



FINAL EVALUATION

China

Thematic window
Children, Food Security and Nutrition

Programme Title:

Improving nutrition, food safety and food security for China's most vulnerable women and children

Prologue

This final evaluation report has been coordinated by the MDG Achievement Fund joint programme in an effort to assess results at the completion point of the programme. As stipulated in the monitoring and evaluation strategy of the Fund, all 130 programmes, in 8 thematic windows, are required to commission and finance an independent final evaluation, in addition to the programme's mid-term evaluation.

Each final evaluation has been commissioned by the UN Resident Coordinator's Office (RCO) in the respective programme country. The MDG-F Secretariat has provided guidance and quality assurance to the country team in the evaluation process, including through the review of the TORs and the evaluation reports. All final evaluations are expected to be conducted in line with the OECD Development Assistant Committee (DAC) Evaluation Network "Quality Standards for Development Evaluation", and the United Nations Evaluation Group (UNEG) "Standards for Evaluation in the UN System".

Final evaluations are summative in nature and seek to measure to what extent the joint programme has fully implemented its activities, delivered outputs and attained outcomes. They also generate substantive evidence-based knowledge on each of the MDG-F thematic windows by identifying best practices and lessons learned to be carried forward to other development interventions and policy-making at local, national, and global levels.

We thank the UN Resident Coordinator and their respective coordination office, as well as the joint programme team for their efforts in undertaking this final evaluation.

MDG-F Secretariat

The analysis and recommendations of this evaluation are those of the evaluator and do not necessarily reflect the views of the Joint Programme or MDG-F Secretariat.



改善中国最弱势妇女和儿童群体的营养、食品安全和食品保障状况
Improving Nutrition, Food Safety and Food Security for China's Most
Vulnerable Women and Children

Joint Programme on Improving Nutrition, Food Safety and Food Security for China's Most Vulnerable Women and Children

Final Evaluation Report

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DISCLAIMER

This report is the work of a independent evaluation team and does not necessarily represent the views, policy, or intentions of the United Nation Agencies.

Table of Contents

Executive Summary	2
I. INTRODUCTION	7
I.1 BACKGROUND.....	7
I.1.1 MDG-F and the thematic window on children, food security and nutrition.....	7
I.1.2 Improving nutrition, food safety and food security for China’s most vulnerable women and children.....	7
I.2 Goals and methodology of the evaluation	8
I.2.1 Goals of the evaluation.....	8
I.2.2 Methodology of the evaluation	8
I.2.3 Limitations of the evaluation	9
I.3 Brief account of CFSN	10
I.3.1 Background of programme implementation.....	10
I.3.2 Brief account of CFSN implementation.....	11
II. RESULTS OF THE EVALUATION	12
II.1 Design relevance: High	12
II.2 Process efficiency: High.....	16
II.3 Process ownership: High	20
II.4 Effectiveness of results: Excellent	21
II.5 Sustainability of results: Excellent.....	25
III. CONCLUSION OF THE EVALUATION	27
IV. LESSONS LEARNED	27
V. RECOMMENDATIONS.....	29
VI. APPENDICES	32
VI.1 Tables.....	32
VI.2 Main references	44

ACRONYMS

ACFTU: All-China Federation of Trade Unions
ACWF: All-China Women's Federation
AQSIQ: General Administration of Quality Supervision, Inspection and Quarantine
CAAS: Chinese Academy of Agricultural Sciences
CDC: Chinese Center for Disease Control and Prevention
CDRF: China Development Research Foundation
CFSVA: Comprehensive Food Security and Vulnerability Analysis
CICETE: China International Center for Economic and Technical Exchanges
CIP: Capital Institute for Pediatrics
CLS: China Law Society
CNIS: China National Institute for Standardization
FAO: Food and Agriculture Organization of the United Nations
FECC: Foreign Economic Cooperation Center, Ministry of Agriculture
HACCP: Hazard Analysis and Critical Control Point
ILO: International Labour Organization
INFOSAN: FAO/WHO International Food Safety Authorities Network
NINFS: National Institute of Nutrition and Food Safety
MDG: Millennium Development Goals
MOA: Ministry of Agriculture
MOE: Ministry of Education
MOFCOM: Ministry of Commerce
MOH: Ministry of Health
NCHIS: National Center for Health Inspection and Supervision
NCICS: National Center for International Cooperation in Work Safety
NBS: National Bureau of Statistics
SARFT: State Administration of Radio, Film and Television
SAWS: State Administration of Work Safety
SPHCSU: Central South University School of Public Health
TC-SARFT: Training Center, State Administration of Radio, Film and Television
UNDP: United Nations Development Programme
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNICEF: United Nations Children's Fund
UNIDO: United Nations Industrial Development Organization
WFP: World Food Programme
WHO: World Health Organization

Executive Summary

Improving nutrition, food safety and food security for China's most vulnerable women and children (hereinafter referred to as CFSN) is a joint programme under the MDG-F thematic window on Children, Food Security and Nutrition, the time frame being over three years (December 2009 – April 2013) with an overall budget of US\$ 7 million. The goal is to improve nutrition, food safety and food security for China's most vulnerable women and children, especially focusing on the high risk group of 1.2 million children and women of childbearing age in China. Pilot studies on comprehensive approaches to food safety, food security as well as maternal and child nutrition intervention were carried out in six of the most impoverished counties. Guided by its goal and employing the strategy of monitoring and evaluation, the joint programme constructed an intervention framework which consists of four main goals with ten sub-projects, involving 8 UN agencies, 4 central government ministries and more than 16 partner institutions in China (see Table 1).

The aim of this final evaluation is to evaluate the outputs and outcomes achieved by the CFSN as well as the resulting impact, and to summarize the best practices gained and lessons learned during the process of the CFSN, in order to scale up their use to other similar development programmes. According to the scope and issues for evaluation designated by the MDG-F Secretariat, the evaluation was carried out on the three levels of design, process and results.

The evaluation adopted a holistic and prospective approach with triangulation as its principle methodology. A multidisciplinary evaluation team was established to comprehensively collect monitoring and evaluation information and conduct interviews with national, provincial and county level managers and operators as well as MDG-F Secretariat, so as to achieve, through desk studies and field surveys, a multi-perspective evaluation of the outcomes and experience gained by the joint programme on all three levels.

Main findings of the evaluation

On issues such as nutrition intervention, promoting breastfeeding, agricultural development, enhancing the production and monitoring of safe food, information, education and communication of food safety knowledge and laws, and the revision of policies and laws, the CFSN integrated international and domestic resources to encourage UN agencies, Chinese government departments and institutions to tackle the challenge of improving nutrition, food safety and food security for the women

and children in China's impoverished areas. In the design process and during implementation, a distinct and highly logical programme management framework was established, including a clear allocation of institutional responsibilities, indicators for results, and a timeframe. At the same time, strategies for monitor and evaluation and promotion were established. PMC, the UN agencies and central government ministries duly adjusted the work plan in accordance with the results of the monitoring and evaluation, and the programme coordination office reported important developments and trends of the programme through channels such as the programme's website, thereby increasing the public's attention and support for the programme.

The CFSN led to a number of new working mechanisms and models, such as the newly established China Food Safety Law Research Center, training of judges for court trials of criminal cases involving food safety, exploring ways to appropriately combine agricultural development and nutrition education, and collaboration among women's associations, health inspection institutes and broadcasting stations in pilot counties to promote food safety laws.

The CFSN adopted the management model of leadership by the government with support from the UN agencies. The sub-projects have the distinct advantage of mutually complementary information and roles. Pilot counties have also developed ways to conduct multi-sector integration intervention for the promotion of food safety laws, and ways for women's associations to acquire contributions from enterprises, so as to improve work efficiency.

Due to reasons such as natural disasters, the planned time for implementation of the CFSN prove to be insufficient, so an application was made for an extension with no cost implications. On the whole, the joint programme has been achieved as originally planned, and the financial goal has been largely met. During implementation, the central government ministries showed a high level of attention and played a proactive part in coordination and management. National technical institutions participated actively, and relevant provincial departments took responsibility for the supervision, examination and management of related sub-projects, converting the results of pilot areas into provincial policy documents. In addition, food safety knowledge was promoted, for example, in the form of theatrical performances spontaneously organized by the residents.

The CFSN produced baseline survey and final survey reports of high quality, and developed a set of surveillance indicators for the nutritional status of vulnerable

populations, which received much approval from Chinese government departments such as the Ministries of agriculture and health. Intervention with Ying Yang Baos showed significant results with a marked improvement in indicators such as growth, development, anemia prevalence and various micronutrients among children aged 6-23 months in pilot counties. Agricultural intervention led to a rise in the number of people receiving nutrition intervention and in the consumption of micronutrient-rich food in rural households, both of which exceeded the expected targets. Although the expected target has not been met for improvement in infant and young child exclusive breastfeeding rates, comprehensive measures such as the establishment of re-evaluation standards for baby-friendly hospitals, revision of the Regulations for Marketing of Breast-milk Substitutes and maternity protection by enterprises have provided support for improving breastfeeding rates. The newly developed standards for fortification of supplementary food for infants and young children as well as dietary guidance for infants, young children and women have provided evidence for implementing food fortification.

The CFSN produced important outputs instrumental in the successful implementation of the Food Safety Law. For example, recommendations on criminal law amendments were adopted and related instructions were made by state leaders, including the premier of the State Council. At the same time, a number of local enterprises received help to achieve HACCP certification, and an ISO71025 system was established. Contributive attempts were also made to see how primary and secondary schools in rural areas could pursue systematic education in nutrition and food safety and how teachers could receive appropriate training, thereby creating innovative content and forms of training. Media training showed significant results. The advocacy package still needs to be integrated and implemented.

