



**Needs Assessment for
Developing Sustainable School Feeding
in
Sichuan Province, China
November 2009**



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Prepared by the Global Child Nutrition Foundation

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EXECUTIVE SUMMARY

This study assesses needs and the feasibility for developing a sustainable, nutrition-based school feeding program for six target school sites in Deyang City, Sichuan Province, China. The Deyang Education Bureau (DEB) is requesting assistance to establish a nutrition-based school feeding program that would meet local needs and also be adaptable to other areas in China.

The Global Child Nutrition Foundation (GCNF) conducted the study during April – September 2009. It included onsite visits to target schools, meetings with school officials and stakeholders, and meetings in Beijing with government and private sector organizations that expressed interest in supporting the model program. The study was conducted in collaboration with the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service (FAS) in Washington, DC, and the USDA's Agriculture Trade Office (ATO) in Chengdu and Beijing, China.

At the time of the May 2008 earthquake in Sichuan Province, Deyang became an emergency response center and now functions as the area's recovery and rehabilitation center. The Deyang educators and community stakeholders found school feeding to be a lifeline of support during the emergency, and they now consider school feeding essential for recovery and reconstruction.

The DEB selected the six target school sites for the study. All schools are located in Deyang and have a total enrollment of 7,000 students, grades k – 12. The schools have a mixture of students living in the city and displaced students from rural areas living in prefabricated dormitories (formerly tent schools) on school campuses. The dormitory students eat all meals at school. The lack of refrigeration and cooking equipment, along with inadequate funding for food, limits the variety, nutritional quality, and quantity of foods used in school meals.

Throughout the study, key research questions guided data collection to interrelate topics, such as: the nutritional status of children; supportive policy and funding for school feeding; integration of school feeding with local small farm production; the availability of locally-grown foods; community support for school feeding; institutional capacity to manage and operate the program; and the ability of school facilities to serve safe and nutritious meals. Information was sourced from field notes, observations from school visits, literature review, and numerous meetings with stakeholders and officials from the government and non-governmental organizations (NGOs).

The school visits and meetings with the DEB provided a realistic view of conditions as of 2009 and the specific needs of the target schools. The Deyang target schools represent a cross section of schools in rural China, where many students live in dormitories on school campuses during the week. These students come from families of poor subsistence farmers where malnutrition occurs most frequently. The Deyang student enrollment equals about 30 percent of the total student enrollment in Sichuan Province.

The findings provide persuasive evidence to support the development of a nutrition-based school feeding program in the Deyang target schools. Children will be the primary beneficiaries. However, Sichuan Province may also benefit from increased employment, a sustainable market for small farmers, increased family food security, and poverty reduction.

The most significant finding with immediate implication relates to government support and funding. As of 2009, school feeding is an option left solely to provinces, counties, municipalities, and schools. When available, the program is financed from meal charges paid by parents. As a result, many poor children are unable to participate in the program or are unable to buy an incomplete meal. This funding limitation would also make it difficult for schools to improve the nutritional quality of meals, improve kitchen facilities, provide staff training, and build capacity to effectively manage and operate a model school feeding program. Although there is strong community commitment for school feeding, it is unclear to what extent the community, especially in rural areas, could provide sustainable financial support for the model program.

The process for developing the model program builds upon the program that already exists. The intent is to retain successful components and strengthen areas where improvements are needed and can be made. These areas of improvement include nutrition standards, adequate supply of nutritious foods, training of food service staff, and effective operation efficiencies.

The study makes several recommendations for next steps in developing the nutrition-based school feeding program. However, the first and most important step is to provide adequate funding for planning and developing the requested model. Once the model is developed, it will be possible to project realistic costs for implementation and seeking donor support.

At the present time, China is acknowledging the importance of nutrition for social and economic development. In this new environment, school feeding becomes a viable option to support child health, education, and the country's broad development goals. Current school feeding inequalities create barriers to good health and participation in China's compulsory education program, especially for poor children. This needs assessment will hopefully encourage China to provide the necessary policy and funding to support school feeding.

I. INTRODUCTION

A. Background

With the world's largest population of 1.3 billion and a strong national economy, China is becoming a trend-setting country that may influence economic and social development globally. The way in which China supports the health and education of its some 200 million school-aged children is of special interest to developing countries where, just as in China, the need for school feeding is recognized as an important social safety net, but has yet to receive national commitment through supportive policy and funding.

China has made a commendable commitment to education through its compulsory education mandate. Although enrollment has reached an impressive 98.6 percent in elementary schools,¹ the prevalence of malnutrition and related health problems are barriers that overshadow school attendance and academic achievements. Experience-based evidence indicates that school feeding increases school attendance, reduces drop out rates, and supports academic achievement.² School feeding also supports the country's broader social and economic development goals for poverty reduction, emerging agricultural and industrial markets, increased food security for families, and employment in local communities.

