Tetra Pak: Sustainable Initiatives in China

4

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Introduction

In January 2009, Hudson Lee, President of Tetra Pak China, was looking over a cliff. The company had invested €65 million to expand its packaging plant on Hohhot, the capital city of Inner Mongolia, China, on top of its initial 2004 investment of €50 m. The expansion plan was based on the inexorable rise in milk consumption in China – growing from 16 to 23 million tons between 2005 and 2012. This was a market with huge opportunities for growth, and powerful domestic brands to reach out to China's 1.4 billion consumers. The plant initially designed to produce 20 billion cartons a year now had the capacity to process 60 billion cartons.

Then the bottom fell out of the market. Powdered milk, contaminated with melamine, poisoned hundreds of children, 8 died and many others were critically ill. Confidence in the domestic brands Yili and Mengnui crashed. These were Tetra Pak China's main customers, the bedrock of the investment plan. And Tetra Pak aseptic packaging clearly hadn't prevented this contamination as it took place way before the packaging process. As millions of consumers switched to imported brands, it looked as if Tetra Pak's business was evaporating along with the industry it supplied. There could be no overnight solution: Hudson Lee and his executive team

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were forced to look beyond their own part in a supply chain, to see what they could do to repair a broken food- production system.

Hudson sat in his office in Beijing, looking at a table of display of Tetra Pak milk cartons printed in various languages. Behind these cartons are some photos of early TP managers' visits to China back in the 1970s. TP had a long history in China and was there ever since the country stepped out of a disastrous cultural revolution and began to open up to western countries. TP's success had always been building on its positive engagement with the economy and stakeholders in the host country. Hudson began to reconsider the overall business models of TP in China and posed a question: how could TP China handle the milk safety issue and what role should the company play in the milk scandals of its customers?

Background

Since its entry into China in 1972, Tetra Pak has been an influential player in the emerging Chinese dairy industry. Its business operations have expanded successfully together with the consumption of dairy products in China in the last two decades. The company leverages its packaging technology to shape the entire supply chains of various dairy producers and the dairy industry development in China. The company claims that social and environmental sustainability are integral to its business strategy. The objective of this case is to illustrate this integration of Tetra Pak's sustainability strategy, its implementation in supply chain management, and challenges the company faces in a maturing industry as local competitors become ever more sophisticated in business operations, and in the face of health risks such as that faced in 2008.

Chinese Dairy Industry Overview

Tetra Pak is located in two supply chains: packaging and dairy. The dairy producers are the company's biggest customers, with products including milk, yogurt, condensed milk, dried milk (milk powder), and icecream, using processes such as chilling, pasterization, and homogenization. Typical by-products include buttermilk, whey, and their derivatives. Consumer milk includes Ultra Heat Treatment (UHT)[1] milk and pasteurized milk. Tetra Pak concentrates on UHT milk in the China market. Currently, UHT milk accounts for 70% of the consumer milk market, while pasteurized milk has 30% market share in the consumer milk market. Pasteurized

[1] UHT milk is the sterilization of milk by heating it for an extremely short period, around 1–2 s, at a temperature exceeding 135 °C (275 °F), which is the temperature required to kill spores in milk, giving it a long shelf life of around 9 months. Pasteurization is a process of heating a food, usually liquid, to a specific temperature for a predefined length of time and then immediately cooling it. This process slows spoilage due to microbial growth in the food. Unlike sterilization, pasteurization is not intended to kill all micro-organisms in the food. Instead, it aims to reduce the number of viable pathogens so they are unlikely to cause disease. It has a refrigerated shelf life of 2–3 weeks.

milk products have distribution restrictions (e.g. short shelf life and refrigeration requirements), so are produced and sold mostly by city dairies or at most regional players.

Yili and Mengniu are the two biggest UHT milk producers; the key pasteurized milk producers include Bright, New Hope, Sanyuan and Yantang. Mengniu, Yili, Bright and Sanyuan are major milk processors nationwide. Mengniu is listed on the Stock Exchange of Hong Kong Ltd., and the other 3 major milk processors are listed in Shanghai Stock Exchange. These four companies accounts for 40–50% of the national market share. Exhibit 4.1 shows the sales volume for these 4 major milk processors. There are also about 1000 milk processors at the regional and city levels, which only supply to the areas around their plants.

According to the Food and Agricultural Organization (FAO), over the past decade, China's dairy industry has grown at 20% annually, becoming the 4th largest dairy producer globally with a small but growing export industry. This growth has been fueled by a voracious domestic market which has seen urban consumption of milk jump from just short of 5 kilos per capita per annum in 1990 to over 18 kilos in 2006, with only around 3% of demand being met by imports. Touted by many as China success strories, local brands such as Mengniu, Sanyuan, Yili and Bright quickly became industry leaders, contributing to the over RMB 30 billion spent by the dairy industry in advertising in 2008.

The rapid growth of dairy products consumption and the dairy industry in China wouldn't have been possible without the UHT technology introduced by Tetra Pak. Before that, regional players (e.g. the 6th Plant of Shanghai Dairy Products) flourished in the 1980s through to 1990s. The introduction of UHT technology in the late 1990s enabled the emergence of national players (e.g. Yili, Mengniu, Bright and Sanyuan) and changed the landscape of the liquid dairy market completely. Growth of city dairy producers was limited by the rapid expansion of the large national brands, and as consumers turned from powder to liquid products, many small powder players were squeezed out of the industry.