The CFSN offers a relatively high degree of equity. Interventions, for example, made no distinction of gender or race. It produced numerous excellent examples and much experience. For instance, the CFSN carried out surveys on maternity protection, and facilitated the revision of the State Council Special Provisions for the Protection of Female Employees. The joint programme increased the incentives for national government departments to autonomously apply interventions. The central government, for example, decided to provide funds amounting to 100 million Chinese yuan for free Ying Yang Baos to be distributed to children in 100 impoverished counties. Due to the lack of financial and human resources in the impoverished areas, policy and funding support from national or provincial levels is critical to ensure sustainable development in this aspect.

Conclusions of the evaluation

The CFSN led to cooperation among UN agencies, Chinese governmental departments and technical institutions, and facilitated the integration of resources, in order to jointly tackle the challenge of improving nutrition, food safety and food security for women and children in impoverished areas. The joint intervention model it created is an optimal strategy for addressing target issues.

With a fairly high degree of ownership at national, provincial and county levels, the active participation of governments at all levels as well as technical and financial support from UN agencies enhanced operational efficiency. Multisectoral participation in tackling the challenge of improving nutrition, food safety and food security shows a significant advantage over a single agency operation in terms of efficacy.

The CFSN met the intervention targets of the thematic window, proved to be beneficial in advancing towards the achievement of the MDGs and putting the Paris Declaration into practice at national and local levels, and produced significant intervention results and impact. Certain results have been integrated in national policies or have been widely applied with a fairly high degree of sustainability, the key to ensuring such sustainability of projects in impoverished areas is policy support at national or provincial levels.

Recommendations

To strengthen the building of mechanisms for collaboration and coordination among agencies participating in the joint programme, so as to increase the comprehensive analytical capacity of reports from government and technical departments; to optimize coordination mechanisms for resource management, and enhance the coordination capacity of the programme management office; and to explore ways to set up multilateral financing mechanisms, in order to ensure sustainability of intervention activities in poverty-stricken areas.

To initiate comprehensive activities, such as enhancing the management of baby-friendly hospitals, creating baby-friendly communities and implementing the Regulations for Marketing of Breast-milk Substitutes, so as to develop and popularize foods providing nutrition intervention to pregnant and lactating women, and to facilitate the improvement of nutrition and health among women and children.

To scale up a comprehensive intervention model of agricultural development and nutrition education and work on food fortification in impoverished areas, so as to correct the disturbing situation concerning food security and malnutrition.

To enhance educational reform and teacher training so as to ensure that health education on nutrition and food safety is integrated into primary and secondary school curricula, leading to increased awareness and behavioural changes of healthy dietary habits and food safety among school children.

To continue food security and micronutrient surveys in the long term, in order to provide evidence for policy making on scientific applications in poverty alleviation, food security and nutrition intervention.

To continuously integrate food safety campaigns into the routine work of women's associations; to strengthen grassroots advocacy aimed at vulnerable groups by mobilizing the civil society and community bodies through the network of women's associations; and to continue the training of media journalists, government officials, judicial workers, food safety inspectors and food producers, so as to promote enforcement of the new Food Safety Law.

To continuously enhance the building of a system for food safety emergency responses and complaints as well as for inspection support by defining roles and responsibility of different sectors , ensure their coordination, accountability and increasing their human and financial resources at the grassroots level; and to comprehensively enhance capabilities for the production, supervision and management of safe food by expanding training on the HACCP system for food manufacturers, increasing laboratory testing capacity, and strengthening the ability to control food safety in poverty-stricken areas.

To facilitate the development of rules for the implementation of the Special Provisions for the Protection of Female Employees promulgated by the State Council as soon as possible, and to enhance the ability of employees to carry out collective negotiations on maternity protection, so as to ensure optimal results.

I. INTRODUCTION

I.1 BACKGROUND

I.1.1 MDG-F and the thematic window on children, food security and nutrition

The MDG Achievement Fund (MDG-F) is a partnership agreement for the amount of approximately €528 million signed by the United Nations Development Programme (UNDP) and the Spanish government in 2006 with the aim of contributing to progress on the MDGs and other development goals through creative and replicable programmes supported by the United Nations system. The Fund uses a joint programme mode of intervention involving 130 programmes in 50 countries.

The MDG-F consists of eight thematic windows, of which the window on children, food security and nutrition involves a field with the largest coverage. About US\$ 134.5 million was allocated to the five regions to carry out 24 joint programmes in the field of children, food security and nutrition with the aim of eliminating preventable mortality due to child starvation and malnutrition. Interventions included providing low-cost Ying Yang Baos, raising food safety and nutrition awareness among pregnant and lactating women, and encouraging national governments to develop intervention plans and policies targeting food safety and nutrition issues for children.

I.1.2 Improving nutrition, food safety and food security for China's most vulnerable women and children

The total budget of the CFSN is US\$ 7 million for a period of over three years (December 2009 – April 2013) with a focus on China's 1.2 million children, women of child-bearing age and other populations at risk from food-related issues. Pilot studies were carried out in six of the most impoverished counties, adopting a comprehensive approach to improve overall food safety, food security, and nutrition for children and women. The programme was jointly carried out by 8 UN agencies, 4 central government ministries and 16 partner institutions in China.

I.2 Goals and methodology of the evaluation

I.2.1 Goals of the evaluation

According to the TOR, the final objectives of the CFSN are (1) to measure to what extent the joint programme fulfilled the programme's activities, outputs and expected outcomes, especially the outcome of measuring development; (2) to formulate best practices and lessons that could be utilized in other parts of China and in other countries.

The specific goals are ① to measure to what extent the CFSN programme solved the needs and issues established at the design stage; ② to measure the CFSN programme's degree of implementation, efficiency and quality delivered on outputs and outcomes, against what was originally planned or subsequently officially revised; ③ to measure to what extent the CFSN programme has attained practical results for the targeted population, beneficiaries and participants, whether individuals, communities, institutions, etc.; ④ to measure the CFSN programme's contribution to the objectives set in the thematic window as well as the overall MDG fund objectives at local and national level; ⑤ to Identify and document substantive lessons learned and good practices on the specific topic of the thematic window, MDGs, Paris Declaration, Accra Principles and objectives, and UN reform with the aim to support the sustainability of the CFSN programme or some of its components.

I.2.2 Methodology of the evaluation

The evaluation is based on triangulation to perform data collection and evaluation with a multi-perspective and multidisciplinary approach. Information sources included documentation as well as information from field surveys and interviews related to the CFSN programme. The actual methods employed were:

(1) Desk studies

An evaluation database was established to comprehensively collect data and information related to the CFSN programme, including strategic country development documents, progress reports, the mid-term evaluation report, baseline report and final evaluation report, monitor and evaluation reports, annual summary reports and quarterly reports on activities, programme activity information, programme implementation reports and activity implementation plans, programme output documents, media information on meetings, and any other documentation

that may provide evidence on which to form judgments. Such documentation was repeatedly studied, and relevant information was extracted and evaluated in accordance with the issues to be assessed.

(2) Field surveys

Managers, technical staff and beneficiaries participating in the CFSN programme at various levels (for example, at national, provincial and county levels) were selected for field surveys and interviews. The beneficiaries were farmers from villages close to the county town of a pilot county (Wuding County) who were willing to cooperate in the survey. The field survey also included visits to a number of rural families with children who have benefited from the programme, as well as to village doctors. On the other hand, the managers and technical staff acted as key organizers and operators for the various sub-projects. Programme data from implementation bodies, suggestions from beneficiary populations and data needed to supplement investigation and evaluation have been sampled for verification.

(3) Brainstorming

Bearing in mind the evaluation guidelines, experts in food safety, maternal and child health, health policy management, epidemiology, health statistics, health technology assessment and other relevant fields were invited to evaluate and discuss issues such as design, efficiency, efficacy, sustainability and policy recommendations.

I.2.3 Limitations of the evaluation

The limitations of the evaluation consist of two major aspects: (1) the CFSN programme involves multiple levels and institutions with numerous data sources that lack integration. In addition, as it was not possible to interview all stakeholders during the field surveys, the evaluation data may not be comprehensive; (2) in view of the fact that the CFSN programme encompasses a multitude of scientific fields and is carried out through a number of sub-projects, and considering that the evaluation group relies on experts from various fields in the evaluation team to separately perform relevant evaluations, the final conclusions may have its limitations.

On the one hand, the evaluation group presented key indicators and interview issues through a discussion and analysis of the information needed for the evaluation of the sub-projects, and made all possible efforts to obtain comprehensive data by collecting information from multiple sources and including a greater number of key informant interviews. On the other hand, a crisscrossing of multidisciplinary

perspectives through a number of evaluation discussions avoided the possible lack of diversity. Efforts were made to reduce the possible limitations of the current evaluation to a minimum.

I.3 Brief account of CFSN

I.3.1 Background of programme implementation

Although China has made great progress in reducing poverty and hunger, the situation is not yet optimistic. At present, China has about 120 million people suffering from malnutrition, and there are 7.2 million children with stunted growth in China (4% of the global total); in the rural areas, the percentage of children with growth retardation (12.4%) is four times higher as compare to that in the cities (3.4%); the situation concerning the lack of micronutrients has yet to be improved, with the prevalence of anaemia among children being 19.3% in 2005, and prevalence in the most impoverished county being 80%. Nearly one out of every two children in rural areas is on the verge of vitamin A deficiency^[1].

Food safety is currently an important public health issue in China. It is estimated that the foodborne diseases affect some 3 million people each year. In 2007, a national survey found out that nearly 15% of all food produced for domestic consumption did not meet the designated requirements. The impact of unsafe food on children suffering from malnutrition in the impoverished areas is of great concern, as these children have a very limited resistance against diseases and very limited access to medical healthcare services.