This needs assessment comes at a time when China, for the first time, is including nutrition in its country plan for social and economic development. In 2001, the China National Research and Development Center emphasized the importance of a healthy and balanced student diet by including nutrition in the government's 10th Five-Year Plan. The current 11th Five-Year Plan was introduced in March 2006 and also promotes public nutrition improvement. The new 12th Five-Year Plan reportedly aims to improve public services for all citizens, including compulsory education and public health.³

Following this policy directive, the Ministry of Agriculture and the Ministry of Science and Technology have further considered nutrition as one of the basic principles of development for the food industry.⁴ In 2001, the Public Nutrition and Development Center (PNDC) was established to improve the health of Chinese people.⁵ This new emphasis on public nutrition is now regarded as a responsibility shared by the Chinese

¹ Ministry of Education of the People's Republic of China. (2002). *Basic Education in China*. Retrieved August 27, 2009, from http://www.moe.edu.cn/english/basic_b.htm.

² Bundy DAP, Burbano C., Grosh M., Gelli A., Jukes M., Drake L. (2009) "Rethinking School Feeding: Social Safety Nets, Child Development and the Education Sector." *Directions in Development*, World Bank, Washington, DC.

³ Chinese Government's Official Web Portal. (March 23, 2006). *NDRC Minister on 11th Five-Year Plan: The 11th Five-Year Plan: Targets, Paths and Policy Orientation*. http://www.gov.cn/english/2006-03/23/content_234832.htm.

⁴ The Center for Public Nutrition and Development Center. (2009) *The Fourth Food and Nutrition Industry Forum*. [Brochure]

⁵ The Center for Public Nutrition and Development Center. (2009) *The Fourth Food and Nutrition Industry Forum*. [Brochure]

government and the nutrition industry and continues to move into a high-speed development period.⁶

China became acutely aware of the importance of school feeding when the 8.0 magnitude earthquake struck the Sichuan Province on May 12, 2008. The estimated 90,000 deaths, coupled with the destruction of thousands of schools, elevated school feeding to a lifeline status for survival. Today, local educators consider school feeding an essential part of reconstruction and recovery. School feeding continues to nourish thousands of children in tent schools and dormitories where displaced children live.



Aftermath of the 2008 Sichuan earthquake.⁷

The city of Deyang, located 50 km south of Chengdu, the Sichuan Province capital, became the area's earthquake relief and recovery staging center. It is here that the Deyang Education Bureau (DEB) is requesting assistance to transition from minimal food support to a model nutrition-based school feeding program.

In October 2008, the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service (FAS) in Chengdu contacted the Global Child Nutrition Foundation (GCNF) for technical assistance in responding to this request for expanding a school feeding program in the earthquake recovery area. Specifically, the DEB asked for assistance to develop an efficient nutrition-based school feeding program for target schools in Deyang. The intent was to develop a model that could be replicated in other parts of the province and possibly throughout China.

At the present time, China is publicly acknowledging the importance of nutrition for the country's social and economic development. Although this is an important step forward, government commitment through supportive policy and funding have yet to be provided. The information and recommendations in this report aim to guide China in establishing this necessary support.

⁶ The Center for Public Nutrition and Development Center. (2009) *The Fourth Food and Nutrition Industry Forum*. [Brochure]

⁷ All photographs included in this report are credited to Gene White and Stan Garnett.

B. Project Description

GCNF conducted a study *to assess needs and make recommendations for a model school feeding program in Sichuan Province that could be replicated in other areas in China*. The study was conducted in China and the United States from April through September 2009. While assessing needs, it was also possible to study the feasibility of establishing a nutrition-based school feeding program, and this is included in the report.

The assessment followed a five-step process:

1. Select study area and target schools within Sichuan Province.
2. Identify and contact data sources.
3. Select research questions.
4. Identify stakeholders and organizations that could serve as resources.
5. Review, interpret, and report findings.

This study was conducted in collaboration with FAS and USDA's Agricultural Trade Office (ATO) in Chengdu, and the DEB in Deyang, Sichuan Province.

1. Site Selection

As previously noted, Deyang is the earthquake recovery staging area, and it is here that educators and community stakeholders view school feeding as an essential part of public education and as a valued resource for community recovery. The GCNF team observed the role of school feeding at a time of shock and how it has become an integral part of school and community life.

The six target school sites in Deyang City were selected by the DEB, who requested assistance to:

1. Develop a model school feeding program that provides nutritionally-adequate meals in six target schools with a total enrollment of 7,000 students, grades k-12;
2. To the extent possible, use locally-produced foods that are culturally acceptable to students;
3. Provide nutrition education for students, parents, and teachers while increasing student participation in the program; and
4. Obtain low-cost or donated U.S. agricultural commodities to improve nutrition and offset food costs.

Although nutrition education in China is valued and important, it is not included in the scope of this needs assessment. Instead, the study focused on the above assistance items 1, 2 and 4.

2. Research Questions

The *School Feeding Toolkit: A Resource for Assessing Needs and Planning Sustainable School Feeding Programs* is an instrument developed by GCNF to assist countries with the development of school feeding programs. The *School Feeding Toolkit* guided the selection of certain key questions for this study:

- Does the nutritional status of school-aged children indicate a need for school feeding?
- Do local stakeholders and educators commit support for school feeding?
- Is there a legal framework that supports and funds school feeding?
- Is there adequate capacity at the provincial and local levels to develop and operate school feeding programs?
- Is school feeding linked with local small farm production?
- Is an adequate supply of varied and nutritious foods available throughout the year?
- How is school feeding funded?
- Do schools have adequate facilities for providing safe and nutritious school meals?

