

Epilogue

Nestlé's sales make it the world's biggest company for fast-moving consumer goods, and its market capitalisation makes it the biggest company in the whole of Europe. When talking with people about the company, many tell us how surprised they are that a firm from a small, landlocked country could become so successful globally, in a sector that requires profound understanding of a multiplicity of local cultures and societies across the world, and comprehensive and deep integration into the local context in which it operates.

What may have looked like insurmountable challenges for Nestlé being a start-up enterprise in a small Swiss town like Vevey on Lake Geneva—especially with only a minimum of essential infrastructure available in the middle of the 19th century—have all turned out to be major assets and opportunities.

As a company from a small country without a colonial past, we could never rely on support from colonial structures. Instead, we worked from the beginning for and with the people of individual countries. When, for instance, we needed a better road to be able to transport milk quickly from farms to our factory, we had to convince the local indigenous authorities that what we do is worthwhile for the community.

Being from a small country also helped in accepting, and as a result embracing, diversity. For an American, it is sometimes strange that some people abroad do not like hamburgers; to people from Switzerland, it is quite obvious that not everybody in the world appreciates a fondue. Also here, being from a small home-country results often in advantages.

Finally, our need to locate operations close to the farmer-suppliers, outside of compounds with other foreign firms and expatriates around a country's capital, made our start more difficult at times, with certain risks for our people working there, vis-à-vis both their security as well as health. But ultimately, it facilitated and even forced our integration with the local communities and economies.

So it is the roots and history of the company, our long-term perspective, our corporate culture and ambitions, the circumstances and specificity of our sector, as also very much our people at all levels—their values, attitudes and commitment—that led us at a very early stage in Nestlé's history into Creating Shared Value, a

concept that only got its name at the beginning of the 21st century.¹ It is based on our belief that by our way of doing business we can create at the same time value for our shareholders and for society, especially the communities in which we operate, focusing on three areas, namely water, rural development and nutrition. The long-term interest of society is built into our business case.

This book reports about such a well-embedded operation, our factory in Moga. It illustrates a model, a pattern already tested elsewhere before. When built in 1961, it was by no means the first of its kind. The Nestlé Group's first factory abroad was inaugurated in 1872 in England. It was not even the first one in developing countries—this was in Brazil in 1921.

But Moga illustrates especially well all the different aspects of the overall highly positive impact of our operations on stakeholders and communities where we invest. In particular, it illustrates that, for the region and the people, this is about a step change in livelihood, not just an incremental improvement. The new factory generated income for farmers who, before, had to quite often manage a fragile and risky state of self-sufficiency; it created direct and indirect employment in a region where there were virtually no higher value-added industrial jobs. And it provided opportunities for other entrepreneurs to start businesses, either as suppliers, or else helped by the demonstration effect.

Moga cannot be seen in isolation; it is one of 461 factories of the Nestlé Group (2011), all following in one way or another the pattern highlighted in this study. This adds up to some quite big numbers, some of which are provided below as examples. You will find more in the various editions of our Annual Report and Creating Shared Value Report.²

A main part of this report is about milk—and the milk district model, as the one in Moga, actually represents the most important part of our direct partnership with local farmers. Since the late 19th century, we have located our factories close to farmers in order to establish a steady and secure supply of fresh milk and economic structures. Physical collection and transportation are important, but are only part of the story. Through very reliable weekly payments to the farmer-suppliers, for instance, we helped improve the short, medium and long-term viability of the farming community. Procurement needs and issues of food safety, quality, and national priorities drove this strategy.

The main needs and strategies are still valid. Today, we have milk districts in over 30 countries across the world. In many of them, as for example in China, we are operating several milk districts.

In a number of ways, milk is special. Dairy farming is much more varied than, for instance, growing grains. We have to adapt to a huge diversity of farming systems ranging from extensive to highly intensive farming, different sizes,

¹ Porter, M., and M. Kramer (2006) Strategy and society: the link between competitive advantage and corporate social responsibility. *Harvard Business Review* 84 (12): 78–92, 163.

² At http://www.nestle.com/asset-library/Documents/Library/Documents/Annual_Reports/2011-Annual-Report-EN.pdf.

different technology levels and climatic zones. At Hulunbeir in China we have – 40 °C in winter, whereas in Pakistan temperatures may rise to close to 50 °C in summer.

There is also the challenge that we—and ultimately consumers—need milk of the right quality, in the right quantity, at the right time. By nature, there are seasonal variations in volumes and quality of production on the farms, and by nature milk is being produced on a daily basis. And it is also highly perishable. All this translates into high demands on infrastructure and our logistics—to ensure that the needs of our industrial structure and consumers on the one hand, and the nature of the production of milk on farms on the other, can be efficiently brought together.

In the milk districts we represent the interests of our consumers, by looking for a good and well-balanced composition of milk, ensuring safety, stimulating volume growth and keeping its cost affordable. In order to avoid these multiple demands turning essentially into pressure on the farmers, and being a process of Creating Shared Value instead, we are providing technical assistance to the farmers. The bigger part of our agricultural advisors and extension workers are in milk. In many cases, we are also providing credits and other forms of financial support.

Nestlé has, likewise, coffee factories in all the important coffee producing countries—Brazil, Vietnam, Colombia, Indonesia, China, Mexico, Thailand, Philippines, India, Ivory Coast, etc. This is a unique differentiator, as main global competitors tend to locate production facilities in countries with high coffee consumption. Whilst Nestlé has factories in these countries too, having manufacturing facilities in coffee producing countries enables us to engage directly with the farmers to source green coffee independently from trade houses. This sourcing concept is a part of “Farmer Connect”—our programme in direct procurement markets. The advantages are a shorter supply chain, less transaction costs, a direct influence on quality and a better understanding of the real issues at the farm. But it also requires a strong presence on the ground from a dedicated team of agronomists and buyers. “Farmer Connect” enables us to go beyond certification and focus on real farmers’ development potentials to jointly grow the business and ensure supply to our local factories in the long run. Therefore, we have launched the Nescafé Plan, an investment of CHF 500 million in coffee projects over a period of 10 years, that involves a broad range of activities including plant breeding and distribution of 220 million high yield, disease resistant coffee plantlets to farmers by 2020, training according to the Nescafé Better Farming Practices as well as applying the fundamental sustainability criteria. Having farmers benefit from the Nescafé Plan and helping them to get higher and regular incomes will also ensure that our coffee factories will be supplied with coffee of high quality in the future, based on similar principles in the milk district model.

For another very important agricultural material, cocoa, we have launched the Nestlé Cocoa Plan. It aims to improve farm productivity and profitability and the creation of sustainable supply chains for Nestlé cocoa in countries like Indonesia, Ecuador, Mexico, Venezuela, Ghana and Ivory Coast. Between 2010 and 2019, we

will invest CHF 110 million in cocoa plant science and sustainability initiatives, and distribute 12 million cocoa plantlets. In 2012 we trained over 21,000 farmers, distributed over 1 million plants, bought over 40,000 t of cocoa directly and built 12 schools through the Nestlé Cocoa Plan. Improving the economic situation of farmers will no doubt contribute to reducing child labour. And, beyond this, we engaged in 2012 with the Fair Labour Association (FLA) to report on the labour conditions in the cocoa supply chain in Ivory Coast, and to look for ways to address it effectively. Their report was published together with our action plan. One of the most important actions we committed to was to set up a monitoring and remediation process for child labour in our supply chain. Primary concrete steps for implementation were taken right away; more will follow in close cooperation with the authorities.

