

## AN ABSTRACT OF THE THESIS OF

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Title: The Melamine Milk Scandal and Its Implication for Food Safety Policy in China

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### **Abstract**

China suffered its biggest food-safety crisis in 2008 when it was discovered that melamine had been illegally added to the milk formula. More than 290,000 children were poisoned and at least six infants were dead. Chinese citizens and the governments around the world gave the Chinese government a lot of pressure to reform food safety fundamentally in China.

This paper uses the melamine-contaminated milk scandal as a case study and seeks to answer two primary questions: what caused the milk safety scandal in China; and what is the reform on the food safety system carried out by the Chinese government following the melamine milk scandal of 2008. The information used in this study comes from official government documents, government reports, and media coverage. The milk scandal made the Chinese government take steps to improve the policies and regulations concerning food-safety, including the establishment of a food-safety law, development of its food control management, improvement of food safety inspection, and the revision of food safety standards. Furthermore, the paper applies the theoretical and conceptual insights coming from a social construction theory to help understand China's policy-planning mechanisms of food-safety policy and the policy prescriptions for establishing an effective food-safety system so that the social construction of Chinese dairy producers will be shifted from negative to positive.

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# **The Melamine Milk Scandal and Its Implication for Food Safety Policy in China**

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## **Introduction**

To say the least, China's food safety is an urgent issue for all the Chinese people and for the whole world (Balzano 2011). China's economy and population has been growing very rapidly during the last few decades. The food industry in China has developed very fast as well. The yearly average growth rate of the total value of the food industry's output was over 13% from 1980 to 2001 in China (Bai et al. 2007), and has been 25.2% from 2005 to 2010 (Xiong 2011). China was the third biggest exporter for aquatic products and food in the U.S. since 2008 (Becker 2009) and it is an important source for these products worldwide (Acheson 2007). The consuming of many food products including dairy products has grown rapidly in China in the past two decades (Balzano 2011).

However, along with this high speed growing of the food industry, food safety has increasingly been a big concern in China. A series of food safety incidents happened in China made food safety a big concern in China's domestic food market since 2003. The Chinese pet food scandals and the contaminated baby formula scandals made the public health consequences of Chinese food and products a big concern domestically and globally.

The melamine milk scandal is the biggest and most serious food safety incident in China in 2008. Melamine has been illegally added into infant formula and other food products. The milk suppliers added melamine into milk products to increase the protein readings of milk (BBC 2008). Having the melamine-poisoned milk powder would make infants have kidney stones and would cause renal failure and even death. More than 290,000 children were poisoned and six babies were dead (Qiao, Guo & Klein, 2010). Every Chinese province mostly concentrated on thousands of the affected children that had been reported as being sick. The death toll was specifically alarming. In December 2008, Sanlu, the large dairy company whose products were

first exposed to be contaminated with melamine, announced its bankruptcy (Lu 2009), and the total direct loss of Chinese dairy industry due to the food safety incident from September 11 to December 31 of 2008 is predicted to have been more than 3 billion dollars (Wang 2009).

Wen Jiabao, the Prime Minister at the time, took a strong stance, “Many factories and milk dealers are lacking the most fundamental business moral and social responsibility. They are just cold blooded. Therefore we will investigate them leaving none to escape” (Chen 2008). Very high penalties were given to people and companies involved. Three people were given lifelong prison sentences, one received a suspended death penalty, and two others were executed (China Daily 2008). The incident ended up leading to serious damages and losses for consumers and producers in China and affecting food supplies in many nations.

Following the milk scandal, the Chinese government has started to pay increasing attention to the food safety problems in the country. Prime Minister Wen Jiabao was very concerned about the milk scandal and made a statement publicly. He said, “The crisis has revealed the shortcomings of government supervision... The situation must be rectified immediately” (Lu & Tao 2009, p. 1). Partially because of the scandal, China at that time was facing demands from its own citizens and the whole world to improve food safety. China is evolving rapidly in the manufacturing sector and as an export country for foodstuffs, which means that it is of great importance for the Chinese government to be able to regulate food safety (Balzano 2011). Additionally, in recent opinion polls, for Chinese consumers, food safety ranked one of the top concerns (Broughton & Walker 2010; Pei et al. 2011).

In this paper, I investigate China’s melamine-contaminated milk incident and seek to answer two primary questions: (1) what are the factors that caused the milk scandal and (2) what is the reform on the food safety system carried out by the Chinese government following the

melamine milk scandal of 2008. To answer these questions, the paper will use the melamine milk incident in 2008 as a case study. Since this scandal has attracted lots of concerns and is believed to be one of the biggest food safety incidents in recent years, which leads to great damage and influences the food safety system in China, it can be regarded as a critical case to study how milk powder scandal has significant implication for food safety policy and system in China. The information used in this study comes from official government documents, government reports, and media coverage.

To answer the research questions of the study, the paper is organized as following. First, this paper will focus on the theoretical framework for this study by introducing the theory of social construction and then provide a brief background of the milk scandal. Second, it analyzes the factors that have caused the melamine contamination followed by a summary of consequences of the milk scandal. I will argue that the rapid and unregulated development of the dairy industry, as well as the weaknesses and loopholes in China's food safety system are the major reasons for the food safety incident. Third, the paper describes the current state of government food safety policy and regulation as a result of reforms that the government carried out following the melamine milk scandal of 2008.

The melamine crisis prompted the Chinese government to respond to the milk scandal actively and to take steps to correct the undeveloped food safety system and make food policy changes. Furthermore, the study applies social construction theory to analyze the policy planning mechanism in China, which refers to the factors that made the Chinese government respond to milk scandal effectively and quickly by making changes to food safety policies and regulations. Finally, it gave some policy prescription for China to build up a great food safety system.

## 1.1. Social Construction of Target Populations

The framework of social construction and policy design is one of the leading theories that helps to understand policy process. According to Schneider and Ingram (1993: 335), the theory of the social construction talks about “the recognition of the shared characteristics that distinguish a target population as socially meaningful and the attribution of specific, valence-oriented values, symbols, and images to the characteristics”. Deriving from the policy design literature, target population as a concept means the fact “policy is purposeful and attempts to achieve goals by changing people’s behavior” (Schneider and Ingram 1993: 335). Two dimensions, that is, social construction and power are used to categorize a target population. On the dimension of power, an individual is perceived on a level of “powerful” to “not powerful.” On the social construction dimension, an individual is viewed on a scale from “deserving” to “undeserving.” According to Schneider and Ingram (1993: 334), a distinctive aspect of this theory that separates it from other theories is that it attempts to explain “why some groups are advantaged more than others independently of traditional notions of political power and how policy designs can reinforce or alter such advantages”.

The framework has four types of target populations according to the two dimensions of social constructions and power, which is presented in the graph below. According to Schneider and Ingram (1993: 335), first is the advantaged group, who “are perceived to be both powerful and positively constructed” and they will get many beneficial policies. Second, those who are contenders “are powerful but negatively constructed” (1993:335) and will receive hidden benefits and few burdens that can be easily undermined. Third group is dependents who “are considered to be politically weak” (1993:336) yet positively constructed. They will receive little beneficial policies and few hidden burdens. Fourth, deviants are those who “are both weak and

negatively constructed” (1993: 336). They will receive lots of burdens and no beneficial policies (Schneider and Ingram 1993).

