

Reducing Anemia in Indian Women and Children

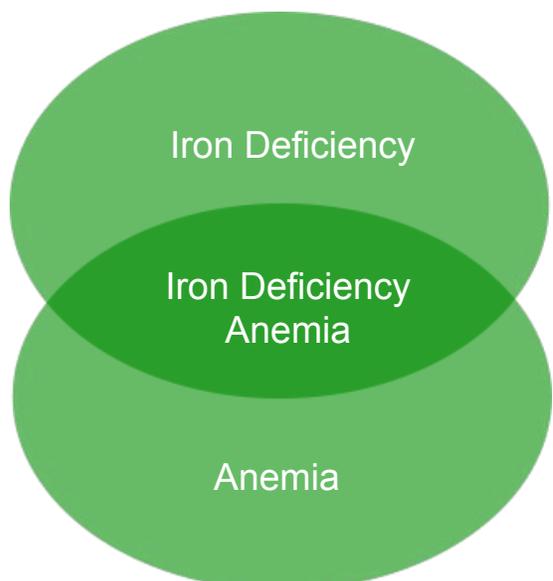
Scaling Up Production and Consumption of Double Fortified Salt

India has regions with some of the highest levels of anemia prevalence among women and children in the world - with no measurable improvement over the past 20 years despite a quadrupling of economic output. A staggering 52% of women of reproductive age and 58% of children under five years are anemic. The human costs are astronomical in terms of loss of energy, illness, reduced cognition and IQ, and loss in productivity. It is a severe public health problem that requires to be addressed urgently. Double Fortified Salt (DFS) presents an opportunity to enhance the iron intakes of low income populations on a sustained basis.

Did you know?

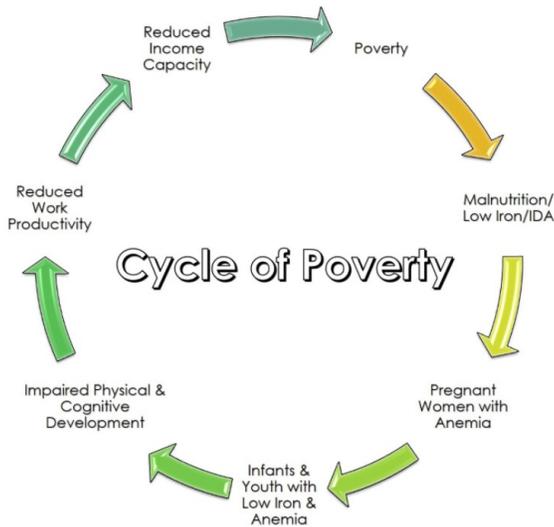
According to the WHO...

- Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs.
- In its severe form, anemia is associated with fatigue, weakness, dizziness, and drowsiness.
- Pregnant women and children are most vulnerable.
- Iron deficiency anemia (IDA) is a condition caused by iron deficiency.
- Other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all aggravate anemia.



Iron Deficiency and Cycle of Poverty

The definition of poverty goes beyond low income and lack of money. It is also reflected in lack of access to health, and basic human rights. Iron deficiency creates poor maternal health, which leads to poor health in their babies as they are born with low iron stores as well as low hemoglobin levels. Anemic children who reach adolescence, are deficient in iron. This condition may be further passed on to the next generation.



Iron deficiency is the main contributor of anemia in India. While iron deficiency results mainly from nutritional deficiency, nutrition status and infection are other important factors that lead to anemia. Deficiency of iron and the resulting IDA poses a significant challenge to public health, the environment and the economy of India. The negative impact of IDA contributes to reduced work productivity in women and poor cognitive development as well as decreased school performance in children. IDA decreases work capacity by as much as 40% and reduces national GDP by more than 1%.

Reducing iron deficiency plays an important role in improving energy efficiency of the body.

Nutrition, mental capacity and, economic growth

According to Global Nutrition Report 2017

The mental capacity enabled by improved nutrition is critical to better futures and faster and more inclusive economic growth – core to achieving SDG 8. Economies and societies depend on the ingenuity of their populations to progress, as much as on their physical strength.

Project Objectives

This policy brief presents highlights of the project titled, “Scaling up the production and distribution of double fortified salt in India.” The fundamental idea of this project is that regular intake of double fortified salt (DFS) will lead directly to improved iron levels in the target population.

The goal of the project is to support the efforts of the Government of Uttar Pradesh(UP) to distribute DFS across the state where approximately fifty percent of women and children are anemic. The scope of the project covers 10 districts where DFS is distributed via the public distribution system (PDS). The project is funded by the Canadian International Food Security Research Fund (CIFSRF), which has financial support from the International Development Research Centre (IDRC) and Global Affairs Canada (GAC). Project implementation and monitoring support is provided by the Tata Trusts through the India Nutrition Initiative (TINI).

Why Salt?

Salt is a unique delivery vehicle. It is universally available, eaten daily through food across all cultures and income levels in small regular quantities, is centrally processed, and very affordable.

Iodised salt is currently consumed by more than 80% of the Indian population daily. The iodine fortification process is very well understood, which makes it easier and more cost effective for integrating iron with salt. DFS, with iron and iodine, utilizes the infrastructure and capacity of the global salt industry and has the potential to reach large populations quickly. The unique global characteristics of salt will help in decreasing maternal and infant mortality and consequently, lead to improved health, environment, and economy.