All in all, we partner directly with 682,000 farmers in 51 countries across the world in 'Farmer Connect': there are 423,000 milk farmers, 220,000 coffee growers and 39,000 cocoa farmers. 11,800 agricultural advisors and extension workers—part of them full-time employees, part of them on a contract basis—make sure that there is continuous improvement in the value creation by and for these farmers, in terms of production, productivity and quality of these and other raw materials needed for Nestlé products.

The milk district model, prevailing for more than 140 years, has been successfully translated, adapted and refined to other rural communities where we source directly all kind of agricultural materials. Vegetables, grains, fruits, spices, nuts, etc., are sourced in addition to the cocoa and coffee mentioned earlier. No doubt it will evolve over the next 140 years, but we are also convinced that a number of the key characteristics of this proven partnership with farmers producing milk and other food products will remain.

The report also illustrates the strong impact on employment and employee prosperity, and again, this adds up when looking at global numbers for the Nestlé Group. At the end of 2011, we directly employed 328,000 people, up from 281,000 at the end of 2010. A large number of empirical studies show that both salaries and working conditions in foreign-invested firms, particularly but not only in emerging economies, are significantly above average—and this is clearly also the case with Nestlé.³ In addition to this direct employment with its positive impact on the families also of those employed, our operations across the world generate a large amount of indirect employment, both upstream and downstream. An overview of research shows that food processing industries generally present employment multipliers that rank among the highest in manufacturing, with the average around 4. Ultimately, individual companies have their own job multiplier defined by the coefficient of salaries versus intermediate consumption of goods and services. Due to outsourcing over the last couple of decades, this coefficient has been steadily increasing for Nestlé, probably by about 1/6 over this period. According to our

³ P. Buckley et al., (2009) *Creating Shared Value: Economic View and Measurement*; Leeds University, Leeds.

own estimates, the job multiplier may reach a value of around 4.5 for the Nestlé Group worldwide. This leads to an estimated 1.5 million direct and indirect jobs, actually measured in full-time job equivalents. That is, a much higher number of people receive part of their income thanks to linkages to Nestlé operations. And ultimately, this is not just a story about numbers; it is one about empowerment within the Group, and along the supply chain. We will illustrate this in the second part of our epilogue.

Now, we should add a remark of caution here. The company is successful and growing, and with a clear long-term strategy we are also very confident for its future. But things cannot always and everywhere only go up. Markets are changing and we have to adapt. Condensed milk is a good example here. It was, for a very long time, a highly successful product in industrialised countries too, but it has almost disappeared from the shelves in the USA and Europe now. In this case, adapting has also meant downsizing and selling production sites in order to ensure that the company maintains full strength to continue investing and expanding in other aspects of the business and in other places across the world.

As just shown, a well-embedded company creates value upstream, with and for suppliers of raw materials like the farmers, and suppliers of services and intermediate goods such as packaging materials. It creates value for employees—direct and indirect jobs resulting from a company’s investment—and their families. There is one more dimension: a company well embedded in a competitive environment also creates value horizontally. One of the biggest (and intangible) assets forming the value of a company, a powerful wealth and impact multiplier, is the knowledge embedded in a company—scientific, commercial, organisational, etc.⁴ This embedded knowledge, or more specifically the knowledge pool transferred by a company to a country when investing there, spreads out in these countries through so-called demonstration effects. This is about competitors watching us and often learning from us. They can be stimulated by our innovations. Supply chains (e.g., the co-operation with farmers) and products (safety, overall quality) of our competitors improve as they see how we are doing things. Quite frequently, they can also take advantage of the knowledge transferred to our suppliers, e.g., for better packaging materials. Empirical studies show substantial results here too. “Johnson and Evenson (1999) examined the effects of new technologies introduced in the agricultural and food-processing industries in 14 less developed nations and newly industrialised countries. The results of this study show that both international and inter-industry spillover effects improved agricultural productivity.”⁵ And, “After observing a product innovation or a novel form of organisation adapted to local conditions, local entrepreneurs recognise their feasibility, and thus strive to imitate them” (Meyer 2004: 262).⁶

⁴ A. Toffler, Powershift, 1990.

⁵ P. Buckley op. cit., p. 25.

⁶ P. Buckley op. cit., p. 50.

This brings us to another major group of stakeholders—the consumers, the main winners of this horizontal value creation, is also directly in our focus. Again, here are some orders of magnitude on Nestlé initiatives from a global perspective. It all starts with knowledge and education. Our Healthy Kids programme reaches more than 6 million children and is active in more than 60 countries. The objective of the Nestlé Healthy Kids Programme, which started in 2009, is to raise nutrition, health and wellness awareness in school-age children around the world and to encourage physical activity so as to reduce the burden posed by non-communicable diseases. Another dimension is the value of our products, illustrated with micronutrients added. Some brief words on the context are important: the impact of micronutrient deficiencies can be as devastating as the one from lack of calories. According to UNICEF, between 1.9 and 2.7 million children die annually from lack of Vitamin A alone, and up to half a million a year turn blind. And the micronutrient malnutrition is a time bomb: according to Save the Children, 450 million children will fail to develop properly—both physically and mentally—due to inadequate diet. With our products, also our Popularly Positioned Products, we provide over 150 billion servings annually of micronutrient-fortified foods. This includes 35 billion servings of Vitamin A, 53 billion servings of Iron, 102 billion servings of Iodine, and 14 billion servings of Zinc annually. One serving is defined as the optimum amount of a micronutrient in the serving size as consumed, as outlined/recommended on the pack. This amount is defined in close cooperation with the health authorities of individual countries in a very focused manner, depending on the product/consumer, the region and the proven needs. Again, a word of caution: even as the biggest food company, and even with our focus on nutrition, health and wellness, our reach remains limited; the millions of other actors in global food markets have to play a role too.

Our concern for the environment starts locally, but ultimately it is truly global. We address systematically and effectively energy efficiency, the reduction of packaging materials, and steps towards more efficient transportation. Water is particularly important: there are 301 wastewater treatment plants in Nestlé factories where municipal facilities are not available or efficient enough. The very first wastewater treatment installation in the Nestlé Group was built in the early 1930s, i.e., long before the term environmental policy started to be used. At the same time, water is an issue beyond environment, and as such one of the three pillars of Creating Shared Value. The Moga study mentions our wells that provide drinking water for Indian school children in villages around the factory as one of the specific initiatives. Globally, 126 Nestlé factories are providing clean drinking water to local communities. But water requires efforts in partnership, such as the 2030 Water Resources Group, where Nestlé plays a leading role. It is a multi-stakeholder initiative to address excess freshwater use country-by-country, also looking at its larger strategic role in the economy and society. The main goal is to provide governments with a fact base, helping them to set up strategies to bring water withdrawals back into line with sustainable supply.

Though we can show some pretty significant statistics country by country as well as globally, Creating Shared Value by Nestlé is ultimately very much about

the people, their lives and communities. Taking a closer look, we discover millions of individual faces of these people. Let us therefore close with a few of these stories—fill the global statistical data with life, in order to demonstrate the extent to which the realities behind our numbers and the value created are actually relevant at the level of individuals across the world; and as outlined earlier on, to show how very often our operations and products don't just lead to an incremental improvement but a step change.