		<b>Constructions</b>	
		<b>Positive</b>	<b>Negative</b>
<b>Power</b>	<b>Strong</b>	<p><b><i>Advantaged</i></b>                      The elderly                      Business                      Veterans                      Scientists</p>	<p><b><i>Contenders</i></b>                      The rich                      Big unions                      Minorities                      Cultural elites                      Moral majority</p>
	<b>Weak</b>	<p><b><i>Dependents</i></b>                      Children                      Mothers                      Disabled</p>	<p><b><i>Deviants</i></b>                      Criminals                      Drug addicts                      Communists                      Flag burners                      Gangs</p>

**Source:** Schneider and Ingram, 1993

According to Schneider and Ingram (1993: 337), “the dynamic interaction of power and social construction leads to a distinctive pattern in the allocation of burdens and benefits to different types of target population”. Advantaged groups are expected to receive more beneficial policies while “dependents and deviants will receive little beneficial policies” (Schneider and Ingram 1993: 337). Powerful groups of the population with relatively positive social constructions have considerable control over legislative agendas while deviants always gets punished and “almost have no control over the agenda or the designs” (Schneider and Ingram 1993: 337). The theory is significant as it explains “why some groups are more advantaged than others independently of traditional notions of political power and how policy designs reinforce or alter such advantages” (Schneider and Ingram 1993: 334).

The status of a target population identified by the theory of social construction is not always stable within the four categories of advantaged, dependent, contender and deviant. It is not rare to see that some populations over time would shift from one target population to another, for example, from advantaged to contender (Pierce, et al. 2014). A target population could change its social construction, that is, it could be seen as positive or negative, or its power be high or low.

What are the reasons that lead to the change of status of a target population? The theory offers us following possible answers. First, Schneider and Ingram (2005: 444) posit that “the political attractiveness of providing beneficial policy to advantaged groups may result in their being the beneficiaries of so many rewards from policy that their constructions shift from ‘deserving’ to ‘greedy’ or selfish, with a corresponding change in the kinds of policy designs they will receive”. A second model of change posits that “external dramatic events, opportunities, and skillful manipulation of entrepreneurs” (2005: 444) could change social construction. And the third possible reason “is the path most damaging to democracy, where there are no self-correcting mechanisms. Instead, cycles of constructions and policies reinforce one another and continue unabated” (2005:444). So external dramatic events, the construction of a target population shifting from deserving to undeserving, or “skillful manipulation of entrepreneurs” (2005: 444) would cause the shift of the place of target population.

Some might say that the social construction framework can only be put to use for free societies, where the construction of people in society can be measured more freely without government manipulation. This does not exclude China from applying social construction theory on the Milk scandal. China, like all communist states, has attempted what could be called “social engineering”, a deliberate effort at shaping societies, and at manipulating a free social

construction of reality. The milk scandal shows that despite all the efforts of the regime, the people and media nevertheless have been able to exert their power to socially construe the perpetrators of the scandal as what they are. The government now attempts to align their social engineering efforts with the social construction processes going on in society.

## **1. Background and Literature Review**

What is melamine? The pet food incident broke out in 2006 changed people's idea of melamine. And in 2008, China's biggest and most serious food crisis followed. It is from that time people began to know that melamine for specific forms of metabolism and under specific conditions could lead to fatal kidney and renal problems. After this melamine crisis, people will probably remember melamine contamination as a cause for bringing up the reform of the food safety system in China (Pei et al. 2011).

Melamine is known for its possibility to lead to urinary and renal problems in humans and in animals. The reaction with cyanuric acid in the human body can make melamine toxic. Thus it is universally banned to use melamine in food production (World Health Organization). Some studies demonstrated that melamine was not toxic in the mid-1940s (Lipschitz & Stokey 1945). A follow-up study in 1953 showed that melamine could be toxic at higher intakes. Wilson (2007) proposed that the toxicity of melamine cyanurate crystals is because melamine is not able to dissolve easily and it can lead to chronic toxicity.

The challenge and problems in food safety have caught attention globally. There are challenges involved in the requirement of food safety standards all over the world, especially in the developing countries. The globalization of consumers' concerns on food safety and food production has made the whole world a connected system. Countries develop their private and public food safety standards, which result in the proliferation of standards worldwide. However,

the food safety standard is hard to follow for firms in the developing countries (Jacques Trienekens & Peter Zuurbier 2007).

China as a developing country is facing great challenges of food safety especially after the milk scandal. There has been some attention in the literature given to the factors that led to the Chinese milk scandal, especially how the rapid yet unregulated development of the Chinese dairy sector affected food safety in China (Pei, et al. 2011). Xiu, Changbai, and K. K. Klein (2010) also maintain that the reasons for the problem of China's dairy industry are the rapid growth of dairy industry and the Chinese government's support for the dairy industry without paying much attention food safety (Xiu, et al. 2010).

Besides China's problematic dairy industry, the milk powder incident also revealed some systemic weaknesses in the Chinese food safety system. The overall objectives of food safety are not supported by the present food regulatory system in China (Yu et al. 2010). Honggang Ni and Hui Zeng underscore the importance of legal framework for Chinese food safety. They maintain it is because that China is lacking legal framework for food safety that serious incidents of food safety happened in China. Waikeung Tam and Dali Yang (2005) elucidate some deficiencies of the regulatory regime and challenges of regulatory development in China by studying food safety regulation. Also, Chinese regulators don't have good cooperation among themselves which can lead to systemic vulnerabilities in food safety management (M. Melinda Meador and Ma Jie 2013).

The Chinese government has responded to the milk scandal on a number of fronts. Although some earlier food safety incidents made the Chinese government realize the need for food safety improvements, the melamine contamination greatly frightened Chinese consumers and precipitated legislative actions. The role of law in food safety is a focus when it comes to

China's food safety system. Chenhao Jia and David Jukes (2012) note that because of great outside pressure, Chinese government has enacted a food safety law to improve its food safety system. Feng (2011) advocates that the system of food safety legislation should protect the rights of food consumers, and administration sector could use their power according to law. In addition to establishing a new food safety law, what should be focused on is the law enforcement. China has a good legal framework to ensure the food safety, while a key question that remains unresolved is how the Chinese government enforces the law (Honggang Ni and Hui Zeng).

At the same time, efforts were also being made by the Chinese government on the management, supervision and standards of food safety. Because food safety is so important to people's health and life, it is critical to establish a food safety administrative system (Li, et al. 2010). By examining how the developed countries establish their food safety regulation and bringing together the basic underlying principles of a successful food safety system, what Chinese government needs is to have a good food safety regulatory system (Yu et al. 2010). The food safety crisis caused by melamine contamination prompted the Chinese government to improve its food safety system and standards as well as a development of the control system of food safety (Pei, et al. 2011). After the melamine crisis, Chinese leaders have taken steps to unify food safety standards and to increase cohesion in government management and supervision (M. Melinda Meador and Ma Jie 2013).

Another alternative perspective on the milk scandal in China is to examine the consequences of the milk scandal, especially how the food safety incident has affected Chinese consumers. Chinese consumers have increased concerns and preferences about food safety after the milk scandal. Food safety has become a top concern to Chinese consumers. To rebuild

consumers' confidence, it is important to have a well-developed food safety system (Ortega et al. 2010).

Although there are some studies touching upon either China's food safety regulatory system or the Chinese milk powder scandal, little research has been conducted on the relation between the Chinese milk scandal and changes in food safety policies and regulatory system in China, especially, how the milk scandal prompted the reform of the food safety regime in legal frameworks of food safety, food safety inspection and management and food safety standards system in China. This study attempts to contribute to the literature by taking the incident of the milk powder scandal as a case study, by addressing the causes for the milk scandal as well as its consequences, and by focusing on the policy responses by the Chinese government to improve China's food safety.

