

# **Prudence Foundation**

## **The School Nutrition Improvement Project of the China Development Research Foundation**

Venture Avenue

September 2023

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## List of acronyms and abbreviations

CDC	Chinese Centre for Disease Control and Prevention
CDRF	China Development Research Foundation
DRC	Development Research Centre
MOE	NNO of the Ministry of Education
NDRC	National Development and Reform Commission
NHC	National Health Commission
NIP	Nutrition Improvement Plan for Rural Students in Compulsory Education
NNO	National Nutrition Office
RCE	Rural Compulsory Education
SNIP	School Nutrition Improvement Project
WFP	World Food Programme

## 1. Executive summary

The School Nutrition Improvement Project (hereinafter “SNIP”) was initiated by the China Development Research Foundation (CDRF) in 2006 with the goal of addressing malnutrition among children in impoverished regions of China. The project underwent three stages: pilot, scale-up, and continuous improvement. After the pilot stage, CDRF, together with other stakeholders, successfully promoted the national policy “Nutrition Improvement Plan for Rural Students in Compulsory Education” (hereinafter “NIP”).

At present, NIP is implemented by the government, with fiscal funding allocated for the lunch subsidy for rural students, and governments and schools at all levels are responsible for organizing and supervising the provision of school meals. At the same time, CDRF, through its SNIP project, especially the data platform, tracks and monitors the implementation of NIP in some of the key monitoring areas. Based on their monitoring results, CDRF continues to make policy improvement suggestions to the government and provides support to local governments and schools.

Based on desk research, in-depth interviews, and on-site investigations, this report provides an overview of the SNIP’s evolution over the past decade, including its intervention strategies, model evolution, major achievements, and impacts. On this basis, the report identifies the key factors that contribute to the success, quality, and efficiency of the project.

After over a decade of development, the provision of school meals for rural compulsory education (RCE) students, now financially supported by the government, has become a regular public service that has achieved wide coverage in rural impoverished areas across the country, effectively improving the physical fitness of rural children, and positively impacting students’ families and the economic development of local communities. Statistics show that the long-term benefit of children’s improved nutrition because of the project is expected to far outweigh the cost of policy implementation<sup>1</sup>.

The success of the SNIP and NIP can be attributed to several factors. During the pilot stage, CDRF’s project team drew on both domestic and international experiences, as well as local research results, to design science-based, detailed, and highly feasible intervention strategies. They also secured the support and cooperation of local governments and grassroots-level implementers in advance and present the policy recommendation to the central government’s decision-making departments through the national development recommendation channel.

Entering the scale-up and continuous improvement stage, a sound policy and institutional system is the strong guarantee for the implementation of school meals,

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<sup>1</sup> CDRF, *NIP Evaluation Report 2021*, detailed calculation methods please refer to *Cost-Benefit Analysis of the School Meals Programmes in Lao PDR*, World Food Programme

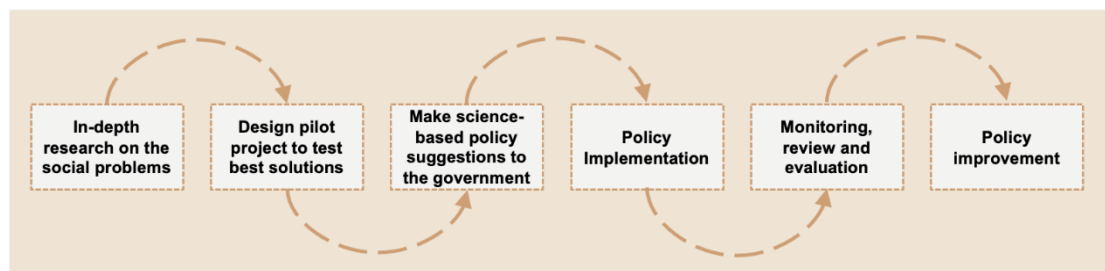
while the data platform provides important support for project implementation and supervision. In addition, there is a positive reinforcement between NIP and other policies related to the well-being of rural children. CDRF continues to promote policy optimization with high-quality research results and to leverage philanthropic contribution to support local governments and schools.

## 2. Project overview

### Project Design

The design of SNIP continues CDRF's signature approach in children development and welfare projects. This approach has been tested in the past and become well established. SNIP is one of the representative successful projects.

As shown in the figure below, the work of CDRF begins with in-depth research on the target issues, forming an accurate assessment of the status quo, causes, and especially root causes of the problem. Based on these findings, CDRF then designs their social experiments (pilot projects) to find the best solution to solve the social problems in a small-scale and relatively controllable environment. Based on practices and exact research, CDRF will propose policy recommendations to the government, and promote the introduction and implementation of policies. After the implementation of policies, the role of CDRF shifts to supervising and evaluating, continuously providing policy recommendations to the government, helping to improve policies and to better solve social problems and ensure public welfare. The subsequent content of this report will explain in stages how the SNIP follows the above concept, gradually advances with a down-to-earth approach, and ultimately achieves significant results.



*Figure 1: Project Design Roadmap of CDRF's Children Projects*

### Background, history, and evolution

The SNIP is a flagship initiative launched by CDRF in 2006. It seeks to address the issue of undernourishment among children in impoverished regions, promote their healthy growth and contribute to the wider goals of social equity and eradicate intergenerational poverty. The project has undergone three major stages to date:

Between 2006 and 2011, the SNIP was in its experimental pilot stage, when it was piloted by CDRF in poor counties in Guangxi and Hebei to identify feasible intervention models. Then step by step, CDRF conducted a feasibility study nationwide to generate a series of empirical research results. Ultimately, these efforts culminated in the introduction of the national policy known as the "Nutrition Improvement Plan for Rural Students in Compulsory Education" (hereinafter "NIP").

The scale-up stage lasted from 2011 to 2015. Since 2011, the NIP (including funding, organizing and meal supply, etc.) has been implemented and mainly supervised by

the government and schools, while CDRF was entrusted by the government to track and research the implementation of the project in various regions across the country and to produce policy evaluation and research reports with policy improvement recommendations for relevant agencies, such as the National Nutrition Office of the Ministry of Education.

Since 2015 till the present, the project has been in the continuous improvement stage. On the one hand, CDRF has established the SNIP data platform to monitor the implementation of the policy in typical project counties. On the other hand, as the NIP has been characterized as a basic public service and is no longer referred to as a "pilot", entering this stage, CDRF has shifted its focus from monitoring and supervision to utilizing data for in-depth research to provide science-based recommendations aimed at improving policies and promoting the healthy growth of children and adolescents.

### Operating model of the project

The SNIP has gone through a complete positive cycle of "pilot - advocacy - scale-up - continuous improvement." In the beginning, it was led and piloted by CDRF. After the project was upgraded to a national policy, its implementation has been dominated by the government. After that, CDRF continued to be responsible for research, evaluation, and training, and remains an essential component of the NIP.

Currently, CDRF assumes two main roles — As a researcher, it provides evaluation and policy recommendations for the NIP; as a sponsor, it directly supports project counties in need to improve their capacity and infrastructure that will help improve the quality of school meals.

### Impacts of the project

The SNIP has achieved significant social benefits since it was piloted, with the most notable achievement being CDRF's involvement in the establishment of the national policy. As of 2022, school meal projects, jointly promoted by CDRF and others, funded by central and local governments, have been implemented in 1,762 counties across 29 provinces, benefiting over 40 million students in 140,000 RCE schools (including all students subsidized by central and local government). The latest evaluation report published by CDRF in 2021 showed that the project has improved the physical health, reduced the malnutrition rate, and improved the academic performance, of beneficiary students.

In addition to the direct benefits for children, the government's support for school meals has significantly reduced the nutritional expenses of children from poor families, alleviating their financial burdens. This has also increased the willingness of rural parents to send their children to complete compulsory education, which is a boost to the universalization of compulsory education. At the same time, school cafeterias have generated employment opportunities for residents in impoverished

areas, especially for rural women, and have also driven the development of local agriculture, food supply and sales.

Moreover, as a large-scale and long-term national project, the NIP provides valuable references for addressing similar social issues. It has created a comprehensive system featuring funding support, local implementation, and multi-party supervision. CDRF's pioneering establishment of the SNIP data platform in China has laid a foundation for large-scale and efficient project supervision and evaluation. This innovative solution is also applauded by domestic and international peers concerned with children's nutrition issues.

### Prudence's contributions to the project

Since 2018, Prudence Foundation (hereinafter "Prudence") has been partnering with CDRF to support innovative solutions in addressing malnutrition among children in impoverished areas, providing various support to SNIP.

In the three years from 2019 to 2021, Prudence provided a total of RMB 5 million to CDRF SNIP, with approximately half of the funding (more than 2.53 million) supporting the "School Meal Capacity Improvement Plan" launched by CDRF. In 2019, Prudence supported a total of 21 schools in Xundian County, Yunnan Province, Yizhang County, Hunan Province, and Qianxi City, Guizhou Province to upgrade and renovate kitchen hardware, provide chef training, and promote nutrition knowledge, with a total amount of approximately RMB 910K; in 2020, it funded 9 schools in Binchuan County, Yunnan Province to repair canteens, install food sample cabinets, organize chef training, and promote health knowledge, with a total amount of approximately RMB 680K; and in 2021, it supported a total of 16 schools in Ledu District, Qinghai Province, Xiji County, Ningxia Hui Autonomous Region, and Xianfeng County, Hubei Province, including repairing canteens, adding equipment, conducting nutrition and health knowledge training and promotional activities, totalling approximately RMB 940K. By improving capacity and infrastructure in these remote schools, Prudence and its funding provide important support to NIP.

In addition, in the past three years, Prudence also supported the development of new functions on the SNIP data platform, the data collection in different regions (by providing subsidies to school staff responsible for filling in data on the platform), and the awards for excellent school canteens. Prudence also supported CDRF in organizing the "NIP10th Anniversary International Seminar" in 2021, inviting more than 200 attendees from international organizations, research institutions, local implementing partners, enterprises, and NGOs together, to exchange and share experiences in school meal projects.

This report aims to provide a comprehensive introduction to the SNIP model and a summary of its good practices that Prudence and other countries may take reference from, so that together, we can contribute to the healthy development of children in poverty-stricken areas.



### 3. Working methods

This report will introduce the intervention strategies, model evolution, main achievements, and impacts, as well as key success factors and lessons learned of the SNIP — which are based on desk research, in-depth interviews, and on-site investigations.

During the desk research, the research team analysed important project reports, research literature, policy materials, and other information accumulated over the past decade. Based on this, they will present the logic model, intervention measures, management mechanisms, evaluation system, and other key relevant content of the project.