One of these stories stands at the origin of the company as a tale about consumers and nutrition. Henri Nestlé, talking about his 1867 invention of infant formula, said: “When I made my discovery, I had in mind babies a few months old. But it soon became clear that the preparation was perfectly suitable for even the youngest of infants. Mrs. Wanner was seriously ill, and her child was born a month too early. He was a sickly infant, who refused not only his mother's milk, but all other types of food as well. He was convulsive, and there seemed to be little hope for him. My friend Professor Schnetzler reported the case to me and asked if he might try my food product on the infant, who was then 15 days old. Since that time, the child has been fed exclusively with my special infant cereal. He has never been ill, and he is now a “tough” seven-month-old boy, who can sit up all by himself.”

A second story on consumers and nutrition comes from another branch of founding fathers of the Nestlé Group—Julius Maggi. He was concerned about the severe malnutrition of men and women workers in Switzerland in the early industrialised times. He hence developed a legume-based soup—in the form of a cube already then, though somewhat bigger than today's Maggi Cubes—as a highly nutritious, inexpensive meal, simple and quick to prepare by women who had to work long hours in factories in the middle of the 19th century.

Often it is not only about a person or a product, but about generations of families. If you visit the chocolate museum in our factory in Broc, a mountainous region of Switzerland, you will see the milk churns with the names of the families who started to supply us with milk 150 years ago, and still do—families that in the second half of the 19th century underwent a transformation like the Moga farmers did in the second half of the 20th century. And we still continue this mutually beneficial, loyal relationship with these families.

In the northernmost province of China, you find the story of a farmer who began supplying milk to Nestlé twenty years ago, i.e., shortly after we invested and built a factory in his remote region. Once he started delivering milk to the company regularly, his life changed. Originally he had only one cow. After 10 years, he owned 6 cows and 3 heifers. Thanks to a higher and more regular income, he could build a new house. And, more importantly, income from dairy farming allowed him to send his daughter and later on his son to university.

In the case of our workers, we see similar effects of this inter-generation kind. And in many countries, the sons and daughters of our employees also work at Nestlé, often in higher positions, with a better education and training that became possible due to the reliable income of the parents.

Training, combined with empowerment, is also a major driver across all hierarchical levels and functions of the company, training broadly understood, not just with an academic background. One person who can illustrate this is the recently-retired Chef of the staff restaurant at the Nestlé Mexico headquarters. More than 40 years ago, he started as a kitchen aid (*ayudante general*). Thanks to his skills as well as the continuous training provided and supported by the firm, he ultimately became Chef. In the time between starting to work and finally becoming the head of the kitchen, the number of people that had to be fed increased from an initial 300 to 1,000 today, with considerably more sophisticated menus.

Continuous training and empowerment does not stop in the kitchen, and people in our company from South Asia, Latin America and Africa as well as other regions and continents assuming responsibilities as market head and even higher positions at our headquarters illustrate this well. Here again, the stories about individuals and their achievements are more than anecdotes, and reflections of a broad reality.

Empowerment beyond the company, i.e., through the upstream and downstream employment effects, also has its own face. Our story here is of a lady in Abidjan, Ivory Coast, who has her own Nescafé shop which is styled like a big red cup and is financed by Nestlé. It is referred to locally as ‘La Tasse Rouge’. The lady serves her customers at tables shaded by umbrellas, and also encourages them to enjoy her delicious homemade sandwiches that she brings to work each morning.

Empowerment of a special kind is also important in initiatives beyond day-to-day business, and beyond factory gates. Earlier on we mentioned the wells for drinking water in Indian schools. What is as important as the drinking water for the schoolchildren in a very dry and hot region is that the children themselves are in charge of the maintenance of their well!

Another real-world face of Creating Shared Value across the globe involves animal welfare and a farmer in Chiapas, one of the poorest provinces of Mexico. Some of the many measures taken to improve productivity of farmers and cows were quite simple, but effective—such as sunroofs to protect cows from the midday sun. Initially, the farmer did not like the idea: “My cows are no princesses,” he said. Today he agrees that a cow feeling well gives more and better milk.

Told in isolation, these stories may sound like mere anecdotes. Studies like this book on Moga have the merit to raise individual stories to a more general level, showing the societal context of thousands of ‘anecdotes’ and adding them up to statistical data in and around a factory and its products. With global data across countries from our activities, the picture becomes multidimensional and is scaled up to the overall impact of the Nestlé Group. It is value created over time, looking back to the company’s near-150 years of history as well as into the future, hopefully another 150 years or more. It is value along the supply chains of all our product groups. And it is value created in competitive markets horizontally. Further studies of this kind will, hopefully, confirm and deepen this knowledge about our impact.

Looking into this impact on the societies we are embedded in, reporting and generalising facts and functionalities as analysed in this study may serve several purposes.

First, it will help in understanding. As the company and societies are undergoing continuous change, we have to re-evaluate our impact from time to time in order to make sure we still fully understand its nature and scope.

Second, it will help to make sure our impact is relevant, check whether our business activities and major initiatives beyond day-to-day business actually do create real and relevant value for individuals, and additionally, see whether this value is adding up to something that truly matters for the communities of stakeholders around our operations in individual regions and countries. We have to always bear in mind that, across the world, we are only one among millions of companies in and beyond our sector generating prosperity.

Third, it will help to communicate. Measuring, evaluating and describing Creating Shared Value may bring to a wider public some of the understanding of what industry is about.

Finally, it will ensure continuous improvement so the value created becomes more significant, both in quantity and quality. Measuring and evaluating the broad outcomes of our business activity and our actions beyond, in a broader context, can help with the efficient allocation, and where necessary re-allocation of resources and, in particular, with overcoming piecemeal approaches. It can guide our long-term efforts to serve both shareholders and society by continuously creating even more value.

Peter Brabeck-Letmathe, Chairman, and Paul Bulcke, CEO
Nestlé SA

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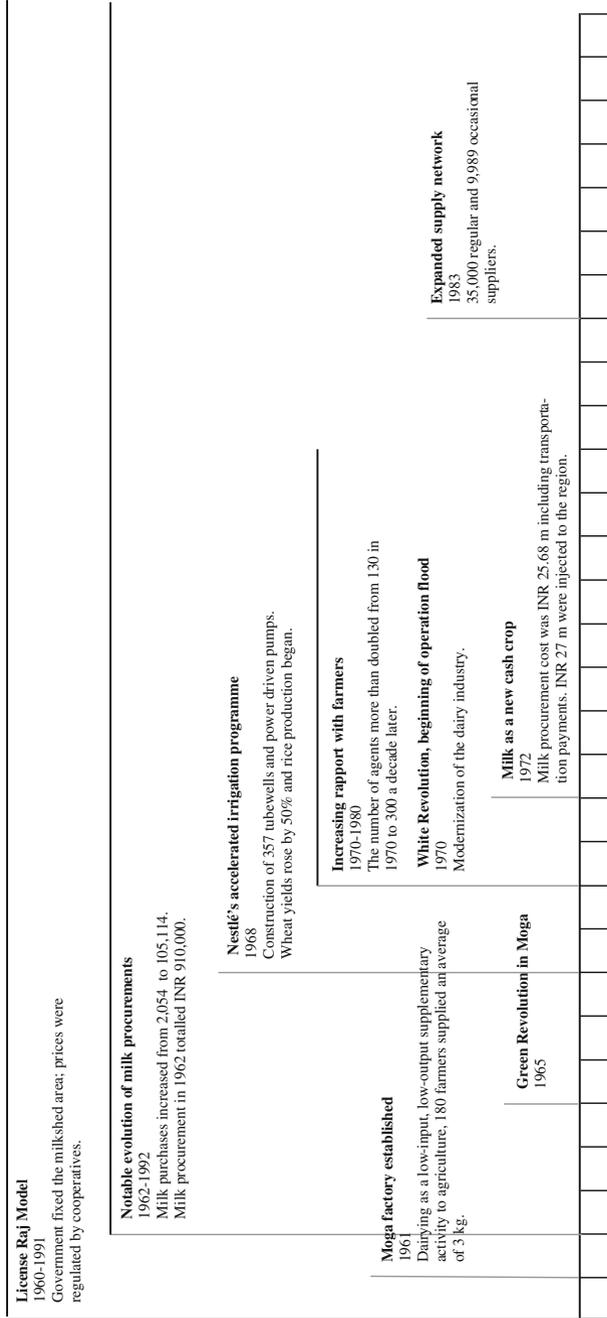
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Annex 1: Nestlé in Moga: Timelines for progressive development, 1960–2012