## **2. Case Study of Chinese milk scandal**

This case study of the Chinese milk scandal seeks to look at the reasons for this food safety incident, and it will touch upon the impact of this serious food safety crisis. Policy responses by the Chinese government to settle food safety issues will be presented. The major policy changes have included establishing a food safety law, creating a new food standard system, and improving official control over food safety inspection.

### **2.1. Background of Chinese Milk Scandal**

The milk scandal was first exposed on 16 July 2008 when 16 young children, who have been drinking milk coming from Sanlu Company, were confirmed to have kidney stones (Xinhua 2008). The Chinese government recalled all the milk powder that was produced by Sanlu Company and contaminated by melamine. According to Health Minister Chen Zhu's statement

on 17 September 2008, the contaminated milk had made more than 6,200 children sick, and that “more than 1,300 others, mostly newborns, remain hospitalized with 158 suffering from acute kidney failure” (Chang 2008). On 23 September, it is reported that 54,000 young children were sick and four had died (The Sydney Morning Herald 2008). By November 2008, there had been an estimated report of 54,000 babies being hospitalized (Branigan 2008).

## **2.2. Causes of the Chinese Milk Scandal**

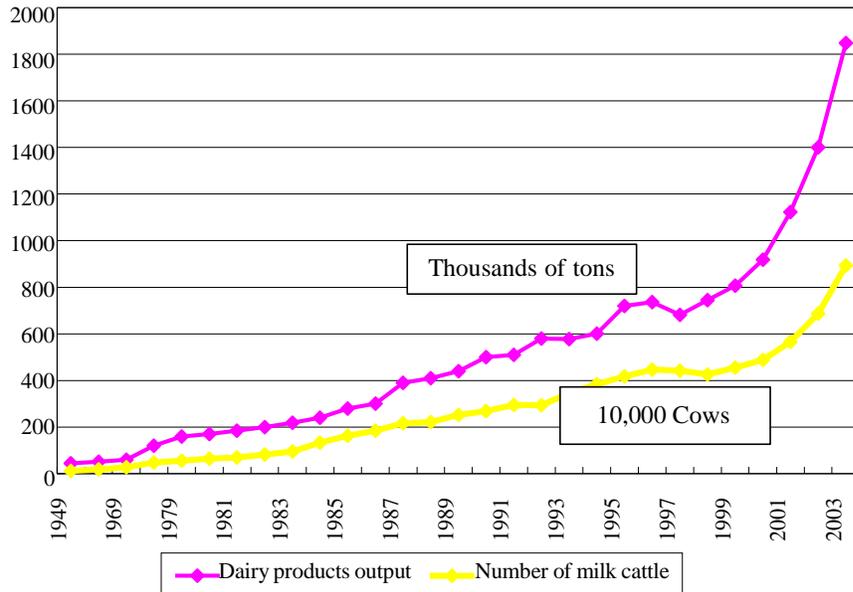
What caused the milk safety scandal in China? This part will examine the causes for this melamine-contaminated milk scandal. Then it discusses the great damages to infants, financial losses to dairy industry and serious penalties given to the involved government officials and company.

There are several reasons for the problem in China’s dairy industry. First, the dairy sector has grown rapidly since 2000, and it is highly possible that the milk scandal is a result of this fast yet unregulated growth. Since 1995, the consumption of dairy products has grown at a rapid rate of 15% every year (Xiu et al. 2010), while the production of dairy products has increased by 20% annually between 1997 and 2003. By mid-1990s, the aggregate dairy production was 6 to 7 million tons, while in 2003 the total production increased to more than 18 million tons, which ranked China in the seventh place in overall dairy production internationally. In 2009, the dairy production of China increased to 39 million metric tons and it made China the third largest milk producer worldwide (USDA, 2008). The expanding of the milk production resulted in the expanding of the number of dairy cows. Matching the rapid growth of dairy production, the dairy cow herd in China also increased about 20% annually since 2000. Rapid expanding of the dairy industry has resulted in fierce competition for raw milk among big milk producers. The competition within major dairy markets in China as well as inter-regional competition intensified

during 2000s as the dairy expanded. As a result, dairy firms were under great pressure to lower their cost even at the expense of dairy quality.

Melamine was added to milk once milk producers and suppliers had opportunities and incentives to do so. Melamine was added in order to increase the apparent content of protein. On one hand, melamine can be easily added into milk by anyone, and everyone can buy melamine in the markets. Farmers, milk dealers, milk collection station owners who could benefit from this adding of melamine to milk were suspected of doing so. It was revealed that such problem has been known to the officials of Sanlu Company for quite a long time even back in 2007. However, they never tried to take any corrective actions (Zhu et al. 2009). They did so knowingly due to the lack of standards on melamine, and because of high profits. It can increase profit by adding melamine into milk. Because of the fierce competition in the dairy market, all the direct players were trying to reduce their costs for more profit.

It is believed that the scandal was not one signal incident. It is an international activity aiming for fast profits at the cost of the consumers' food safety and health. Apparently, to increase their profit, adding melamine into the milk is allowed by leaders in Sanlu Company (Zhu et al. 2009). After initial focus on Sanlu Company, People were shocked and terrified when the government inspections exposed that actually many dairy products including ice cream, yogurt, and ordinary milk were contaminated by melamine. The development of China's milk industry from 1949 to 2003 is demonstrated in the graph below (Mo et al. 2012):



Moreover, the milk powder scandal also revealed the weaknesses in food safety system in China. There are some major vulnerabilities in China's legal framework of food safety, the food safety management and supervision system and the food safety standard system. Specifically, the Chinese food safety regulators do not have good cooperation among themselves and created vulnerabilities in the system and weakened regulatory oversight. As to food safety standards, melamine was not regulated as illegal. Melamine can be added into milk by anyone. Besides, China was lacking in official control and effective inspection for dairy sector. Many dairy enterprises were hardly ever controlled by officials in China. Although certain tests for milk safety, like the specific gravity analysis, freezing point depression and fat content, could be used to detect the problem, these tests were never put into practice or not effective. Another alternative test called rapid automated system used to test the protein content, fat, as well as other ingredients, was also not used appropriately and therefore was ineffective in detecting the melamine contamination. After the milk scandal, between November 2008 and April 2009,

China inspected thousands milk suppliers. Some of the milk collection stations were shut down because they were not hygienic (Xiu 2010).

### **2.3. Consequences of Chinese Milk Scandal**

The milk scandal had a great impact on the society in many ways. It caused attention worldwide. It raised great concern about political corruption, especially food safety in China. Food exports in China were greatly affected and dairy products from China were banned from many countries (Wang 2009). The consumer's confidence in China's food safety is very difficult to overcome.

One of the most important consequences of the milk scandal is that almost 290,000 people were poisoned, 300,000 were sickened, more than 50,000 were hospitalized and six babies had died (Qiao, Guo & Klein, 2010). Most of them are young children that are less than two years old. Millions of parents were facing emotional breakdown as they were worrying that their infant children might have developed health problem or might have some future diseases. Parents whose children had been poisoned had to face added expenses in their seeking medical attention and treatment. In addition, it also caused great damage to parents in a way that they have had to desperately search for expensive imported milk powder. A compensation plan of 160 million dollars was proposed by Sanlu and 21 other dairy firms for the parents whose children were poisoned by melamine.

Financial losses were huge to the companies, the products from which were exposed to be contaminated by melamine. Many dairy companies announced a recalled of the dairy products they produced and consumers lost their confidence in dairy products in China. Sanlu Company bankrupted in December 2008 as melamine was first found in their dairy products. It is also assumed that in 2008 Mengniu and Yili, the two giants of dairy industry, lost nearly half a billion

dollars due to products destructions and recalls (China Retail News, 2008). The total direct loss of dairy industry from September 11 to December 31 of 2008 is estimated to be more than 3 billion dollars (Wang 2009). As Chinese consumers remain cautious about Chinese dairy products, loss will be continued during 2009 and maybe into future years.

