



Supporting Child Nutrition And Sustainable Development Through International Collaboration:

A Case Study of China's
Ying Yang Bao Programme

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Introduction

Child health and nutrition are key goals under the 2030 Sustainable Development Agenda. Currently, around 45% of deaths among children under five years of age are linked to undernutrition. These mostly occur in low- and middle-income countries.¹

In June 2023, the Chinese Academy of International Trade and Economic Cooperation (CAITEC) and the UNICEF China Office convened a forum on “Supporting Child Nutrition and Sustainable Development Through International Co-operation”. Participating experts discussed China’s experience, and the potential presented, and challenges faced by Chinese product, in boosting the improvement of child nutrition in impoverished regions of Africa and Asia.

Below is a summary of the views presented at the forum.



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¹ World Health Organisation, Malnutrition, <https://www.who.int/news-room/fact-sheets/detail/malnutrition> (9 June 2021)

Chapter 1

Global Needs and Challenges in Child Nutrition

The past three decades have seen considerable improvements in child health and nutrition, with a notable reduction in new-born mortality rates. The global under-five mortality rate declined by 59 per cent, from 93 deaths per 1,000 live births in 1990 to 38 in 2021, and significant progress has been made in improving the nutritional status of the 33.4 million children worldwide.²

However, there nonetheless remains a gap between current achievements and what is required to accomplish the 2030 SDG health goals. Regional inequities in global child health development remain a continuing issue, with regions such as Sub-Saharan Africa and South and Central Asia continuing to face persistently high and un-declining child mortality rates. Worldwide, a third of children under five years of age suffered from undernutrition, with 148 million estimated to be stunted, almost 45 million estimated to be wasted, and 340 million estimated to suffer from micronutrient deficiencies or “hidden hunger”.³

Further, in recent years, impacts such as regional conflict, climate change, extreme weather, COVID, and global economic slowdown have presented additional obstacles to the effective provision of nutrition, and the issue of global malnutrition has become increasingly pronounced. Faster progress is needed to reach the 2030 target.

² UNICEF, Under-five mortality, <https://data.unicef.org/topic/child-survival/under-five-mortality/January 2023>

³ UNICEF, Malnutrition, <https://data.unicef.org/topic/nutrition/malnutrition/#status>, May 2023

Chapter 2

The Importance of Complementary Food Supplements in Improving Child Nutrition

1

Nutritional intake through complementary foods is one of the most effective methods of intervention.

Food fortification, nutritional supplementation and dietary diversification have been recommended as three key nutritional intervention strategies for the prevention of undernutrition and the serious consequences thereof. Inadequate or inappropriate provision of complementary foods has been identified as an important cause of undernutrition during infancy and early childhood. Common problems include complementary food intake being lacking in diversity, insufficiently energy-dense, and introduced too late in time or in the wrong order. This results in insufficient micronutrient and energy intake and needs to be addressed through targeted supplementation. Therefore, of the three recommended strategies, multiple micronutrient powders have been developed as alternative way of providing micronutrients to populations where other interventions are difficult to implement. Multiple micronutrient powders are single-dose packets of vitamins and minerals in powder form that can be sprinkled onto any ready to eat semi-solid food consumed at home, school or any other point of use. The powders are used to increase the micronutrient content of a child's diet without changing their usual dietary habits. In the 2012 Copenhagen Consensus, combating malnutrition in preschool-aged children was designated as an important issue of global concern. **Comprehensive intervention to combat chronic undernutrition in children under five was also designated, by the same Copenhagen Consensus, as being the most cost-effective globally, and was also the most highly ranked intervention for investment.**



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2

Micronutrient Powders (MNPs) are a complementary food supplement that has been widely recommended for use by the international community.

To improve complementary food provision and the nutrition of infants and young children, nutritionists across the world have developed complementary food supplements to increase the energy and micronutrients contained in children's complementary food. Complementary food supplements are generally targeted to infants and children of between 6-36 months and include both single substance varieties such as iron/zinc supplements, as well as multi-component varieties such as micronutrients supplements. Supplements are also available in various forms, including powders, drops, tablets and capsules. Of these, MNPs are a complementary food supplement product that has been recommended by the WHO, and its many advantages include convenience of use and the ability to provide multiple micronutrients through a single product. According to guidelines published by the WHO in 2011, MNPs should contain five essential nutrients: iron, zinc, vitamin A, folic acid, and vitamin C.

Chapter 3

Effective Practices Implemented by the International Community to Promote the Use of Complementary Food Supplements

1 MNP projects have seen widespread global implementation.

In recent years, countries have progressively commenced the implementation of MNP intervention projects targeted at children aged 6-24 months or 6-36 months.