3. Data Sources and Collection

One of the main challenges was to find accurate and current sources of information. School feeding in China operates at the discretion of provinces, counties, municipalities, and local schools. As a result, there is no central source for program-related information such as food cost, local farm production, employee training and funding mechanisms. Information was sourced from literature review, field notes from school visits, oral interviews, stakeholder meetings, and reports from organizations such as the United Nations World Food Programme (WFP), the China Development and Research Foundation, the Chinese Ministry of Education, USDA, and large food industries throughout China.

The GCNF assessment team made two data collection trips to China: one from April 14-25, 2009, followed by a second trip from July 25-30, 2009. In April, the team worked from the ATO post in Chengdu and met with DEB officials in Deyang, where they also observed school feeding operations at the six target school sites. Following these Deyang school visits, GCNF went to Beijing for conferences with FAS officials, China government officials, WFP, and industry representatives (see Appendix B for a schedule of contacts and meeting dates).

The GCNF team was able to spend two days in the secured prefab schools in Deyang. This visit was made possible through permission from the China Office of Homeland Security in Beijing. School officials in Deyang provided transportation to the schools, scheduled interviews with principals, teachers, and food service staff, and were helpful in providing detailed information relevant to school feeding. They also took the GCNF team to a central wet market and to local Deyang wet markets to observe how foods for the school meal programs were procured from DEB-certified vendors.

In July 2009, FAS sponsored a meeting in Beijing to explore public-private partnerships that might assist Deyang in developing the requested model school feeding program. GCNF participated in this meeting and remained for follow-up discussions. This meeting united stakeholders, non-governmental organizations (NGOs), and industries from the public-private sector to discuss their possible contributions to the Deyang model school feeding project. Although there was keen interest in helping Deyang, the project is waiting for the necessary leadership and funding to move ahead.

In September 2009, GCNF prepared a concept paper for FAS with recommendations for advancing the Deyang project. This project will be further discussed in Beijing in December 2009 when GCNF participates in the Fourth Food and Nutrition Industry Forum, a forum established in 2001 to promote the nutrition industry's sustainable development within China.

In October 2009, FAS brought seven Deyang school officials to the United States to observe school feeding programs in schools of comparable size to the Deyang target schools. GCNF participated in these school visits, as well as the Staff Vice President of Child Nutrition and Policy, School Nutrition Association (SNA), GCNF's founding sister organization. Information was provided on the policy and funding mechanisms for school nutrition programs in the U.S. and program links with local agriculture production.

4. Interim Needs Assessment Report

An interim report was presented at GCNF's 11th Annual Global Child Nutrition Forum held in Stellenbosch, South Africa from May 5-9, 2009. Delegates from 15 African countries responded to the report and provided input that led to various revisions, which have been included in this final study.

The review and revision process continued throughout the study with input from GCNF staff, as well as from operations and regulatory specialists with extensive backgrounds in program design, development, and implementation.

In December 2009, this needs assessment will be reviewed with USDA/FAS officials in Beijing to discuss next steps to proceed with the Deyang school feeding model project.

II. FINDINGS

The nutritional needs of school-aged children, the status of public education, and the availability of funding influence the findings and options for strengthening school feeding programs in the Deyang schools. This section will explore these relationships to gain perspective on situations that affect the development of school feeding in Sichuan Province and throughout much of China.

A. Child Nutrition

Like many countries, China is struggling to respond to the dual challenge of malnutrition, as evidenced by undernutrition, which is especially high in rural areas, and the increasing prevalence of child obesity.

The China National Institute of Nutrition and Food Safety reports that the prevalence of malnutrition ranges from two to 11 percent in Chinese students one to 17 years of age. This percentage increases as students get older. The daily protein intake for elementary students in rural areas ranges from 80 to 90 percent of the recommended dietary allowance (RDA), and the percentage of daily calcium intake was well below 55 percent of the RDA for children ages six to 17. The percent of daily riboflavin (vitamin B2) intake was below 56 percent of the RDA for rural area children and below 75 percent of the RDA for urban children.⁸

Dr. Huang Lei of the Beijing Municipal Center for Disease Prevention and Control (CDPC) reports that even in cases where well-balanced and planned school lunches are offered in Beijing, the amounts of calcium and vitamins A and B2 were severely inadequate compared to the nutrition requirements.

According to the World Health Organization (WHO) growth norms, about 10.2 percent of rural children in northwest China were wasting, 9.4 percent of young children in southwest China were stunting, and 14.2 percent of children suffer from iron deficiency anemia.⁹ At the opposite end of the spectrum, childhood obesity presents equally serious health issues found predominately in urban schools where, from 1985 to 2005, the prevalence of overweight and obesity doubled every five years. By 2005, more than 17 percent of the boys in primary schools in Beijing were overweight, as defined by U.S. Centers for Disease Control and Prevention/National Center for Health Statistics standards.¹⁰

A recent survey of primary schools in poor areas from northwest China found that more than 50 percent of schools do not provide protein-rich foods in student meals. Boarding schools in the area often did not have dining facilities, and students brought food from

⁸ China National Institute of Nutrition and Food Safety. (July 2009). Reported at the Deyang School Lunch Workshop, Beijing, China.