The research team interviewed CDRF project officials who had been responsible for the SNIP at different stages to gain a deeper understanding of the design concepts, considerations, and success factors behind the project's implementation. This has helped the team improve their knowledge of the areas that were not sufficiently covered in the written materials.

With the support of CDRF, Prudence and local partners in Guizhou Province, the research team also paid field visits to Qixingguan District and Qianxi City in Bijie, Guizhou Province, conducted 3 different panels with local government officials in the Educational Bureaus and school principals. The team gained deeper understanding of the SNIP and NIP. Also, the team visited one of the local food supply companies, a middle school and a primary school covered by NIP, having lunch together with students, experiencing first-hand the changes in students brought by the policy. These in turn have helped to flesh out this report.

This research project endeavours to provide a comprehensive and systematic introduction of SNIP's intervention strategies and success factors given the resources and information available. It is hoped that this report can provide some inspiring insights for partners who are committed to improving the nutrition of children in impoverished areas.

## 4. Intervention model and impacts

### Social issues and population groups covered by the project

At the beginning of the 21st century, a series of research in China showed that malnutrition among children in economically underdeveloped rural areas was still prevalent due to family poverty. This situation had adverse effects on the academic performance and long-term development of rural students and was also one of the causes of intergenerational poverty. Therefore, addressing malnutrition among children in underdeveloped areas is of great significance for eliminating absolute poverty and improving the literacy of the Chinese population.

International practices from the last century to the early years of this century have proven that improving child nutrition is a public service characterized by high input and high output. However, before CDRF's SNIP, only a few separate government and public welfare programmes in mainland China were focusing on this issue, and the quality and sustainability of their intervention measures could not be guaranteed. There was also a lack of empirical research on intervention designs and outcomes, which made it difficult for these projects to come up with scalable solutions and even harder to have their practices reflected in national policies. At that time, the key to solving child malnutrition was to explore effective and widely applicable intervention measures and then push for the formulation of relevant policies — This was also the primary goal of CDRF's project.

### Main intervention measures of the project

The intervention model of the SNIP can be divided into three stages: "pilot," "policy scale-up," and "policy improvement." As summarized in the table below, CDRF adopted a core strategy of "promoting policy improvement through empirical research" and used different positioning and intervention strategies at different stages to achieve its objectives.

During the pilot stage, CDRF led the design of the pilot project for school meals and was involved in organization and coordination for the pilot project. Based on its first-hand experience and evaluation of the project's outcomes, CDRF developed a detailed implementation plan and policy recommendations and played an indispensable role in the policy advocacy process. During the policy scale-up stage, the government assumed the leading role in the project, and CDRF continued to leverage its research expertise to provide the government with timely assessments of policy effectiveness and improvement suggestions. Thanks to CDRF's efforts, the government increased its subsidies for school meals nationwide. During the continuous improvement stage, CDRF's main contribution was the establishment of the data platform, which transformed the previous short-term, selective research into long-term, large-scale tracking. The platform enables more precise and timely monitoring and feedback and makes it possible to offer more targeted policy recommendations. As a pioneering data tool, the platform also provides an important model for local governments to manage NIP through digital means.

	Pilot stage	Scale-up stage	Optimizing stage
<b>CDRF's role</b>	<ul style="list-style-type: none"> <li>Leading the pilot in 2 counties</li> <li>Designing the detailed implementation plan</li> </ul>	<ul style="list-style-type: none"> <li>Supporting government in monitoring and evaluating NIP implementation across the nation</li> <li>Advising government on policy improvement based on field studies</li> </ul>	<ul style="list-style-type: none"> <li>Building the data platform, monitoring, evaluating and researching on NIP with digital analysis</li> <li>Continuing to make policy recommendations about NIP</li> <li>Paying more attention to nutrition education in schools</li> </ul>
<b>CDRF's intervention approach</b>	<ul style="list-style-type: none"> <li>Designing and conducting a controlled experiment based on international best practices and local condition, tackling the issue of child malnutrition by providing school meals</li> <li>Working closely with local government and directly involved in the pilot, improving the intervention design in the process</li> <li>Studying the pilot result and commissioning other research institutions to research on the applicability of the intervention in other areas</li> </ul>	<ul style="list-style-type: none"> <li>Carrying out field studies and research in different counties to assess the implementation process and outcomes of NIP, summarizing local experiences and identifying issues and risks</li> </ul>	<ul style="list-style-type: none"> <li>Using the data platform to monitor NIP implementation, key indicators such as food and nutrition intakes, usage of subsidy, etc.</li> <li>Assessing NIP results based on data from the platform and other government resources</li> <li>Together with MOE &amp; CDC, providing capacity building to school staff</li> <li>Actively looking for donors to support necessary kitchen/canteen upgrading in some of the project schools</li> </ul>
<b>Key results</b>	<ul style="list-style-type: none"> <li>Putting forward policy recommendations about rural children nutrition improvement, including intervention plan, standard of government subsidy, etc.; jointly supporting the formation of NIP national policy</li> </ul>	<ul style="list-style-type: none"> <li>Successfully raising the standard of central government subsidy from 3 to 4 yuan/person/day based on studies of local practices</li> </ul>	<ul style="list-style-type: none"> <li>Raising the subsidy standard again to 5 yuan/person/day</li> <li>Central and local government continuing to monitor and improve NIP implementation based on evidences provided by CDRF's data platform</li> </ul>

Table 1: CDRF's interventions during different stages

## Logic model of the project

The above diagram outlines the complete logic model of the SNIP. CDRF accurately identified the root causes of malnutrition among rural children - funding and knowledge gaps. Based on the results of its research and pilot project, CDRF selected the "school cafeteria as the meal provider" intervention model from different possible providers such as schools and families, and from different schemes such as subsidization, cafeteria meals, and the centralized purchase of meals. CDRF also verified the effectiveness and feasibility of the implementation plan and the subsidy level - a subsidy of RMB 3 per student per day would be basically enough to cover food expenses, and cafeteria-provided meals had indeed helped improve the nutritional intake level and physical fitness of children in poor regions.

After this intervention path was proven effective, CDRF presented its policy recommendations to the central government and worked with various stakeholders to promote the introduction of the NIP as well as its supporting implementation rules and supervision mechanisms<sup>2</sup> - several of which were designed based on the practices of CDRF's pilot project. Since then, the intervention measures of the SNIP have been made up of two parts — First, the government subsidizes project schools for purchasing food and providing meals, while vigorously spreading knowledge on child nutrition and supporting the construction and renovation of school cafeterias in some areas; second, CDRF is responsible for evaluation, supervision, and follow-up research, continuing to provide the government with data and improvement recommendations regarding the implementation of the project. Thanks to the two-pronged intervention measures and the joint efforts of all stakeholders over the past decade, the SNIP has achieved widespread coverage and has effectively improved the physical fitness of children in rural areas, playing a positive role in promoting the equal and healthy development of rural children.

## Main outcomes and impacts of the project

### Outcomes of the pilot stage

In 2007, CDRF collaborated in a pilot project with the governments of one county each in Guangxi and Hebei provinces and selected 13 schools with nearly 2,000 students<sup>3</sup>. The test group of students were equipped with cafeterias staffed by cooks who followed nutritional recipes, while the control group continued to adopt the

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<sup>2</sup> The 2012 version of the Implementation Rules on NIP for RCE Students has five supporting documents: implementation rules, interim measures for food safety management, interim measures for cafeteria management, and interim measures for the management of real-name student information.

<sup>3</sup> The 13 schools include two pilot schools in Guangxi, with one as the control group, and eight pilot schools in Hebei, with two as the control groups.

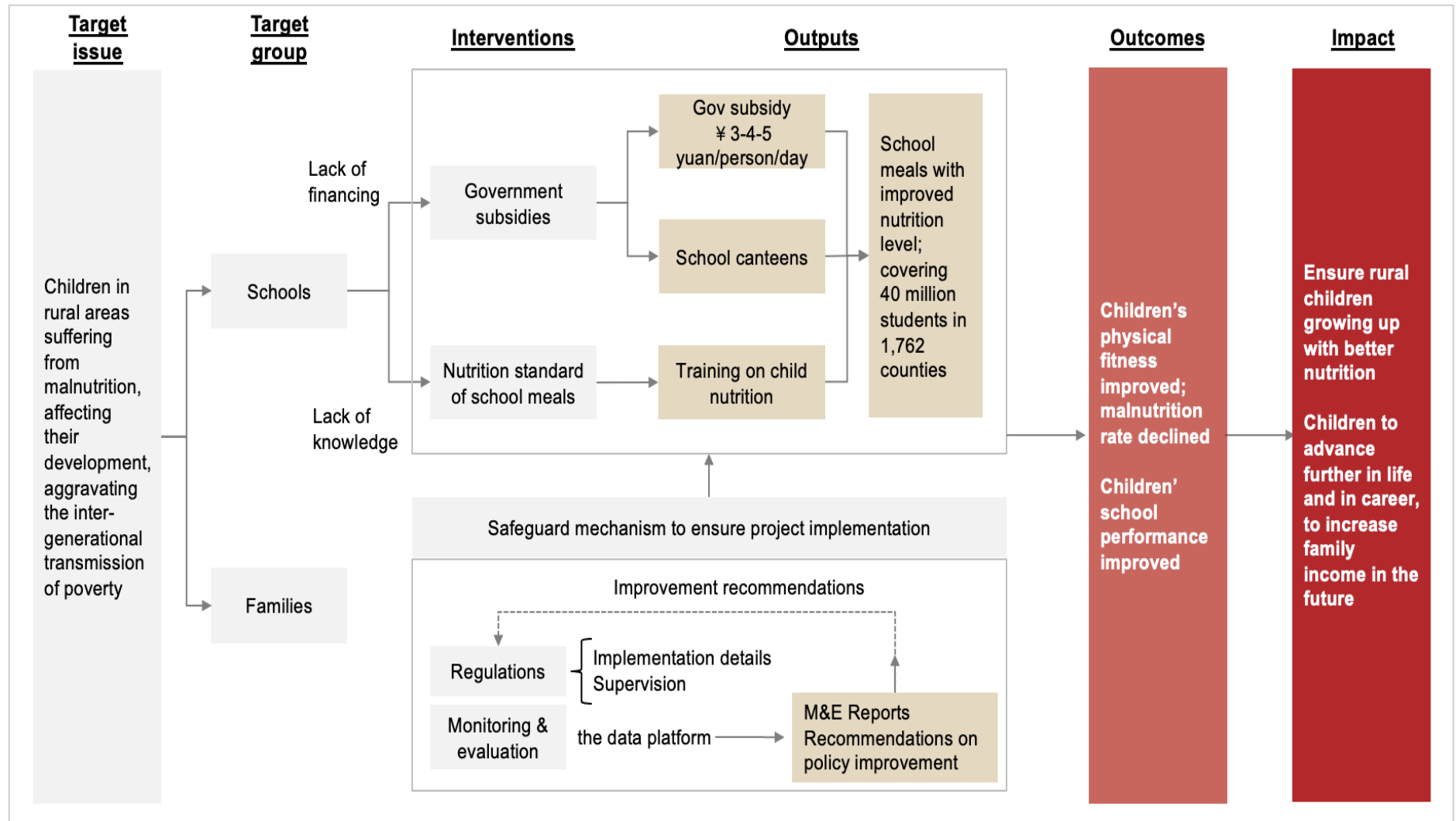


Figure 2: Logic model of the SNIP and NIP

original mode. During the pilot period, CDRF conducted baseline surveys, midline evaluation, and endline evaluation, focusing on multiple indicators in three aspects: school meal provision (number of diners and meals, etc.), school meal nutrition standards (consumption of various foods, nutrient intake, etc.), and children's physical fitness (height, weight, lung capacity, physical fitness test results, etc.).