After a decade of strong growth, however, the future of China's dairy industry looked uncertain as the melamine[2] milk scandal hit newsstands in September 2008. Dairy sales fell across China, most notably within the milk powder category at the center of the scare. Although the drop in sales indicated that the response from the

[2] The scandal, also known as the ammonium hydrogen dimmer crisis, caused widespread distrust of all domestic dairy brands including Mengniu and Yili. Facing rapidly growing demand for dairy products in China, some dairy farmers and raw milk collection stations adulterated the raw milk with melamine in order to boost protein levels, and hence the collection prices. Melamine contains 66% nitrogen but is toxic to humans. Like most other countries, the State and Provincial Food and Drug Administration in China used the level of nitrogen as an indicator of the level of protein, which is difficult to measure directly. This practice had apparently been widespread amongst dairy farmers for some time due to their lack of knowledge about the toxic effects on humans, especially when the milk was used in formula for infants. In autumn 2008 six infants died from kidney damage, and more than 800 were hospitalized. It is estimated that adulterated milk products affected over 300,000 people, and consumers switched to more expensive but trusted international brands.

majority of shoppers was to stop purchasing dairy altogether, those that did continue to shop within the category tended to favour foreign brands.

The industry now faces a number of challenges, such as loose links between the dairy companies and farms, undeveloped market mechanisms and an ineffective management system for raw milk quality. And at the "2009 China Dairy Development Forum", there was an appeal to maintain a sustainable development for China's dairy industry through three main strategies: (1) building a good social environment for China's dairy industry to achieve the healthy development of the industry; (2) gradual development from a fragmented business to an integrated one; and (3) establishing a sound regulatory framework.

In China, the dairy supply chain is highly fragmented, with millions of dairy farmers supplying to big milk processors, a typical "Y" shape structure. The big milk processors are normally the focal companies in the supply chain. Dairy farmers and packaging suppliers are the upstream part of the supplier chain. The downstream part of the supply chain consists of various distributors, retailers (shopping malls, retail shops and dairy shops, etc.) and consumers (See Exhibit 4.2).

Major Dairy Producers in China

Yili

Inner Mongolia Yili Industrial Group Co., Ltd. (Yili) is one of Tetra Pak's largest customers. It is also one of the largest dairy products manufacturers with the broadest product line in China. Yili started from a state owned dairy producer in 1982 and was privatized in 1992. Yili was designated as the sole dairy products supplier to the Beijing Olympic Games in 2008 and Shanghai Expo 2010, successfully expanding its presence nationwide. Yili Group is made up of five business units: liquid milk, ice cream, milk powder, yogurt and raw milk. Yili Group has more than 130 branches and subsidiaries nationwide. There are more than 1000 series of Yili brand products, such as popsicle, ice cream, milk powder, milk tea powder, UHT milk, yoghurt, and cheese. The most popular products include classic organic milk, low-lactose nutrition milk, Chang Qing yogurt, Jinlingguan milk powder for infants, and Chocliz ice cream etc.

Mengniu

China Mengniu Dairy Company Limited (Mengniu henceforth), established by a former executive of Yili in 1999, and its subsidiaries manufacture and distribute quality dairy products in China. Its visionary leader, Niu Gengsheng positioned it as No.2 dairy producer after Yili at the beginning of its establishment and had a series of very successful marketing campaigns associated with China's successful launch of the Shenzhou manned spaceship in 2003. It is one of the leading dairy product manufacturers in China, with 'Mengniu' as the core brand. The Group boasts a diverse product range including liquid milk products, (such as UHT milk, milk beverages and yogurt), ice cream, and other dairy products (such as milk powder). The Group has held the top spot in the China dairy market in terms of overall sales

volume and sales volume of liquid milk products since 2006. The main product of Mengniu is UHT milk.

Bright

Bright Dairy & Food Co., Ltd. (Bright henceforth) is a listed joint-stock enterprise specializing in the development, production and sales of milk and dairy products, the rearing and fostering of milk cows and stud bulls, and the development, production and sales of health and nutrition products. The top two stockholders of Bright are Shanghai Dairy Group Co. Ltd. and Bright Group Co. Ltd. Danone, the France-based food company, was one of Bright's major stockholders, but sold its shares in October 2007. Bright boasts a world-class dairy product research and development center, dairy product processing facilities, and advanced processing techniques, and has developed various product lines including pasteurized milk, yoghurt, UHT milk, milk powder, butter and cheese, and fruit juices. It is one of the largest dairy production and sales companies in China. The main product of Bright is pasteurized milk.

Sanyuan

Sanyuan Group (Sanyuan henceforth) is a state-owned group of companies based on agriculture and animal husbandry in China. It consists of 12 state farms, 20 professional companies, 41 transnational joint ventures, 3 overseas subsidiaries and 1 public company as Beijing Sanyuan Foods, which is listed in Shanghai Stock Exchange. Sanyuan was one of the few companies which were clean in the melamine milk scandal in 2008.