⁹ Food and Agriculture Organization of the United Nations. (April 19, 2000). *Nutrition Country Profiles: China*. <http://www.fao.org/ag/agn/nutrition/cpr-e.stm>.

¹⁰ Cheng Y.J. (2006). *School Feeding Practices in China*. Presented at the Global Child Nutrition Forum, Los Angeles, CA, USA.

home.¹¹ Although school feeding has yet to become a national priority, nutrition education has a prominent place in the school health curriculum. For example, a Chinese pagoda styled after the USDA food guide pyramid encourages healthy eating habits among children and adults alike.

B. Public Education

The structure of public education in China influences the scope of school feeding and the ways in which programs are designed and operated. China has a vast public education system with an enrollment that exceeds 200 million students, spanning from kindergarten to high school. The 1986 Compulsory Education Law guarantees that school-aged children have the right to receive at least nine years of free education up to age 16 (five years of primary education, followed by four years of secondary education). The Ministry of Education reports a 99 percent attendance rate for primary school students and an 80 percent attendance rate for primary school students. Additionally, according to a 2000 census, 90.9 percent of China's total population is considered literate.¹²

The Chinese government does not typically subsidize school feeding. However, according to recent reports, in rural areas the government has agreed to subsidize 500 RMB (US\$73) for each primary school student, and 750 RMB (US\$110) for every middle school student, to help improve student nutrition.¹³

C. School Feeding in China

China has yet to establish supportive policy or funding for a national school feeding program. In the absence of such policy, school feeding is operated independently by provinces, municipalities, cities, and schools. As a result, programs vary in quality, cost, and student access. Parents either pay for school meals or contribute rice to help offset charges. There is no planned free meal assistance for the neediest children and many children therefore have no food at school or are able to buy less than a complete meal. This was apparent at the Deyang tent schools, where teachers asked for donations to buy meals for the neediest children.

The WFP has been active in China since 1979 and estimates that over one million primary and middle school students in 20 provinces and cities in China currently receive some sort of school meal, provided either by private catering companies or the school canteens themselves.

The majority of school meal programs are located in urban areas, which creates a country-wide imbalance in student access to school feeding. School visits in Beijing showed extensive and high-quality school feeding programs that are reportedly replicated

¹¹ Rural Education Action Project (REAP). *Nutrition and Education: The Perplexing Puzzle of Anemia in Rural China*. Retrieved September 2, 2009, from http://www.reapchina.org/Financia-Aid.asp?type_id=61&stype_id=0&newsid=107.

¹² CIA – The World Factbook. *China*. <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>.

¹³ Wang, Y. WFP. September 8, 2009 email.

in other urban areas throughout the country. In Beijing, excellent school facilities were observed where students were offered selective menus served in handsome dining rooms. However, more than 70 percent of China's students live in rural areas where malnutrition is most prevalent and access to school feeding is limited.

WFP's School Feeding Baseline survey, conducted in five provinces, supports school feeding as an intervention that increases school attendance and reduces dropouts, especially among girls.

D. Short-Term and Pilot Programs

Although China does not have a national program, NGOs and other organizations have provided school meals in various parts of the country for more than 30 years.

In the 1980s, "school lunch" programs were started in several large, comparatively affluent cities like Beijing and Shanghai. By 1988, the Chinese School Nutrition Promoting Association was independently established to advocate school feeding for all children, in addition to strengthening nutrition education.¹⁴

In 1994, a complex school feeding network, consisting of the Ministries of Health and Education, was formed in most provinces to advance school feeding. Joining this coalition were national, regional, and public organizations, including NGOs. Along with school feeding, the coalition emphasized curriculum development, training, and targeting children who most needed school meals. By 2005, the Chinese Students Nutrition and Promoting Association, in conjunction with the National Institute of Child and Adolescent Health, met to establish a National School Nutrition Outline with plans to nationally expand school feeding and nutrition education.

Pilot programs were often short-lived, but they have provided experience and other resources that would later help with broader program expansion. Although children are the primary beneficiaries, the pilots demonstrated additional benefits for the country, such as providing employment through program expansion and an increase in public-private partnerships.

In early 2000, the China School Milk Programme (CSMP) was launched in four cities and reached an estimated two million school children each day.¹⁵ Although the government does not subsidize CSMP, milk is sold to urban school children at a discounted price, typically 25-30 percent less than the market price, which is offset by negotiation. CSMP supplements student diets while supporting the emerging dairy industry and the economy of China as a whole. The CSMP created 223 new jobs for every 100,000 children during its initial pilot phase.¹⁶ In 2007, a model school milk

¹⁴ Cheng, Y.J. (2006). *School Feeding Practices in China*. Presented at the Global Child Nutrition Forum, Los Angeles, CA, USA.

¹⁵ Lai, B. (2003). Tetra Pak. *School Milk Programme – The Economic Dimension*.

¹⁶ Bundy DAP, Burbano C., Grosh M., Gelli A., Jukes M., Drake L. (2009) "Rethinking School Feeding: Social Safety Nets, Child Development and the Education Sector." *Directions in Development*, World Bank, Washington, DC.

program was implemented by Tetra Pak, with projections to distribute 5.3 billion milk packages to children.