While paying closely attention to food safety, food security and child nutrition, the Chinese government formulated relevant intervention policies. Food security is a primary goal of the reform and development blueprint of China's rural areas for 2020, which was launched during the third plenary session of the 17th conference of the Chinese Communist Party. The State Council promulgated the *China Nutrition Improvement Action Plan and Chinese children development programme (2001-2010)*, setting targets for improving child feeding and nutrition. In 2009, the newly developed *Food Safety Law of People's Republic of China* underlined the goal of improving food safety.

I.3.2 Brief account of CFSN implementation

The primary goal of the CFSN is to provide evidence for policy making, to improve dietary intake and food safety, to reduce the number of children and women in China suffering from malnutrition, to expand successful governmental actions in order to benefit populations in greater need. The CFSN adopted the strategy of “synchronized action from four aspects”, the four aspects being information gaps, targeted interventions, food safety in manufacturing and policy making. Its four major fields of success are as follows: (1) providing evidence for policy making by offering reliable and timely information on the extent, distribution, types and causes of malnutrition in China so as to better achieve optimization of results; (2) developing and applying comprehensive and targeted plans to alleviate child hunger and malnutrition by focusing on improving exclusive breastfeeding rates and providing healthier nutrition supplements through school-based intervention; (3) improving food safety during the manufacturing, processing and production of infant food by sharing responsibilities; (4) amending national policies, guidelines, regulations and standards for child nutrition and food safety on the basis of outcomes of the pilot projects, and disseminating relevant experience nationwide.

The CFSN was conducted in six of the most impoverished counties in China, i.e., Pan County and Zheng’an County of Guizhou Province; Huize County and Wuding County of Yunnan Province; Luonan County and Zhen’an County of Shanxi Province.

The CFSN lasted for three years, with the first year mainly focusing on building a solid foundation for programme implementation, such as making workplans, setting intervention standards and training personnel, etc. The second year focused on on-site implementation results, and capacity building continued to expand, in order to let participants pursue the programme in a fast and efficient manner. Meanwhile, monitoring surveys and questionnaires followed, and exploration of exit strategies commenced. During the third year, all projects were operational and entered the evaluation stage. The emphasis of the work shifted to evaluation, sharing experience and lessons, implementing exit strategies, and holding meetings to draw conclusions.

The participants of the CFSN included the United Nations, China’s central and local governments, and other public or private institutions, among which government ministries provided leadership and guidance, while UN agencies offered technical support. With organization from the Coordination Office, the participants made all efforts to find practical approaches to integrating activities and sharing resources.

II . RESULTS OF THE EVALUATION

II.1 Design relevance: High

Food insecurity, malnutrition, and food safety are major factors restricting the development of rural areas in China, especially in poverty-stricken counties. Such issues are areas of concern both to the government and citizens, and require prioritized intervention. Considering the current problems and possible underlying factors, the CFSN's response covered issues such as information gaps, targeted interventions, food safety in manufacturing and policy making, so as to improve dietary intake and food safety in pilot areas, reduce the number of malnourished children and women in China, and expand successful government initiatives to benefit populations in greater need. According to the requirements on the design level stated in the TOR, the evaluation analyzed the relevance between the CFSN and the needs of the people, the interest of the country and the Millennium Development Goals. It also analyzed the experience on the design level acquired by the joint programme in the process of achieving the goals and benefits, and any remaining problems.

The design of the CFSN is highly relevant with the needs of target populations, related national policies and the MDGs. Firstly, the nutrition, food safety and food security situation among women and children in the six most impoverished areas selected was very disturbing^[2-3]. In 2010, for example, on average 13% of rural households in the pilot areas were in a state of food insecurity, the highest rate being 35%. 57% of those rural households relied on crop farming and animal husbandry. Baseline surveys show that, among children aged 0-3 years in the pilot areas, 17.5% suffered from stunting, 8.6% from growth underweight, 5.1% from emaciation, 25.6% from anemia, 26.4% from iron deficiency, 54.2% from vitamin A insufficiency, and 20.7% from vitamin B12 deficiency. Among pregnant women, the prevalence rates were: anemia 26.1%, iron deficiency 54.2%, vitamin A insufficiency 52.8%, vitamin D insufficiency 59.1%, folic acid deficiency and insufficiency 45.2%, and vitamin B12 deficiency 67.6%. Secondly, a large number of national policy plans in China stated improving nutrition, food safety and food security as their objectives. In view of events which have occurred in recent years, such as the Sanlu milk powder incident, food safety has become a high priority for intervention by the Chinese government. In 2010, for example, the Food Safety Commission of the State Council was established to strengthen supervision over food safety. Other relevant policies include the Eleventh Five Year Plan which set out an

action plan for nutrition improvement and promulgated, among others, the *China Nutrition Improvement Action Plan*, the *National Plan of Action for Child Development in China (2001-2010)*, and the *Medium- and Long-Term National Programme for Food Security (2008-2020)*. Again, the goal of the joint programme is consistent with many of the MDG goals, for example, 1) MDG1: to eradicate extreme poverty and hunger; 2) MDG3: to promote gender equality and empower women; 3) MDG4: to reduce child mortality; 4) MDG5: to improve maternal health.

The CFSN took a comprehensive multi-perspective approach to respond to challenges in a scientific manner, so as to encourage the integration of resources and focused efforts by the government, and to explore solutions. For example, the challenge of improving nutrition, food safety and food security for women and children in China's impoverished areas was addressed by responding to issues such as interventions on nutrition and agricultural production, improving breastfeeding rates, enhancing the production and monitoring of safe food, advocacy and education concerning food safety knowledge and laws, as well as revising policies and laws. In addition, nationwide expansion and replication was carried out on the basis of exploratory experience from localized pilot projects and policy recommendations. Intervention strategies are of far-reaching constructive significance.

The designing, implementation, monitoring and evaluation processes of the CFSN have been carried out in an orderly manner. In accordance with the guidelines for implementation of joint programmes, for example, a framework was developed under the management of the National MDG Steering Committee (NSC), the Joint Programme Management Committee (PMC) and the Programme Management Office (PMO), establishing a clear framework model for outcomes, which determined the responsible bodies for each project, the indicators for outcome evaluation, and the timeframe, while also including the monitoring and evaluation strategy and the advocacy strategy^[4]. The high level of attention from the national government and collaborating support from local levels have enabled orderly operation of the CFSN as planned.

CFSN joint intervention is the best strategy for the Chinese government's response to the challenge of improving nutrition, food safety and food security for women and children in China's impoverished areas. Firstly, the CFSN integrated international and domestic resources in a joint response to the challenge of improving nutrition, food safety and food security. UNESCO and MOE, for example, took the approach of integrating nutrition and food education into primary and secondary school curricula

so as to bring about improvements in that aspect, therefore indirectly, yet effectively, facilitating MOH in the achievement of its objectives. Secondly, the CFSN built on the latest experience from joint programmes worldwide, for instance, to develop policies for food security and nutrition on the basis of reliable and up-to-date evidence, to apply evidence-based interventions to populations in greater need, and to adopt a collaborative model of government leadership combined with UN activities. This is helpful in encouraging multi-sectoral collaboration under the Chinese government's current pattern of decentralized management, as well as policy making based on scientific evidence, so as to raise the level of output and efficiency.

The CFSN developed an effective monitoring and evaluation strategy to measure outputs and outcomes. The collection of evaluation information, for example, included internal reports, such as semi-annual monitoring reports, quarterly workplans, annual reports, mission reports from the secretariat and financial progress reports, as well as documentation from mid-term external evaluations organized and conducted by the UN secretariat. The monitoring reports provided evidence and effective support for the management of the joint programme. The mission reports, for example, suggested amendments to the workplan to make it scientifically feasible and to improve the quality of reports based on outcomes rather than activities^[5]. Except for certain sub-projects for which implementation was delayed due to natural causes such as droughts, the PMC proactively coordinated efforts from the various parties and pressed for accelerated outputs, so that most of the projects were completed as expected.

CFSN implementation bodies created a number of novel mechanisms and models to respond to challenges. UNICEF and NINFS, for example, collaborated to form a comprehensive model for child nutrition intervention, including distribution of Ying Yang Baos in the order of “county – town – village – parents” and data feedback in the reverse order, multiple forms of nutrition and health advocacy and education, as well as family visits to evaluate and promote the project. This child nutrition intervention model was accepted and widely used by MOH. UNDP and CLS jointly founded the China Food Safety Law Research Center, which hosted the China Food Safety Law Summit Forum and provided training to judges for court trials of criminal cases involving food safety, and whose recommendations concerning amendments to the criminal law targeting crimes involving food safety were adopted^[6]. Moreover, in the project to increase the intake of micronutrient-rich food in rural households, FAO and MOA jointly explored ways to appropriately combine agricultural development and nutrition education, and significantly improved diversity in food production and consumption by rural households through comprehensive

interventions involving a combination of in-kind support to agriculture, training in agricultural technology and nutrition education. In addition, women's associations, health inspection bodies and broadcasting stations in pilot areas undergoing field surveys collaborated closely to promote food safety laws, greatly improving the efficacy of advocacy.

The CFSN established effective mechanisms for the communication and dissemination of information. The PMO, for example, developed advocacy guidelines clarifying requirements and principles for external advocacy of the programme. At the same time, a website was built for the joint programme^[7], regularly updating and presenting important programme developments and outcomes. Parties involved in programme implementation also worked to increase the public's attention and support to the programme through the media, website and outcome presentation conferences. Communication of information among the sub-projects was mainly achieved through the PMO and PMC. Due to the lack of infrastructures and mechanisms for sharing data, however, internal communication of information among sub-projects has yet to be improved.