All the above players apart from Sanyaun were involved in the 2008 Melamine scandal in various degrees, and the national dairy industry as a whole suffered from this.

More Milk Safety Incidents

In February 2009, Mengniu's Telunsu (brand name) milk was reported for containing Osteoblast Milk Protein (OMP, Chinese: 造骨牛奶蛋白), In February 2009, the safety of OMP was questioned by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), the national quality supervision department in China, when they were doing a general clean-up on the use of food additives after the 2008 melamine scandal. Mengniu first stated that the major active ingredient in OMP is Insulin-like growth factor 1 (IGF-1), but later denied adding IGF-1 and said that OMP is the same as Milk Basic Protein (MBP). IGF-1 could possibly cause cancer in extreme doses. Mengniu stopped adding OMP to its milk on February 2nd 2009, after a government order, but did not recall products already on the market. On February 13th 2009, the Ministry of Health stated that OMP is "not harmful to human health", but the ban on its use stayed in place because the importer had not submitted the necessary paperwork.

In June 2012, Yili recalled mercury-tainted baby formula milk after an "unusual" level of mercury was found by the country's product quality watchdog. A spokesperson from the local quality supervision bureau in Inner Mongolia said that two samples from Yili were found with mercury concentration of 0.034 mg/Kg and 0.045 mg/kg (BBC news).

In the latest incident (June, 2012), the Bright Dairy & Food Co. posted a recall notice on its website after consumers complained online of bad smelling and discolored liquid in the company's 950 ml cartons (about a quarter gallon) of Ubest milk. A seconds-long mechanical delay during routine maintenance at one of its Shanghai factories caused a "small amount" of alkaline cleaning solution to be flushed into 300 cartons of milk produced on Monday, the company's notice said (Reuters).

Tetra Pak Global

Tetra Pak is a multinational food packaging and processing company of Swedish origin with head offices in Lund, Sweden and Lausanne, Switzerland. The company offers packaging solutions, filling machines and processing solutions for dairy, beverages, cheese, ice-cream and prepared food, including distribution tools like accumulators, cap applicators, conveyors, crate packers, film wrappers, line controllers and straw applicators. Tetra Pak is currently the largest food packaging company in the world by sales, operating in more than 170 countries and with over 22,000 employees. Tetra Pak produces carton packaging for both UHT and pasteurized milk, but has a leading worldwide market share of over 70% in terms of number of packs in the narrowly defined aseptic carton packaging segment for UHT milk. As Tetra Pak's ex CEO Nick Schreiber put it, Tetra Pak is a big fish in a small pond. Tetra Pak was founded by Dr. Ruben Rausing in Lund, Sweden, in 1951 as a subsidiary to Åkerlund & Rausing, a food carton company established in Malmö in 1929 by Ruben Rausing and Erik Åkerlund. Tetra Pak was built on an innovation by Erik Wallenberg, the tetrahedron package, from which the company name was derived. The late 1960s and 1970s saw a global expansion of the company, much due to the new Tetra Brik Aseptic package, launched in 1969, which opened up new markets in the developing world and sparked off a virtual explosion in sales. In the Tetra Laval annual report 2010/2011, Tetra Pak announced particularly strong growth in China, Southeast Asia, Eastern Europe and Central and South America.

Mission, Strategy and Sustainability

Tetra Pak's mission and vision reflects its view of sustainable development. Tetra Pak's mission is "… to making food safe and available, everywhere". And their vision is to "…work for and with our customers to provide preferred processing and packaging solutions for food. We apply our commitment to innovation, our understanding of consumer needs and our relationships with suppliers to deliver these solutions, wherever and whenever food is consumed. We believe in responsible

industry leadership, creating profitable growth in harmony with environmental sustainability and good corporate citizenship." The company defines its corporate strategy as "to actively build and support partnerships for development; to employ the knowledge, products and expertise of Tetra Pak in development projects; to build local capacity and ensure sustainability by working actively with knowledge sharing and training; to support the development of high nutrition and cost effective products."

Different milk products use different packaging. As of 2011, Tetra Pak has around 70% market share in UHT white milk in the aseptic carton packaging. For pasteurized milk, Evergreen Packaging, formerly known as International Paper, is the key player, with about 60% market share.

Aseptic packaging technology is Tetra Pak's key innovation and has to a large extent paved the way for the Tetra Pak system's success. In aseptic processing the product and the package are sterilized separately and then combined and sealed in a sterilized environment, as compared to canning, where product and package are combined and then sterilized. When filled with ultra-heat treated (UHT) foodstuffs (liquids like milk and juice or processed food like vegetables and preserved fruit particulates), the aseptic packages can be preserved without chilling for up to 1 year, with the result that distribution and storage costs, as well as the environmental impact, is greatly reduced and product shelf life extended. Tetra Pak's most popular product is the Tetra Brik Aseptic, a best-seller since the 1970s. Exhibit 4.3 shows the key aseptic packaging produced by Tetra Pak. Tetra Pak cartons also have the advantage of consisting of 75% renewable resources, i.e., forest based fiber, making it the package with lowest carbon footprint, compared to plastic or metal packages. From a material perspective, Tetra Pak cartons are 100% recyclable and the carton recycling technologies are mature in most developed markets.