The pilot stage produced the following two main achievements: the first was a direct positive impact on beneficiary children, and the second was the evidence-based policy recommendations that led to the establishment of the national policy.

The evaluation revealed that the school meal project had a significant positive effect on the nutritional intake and health of children. Prior to the intervention, rural students were behind the national average in physical fitness and lagged two or three years behind their urban peers. For example, 12-year-old boys in the pilot areas were 8 cm shorter and 7 kg lighter than their urban counterparts, with a height and weight of 10-year-old urban boys. However, after five months of intervention, the physical fitness of the test group (including all age groups) had improved significantly. For example, the average growth rate of children's lung capacity was notably higher in the test group than in the control group. Specifically, the lung capacity of 12-year-old children in the test group increased by 18.5% compared to the baseline, while that of the control group increased by only 4.1%. There was also a significant improvement in the morale and attendance rates of the test group according to their teachers.

CDRF has always valued the research work in the pilot stage. In the early stage of SNIP, CDRF studied worldwide research findings on children's nutrition from institutions like the World Bank and UNICEF, and then set up multiple research topics such as "*International Comparison of Children's Nutrition Improvement Projects*" and "*Comparative Study of Children's Nutrition Policies in Developing Countries*" to deeply analyse the experience of children's nutrition improvement work in different regions. During the pilot process, CDRF collaborated with departments such as Chinese Center for Disease Control and Prevention (hereinafter "CDC") to improve the accuracy and effectiveness of the trial data. Based on the pilot results, relevant research reports such as the "*Nutrition Improvement Project for Boarding Primary School Students in Poor Areas*" were prepared and submitted to key stakeholders. In these reports, CDRF scientifically and comprehensively elaborated on the effectiveness and practicality of the school meal model, laying a solid foundation for subsequent policy recommendations.

After the end of the pilot project, CDRF commissioned some universities and research institutions to conduct follow-up studies<sup>4</sup> that validated the feasibility of the intervention plan in different economic and social conditions throughout the country. This led to the submission of policy recommendations that were approved by the

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<sup>4</sup> Analysis Report on Malnutrition of Children and Adolescents in Poor Rural Areas of China, Chen Chunming, etc., Chinese Center for Disease Control and Prevention and Institute of Child Adolescent Health, Peking University, 2008; Evaluation of the Nutritional Status and Intervention Policy of Boarding School Students in Poor Rural Areas, Prof. Wang Sangui, etc., Renmin University of China, 2008.

then Premier of the State Council. Working with key stakeholders such as the Ministry of Education, the Ministry of Finance, and CDC, as well as with the local governments and schools in the pilot areas, CDRF conducted further research on its policy proposals. Finally in late 2011, the State Council issued the NIP, which is the core policy framework for addressing malnutrition among rural children nationwide. More importantly, the NIP since its inception has been safeguarded by a special government fund that ensures its secure funding support.

### Outcomes of the scale-up stage

During the scale-up and continuous improvement stages, the NIP, led by the government and implemented by schools, became the primary intervention measure. CDRF was responsible for the day-to-day monitoring of project implementation (through the SNIP data platform) and periodic large-scale research evaluations. Additionally, CDRF provided necessary support to project schools and their staff in the areas of capacity building and infrastructure.

Between 2015 and 2022, CDRF tracked, in real time, policy implementation at more than 9,200 schools in 100 representative project counties nationwide through the data platform. In 2017 and 2021, CDRF was entrusted by the government to conduct nationwide outcome evaluations of the NIP. The two evaluations involved distributing questionnaires, conducting on-site investigations, and analysing data, covering over one million beneficiary students as well as parents and school staff in 100 counties. The evaluations resulted in two reports.

During the scale-up and improvement stages, the SNIP and NIP continued to achieve desirable outcomes, which are mainly reflected in the following three areas: improving children's nutritional intake, physical fitness, and school performance, bringing economic benefits to children's families and local communities, and providing long-term benefits for society in terms of human capital.

### [Nutrition intake, physical fitness, and school performance](#)

The NIP has been instrumental in providing rural students with necessary nutritional supplements and improving their physical health. As of 2022, the project had benefited more than 23 million rural students in the original "concentrated contiguous poverty-stricken areas" that were subsidized by the central government. Many local governments had also increased funding to expand access to the subsidy. In total, the NIP covered over 40 million RCE students. The quality of meals in project schools has also improved significantly over the years. When NIP first started in 2011, only half of schools could provide meals at their own cafeterias. By the 2017 interim evaluation, 77% of schools had built their own cafeterias to provide lunch. About 51% of them could guarantee one meat dish per meal. By 2020, over 85% of

Below is a table showing the main evaluation dimensions, indicators, and information collection during the pilot stage.

**Monitoring and evaluation indicators in the pilot stage**

Project Outcome	Indicator Category	Indicator	Collection Method	Collection Frequency	Baseline Data Required
School meals are directly provided to students in pilot areas	Output indicators	<ul style="list-style-type: none"> <li>• # of schools in the pilot group</li> <li>• # of students in the pilot group</li> <li>• # of meals in the pilot group</li> <li>• # of control schools</li> <li>• # of students in the control group (and the ratio of male to female)</li> </ul>	<ul style="list-style-type: none"> <li>• Distributing questionnaires</li> </ul>	Every semester (3 times in total)	Y
Mainly provide lunch and pilot groups receive lunch continuously	Output indicators - Process indicators	<ul style="list-style-type: none"> <li>• # of diners</li> <li>• # of meals</li> </ul>	<ul style="list-style-type: none"> <li>• Ingredient usage records</li> <li>• Table for # of meals and diners</li> </ul>	Everyday	N
Nutritional level of school meals meets the recommended standard	Output indicators - Process indicators	<ul style="list-style-type: none"> <li>• Consumption of various food</li> <li>• Nutrient intake (protein/fat/macro and trace elements/vitamins)</li> </ul>	<ul style="list-style-type: none"> <li>• Meal review survey within 24-hour</li> <li>• Random sampling and on-site weighing</li> <li>• Comparing nutrition level with the recommended standard</li> </ul>	Daily records are counted according to the project cycle	Y
Children's physical fitness is effectively improved	Outcome indicators - Result indicators	<ul style="list-style-type: none"> <li>• Height</li> <li>• Weight</li> <li>• Lung capacity</li> <li>• 50 meters running score</li> <li>• Standing long jump score</li> <li>• Sit ups score</li> </ul>	<ul style="list-style-type: none"> <li>• CDC conducts physical tests and compares the scores between pilot group and control group</li> </ul>	Project initiation and closure (2 times in total)	Y

*Table 2: Monitoring system for the pilot stage*



schools could provide meals at their own cafeterias<sup>5</sup>, with 77% of students saying that enough meat was available in their meals. Taking Bijie City, Guizhou Province as an example, today the school meals in compulsory education schools can ensure two meat dishes and two vegetable ones each day and ensure that each student has a daily intake of about 50-60g pork. Beef, chicken, and fish are used alternately, and milk or fruit can be provided 1-2 times a week to further supplement nutrition for children. At Liwan School in Qixingguan District, Bijie City, the research team randomly interviewed students dining there, and the students expressed that they have meat and eggs cooked differently every day, and the dishes are better than what they have at home.

The physical fitness and abilities of students in project schools have also improved considerably. According to the 2012 evaluation by CDRF, the weight of students in project schools was slightly higher than before the NIP was implemented, although it was still lower than the national rural average. By the 2017 evaluation, the average height of students in monitored counties was close to the national average, and the lung capacity of 11-year-old students exceeded the national average. By the 2020 evaluation, the malnutrition rate of students in project schools had declined from 19.2% in 2012 to 9.6% in 2021, and the gap between their average height and the national average for the same age group had significantly narrowed. The percentage of beneficiary students who passed physical fitness tests had also increased from 70.3% in 2012 to 86.7%, which was only 5% lower than the national average. Taking Guizhou Province as an example, the Education Bureau of Qixingguan District shared that before NIP, only less than half students in many rural schools were able to pass the physical fitness test, and the situation has been significantly improved in about three years since NIP (2012-2015). Today more than 90% of students can meet the physical test standards.

Under the joint action of NIP and other policies, the learning performance of students has also improved. For example, according to the Education Bureau of Qianxi City, the dropout rate during compulsory education was once as high as 10%. After ten years of comprehensive efforts, they now have a dropout rate near zero. The Education Bureau of Qixingguan District also shared that the average performance of students in rural schools used to be lower than the passing line, but now it has generally increased to 60+/100. The positive impact of nutritious meals on students' academic performance are from two aspects. First, the dietary mix ensures the necessary nutrients for students. In the past, many students living in remote areas could only bring baked corn for lunch, which was severely insufficient in nutrition; secondly, it reduces the time and energy consumption for students to go back and forth from home, allowing them to have meals at school and take a nap, giving them ample energy to continue their studies.

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<sup>5</sup> The provision of meals through school cafeterias is a recommended way for the NIP. However, in the initial stage of the project, direct cafeteria meal service was not possible in some regions due to inadequate conditions. In such cases, project schools could use the subsidies to provide meals during break time or appoint a catering service company to provide meals.