The mid-term evaluation presented a number of constructive recommendations^[8], which were adopted and implemented by the joint programme. An example was to develop a plan for accelerated action and to consider an extension of the programme with no cost implications. As a result, the PMC coordinated all parties to accelerate implementation, and the goals of the programme were basically achieved as expected. It was also proposed to establish a multilateral financing body, according to which the PMC recommended that sub-projects present policy recommendations to the government concerning a mechanism for integrating financial resources, so as to improve sustainability. As recommended, the joint programme also strengthened coordination and collaboration among the parties concerned, and improved the quality of reports.

In the CFSN design, the coordination and integration mechanism still needs to be improved. The evaluation found that the extent and range of collaboration among the sub-projects were limited at the national level, and there was insufficient sharing and integration of data^[9]. There was close structural collaboration in certain outcome areas. In the area of Outcome 1, for example, FAO, UNICEF, WFP and WHO frequently exchanged information on baseline surveys. Many sub-projects, however, were often separately implemented, lacking inter-communication and integration. This is expressed as diverse activity reports and fragmented and redundant outcome reports.

II.2 Process efficiency: High

The CFSN was launched with collaboration between UN agencies and their partners in China. As concerns management coordination, the Ministry of Commerce of PRC is responsible for overall coordination of the joint programme and programme outputs. The Ministry of Health plays a leadership role in the implementation of technical aspects. The National MDG Steering Committee (NSC) and the Joint Programme Management Committee (JPMC) are responsible for supervision and management. The Programme Management Office (PMO) is responsible for daily coordination of management. Implementation is jointly carried out by the UN agencies and their partners in China. The CFSN operates under the leadership of governments at all levels, of which the central and provincial administrative departments are in charge of programme design, organization, management and training, while technical departments are in charge of programme operation. Funding is provided in instalments by the UN agencies according to the progress of work undertaken by the implementing bodies.

The CFSN adopted a management model of leadership by the government with participation of UN agencies, which increased operational efficiency. On the one hand, government leaders at all levels placed great emphasis on the matter by creating coordination mechanisms at various levels. Relevant national and provincial administrative and technical departments, for example, actively carried out supervision and coordination, and the practice of involving major government leaders in relevant meetings was formed at the county level, in order to coordinate and ensure programme implementation as planned. Such measures ensured smooth operation for a majority of the projects. For example, a food safety survey covering 1368 rural families from 144 villages in six pilot counties was completed within two months; body measurements, surveys by questionnaires and blood sample collection covering 276 pregnant women, 413 lactating mothers and 1380 children aged 0-3 years from 41 villages were completed within a month; and nutrition evaluation as well as analysis and feedback on anaemia and micronutrients were completed within three months. During the 18 months of Ying Yang Bao intervention, 4 242 420 Ying Yang Baos were distributed to 13 055 children aged 6-23 months with a coverage of 98.2%, and 99.6% of the children consumed Ying Yang Baos at least 3 times a week for an average period of 14 months. In addition, nutrition awareness advocacy and education was performed in 11 different ways, distributing and posting 58 806 copies of advocacy material. On the other hand, the PMC met for a number of times

each year, offering feasible technical guidance to the sub-projects and enhancing coordination and cooperation among projects. WHO, UNICEF, NINFS and CIP, for example, jointly discussed and developed a unified survey tool which improved output efficiency; putting their respective strengths into play, ILO and UNIDO selected food manufacturers for joint pilot studies, assisting some of the enterprises to achieve HACCP certification, and achieving maximum results for the sub-projects while increasing the ability of enterprises to promote safety in production ^[10]. Interviews, however, revealed that multi-sectoral participation increased the transaction costs and opportunity costs of coordination, and inter-agency coordination was very difficult.

The efficiency of the CFSN's approach of addressing the challenge of improving nutrition, food safety and food security through multi-sectoral intervention is significantly higher than that of a single institution. On the one hand, the challenges faced by the CFSN resulted from a variety of factors. For example, the baseline survey discovered that malnutrition among children and pregnant women was related to the presence of food insecurity, insufficient intake of micronutrient-rich food, low breastfeeding rates, inappropriate food processing and production practices, a lack of knowledge on nutrition and food, etc., and that the output efficiency of intervention by a single institution was limited, whereas a multi-agency, multi-perspective and comprehensive intervention approach could accumulate and magnify intervention effectiveness. On the other hand, the mutually complementary information and roles of a joint programme have significant advantages, leading to far-reaching implications as well as results in the near term. For example, UNICEF intervened by providing Ying Yang Baos as well as nutrition awareness advocacy and education, WHO focused on long-term intervention of food formulae, and UNESCO conducted safety training for food manufactures. In addition, during the World Breastfeeding Week in 2012, WHO and ILO jointly advocated for maternity protection and breastfeeding, calling through the media for the entire society to increase its interest and understanding of breastfeeding, and encouraging the creation of breastfeeding facilities in public places and baby-feeding rooms set up by enterprises. This improvement in the efficiency of sub-project outputs would have been very difficult for a single body, such as a health institution, to achieve in a short period of time.

The operational institutions adopted a number of approaches to increase the productivity of the joint programme. An outstanding example in this respect involved training for advocacy of food safety laws. For instance, the office of the Food Safety Committee of Wuding county, one of the pilot counties, is located in the

Health Inspection Center. The Committee involves and communicates closely with a number of county government departments, forming an integrated intervention framework. The Women's Federation, Health Inspection Center, Center for Disease Control and Prevention, TV and Broadcasting Bureau of Wuding county have also collaborated with each other to implement their respective projects by making full use of their unique strengths in resources, reducing duplication and improving operational efficiency of the interventions. In addition, health bureaus and institutions participating in provincial and county projects in pilot provinces paid much attention to baseline surveys of the nutritional status and related interventions, making efforts to fill the gap in project funding with local funds, building a social atmosphere prioritizing the improvement of nutrition for women and children through comprehensive advocacy and education measures such as public service advertising on county TV channels, posters and billboards, and outdoor advocacy banners, and promoting compliance with requirements for the consumption of Ying Yang Baos. Another example is the Women's Federation, which enlisted sponsorship from local enterprises to expand advocacy coverage by printing and disseminating safety advocacy material^[11].

Although financial support for the CFSN ensured smooth implementation of the project, coordination mechanisms for the management of funds need to be strengthened. On the one hand, the UN agencies responsible for planning and managing funds operate on the premise of the annual workplan and budget of the programme. In some cases, direct payment was made to operating parties through mechanisms involving the establishment of conditions for payment and schemes for allocation, thereby minimizing intermediate links in the management of resources and ensuring timely access to financial support for parties involved in the implementation of projects. ILO, for example, allocated funds directly to project sites and such streamlining of financial management procedures contributed to the smooth operation of the programme. On the other hand, since the budget and financial reporting procedures of the MDG-F do not coincide with the pattern of financial management in UN agencies and there is no parallel framework for budgets and accountability or institutional mechanism for inter-ministerial coordination, the coexistence of several forms of resource management and variation in the progression of financial management also make it fairly difficult for the programme office to manage resources. Furthermore, the evaluation revealed an insufficient degree of involvement in the joint programme at the provincial level. The problem is related to the tasks to be performed and the allocation of resources. Funding for food safety education undertaken by the health inspection center, for example, applies mainly to pilot areas, and indispensable funding for supervision is all that is

received on the provincial level^[12]. That is why there is a lack of enthusiasm at the provincial level.

The mid-term evaluation led to a higher degree of output efficiency for the joint programme. For example, following the recommendation to increase the financial budget and to provide coherent reports, the PMC actively coordinated the work of UN agencies to strengthen cooperation and the integration of reports. In view of the fact that natural disasters encountered in early stages of the projects resulted in delayed initiation, the joint programme applied for an extension with no cost implications. However, as the projects accelerated the progress of work, making efforts to distribute and manage funding as planned, the financial targets have presently been basically met. For example, UNICEF, ILO and WHO budget transfers and actual expenditure are both at the level of 100%, and the expenditure rates for UNESCO, UNDP, UNIDO and FAO are all above 90%(Table 1).

Table 1 Use of allocated UN agency funds

Agency	Via budget (US\$)	Budget transfer (US\$)	% of payment transfer	Total expenditure (US\$)	% of expenditure incurred
FAO	1040896	1024627	98.4	997332	95.8
WFP	78570.09	68115	86.69	54524.39	69.4
ILO	477327	477327	100.00	467991	98.0
WHO	1,778,492	1,778,492	100	1,778,492	100.0
UNICEF	888994.32	888994.32	100.00	8889.9432	100.0
UNESCO	416169	406503.51	97.68	397414.84	95.5
UNIDO	539610.28*	533876.71	98.90	510956.88	94.7
UNDP	119,027	-	-	110,354	93.0

* 7% to be deducted as programme support costs.

Factors affecting the operational and financial efficiency of the CFSN mainly include: 1) Poor natural and transportation conditions. Pilot counties are mostly located in remote mountainous areas, where residents live in scattered locations, and road connections are vulnerable to floods and landslides, making it all the more difficult to conduct intervention surveys and deliver supplies. Serious spring drought, for example, affected the pilot counties in the first year of the programme, hence the time for planting test crops was missed. As a result, last-minute changes were made to replace some of the sample villages in the survey plan. 2) The local support system was far from ideal. The shortage of rural health centers in certain areas, for example, increased the difficulty of communication and organization during the surveys. The

lack of qualified inspection bodies made it impossible to effectively detect hazards when food safety complaints arose. 3) The procedures and mechanisms for financial management differ among the agencies, and there is no collaborative mechanism responsible for interministerial coordination. For the aforementioned reasons, the evaluation believes a variety of factors should be fully taken into consideration in the design of the joint programme with more time allocated for intervention and attention paid to the building of coordination mechanisms, in order to avoid adverse factors and improve the quality of outputs.