Despite the overall environmental advantages, Tetra Pak cartons have been criticized for being more difficult to recycle than tin cans and glass bottles, and recycling tends to be the most visible environmental issue for the general public. The difficulty lies in the fact that the process demands specific recycling plants that are not available in some markets and that if not recycled, the cartons may end up in landfills that are highly polluting and wasteful. The company has therefore put in place measures to reduce its overall impact on the environment, among them a carbon management plan.

Tetra Pak China and Competition

Tetra Pak started its business in China in 1972, when for the first time, Tetra Pak exhibited in China, at the Beijing Trade Fair. To date, Tetra Pak has 4 packaging material conversion plants in Beijing, Foshan, Kunshan and Hohhot and 10 sales offices in China. Its Chinese business accounts for over 10% of Tetra Pak's global sales. Exhibit 4.4 shows the milestones of Tetra Pak in China.

Tetra Pak's Competitors in China

GA Pack (ga-pack.com)

Greatview Aseptic Packaging Co., Ltd. (GA Pack) is the second largest supplier of roll- fed aseptic packaging material globally. The company operates at multiple locations across China, Europe, North and South America.

GA Pack traces its origins to late 2001 and the Tralin Paper Group in Shandong province (山东泉林纸业集团). State-of-the-art equipment was imported from Germany and Italy and a division for aseptic packaging material production was established. During the first couple of years the business expanded gradually with only smaller local dairy and beverage manufacturers as customers.

In 2003 the potential of Tralin's aseptic packaging business was identified by entrepreneurs Jeff Bi and Hong Gang, who were former employees of Tetra Pak. Drawing on their many years of aseptic packaging experience they could see that the business was poised to expand rapidly. A new team of managers was recruited and national sales teams started building customer relations across China. In 2005, leading dairy companies across China began to use Tralin Pak aseptic packaging material in their industry standard roll-fed filling machines. The company initiated export sales to Russia, Europe and South America. In November 2010, Tralin Pak changed its brand to GA Pack. GA Pack employs more than 800 people in 5 locations across China and in some European countries since 2010. On 9th December 2010, GA Pack successfully announced listing on the Main Board of Hong Kong Stock Exchange.

To date GA Pack has gained the attention of foreign equity investors. CDH Investments became the first major investor in Tralin Pak. In 2006, US Private Equity investor Bain Capital joined as a major investor in GA Pack and the company's capitalization reached US$ 60 million. GA Pack's management remained major shareholders, while the company had gained sufficient financial strength as it enters the critical growth phase. The company ranks as the second largest roll-fed supplier of aseptic packaging globally in 2009. The company's accumulated experience in aseptic packaging material manufacturing has exceeded 12 billion packages. It had about 9.6% of the aseptic packaging market share in 2011. Some of the Tetra Pak customers use GA Pack as a leveraging tool when negotiating with Tetra Pak, since GA Pack's price is about 10–15% lower than that of the Tetra Pak depending on volume.

Tetra Pak is not only facing the competition from other paper-aluminum packaging suppliers, but is also facing the challenging from the suppliers for other milk packaging, like glass bottles, plastics, metal containers, etc. While Tetra Pak takes a leading position in UHT white milk, most of its customers market both UHT and pasteurized dairy products. The popularity of either UHT milk or pasteurized milk among consumers also shapes the future of the overall dairy market, and thus the market situation of Tetra Pak.

Evergreen

Evergreen, formerly known as International Paper (IP), is the world's largest producer of plastic lids and paper cups, manufacturing for the fast-food giants McDonald's, Wendy's, Subway and coffee giant Starbucks. The Wood Products division of International Paper was sold in 2007 to West Fraser Timberland Inc., a company headquartered in Vancouver, Canada. The company currently produces printer and copier paper, envelopes, corrugated packaging and shipping containers, consumer packaging for cosmetics, home entertainment and other retail markets, and food service packaging. It also owns XPEDX, a large North American distribution and logistics company.

The liquid food (beverage) packaging business of IP was sold to the Rank Group and renamed Evergreen in 2007. The beverage packaging business includes wholly owned subsidiaries in China, South Korea and Taiwan, and joint ventures in Latin America, Israel, and Saudi Arabia.

In China, Evergreen controls 60% of the market share for pasteurized milk packaging. Evergreen's customers overlap with those of Tetra Pak, with key customers such as Bright, New Hope, Sanyuan and Yantang. In 2011, two major customers of Tetra Pak, Mengniu and Yili, also became its customers. Mr. Lin Pi, the marketing director of Evergreen China said, "…the consumption for pure pasteurized milk will definitely increase in China. Evergreen is the professional packaging supplier for pure pasteurized milk, while Tetra Pak focuses on packaging for UHT milk. We feel confident in gaining the market. If Tetra Pak produces in large scale the packaging for pasteurized milk, there will be direct competition between us and TP."

Tetra Pak's future depends largely on sustained growth of the dairy industry in China, especially on the two leading companies, Yili and Mengniu. Some dairy experts believe that pasteurized milk will gain more market share in the near future. Bright, the market leader in the pasteurized milk segment, lost its No. 1 position in China's dairy industry in 2003 and fell behind Yili and Mengniu. However, if Bright can regain its leading position with the aid of pasteurized milk, its strategic partner, Evergreen, will inevitably challenge Tetra Pak's market position.