<p>Environmental Sustainability 1997-2012 Reduction of 73% in water use, 78% in wastewater generation, 65% in energy use, and 70% in CO₂ emissions per tonne of production for Nestlé India.</p>	<p>An important tax payer 2009-2010 INR 507.7 m in taxes were paid to the state Government and INR 163 m to the central Government.</p>	<p>Furthering socio-economic development 2010-2011 Nestlé payments to milk producers alone exceeded INR 6,120 m each year.</p>	<p>Extended network of ancillary services 2011 Nestlé's 147 main suppliers employed 86,200 persons.</p>	<p>Moga's consolidated and strong dairy tradition 2012 Punjab contributes to 10.5% of India's milk production with 3% of the dairy population. Milk procurements reached 355,000 t.</p>
<p>Contributions to the local economy 1992 Nestlé was paying INR 609 m a year in milk procurements. This was only INR 910,000 in 1962 and slightly over INR 25 m in 1972.</p>	<p>Community activities 1999-2012 Water facilities have been constructed in 116 schools, benefiting over 40,000 students. Water awareness programmes have reached 20,565 students.</p>	<p>Intensified competition for milk procurements 2002 11 state cooperatives, 30 private dairy plants.</p>		
<p>Liberalization of the Indian economy 1991 Abolishment of Government fixed prices and milksheds.</p>	<p>Key economic actor 1992 Injected INR 609 m for milk payments and INR 80 m in local taxes, commissions to milk agents and in transportation costs.</p>			

Annex 2: An Evolving Landscape: Nestlé in Moga, 1961–2012

Local context	Early years, 1960–1970	1980s	1990s	2011 and beyond
National development plans or strategies	License Raj model; Government planned economy and regulated production. Self-sufficiency oriented, import substitution industrialization model 1966—The Green Revolution and progress towards self-sufficiency in food grains; introduction of high-yielding varieties of seeds; increased use of agrochemicals and irrigation 1970—Operation Flood, the world largest running development project, was put in place to create a nationwide milk grid	Self-sustaining White Revolution—Operation Flood to modernize the dairy industry. Introduction of Government-sponsored farmers' cooperatives	Trade liberalization and economy de-regularization Development of a competitive agricultural sector: de-licensing and de-centralization of dairy products	Following strong economic reforms and liberalization (opening to international trade and investment, deregulation, tax reforms and inflation-controlling measures) the country continues to witness increases in the incomes of people. In spite of economic and political turmoil, the current rate of growth is significantly above average by international standards
Risks and uncertainties	In 1966 and 1967, currency devaluations; droughts, and land and labour problems, led to an increase on production costs and a surge in imported raw materials Labour setbacks were reversed due to continued efforts to provide extension services to farmers to increase yields and quality	In Moga and neighbouring districts, from 1986 to 1993, 200 deaths and over 25 people injured were attributed to terrorist activities. Throughout this period, the good rapport Nestlé had established with the local civil administration and the key economic role it played, and still does, for many local families, meant that the number of milk suppliers continued to grow in all but one year. In 1988, milk supplies decreased as terrorism escalated, restricting the inflow of labourers from Bihar and Uttar Pradesh and triggering the outflow of local residents and migrant workers That same year, floods affected 200,000 people in over 1,483 stranded villages		
Local economic landscape and living standards	In 1960, Punjab was a place of abject poverty; widespread malnutrition; high population growth; mud houses, poor transportation; very few houses had access to electricity; low productivity; and subsistence agriculture as main economic activity. Water supply, irrigation systems and transportation were mostly animal-operated With the Moga factory opening in 1961, soon a milk economy developed, the dairy sector was organized, and ancillary economic services started to mushroom	Nestlé has become a key player in integrating household, micro and macro-economic and trade issues and agricultural potential influencing poverty alleviation and reduction efforts, agro-business activities, investing more in better farming and animal husbandry inputs (feed, vaccinations and medicines) as well as in other economic activities The expanding range of goods produced in the Moga factory has brought about a similar increase in local employment opportunities due to the expansion of supply networks and market value chains for raw and processing materials, as well as for related services. This suggests employment opportunities have not only been created for milk suppliers and farmers, but also for factory employees, contractual and daily labourers and agents. Moreover, the quasi-continuous factory extension since 1980 has provided around 350 jobs annually for Indian construction companies Hoteliers, builders and various other craftsman and entrepreneurs have now settled in Moga to seize the business opportunities that have been created following the successful development of the area		
	In 1962, Nestlé contributed INR 952,000 in milk payments, increasing to INR 29 million in 1972. By 1974, Nestlé was purchasing CHF 22 million worth of local raw materials (Nestlé 1978) ⁹	By 1980, 210,000 local persons were associated with Nestlé, benefiting in one way or another from the company's various development programmes In 1983, milk deliveries came from 35,000 regular and 9,080 occasional suppliers. By 1987, this number increased to 84,585 farmers	In 1992, Nestlé contributed INR 740 million to the local economy in milk payments to its farmers. Most of this disposable income was spent locally. Moreover, INR 80 million were paid in local taxes, commissions to dairy milk agents, and in transportation costs In 1992, around 77 workshops were delivering electric and mechanical support to the Moga factory	In 2011, the commercial transactions between Nestlé and 147 related enterprises were responsible for the formal employment of over 86,200 people.
	Most regular suppliers continue to be small and very small landholders and as such, the increased disposable income they receive from milk sales represented a significant complement to their main farming activities. Milk payments bridge the income gap from selling wheat in April and rice in October and as farmers usually obtain their income from selling their crops twice a year, they have started to rely on regular and predictable fortnightly milk payments from Nestlé for daily expenses			
	Marginal milk suppliers constituted a significant group. Since they are economically disadvantaged, milk receipts are of great benefit to them as there are no caps on the amount of milk supplied. They rely on Nestlé as a guaranteed buyer for their produce. More generally, albeit depending on the season (and thus fluctuating farm earnings), milk-related income is used for feed and fodder; in improved farm equipment and agricultural inputs, for household foodstuff consumption and clothing; short-term savings and repayment of debts and loans; school fees; socio-cultural activities (weddings, festivals); demerit goods (alcohol and tobacco); and improved family and animal health			