II.3 Process ownership: High

There was a fairly high degree of ownership at the national level. Ministries of the central government paid great attention and actively participated in coordination and management. National technical institutions such as the Institution of Nutrition and Food Safety under the Chinese Center for Disease Control and Prevention, Chinese Academy of Agricultural Sciences, and All-China Women's Federation applied the latest UN experience to programme management as guidance for the design, training and summary of each sub-project. At the national level, current policies were revised and improved in accordance with outcomes of the programme. Examples include the revision of the State Council's Special Provisions for the Protection of Female Employees^[13], the newly developed Indicator System for the Nutritional Status of Women and Children in China which will be included in the national nutrition supervision system^[14], the creation of a long-term mechanism for the Food Safety Law Summit Forum, and instructions from state leaders after publication of the Report on the China Food Safety Law Summit Forum (2011), requesting relevant departments to pay attention and actively respond.

At provincial and county levels, there was also a fairly high degree of ownership. Relevant provincial departments were responsible for supervision, assessment, and management of the sub-projects, actively transforming outcomes of the pilot projects into provincial policy documents. For example, the newly developed Twelfth Five Year Food Safety Plan of Yunnan Province, and Yunnan Food Safety Ordinance (draft) included ideas such as encouraging and supporting food manufacturers to promote the application of advanced technology and management systems, as well as establishing a system of regular training for food manufacturers. Partner institutions in pilot counties actively cooperated in programme implementation. For example, the Wuding County Center for Disease Control and Prevention introduced methods and tools from the joint programme into its routine work; the Wuding County Agriculture Bureau actively institutionalized agricultural technology training

and learning; and the Women's Federation of Wuding County integrated nutrition and food safety advocacy into its daily workplan.

In addition, the beneficiaries and community residents also enjoyed a fairly high degree of programme ownership. Interviews in pilot counties, for example, revealed that residents participating in the dissemination of food safety knowledge had spontaneously organized theatrical performances to disseminate food safety knowledge, and community management personnel also took the initiative in carrying out such work in the community to improve food safety awareness.

II.4 Effectiveness of results: Excellent

The logical framework of CFSN interventions includes four major planned outcome objectives and ten specific goals, which can be listed as: 1) To determine the nutrition and food security status in pilot areas and improve national databases for the nutritional status of women and children, in order to enhance monitoring capabilities. 2) To improve breastfeeding rates, improve the quality of micronutrient-rich food supplements, increase intake and supply of micronutrient-rich food among families in the pilot areas, as well as develop and implement national programmes for nutrition fortification. 3) To produce safer child food in pilot counties by enhancing safety in infant food processing and preparation, in order to successfully implement new food safety laws. 4) To launch national, provincial and local advocacy programmes on an experimental basis, integrate such programmes into policies, guidelines and regulations, and train at least 100 journalists in the pilot counties. A series of quantitative and qualitative targets were set under the aforementioned objectives to serve as a basis for evaluating achievement of such objectives

The CFSN met the established intervention goals with significant efficacy and impact. Based on the established outcome framework, the evaluation group analyzed the main activities carried out in the process of programme implementation, and summarized the main outputs and key outcome indicators, which were classified as excellent, good, average or poor according to how well the objectives were achieved. By comparing pre- and post-intervention indicators, the evaluation group found significant improvement in nutrition among children and women in the pilot counties, an increase in the proportion of micronutrient-rich food consumed by rural households, a marked improvement in the ability of local food manufacturers to observe safety in production, and significant enhancement of knowledge on food safety laws among residents. The evaluation will concentrate on plans and outputs

for the following four major objectives.

Objective 1 planned to acquire accurate information on food security and its vulnerability, prevalence of anemia among children and women, and the supply of micronutrients in pilot counties, and to evaluate and improve national databases on nutrition among women and children. The evaluation found that this objective was well achieved. Details include the publication by implementing bodies of high-quality reports for the baseline survey and final survey, the collection of first-hand information on pre- and post intervention survey indicators in impoverished areas, and the development of a system of nutrition monitoring indicators aimed at priority groups. These results were highly acknowledged by Chinese government departments such as the Ministry of Agriculture and the Ministry of Health (Table 2).

Objective 2 planned to carry out nutrition interventions for infants and young children, improve breastfeeding rates, strengthen support for breastfeeding from enterprises, increase the proportion of micronutrient-rich food produced, and develop and implement food fortification programmes. The evaluation concluded that this objective was well achieved; the expected targets for the scope of nutrition intervention and the increase in the proportion of micronutrient-rich food in rural households both being exceeded. Although exclusive breastfeeding rates of infants and young children failed to meet the expected targets, comprehensive measures such as the establishment of re-evaluation standards for baby-friendly hospitals, revision of the Regulations for Marketing of Breast-milk Substitutes and maternity protection by enterprises provided support for improving breastfeeding rates. The standards for supplementary food fortification and guidance on supplementary food fortification for infants and young children developed by UNICEF also provided evidence for future implementation of food fortification (Table 3).

Objective 3 planned to increase the capacity for producing safe food through enhancing the HACCP, laboratory testing capacity and training on food safety control; to improve food safety for infants and young children through enhancing food safety education in primary and secondary schools, hospitals and women's associations; and to facilitate the implementation of food safety laws through training on such laws. The evaluation found that this objective was well achieved with a number of innovative outcomes. For example, recommendations concerning amendments to the criminal law were accepted, and central government leaders made instructions following the Food Safety Law Summit Forum and its report. In addition, the programme enabled certain local enterprises to achieve HACCP certification, established the ISO71025 system, facilitated exchange with enterprises from other

countries^[15], explored ways to integrate nutrition and food education into primary and secondary school curricula^[16] (Table 4).

Objective 4 planned to develop an advocacy package which would transform into policies, guidelines and regulations with enhanced advocacy from the media. The evaluation found that this objective was in the process of implementation with tangible results in media training, increasing the scope and depth of advocacy for food safety knowledge^[17]. Building on the experience obtain from the sub-projects and policy recommendations, UNESCO and UNICEF developed an advocacy package and prepared advocacy material in cooperation with advocacy agencies, work on which is presently still in progress. In addition, the sub-projects carried out policy advocacy and promotion in their respective fields (Table 5).

CFSN intervention had a significant impact on the population and agricultural production in pilot areas. Firstly, there was significant improvement in indicators such as growth and development, anemia prevalence, vitamin A and B₁₂ among children aged 6-23 months in the pilot counties (Table 6). Secondly, there was an obvious increase in the proportion of micronutrient-rich food consumed in pilot areas (Table 7). Thirdly, media advocacy on food safety increased significantly (Table 8), and awareness among various group such as women, children and teachers was greatly enhanced (Table 9). In addition, there was also an increase in animal husbandry and the frequency of meat consumption among rural households, a change in the way nutritious agricultural products are produced and consumed, and a significant improvement in maternity protection of employees (Tables 10-12).

The CFSN produced many excellent practical examples and much experience as listed below. 1) A comprehensive model for nutrition intervention was developed, which promoted the all-round effectiveness of nutrition intervention through providing Ying Yang Baos to children, training doctors and healthcare workers for women and child health at all levels, offering guidance on feeding to persons who look after children, building a social atmosphere that prioritizes nutrition for women and children (TV programmes of public service advertising, slogans, posters, etc.). 2) A comprehensive intervention model was explored to appropriately combine agricultural development and nutrition education. The model expanded family-based forms of diversified farming such as vegetable farms and animal husbandry through joint action combining the provision of agricultural supplies, agro-technological training and nutrition education. A method of “specialists - technicians – pilot farmers – all farmers” was applied in technical training and expansion, with priority given to vulnerable groups such as women and young children in poverty-stricken

counties^[18]. 3) Efforts were made to explore ways of integrating nutrition and food safety education into related courses in primary and secondary schools, developing supportive teaching material and training teachers. 4) Measures including training, guidance, assistance, and recommendations were taken in connection with four different aspects: enterprise production, quality control, food inspection and policy guidance. Comprehensive intervention was applied in pilot areas, encompassing HACCP training, management of standardized laboratory testing, enhancement in the capability of food safety supervisors, on-site rectification of safe production practices in enterprises, and policy-making for the management of food safety; 5) efforts were made to expand the dissemination of knowledge on food safety laws by providing training to media personnel and judges; 6) By making use of the network of women's associations and full mobilization of civil society and community organizations in the dissemination of knowledge on food safety laws, the effectiveness of advocacy was increased, and channels for dialogue were opened between the government and civil society organizations^[19]. 7) Internationally recognized state-of-the-art tools for food security and nutrition surveys were introduced in an attempt to explore ways of conducting surveys for the final report. 8) In-depth understanding of domestic law enforcement was obtained through surveys of maternity protection at grassroots level, and recommendations were made to facilitate legislative action by the State Council. In addition, maternity protection was improved by following through with the Special Provisions for the Protection of Female Employees. This legislative model of acting from bottom to top and from top to bottom protects the rights of women and children in China in a fundamentally sound manner, and facilitates the sustainable advancement of maternity protection.