## Economic benefits

The positive impacts of the NIP on beneficiary children's families and the economic development of local communities are reflected in the following three aspects — First, providing school meals directly helps reduce the financial burden on rural families. According to the 2020 CDRF assessment of the effect of child nutrition subsidies and transfer payments, the NIP could save rural families nearly RMB 200 per month, which accounted for about 20% of their monthly per capita disposable income. The saved money can be used for production activities and other household expenses. Second, cafeteria meal services have also promoted local employment, especially for rural women. According to the 2020 CDRF evaluation report, if one canteen worker was employed for every 100 students, approximately 290,000 new jobs would be created nationwide, and a sample survey showed that about 84% of them were women. This means that the NIP has strongly boosted employment for local women. Taking Liwan School in Qixingguan District as an example, when hiring kitchen staff, the school will give priority to women from local impoverished families and parents of students at the school, especially those who cannot go out to work due to reasons such as taking care of the elderly, to help local women and impoverished populations find employment. Third, the project is also a driver of the development of small-scale farming, animal husbandry, and agricultural products in pilot areas. Taking Bijie City, Guizhou Province as an example, the school meals formed a stable demand for food supplies. Based on the number of local students, the daily demand for each type of vegetable/meat can reach 3-4 tons or more. Local government has made policies that closely integrate school meal supply with agricultural development. Firstly, it requires that 85% of the school meal ingredients must come from local sources; secondly, the NIP office in Education Bureaus at all levels have clear regulations on the use of local ingredients in contracts signed with food suppliers; thirdly, when suppliers purchase from local farmers, they must sign a contract that ensure the basic income of farmers are protected even if the market fluctuates. More than 90% of the ingredients used by schools in Bijie City currently come from within Guizhou Province. In Qixingguan District, this kind of policies has benefited more than 30,000 farmers, while in Qianxi City it also helped more than 1,000 impoverished households to increase their incomes.

## Long-term benefits

Finally, from a long-term perspective, the NIP has an investment return rate that can reach up to five times, with the potential benefit of improving child nutrition far outweighing the cost of policy implementation. In 2021, CDRF summed up the investments made since the implementation of the NIP from 2011 to 2021 — during which the central government spent RMB 196.7 billion on the project, in addition to RMB 280 billion that was allocated by the central government and the National Development and Reform Commission (NDRC) for the purpose of improving school facilities. The calculation shows that the average cost of the project per student was approximately RMB 4 per day. CDRF also took into consideration previous research

results<sup>6</sup> from both domestic and international sources and calculated the overall social value brought by the healthy growth of children after the project intervention. Such value includes more years of education, increased years of working, higher salaries, and more household savings (which can be used for other investment and production activities). The calculation shows that the NIP generates a daily return of between RMB 21 and 23.8, with an investment return rate of 5 to 6 times. As mentioned above, the scale-up and improvement stages involve a more intricate evaluation of the project's outputs, outcomes, and impacts. The main evaluation dimensions, indicators, and corresponding data collection activities are summarized in the table below.

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<sup>6</sup> See Cost-Benefit Analysis of the School Meals Programmes in Lao PDR by the World Food Programme

### Monitoring and evaluation indicators in the scale-up stage

Project Outcome	Indicator Category	Indicator	Collection Method	Collection Frequency	Baseline Data Required
School meals are directly provided to students in pilot areas	Output indicators	<ul style="list-style-type: none"> <li># of regions covered by NIP</li> <li># of schools covered by NIP</li> <li># of students covered by NIP (poverty rate of students)</li> </ul>	<ul style="list-style-type: none"> <li>Collecting and updating the data platform regularly, and using questionnaires for large-scale evaluation</li> </ul>	Every semester	Y
Government subsidizes project schools for meals	Output indicators - Process indicators	<ul style="list-style-type: none"> <li>Average cost corresponding to different procurement methods in each region</li> <li>Price differences of various ingredients (actual purchase price VS market price)</li> </ul>	<ul style="list-style-type: none"> <li>System users fill in the prices and quantities of ingredients, and the system matches the local average prices of ingredients</li> </ul>	Everyday	N
Nutritional level of school meals meets the recommended standard	Output indicators - Process indicators	<ul style="list-style-type: none"> <li>Nutrition intake</li> <li># of days to reach nutritional standards</li> <li># of school canteens meeting the standard</li> </ul>	<ul style="list-style-type: none"> <li>The data platform calculates the amount of ingredients filled in by users</li> <li>The platform calculates the # of days when the school meal meets the nutritional standard monthly, and rank the canteens according to the operation quality and efficiency regularly</li> </ul>	Everyday	Y
Children's physical fitness is effectively improved	Outcome indicators - Result indicators	<ul style="list-style-type: none"> <li>Height</li> <li>Weight</li> <li>Lung capacity</li> <li>Malnutrition rate</li> <li>Physical fitness rate</li> </ul>	<ul style="list-style-type: none"> <li>Data from CDC</li> </ul>	Collecting based on the needs of each large-scale assessment	Y
Improving children's nutrition, health and education level; Increasing their years of working and household income in the future	Outcome indicators - Result indicators	<ul style="list-style-type: none"> <li>Impact of nutritional improvement on expected working years</li> <li>Impact of nutritional improvement on future productivity beneficiary children</li> <li>Additional value of subsidy transfers and local employment to poor households</li> </ul>	<ul style="list-style-type: none"> <li>Literature research</li> </ul>	Collecting based on the needs of effectiveness research	N

Table 3: Monitoring system for the scale-up stage

## 5. Fundraising and project management

### Fundraising

The funds invested in the SNIP and NIP are divided into two parts. The first part is the funds provided by the government according to the NIP policy. The second part is the funds raised by CDRF from various sectors of society for the SNIP, which is managed by CDRF. The second part of funds are used for the earlier pilot project, follow-up evaluation and research, data platform development and operations, as well as for subsidies, rewards, and training for the staff of project schools.

Government funds can also be further divided into central and local fiscal funds. Since the implementation of the NIP, it has been decided that the central government will provide nutritional subsidies to all students in compulsory education stages in 680 key impoverished counties (excluding core urban areas) throughout the country. The subsidy levels are RMB 3/4/5<sup>7</sup> per person per day for 200 days per year. The central fiscal funds are allocated by the Ministry of Finance level by level to the education bureaus of these counties. The county-level education bureau will check and settle bills with suppliers monthly based on information reported by the school, schools only manage bookkeeping, without handling any money, thus, to minimize the risk of fund misuse. The above funds shall not be mixed or misappropriated and must be used solely for food procurement. Other expenses incurred by school meals (such as salaries, utilities, cafeteria repairs, and kitchen equipment purchases) are also covered by national and local fiscal funds but are characterized as a budget for improving educational conditions. For example, from 2014 to 2020, the government provided a total of RMB 169.9 billion in subsidies through the "Rural Weak School Transformation" plan, some of which was used for cafeteria construction and cooking equipment improvement at boarding schools.

It should be noted that NIP is not free lunches. In recent years, China's economic growth has enabled some local governments, as well as families, to invest more in school meals. In addition to the beneficiaries and subsidy standard set by the central government, local governments today could also, at their own cost, to increase their coverage of subsidies and levels. Taking Guizhou Province as an example, the province expanded the scope of school meals to children in kindergartens (aged 3-6 years old). Currently the subsidy is a RMB 3 per person per day, and is jointly borne by the provincial, municipal, and county levels at a ratio of 4:3:3. Qixingguan District, Bijie City in Guizhou Province has further increased the lunch supply to some urban schools (which are not covered by the national policy for RCE). Qianxi City and other regions in Guizhou Province are exploring the "5+X" model, in addition to the RMB 5 provided by the national finance, parents will be charged a smaller amount (about

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<sup>7</sup> The subsidy was originally RMB 3 in 2011, and was increased to RMB 4 in 2014, and then to RMB 5 in 2021.

RMB 2 per day) based on the local economic capacity, to increase meat and daily fresh milk supply.

As for the funding responsible by CDRF, the foundation has benefited from its long-term commitment to child nutrition and policy advocacy as well as from its solid empirical research capabilities, which has helped the SNIP secure support from various domestic and international enterprises and institutions. During the pilot stage, HSBC (China), Deloitte Hua Yong CPA Firm, and Amway (China) all donated funds to CDRF, which were used to build cafeteria facilities, provide school meals, and conduct monitoring and evaluation in project schools. During the scale-up and improvement stages, Microsoft (China) helped CDRF build the basic architecture of the SNIP data platform. Some other well-known companies, such as Prudence Foundation, Johnson & Johnson (China), Swiss Re, and Mars China also offered their support to CDRF in areas such as monitoring, evaluation, research, and training. For example, the funds provided by Prudence were mainly used to subsidize personnel who upload information to the data platform for their schools, finance the renovation of some school cafeterias, and support CDRF in conducting project-related research and international exchanges.

### Project implementation and management

After more than a decade of continuous improvement, the SNIP and NIP has developed a comprehensive execution and management system. The following sections will provide an overview of the work carried out by both the government and CDRF at both the macro and micro levels.

At the macro level, coordination by the State Council is realized by establishing the Office of the National Leading Group for the Work on Improving the Nutrition of RCE Students (hereinafter "National Nutrition Office"), which is responsible for the planning, management, and supervision of the implementation of the NIP throughout the country. The National Nutrition Office (NNO) is also responsible for issuing supporting policies and implementation rules, such as the "Implementation Measures for the Nutrition Improvement Plan for RCE Students." The NNO is composed of members from 16 ministerial-level agencies, each with specific responsibilities. For instance, the Ministry of Finance provides funding support and formulates policies on the management of special funds; the NDRC supports the improvement of school facilities; the State Administration for Market Regulation ensures food safety and develops policies on the registration of school meal providers and manages the registration system for cafeteria service providers; and the National Health Commission and the CDC are responsible for developing nutritional standards and monitoring and assessing students' nutrition and health.