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	Early years, 1960–1970	1980s	1990s	2011 and beyond
Local context				
Local dairying conditions	<p>The sector was largely unregulated and subject to adulation and arbitrary practices. Dairying was a low-input, low-output, low-income supplementary activity to agriculture</p> <p>Government established floor prices for milk processing factories</p> <p>Nestlé's engagement in Moga revolutionized socio-cultural attitudes to dairying including the removal of stigma attached to the commercial production and sale of milk and the establishment of a context-tailored milk collection system</p> <p>In 1961, the company's supply chain initially drew inputs from 180 farmers in four villages. By 1970, this network had reached out to 700 villages, each one engaging an average of 250 families</p> <p>Nestlé consistently set higher quality standards than those domestically imposed for both its inputs and final products. It has also provided information on how to meet, maintain and improve such higher standards. These quality upgrades have been used as quality benchmarks and common denominators for other stakeholders involved in dairy production</p>	<p>The company cooperatives' rates as floor prices and paid a premium 9–12 % higher. Additional bonuses between 7 and 10 % were introduced to encourage farmers to feed their animals better during low season, thereby reducing supply fluctuations</p> <p>Even then, Nestlé was buying less than 25 % of Moga's rising total milk production; which from 1982 to 1992, rose from 265,000 to 467,000 ^l</p>	<p>Following national economic reforms and liberalization, the Milk and Milk Products Order (MMPO) came out in 1992. It came to regulate the local production of milk and dairy and included sanitary and hygienic regulations to ensure product quality</p> <p>Throughout the decade, Nestlé's milk share remained at around 22.5 %; even when new stakeholders entered the local market. By 1991, the Government cooperatives Milkfed started setting up plants in Moga, buying 5.9 % of the district's total milk produced by 1992. Other private companies settled in the area, taking 3.1 % of all yields</p>	<p>In 2012, Punjab now has about 3 % of Indian dairy population but contributes to 10.5 % of the national dairy production¹</p> <p>By 2002–2003, 11 Government cooperatives, 30 private dairy plants and a few public-private ones were operating in Moga. Nestlé aside, these new stakeholders were buying 5,480 t of milk²</p>
Resource endowments and infrastructure	<p>Amelioration of poor, weather-dependent infrastructure, absent or severely limited electricity supply, poor irrigation systems and animal-operated water lifting devices</p> <p>In 1968, Nestlé began an accelerated irrigation programme consisting of drilling 357 tube wells and installing power driven pumps, which contributed to increases in wheat yields by 50 %</p> <p>Rice could be grown from July to October</p> <p>This and similar actions prepared the area to quickly reap the benefits of the Green Revolution and mechanized and modernized agriculture</p>	<p>Increasing use of landline and mobile phones</p> <p>Growing number of paved roads</p> <p>Easier accessibility by land</p> <p>Modernization of the transportation system</p> <p>Steady increase in the number of motorized vehicles</p> <p>Mechanization of irrigation systems and fodder-chopping activities</p> <p>Establishment of milk parlours</p>	<p>National and state-level macroeconomic growth has led to an overall improvement in the communities' physical capital and available infrastructure. This process furthered consolidated the Moga factory's beneficial impact in the region as a permanent source of local wealth creation:</p> <p>All villages have been connected to the electricity grid</p>	

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Local context	Early years, 1960–1970	1980s	1990s	2011 and beyond
Human and community development context	In 1961, only a handful of villages had primary schools and most of the population was illiterate. Soon after the Moga factory began operating an elementary school was established in Dudhike, and was later upgraded to high school in 1966–1967. By 1968, the 1st graduate college opened in Moga and many female students enrolled. There was a surge of English secondary schools			The company carried out periodical studies assessing the progress of the dairy industry in the region and the socio-economic challenges faced by the communities and that may impact milk production. Such evaluations have indicated the multiplier effects the company has had in the transformation of the region and on the overall improvement of the communities' living conditions: Improved living conditions with brick houses and cement flooring Construction of dry-pit latrines and indoors sanitation facilities Enhanced nutrition derived from higher quality in the supply of raw materials, that are also used for household consumption, as well as from the growing availability of quality finished products Higher literacy rates, growing demand for more schooling facilities and better education. Still, in 2011 overall literacy rates for Moga (71.6 %) were lower than those at the provincial level (75 %). However, the local literacy rate for women was 67.4 % compared to the Punjab average of 63.4 % Establishment of an entrepreneurial class In close collaboration with India's National Dairy Research Institute and Punjab Agricultural University, awareness campaigns have led to the implementation of good practices in animal husbandry, pesticide residues reduction, fuel efficiency and use of biogas plants Intensified use of biogas plants and smokeless stoves, replacing wood or coal ones. By 1987, Nestlé had already constructed 2,285 smokeless stoves in the region By 1992, one in 10 villages had secondary schools and one in five major villages had high schools
Socio-cultural and gender-related attitudes	Taboos regarding milk commercialization discouraged sustaining or rising production levels. Overtime, this belief was abandoned and milk production began to be accepted as an income-generating activity Nestlé's veterinary specialists, agronomists and agro-technicians greatly helped in changing fatalistic attitudes towards illness and diseases that afflicted cattle Growing recognition of the roles women play in the dairy industry. They were responsible for over 87 % of milking and animal watering, cleaning and feeding'			By working with the local community to gradually build trust and confidence in the milk trade, Nestlé's factory in Moga kick-started what is now a 'strong dairy tradition.' Farming and dairying activities seem to be sharply divided along gender lines. Women take care of cutting and chaffing fodder; animal feeding, watering, cleaning and care; and milking. A reduced number is involved in delivering milk to collection centres. As they carry out the bulk of dairying work, women's training needs has been addressed through the 'Village Women Dairy Development Programme.' These schemes have benefited over 51,000 women and aim at improving milk quality and yields, animal hygiene. As literacy rates remain comparatively low among women, albeit higher than the provincial average, capacity building relies heavily on audio-visual media for all educational purposes; diagrams, charts, illustrations, posters, slides, photos, pictorial-guides, pre-recorded cassettes with lyrics, and short films. The transmitted skills seek to encourage them to get further involved in milk production and other remunerated activities Women have been urged by nutrition campaigns for households to adopt more balanced diets, and better hygiene and sanitation practices. Some community members have reshaped gender expectations by taking on professional roles in male-dominated activities such as tractor driving However, despite encouraging changes in gender labour divisions and women's rising involvement in milk production-related activities, there is still a long way to go to further their participation in the formal economy and income generating activities available around Moga