Very high penalties were given to people and companies who are involved in the scandal. Three people received lifelong prison sentences. One received a suspended death penalty. Two others received death penalty (China Daily 2008). In addition, “seven local government officials, including the Director of the Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) have been fired or forced to resign” from their positions (Xinhua 2008).

The melamine contamination of milk products has made Chinese government improve its food safety system. Followed the milk scandal, there was great outside pressure which forced the Chinese government to make improvement in its food safety regulatory and policies. The government must take measures to set scientific melamine standard in dairy products, strengthen the food safety laws, and enforce stricter inspection of milk collection stations.

#### **2.4. China’s Policy Response to the Chinese Milk Scandal**

This part will look at how the Chinese government responded to the milk scandal and make changes to its food safety system. The melamine crisis prompted the Chinese government to take steps to improve the policies and regulations concerning food safety, including the improvement of its food control management, creation of a food safety law, improvement of food safety inspection system, and the revision of food safety standards.

#### **2.5. Establishment of a New Food Safety Law**

The melamine-contaminated milk powder incident prompted the Chinese government to create a food safety law. On 28 February 2009, the National People’s Congress (NPC) published

the Food Safety Law (FSL) and it was put into practice since 1 June 2009 (Wang 2013). Wang (2013) stated that “the FSL and the implementing regulation are accompanied by other regulations and laws that apply to specific sectors in the food chain”.

It took long time for the Chinese government to enact the FSL before the melamine milk scandal as the FSL was under drafting for nearly five years. During that time, a number of experts and regulators from home and abroad vetted the draft (Wang 2013). Due to certain food safety incidents that lead to great public outcry in China, this situation prompted the Chinese government to carry out a reform of food safety law. The Chinese government felt great pressure to enact the law. The tainted infant formula incident in 2008 was the most high profile of these incidents. The milk scandal gave the law increased urgency and prompted it into action.

The enactment of the FSL is important and innovative in many ways. First, it is a big step in improving the legal system of food safety. Before the FSL comes out in 2009, China’s food safety law was led by the outdated “Food Sanitation Law” that had been put into practice since 1995, accompanied by “Procedures for food hygiene supervision”, “Food Sanitation Law on Administrative Punishment” and other relevant laws on food safety. In June 2009, “Food Safety Law” was in effect, which updated the previous law and filled the legal gap in the food safety. Many measures can be found in the new law that will help resolve or prevent food safety problem in the future, like fake infant formula, poisoned pork and dyed bread buns.

Second, the FSL is innovative as it targets “at better defining and incorporating the jurisdiction of those governmental authorities that are responsible for various parts of its implementation” (Wang 2013). The responsibilities of implementing various aspects of food safety regime in China are shared at least by six governmental authorities. Regulatory overlap and jurisdictional turf wars have been known to cause the inefficiencies in food safety system in

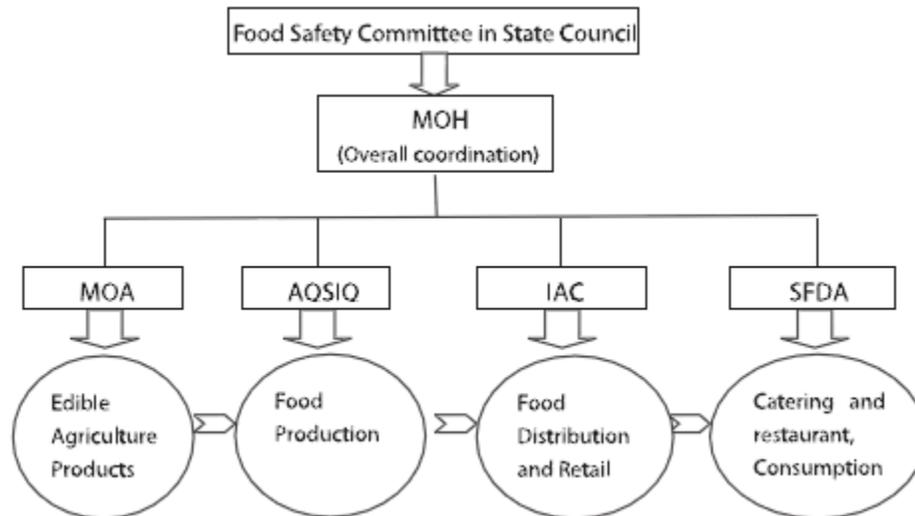
China. In order to address this and improve the coordination among these agencies, the Food Safety Committee (FSC) was set up as a central governing body. The FSC members include twelve minister-level officials and three vice-premiers. They theoretically have the political weight manage linkages among different ministries that are regulating different stages of food production. The committee is supposed to meet twice a year to discuss significant issues. As the macro-level coordinator, FSC is set to manage the governmental work on food safety and make sure the seven authorities can enforce their power respectively and effectively with no overlapping instead of reallocating responsibilities to fewer regulators (Meador 2013).

Third, another importance innovation of FSL is at the enforcement level. As Wang (2013) stated that “the FSL grants more power to enforcement agencies and also introduces new control procedures, such as a stronger food inspection and registration system, and a food recall system”. China’s new FSL would help with incorporating external influences and eliminating regulatory flaws like stronger criminal penalties and increased public input to reinforce the new measures. The FSL subjects food companies to more severe sanctions, liability compensation standards and penalties (Meador 2013).

## **2.6. Improvement on Food Control Management**

Following the tainted formula incident, food control management in China is also undergoing reform and improvement. Food control management is very important to food safety system. The operational coordination and policy at the national level decides the food safety system is effective or not (FAO & WHO, 2003). After the milk powder incident, the Chinese government created a food control management system, which consists of the State Council’s Food Safety Committee, the Ministry of Agriculture (MOA), the Ministry of Health (MOH), the Industry and Commerce Department (IAC), the Administration of Quality Supervision,

Inspection and Quarantine Department (AQSIQ), and the State Food and Drug Administration Department (SFDA). The Figure (Jia 2013) below shows the food safety management system.



The responsibility and scope of the departments are well defined in the new law after the milk powder incident. After the FSL, all the agencies at higher level were assigned and performed duties respectively. The FSC, consisting of 15 ministerial-level officials and 3 vice premiers, was established in 2010. The ministerial-level officials represent 15 departments, which includes the minister of MOA, AQSIQ, IAC, MOH and SFDA (State Council 2010). The FSC of State Council had an important role in organizing joint action and studying the situation of Chinese food safety. The responsibilities of departments are presented in the following figure (Jia 2013).