The joint programme worked with a fairly high level of equity in pilot areas. Nutrition intervention by UNICEF, for example, covered all children aged 6-23 months in pilot areas, offering equal benefits irrespective of race or gender. Food safety education organized by UNESCO in schools covered all school children, and maternity protection supported by ILO addressed the issue of equity in employment for young women in particular. Food safety knowledge was disseminated via multiple channels such as women's associations, health inspection bureaus, and broadcasting stations, in an attempt to cover all planned beneficiaries of interventions. Pilot manufacturers of infant food received all-round training and support on the basis of voluntary participation.

The CFSN facilitated the achievement of MDG goals at national and local levels in a beneficial manner. On the one hand, results obtained at the local level facilitated

achievement of the MDG goals. The joint programme, for example, increased the capacity for food production and proportion of nutritious food consumed by rural households in pilot areas, improved the indicators for child growth, development and nutrients, and enhanced the protection of maternal rights. On the other hand, the CFSN promoted the revision of relevant national policies and legislations, for example, the Special Provisions for the Protection of Female Employees, and amendments to the criminal law which now includes provisions on food safety.

The CFSN facilitated the realization of principles of the Paris Declaration. As concerns country ownership, for example, sub-projects of the CFSN offered a number of policy recommendations which were accepted and applied by several government departments, increasing the government's attention to and action for achieving the MDG goals. For instance, the central government provided, free of charge, Ying Yang Bao intervention to children in 100 impoverished counties, and revised the Special Provisions for the Protection of Female Employees. Creating a favourable atmosphere for cooperation, the joint programme also facilitated cooperation among UN agencies, government departments and institutions in China to achieve the MDG goals. Rather than being collaborative merely in form, the joint programme took a multi-perspective approach to meet its objectives with an emphasis on effectiveness, and promoted coordinated efforts to achieve its objectives and fulfill its responsibilities.

There is still room for improvement concerning integration of the CFSN. On the one hand, as the management systems of UN agencies and the Chinese government are decentralized, it will be some time before the various departments can be integrated and unified. On the other hand, policy-making by the Chinese government relies on sufficient evidence. When developing strategies for food fortification, for example, the government pays much more attention to possible emergence of health hazards as compared to the accompanying benefits. As a result, implementation of certain policy recommendations was delayed. Nevertheless, the joint programme encouraged the various departments to jointly reflect on ways to address common objectives and come up with collaborative responses, thereby advancing the process of integration of the various departments.

II.5 Sustainability of results: Excellent

Although the results of the CFSN, with an excellent sustainability, have implications for national policy making, policy and financial support should be further

strengthened at national or provincial levels.

Firstly, the following were included in national policies or plans: 1) The revised nutrition surveillance database, which has been acknowledged by MOH and will be integrated into provincial and municipal surveillance networks. 2) Revision of the State Council's Special Provisions for the Protection of Female Employees, which promoted the development of rules for implementing the Provisions and facilitated the signing of special contracts for female employees to guarantee protection for them. 3) Nutritional package intervention aimed at infants and young children, which has been included in the 2012 national fiscal plan. 4) More than 30 policy recommendations produced by projects for managing food safety in the production process, which have already been adopted by local governments and will provide important evidence in the future development of regional policies for management of food safety. 5) Recommendations concerning amendments to the criminal law on food safety, which have been taken into consideration in Amendment to the Criminal Law (8).

Secondly, the following will continue to be pursued or expanded: 1) The practice of using Ying Yang Baos for nutrition intervention, which has been embraced by the Chinese government and is being applied and expanded to a larger number of poverty-stricken areas. In 2012, the Qinghai provincial government, for example, provide 10 million Chinese yuan to all 15 impoverished counties in the province for nutrition intervention aimed at more than 100 000 children aged 6-12 months, and the central government decided to provide 100 million Chinese yuan to children in 100 impoverished counties as financing for free Ying Yang Baos. 2) The comprehensive intervention model appropriately combining agricultural development and nutrition intervention, which is included in the FAO/Chinese government national programme framework (2012-2015), and which received necessary support for expansion. 3) The sample survey method for food safety applied by the Chinese Academy of Agricultural Sciences, which has been adopted by the poverty-alleviation office of the State Council, and applied to poverty surveys in 37 impoverished counties from 28 provinces.

Thirdly, it was revealed during interviews in pilot areas that, when attending a summary meeting, the deputy governor of Wuding county promised, on behalf of the local government, to enhance intervention in relevant aspects. Interviews with staff from operational institutions found, however, that all departments lacked financial and human resources, local government funding available for MDG goals related to prioritized CFSN activities was limited, and the operating party at the

county level also lacked channels to appeal for funding. The sustainability of projects in the pilot areas, therefore, relies on external sources of funding, such as policy or financial support from national or provincial levels.

III. CONCLUSION OF THE EVALUATION

Jointly implemented by a number of UN agencies, central government ministries and partner institutions in China, the CFSN consists of four major outcome goals and ten sub-project targets. Based on the evaluation scope and questions established by MDG-F, the evaluation is carried out on the three levels of design, process and results to evaluate the outputs and outcomes of the CFSN and their impact, and to sum up the practical experience gained and the lessons learned.

The CFSN joint intervention framework is the best strategy for the Chinese government to respond to the challenge of improving nutrition, food safety and food security for women and children in poverty-stricken areas. The management model of government leadership with participation by UN agencies has a fairly high operational efficiency, and multisectoral participation in the response to the challenge of improving nutrition, food safety and food security has an obvious advantage. National, provincial and county levels enjoy a fairly high degree of ownership. The CFSN achieved the expected intervention goals as planned, with significant intervention results and impact. Some of the outcomes have been integrated into national policies or are being widely applied with a fairly high degree of sustainability, but since the economic capacity of poverty-stricken areas is limited, policy support from national or provincial levels is the key to guaranteeing sustainability. The CFSN has been helpful in advancing towards the achievement of the MDGs and putting the Paris Declaration into practice at national and local levels. Further improvements should be made in intersectoral cooperation, sharing and integrating data, and financial coordination and management.

IV. LESSONS LEARNED

1. As the joint programme involves several bodies, much attention should be given to building an effective, smooth and efficient mechanism for communication and coordination. It is particularly important to clarify the authority and responsibilities of the coordination office. More time needs to allocate to the joint programme in order to ensure quality in completing the programme.

2. As numerous sub-projects are being implemented, reporting is relatively fragmented. Data sharing and analysis should be improved, and greater efforts should be made to summarize and identify overall outcomes.
3. On the one hand, the strategy of monitoring and evaluation can control the progress of the programme and any problems there may be. On the other hand, it effectively facilitates timely completion of the programme, acting as an important measure to ensure the outcome of the joint programme.
4. The Ying Yang Bao intervention model and the comprehensive strategy combining agricultural development and nutrition education effectively improved the nutritional status as well as the supply and consumption of micronutrient-rich food among children and rural households in pilot areas. These two methods of intervention should be built on and extended for wider use.
5. The integration of nutrition and food safety education into primary and secondary school education is an important way to improve awareness and behavior. To ensure effectiveness, it is essential to have support from policies related to educational reform and long-term implementation.
6. Mechanisms for collaboration among women's associations, health inspection bodies and the media should be explored, and training on food safety knowledge and laws should be conducted.
7. Surveys on nutrition and food security should be continued, in order to identify problems concerning nutrition and food security in impoverished mountainous regions and gain an understanding of their distribution, so as to provide evidence for the development of intervention policies.
8. An all-round intervention framework aimed at manufacturers and involving production, quality control, food inspection and policy guidance effectively enhanced safe production among manufacturers participating in pilot projects.
9. Policy recommendations proposed on the basis of findings from surveys on maternity protection in pilot areas facilitated the revision of the State Council's Special Provisions for the Protection of Female Employees. In order to ensure effectiveness, rules for implementation need to be developed as soon as possible, and collective negotiating abilities should be enhanced for maternity protection

of employees.

10. Strengthening the management of baby-friendly hospitals, creating baby-friendly communities and implementing the Regulations for Marketing of Breast-milk Substitutes constitute a comprehensive strategy for ensuring high rates of exclusive breastfeeding. Capacity building should be enhanced for such activities.

V. RECOMMENDATIONS

1. A comprehensive intervention model appropriately combining agricultural production and nutrition education in poverty-stricken areas can effectively facilitate agricultural development and diversification of nutritious food in such areas, helping to solve the problem of malnutrition and to alleviate poverty.
2. The integration of nutrition and food safety education into primary and secondary school curricula requires attention, on the part of governments and educational authorities at all levels, to nutrition and food safety education in schools. The training of teachers for nutrition and food safety as well as the development of training material should be strengthened, and ways should be explored to experiment on combining and complementing other courses with nutrition and food safety education.
3. In-depth work should be carried out on maternity protection for female employees, in order to facilitate the development and promulgation of the rules for implementing the Special Provisions for the Protection of Female Employees, to further facilitate the signing and improvement of collective contracts on maternity protection for employees, and to improve maternity protection in workplaces. This is highly important to improve child nutrition, to protect the maternity protection rights of employees, and to promote gender equality.
4. Continuous long-term surveys of food security and micronutrients may reveal existing problems concerning food security and nutrition in poverty-stricken areas, and will contribute, in a scientific manner, to poverty alleviation, food security and the formulation of nutrition intervention policies.
5. Training programmes on the HACCP system and capacity building for laboratory testing and for the inspection of food quality and safety in poverty-stricken regions are of great significance in increasing awareness of food safety among manufacturers and in enhancing related capabilities, thus improving food safety

and security in the region.