E. Deyang Education Bureau (DEB)

The DEB is the administrative agency for schools in Deyang City and the surrounding rural areas. Deyang consists of five counties, 21 villages, and 100 towns and has a population of roughly 3.85 million people.¹⁷ In 2007, its per capita GDP was US\$2,616. 98 percent of schools in Deyang are public, with K-12 student enrollments of both day and dormitory students. This represents approximately 30 percent of the total student enrollment in Sichuan Province. Although the DEB was responsible for selecting the six target school sites, the selection criteria were unclear.

The following chart compares the number of schools and student enrollments in Deyang City, Sichuan Province, and China:

**Table 1. Schools and School Enrollment:
Deyang City, Sichuan Province, and Country of China**

	Deyang City¹⁸	Sichuan Province¹⁹	China²⁰
Number of schools	382	13,993	456,900
Primary			
Intermediate	168	4,162	65,000
High School	30	775	14, 907
Total number of schools	580	18,930	536,807
Student enrollment	201,760	6,488,221	121,600,000
Primary			
Intermediate	131,941	3,615,083	66,900,000
High School	50,525	1,411,178	14,000,000
Total student enrollment	384,226	11,514,482	202,500,000

F. Target School Site Visits

In April 2009, GCNF spent two days in the secured Deyang area visiting the six target school sites. The student population is a mixture of students living in Deyang City and students from remote rural areas affected by the earthquake who now live in dormitories

¹⁷ Wang, Y. WFP. September 14, 2009 email.

¹⁸ Shen, X. ATO. April 2, 2009 email.

¹⁹ Wang, Y. WFP. September 14, 2009 email.

²⁰ Ministry of Education of the People's Republic of China. (2002). *Basic Education in China*. Retrieved August 27, 2009, from http://www.moe.edu.cn/english/basic_b.htm.

on school campuses during the week and return home on weekends. Students in Deyang have the choice of eating lunch at school or returning home to eat. The dormitory students receive three meals and up to two snacks daily, depending upon the ability of parents to pay for these meals. DEB-based data estimates that 90 percent of students enrolled in Deyang live in school dormitories.

Although each of the six target school sites operates independently, they all have a similar approach to school feeding. At two schools, meal service was contracted to local caterers who handled procurement and program operations. Menus are based on locally available foods supplemented with rice or noodles. Although it was not possible to determine the nutritional content of meals, it was apparent that nutrition standards were not used. Meals were deficient in protein and lacked fresh fruits and vegetables.

All food is prepared onsite and convenience foods, such as canned or packaged foods, are not used. At one school, a soy beverage produced daily at the school was available for purchase.

Kitchen equipment and serving facilities were very limited. Several schools did not have hot water. Gas cooking equipment consisted of woks, and electricity was available in most kitchens. Dry storage capacity was limited and there was little refrigeration.



Staff prepares school meals.

While most schools had adequate dining rooms, several schools did not have designated dining areas and students instead ate in classrooms. In the tent schools and dormitories, much of the equipment had been donated to help with the post-quake recovery. One school had new dining room tables with pull-out stools donated by Japanese children. These stools were signed with the name of the child in Japan who made the donation.

School feeding is supported by parental payments, and meal prices depend on the quantity and type of food offered (i.e., an afternoon snack versus a combined meat and vegetable dish). Students may purchase a complete meal or individual items a la carte.

Beverages are seldom available for purchase. However, complimentary vegetable broth will usually supplement these meals. At all six schools, meal options were displayed to students on a blackboard. At one school, menu handouts contained the signature approvals of the school principal and manager.

Each school's food service staff wore uniforms, and at times facemasks, and appeared to be trained for specific tasks. Teachers said there is a staff training program in place, although it was not possible for GCNF to actually observe this. All staff appeared to be employees paid by the local school to operate the food service program.

In general, there were no guidelines or standards for nutrition, food preparation, food service or cost control. It was apparent that there was no plate waste or food wasted in preparation (see Appendix C for a more detailed account of each school).

G. Food Procurement

Sichuan is a large province strategically located in Southwest China and is one of the country's major agricultural production areas. Grain, including rice and wheat, is the major product with an output that ranks among the highest in China. Commercial cash crops include rapeseeds, citrus fruits, peaches, sugar canes and sweet potatoes. Sichuan also has one of the largest outputs of pork among all provinces. According to the ATO post in Chengdu, there is an adequate supply of locally-grown foods in the province. Furthermore, it is estimated that more than 75 percent of China's total cultivated land is used for crop production, demonstrating a strong possibility to link school feeding to local agricultural production.

The Deyang schools purchase fresh foods daily from the local wet markets, public markets that offer a wide selection of meats, fish, vegetables, and some fruits. The DEB mandates that staple items (i.e., rice, flour, cooking oil) be ordered from DEB-approved and qualified suppliers. All schools are asked to document the procurement process, especially tracking their procurement sources and suppliers. Additionally, schools are asked to keep samples of each meal for 24 to 48 hours. If any food-related issues should occur, these samples can be tested to diagnose the problem. The DEB also discourages schools from offering cold dishes since uncooked food can more easily transmit viruses.



Local wet market in Deyang.

Although schools use locally-produced foods, farmers are not organized into cooperatives or other marketing groups to facilitate farm to school procurement. Grains, meats and poultry are purchased through licensed vendors who must make bids for school feeding contracts, and are overseen by the local provincial health department. There are typically two to three bids which are usually about ten percent below the market price. Vegetables are often purchased at the wet markets while fruits are always purchased directly from local farmers.