As of 2019, there are 58 countries globally that have implemented MNP projects. Of these, 65% are middle-income countries, and the remaining 35% are low-income countries. Geographically, these countries are predominantly located in Asia, Europe, Latin America, and the Caribbean. Project implementation has taken place at various levels, and has included national level projects, local/regional level projects, pilot projects and emergency intervention projects. Nationwide implementation of complementary food supplement projects has been achieved in certain countries, including China, Bangladesh, Kyrgyzstan, Peru, and Rwanda. However, in countries such as Indonesia and Kenya, such interventions remain at the pilot project stage. In addition, through the support of international organizations, complementary food supplements have also been used in emergency refugee camps and emergency relief situations.⁴

⁴ For example, in 2008, the World Food Program and the UNHCR distributed Vita-Mix-It, an MNP product, to refugee camps in Nepal.

2

Countries' MNP Projects have achieved good results, but still face challenges in implementation.

Challenges faced by other countries (besides China) in MNP Project implementation have mainly been centred around project management and product supply. In some countries, this has been caused by inadequacies in their implementation model, personnel capability, and public education.

In terms of countries' implementation models, Peru set up its MNP Projects to be integrated with other nutrition programs for combined implementation, but was unable to achieve effective human resource co-ordination, creating an additional burden for its already strained health system. In terms of personnel capability, project staff in countries such as Ghana and Peru do not receive sufficient training, which has impacted the distribution of MNP products. In terms of public knowledge and awareness, countries such as Kenya, Uganda and Burkina Faso have the common challenge of low receptivity towards MNPs due to insufficient public education.

In addition, many countries also face the challenges of insufficient product supply, limited or no quality assurance, and low affordability. Notably, Bangladesh only has a single MNP supplier, and consequently has no effective means of ensuring adequate product supply for MNP Projects. Burkina Faso has yet to establish a systemic quality control scheme and project monitoring mechanism, making product quality questionable and impacting receptivity toward MNPs in the country. In countries such as Kenya, MNP Projects are spearheaded by the private sector, with supplies being made through market sales. However, the resultant pricing has meant that product affordability has been low.

In light of the above, MNP project implementation capabilities still require further improvement in many countries. Shortcomings in personnel capability, shortages in product supply and inadequacies in quality control and monitoring all present challenges that impede the effectiveness of MNPs in nutritional intervention.

Chapter 4

Advantages and On-the-Ground Results of China's YYB



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The Children's Ying Yang Bao (YYB) is an MNP product that was developed by nutritionists in China based on the nutritional requirements of Chinese children, and is made up of soy powder and a mixture of micronutrients that infants and young children are commonly found to be deficient in. Officially designated as a national project in 2012, the Children's YYB Project distributes YYB to 6–23-month-old children in impoverished areas.

Since its implementation, the Project has delivered considerable health, economic and social benefits. It is now the largest state-run early childhood nutritional intervention project globally, offering valuable experience for countries undertaking large-scale intervention projects.

At present, China has been exploring limited internationalization by going global with its experience, products, and businesses, utilizing platforms such as China's Medical Teams and Doctors Without Borders. In context of the multiple challenges faced by MNP Projects in other countries, China's YYB has many advantages:



4.1

The YYB is a product created through innovative R&D to meet the specific nutritional needs of children.

The Children's YYB uses soy protein as its base ingredient, and contains nine different micronutrients (calcium, iron, zinc, vitamin B2, vitamin D, vitamin A, vitamin B1, vitamin B12 and folic acid). This addition of protein to the conventional MNP composition enables the YYB to provide a single solution that simultaneously addresses both the macro- and micronutrient deficiencies suffered by Chinese children. At the same time, by using soy powder, with its low cost-base, as the base ingredient for the YYB, production costs are kept reasonably low, resulting in a cost-effective project that outperforms many international nutritional intervention programs on this criterion.



4.2

The Children's YYB is a well-established project.

China's YYB Project has been the work of twenty years, evolving from the realms of scientific research and development to implementation as a national level project. Supported by the three-tier rural health network, the Project is implemented through the coordinated participation of multiple departments and has a comprehensive management framework and implementation procedures. As well as providing the YYB product, the Project also provides health education and personnel training to caregivers and Project staff and has established a system for regular quality monitoring and assessment.



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4.3

China has multiple YYB suppliers with independent R&D and manufacturing capabilities, ensuring large-scale product availability.