6. Training of media journalists should continue, in order to take full advantage of media resources to achieve universal awareness of nutrition and food safety.
7. Expanding training on systems of standardized production procedures for food safety and training of work safety inspectors, as well as providing guidance to food manufacturers for the improvement and on-site reform of rules and regulations for work safety, will be helpful in enhancing the ability of work safety inspectors to enforce such rules and regulations, raising food manufacturers' awareness of work safety, establishing systems for the management of work safety, and identifying potential safety hazards.
8. Food safety advocacy should continue to be integrated with the routine work of women's associations. The network of women's associations should be used to mobilize the civil society and community groups, in order to strengthen advocacy aimed at vulnerable populations at the grassroots level.
9. Intervention activities using Ying Yang Baos should continue, and exploratory efforts should be made to develop a food fortification programme, in order to continue intervention for vulnerable populations, especially for children. Food for nutrition intervention aimed at pregnant women and lactating mothers should be developed and popularized, and joint nutrition intervention activities should be carried out for pregnant women, lactating mothers, infants and young children, in order to comprehensively improve the nutrition and health of women and children.
10. Continuous efforts should be made to strengthen the building of systems for food safety emergency response and complaints, enhance coordination between different sectors and strengthen human resources and capital investment, and to improve the laboratory testing support system.
11. Communication and coordination mechanisms should be strengthened. Programme coordination offices should be established at different levels of implementation. The accountability and authority of the Programme Coordination Office at the national level, as well as provincial and county level intersectoral communication and coordination on the operational level, should be strengthened. In addition, greater efforts should be made to build a joint database and to develop a mechanism for sharing data.

12. Efforts should be made to explore ways of establishing a multilateral financing agency, which will carefully analyze and assess the health status of vulnerable populations in China, in order to help achieve the established goals in the field of food safety, children and nutrition in a timely manner.
13. In accordance with local conditions, qualified local food manufacturers should be identified for the production of Ying Yang Baos, so as to reduce the delivery cost of Ying Yang Baos, and to benefit a larger number of people by promoting local economic development.
14. Follow-up surveys and evaluations should be carried out on the nutritional status, production patterns and food safety knowledge of residents in pilot areas, including, for example, blood monitoring of rural residents to verify the effectiveness and long-term impact of agriculture and nutrition intervention.

VI APPENDICES

VI Tables

Table 1. List of domestic and international agencies participating in the CFSN joint programme

UN agencies	Chinese government departments and technical institutions
FAO	MOA
	FECC
	CDC
WFP	CAAS
WHO	MOH
UNICEF	NINFS
	CIP
UNESCO	MOE
	SPHCSU
	ACWF
	NCHIS
	SARFT
	TC-SARFT
UNDP	CICETE
	CLS
ILO	SAWS
UNIDO	AQSIQ
	NCICS
	ACFTU
	CNIS
	NBS
	MOFCOM

Table 2. Goals of expected Outcome 1, process of programme implementation and analysis of results

Goals	Targets	Process	Outputs	Evaluation
1.1 Food security situation in pilot counties understood by	1.1.1 Existence of accurate data on food security and vulnerability	1.1.1 Food security baseline and final surveys of 1368 rural	Publication of <i>Analysis of Food Safety and Vulnerability in Impoverished Counties in China</i> and a report on comparative analysis of	Very good

Goals	Targets	Process	Outputs	Evaluation
<p>policymakers.</p> <p>1.1.2 Data on anemia, iron, vitamin A, zinc, folic acid, vitamin B12 deficiencies for children and women available from a micronutrient survey of the six pilot counties documented and available.</p> <p>1.2 Targeting and monitoring improved through availability of an improved national database on nutritional status of women and children.</p>	<p>in the six pilot counties.</p> <p>1.1.2 Data on anemia, iron, vitamin A, zinc, folic acid, vitamin B12 deficiencies for children and women available from a micronutrient survey of the six pilot counties documented and available.</p> <p>Evaluation and revision of national database on nutritional status of women and children.</p>	<p>households from 144 villages in the six pilot counties.</p> <p>1.1.2 Providing data from surveys on anemia, iron, vitamin A, zinc, folic acid, vitamin B12 deficiencies for children and women, and conducting comparative analysis in Year 3.</p> <p>Review and evaluation of existing national database on nutritional status of women and children; revision and launch of system for nutrition and health indicators.</p>	<p>data from a second survey, providing the number of people and regions affected by food insecurity as well as factors leading to food insecurity, while making recommendations for policy intervention.</p> <p>Publication of <i>Nutritional Status of Women and Children, and Effectiveness of Nutrition Intervention in Improving Nutrition among Children</i> and a report on comparative analysis of data from a second survey, providing information on nutrition among women, will-be-mothers, parturients and children, breastfeeding, and supplementary foods.</p> <p>Development of system for nutrition and health indicators mainly aimed at adolescent girls, women of child-bearing age, will-be-mothers, lactating mothers and children under the age of five.</p>	<p>Good</p>

Table 3. Goals of expected Outcome 2, process of programme implementation and analysis of results

Goals	Targets	Process	Outputs	Evaluation
2.1 Breastfeeding increased and micronutrient supplementation improved.	2.1.1 Nutrition supplements in 3 pilot counties reaching 9000 children aged 6-23 months. 2.1.2 30%-50% increase in breastfeeding for six months. 2.1.3 Revision and advocacy for the Regulations for Marketing of Breast-milk Substitutes. 2.1.4 Increase by 25% the number of businesses providing support for continuing breastfeeding upon return to work in the pilot counties.	2.1.1 Ying Yang Baos reaching 13298 children aged 6-23 months; advocacy material on nutrition and breastfeeding disseminated. 2.1.2 Establishment of baby-friendly hospitals; community activities to promote breastfeeding; surveys of food resources. 2.1.3 Revision of the Regulations for Marketing of Breast-milk Substitutes and submission to relevant parties for comments. 2.1.4 Baseline survey on maternity protection in workplaces; preparation of advocacy pamphlet on	(1) The number of persons benefiting from intervention exceeded expectation with coverage up to 99.3%, among which 99.6% of children consumed Ying Yang Baos at least 3 time per week. Nutrition education was conducted at the same time. (2) Baby-friendly hospitals re-evaluated; report prepared on local feeding practices and food resources; a series of advocacy and training material developed. But limited increase in breastfeeding rates. (3) Preparation of the Regulations for Marketing of Breast-milk Substitutes completed; Revision and a quest for comments in progress. (4) Report on maternity protection in workplaces prepared; model for	Good

Goals	Targets	Process	Outputs	Evaluation
		maternity protection in workplaces; facilitation of legislative amendments.	maternity protection in workplaces developed; Advocacy Pamphlet for Maternity Protection produced by Wuding County; filming of “Luowu’s smile – a Promotional Video on Maternity Protection in Wuding County” completed; revision of the Special Provisions for the Protection of Female Employees facilitated.	
2.2 Household dietary intake of micronutrient-rich, locally-available food increased in 3 pilot counties.	Increasing 30% the proportion of diet made up by micronutrient-rich foods in pilot areas by Year 3	Agricultural intervention and nutritional intervention, including distribution of agricultural supplies, training of farmers, technical guidance, and advocacy and training on nutrition knowledge.	(1) Comprehensive intervention strategy of “vegetable farms + animal husbandry + training on agricultural techniques + nutrition education” developed. (2) Proportion of diet in rural households made up by micronutrient-rich foods increased by 41.3% (higher than established goal) as compared to baseline. (3) Significant	Very good

Goals	Targets	Process	Outputs	Evaluation
			improvement in household dietary diversification (HDD): 4%~24%; in women dietary diversification (WDD): 29%~89%. Average increase in production of vegetables rich in vitamin A: 32.5%; significant expansion of family-based animal husbandry. (4) Nutrition knowledge, attitudes and practices (KAP) on nutrition significantly improved among rural household, as compared to baseline.	
2.3 National plan for food fortification in place and implemented.	Local food fortification plan developed and approved	Risk analysis of food fortification strategy; development of related standards and guidelines.	National standards for fortification of supplementary foods and guidelines on food fortification for infants aged 0-2 years, young children above the age of 2 and women developed and submitted.	Good

Table 4. Goals of expected Outcome 3, process of programme implementation and analysis of results

Goals	Targets	Process	Outputs	Evaluation
3.1 Food	3.1.1 Pilot	3.1.1 Five child	(1) Four out of five	Good

Goals	Targets	Process	Outputs	Evaluation
production for children made safer in pilot counties.	enterprises trained in HACCP process; HACCP system established. 3.1.2 Increase in the capacity of pilot laboratories to perform food safety monitoring. 3.1.3 Increase in the management and operational capacity of food quality and safety inspectors. 3.1.4 Guidelines on safe and healthy work processes developed. 3.1.5 Plans and policy advice for food safety management in pilot areas developed.	food enterprises from Yunnan and Guizhou trained in HACCP process. 3.1.2 Four laboratories for food testing from Yunnan and Guizhou trained in ISO standardization and management. 3.1.3 Thirty food quality and safety inspectors trained to improve operational capacity; short-term international exchanges organized. 3.1.4 Guidelines on safe and healthy work processes developed. 3.1.5 Management plans and policy advice concerning food production and inspection developed for targeted departments in pilot areas.	pilot enterprises assisted in achieving HACCP certification. (2) Laboratory ISO17025 Training Material developed; four pilot labs assisted in establishing ISO17025 quality control system, and two pilot labs assisted in achieving CNAS accreditation. (3) Training for food quality inspectors performed: 200 person-times; study trip to visit enterprises in Austria completed. (4) More than 100 food quality and safety inspectors and more than 400 managers and technical personnel in food processing enterprises trained. Four pilot food processing enterprises assisted in detection and elimination of potential hazards, comprehensively enhancing safety in the enterprises. (5) Survey in pilot areas completed and three seminars held, providing more than 50 policy recommendations on food safety for pilot areas.	