Following the deployments of the central government for improving the nutrition of rural students nationwide, provincial, and prefectural governments have determined local priorities and plans and are supervising their implementation. County governments and project schools are responsible for the day-to-day execution and

management of the project whose main responsibilities include — First, they need to develop a specific

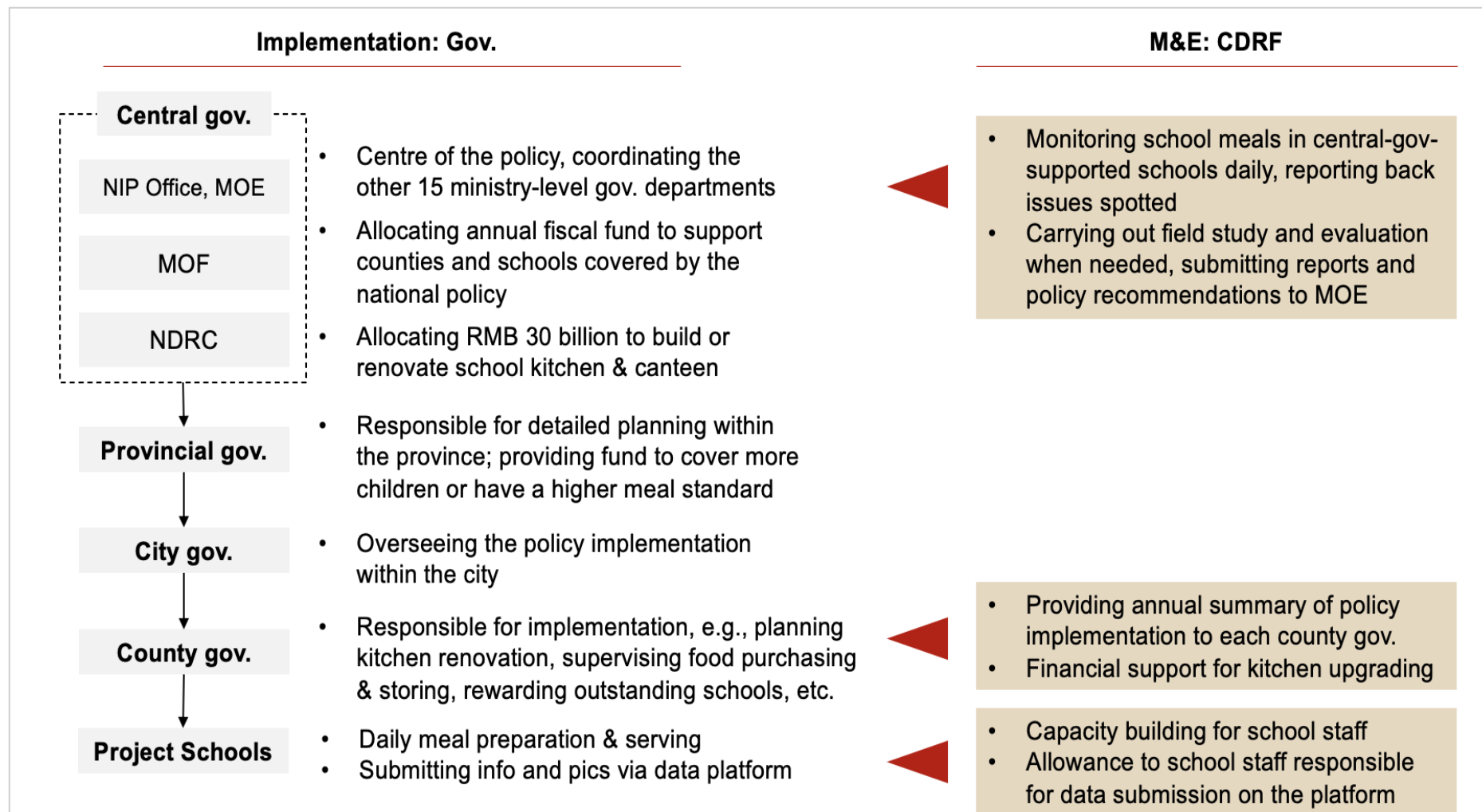


Figure 3: Implementation and Management System of the SNIP & NIP



action plan for implementing the NIP based on local conditions, for example, by gradually upgrading the facilities of school cafeterias and adding snacks in addition to lunch; second, they need to formulate detailed rules and policies, for example, with regards food purchases and cafeteria management at local schools; third, they are also responsible for inspection, supervision, and the administering of rewards and punishments. As for project schools, they are direct implementers overseeing day-to-day cafeteria management, school meals preparation, and dining management.

Taking Guizhou Province as an example, first, a comprehensive school meal management system has been established at local, including central procurement of ingredients in each county, real-time monitoring of the entire process of delivery and cooking (record from CCTVs will be uploaded to an online platform for inspections), and keeping food samples in both suppliers and canteens, etc. Second, the said system is implemented to specific personnel. In the education bureau of the provincial, municipal, county, and town governments, as well as in each school, dedicated persons in charge of NIP are set up. Names and contact information of all these responsible persons can be found in each school canteen, so that the public could reach them for any concern or enquiry. At Jinxing Town 1st Primary School, Qianxi City, Guizhou Province, the school further refined their internal management by using a "grid system" management approach, that is, dividing the campus into different "grids" and setting up responsible departments and individuals. For example, the student canteen is managed by the school's safety department, which reports to the vice principal in charge of campus safety and administration, who then reports to the principal.

In general, CDRF plays a multi-level, multi-pronged supporting role in project implementation and management. At the macro level, CDRF has worked with the NNO to identify 100 representative project counties for long-term tracking. Using the SNIP data platform, CDRF records, analyses, and monitors data at the provincial, county, and school levels. This enables CDRF to promptly grasp the basic situation and challenges of policy implementation nationwide and offer corresponding recommendations to the central government. Where necessary, CDRF can also integrate the data of its platform with the data of education, health, and other government departments to conduct large-scale empirical research and third-party evaluation of policy effectiveness. Furthermore, CDRF has considerable experience in international exchange and cooperation, making it an ideal organization for undertaking exchanges in international school meal programmes. For example, in 2018, CDRF collaborated with the expert group of the UN World Food Programme (WFP) in an investigation of the nutrition of rural children in China and shared the successful practices of the NIP with international peers.

At the micro level, CDRF directly provides various forms of support to county governments and schools implementing the NIP. First, backed by the data platform, CDRF provides an annual policy implementation summary for each project county, summarizing the situation of school meals and proposing improvement suggestions based on the issues identified in the statistical data. Facts show that most county governments welcome CDRF's informative feedback and are willing to follow up on

and address issues in project implementation. Second, in view of imbalanced economic development across the country, CDRF leverages its large network of resources to raise funds for the neediest areas and schools. Based on the information of the data platform and its frequent communication with schools across the country, CDRF can identify the schools with real needs, strong willingness to improve, and execution capabilities, and then precisely matches them with donated resources, for example, by providing subsidies to school staff and raising funds for cafeteria renovation. CDRF also actively tracks the progress in donations and provides timely and accurate feedback to donors. Third, to address common issues encountered in the provision of school meals, such as the lack of variety and poor nutritional balance, CDRF organizes experts to provide online and offline nutrition training to help schools improve the quality of meals.

### Project supervision

In view of the NIP's considerable social significance, extensive coverage, and enormous amount of funds involved, the project must be supported by a supervision mechanism to prevent risks and ensure policy effectiveness. Over the years, a rigorous supervision system has been established for the NIP, involving central government supervision, local government inspection and surveillance, and public scrutiny, to ensure that nutrition subsidies are used for rural children.

At the central level, the NNO of the Ministry of Education (MOE) is mainly responsible for establishing a supervision mechanism, working with national health and disease control authorities to provide dietary guidance, monitor and assess student nutrition and health. They also organize special inspections on a regular basis to supervise the NIP implementation across the country. To tighten the supervision of critical areas such as cafeteria construction standards, credit management of meal providers, food safety and fund management, the Ministry of Finance, the State Administration for Market Regulation, and the MOE have jointly established an accountability system<sup>8</sup> to ensure that food safety standards will be strictly followed, and NIP funds will be solely used for designated purposes.

At the local level, provincial and municipal governments play an overall supervisory and guiding role. Inspection and management daily are handled by the district-, county-, and town-level authorities. Taking Guizhou Province as an example, the district and county Education Bureau, together with local Administration for Market Regulation (with law enforcement powers), local CDC and other bureaus, jointly decide a set of inspection standards. The nutrition office in district or county Education Bureau will conduct weekly on-site inspection to different schools and food supply companies, and a multi-department inspection is done monthly to check

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<sup>8</sup> See Implementation Measures for the Nutrition Improvement Plan for RCE Students—Chapter 8: Performance Management, Supervision, and Inspection

school safety (including food safety). At town level, the central schools<sup>9</sup> are required to inspect other local schools monthly (including food safety and school meals).

At the school level, Guizhou Province as an example, it is required that school canteens have dedicated management personnel, who are responsible for inspecting and organizing meal preparation, as well as timely filling in various monitoring reports including financial and food ingredients information. The regular management of school meals include showing a list of all students who benefit from NIP every semester (i.e., receiving fiscal subsidies), displaying weekly menus, and arranging teachers to eat together with students every day.

In addition, the NIP is subject to public scrutiny through various means. Firstly, the cafeteria/canteen of each school has publicly announced the contact information of the responsible persons at different level from the Nutrition Office of the Provincial Education Bureau to the school cafeteria. The public can feedback and make suggestions by phone. Secondly, through national and local online platforms, the public can check school meals almost in real time, greatly improving the effectiveness of supervision and feedback. National platforms such as CDRF's Data Platform can retrieve recipes and food photos of districts, counties, and schools monitored by CDRF on daily basis. Local platforms such as "*Bijie Food Safety*" in Guizhou Province are connected to CCTVs in all local school cafeterias. The public can access the platform through WeChat and check the real-time footage. Thirdly, taking Qianxi City, Guizhou Province as an example, the local education bureau organizes a committee consisting of representatives of the local People's Congress, the local People's Political Consultative Conference, and student parents. The said committee will hold seminars and visit schools regularly; it also takes in public feedback and enquiries on school meals.

### SNIP data platform: a critical component of supervision

As mentioned above, the data platform is an essential enabler of supervision and evaluation. In 2015, CDRF was the first to propose the concept of using digital tools for real-time management of the NIP and, with the support of the MOE, established the SNIP data platform.

The data platform has two main functions: data entry and data analysis. The platform monitors indicators that match some of the indicators used to evaluate the NIP, such as ingredient types, purchase costs, and nutrients. To use the platform, the head of the school cafeteria needs to create a school account and upload information updates such as the total number of students and the proportion of left-behind children each semester. Then, via a mobile app, they enter the menu, the prices and quantities of ingredients, the number of diners, and meal photos daily. Based on guidance from National Health Commission (NHC), the back end of the data platform has pre-established reference values for nutritional intake as well as reference price

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<sup>9</sup> Central schools: primary or middle schools at county/district level, partially responsible for supervising and guiding other local schools in the same area.

ranges of local ingredients. The system automatically analyses whether the nutritional level of each meal meets the recommended standards of the NHC and whether the meal cost falls within reasonable limits.