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Local context	Early years, 1960–1970	1980s	1990s	2011 and beyond
Nestlé's rapport with farmers	<p>The company used cooperatives' rates as floor prices and paid a premium 9–12 % higher. Additional bonuses between 7 and 10 % were introduced to encourage farmers to feed their animals better during low season. This reduced supply fluctuations</p> <p>The company, supplying farmers, factory workers and ancillary services established long-term social capital and loyalty-based, relational transactions</p>	<p>Initially driven by the need to increase milk intakes, Nestlé actively sought to help the farmers in increasing quantity and quality of milk. Overtime, the company and farmers supplying it have established a 'community of interest' in which the company encourages, supports and facilitates those factors necessary for its operation which in turn are also factors spiralling Moga's development process:</p> <p>Highlighting relational over transactional interactions. Nestlé Agricultural Extension Services keeps direct and close contact and rapport with over 85,000 individual farmers as experts and trainers spend most of their time in the fields</p> <p>Relying on the establishment and strengthening of mutual and effective communication avenues between the company and supplying farmers, farmers and veterinarians, farmers and agronomists and farmers and extension departments</p> <p>Offering systematic and/or specialized factory training, apprenticeships and postings in other factories abroad</p> <p>Encouraging local banks to extend credit lines for dairying related activities and inputs</p> <p>Putting in place affiliation incentives for milk suppliers as payments for required inputs and deducting loan repayments from milk payments</p> <p>Equipping farmers with transferable skills that can help them perform different and better tasks, enlarging their occupational flexibility and mobility and their engagement in additional income-generating activities</p> <p>Publicly recognizing successful farmers, disseminating their achievements and encouraging other entrepreneurs to follow</p> <p>Drawing in local talent, recruiting workers from the community and offering extensive training and</p> <p>Using local knowledge and partnering with local institutions, universities and banks to foster and disseminate innovations</p> <p>Factory employees, agents and dairy producers working with and for Nestlé have benefited from the reputational capital and social prestige associated with the brand. As ancillary firms adopt quality standards and industrial processes meeting Nestlé's requirements, they can also trade with other companies who see their association with Nestlé as a quality and reliability guarantee. Working and collaborating with the company has had an aspirational impact in the community</p> <p>Continuous and expanding network of free, relevant and cutting-edge veterinary, husbandry, dairying and agricultural advice; technical assistance, education and capacity building sessions; and supporting services that:</p> <ul style="list-style-type: none"> Are delivered by context, region and local conditions-sensitive specialists Support research, innovation, development and dissemination of successful practices regarding key inputs and raw materials Encourage the adoption of novel and innovative farming methods Promote peer-to-peer learning among suppliers Foster better animal health and preventive treatments <p>Help close farmers' skill gaps, affecting the supply of raw materials to Nestlé</p> <p>Extensively involve Nestlé staff at suppliers' locations to ensure successful implementation of new technologies and quality control processes</p>	<p>Market changes and increased competition have resulted in farmers' rising milk supply elasticity. Profitability has come to be based on the price of milk alone. This is particularly true among young farmers, whose attitudes and expectations regarding the extent to which corporate success ought to be tied to the community's wellbeing have been fully internalized as part of normal business activities. Conversely, older farmers point at the 50-year business relationship with Nestlé and seem to have more deeply internalized the transactional and relational benefits resulting from this partnership</p>	<p>The company offers its factory employees a competitive package that goes well beyond Government requirements of 48 working hours per week, 14 days of holidays and medical insurance and treatment for each employee. Nestlé's workers receive four times as high salaries, compared to the Government-fixed minimum salary for 45 working hour weekly shifts, seniority-based progressive holidays, medical insurance and treatment for employee and their families, and canteen services at nominal prices. Absenteeism is low (4.5 %) and so is the turnover rate, 1.6 %</p> <p>Farmers have favoured supplies to Nestlé due to: the prices paid for milk and other raw products; steady and timely payments that act as insurance against price fluctuations and smoother income receipts; convenient payment methods; accurate, strict and fair quality assurance controls and measurements; supporting services and training; offer of financial services; trustworthiness and responsiveness of accountability mechanisms; corporate reliability, trustworthiness and reputation; and expectations of positive technological, managerial, technical and skill spillovers</p>

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Local context	1960–1970	1980s	1990s	2011 and beyond
	Some ancillary enterprises have developed a symbiotic relationship with Nestlé, tying most of its success and business expansion to that of its business partner. Paras Spices PVT Ltd. has built a systematic collaboration with Nestlé, establishing a wide and solid range of interactions and mutually beneficial investment and training requirements. The scope of their transactions has grown from a 2 kg turmeric purchase in 1982 to one involving over 5,000 farmers directly involved in the production of spices from all over the country and 35,000 to 40,000 more indirectly involved in the process. This same relation has brought Para's employees a competitive income, training, medical plan, safety and security package. The spices company expansion ventures are supported with Nestlé's know-how, experience in factory design and laboratory requirements, and technical assistance that can be easily reached due to geographically proximity between the two partners	Transportation and animal-feed companies have also spurred and expanded their business operations by harnessing the market opportunities being associated to Nestlé has opened for them. Brar Enterprises Limited has been transporting milk to Nestlé since the factory was first established and since then, the company has used its with in-house capital to upgrade, improve and adapt its equipment and technology to respond to Nestlé's requirements, expectations and standards. This raised Brar Enterprises' business practices quality, setting a much higher floor thereby made available to local and multinational companies alike making exceptionally good quality the transporters' status quo practice. Nestlé has gone from being Brar's sole partner to the current 20 % of business activities	Before the arrival of Nestlé in Moga, cattle-feed as an organized business activity was unknown and so fodder was sold to farmers on a non-profit basis. However, as quantity and quality demands for animal feed rose, local entrepreneurs stepped in. P. Marka Registered had been producing mustard oil since 1933 and as it also sold mustard cakes, it decided to enter the cattle-feed business in 1988. Initially, their plant original capacity of 50 TPD has now been doubled. The company now employs over 25 trained people working entirely on preparing animal feed according to a Nestlé-provided formula and meeting the required quality standards	The company has been fully integrated in the social, cultural and economic life of Moga, quickly responding to immediate and long-term needs that strengthen the links between Nestlé and the community in which it operates. For instance, during the 1988 floods that afflicted the region, Nestlé was at the forefront of relief operations, distributing food, fodder, and veterinary services to the stricken people. Since 1999, longer-term and sustainable community development programmes have been undertaken to promote prosperity in the community. Around 115 of these initiatives have provided drinking water and other basic facilities at local schools, benefitting over 40,800 students. Other programmes have supported immunization campaigns and set medical camps. Whilst the company finances such projects, it encourages community ownership and local responsibility for maintaining them

^a Nestlé in the Developing Countries, 1978, Nestlé Alimentana S.A., Vevey, p. 139

^b Nestlé in India, 1962–1992, pp. 33–34

^c Interview with Dr. Surinder Singh, Director Research, Guru Angad Dev Veterinary and Animal Science University (GADVASU), Ludhiana on 14/11/2011

^d Dairy Scenario of Punjab, Gill, M.S., Bhatti, J.S., available at http://pdfa.org.in/website/english_article/DAIRY%20INDUSTRIES%20IN%20PUNJAB.pdf (Accessed on 29/5/2012)

^e Parvesh, Sharma, "Punjab females less educated than males: SSA," Times of India, November 11th, 2011, Web, June, 7th, 2012, http://articles.timesofindia.indiatimes.com/2011-11-07/india/503690601__literacy-rate-males-punjab-education-department

^f Education and information on Animal Husbandry Techniques for Rural Women: Why and How, T. S. Sandhu, FSL, Moga (no date), pp. 4–5

Annex 3: Evolution of Developments, 1961, 1981 and 2011

	1961	1981	2011	2012
<i>Corporate profile</i>				
1.	Moga factory processing capacity	The processing capacity has gone up by about 18 times between 1961 and 2011		
2.	Goods produced	Condensed milk Milk products and drinks (baby formula, ghee, yogurt); prepared dishes and cooking aids (noodles, soups, spices, sauces); and chocolates and confectionery Milk products and drinks (baby formula, ghee, yogurt); prepared dishes and cooking aids (noodles, soups, spices, sauces); and chocolates and confectionery		
3.	Total production for Moga factory	The total production of the factory has gone up by 95 times between 1961 and 2011		
4.	Water use per tonne of final products	9.70 (m ³ /t)		
5.	Wastewater generated per tonne of final products	8.57 (m ³ /t)		
6.	Energy consumed per tonne of final products	7.88 (GJ/t)		
<i>Milk distribution and procurements</i>				
7.	Milk routes	3	13	31
8.	Collection centres (in Punjab only)	63	434	1,483
<i>Milk supplies</i>				
9.	Calf mortality rate	70 %	50 %	25–30 % (natural 5 %)
10.	Direct suppliers	180	32,000	68,846
11.	Total volume supplied in kilos	511	35,000,000	211 m kg
12.	Average farmer milk supply	2.83	1,093.75	3,065 kg
<i>Milk productivity</i>				
	Buffaloes	5.3 kg/day	6.5 kg/day	8.0 kg/day
	Cows	3.0 kg/day	8.0 kg/day	15 kg/day
14.	Average milk price in INR per kg of fat	0.45	34	393.46
<i>Farmers' profile, % of total suppliers</i>				