Goals	Targets	Process	Outputs	Evaluation
3.2 Handling and preparation of food for infants and children made safer.	<p>3.2.1 Selected primary and secondary schools, hospitals and women's associations in pilot counties trained in WHO's Five Keys to Safer Food.</p> <p>3.2.2 At least 50% of the schools in pilot counties will integrate nutrition and food safety into school curricula with 100% of their science and health education teachers as well as head teachers trained in the use of supplementary materials in classrooms.</p>	<p>3.2.1 Training conducted in food safety knowledge and WHO's Five Keys to Safer Food targeting women and children in pilot counties.</p> <p>3.2.2 Policy analysis, development of teaching material, training of teachers and government officials in charge of educational affairs, and school-based experiments.</p>	<p>(1) KAP related to food safety for women and children in pilot counties greatly improved.</p> <p>(2) Policy analysis report and baseline survey completed; Supplementary materials for teachers and pupils respectively prepared; head masters and teachers from 100 primary and secondary schools trained, with such materials being integrated into the curricula of 60 primary and secondary schools; KAP related to food safety improved among pupils following intervention.</p>	Good
3.3 New food safety law successfully implemented	<p>3.3.1 300 government officials, 500 legal personnel and 500 employees trained.</p> <p>3.3.2 New food safety law promoted and disseminated, especially to women's groups and local communities in pilot counties.</p>	<p>3.3.1 Training of government officials, legal personnel and employees as well as a series of other activities accomplished.</p> <p>3.3.2 Surveys on food safety conducted in two pilot counties; targeted training carried out.</p> <p>3.3.3 Survey on</p>	<p>(1) Food Safety Law Research Center founded; China Food Safety Law website set up; Food Safety Law journal (journal for internal distribution) launched; Annual Report on China's Food Safety Law prepared; competition on food safety law knowledge and food safety law summit forum held; recommendations on</p>	Very good

Goals	Targets	Process	Outputs	Evaluation
	3.3.3 The establishment and testing of a food emergency response system and a food complaints system with practical operability.	food emergency response system and food complaints system conducted, and a constructive plan proposed.	amendments to the criminal law accepted. (2) A fairly large change in KAP concerning food safety among women and children achieved; Training material and promotional products of various forms developed.	
	3.3.4 Training of regulators and food producers and traders on the new food safety law conducted at county-level.	3.3.4 Food safety law training of government officials, food safety regulators and people involved in safe food production.	(3) Flow chart for the food safety emergency response system and the food complaints system at county level prepared. (4) Government officials, food safety regulators and managers of enterprises trained in food safety law.	

Table 5. Goals of expected Outcome 4, process of programme implementation and analysis of results

Goals	Targets	Process	Outputs	Evaluation
4.1 Advocacy package developed and trials done at national, provincial and county levels, using it as a policy, guideline, norm and standard.	4.1.1 Some of the approaches taken by pilot projects accepted as policies, guidelines, regulations or standards at national, provincial or local levels by Year 3. 4.1.2 10,000 copies of the	4.1.1 Information sharing by all parties through coordination meetings; preparation of tools for dissemination of experience with interactive data interface. 4.1.2 Dissemination of advocacy material on infant and	(1) Policy for child nutrition intervention in 2012 developed by Qinghai provincial government on the basis of nutrition intervention experience from pilot counties; 100 million Chinese yuan allocated by the Ministry of Finance in 2011 for nutrition	Good

Goals	Targets	Process	Outputs	Evaluation
	advocacy package produced and disseminated; meetings held at participating provincial and county levels by Year 3.	young child feeding; project summary meeting open to media.	intervention using Ying Yang Baos in 100 impoverished counties. (2) 58806 copies of advocacy material on women and child nutrition and feeding distributed. (3) Advocacy package being developed.	
4.2 Media training of at least 100 journalists in pilot counties.	4.2.1 Media training of at least 100 journalists in pilot counties. 4.2.2 10% increase in relevant articles concerning pilot areas. 4.2.3 Experience acquired from the joint programme seen in media reporting at national level and county level of pilot counties to promote nutrition and food safety.	4.2.1 Phased, focused and result-oriented media training on child food safety and nutrition conducted in three phases: preparation, training and follow-up. 4.2.2 Collection of information on food safety and nutrition reporting from radio and TV stations in pilot counties and provinces after training. 4.2.3 Collection of information on food safety and nutrition reporting from radio and TV stations in pilot	(1) 100 media journalists trained in child food safety and nutrition. (2) Monthly increase in relevant articles greatly exceeding 10%, as shown by sampling of food safety and nutrition reporting from radio and TV stations in pilot counties and media at provincial level after training. (3) Special programme on food safety and health launched by radio and TV station in a pilot county (Wuding county), regularly disseminating knowledge on food safety and nutrition for children;	Very good

Goals	Targets	Process	Outputs	Evaluation
		counties and provinces after training.	experience acquired from the joint programme reported on by media at national level and county level of pilot counties.	

Table 6. Indicators before and after nutrition intervention for pregnant women and children in pilot counties (Zheng'an, Wuding and Zhenan)

Indicators	Subjects	Baseline (%)	Final result(%)	Improvement (%)
Retarded growth	Children aged 6-23 months	18.1	11.6	35.9↓**
Low body weight	Children aged 6-23 months	9.8	4.1	58.2↓**
Emaciation	Children aged 6-23 months	6.2	4.0	35.5↓
Anaemia	Children aged 6-23 months	28.7	19.0	33.8↓**
Insufficiency of Vitamin A	Pregnant women	26.1	N/A	N/A
	Pregnant women	52.8	N/A	N/A
	Children aged 6-23 months	55.9	30.2	46.0↓**
Insufficiency of Vitamin D	Pregnant women	59.1	N/A	N/A
	Children aged 6-23 months	2.6	41.2	#
Insufficiency of folic acid	Pregnant women	45.2	N/A	N/A
Insufficiency of B12	Pregnant women	67.6	N/A	N/A
	Children aged 6-23 months	29.3	18.5	36.9↓*

↓Range of decline; *P<0.05; **P<0.01; # The baseline survey was carried out in summer, therefore there is less vitamin D deficiency; the final survey was carried out in winter, when there is more vitamin D deficiency due to lack of *sunshine*.

Table 7. Evaluation on effectiveness of agriculture sub-projects at results level

Indicators	Pre-intervention	Post-intervention	Increase (%)
Proportion of micronutrient-rich foods consumed(%)	21.3	30.1	41.3
Score of Household Dietary Diversity (HDD)	5.8~6.8*	7.0~8.1	4~24
Score of Women Dietary Diversity (WDD)	2.7~4.2#	4.4~6.1	29~89

*(Total range: 0-12) # (Total range: 0-9)

Table 8. Number of reports on food safety before and after media training

Statistical items	6 months pre-training	6 months post-training	Monthly increase	Increase (%)
Monthly number of media reports at Guizhou Provincial level	18.67	34.29	15.62	84
Monthly number of media reports from Zheng'an County and Pan County	8.5	10.5	2	24
Monthly number of media reports at Yunnan Provincial level	13.7	18.55	4.83	35
Monthly number of media reports from Huize County and Wuding County in Yunnan Province	6.5	11.17	4.67	72
Monthly number of media reports at Shanxi Provincial level	10.83	13.33	2.5	23
Monthly number of media reports from Zhen'an County	4.11	5	0.89	22
Monthly number of media reports from Luonan County	1.67	3	1.33	80

Table 9. Intervention results on KAP related to food safety

Indicators	Pre-intervention	Post-intervention	Increase(%)
KAP on Women Nutrition and Food Safety			
Correct knowledge on nutrition and food safety (Total score for correct knowledge)	20	29	45
Related attitudes (Percentage)	55.3	86.8	31.5

of beneficiaries with highly positive attitudes %)			
Related behaviour (Total score)	18	24	33.3
KAP on child nutrition and food safety			
Correct knowledge on nutrition and food safety(%)	83.4	99.2	15.8
Related attitudes (Percentage of beneficiaries with highly positive attitudes %))	61.5	95.3	33.8
Related behaviour (Total score)	13	16	23.1
Correct knowledge on nutrition and food safety among primary school teachers(%)	67.3	82.6	22.7
Correct knowledge on nutrition and food safety among secondary school teachers(%)	67.1	82.8	23.4

Table 10. Average increase in productivity of vegetables rich in Vitamin A in pilot counties

Crop	Cultivation area (mu)			Output (kilogram/mu)			Mean rate (%)
	Pre-CF SN	Post-CFS N	Increase (%)	Pre-CFSN	Post-CFS N	Increase (%)	
green beans	5	10	100	200	300	50	
Vegetables rich in iron and vitamin A	29.3	30.3	3.4	1512.5	1830	21	32.50
eggplants	4.7	6.3	35.5	1300	1506.7	15.9	
cabbage	4	8	100	1433.3	1983.3	38.4	
spinach	2	5	150	1000	1500	50	
turnips	1.5	4	167	1000	1200	20	

Table 11. Change in scale of animal husbandry under agriculture sub-projects in pilot counties

Region	Average number of pigs raised per household	Average number of chicken raised per household
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	Pre-CFSN	Post-CFSN	Increase (%)	Pre-CFSN	Post-CFSN	Increase (%)
Wuding County	7.8	10.3	32.1	15.1	25.1	66.2
Huize County	3	4.5	50	10	20	100
Pan County	2.3	4.6	100	6.1	16.1	163.9

Table 12. Maternity protection for employees promoted by Wuding County Federation of Trade Unions

Variables	Enterprises offering maternity protection		
	Pre-intervention	Post-intervention	Increase
Number of enterprises	4	16	12
Number of employees	622	1966	1333
Number of female employees	164	611	448

VI Main references

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