State Council's Food Safety Committee	The head authority in food safety management	Analyze the situation of food security and planning the national food safety operation; develop the policies and regulation for food safety inspection; supervise the responsibility of related authorities.
MOH	Overall coordination for food safety	Risk assessment for food safety; Development of food safety standards; Dissemination of food safety information; Development of the qualification requirements and inspection regulations for food inspection and testing agencies; Dealing with serious food safety events; Licensing for new food raw material, new food additives, and new food-related products; Licensing for new types of food additives and/or food-related products imported for the first time or food imported for the first time which are not covered by existing national food safety standards; Development of a list for the substances conventionally deemed as both food and Chinese traditional medicine
MOA	Edible agricultural products	Routine supervision and administration for edible agricultural products; Administration of the utilization of the substance used during agricultural production; Report risk information of food safety, propose risk assessment activity, and provide other related information to MOH; Working with MOH to develop concentration limits of pesticide residues, veterinary medicine residues, testing methods and inspection procedures; Report food safety events in time and cooperate with MOH for investigation; Disseminate routine supervision and administration information of edible agricultural products, and report to other related departments.
AQSIQ	Food production	Issue food production license; Supervision and administration for food production activities; License, supervision and administration for production of food additives; Supervision and administration for food related products; Supervision and administration for food import and export; Authenticate the qualifications of agencies for food inspection and testing; Assist MOH in dealing with food safety events; Disposal of food-related illegal activities
IAC	Food distribution and retail	Issue food distribution license; Routine supervision and administration of food distribution activities; Assist MOH in dealing with food safety events; Disposal of food-related illegal activities
SFDA	Catering and restaurant services	Issue catering service license; Routine supervision and administration of catering service activities; Supervision and administration of health foods; Assist MOH in dealing with food safety events; Disposal of food-related illegal activities

Specific plans and actions were taken by the AQSIQ, IAC, SFDA and MOA to ensure that the new law was well followed and implemented. In October 2011, the National Food Safety Assessment Centre (NFSAC) was created as an independent department performing the science-based risk assessment. NFSAC will be a professional technical authority and support the committee of food safety assessment (MOH 2011a, b). It is responsible for providing pre-alert,

developing scientific research, communicating with public assess and media, analyzing data, supervising food safety, and reporting the results of risk assessment.

The MOH mainly focuses on two areas, which are completing the food standards and boosting assessment and surveillance of food safety risks. The national Food Safety Standard Evaluation Committee has experts in various fields and has 10 professional subcommittees, which investigate microbial and other pollutants, nutrition and special dietary food, food additives, pesticide residues and veterinary drug residue, food related products, and method of procedures and inspection (MOH 2010). It is entrusted with the responsibility of approving and reviewing food safety standards. Twenty-one new food safety standards were announced in 2011 by MOH, which includes pesticide residue limits, maximum mycotoxin levels, and blends with the food additives. Before enacting measures, opinions from food producers, consumers and traders are also solicited and took into the food safety standards (MOH, 2011a, b). As regarding to the food safety risk assessment, in December 2009, MOH appointed the first food safety risk assessment committee, which involves 42 specialists. The “Food Safety Risk Assessment Administrative Regulations” was issued by the MOH in January (MOH 2010). In May 2011, the first risk surveillance of food safety at the national level was finished (MOH 2011a, b). The report of the Ministry of Health shows that all the provinces, 73% of the cities and one quarter of the country diseases control and prevention centers had implemented the national surveillance plan to determine food contamination, food-borne diseases, and harmful ingredients in food (MOH 2012a). According to the results of the food surveillance, the food safety in China is improving (Jia 2011).

## 2.7. Revision of Food Safety Standards

The milk scandal also prompted the improvement in food safety standard in China. Besides, the food safety incident revealed the scientific melamine standards was missing in many countries. Thus it warned and caused the health officials all over the world to examine and redefine the melamine standards in the milk products to ensure the food safety.

Before the milk powder incident, the food safety standard system in China is marked with characteristic of unclear and underdeveloped. Before the Food Safety Law was published, three different sets of standards were published by three different governmental authorities (Wang 2013). Some of the standards are mandatory and others are recommended or only for reference. The three authorities-MOA, MOH and SAQSIQ lack coordination. As a result, in many cases a product is regulated by different sets of standards which have different level of enforceability. Ultimately, the implementation of these standards can be inefficient. To make it worse, certain local administrations and food industry also established their own standards. The figure followed is a sum-up of the responsibility of MOA, ACSIQ and MOH (Wang 2013).

Standard	Legal Basis	Regulator
Safety and quality standards for edible agricultural products	Agricultural Products Quality Safety Law	MOA
Food quality standards	Product Quality Law	AQSIQ
Food hygiene standards	Food Hygiene Law	MOH

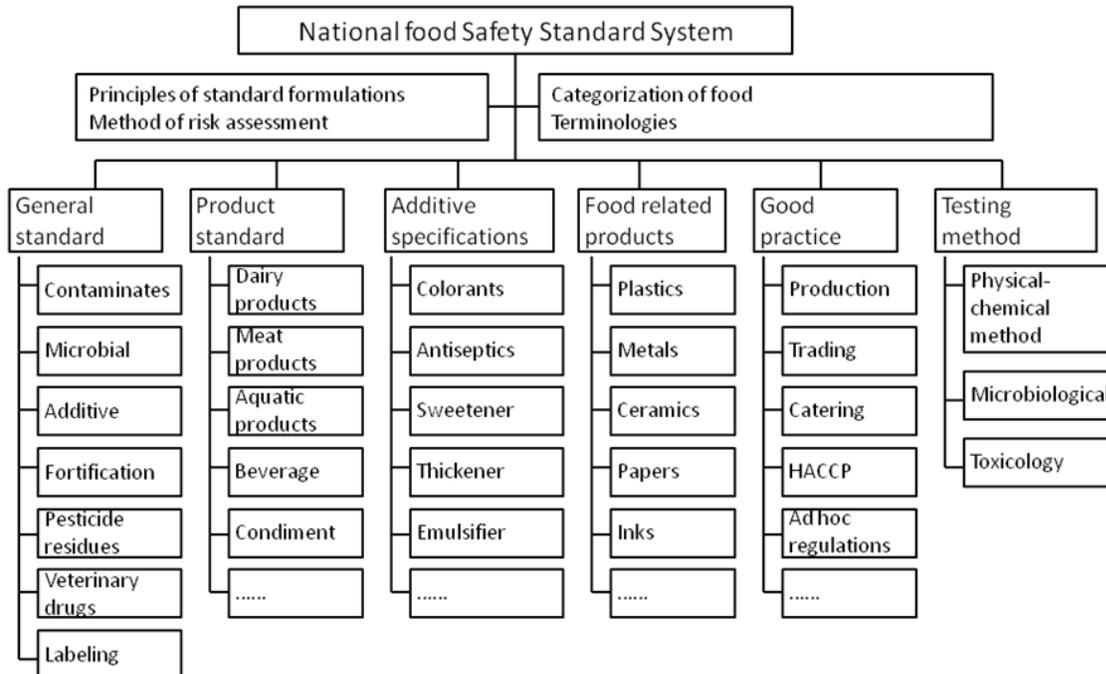
The unification of the system of National Food Safety Standards is also an innovation of the FSL after the melamine crisis. One new feature of the food safety standards is that all standards are now mandatory. It is hoping that the food safety problems in China would be resolved by the change in the food safety standards. To achieve this, the Ministry of Health (MOH) was given the responsibility to formulate, consolidate and publish the National Food

Safety Standards. The new food safety standards will be created by referencing some international standards and risk assessment.

The Evaluation Committee of the National Food Safety Standard of MOH has 350 experts from 10 different areas such as food additive, inspection method and procedure, food products etc. and they will review the science behind the draft of new food safety standard and its applicability. It is asked to unify relevant safety and quality standards regarding edible agricultural product by 2015. Before then, old standards will continue to be used until the MOH replace them with new ones. Thousands of food safety standards and over a thousand testing methods and pesticide residue limits will be reviewed by the MOH (MOH 2012). Beside, MOH will also create new national standards and identify missing standards. Although MOH will be responsible for promulgating and consolidating all the standards, the implementation of the standards remains separated by different agencies.