Having high-quality data is essential for monitoring, analysing, and evaluating improvements. To ensure the quality of data, CDRF has adopted three measures. First, they offer a variety of incentives to those responsible for data reporting. At the individual level, CDRF uses part of the funds it has raised to subsidize the mobile phone bills of data reporters from all schools. At the school level, they select and reward "Star Kitchens" by providing free online and offline training on child nutrition. Second, they train data reporters on how to use the platform. CDRF has organized a series of training sessions to familiarize school staff with the system. Third, they collect feedback and continuously enhance the user experience. For example, in view of the widespread use of WeChat in the workplace, CDRF has shifted the data reporting portal from a mobile app to a WeChat mini programme, which has optimized pre-established measurement units and new features for automatic checking and error reporting that will make data reporting easier and more accurate.

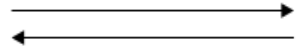
Between 2015 and 2022, the data platform monitored 100 representative counties out of 699 that received central government funding. As the quality of project implementation has stabilized in most regions and local monitoring systems have improved, the platform's focus has expanded from monitoring to both research and surveillance. To this end, CDRF has narrowed its monitoring scope to over 4,000 schools in 50 counties and optimized the types and paths of information collection. For example, previously, it was the responsibility of schools to report information on the quantities and prices of ingredients. However, as the expenses are actually paid by local Education Bureaus monthly, the daily data provided by schools are not entirely accurate. Therefore, CDRF plans to adjust the system, and ask local ingredients suppliers to fill in the information, which will then be subject to confirmation by schools. With more accurate information being collected, CDRF hopes to deepen research on child nutrition.

### Mobile terminal for front-line users



### Upload school meal data

- School meal menu
- # of diners
- Amount and quantity of purchasing ingredients



Provide subsidies based on data quality

### Computer terminal for monitors



### Monitoring by user level

- Calculating by school
- CDRF can access all the data while the county government can only access the county level
- Calculating the average food cost by region
- Calculating the % of nutritional level meets the recommended standard

Figure 4: Functions of the SNIP data platform

## Adaptability of the project

School meals involve multiple stakeholders such as food suppliers, schools, and student families, as well as different steps like food procurement, storage, transportation, and production. Local governments and schools implementing the NIP need to have strong initiative and be able to make necessary adjustments and adaptations according to actual situations. Taking Qianxi City, Guizhou Province as an example, in 2021, suffering from African swine fever, the local pork supply was insufficient. The county government and schools promptly coordinated with suppliers to increase the supply of eggs and other meat to meet the nutritional needs of children. In response to the dietary habits of local people who rarely eat eggs, school chefs were trained to use various methods such as stir frying, steaming, and frying to make eggs, and posters were put up in schools to teach students to understand the nutritional value of eggs. Another example of local initiatives is from Liwan School in Qixingguan District, Bijie City, Guizhou Province, in response to the extremely difficult economic conditions in some students' families, the school has creatively established a cafeteria work-study programme, which not only allows students to enjoy a healthy lunch, but also helps them reduce the burden on their families.

CDRF demonstrated a high level of adaptability during the implementation of the SNIP. Between 2020 and 2022, many in-person activities were cancelled due to the COVID-19 pandemic. As a result, CDRF promptly adjusted its original plan and organized a series of online training sessions for school meal managers regarding how to improve the quality of school meals. After learning that schools faced new pandemic control and food safety requirements upon resumption of school, CDRF also provided training on policy interpretation, nutritional balance, cooking skills, cafeteria management, food safety, and best practices. These training sessions helped schools ensure food safety and adequate nutrition for students during the pandemic.

In terms of the use of donations, CDRF also keeps great balance between the wills of donors and local needs, ensuring that every penny is used effectively. Taking Prudence's donation to Qianxi City, Guizhou Province as an example, the donation was originally planned to be used for the renovation of canteens, training of school chefs, and promotion nutrition knowledge. The local education bureau, given their past experiences and local resources, suggested that by mobilizing local resources they could reduce training and publicity costs, then moving more funds to renovate canteens and better improve the quality of school meals. As programme manager, CDRF studied the situation carefully and coordinated among different stakeholders effectively. In the end it helped Prudence to achieve maximum impact at local.

## Notes on field visit in Bijie City, Guizhou Province

In the process of writing this report, the team visited Liwan School in Qixingguan District, Bijie City, Guizhou Province, visited the school cafeteria's food storage, kitchen preparation, and dining site, and dined with students during lunch time to get first-hand understanding about the school meals.

Liwan School is built for the children from underprivileged families who are reallocated from poverty-stricken areas. With its school area of nearly 60 Mu (about 40,000 m<sup>2</sup>) and high-standard hardware and software facilities, the school is providing high-quality education to these children. In the past, many students here had to walk several kilometres to school every day, and they didn't have enough time to go back and forth to eat at home at noon. They could only choose to bring some simple meals themselves, making it difficult to ensure their nutritional intake and physical health.

With the joint support of the NIP and CDRF's SNIP project, the dining condition of students has significantly improved. The team observed in the field that students would queue up for orderly meals according to their respective grade every noon. The cafeteria makes sure to supply two meat dishes (meat and egg) and two vegetable dishes, with rice and hot soup for lunch every day, meeting a balanced and diverse nutritional need. The school canteen staff shared that they would alternate various methods such as steaming, boiling, and frying to cook meat and eggs, enrich the taste of the dishes, increase students' willingness to eat, and better ensure their nutritional intake.

The team randomly joined several students who had just had lunch and stayed in the cafeteria to chat. According to them, they dine in the school every noon and have always been satisfied with the taste and variety of the food, considering it as "delicious" and "more diverse than what parents cook at home". After lunch, they can rest at school, which is convenient for continuing classes in the afternoon.

The team also observed that since there is no need to travel back and forth to home, the time required for students to have meals is relatively stable, and there is still sufficient time left at their disposal after meals. Many students take walks and chat on campus, while football team students carry out training activities organized by coaches. Also, some students participate in various interest groups such as book clubs. School meals not only ensure students' nutritional intake, but also enable students to have a richer extracurricular life, fully enjoy the school's facilities, equipment, teaching and activity resources, and effectively achieve the desired effect of promoting students' healthy and comprehensive development.

## 6. Success factors and lessons learned

From the pilot project of CDRF in two counties to a long-term policy that has nationwide coverage, the successful development of the SNIP and NIP can be attributed to various factors at different levels. To better summarize the lessons learned, the sections below will introduce the factors that are essential for and help improve the quality and efficiency of the SNIP during the pilot, scale-up, and improvement stages.

### Pilot stage

The following three key factors have contributed to the success of the SNIP:

**First, the SNIP conducted necessary research based on local conditions to obtain first-hand information and drew on domestic and foreign practices to design scientific and actionable intervention strategies with detailed plans.**

Before the launch of its pilot project, CDRF conducted research on boarding primary schools in four regions of China, namely Southwest (Guangxi Province), North China (Hebei Province), Northwest (Ningxia Province), and Central South (Hunan Province), to identify the status of students in education, nutrition, and physical fitness. Despite its limited time and resources, CDRF tried its best to cover different geographical areas and levels of economic development. At the same time, CDRF also studied school meal programmes in countries such as the United States, the United Kingdom, Japan, and Brazil. International experience shows that school-aged children (compared to other age groups) should be prioritized as the target group for a nutrition improvement project because such interventions will be more efficient and will produce better outcomes.

After comprehensive research, CDRF decided to choose boarding schools as the place for interventions and cafeteria-provided meals as the means of intervention. On the one hand, the beginning of this century witnessed the rapid development of boarding schools domestically thanks to policy and fiscal support. Moreover, three-quarters of such schools are situated in underdeveloped central and western regions, where there is a higher concentration of impoverished students and local schools are equipped with better facilities. This makes it possible to provide school meals for financially struggling students in a centralized way. On the other hand, cafeteria meals with special fiscal fund can better ensure food safety, nutritional balance, and tangible benefits for students.

In the process of refining the project, CDRF also fully considered the economic development levels of different regions and emphasized the inclusivity and universality of solution. For example, during the pilot stage, CDRF calculated a unified subsidy level based on the "Chinese Dietary Reference Intakes," local dietary habits, and price levels. Additionally, in view of some project impediments such as inadequate equipment and lack of manpower at some school cafeterias, the project



also increased its budgetary allocations for cafeteria renovation or construction to ensure the feasibility of school meals.

Thanks to these meticulous preliminary efforts, desirable outcomes were finally achieved in pilot projects. They have also demonstrated a high level of sustainability and replicability, which is foundational for the subsequent establishment of the national policy.

**Second, CDRF secured the support of local governments and implementing agencies in pilot areas in advance, clarified roles and responsibilities of all parties, which ensured standardized, effective, and efficient execution while minimizing the interference of internal and external adverse factors, and effectively improved the credibility and persuasiveness of pilot results.**

School meal provision is a complex system that involves multiple government departments, such as education, finance, health, disease control, and market regulation, which requires detail-attentive coordination by the local government. Therefore, having the support of these government departments was crucial. For this purpose, during the pilot stage, CDRF established a three-level team architecture, including a provincial project team (the provincial department of education), a county project team (the county government and its affiliated departments of education and health, etc.), and a school project team (composed of the principal, teachers, and cafeteria staff). Each project team had well-defined roles and responsibilities, and CDRF acted as a central coordinator to address issues and clarify responsibilities during the piloting process.

In addition to this team architecture, CDRF has also established clear requirements for critical areas such as food safety, financial management, and outcome monitoring to reduce risks and uncertainties in project implementation. For example, the pilot project required local health and quarantine departments to guide schools in developing the "Cafeteria Food Hygiene Policy" to ensure food safety by adopting measures such as strengthening equipment disinfection, standardizing procurement procedures, and collecting food samples daily. Moreover, the project also required local governments and schools to keep separate accounting records for income and expenditure, food supply, and the daily use of ingredients. To ensure objective and scientific evaluation, CDRF collaborated with the CDC, which organized local CDC personnel to conduct regular tests of students' health and physical fitness. The CDC was not involved in school meal preparation or supply but functioned as a third-party evaluator to ensure impartiality and professionalism, while collecting basic data needed for subsequent continuous tracking of child growth. Thanks to this well-defined implementation system and robust regulatory requirements, the pilot project had produced highly credible and persuasive outcomes.