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	1961	1981	2011	2012
15. Farm labourers	1961	1980-1981 27.31	2009-2010 18.5	Study on farmer profile was not carried out in 2011-2012. It is carried out after every 3-4 years
16. Marginal		40.5	27.47	
17. Small		22.56	24.94	
18. Average		22.56	21.35	
19. Large		0.95	5.36	
20. Very large		0.2	2.39	
	1961	1981	2011	
<i>Employment generation</i>				
21. Direct jobs (factory)	292 (for the year 1968)	589	1,192	1,189
22. Indirect jobs in ancillary industries	—	—	86,200	
<i>Contributions to the local economy</i>				
23. Milk payments	INR 0.91 m (in 1962)	INR 75.75 m	INR 6,122 m	INR 7,401 m
24. Payment to milk collectors	—	INR 5.1 m (in 1982)	INR 147 m	INR 172 m
25. Payments to factory employees	—	—	INR 657 m	INR 770 m
26. Taxes paid to the state of Punjab	—	—	INR 553 m	INR 540 m

Annex 4: How Nestlé has Touched the Lives of People

Case Study 1: Jatinder Singh, Gureh Village

Jatinder Singh, like most other youths of his village Gureh, was a hard-working farmer. He inherited one buffalo from his father. Life was difficult for a very small farmer like him. It was his hard work and the support of his mother and wife that assured the survival of his 5-person family.

Stories of NRI (Non-Resident Indian) villages such as Dudhike are well-known in the Moga area. People had started sending their children to English medium schools for better education so that they can go to cities, or even abroad, to earn a better livelihood. Jatinder Singh was no different but with his meager income it simply was not possible for him to send his children to good schools.

By 1990, with his hard work and frugal living, he managed to purchase three more buffalos and started selling milk after being encouraged by one of Nestlé's field staff. This field staff convinced him that he could use this additional, continuous and reliable income for his children's education and meet his day-to-day expenses.

Before he could start selling his milk to Nestlé, a local agent of Verka (Punjab State Cooperative Milk Producers Federation), a governmental institution poached him by offering higher price for his milk and a hassle-free acceptance of his milk. He assured Jatinder Singh that he would not bother him about the quality of milk.

Soon Jatinder Singh becomes disillusioned with the agent. This agent at village Karnail Singh was often drunk. After first 2–3 regular payments, the agent started to delay in paying him on one pretext or another. Soon he started paying less than what was promised. Not only this, but the agent also started accusing Jatinder for supplying adulterated milk.

A dejected Jatinder thought about not selling milk to anyone any more. Then, his mother heard that Nestlé was organizing a factory tour for the women of villages. She was curious to see the factory. When she visited the Moga factory and interacted with staff and officers and saw herself the plant and its management, she returned home very impressed. Apart from cleanliness, transparency and professionalism, what attracted her most was the attitude of the staff, who sat down with her and discussed her problems. She was amazed to see how easily and respectfully Nestlé staff treated her and gave her helpful suggestions about nutrition of humans and animals and other dairy-related issues.

This changed her perception about Nestlé. In 1999, the family began to supply milk to the company. Later, Nestlé's staff helped them with technical advice to buy high yielding cows. With Nestlé's technical assistance and regular guidance by its staff, Jatinder's cattle stock started to increase. Observing his sincerity and hard work, Nestlé further encouraged him to take charge of an agency. By March 2005, his agency was supplying 3,500 kg of milk to Nestlé.

Nestlé then sent Jatinder's son along with others to a Dairy Expo in the USA, where they saw mechanization of farms and interacted with dairy farmers from all over the world.

After returning from the USA, and again with active guidance from Nestlé, Jatinder and his son installed a milking parlour, constructed better animal-sheds and began scientific management of calves. With the growing size of farm, Jatinder also focused on quality silage-making. Within ten years, he had 85 animals out of which 50 were adult milking cows.

Expansion of his own farm forced him to leave the milk collection centre so that he could focus better on milk production. Today, his farm yields daily 500 kg of milk which he hopes to double in the future.

He said categorically that without the help of Nestlé, he would have remained a small poor farmer. His son is now working in Canada and his daughter is pursuing a diploma course in Mechanical Engineering. (Interview with Jatinder Singh at his farm in Gureh village, 18th November, 2011)

Case study 2: Jagdeep Singh, Assal village

The case of Jagdeep Singh, Assal village, is one of many that the team interviewed whose life has been completely transformed by Nestlé's activities.

Punjab is well-known for its hard-working peasants and gallant soldiers. The tradition of serving in the armed forces and farming has been persistent for centuries in rural areas. Generally, one son remained at home farming and the other joined the armed forces. This tradition led to the slogan of *Jai Jawan Jai Kisan (Victory to the soldiers, victory to the farmers)*, coined by India's second Prime Minister, Lal Bahadur Shastri.

When Nestlé opened the Moga factory in the early sixties, it was not a good time for India. The country was dependent on food imports. The moral was low because of its poor performance in the war with China in 1962. Food shortages had forced the Prime Minister to call for fasting. Industrial developments depended on an inefficient public sector. Private sector was heavily controlled by red tape.

When Nestlé opened its factory in Moga, it was not the best time for the region. With the beginning of the Green Revolution in 1965, and tepid industrial development, socio-economic character of the villages began to change fairly rapidly. These new forces required more working hands at home. Accordingly, young males stayed at home for farming which became economically attractive.

As employment opportunities started to increase, parents became reluctant to send their sons to the army. Marginal farmers and labourers who had always encouraged their sons to join army suddenly had better local options.

Jagdeep Singh's father was in the army, but he did not allow him to join the army. According to Jagdeep, his father said, "I had always been away from home during my service. But those were different times. There was nothing for poor people like us to earn a living in the villages. Now, the situation has changed. You can get better jobs near home". Thus, he joined the police in 1998. As soon as he had a job, his parent arranged his marriage in 1999, when he was 23. With new responsibilities, his expenses started to rise and he found the salary inadequate to meet his needs. He informed us:

"My basic pay was INR 1,827 and I used to get a total sum of INR 4,500. With this meager amount, I had to run the house, take care of my parents and wife. I used to worry how much should I give to my parents and how much should I keep for myself? How can I rear my children properly? Many times, I thought of quitting my job and going back to the village. But my confidence level and courage were low. Some time ago my father had purchased some rural land using his retirement funds but I had no idea how I could improve my economic situation."

Leaving a salaried and secure job was a difficult decision. He shared his problem with his Inspector. One day, during a visit to Punjab Agricultural University, he met Dr. Jagtar Singh, head of its Horticulture Department and a relative of his Inspector.

When Dr. Jagtar Singh heard that he had 7 ha of land he told Jagdeep that if he had that much land, he would have left as the Head of Horticulture Department. He advised Jagdeep, "you are young and can do hard work. When you grow old and retire without taking any risk, you will only regret. Take the risk, resign and start on your own. You would be a success in 10 years".