H. Student Meal Prices

The six target school sites serve two to three menu items and soup a la carte for the main meal. Students purchase any or all of these foods depending on their ability to pay for these services. A combined meat-vegetable dish costs 3.5 RMB.²¹ In addition to this basic meal option, an enhanced meal of two vegetable dishes and one meat dish is available to purchase at 6 RMB. Many students in the target schools cannot afford any of these items. Instead, some poor families send their children to school with rice, which is then cooked at the school for the student's meal.

Families with boarding school students who can afford to pay for school meals are charged 300 RMB per month, which includes three meals a day. Parents can pay an extra 75 RMB per month for their children to receive an additional two snacks a day. The DEB estimates it would cost 3.4 million RMB (US\$500,000) a year under a tiered subsidy system to provide one daily nutritious meal to children whose families can only pay a portion of the meal. The source of this subsidized funding remains unclear. A universal free lunch for all 7,000 students at the six target school sites would cost an estimated 7 million RMB (US\$1 million) per year.

In the autonomous region of Guang Xi, located in southern China along the Vietnam border, the China Development Research Foundation operates a pilot school feeding program where lunches cost an average of 1,000 RMB per student per year. This equates to between 2.5-5 RMB per day. Although these meals meet calorie requirements, they are not nutritionally balanced.

I. Earthquake Recovery

It must be emphasized that school feeding played an important role in providing emergency relief at the time of earthquake shock, and is now considered a stabilizing resource for community recovery and healing. Teachers related stories of personal loss in a tragedy that killed an estimated 90,000 people, destroyed an estimated 14,000 schools, orphaned 4,000 children, and ruined farmland, live stock and irrigation systems that impoverished millions of rural people. Teachers reported working 24-hour shifts to prepare food and care for students during the emergency.

It was in this setting that school feeding became a lifeline of support for displaced children and families.

²¹ The renminbi, abbreviated as RMB, is the currency of the People's Republic of China. As of November 2009, 7 RMB = 1 USD.

J. Country Resources

China, and the international community as a whole, has many resources to support school feeding. This became evident at the July 2009 meeting in Beijing, when at least 30 leading organizations representing the Chinese government, the United Nations, NGOs and food industries gathered to discuss how they might collaborate to help start the DEB-requested model school feeding program in Deyang. This meeting, sponsored by USDA/FAS, helped identify resources and possible plans for the Deyang project.

III. CONCLUSION SUMMARY

Support for Model Program

Persuasive evidence supports the development of a nutrition-based school feeding program in Deyang target schools, in which children are the main beneficiaries. Sichuan Province, and the country as a whole, will also benefit from the ways in which school feeding supports the broader social and economic development goals of China. This support includes new employment in communities, a reliable market for local farm production, and increased food security.

Local Resources

Local resources are available to support a nutrition-based school feeding model. They include strong school and community commitment, an adequate supply of locally grown nutritious foods, and access to transportation for food delivery. The ongoing but limited school feeding in the target schools provides the basis for phasing in the model program. The essential missing element is government commitment through policy and funding to support sustainable program development and expansion.

Several organizations in China have started pilot school feeding programs at various times. These organizations have a wealth of knowledge and experience that have yet to be used to assist the Deyang targeted schools. In the absence of government commitment and leadership, these resources are available but remain unused.

Access to School Meals

China has yet to provide policy and funding to support school feeding. Instead, poor rural families bear the burden of paying for their children's school meals and snacks. As a result, many children are often denied food because they cannot pay for school meals, or because there is no school feeding program at all. Government support would help mitigate this inequality.

Program Development

The requested model school feeding program will hopefully be developed for the Deyang target schools. The new program will build upon strengths already in place. It will, however, also need support from agencies within China and perhaps public-private partnerships. The DEB will need assistance for upgrading school facilities, training staff, and establishing funding mechanisms and management practices that ensure appropriate use of program resources.

Program Policy and Funding

GCNF experience with program development in the United States and in developing countries indicates that supportive government policy and funding are essential for establishing a sustainable and effective school feeding program. This needs assessment report will hopefully encourage China to provide policy and funding to support school feeding.

IV. RECOMMENDATIONS

The needs assessment findings and conclusions support the following recommendations:

- I. Provide adequate funding for planning and implementing a model nutrition-based feeding program in target Deyang schools.
- II. Establish a Core Development Team to provide leadership, coordination, and guidance throughout the project.

This team will include representatives from USDA/FAS, the United Nations World Food Programme (WFP), GCNF, and Industry. Team responsibilities include a four-step process for program design, development, and implementation:

- i. Goal setting and planning.
 - ii. Resource and capacity building.
 - iii. School feeding start-up.
 - iv. Monitoring and evaluation.
- III. Identify a qualified organization to serve as the prime contractor for the Deyang school feeding pilot project.
- IV. Provide public access to this report so that it may assist countries in transitioning to a country-owned and operated school feeding program.

One of the priority responsibilities of the Core Development Team will be to establish a sustainable and affordable source for nutritious foods. Sichuan Province is a major food producing area that could be more fully utilized in school feeding. Linking school feeding with local small farm production can be strengthened and thereby provide long-term benefits both for school feeding and local farmers.