**Third, CDRF has a smooth channel for presenting policy recommendations, especially to decision-making departments. As a foundation under the Development Research Centre (DRC) of the State Council, CDRF's publications can directly reach the leadership of the State Council. Additionally, the leaders**

**of CDRF are familiar with the channels and approaches of policy advocacy, able to better convey suggestions to decision-makers.**

CDRF is managed by the DRC, with all areas of its work being guided and supported by the centre. The DRC is an organization directly affiliated with the State Council, tasked with conducting policy research, and advising on policymaking, including research on critically important and challenging issues in the areas of economic and social development. Its research results and recommendations can directly reach the decision-making level of the central government. Leaders of CDRF are well-versed in the process and channels of providing recommendations to the central government. Backed by these resources, CDRF can smoothly bring the research results and policy recommendations of the SNIP to the attention of core decision-making bodies — the Central Committee of the Communist Party of China and the State Council, thus functioning as a catalyst for policy change.

In February 2008, based on the pilot project, CDRF wrote a report titled "*Starting from Rural Boarding Schools to Implement the National Strategy for Improving Child Nutrition*," which was published in the No.13 Investigation and Research Summary Report in 2008. In the same year, Wang Mengkui, Chairman of CDRF, presented this report to the then premier Wen Jiabao, who promptly gave an important instruction on the policy proposal, stating that "the government should increase subsidies for poor students at boarding schools and improve their nutrition. This matter has a bearing on the future of the country and is also an important component of poverty alleviation." This instruction clearly demonstrated the central government's emphasis on child nutrition, leading to the introduction of the policy for providing living allowances for rural boarders, which is the precursor of the NIP.

Subsequently, CDRF continuously conducted research on the use of living allowances in various regions, assessed the actual effects of nutrition improvement efforts for rural children, and continued to submit evaluation results and recommendations to the leaders of the State Council. In May 2010, the State Council approved the "National Medium- and Long-Term Plan for Education Reform and Development (2010-2020)," kicking off the NIP for rural primary school students in ethnic and impoverished areas, which incorporated CDRF's school meal model into policy considerations.

In April 2011, at an international seminar on the provision of meals for rural schools in Western China, CDRF explored how to design a reasonable and sustainable model for improving student nutrition in collaboration with officials and experts from central government bodies, such as education, finance, and health. Based on the takeaways of the seminar, Lu Mai, the then Secretary General of CDRF, wrote a report titled "*Recommendations for Providing Inclusive School Meals in Western Rural Schools*," which was submitted to the national leadership. Liu Yandong, the then State Councillor, wrote an instruction on the report saying that "it is imperative to safeguard student nutrition in western rural schools, which calls for thoughtful planning, meticulous deployment, and effective implementation." In July of the same year, the central government decided to implement the "NIP for RCE Students" from

September. In October, the State Council decided to extend the pilot project to 680 impoverished counties and cities across the country and specified the subsidy levels. After more than two years of efforts, CDRF's pilot project was finally upgraded into a national policy, and the SNIP began to be promoted on a wider scale.

The policy advocacy path and achievements by CDRF are based on local environment. CDRF's experiences in policy advocacy could benefit other projects and organizations aiming to promote macro policy change, while other experiences focus more on the practical operation of school meals at the micro level.

In addition to the crucial factors mentioned above, three other contributing factors were also at play during the pilot stage:

**First, CDRF had established a close and trusting relationship with key stakeholders involved in the implementation of the pilot project.**

The pilot project was an experimental stage for adjusting the intervention plan, which involved a high degree of complexity and uncertainty. Therefore, it was essential to have deep trust and respect from the pilot project implementers. Only in this way could the pilot project test the feasibility of its intervention plan, identify potential obstacles and challenges, and achieve better outcomes. In 2007, the leader of CDRF who oversaw the pilot project (then a Deputy Secretary General) had extensive experience in rural affairs and had previously worked in Zhangjiakou City, Hebei Province, so he was familiar with the local situation. He facilitated CDRF's research in Chongli County, Zhangjiakou City, which was ultimately selected as one of the pilot counties. Another pilot region was the Guangxi Zhuang Autonomous Region. The then Director General of the Department of Education of Guangxi had once participated in CDRF-organized "Advanced Training Programme for Public Management", and he had a good knowledge of CDRF. The support of these leaders had provided enabling conditions for the pilot work, whereas CDRF had also built a solid foundation for subsequent work by conducting in-depth research and increasing understanding with other local government departments.

**Second, innovative attempts were made to suit local realities in the pilot areas.**

Although the pilot project was only carried out on a small scale, CDRF factored in regional differences that would inevitably arise when it would be scaled up nationwide in the future. Therefore, during the pilot stage, different specific measures were allowed to be adopted in different areas, leaving room for flexible adjustments. For example, although a centralized approach was originally required for the purchase of ingredients to ensure food safety, the pilot project in Du'an County, Guangxi Province encountered a problem with vegetable procurement. The local agriculture was basically self-sufficient and cannot support school centralized purchasing. To solve this problem, the local government shifted to decentralized purchasing, project personnel were dispatched to investigate and coordinate to ensure the steady supply of vegetables by local farmers. Such experiments not only ensured the effectiveness of the intervention during the pilot stage, but also helped

detect possible challenges and solutions for policy implementation in different environments and accumulate experience on how to flexibly address problems across the country during the subsequent nationwide scale-up.

**Thirdly, the media also paid great attention the nutritional issues of rural children and supported the advocacy of the national policies.**

In the early stage of SNIP in 2006, media awareness and attention to the topic of rural children nutrition were still very limited. During the pilot stage, thanks to the continuous research and policy advocacy work done by CDRF, this topic has gradually attracted the attention of various media. From 2010 to 2011, multiple important media, including CCTV, reported the malnutrition of rural children and its long-term impact. At the same time, more than 500 journalists and dozens of media jointly launched the "Free Lunch" project, a philanthropic project to raise RMB 3 yuan per student per day for children in poverty-stricken areas to have lunch. Through intensive media dissemination, the issues of rural children malnutrition have received widespread attention in a short period of time. The "Free Lunch" project raised over RMB 10 million over a three-month period, benefited nearly 4000 children in poverty-stricken areas in its first stage. Media promotion and public participation have played an important supportive role, making positive contributions to the national policy NIP in September of the same year.

#### Scale-up and improvement stages

In these two stages, there are four factors that directly contribute to the effectiveness of policy implementation.

**First, the leading parties of school meal project can establish a comprehensive project implementation system, clarify the rights and responsibilities of all relevant parties, and ensure long-term and effective investment from all parties through formal policies and norms.**

After NIP becoming a national policy, the central government has enacted several specific policies. In November 2011, the General Office of the State Council issued the "Guidelines on Implementing the Nutrition Improvement Plan for Rural Compulsory Education Students." In May 2012, the MOE and 14 other ministries jointly released five supporting documents for the NIP, including the "Implementation Rules," "Food Safety and Management Measures," "School Cafeteria Management Measures," "Measures for Managing the Information of Real-Name Students," and "Information Disclosure Measures." Subsequently, more detailed policies were also introduced to cover various aspects of policy implementation, such as the "Special Fund Management Measures," "Work Plan for Nutrition and Health Monitoring and Evaluation," and "Emergency Response Measures". Thereafter, provinces and cities also developed corresponding policies and rules regarding NIP implementation and financial management. The education bureau of Qianxi City in Bijie, Guizhou Province stated that the policies formulated by the local government are the most fundamental guarantee for the implementation of school meals, as clear regulations

greatly reduced the risk of shirking responsibility and the confusion caused by changes in frontline execution personnel.

School meal projects in other countries and areas may be led by government, civil society organizations or international aid organizations. Regardless of any specific condition, a well-designed policy system has significant implications in several aspects. First, it ensures that all parties involved have a correct perception of the importance of the NIP, thereby improving the initiative of government departments. Second, it provides stable and targeted financial support. In China, it is set clearly in national policy in 2011, that the central government allocates special funds for the NIP and ensures that they are used for their intended purposes through various management and supervision mechanisms — Insufficient funding had been a chronic issue for primary and secondary schools in remote areas. The fiscal arrangement along with the NIP solved this problem fundamentally. Judging from the implementation over more than a decade, there have only been a few cases of diversion of funds. Third, the policy system clearly defines the division of labour and cooperation among various levels and departments, which is supported by highly actionable implementation rules. This ensures that policies are implemented according to the same criteria across different levels and regions, thus minimizing delays, unclear division and shifting of responsibilities.

In policy design, special attention should be paid to communication mechanisms, that is to ensure smooth feedback channels for schools and implementing partners, and to help leading parties of school meal projects — governments, non-profit organizations, or others — understand the real situation and challenges in implementation timely and accurately. At the same time, the design of the implementation system should also reserve a certain amount of flexibility, not becoming "one size fits all". Taking Guizhou Province as an example, as the national subsidy is calculated on a relatively low standard (to ensure its sustainability), the central and provincial governments allow local governments to charge school meal fees from parents — based on actual needs of children, changes in prices, and family economic levels — to increase food standards and enrich nutrition intakes. Another example, though Guizhou Province sets a standard of RMB 3 per person per day for kindergarten children, the policy allows counties and districts to purchase high-quality fresh milk (RMB 5 per person) with local snacks (RMB 1-2 per person) in turn. In this case, the average cost remains the same, and having more fresh milk helps address a significant issue in rural areas — insufficient calcium intake among children.

**Second, establishing a sound meal supply and supervision mechanism at the lowest level (the smallest implementation unit) of the NIP.**

In addition to top-down policies and regulations, school meals require a set of detailed working mechanisms to ensure its daily operations. In general, most NIP schools today adopt the cafeteria approach, while a few areas choose to distribute packaged food (milk and bread) due to the scattered location of schools and the very small number of students. Taking Guizhou Province as an example, most RCE schools build cafeteria to supply food and used a county-level centralized

procurement system to buy ingredients. The smallest unit at local is "county (district) + school", and a comprehensive mechanism has been established.

About school meal supply, taking Qianxi City, Guizhou Province as an example, each school reports their food needs (based on the number of students) to the Nutrition Office in local Education Bureau. The Bureau conveys these data to the local Agricultural Bureau, which then organizes local agricultural cooperatives to produce in a build-to-order mode. At the same time, the Education Bureau invites bids for the delivery vendor. Companies winning the bid need to sign a minimum-guarantee contract with cooperatives and deliver food ingredients every day to schools. The schools will then prepare lunch for students, completing the closed loop.