SIG Combibloc

SIG Combibloc Packaging is one of the world's leading system suppliers of carton packaging (No.2 in aseptic packaging after TP) and filling machines for beverages and food. The company supplies complete systems including both the packaging materials and the corresponding filling machines therefore is also a major competitor of TP. The then Swiss based company was acquired in 2007 by the same Rank group that bought Evergreen.

SIG Combibloc started its business in China in 1985 but developed slowly. It has two offices in China and its first manufacturing facility was built in 2004 in Suzhou. The company aims to expand its business significantly in China. Its customers include Yili and Mengniu.

Other Competitors

There are also indirect competitors who produce other forms of packaging for dairy products, such as glass and plastic bottles, which normally contain pasteurized milk. Because of a view that sterilization adversely affects the taste and quality of the product, it is possible that the market share of UHT milk will drop in the future. As a result, although Tetra Pak currently dominates the aseptic packaging market, it faces competition from both growing aseptic packaging suppliers and from other suppliers of alternative packaging methods.

Environmental Challenge of TP's Packaging

The brick-shaped Tetra Brik and the pillow-shaped Tetra Fino Aseptic are classic packagings in China's dairy market (pictures in Exhibit 4.5). In comparision to alternatives such as plastic and glass bottles, Tetra Brick and Tetra Fino Aseptic have lower carbon footprints due to the use of mainly renewable resources, and advantageous environmental performance when taking a lifecycle point of view, e.g., higher storage volume; ease for packing, transportation and storage, protection of food over a long period of time, etc. Tetra Pak cartons are made of a 6-layer composite, which contains paper, aluminium and polyethylene (see Exhibit 4.6). Hence the Tetra packaging can effecitvely prevent air and light, so as to keep milk or beverage from deterioration.

However, according to the belief of many Chinese dairy experts, Tetra Pak cartons are less environmentally friendly compared to the cartons for pasterized products. They believe that as aseptic cartons are laminated with layers of paper, aluminium and polyethylene, they are not bio-degradable when waste cartons are sent to landfill, while cartons for chilled products made from paper and polyethelene are supposedly bio- degradable. While the reasoning of such belief is debatable, it is widely spread and supported by people who have a nostalgic sympathy for local brands selling pasterized products, who are suffering from the intesified competition from national UHT players.

Service-Based Sustainability Strategy at Tetra Pak

KAM-the Way of Working with Customers

Tetra Pak has in-depth knowledge and experience of the whole dairy value chain-from dairy cow to consumer. It considers itself a service provider and provides an integrated business solution to customers as a way to shape the structure of the value chain. Tetra Pak provides services spanning order processing, technical service and marketing support. It also provides business consulting service to their customers. Together with its sister company DeLaval, Tetra Pak define itself as "a full service supplier to dairy farmers, and uniquely positioned to support the development of the

entire dairy sector in any country." Its value chain activities touch multiple tiers of suppliers and customers.

By combining training of farmers and support for market development with consumer education activities, Tetra Pak helps establish a starting point for sustainable economic development. It promotes school milk programs to create demand for local agricultural products. Meanwhile, Tetra Pak also provides technical support to its customers.

Since entering the Chinese market, Tetra Pak realizes that its success depends largely on the success of its customers; hence it collaborates closely with them. Key Account Management (KAM) is the main link in its collaboration with customers. Tetra Pak will send a KAM team to a new customer's plant. Led by a key account manager, the KAM team consists of members from several functions, such as strategic development, technology, quality development, sales and administration and provide training on all aspects of customers' business activities as required.

When TP began to work with Yili in 1996, Yili bought its first filling machine from Tetra Pak and started producing UHT milk. The ability of UHT milk to survive long distance transportation allowed the company to expand to new markets across China. By 2000, the Chinese dairy market was no longer a patchwork of small pasteurized milk producers each dominant in its local market. With UHT milk, Yili expanded its business from Inner Mongolia to a nation-wide market; and it exceeded Bright in terms of sales volume in 2004. To date, Yili has purchased more than 200 filling machines from Tetra Pak and annually purchases more than 10 billion packs. After 15 years, the cooperation between Yili and Tetra Pak has expanded from mere equipment and packs to marketing, staff training, technical innovation, and product development.

TP adopted a similar way to work with Mengniu, the major competitor of Yili started in 1999 by a former Yili executive. At the beginning of its cooperation with Mengniu, instead of just focusing on selling packaging products, Tetra Pak helped Mengniu plan its plants, production lines, product development and marketing. After analysing the market situation then with TP, Mengniu decided to focus on UHT milk. This concentration differentiated Mengniu from Yili, who were more diversified in UHT milk, milk powder, and milk-tea powder. By 2007, Mengniu became No. 1 in China both in terms of liquid milk sales volume and total sales volume.

Working with Stakeholders

Tetra Pak also works closely with the other stakeholders, who are not normally involved in traditional dairy supply chains or have direct business relationships with TP. They include NGOs (e.g. WWF China) and China Green Foundation (cgf.org.cn), universities, government institutions, dairy farmers, forest owners, and even the garbage collectors.