As demand from the Children's YYB project has stabilized, and the market for YYB products continues to develop, the YYB industry is also increasing in scale. To date, there are six active domestic producers that supply YYB products for the Project, all of which are medium-sized food production enterprises. With the progression of the Project, each enterprise has come to establish YYB industry chains with distinct Chinese technological characteristics. The enterprises have continued to expand production capacity to explore the possibilities for marketisation and product globalization of the YYB, after first ensuring that Project demands are met.



4.4

China has issued national standards for YYB products and established a quality control and monitoring framework.

In late 2008, the Chinese Ministry of Health (as it then was) issued the world's first national standards for complementary food supplements, GB/T 22570—2008 General Standards for Complementary Food Supplements, which were further updated in 2014. The assurance provided by national standards, oversight and monitoring by government agencies, and full process quality control by manufacturing enterprises across the R&D, production, distribution and after sales phases, form the foundation for implementation of the YYB Project. At the same time, regular monitoring by project management, and monitoring and evaluation of the effectiveness of YYB products will be critical for the expansion and sustainable implementation of the Project.

Chapter 5

Challenges to Taking the YYB International

1 | **There remain gaps in R&D and production capabilities before product globalization of the YYB can be supported.**

At this stage, YYB manufacturers have not yet achieved the scale required for internationalization, and still need to improve their R&D and production capabilities. Furthermore, the path for international development of these enterprises remains unclear, and they do not yet have a sufficient understanding of the international environment and international standards.

2 | **Challenges posed by national differences and cultural adaptability.**

Local government policy support, the state of local healthcare systems, local community mobilization capabilities, and the extent of public education and direction provided on nutrition are all critical determinants for the feasibility of the YYB being successfully adopted outside China. In addition to these local country factors, at this point, we are also yet to develop regional or country specific localization strategies for the flavour, package design, distribution, and promotion of the YYB.

3 | **The path for collaboration on the YYB is unclear.**

The current form of international collaboration China has adopted for the YYB has predominantly been to donate it freely through international organizations, and no clear bilateral or multilateral collaboration mechanism between states has yet been established. Moreover, the YYB has not yet been included on the centralized procurement lists of international organizations such as UNICEF⁵ and the World Food Program, which is not conducive to international adoption of the YYB. Other considerations that need to be addressed in the process of taking the YYB global include: who leadership responsibility should be designated to, where the product supply will be sourced from, how the roles of different departments will be coordinated, and how sustainable investment will be sourced.

⁵ The YYB was formerly included on UNICEF procurement lists, but only for purchases by China.

Chapter 6

Recommendations for Driving Product Internationalization of the YYB



Boost innovative R&D to drive product improvement.

YYB enterprises should play an active role in improving product standards and build an understanding of current international standards for MNP products to support certification under the relevant product standard regimes. At the same time, the government should also explore incentive regimes for the private sector and establish a good policy environment. This will encourage small and medium-sized enterprises to continue innovation and R&D activities, and to expand their production. It will also encourage large companies to begin R&D on YYB products and enhance the sustainability of product supply.



Build knowledge of child nutritional status in potential partner countries/regions and clarify pathway for collaboration.

Bilateral communication should be stepped up to build an in-depth understanding of recipient countries' nutritional development frameworks, the specific nutritional development needs of children in the relevant country/region, the demand for and appropriateness of the YYB in the local context, and the requirements of local product entry processes. Collaboration strategies should then be proactively designed to align with and consider beneficiary group needs.



Increase knowledge exchange on nutrition and promote the sharing of practical experience.

Steps should be taken to actively report on the significant results and benefits achieved domestically in China through use of the YYB. Good use should be made of bilateral channels to share project implementation and product R&D experience from the YYB Project. Chinese nutritionists are also encouraged to publicize the nutrition outcomes achieved with the YYB in international journals and at international conferences.



Harness the strength of international organizations to promote internationalization of the YYB.

The YYB has high absorption efficiency, delivers results quickly, and is suitable for groups with special nutritional needs. UN development agencies are experts in child development planning, targeting groups with special nutritional needs, and in international nutritional standards. China's experiences on prevention and control of malnutrition of children should be summarized and shared internationally. For example, as the Asia-region supplier of Super Cereal to UN agencies, China has facilitated the provision of Super Cereal as a solution for nutritional supplementation in disaster areas and for populations suffering from undernutrition. To date, recipients of Super Cereal have encompassed many countries in Africa and Asia.⁶

⁵ Super Cereal produced and supplied by China has been provided to countries including Afghanistan, Myanmar, Bangladesh, Guatemala, the Dominican Republic, Ethiopia, Djibouti, Somalia, Kenya, South Sudan, Honduras, Madagascar, Mozambique, Somalia, Nigeria, Cameroon and Burkina Faso.