In terms of project supervision, Qianxi City has designed a mechanism of both horizontal and vertical lines. Vertically, the system includes six levels (provincial, municipal, county, town, school, and canteen), each with dedicated personnel in charge; horizontally, a multi departmental collaboration mechanism has been established at the district and county levels: the Education Bureau is responsible for the overall management and coordination; local Health Commission and CDC are responsible for student physical fitness testing and campus drinking water safety monitoring; local Administration for Market Regulation, with its law enforcement power, is to supervise food suppliers and food processing enterprises; Transportation Bureau for supervising the delivery of food ingredients, and the Agriculture and Rural Affairs Bureau for supervising and guiding agricultural activities, and last but not least, the local Development and Reform Commission for deciding the state-set minimum-guarantee price for school meal agricultural products purchasing on a quarterly basis.

The above-mentioned mechanism is based on the administrative system in Mainland China. For projects in other countries and areas, the design of supervision system could give priority to food safety and anti-corruption. For example, in the procurement, transportation, storage, and production of food, there should be regulations about retaining food samples, installing CCTVs, and weekly/monthly inspections. And in terms of financial management, multi-department and multi-level review and reconciliation mechanisms could be helpful.

### **Third, ensuring a large-scale and efficient project monitoring by using information management system and digital platforms.**

Continuous information collection on NIP implementation could serve several roles: firstly, project leaders (government or NGOs) could understand the real situation as accurate as possible, the ability to quickly track and collect data is especially crucial in China's NIP project, as it covers a wide range of complex and diverse regions; secondly, by tracking baseline and subsequent data, it is possible to present a more comprehensive and accurate picture of the impact of school meals on children, their families, and the society; furthermore, supported by such a large amount of data, researchers could conduct many studies and make policy recommendations to further improve the project.

Taking NIP as an example, while formulating the policies, the central government has considered the importance of information collection. The policies clearly require ongoing monitoring of key indicators, such as the number of students, the subsidy standard and so on. In the regulation about NIP information disclosure, it is set clearly that different levels and departments of the government each has their responsibilities of information collection. At the national level, the MOE needs to ensure that fiscal funds are used on every eligible child, with no misuse or omission, therefore MOE mainly collects student information. Local governments and schools are responsible for NIP implementation, focusing primarily on food safety and financial risks. They both care more about real-time monitoring, such as keeping food samples on daily basis. The third sector organizations, such as CDRF, plays a supervisory and research support role. They focus more on NIP implementation and children's needs, and conduct various research by establishing baselines, setting up control groups and other methods.

It is worth mentioning that although various stakeholders have different concerns about project monitoring and recording, it is challenging for local schools to meet different requests of information collection given their limited manpower and resources. Therefore, a more ideal approach would be to design a comprehensive data system at the beginning of the project, which could consolidate different information (e.g., student information, food and nutrition, financial record, and child fitness and development) on the same platform. In this case, it would be easier for schools to submit data, and improve the quality of data collected, avoiding inconsistencies due to multiple systems developed by different government departments or organization.

#### **Fourth, school meal project could contribute to local economic development, and help establish a sustainable development model.**

Taking Guizhou Province as an example, providing meals via school cafeterias help improve the local economy in two ways: Firstly, the provincial government stipulates that no less than 85% of the school meal food ingredients must come from local sources, and requires that enterprises to adopt a minimum-guaranteed purchase model when contracting with farmers. For local farmers, this means stable sales and basic income. Secondly, school meals create jobs like cooking, warehousing, transportation, etc., and schools and companies will hire from local, bringing in more stable employment opportunities. Salaries of these jobs is no less than local minimum wage standard, and some can even exceed it, increasing the income of local families and driving economic development.

By implementing such methods, local household income has increased, their living conditions improved, which not only has a positive impact on children's development, but also is beneficial for school meals. For project with long-term stable financial support, like the NIP in China, increased family income means that parents could afford extra fees to further upgrade the quality of school meals and improve children's nutrition intakes. In other countries and regions, where school meal

projects may often face financial pressure, parents being able to bear some of the cost will make school meals more sustainable.

In addition, the support of school meals for local agriculture, in conjunction with other economic development measures, can jointly promote local economic development. For example, school meals bring in stable purchase of agricultural products, ensuring basic incomes of farmers, giving them confidence and initial funds to invest more in agricultural production, such as expanding planting areas, using high-quality seeds, etc. In the future, their products can be sold on the market besides being supplied to schools and gaining more incomes.

In the long run, as the local economy develops, local governments and social organizations will have more resources to invest in different types of child development services, including school meals, thus making school meals and other child services more sustainable.

In addition, the following favourable factors have also contributed to the remarkable success of the project.

**First, there is a mutually reinforcing relationship between the NIP and other policies on rural child welfare.**

There is a mutually reinforcing relationship between the NIP and the national policy of universalizing compulsory education in rural areas. Compulsory education has always been a fundamental national policy in China. In 2001, to improve the quality of compulsory education in rural communities, China began the merger of rural primary schools and teaching points<sup>10</sup> and invested in the construction of a batch of boarding schools. On the one hand, the development of boarding schools had increased the concentration of students, thus significantly improving the feasibility and efficiency of providing meals through school cafeterias. This had also provided the groundwork for the NIP. On the other hand, because of school mergers, students in remote areas would have to travel longer distances and pay for higher transportation and living costs, which resulted in more dropouts in some areas. After the NIP was carried out, school meals could not only ensure nutritional intake and healthy growth for children, but also helped reduce the economic burden of meal preparation for families. Therefore, parents now have exhibited more enthusiasm about sending their children to school, and dropouts have been reduced.

Another noteworthy interaction is between the school meal projects and teacher promotion mechanism. To ensure the effectiveness of school meals, especially the food safety of students, school principals, teachers, and cafeteria staff need to undertake many tasks. In remote and small-scale rural schools, the supervision and management of school meals are often carried out by teachers, bringing them additional work and responsibilities. In this case, if the reward and promotion system

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<sup>10</sup> Decision of the State Council on the Reform and Development of Basic Education (released by the State Council in 2001), [http://www.gov.cn/gongbao/content/2001/content\\_60920.htm](http://www.gov.cn/gongbao/content/2001/content_60920.htm)



for teachers and school staff can fully consider the time and energy, they put into school meals. It not only acknowledges their efforts, but also solves the problems of teachers' unwillingness: staff in charge of cafeterias in rural schools change very frequently, largely due to the high pressure and lack of recognition.

### **Second, supporting the development and improvement of school meal projects through research.**

As mentioned earlier, regardless of whether the government, schools, or social organizations are leading the school meal project, basic monitoring of project execution, such as data collection on beneficiaries, food ingredients and finance is essential. On top of that, schools and social organizations can further carry out more comprehensive and in-depth data collection and research work, so that to better support the continuous improvement of the school meal projects.

For example, by monitoring nutrition elements in daily meals, CDRF in China has identified two common problems among RCE students: excessive sodium intakes and insufficient calcium intakes. Based on these research results, CDRF now secures donations from salt companies, plans to donate low sodium salt to some schools and conduct control experiments, reducing the negative impact of excessive sodium on children. At the same time, local governments like Guizhou are actively taking measures, increasing the frequency of fresh milk supply in school meals, supplementing children's calcium intakes.

In addition, if schools can regularly collect information related to students' physical fitness, academic performance, and mental wellbeing, they can also conduct horizontal research. These findings are valuable in many ways, for example, it can help schools and project leaders identify problems in a timely manner and improve them. Also, it can better illustrate the outcomes and impact of school meals, and help attracting attention and winning support from government, donors, and the public.

### **Third, mobilizing social resources to support school meals.**

China's experiences show that, even led by a strong government, and supported by national and local finance; it is impossible to rely solely on the government to complete all the work in school meal projects. It is necessary to introduce social support. For example, CDRF has been raising funds from companies and individuals for the data platform, the renovation of some school canteens, the chef training in some regions, as well as studies of local needs. Therefore, in other countries and areas, the leading party of school meal projects may also consider mobilizing various forces such as local governments, enterprises, social organizations, and student families, having them each taking their strengths, and providing more supports to the local school meal projects.

### **Fourthly, promote international exchange and sharing of experiences, improve project sustainability.**

China has always maintained a positive and open attitude about the nutritional improvement of rural children, with proactive communication and learning with international partners and peers. With government support, CDRF actively carries out international exchanges related to school meals and introduces China's successful practices to other countries and peer institutions interested in child nutrition issues. In June 2018, CDRF SNIP team went to Liberia to visit local school meal projects and discuss the collaboration with local governments and non-profit organizations. In September 2012, CDRF accompanied a joint expert team organized by the World Bank, WFP, and other organizations to visit Guangxi and Qinghai provinces, introduced the implementation of China's school meal policies in the local area and gathered feedback and suggestions from international peers and experts.

Through these activities, CDRF actively exports China's successful experience in rural child nutrition improvement, providing important reference for organizations in other countries and regions that are interested in child nutrition issue. At the same time, CDRF also actively looks for charitable donations from international partners, including Prudence, to support SNIP. With the support of these donations, CDRF can steadily improve the quality and sustainability of the project, expand the influence of the project, and better promote the healthy development of children in rural areas of China.

## 7. Conclusion

Looking back at the achievements of the SNIP and NIP over the past decade, the success of mainland China in improving the nutrition and health of rural children can be summarized from several aspects:

Firstly, there is always a strong leading party – CDRF in the pilot stage, and the government later — the leading party is responsible for designing project plans, establishing the necessary policies and institutional frameworks for implementation, and all these are the cornerstone of the smooth implementation of the school meals.

Secondly, fully mobilize local governments, schools, enterprises, and parents, and establish a comprehensive and effective project execution and supervision mechanism with the joint efforts of all parties.

Thirdly, based on real successes, promote the project extensively and truthfully, highlight the achievements and effectiveness of the project, do not shy away from challenges and needs, and proactively look for funding and resource support from all sectors of the society.

Fourthly, establish a powerful information management system nationwide, achieving almost real-time collection of information, the system provides a clear understanding of project execution in different regions, and support effectively the monitoring and evaluation of project results.

After such effective and stable interventions, the SNIP and NIP have achieved significant and far-reaching impacts. Most directly, the physical and mental well-being, as well as academic performance of RCE children, have significantly improved, and the inequality experienced by children in their development process has decreased. Secondly, nutrition and children's health knowledge have been widely promoted in schools, families, and students. The public is paying more attention to and with a deeper understanding of children's healthy development. More children are expected to benefit from it in the future. In addition, centralized procurement in school canteens promotes employment and increases income for rural populations, especially rural women, drives the development of local agriculture and food processing industry, and contributes to the sustainable development of economically underdeveloped areas.

In summary, Prudence sincerely hopes that China's successful experience can provide an impactful case study to other developing countries and help improve children's nutrition and health issues in those places.