

SUMMARY

FOOD SYSTEMS ANALYSIS

Applied to Kampong Chhnang and Preah Vihear provinces with a focus on nutrition outcomes.

INTRODUCTION

Between October and December 2022, SNV and Helen Keller International carried out a food systems analysis in Kampong Chhnang and Preah Vihear provinces, representing two distinct agro-ecological zones in Cambodia. It focused on identifying the impacts of the food system on nutrition, key areas of underperformance and their causes. It also aimed to identify the major environmental, economic and social impacts of the food system – detailed below. Based on the findings, possible intervention strategies were formulated, which aim to generate improvements in the Cambodian food system. The findings from the analysis are summarized below.

NUTRITION IMPACTS OF THE FOOD SYSTEM

In spite of strong economic growth and poverty reduction in recent years, undernutrition in Cambodia is still relatively high, with **21.9% of children under 5 stunted and 16.3% underweight**.

The extent of micronutrient deficiency in Cambodia is also concerning. Among children 0–5 years old, there is a high prevalence of zinc and iodine deficiency. Among women of reproductive age, zinc, iodine, folate and vitamin D deficiencies are common.

These nutritional issues are caused by a complex set of factors, including poor diets and illnesses stemming from unclean water, poor sanitation and inadequate hygiene. The food systems analysis focused on understanding the key dietary factors responsible for nutritional deficiencies and identifying their causes in different parts of the food system.



Dietary Causes of Nutritional Issues

Infants and young children (IYC)

Among IYC, the main dietary causes of the nutrition-related issues highlighted above are:

- **Early cessation of breastfeeding** – only 51.2% of babies are exclusively breastfed at 0–5 months.
- **Inadequate complementary feeding¹** – most IYC in ID Poor² households are fed rice porridge or cooked rice with salt and/or soy sauce as complementary feed from 6 to 23 months of age. These supplements do not contain sufficient protein and micronutrients.
- **Caregivers regularly feed unhealthy snacks and drinks to IYC.** This diminishes appetites and makes home-prepared complementary feeds less attractive, which has a major impact on IYC diets.
- **IYC consumption of fortified foods is limited³.** This is a significant missed opportunity to tackle micronutrient deficiencies.
- **IYC often eat unsafe food**, particularly meat and vegetables, which may be contaminated with foodborne pathogens that can cause illness.

¹From 6 months of age, breastmilk alone does not meet infant nutritional requirements. To ensure these requirements are met, it is essential to introduce age-appropriate, diverse and safe complementary foods while continuing to breastfeed at least until the age of 24 months.

²The Identification of Poor Households Programme (ID Poor) is the Cambodian government's system for classifying household poverty levels. It is used for research purposes and to target pro-poor interventions.

³Fortification of foods with vitamins and minerals can lead to substantial reductions in micronutrient deficiencies, especially if they are widely consumed and mandatory fortification is enforced.

Women of reproductive age (WRA)

Among WRA, key dietary causes of nutritional deficiencies are:

- **Low dietary diversity.** In particular, **pulses and dairy** are rarely consumed.
- **Insufficient quantities of protein- and micronutrient-rich foods** are consumed by ID Poor WRA.

Causes of dietary problems

By assessing consumer behaviour, food environments and food supply chains, the analysis identified the following causes of dietary problems:

- **Caregivers lack knowledge, time and/or funds to prepare complementary feeds for IYC.** Various programmes have tried to promote nutritious porridge⁴ as a complementary feed for IYC, but the scale of these programmes is limited. Moreover, grandmother caregivers rarely attend awareness-raising sessions, even when they are responsible for feeding IYC. Many caregivers also feel that nutritional dishes take too long to prepare and are costly.
- **Caregivers feed unhealthy snacks and drinks to children for many reasons,** but particularly when giving in to pressure from children; to stop children from crying; to save time when preparing food; because they

- WRA consumption of **fortified foods** is limited.
- WRA often eat **unsafe food**, particularly meat and vegetables, which may be contaminated with foodborne pathogens that can cause illness.
- Although food availability is very good in Cambodia, **ID Poor cannot always afford to purchase sufficient animal protein, vegetables and fruit** to adequately feed IYC, WRA and other household members.
- **Production and sale of fortified foods is limited** as a result of low consumer demand; limited regulation and enforcement related to fortification; challenges with production inputs and skills; and insufficient collaboration between research institutions and the private sector.
- **Consumption of unsafe foods** is caused by poor food safety practices by both consumers and supply chain actors, particularly in the meat and vegetable supply chains.