Food safety standards system in China consists of four levels. The national standards is the highest level, which ranks higher than the other levels and each level under is higher than the lower level. First are the national standards, which are mandatory or voluntary and are broad. The areas of protecting human safety, health and property are dealt with by the mandatory national standards. Voluntary standards fall outside these areas. Second are the professional standards, which refer to the technical requirements created when there is no national standard for a certain industry. Third are the local standards that are at the local level. The safety of industrial products are under regulation by the local standards. When there is no other standard to follow, an individual company would establish the enterprise standards, which is the last level. Food safety standards can be categorized as following:

## National Food Safety Standard System



Source: Presentation of MOH Director General Su Zhi at International Symposium on Food Safety Risk Assessment, September 2012.

The melamine crisis in China told us that scientific melamine standards were missing in many countries. Since melamine is used for various industrial application, melamine could be found in some food products is known by many people. It is only until the melamine-contaminated milk powder incident in China that people began to realize that the scientific melamine standards are missing in many countries (Xiu 2010). Before the milk scandal, The U.S. Food and Drug Administration recommended that melamine should be below 2.5 parts per million (Richwine, 2008). The FDA made a conclusion later in November that melamine in baby milk powder should at or below 1 part per million (CNN 2008). The standard for melamine in New Zealand and Hong Kong is 2.5 parts per million or less in order to be considered as safe. For children less than three years old and pregnant women, the guideline for the tolerance standards of melamine in food products should be at or below 1 part per million (Xiu 2010).

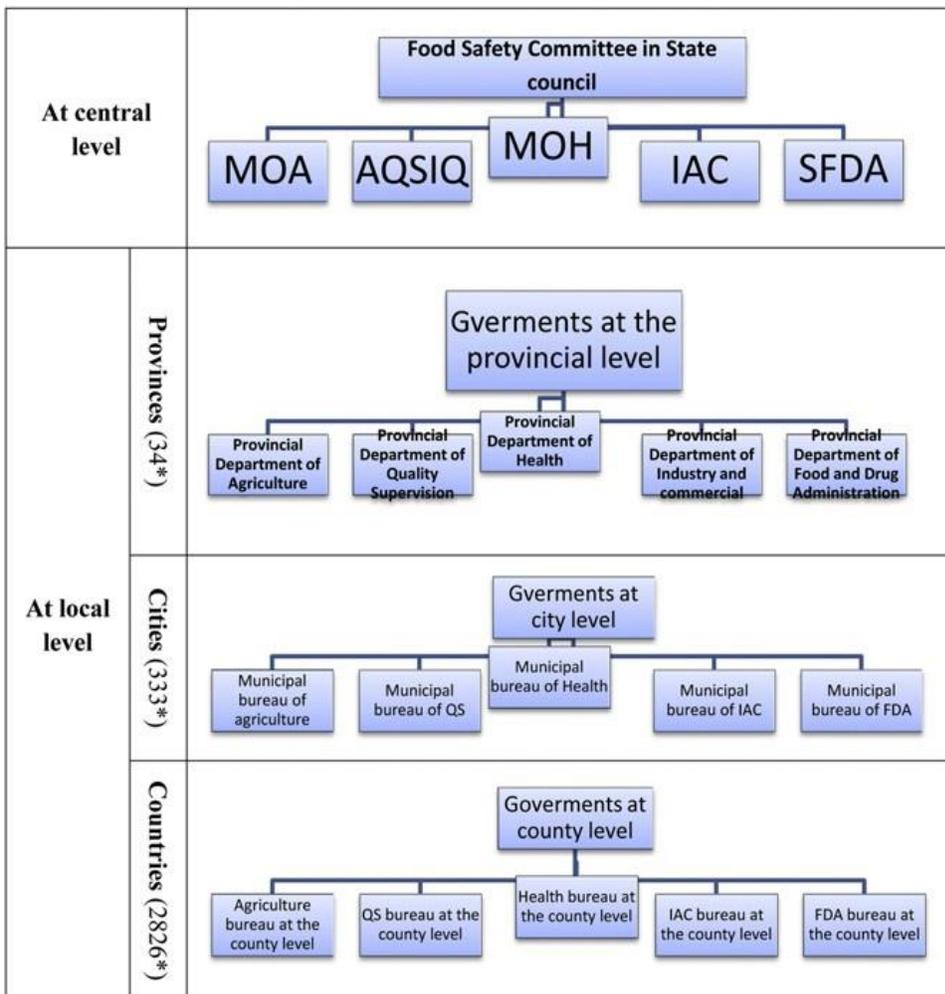
Following the melamine incident in China, many countries in Europe, North America and other places adopted more scientific melamine standards. The current standards of melamine allowed in dairy and other product was set in accordance with the Codex level, which is set by the WHO and UN Food and Agriculture Organization. The current melamine standards in China require that melamine in infant formula should be at or below 1mg/kg and for other food products, it should be at or below 2.5mg/kg (Want China Times 2012). Many health officials started to reexamine the melamine standards because of the happening of the Chinese milk scandal. As the milk powder incident revealed that most countries around the world do not have or have inadequate tolerance level of melamine, it would not be surprising to see future refinement to the tolerance standards of melamine in the milk products. While compare to China where 6196 part per million level of melamine was discovered in some batches of infant milk, the tolerance standards of melamine adopted by most countries are much lower and safer (Zhu 2012).

## **2.8. Improvement on Food Safety Inspection**

As a response to melamine crisis, the Chinese government also made changes to improve food safety inspection. The melamine milk scandal in 2008 exposed that there are gaps and loopholes in the China's administration and supervision system of food safety. Divided inspection and lacking supervision standards is of the major problems (Li et al. 2009). It is difficult to allocate responsibility. Before the milk powder incident, all related departments of the State Council, such as Commerce Ministry, Communication Ministry, SFDA, MOH and Environmental Protection Ministry, etc. share the responsibility of the food administration and supervision, which results in the ambiguity and unclearness of the responsibility. According to Food Business Website (FBW 2010), there are four issues in old supervision and inspection

system. First problem is that the supervision system of food safety was not perfect, especially the governmental departments have poor cooperation. Second, food safety is frequently a major problem in importing and exporting. Next is the lack of awareness of those import and export companies on food safety and quality requirements. Fourth, Chinese technology and staff on food safety fall behind the requirement. Many improvements have been made on the system of food safety inspection in the FSL, which defines clear responsibility and also states that food enterprises would be held responsible when food safety problems happen.

The FSL states the responsibilities for food safety for the local governments. Based on the Constitution of the People's Republic of China (1982), the implementation of the legislations and inspection services are taken care of by the local governments, which are the subordinates under the central government. The responsibility of administrative management is taken care of by the MOA, AQSIQ, IAC MOH and SFDA in China according to the Constitution. The inspection services are not their responsibility. The FSL allocates the responsibility of food safety inspection at the country level or above. There is a hierarchy of three levels of governments at the local level, which are countries, cities and provinces. The regulatory responsibility of each local government section's executive, like quality supervision, food and drug administration should comply with the Regulations and the Law of the State Council. The figure (Jia 2013) followed presents the relation of administration and supervision of the departments of all levels.



\*stand for the number of administrative organizations in China

The FSL focuses the inspection services of the local governments. The FSL states that departments of industrial and commercial, food and drug, and quality control at the local level have the right to: inspect samples; detain and seal up raw materials, food-related contaminated tools; enter producing site to do the field inspection; close the place down if it illegally produce and trade food; record and review and information that is relevant (FSL 2009). It also specifies that the local governments should develop the annual plan with other relevant departments like the departments of industrial and commercial, health, etc. (FSL 2009). Then these departments implement the inspection services according to the annual plan.