Specific objectives of the project

1. To scale up the production, distribution, and consumption of double fortified salt (DFS).
2. To test models and approaches to optimize the technology and production process for consumer acceptance and nutritional impact.
3. To inform decision makers, and, actively promote targets to salt processors and consumers.
4. To ensure sustainable DFS production and distribution capabilities of local stakeholders.

Main Project Features

This project builds on evidence from earlier efficacy studies in India that demonstrated significant reduction in iron deficiency among reproductive age women and children. Successful scale-up of this project has been predicated on the following four features:

Access- Availability of DFS to the lowest income population is made possible by the Public Distribution System (PDS) in UP. Through PDS, the lowest income people can buy DFS at Rs. 3 per Kg as compared to the market price of iodised salt at Rs. 8-10 per Kg. The UP program reaches over 20 million people daily – the first time in the world that DFS has been consumed by low-income families at scale. Two more states – Jharkhand and Madhya Pradesh, have added PDS DFS programs. In 2018, over 50 million people across the three states have been consuming DFS daily.

Acceptability- Consumers in UP households have responded positively to the taste of DFS. This has been confirmed by a study on consumer acceptability and taste conducted by the University of Delhi. In addition, the PDS pricing of DFS has rendered it extremely affordable. Consumers across UP have been using the salt for nearly 6 months. Per our field monitors, we have seen essentially 100% take up from the fair price shops.

Product Awareness- Creating awareness of DFS across the state of UP was essential for raising demand of the fortified salt. The awareness program includes reaching out to frontline health workers, fair price shop owners, householders as well as State Government policy makers and program managers.

Public Private Partnership- A very significant aspect of this project is the international public-private partnership. In addition to CFSRF's investment, the project is supported by the Government of Uttar Pradesh (PDS), Tata Trusts (implementation), and salt processing companies, JVS Foods (premix production), and University of Toronto (laboratory development and implementation support).

Public Distribution System

According to the National Informatics Center, the public distribution system (PDS) in India facilitates the supply of food grains and distribution of essential commodities to many poor people through a network of Fair Price Shops at a subsidized price on a recurring basis. The Indian PDS is perhaps the largest network of its type in the world reaching almost 160 million families.

In order for food fortification to provide a meaningful increase in iron intake, the food should reach the consumer for most days and meals. It is also good to reach entire families. PDS thus presents a unique channel to have maximum impact.



Monitoring and Evaluating Impact

For this project, the state government of UP selected 10 districts to rollout the DFS program. The project has since expanded to the States of Jharkhand and Madhya Pradesh. A critical indicator for measurement is regular utilization of intake by the beneficiary population at levels necessary to ensure its effectiveness in reducing Iron Deficiency Anemia. To support this, continuous availability across all project districts, quantities purchased, consumed, and consumer acceptance are also being tracked.

The long-term objective is to develop a monitoring and evaluation framework for coordinated action towards reducing Iron Deficiency Anemia by the distribution of DFS through public sector channels. The primary health outcome on iron, iodine status, anemia, and deficiency will be evaluated across a section of women and children following continuous consumption of DFS for 12 months. This study is funded by the Bill and Melinda Gates Foundation and implemented by the Global Alliance for Improved Nutrition (GAIN) and St John's Research Institute (SJRI). The baseline survey has already been completed.

Policy implications

The main objective of this project is to address iron deficiency and anemia by scaling up the production and consumption of DFS in India. The process of scaling up production is now underway with the collaboration of Tata Trusts and JVS Foods. To achieve the full benefits of DFS and to address IDA in India, the following are recommended:

Promotion of DFS through public sector

Double fortified salt should be included by State Governments in the PDS to reach vulnerable population by scaling up and replicating the UP DFS model along with regular monitoring of its use and impact. States should also promote the use of DFS in nutrition programs like the Integrated Child Development Scheme and the Midday Meal Program. In addition, the capacity of public officials, frontline workers, and PDS shop owners should be enhanced for better comprehension of the impacts of DFS distribution.

Promotion of DFS through commercial channels

The government should create a business case for private industry and cooperatives via its policy on supporting DFS. A clear policy would promote both the salt industry to manufacture iron fortified iodized salt, as well as capital investment in research and upgradation of DFS technology, thereby increasing DFS production and supply.

Creating awareness about anemia and DFS

The government and private sector should collaborate to campaign about the positive impact of DFS. A strategic communication plan should include households, women, school children as well as local retailers. In addition, the campaign should include awareness on better hygiene and sanitation. Active campaigns on the positive impact of DFS could encourage demand creation in local markets.



References

- National Guidelines for Control of Iron Deficiency Anaemia. 2013. Ministry of Health and Family Welfare Government of India.
- Lawrence Haddad. The 2017 global nutrition report: Nourishing the SDGs. Development Horizons Website.
- Haas JD, Rahn M, Venkatramanan S, et al. Double-fortified salt is efficacious in improving indicators of iron deficiency in female Indian tea pickers. *The Journal of nutrition*. 2014;144 (6):957-964.
- Fuessi HS. Iron deficiency anaemia. *MMW Fortschritte der Medizin*. 2014;156(3):55-57.
- Stoltzfus RJ. Iron deficiency: Global prevalence and consequences. *Food Nutr Bull*. 2003;24 (4):S103.
- Diosady LL, Alberti JO, Ramcharan K, Mannar MG. Iodine stability in salt double-fortified with iron and iodine. *Food Nutr Bull*. 2002;23(2):196-207.

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