FSC Certification

Tetra Pak promotes renewable resources as production inputs. One key component of carton packages is wood-based paper. Tetra Pak instituted a Forestry Guideline to ensure better forest management practices even though TP does not have direct business relationship with forestry companies in China. Tetra Pak's ultimate goal is that the wood fibre it uses comes from responsibly managed forests certified by the Forest Stewardship Council (FSC). Since 2006, Tetra Pak has been working with WWF and the China Green Foundation (CGF) to provide support for China's forests to build local sustainable forest management systems and to gain FSC certification. In July 2008 over 100,000 hectares of Yong An Forestry in Fujian province obtained FSC certification, bringing the total area of FSC-certified forests in China to over 700,000 hectares and making China a leader in this area in Asia. Yong An was selected for several reasons: first, WWF and TP focused on these southern forests because reform is particularly challenging as many of the forests are collectively owned by villagers or contracted to families, all of whom have to be persuaded to practice new forestry approaches. Second Yong An had an exemplary forest management record and was recommended by the State Forestry Administration. In this case, TP funded the certification and expenses of the involvement of other stakeholders (ministries, academics and the expert team from China).

In 2010, with an aim of replicating what was done with Yong An Forestry, Tetra Pak provided support for responsible forest management and certification work in the Tengchong forest in Yunnan Province. Tetra Pak introduced aseptic cartons bearing the label of the Forest Stewardship Council (FSC) in China from July, 2010.

Pasture Land Management

Tetra Pak's initiatives to support the Chinese dairy industry date back to 1985, when DeLaval and Tetra Pak established the Sino-Sweden Dairy Industry Centre to provide instruction on aseptic filling lines and other related technologies. Through the Sino- Sweden Dairy Industry Centre and other activities such as the "Green Leaves" program and "Stars of Dairy Industry," Tetra Pak has developed thousands of technical experts and managers for the industry.

A bigger challenge lay in persuading Chinese consumers to drink more milk. The National School Milk Program and the "World Milk Day" events are key educational initiatives supported by Tetra Pak. In 2000, the first conference of National Student Milk Coordination Committee (known as milk office or Guo Jia Nai Ban) launched a series of policies promoting the 'Student Milk Programme', and established a committee to coordinate and represent 8 ministries and bureaus with an interest in the dairy industry: Ministry of Agriculture, the Publicity Department of the Communist Party of China (CPC) Central Committee, National Development and Reform Commission (NDRC), Ministry of Education, Ministry of Health, Ministry of Treasury, the State Bureau of Quality and Technical Supervision, and State Bureau of Light Industry.

In 2003, the 'Upgrade plan for the student milk pasturelands' was launched to create a system of pastureland management integrating modern western management systems adapted to the reality in China; develop exemplar pasturelands; and thus to provide enough high quality milk for the 'Student milk programme' and create positive influence on the dairy industry as a whole.

In order to support raw milk development in a more systematic way, in January 2008 at the '2008 China Dairy Development Forum', Tetra Pak announced the launch of the "Tetra Pak Raw Milk Support Program". The intention was to call for government and media attention to the critical issues in the dairy value chain by demonstrating its own commitment and actions. The subsequent Raw Milk Support Program includes four main areas:

First, the "Renda-Tetra Pak Dairy Research Centre" was jointly established by Tetra Pak and the Renmin University of China ('Renda' for short). This is a strategic partnership aiming to conduct a full-scale study across the country with dairy farms, cooperatives, and dairy farming families in order to find the most appropriate way of transition to modern farming. For instance, in total 10 R & D sites at cooperatives have been established for follow-up studies.

Second, Tetra Pak trained government officials in charge of dairy farming at grass roots level. During the past 3 years, 160 local officials from 30 raw milk-producing counties have participated in the training.

Third, Tetra Pak launched the 'Virtual Dairy Farmers School' in collaboration with the Dairy Association of China (dac.com.cn) and the China Central Television Station with the purpose of helping farmers improve their technical knowledge. By 2012, the project had carried out on-site trainings in more than 10 provinces, and over 6000 dairy farmers had attended the classes and received instructions from dairy experts invited by Tetra Pak. Short film footage, specialised TV programmes and DVDs is expected to have reached about 48 million people.

Building on the Phase I activities of the 'Sino-Sweden Dairy Industry Centre' established by Tetra Pak and its sister company DeLaval in 1985, Tetra Pak China launched the Phase II activities, providing 'Dairy Farming Proficiency training', including hands-on instruction to help managers and engineers of large-scale ranches to increase the efficiency of breeding, feeding, calving, milking, veterinary practices, and farm operations.

Fourth, by the end of 2011, with the support of Tetra Pak, 101 examplar pasturelands had passed the audit from the national milk office (Nai Ban). It is expected that the number will reach 200 by 2014. These Examplars were developed with the help of training workshops in each region and direct guidance from training experts for a period of 3 months. Then a team of three experts (different from those providing training) audit the pasturelands and provide reports to the milk office on whether they have reached the standards set by the steering committee. Tetra Pak initiated provided financial support in the form of expert travel expenses, expert fees and the writing of two handbooks etc. throughout the process. A designated team led by a 'Student Milk Programme Manager' within Tetra Pak China has been implementing the programme.