The FSL also specifies the responsibilities for local governments. The effectiveness of the enforcement of local government is essential to the success of the new FSL in securing the food safety (Liu 2011). The FSL states that governments at local level are responsible for food safety administration in their jurisdictions respectively (FSL 2009). The departments of food and drug administration, quality control, agriculture, health, and industrial and commercial at the country level will be given the responsibility of main inspection services. The higher level will provide the technical supervision on implementing the FSL. It also mandates coordination between these departments to implement the law. Based on the FSL, each department is in charge of supervising its respective section and also coordinates with other departments to inspect the whole chain.

### **3. Social Construction of the Milk Scandal**

This part applies the theoretical and conceptual insights coming from theory of social construction to help analyze the shift of the status of the target population – Chinese dairy producers – from advantaged to contender status and the policy-planning mechanisms of Chinese food-safety policy. It then will look at the government’s policy prescriptions for establishing an effective food-safety system so that the social construction of Chinese dairy producers will be shifted from negative to positive.

#### **2.9. Policy Planning Mechanism in China**

Firstly, the status of the target population – the Chinese dairy producers – was shifting from advantaged to contender in the wake of China’s milk scandal. The target population of this paper is Chinese dairy producers and it is classified as advantaged which is expected to receive few burdens and lot of beneficial policies before the melamine crisis. According to Schneider

and Ingram (1993), the advantaged group is the group that is positively constructed with positive images like deserving, honest, trustworthy, and public spirited and is good for achieving national economic goals.

The Chinese dairy producers should be classified as advantaged before the melamine crisis happened. The dairy producers and dairy sector, which have a positive image at that time, have been growing rapidly since 1995 as well as the exports of milk products. There is a 15% increase in the consumption of dairy products every year since 1995 (Xiu et al. 2010). Moreover, the production of dairy products increased to 20% annually from 1997 to 2003. The dairy production of China in 2009 increased to 39 million metric tons that made China the top three of dairy producer all over the world (USDA, 2008). China's increasing exports of dairy products is driven by the growing demands from Macao, Hong Kong and Southeast Asia. Moreover, the Chinese dairy sector received beneficial policies from the Chinese government. Since the 1990s, the Chinese government actively supported the dairy sector and promoted the consumption of milk products with various programs such as providing discount loans to farmers, waiving land use fees, promoting children's consumption of milk by implementing a school milk scheme. Since the 1990s, a large number of big dairy corporate, like Nestlé and Friesland have been interested in investing in Chinese dairy sector. In this case, the exporters and producers of dairy products can be categorized as part of the advantaged group as they contribute to China's economic growth and create employment (Thompson et al., 2007: 6). Therefore, according to the theory, Chinese dairy producers are categorized as a politically strong and positively constructed group.

The milk scandal as an external dramatic event caused the Chinese dairy producers as a target population to shift from trustworthy to untrustworthy, that is, from advantaged to

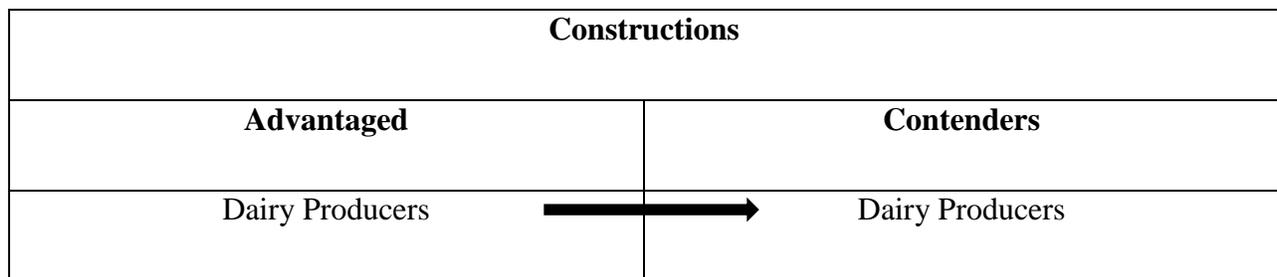
contender status. According to Schneider and Ingram (2005), the causal drives of a shift of a target population would be the perception of a target population shifting from being undeserving to deserving or vice versa, external dramatic events and entrepreneurs' skill manipulation or opportunities. The dramatic milk powder incident caused great financial loss, low confidence of consumers in Chinese dairy producers and ended up a shift of dairy producers from advantaged to contenders.

On the dimension of power, the milk producer remains to be a powerful group. Sanlu company went bankruptcy right after the scandal was exposed, yet some major domestic milk producers, like Mengniu and Yili, still found opportunities in China's dairy market. The size of Chinese dairy market has increased dramatically since 1990s. The milk scandal did not stop the increasing demand of consumers and the size of the dairy market. The Chinese government still promoted the consumption of milk and encouraged the growth of dairy industry. The stable growth of national average income urged the growth of the consumption of dairy products in China. Other local brands, like Xinxiwang and Jiabao, were also growing rapidly, which maintained a growth rate of at least 20% (Kantar Worldpanel 2015). The milk producers and milk industry took a big hit due to the melamine milk scandal in early 2009, however, the recovery in production has also been very rapid (Jia 2012).

Although milk producers remain to be powerful, on the dimension of social construction, the milk producers shifted from positive to negative due to the melamine milk scandal. 290,000 people were poisoned, 300,000 were sickened, more than 50,000 were hospitalized and six babies had died (Qiao, Guo & Klein, 2010). Very high penalties even including death penalties are given to people and companies involved in the milk scandal (China Daily 2008). Additionally, seven local government officials, including the Director of the Administration of

Quality Supervision, Inspection and Quarantine (AQSIQ) have been laidoff or forced to leave office (Xinhua 2008).

The milk scandal caused the melting down of confidence of Chinese consumers towards dairy producers. The dairy products in Chinese markets are the least favorable product to most Chinese people after the melamine case broke out. It would be a long way for consumer's confidence in Chinese dairy producers to be restored. Additionally, the melamine case raised great concern worldwide about food safety in China and greatly hurt the reputation of Chinese exports. The total direct loss to Chinese dairy industry from September 11 to December 31 of 2008 is predicted to be more than 3 billion dollars (Wang 2009). As Chinese consumers remain cautious about Chinese dairy products and dairy producers, losses continued during 2009 and beyond. It caused the unemployment of more than 200,000 farmers and the sales of food stuff in China dropped 30% to 40% (WHO 2009c). The theory explains that contenders are those have relatively high power but they are negatively constructed. As the dairy producers lost their positive images amongst consumers and the dairy industry took a big hit after the food safety incident, the social construction of the dairy producers changed from positive to negative which is presented in the graph below:



Secondly, the theory of social construction also helps to analyze the policy-planning mechanisms of Chinese food-safety policy, that is, the factors that drive the Chinese government to implement new policy regarding China's food safety system. The social construction theory

suggests that social construction of China's dairy producers affect policy design of food safety regulations. As the social construction of dairy producers in China has shifted from advantaged to contenders, it affects the Chinese government's policy design of food safety regulations. Therefore, to improve the food safety, the framework of social construction suggests that the Chinese government should make policy changes to its food safety regime in order to shift the construction of Chinese dairy producers from contenders to advantaged, from untrustworthy to trustworthy. The reconstruction of China's dairy producers towards advantaged group will contribute to effective food safety policy regime in China.