Jagdeep resigned from his job. He recollects:

"His words inspired me. Today, I realize how prophetic his words were. Currently my batch-mates in the police are getting a salary of INR 18,000 per month, I now have 13 employees who receive a salary of INR 5,000 or more per month. I now have 35.5 ha of agricultural land where I grow potatoes, barseem, wheat, chilli, garlic and peas. This and a big dairy farm producing 11 quintals of milk per day: all in a span of 10 years".

Dr. Singh arranged Jagdeep to meet with several staff members of the Punjab Agricultural University. They trained him about agriculture. He spent two months learning about agriculture, fertilizers, seeds and machines. He also learned about subsidiary activities like bee-keeping, mushroom farming and dairy. He received training for 2–3 weeks for each activity.

He completed all the training by taking leave from his job. After this training, Dr. Jagtar suggested him to resign and start full-time farming. His father supported this view.

When Jagdeep resigned, he only had the land. His father was never a farmer. So, Jagdeep requested his in-laws to loan their tractor to him for a season and started cultivating paddy. That crop fetched in INR 136,000 at the end of the first season. He purchased a tractor for INR 120,000. This paltry saving forced him to consider other concurrent activities.

He started bee-keeping. Being cautious, he bought one box for INR 600 and started bee farming. Soon he had 25 boxes, and, by 2002, was producing lots of honey. Sadly, there was no market for honey in his area. He thus decided to leave bee-keeping. However, he made good profit since he sold boxes at 10 times his purchase price.

He thus decided to grow mushrooms. However, there was also no market for mushrooms in Punjab. He had to go to Delhi or Chandigarh to sell his products. This was cumbersome since agriculture was a full time occupation.

Accidentally, he met one of the Route Officers of Nestlé, who encouraged him to consider dairy farming. Jagdeep was not sure, especially after the first two adventures which did not turn out well and left him somewhat disappointed. He decided to start cautiously by buying a buffalo in 2002. Soon, his entrepreneurial skills and profit in selling milk to Nestlé made him a serious visitor to cattle fairs where farmers buy and sell cattle. His constant interactions with Nestlé's veterinary expert's business acumen and sharp eye on the market helped him to increase his herd to 36 buffalos in a span of only two years.

Initially, he encountered some problems. The nearest Nestlé milk collection agency was 8.5 km away. It was not attractive for him to go that far to sell his milk. He sold his milk to the local milkmen at about INR 11 per litre. One day, the Nestlé's local officer persuaded him to come to the agency where he found his milk was of better quality and received INR 14.75 per litre. He said, "This opened my eyes as I quickly calculated if I sell them 10 quintals per day I may get my feed cost back".

Then he met some more officers from Nestlé. They encouraged him to switch to cows. They took him to visit cow farms and tried to convince him of the benefits. He still was not convinced. Nestlé then encouraged him to take 15 days' training at GADVASU. It was there that he could shred his inhibitions about cows. Now he reflects: "I was influenced by what people used to say about cow farming, most of which were based on beliefs and not reasons. After the training, I understood it was all about nutrition and feed, nothing else".

Once he decided to be a dairy farmer, Nestlé helped him to make plans. The company further helped him to get loan of INR 3.6 million from HDFC Bank. From this loan, he made one cowshed and installed two milking machines. He sold all his buffalos and bought 36 cows. Nestlé helped him in the selection and purchase of better yielding cows. This was in 2004.

By the end of 2007, his daily milk production reached at about 900 L. He found it difficult to achieve economy of scale, and was not meeting his own targets. Nestlé assisted him with herd management and other associated issues. He regularly attended dairy-related meetings organized by Nestlé. But still "despite my best intentions and hard work, I was not able to increase my business". On the contrary, because of lack of understanding of cow cycle and lack of modernisation, his milk yield declined to 500 L by mid-2008.

Nestlé noted his concerns and sent him along with other farmers to USA to see and study modern dairy farms. He says:

We saw, how they manage parlours; feed such huge number of cows and make silage. A lot of technical advice and guidance was given by them with the help of Nestlé. We also learned management of cows and milk production. After coming back from the US, I constructed my own parlour and feed silage to cows. It was a joy that was beyond mentioning!

He introduced synchronization techniques in the new parlours. He decided to increase the number of cows. In 2009, he approached the State Bank of India for a loan of INR 12,000,000 to expand and modernize his farm. The loan was sanctioned in 2010. He then constructed a modern parlour and purchased 40 additional cows and achieved his target of 1,100 L of milk per day.

Jagdeep does not plan to stop here. He would like to construct 2–3 more sheds after constructing his biogas plant and updating milking parlour and old milking plant. As his business grows, efficient and intensive monitoring will be necessary. For example, he says, ‘When 100 cows will be milked simultaneously, it is difficult to watch all of them. Therefore, I am left with two alternatives: either conduct milk test and systemic cell count for each cow (this takes 3–5 minutes for each) or to introduce a completely automatic computerized system for cow’s yield monitoring.’

Jagdeep says that yield of an animal depends on its systemic cell count. If it goes beyond a certain value both animal’s health and milk quality is affected. He thus plans to install fully automatic system at a cost of INR 2,500,000. This system will monitor details of all cows, their body temperature, systemic cell count, heat direction, yields etc. By analyzing these data and planning accordingly, he is confident that milk production will increase further. He told us, “Now I have 168 cows. But, for many of them, I am not sure when they come to ‘heat’ stage or when they miss it. By this system it will be easy to find out and hence will be easy to manage”.

On the strength of this system, he is planning to increase his dairy size to 250 in 2012. He already has prepared the shed to accommodate this number and has constructed two biogas plants. The construction of a new milk parlour is also complete. He appreciates the technical support, inspiration and the culture of quality consciousness of the company. He is continuing to receive advice from the company to identify better cow breeds to improve his herd regularly.

Large scale milk farming is complex. His family consists of his parents, wife and two children. He has 13 permanent employees and equal number of temporary labourers. Primarily due to the training he received from Nestlé, he emphasizes quality management in all aspects of his work. Jagdeep acknowledges role of his wife by saying that, “if labourers gets meal in time, it contributes to the success of the farm”. Up to 2011, his wife used to cook for 13–30 persons. However, with changing times, even his father, a highly traditional man, has advised him to hire a cook and receives kitchen gas supply from his modern biogas plants.

Thus, the small seed that was sown by Nestlé has now grown. Jagdeep himself has transformed into a smart businessman. He and his wife now have 67 (female) calves. This is no mean achievement, since a good quality cow costs about INR 85,000 at present. The breed of these in-house calves is now carefully monitored by his wife. The small dairy business that he hesitatingly started in 2002 has now become a major money-spinner.

Jagdeep now says that without the chance meeting with Nestlé in 2002, followed by consistent help and good advice, his story and life would have most likely been very different.

Glossary

Barseem Also called Egyptian or Mediterranean clover, grown as a forage crop and green-manure plant in alkaline soils

Deshi Also spelled desi, native, local, indigenous

Dodi Also known as dudhias, these are milk buyers and traders in charge of collecting milk from farmers and delivering it directly to customers. Such merchants operate in rural, urban and peri-urban areas

Quintal Also called centner, it a historical unit equivalent to 100 kg and it is used a standard measurement of mass for agricultural products

Tona Magical healing rites performed by a shaman or a person familiar with enchantments, sorcery, spells and charms

Octroi Taxes levied on the entry of goods into local areas of consumption, use or sale therein and imposed directly by the municipality and local bodies in India

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