The following schedule is proposed for planning and implementing the school feeding model:

Year I: 2010-11 Activities	Year II: 2011-12 Activities	Year III: 2012-13 Activities
<p><i>Core Development Team has introductory meetings with Ministry-level officials and stakeholders in Beijing, as well as with officials and stakeholders in Sichuan Province.</i></p> <p>Step I: Goal Setting, Planning and Model Design.</p>	<p>Step II: Resource and Capacity Building.</p> <p>Step III: School Feeding Start-Up.</p>	<p>Step III: School Feeding Start-Up (continued).</p> <p>Step IV: Monitoring and Evaluation.</p>

Appendix A – Glossary of Acronyms

ATO – Agricultural Trade Office

CDPC – Center for Disease Prevention and Control

CSMP – China School Milk Programme

DEB – Deyang Education Bureau

FAS – Foreign Agricultural Service

FNS – Food and Nutrition Services

GCNF – Global Child Nutrition Foundation

NGOs – Non-Governmental Organizations

PNDC – Public Nutrition and Development Center

RDA – Recommended Dietary Allowance

SNA – School Nutrition Association

USDA – United States Department of Agriculture

WFP – World Food Programme

WHO – World Health Organization

Appendix B – Schedule of Contacts and Meeting Dates

April 2009 Target School Site Visits

April 20-22, Chengdu, China; April 23-24, Beijing, China

Global Child Nutrition Foundation

Ms. Gene White, President
Mr. Stan Garnett, Senior Advisor

USDA Foreign Agricultural Service

Dr. Clemen G. Gehlhar, Development Resources Specialist, USDA/FAS/ICD/DRD

USDA Food and Nutrition Service

Dr. Yibo Wood, Nutritionist

Agricultural Trade Office, FAS, Chengdu

Mr. Kevin Latner, Director
Ms. SueJia Shen, Marketing Specialist

Deyang Education Bureau

Ms. Li Xiaoxia, Logistics Division Director of Deyang Education Bureau
Ms. Liu Xiaoyan, Secretary of Deyang Education Bureau International Cooperation Division

Deyang School Contacts

Deyang Jing Hu District Xiao Gan Primary School: Mr. Yang
Deyang Dong Qi Middle School: Mr. Zhou, Dexiang
Deyang Dong Qi Primary School: Ms. Ye, Shuhui
Deyang Dong Dian Middle School: Mr. Wan, Guangrui

Office of Agricultural Affairs, U.S. Embassy Beijing

Ms. Chanda Beckman, Agricultural Attaché, U.S. Embassy Beijing
Mr. Jiang Junyang, Agriculture Specialist, U.S. Embassy Beijing

Beijing Municipal Education Commission

Mr. Wu Songyuan, Deputy Director
Ms. Huan Lei, Nutritionist, Beijing CDC

China Foundation for Poverty Alleviation

Ms. Qin Wei, Director for Disaster Relief Program
Ms. Huifang Wen, Program Coordinator

China Development Research Foundation

Mr. Lu Mai, Secretary General

National Institute for Nutrition and Food Safety, Chinese Center for Disease Control and Prevention

Dr. Guansheng Ma, Deputy Director, Professor

Dr. Xiaoguang Yang, Vice President for the Chinese Nutrition Society, Professor

Public Nutrition and Development Center of National Development and Reform Commission of China

Prof. Yu Xiaodong, General Director

Tetra Pak China

Mr. Tony Chai, School Milk Program Manager

Ms. Linda Liu, Communications Manager

United Nations World Food Programme

Ms. Anthea Webb, Director, WFP China

Appendix C – April 2009 Deyang School Site Visits

I. Deyang Jing Hu District Xiao Gan Middle School

Grades	7-8
Enrollment	467
Average Daily Participation (ADP)	420
Boarders	210
Meal Price	100 RMB ²² /month (or 4-5 RMB/meal)

Notes: There is a food preparation area for fresh meats, vegetables and processed food. There is also a rice steamer, one small refrigerator, and a small storage room that holds rice, flour, condiments and other dried food ingredients. There is no hot water in the kitchen and piped natural gas is used to cook meals.

Most of the school is housed in a temporary prefabricated building that includes classrooms, dormitories, a small dining area, and teachers' offices. The kitchen is in an old one-floor building. The dining area for students is very limited (only 20-30 seats in one small room), and students usually eat their meals inside of classrooms.

There are roughly ten chefs and food preparers. Normally chefs will prepare about four dishes with meat and vegetables, and two dishes of vegetables only. No beverage is supplied, although free vegetable soup is offered. Menus are designed by the main chef and displayed to students once a week on a blackboard. Food service is contracted to a local catering company that serves three meals daily to boarding students. Some of the neediest students receive free meals paid by individuals or organizations. Non-boarding students have the choice of eating at school or going home for lunch.

The school selected a contractor based on two or three bids, and uses a contract approved by the DEB. Staple items including oil and grains are purchased from DEB-approved vendors. Food other than staple items is purchased from the local wet market.

II. Deyang Jing Hu District Xiao Gan Primary School²³

Grades	1-6
Enrollment	780
ADP	600
Boarders	N/A
Meal Price	80, 85, 100 RMB/month (or 3 RMB/meal)

²² As of November 2009, 7 RMB = 1 USD.

