



**A CASE STUDY OF NEPAL**

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# Leveraging Micronutrient Data to Catalyze Change

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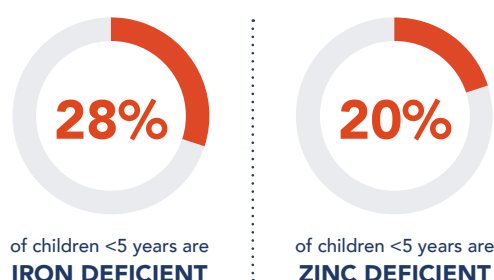
## SUMMARY

Micronutrient deficiencies remain a concern in Nepal. Two out of seven children under the age of five suffer from iron deficiency, and one in five are deficient in zinc. However, Nepal's strong commitment to leveraging micronutrient data has resulted in significant progress in reducing undernutrition. Due to frequent representative surveys and nutrition modeling, Nepal has access to rich datasets that inform its multisectoral national nutrition strategies. To ensure that these data are put to good use, Nepal has established a national Nutrition Technical Group that meets regularly to review data and propose actionable areas, further demonstrating the country's strong commitment to data-driven decision-making. One of Nepal's successes has been the mandatory fortification of salt and wheat flour, which will soon be extended to rice. This important population-based intervention has successfully reached some of Nepal's most vulnerable groups. Looking forward, Nepal has set its sights on improving its use of micronutrient data by building a central database that integrates data from across surveys, enabling Nepal to identify and analyze trends overtime. By continuing to prioritize data and evidence-based decision making, Nepal has emerged as a leader in addressing the complex challenges of micronutrient deficiencies.



## CONTEXT

Nepal is a diverse South Asian nation of over 30 million people. In the 1990s, Nepal had some of the highest rates of undernutrition globally. Today, Nepal is considered a global nutrition success story.<sup>1</sup> However, despite successful scaling up of vitamin A and iron folic acid (IFA) supplementation programs, health disparities remain a major challenge for Nepal. High rates of malnutrition and micronutrient deficiencies persist for many due to low dietary diversity and a high reliance on staple cereal crops that constitute 75% percent of Nepal's cultivated land.<sup>2</sup> Still, the country's remarkable efforts in prioritizing, collecting, and applying data in its fight against malnutrition are notable and offer insights for other governments and stakeholders.



Source: <sup>2</sup> Nepal National Micronutrient Status Survey, 2016

## SUCCESS FACTORS

Nepal's commitment to leveraging micronutrient data has led to significant improvements in nutrition outcomes. The 2016 National Micronutrient Survey played a pivotal role in informing the development and revision of policies and plans for achieving the Sustainable Development Goals by 2030, including a second Multi-Sector Nutrition Plan (MSNP). The MSNP mobilized resources, established nutrition coordination structures at each administrative level, connected government ministries, donors, UN agencies, civil society, and private sector stakeholders, and inspired the formation of several thematic working groups.<sup>1,3,4</sup> The establishment of a dedicated, multisector Nutrition Technical Group and the use of modeling tools to inform decision making have been critical factors in Nepal's success.

**Nutrition Technical Group**—Nepal made a deliberate commitment to a multi-sector, collaborative strategy to improve nutrition. Despite early efforts, nutrition strategies lacked the political and economic cohesion necessary for sustained impact. After joining the Scaling Up Nutrition Movement in 2011, Nepal committed to a government-led, multi-stakeholder participation in the collaborative effort to improve nutrition. The National Planning Commission of Nepal played a crucial role in bridging government



***“Having the data is quite useful to understand the scientific evidence of what is happening.”***

NAVEEN PAUYDAL, Nutrition Officer, UNICEF Nepal

ministries and the private sector for strategic dialogue on scaling-up nutrition interventions, moving beyond a siloed approach.<sup>1,4</sup> The formation of the national Nutrition Technical Group, composed of academics, and government and UN representatives, was critical in advocating for ongoing, robust data collection, analysis, and application. This group collectively reviews data and has the power to inform change. Some examples include advocating for a shift from IFA supplementation to multiple micronutrient supplementation, suggesting data-driven salt iodization policy revisions, and calling for a food consumption survey to better understand the population's vitamin A intake from dietary sources.

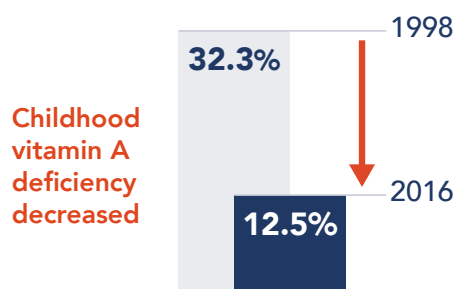
**Modelling Tools**—In 2020, the National Planning Commission used the Fill the Nutrient Gap tool to provide additional evidence for making the country's micronutrient initiatives more effective. The results confirmed that post-harvest fortification of rice and wheat flour and biofortification of wheat have the potential to increase the micronutrient content of foods that are consumed by a large part of the population, providing an additional source of micronutrients for households that cannot access nutrient-rich foods.<sup>5</sup> The country mandates salt and flour fortification, and is in the process of extending fortification to rice with the aim of broadening coverage. Micronutrient survey data also revealed high levels of anemia among both adolescent girls and adolescent boys. This surprising finding motivated the government to include males in the adolescent nutrition program.