Creating a Recycling System

Tetra Pak refers to used but non-recycled cartons as "Misplaced Resources", and faces increasing criticism from environmental groups and the media. In the meantime, it has to confront competition from packaging alternatives such as glass and plastic. While data shows carbon dioxide emission for a 1 liter Tetra carton is 60–90 grams and that of a same-volume plastic package is 115–199 gram, and 230–250 grams for a glass package, the sheer quantity of TP packages still pose a serious environmental issue. Tetra Pak cartons have been criticized for being more difficult to recycle than tin cans and glass bottles.

The difficulty lies in the fact that the recycling processes, infrastructure and equipment are often not well established. Tetra Pak is currently working with various stakeholders including municipalities and recyclers around the world to build up this recycling infrastructure. They also seek ways to make recycling easier by: (1) designing packages with recyclability in mind; (2) cooperating with customers, municipalities, NGOs, industry groups and community associations to ensure Tetra packages are recovered effectively; (3) recycling Tetra Pak's own manufacturing waste and supporting customers' initiatives to recycle theirs; (4) working with scientific institutions and recyclers to develop new recycling technologies; (5) sending Tetra Pak's engineers to paper mills worldwide, to help run tests and demonstrate the value of recycling cartons; (6) incorporating recycling performance into the performance evaluation of local managers.

In China, Tetra Pak works with recycling companies, schools, NGOs, waste collectors, industry associations and central and local governments to help establish a sustainable collection and recycling system. Recycling levels increased from almost nothing in 2004 to about 20% in 2011, when approximately 90,144 tons of used packages were recycled in China, which is equivalent to around 9 billion packs of standard cartons.

Although the recycling rate increases quickly in China, in comparison to global average recycling rate (30%) and the high recycling rate in some of the EU countries (70%), the recycling rate in China is still low. A 'Circular economy' law was enacted in 2009, reinforcing the impetus for recycling. Tetra Pak is well aware that a circular economy can only be achieved if there is a healthy ecosystem within which the economy thrives; and that the success of recycling schemes depends on the commitment and cooperation of all stakeholders. Furthermore, Tetra Pak needs to (1) identify where its support can be most useful – in areas like technology development, the growth of recycling infrastructure and increased consumer awareness; (2) establish a carton collection system in China where there is currently a rather vague waste classification system; (3) Collaborate with China Packaging Federation, which represents the government, to monitor the packaging industry.

Tetra Pak takes three steps to promote the establishment of a carton recycling industry in China. First, it works with recycling partners to establish recycling capacity. Tetra Pak provides recyclers four types of recycling technologies (see Exhibit 4.7) and sometimes also financial support for capacity expansion.

Next, Tetra Pak provides technical support to encourage recycling partners to improve technology and end product value so that the recyclers can offer higher price for the used cartons in comparison to waste paper. Tetra Pak also provides waste packages from its production process as an additional input.

Most of the recyclers working with Tetra Pak are not large in size, but they all have potential to grow. For example Beijing Xin Hong Peng Paper Co. Ltd. processes about 10,000 ton of waste packages every year, with annual output of about 6000 tons of recycled paper and 250 tons of aluminium powders. Moreover, by using new thechnolgies to separate the PolyAl (plastic and aluminium)[3] materials in cartons, the value of recycled materials has increased by nearly a third. As a consequence Xin Hong Peng plans to expand its waste handling capacity to 30,000 tons per year.

Thirdly, Tetra Pak helps establish the collection network by training waste collectors and promoting public awareness of carton recyclability. Waste cartons are usually gathered by scavengers, often migrants to the cities. In Beijing, Tetra Pak provided collection training for these collectors, cleaners and dealers, in cooperation with a waste management company. With the joint effort from the recycling partners, the price of used Tetra Pak cartons increases to the same as or even exceed the price of used cardboard box, which obviously increases the motivation of collectors. When the financial crisis entered its second year in 2009, the price of the used Tetra Pak carton surpassed the price of waste paper in China. The peak price of used Tetra Pak containers reached RMB 1500 per ton in 2009; it dropped to around RMB 1000 since then while the ordinary waste paper price is around RMB 700–800.

To further enhance the economic sustainability of the recycling value chain, Tetra Pak also introduced HB clad plate ("Caile plate" 彩乐板) technology[4] and plastic-wood composites technology to its business partners. This has been widely adopted and there are now many cities in China using garbage bins made from plastic-wood, an ideal substitute for metal ones, which are often stolen. Plastic-wood composite technology also provides construction materials for flooring, and garden furniture that is popular in South-east Asian markets.

To date, there are more than 10 companies producing recycled materials from used Tetra Pak cartons in China, and a recycling value chain is taking shape (see Exhibit 4.7). Tetra Pak wants to double its recycling rate of cartons from 20% in 2010 to 40% by 2020 globally. Their experience in China proves it can be done, even in a market lacking clear waste management legislation.

[3] When the paper pulp is removed from the waste, a mixture of plastic and aluminium remains. This use to fetch a rice of around 1200/ton. In 2007, Tetra Pak cooperated with Shandong Tianyi Plastic Co. Ltd. and Shangdong Liaocheng University to develop a Chinese version of PolyAl, the technology to separate the plastic and aluminium. In 2009, PolyAl separation technology was commercialized in China. As a result, the aluminium and plastic components can be separated with a purity of 99.5%. The separated plastic grains can be sold at a price of about RMB 2000/ton, and the aluminium can be sold at about RMB 9000/ton.