When the melamine crisis broke out, China was facing demands domestically to improve its food safety as the social construction of dairy producers in China has shifted from positive to negative. China is evolving rapidly in the manufacturing sector and as an export country. The ability of regulating food production is very important for Chinese government. Furthermore, the food safety is one of the top concerns for Chinese consumer in a recent opinion polls (Broughton & Walker, 2010; Pei et al., 2011). The Chinese government has started to pay increasing attention to the food safety system in China due to the milk scandal. In order to shift the social construction of dairy producer back to the advantaged group, the Chinese government responded to the milk scandal effectively and quickly by creating a food safety law, developing its inspection system, its food safety management system and establishing a new food safety standard system.

Increasing international and domestic public attention and media coverage of this serious food safety incident also affected Chinese government policy design regarding food safety. According to Schneider and Ingram (1995: 338), the contenders is supposed to receive few burdens and hidden benefits. However, when the public and media attention increases, the policy

is expected to shift towards the more burdensome side. The theory suggests that the policy design may change depending on the external public and media attention. The increased external public attention and media coverage of this serious food incident affected the Chinese government's policy design towards food safety by establishing and implementing stricter food safety policy. By establishing a new Food Safety Law, Chinese send message to domestic customers as well as international community that it is a responsible nation and it has great concern on Chinese food safety.

Another factor that drove the Chinese government to choose new food safety policy is that the government intent to shift its social construction from negative to positive by establishing and implementing new food safety policies. In the case of China's milk scandal and series of food safety incident, the Chinese government was in the negative social construction. The tainted formula scandal revealed the loopholes and underdevelopment in the food safety system in China. The general public lost their trust in the Chinese government in the wake of a series of food safety scandal. By implementing new food safety policies, the Chinese government intends to rebuild its trust among the Chinese public, and also to rebuild the confidence among Chinese consumers about food safety in order to shift its negative social construction towards positive.

The effectiveness of these policy changes and developments remains to be seen. However, the milk scandal resulted in melting down the confidence of Chinese consumers, which has a long way to overcome. Although the government made policy changes and improvement regarding food safety right after the food safety crisis, it seems that Chinese consumers are increasingly critical and considerably anxious and uncertain about the safety of dairy products in China. Distrusting consumers dramatically reduced their demand for domestic milk powder and

Chinese consumers' search for infant formula goes global regardless of the high price. Parents will not buy the locally produced foreign baby formula brands. They only want them if bought outside of China. As a result, Chinese parents empty store shelves in Europe and Hong Kong mandates limits on baby formulas (Wong 2013). The trends continued to exist in 2015 (stories from friends from China). The confidence of Chinese consumers has a long way to resume and the innovations and changes implemented by the government could help with the recovering.

### **2.10. Policy Prescription**

In this section, I provide some policy prescription for China to improve its food safety system. An effective food-safety system in China would help the social construction of Chinese dairy producers shift back to advantaged group. Since the milk powder incident, food safety has received high-level political attention and Chinese government was working to fix the problem by carrying out a reform towards its food safety system. As we discussed earlier in the paper, Chinese government has achieved great improvement in several major aspects of food safety. However, there are still some deficiencies of the food safety system and some difficulties that China faces when attempting to build an effective food safety system.

Above all, it is important to improve the efficiency of the food safety regulatory institutions in China. The fragmentation of regulatory authorities including SFDA, MOA, MOH, AQSIQ, MOC and others, and their responsibilities for food safety remains a continuing challenge for China's regulatory implementation. The incongruities among standards and regulations adopted by these different agencies reflected the fragmentation of the authorities. According to relevant regulations and laws, each of them deals with different parts of food safety supervision and administration and such multi-department supervision is inherently problematic. The ambiguity in responsibility of many regulatory authorities is a big problem. As a result, it is

not rare to see buck-passing among different authorities, which makes it difficult to set up the collaboration between governmental departments to trace the source of food contamination. Therefore, the Chinese government should work on to reduce the conflict and improve the efficiency among different authorities.

Moreover, establishing a public supervision system is also essential for Chinese government to achieve greater food safety. With no public education and accountability, any good supervision system and legal framework will be hampered. Establishing a food safety information network is very important to Chinese government to improve food safety laws. On one hand, the awareness of food safety should be improved by the government among the general public in a number of different initiative. In doing so, the public are given the supervisory rights so that they could be more engaged in the improvement of food safety by giving pressure to producers and governments at different level to enhance the effectiveness of law enforcement. On the other hand, establishing a food safety information network will provide consumers with good access to the food safety information. Getting full information on the food that consumers are buying is currently impossible as the food producing industry is complex. Consumers are uninformed about the information of food products from many producers. Government should eliminate the barrier for the consumers to get access to the information of their food products (Ni et al. 2009).

Last but not least, increasing food safety surveillance and enforcement, and keeping refining the food safety standards are highly important to a great food safety system. A report to the National People's Congress regarding the implementation of the FSL shows a negative account of local supervision and it is essential for local governments to increase monitoring and enforcement (NPC 2011). In addition, food quality standard needs to be perfected as it is the

basis of law enforcement on food safety. Food safety standard is of great importance in the law enforcement process as it provides the direct evidence to any food safety incident. In reference to the standards of food safety in developed countries, China should keep refining and establishing unified and scientific food safety standard and improve the operability of the standards.

#### **4. Conclusion**

What happened in 2008 has shaken China and Chinese people in a profound way. The milk scandal was of particular concern to Chinese parents. Children are a top priority to Chinese parents who would devote all their life and time just wanting the best for their children. Nothing can be more depressing and devastating than losing one's child or seeing them suffer from sickness. Because the melamine milk scandal caused great damage to thousands of children, mostly infants, it received high-level of political attention from the Chinese government. When the food safety crisis broke out, the Chinese government listened to the people's voice and heart, responded to the people's demands for greater food safety by efficiently and fundamentally carrying out a reform on food safety system.

This paper seeks to address two primary questions: what caused the milk safety scandal in China; and what is the policy response carried out by the Chinese government following the melamine milk scandal of 2008. The economic backlash and political toll from the serious melamine-contaminated milk scandal influenced the evolution of food safety system in China. Rapid yet unregulated dairy industry is one of the major reasons for this food safety incident. It also revealed that the fragmentation of responsibilities among regulators, inconsistencies in the enforcement and development of food safety standards created vulnerabilities in the system and weakened regulatory oversight. Therefore, the Chinese government has been taking steps to

improve its legal framework of food safety system, unify food safety standard, and increase cohesion in government supervision and inspection.

The study then applies the theoretical and conceptual insights coming from social construction framework to help understand the policy-planning mechanisms of Chinese food-safety policy and the policy prescriptions for establishing an effective food-safety system. The status of the target population – Chinese dairy producers – shifted from advantaged to contender status in the wake of the milk powder scandal. When the melamine crisis broke out, China was facing demands domestically and internationally to improve its food safety as the social construction of dairy producers in China had shifted from advantaged group to contenders. Increasing international and domestic public attention and media coverage of this serious food safety incident also affected Chinese government policy design regarding food safety.

Although the Chinese government has been effective and quickly reacted to the melamine crisis by taking steps to correct the undeveloped food safety system and make food policy changes, to have greater food safety, more work and efforts are needed by Chinese government. Since the milk powder incident, food safety has received high-level political attention and the Chinese government was working to fix the problem by carrying out a reform towards its food safety system. The Chinese government has achieved great improvement in several major aspects of food safety: legal framework, food safety management system, inspection system and standard system. However, there are still some deficiencies of the food safety system and some difficulties that China faces to build an effective food safety system and to resume consumers' confidence. More work needs to be done by the Chinese government in order to improve the effectiveness of food safety agencies, establish a public supervision system, keep refining food

safety standards as well as to increase food safety monitoring and enforcement in order to build an effective food safety system and achieve greater food safety in China.

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