in future:-

- Will the future leadership of Amul cooperative movement be as selfless and dedicated as the founding fathers?
- How to ensure that next generation of farmers continues to remain in dairy business?
- How to enhance productivity, which will be the key to increasing milk production in future?
- How to insulate our farmers from volatile global dairy commodity markets, which may be triggered by FTA so strongly advocated by EU, Australia and New Zealand?

If Amul is able to overcome these challenges, then we will surely fulfill our destiny of becoming the largest dairy company in the entire world. In next 40 years, population of India will increase from 1.3 billion today, to 1.7 billion by 2060. By that time, 56% of Indian population will reside in urban areas and only 44% in rural areas. Today, 70% of India lives in rural areas and just 30% lives in urban areas. This clearly indicates that India may face the problem of 'mouths to feed' growing much faster than 'hands to produce'.

By 2060, per capita milk consumption in India will increase to 800 g per day, as compared to the current level of 340g per person per day. In the next 40 years, we expect milk production in India to grow at CAGR of 3.2% and will reach 590 MTs per annum by 2060. This will ensure adequate milk availability in the country to meet growing demand and maintain our self-sufficiency in milk. India will continue lead the global dairy sector and the centre of gravity of the world dairy

industry will lie within India. In fact by that time, Amul will be the largest dairy brand in the world turnover of US\$ 463 Billion at current exchange rate, handling 135 million Kgs of milk every day.

The sheer enormity of Dr. Kurien's monumental achievements is truly amazing. Dr. Kurien was one of the few nation-builders who contributed immensely towards shaping the future of post-independence India. His remarkable life and achievements are an embodiment of his faith in the ability of the common man to exercise control over his destiny. This faith helped him to create world-class Institutions that become shining examples of excellence. He often confided in me that to him, 'commitment towards farmer's cooperatives' was like a religion and he remained true to this faith, till his last day. He genuinely believed that when farmers queue up every morning and evening to pour milk into the cooperative, all forms of social divisions within Indian society; religion, caste

or community; they all disappear and melt into a can of milk; such was the social impact of dairy cooperatives.

His relentless hard work has helped to generate gainful employment for the most vulnerable section of our population:- small and marginal farmers, landless labourers and rural women. It is largely thanks to his efforts that women of rural India have some measure of economic independence, through dairying. His vision and his zeal have been forever embodied in the numerous Institutions that he created; AMUL, Gujarat Cooperative Milk Marketing Federation (GCMMF), Institute of Rural Management Anand (IRMA), National Dairy Development Board (NDDB), National Cooperative Dairy Federation of India (NCDFI), Indian Dairy Machinery Company (IDMC), Indian Immunologicals, Anandalaya school, 28 state dairy cooperative federations and 200 district-level milk producers' cooperative unions. In fact, there was complete synergy and symbiotic relationship between various

institutions that he created. Each of them had its own unique role to play in his mission to serve indian farmers.

Dr. Kurien used to give high degree of freedom to his team to take initiatives, respecting their professional judgment. While his sense of humor was legendary, at the same time he was extremely particular about professional discipline and expected the highest level of commitment from everyone around him. He always strived for excellence and expected nothing less from his team members. He ensured excellence in every institution that he built and every activity that he undertook.

We are all taught by our management institutes to work where our efforts are rewarded the maximum. It is indeed remarkable that Dr Kurien chose to ignore this very important piece of advise and instead dedicated his best years of life working without remuneration for the milk producers of India. Dr Kurien was Chairman and Managing Director of Amul

Federation in 1981 when he reached the age of superannuation - i.e 60 years. He stopped taking salary from that time onwards and continued this practice till 2006. He was also the Chairman of NDDDB till 1998 for which he took a salary of just Re 1 per annum. It is really an inspiring example of selfless leadership that a man who ran NDDDB which was reporting to the Parliament of India and India's largest food brand worked without any salary for more than 25 years.

It is in today's times when the Governments expect their ministers and bureaucrats to declare their assets. I have seen records in our Board resolutions from the 1970s where Dr Kurien had self- declared the assets that he was owning. This is the virtue and legacy of transparency, honesty and integrity that has left behind for all of us to imbibe.

I once asked Dr. Kurien what were the most important qualities that he looked for in someone, while recruiting a person into any of the organizations that he had created. His

simple answer was :- 'Integrity, Integrity & Integrity'. He used to tell me that integrity and character, once lost, could never, ever be regained.

Another admirable quality of Dr. Kurien was courage in face of sheer adversity. He understood that in order to create positive transformational change, he would have to overcome resistance from vested interests, throughout his life. His fearless struggle against powerful vested interests at international and national level is a great source of inspiration to us and gives us tremendous courage in times of adversity.

I personally believe that after Mahatma Gandhi, it was really Dr. Kurien who had such a positive, mass-scale, transformational impact on rural India.

I'm sure watching us from his heavenly abode, Dr. Verghese Kurien, would be happiest, if the story of his life's journey and that of his favorite creation, Amul; would inspire even one

person present here today, to go out there and make a huge transformational impact on this world, making it a better place than what it is today.

Who would have imagined that just one young man who completed his Master's degree from this esteemed institution in 1948, would go on to change the lives of millions of his countrymen, for the better !!

Let me end with a famous quote from Dr. Verghese Kurien which has inspired generations of professionals associated with the Amul cooperative movement “ We have traversed a path that few have dared to. We are continuing on a path that still fewer have the courage to follow. We must pursue a path that even fewer can dream to pursue. Yet, we must, we hold in trust the aims and aspirations of our countrymen.”

On behalf of 15 million farmers of rural India, I sincerely thank Michigan State University for sending us a messiah in form of

Dr. Verghese Kurien, who not only transformed our lives for the better, but also the lives of generations, thereafter.

Thank you.