[4] HB clad plate technology: HB clad plate is made by crushing used Tetra Pak cartons and processing the material with thermo-compression. HB clad plate can be manufactured into various products, such as rubbish bins, said to be nice looking, endurable and low in cost.

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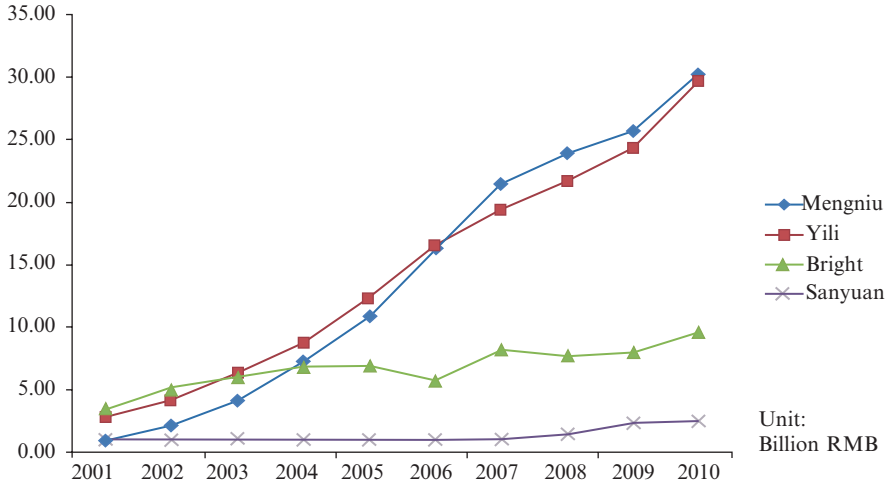
Disclaimer This case is written, presented and intended to be used as the basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation. It is currently under development as part of a wider research project. The authors disclaim all responsibility should this case or its contents be used for any purposes other than its classroom use.

Appendices

Exhibit 4.1: Sales Volume of the Four Major Dairy Producers in China (2001–2010)



Data source: annual reports for Yili, Mengniu, Bright and Sanyuan

Exhibit 4.2: Dairy Supply Chain Structure in China

Exhibit 4.3: Packaging Made by Tetra Pak

Exhibit 4.4: Milestones for Tetra Pak in China

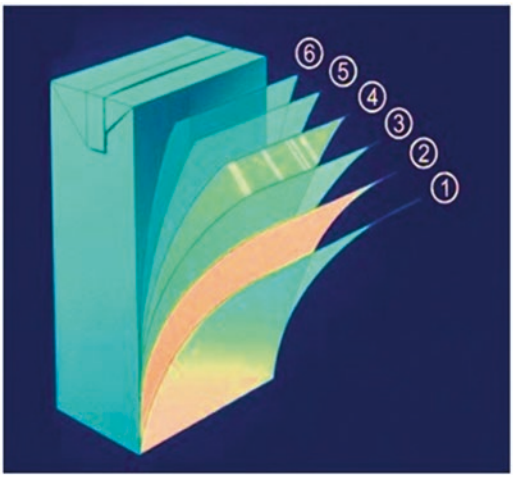
1979	The first Tetra Pak filling machine was put into use in Guangzhou.
1985	Tetra Pak (China) Co., Ltd. was established in Hong Kong.
1987	The Beijing Plant started production.
1989	The China Sweden Training and Product Development Centre was established
1991	The Foshan Plant started production.
1993	Two offices were established in Shanghai and Beijing.
1994	Three offices were established in Guangzhou, Chengdu and Xiamen.
1995	An office was established in Harerbin.
1996	The Kunshan plant started production.
1997	The Kunshan plant was opened formally. The Foshan plant got the ISO14001 certification. The Beijing plant got the ISO90021 certification.
1998	Two offices opened in Nanjing and Xi'an. The Kunshan and the Beijing plants got the ISO14001 certification.
2000	Tetra Pak (China) Co. Ltd. was moved to Shanghai.
2003	The Shanghai Pudong Processing Equipment centre was established.
2004	The second plant in Beijing was opened formally.
2005	The 1000th filling machine was put into use.
2011	The Tetra Pak China beverage R&D centre was opened formally in Shanghai.
2012	Phase two of the Hohhot plant was accomplished and put in production.

Exhibit 4.5: Tetra Brik and Tetra Fino

The brick-shaped Tetra Brik

The pillow-shaped Tetra Fino

Exhibit 4.6: Structure of a Tetra Pak Carton



Six-layer structure

1. Polyethylene–preventing water
2. Paper board – stabilizing and supporting
3. Polyethylene - bonding
4. Foil: blocking oxygen, light and odour
5. Polyethylene - bonding
6. Polyethylene - sealing

Exhibit 4.7: Location of Tetra Pak China's Recyclers

Technology	Application of renewed materials
Hydro-pulping	Renewed paper, materials for plastic and aluminum items
Wood Plastic Composites	Garbage bin , Indoor furniture, gardening, industrial
pallets Chip-tech	Garbage bin
PolyAl de-lamination	Plastic granular and aluminum power