Pauydal explains that Nepal's micronutrient data over the past 25 years has helped decision makers track the country's nutrition progress and contribute to global efforts by developing regional cut-off points. This data also supports adjustments to policies and protocols at the country level.

## POLICIES & PROGRAMS DRIVEN BY DATA

Nepal has made significant strides in improving its micro-nutrient profile through fortification and supplementation policies and programs that have been informed by its extensive micronutrient data. One of the most notable policies implemented in Nepal is the mandatory fortification of commercially produced wheat flour with iron, vitamin A, and folic acid since 2011. However, this intervention has faced challenges: the iron compound used as a fortificant has low bioavailability, and not enough households consume industrially milled flour to meet the national standard for iron fortification since 59% of households grow and consume their own wheat.<sup>1</sup> As a result, Nepal is considering fortifying rice to expand coverage of fortification.

Nepal's universal salt iodization program is another successful policy that has largely eliminated the adverse outcomes of iodine deficiency disorders. This program was implemented following survey data that showed the magnitude of the problem. Between 1998 and 2016, the proportion of households using adequately iodized salt nearly doubled from 55.2% to 90.7%.<sup>3,6</sup> Routine data monitoring continues to assess if excessive iodine intake in certain subgroups warrants a reduction in the national iodine standard.<sup>3,6</sup>



Source: Nepal National Micronutrient Status Survey, 1998 and 2016

Childhood vitamin A deficiency persists in Nepal, but the prevalence has been reduced by half between 1998 (32.3%) and 2016 (12.5%).<sup>3,6</sup> Following evidence from two randomized trials of vitamin A supplementation in children, which showed 26%–30% reduction in child mortality, Nepal introduced bi-annual vitamin A supplementation across the country. This policy was informed by sustained monitoring and operational research, which led to adaptations to the supplementation program and contributed to the high coverage of vitamin A supplementation (>80%).<sup>1</sup>

One of the most effective components of Nepal's first (2013–2017) and second (2018–2022) MSNP was reaching pregnant women with IFA supplements after a gap was identified in national micronutrient surveys. This policy led to a large increase (6% to 71%) in IFA intake, and declines in neonatal mortality, low birthweight, stunting, and maternal anemia. With new evidence and review of global guidelines, policymakers are now considering replacing IFA supplements with MMS.<sup>1</sup>

## Lessons Learned

- Nepal's collaborative multisectoral approach, led by a national Nutrition Technical Group, has helped unite government ministries and the private sector to achieve greater impact beyond isolated efforts.
- Regular data collection and review are essential to guide evidence-based action. Nepal's frequent representative micronutrient surveys and nutrition modeling have provided valuable datasets that support timely and informed program and policies.
- Increasing the depth and diversity of data sources is necessary for improving a country's understanding of underlying nutrition challenges, identifying gaps, and responding to these problems.

## PATH FORWARD

As Nepal continues to advance its use of micronutrient data, several opportunities for improvement remain. The Nutrition Technical Working Group has expressed a desire to have a central repository of micronutrient survey data to conduct further analysis and view data trends over time. Lila Bikram Thapa, Chief of Nutrition Section at Nepal's Department of Health Service, Ministry of Health and Population, states, "Even though we are reducing micronutrient deficiencies over time, we still have iron-deficiency anemia...you can see a decreasing trend, but it is still a public health problem." Another opportunity is to build the capacity of stakeholders on data interpretation to enhance decision making. There is also a vision to increase the variety of data sources to fine-tune the country's efforts. Pauyda suggests that triangulating data from different sources, including biomarker and food data, can help to determine which programs should be continued or scaled down. Through ongoing monitoring and operational research, Nepal will continue to adapt its policies and programs to ensure that they remain effective in addressing the complex challenges around micronutrient deficiencies.

***"Even though we are reducing micronutrient deficiencies over time, we still have iron-deficiency anemia... you can see a decreasing trend, but it is still a public health problem."***

LILA BIKRAM THAPA, Chief of Nutrition Section at Nepal's Department of Health Service, Ministry of Health and Population



**The Micronutrient Data Innovation Alliance (DInA)** is an alliance of diverse members collaborating to improve the availability, quality, accessibility, and use of data to support national-level decision-makers to better design, implement, evaluate, and optimize programs and policies.

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