⁴ A rice porridge often prepared with vegetables, fish, chicken and/or eggs.

ENVIRONMENTAL IMPACTS OF THE FOOD SYSTEM

Major negative environmental impacts of the food system identified by the analysis include:

- **High greenhouse gas emissions from rice production.** Mostly methane from flooded rice, with few areas suitable for climate smart practices such as Alternate Wetting and Drying.
- **High methane emissions from cattle** through enteric fermentation
- Air pollution and carbon emissions caused by **burning of large amounts of rice straw**
- **Inappropriate use of pesticides.** Many farmers intensively and often wrongly use pesticides which is harmful to themselves, consumers, and terrestrial and aquatic ecosystems
- **Deforestation and forest degradation.** Expansion of farming area for commercial and smallholder farming has been a key driver.
- Air pollution and carbon emission of **cooking with traditional biomass stoves.** 75% of rural households still use traditional Laos stoves which consume a lot of fuelwood and contribute directly to greenhouse gas emissions. The source of biomass also contributes to deforestation and forest degradation.
- **Plastic pollution,** from plastics used in agricultural production, and from single use snack and beverage packaging.



ECONOMIC IMPACTS OF THE FOOD SYSTEM

The analysis identified the following main impacts of the food system on employment and incomes:

- While the agriculture, forestry and fishing sector's **contribution to national employment has declined steadily** over the last 15 years, it remains a major employer (33.1% of the population).
- **Average wages** for skilled agricultural, forestry and fishery workers are **relatively low**, at KHR 26,618 or about USD 6.5 per day (CLFS, 2019). These are lower than the minimum wage in the garment sector and much lower than average wages for Cambodians as international migrant workers.
- While incomes earned by primary producers from their own holdings are diverse, **small farms using traditional practices deliver relatively low incomes.** Moreover, **these incomes vary constantly** due to fluctuations in sales prices and various factors affecting production.
- **Climate change poses additional risks** to smallholder farming and incomes. Especially vulnerability to weather shocks and weather related disasters such as prolonged droughts and floods.
- **Many poor rural households may not be well positioned to increase their incomes through primary production⁵.** However, there are potential exceptions to this rule and positive income effects and creation of jobs may arise through the emergence of commercial small and medium sized farms and processing enterprises.



⁵ Due to financial constraints and lack of awareness about practices that could drive improvements.

SOCIAL IMPACTS OF THE FOOD SYSTEM

The main negative social impacts of the food system identified by the analysis are:

- **Child labour to some extent** in agriculture and fisheries.
- **Occupational safety and health risks**, particularly related to pesticide spraying.

RECOMMENDATIONS

Based on the understanding generated through this analysis, the following recommendations were developed to generate improvements for Nutrition Outcomes in the Cambodian food system:

1. **Improve complementary feeding** that provides sufficient protein and micronutrient to IYC through awareness raising, improving food recipes, increasing production and quality of fortified foods (e.g. zinc-fortified soy and fish sauce), promoting agronomic fortification of rice, and increasing production of protein and micronutrient-rice foods by ID Poor households and using specific strategies to reach grandmothers as caregivers.
2. **Reduce consumption of unhealthy snacks and drinks** and increase consumption of healthy snack and drinks by IYC and WRA by increasing the availability and affordability of healthier snacks/drinks as well as working with the government to ensure accurate nutrition labelling.
3. **Increase consumption of protein and micronutrient-rice foods** by both WRA in rural areas and workers through awareness raising and behaviour change communications, increasing household and commercial production of protein and micronutrient-rich food, and increasing resilience of WRA of rice farmers to climate-related shocks.
4. **Improve food safety and quality** across the domestic supply chain of high-risk products including food safety and hygiene practices by consumers, sellers, and processors.
5. **Increase resilience of the food system to climate change** including the resilience of WRA rice farmers to climate-related shocks, increase of usage of by-products from food processing and improve waste management, and promotion of eco-friendly packaging innovations and effective recycling.
6. **Reduce the contribution of the food system to greenhouse gas emissions**, for example by reduced burning of rice straw and alternative uses such as composting, improving feed and fodder quality for cattle and improving manure management as well as promoting local and shorter food supply chains reducing the dependency on imported foods.