²³ Deyang Jing Hu District Xiao Gan Primary School and Deyang Jing Hu District Xiao Gan Middle School were separated after the 2008 earthquake.

Notes: There is a limited storage area with one small refrigerator. There is no hot water and piped natural gas is used to cook meals. There is no dining area for students, and meals are eaten inside of classrooms.

Between four and five chefs prepare meals that consist of two combined meat-vegetable dishes, and one vegetable-only dish. Water is served with meals. Parents pay for lunches and meal prices depend on student grade levels. Menus are designed by the main chef and displayed to students on a blackboard once a week.

With the exception of staple items, food is purchased daily from the local wet market. Food service is contracted out to a local catering company.

III. Deyang Dong Qi Middle School

Grades	7-12
Enrollment	700
ADP	N/A
Boarders	665
Meal Price	1-2 RMB/breakfast; 3.5-5.5 RMB/lunch and dinner (basic or enhanced)

Notes: Now a tent school, these students were relocated to Deyang from Mian Zu City, which was heavily destroyed by the earthquake and killed 235 students and 14 teachers. The school's principal lost his daughter; another teacher lost his wife and son.

Sixty percent of the children cannot afford the enhanced meal option. Instead, many students opt for a vegetable-only dish that costs between 0.5-1 RMB. Currently no students, including 50 disabled children, receive free meals. Breakfast, lunch, and dinner are all provided to boarders and are paid for by parents. Meal service is not contracted out. The chef typically prepares four dishes of meat and vegetables and two vegetable-only dishes. No beverage is provided but free vegetable broth is offered. Menus are planned by the head chef and displayed to students on a blackboard once a week.

A life insurance company donated gas cooking equipment, and a Japanese school donated dining room equipment. Another company donated four large refrigerators.

The school had a wonderful art program, and the children's art was displayed in the art instruction room.



Student art studio at Deyang Dong Qi Middle School.

IV. Deyang Dong Qi Primary School

Grades	1-6
Enrollment	500
ADP	300 (remaining students go home for lunch)
Boarders	475
Meal Price	300-400 RMB/month (depending on school grade)

Notes: Meal service is not contracted out. Schools provide breakfast, lunch and dinner, which are paid by parents each month. Chefs prepare two meat-vegetable dishes and one vegetable-only dish. While free vegetable soup is offered, beverages are not. Menus designed by the chef are displayed to students on a blackboard once a week. An estimated 30 to 40 minority students receive free meals.

Similar to Dong Qi Middle School, students were transferred from Mian Zu City. A life insurance company donated gas cooking equipment, and a Japanese school donated dining room equipment. Another company donated one large refrigerator.

The entire school is housed in a temporary prefabricated building and houses displaced families. Buildings are neither heated nor cooled, and as a result the school suffers extreme temperatures during the summer and winter seasons.

V. Deyang Dong Dian Middle School

Grades	7-12
Enrollment	2,667
ADP	N/A
Boarders	930
Meal Price	500 RMB/month (three meals); 600 RMB/month (three meals, plus two snacks)

Notes: Most non-boarders go home for lunch. The cafeteria is contracted by a private company but managed by the school. Three meals a day, plus a morning and afternoon snack, are offered to students. Beverages are available to purchase at an additional cost. The school had an in-house soy milk machine that made its own soy drink. An afternoon snack was given to 100 students, although it was unclear how these students were targeted. There is a swipe card system in which parents pre-pay cards that students use to purchase their meals.

There are 22 school food service workers working two shifts (5-10 am and 3:30-10 pm). Chefs prepare between four to five meat and vegetable dishes, and then two to three dishes of vegetables only. While menu items are varied, not all students are able to afford a complete meal. Menus are planned by the main chef and displayed to students on a blackboard every day.

A new dining hall is under construction and will accommodate half of the non-boarding students who presently return home for lunch.

VI. Deyang Dong Dian Kindergarten and Primary Schools

Grades	K-6
Enrollment	2,300 grades 1-6; 700 in kindergarten
ADP	2,000
Boarders	210
Meal Price	6 RMB/lunch (boarders pay 300/month for breakfast, lunch and dinner, or 600/month for four meals and three snacks)

Notes: The kitchen consists of a food preparation area, cooking equipment, a rice steamer, and two or three refrigerators. There is a storage room for rice, flour, sauces, and other dried food ingredients. The kitchen has hot water and uses piped natural gas to prepare meals.

Meal service is not contracted. One hundred students from the earthquake zone receive free meals. For an additional 75 RMB per semester, students may purchase morning and afternoon snacks, which are usually cookies or cakes.

There are 12 to 15 chefs and staff who prepare and serve meals. Chefs prepare two meat-vegetable dishes and one or two dishes of vegetables only. No beverage is supplied, but free vegetable soup is. The main chef is a nutritionist who displays menus once a week on a blackboard and circulates printed menu handouts signed by the school principal and manager.

All kindergartners receive school lunches, which are paid by parents each month. These meal prices vary depending on student age. Meals are transferred to barrels that are distributed to the classrooms where children eat their meals. English is taught as a second language, which heightens competition for parents to enroll their children.

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