

Assessment of the Pilot Scheme on Fortification of Rice and its Distribution under the Public Distribution System in Malkangiri District of Odisha



World Food Programme

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Baseline Report

Submitted to

Food Supplies and Consumer Welfare Department
Government of Odisha

August 2022

Acknowledgements

The assessment team is grateful to the Government of Odisha for extending all the support, including sharing data and information, to develop this baseline assessment report. We also thank them for sharing their valuable feedback on the report to finalize it. Our gratitude to WFP Deputy Country Director and the programme team for sharing their feedback and inputs, which has helped improve the report. Our special thanks to WFP Odisha team for coordinating with the state government to access data and materials for this report.

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Table of Contents

Executive Summary	i
Chapter-1: Introduction	1
Background	1
Pilot Scheme on Rice Fortification	2
Purpose and Rationale of the Baseline	5
Scope of the Evaluation	6
Objectives	6
Chapter-2: Results and Discussion	7
Anaemia Status Among Children, Women and Men	7
Cultural Norms and Consumption of Iron-Rich Food	9
Food Safety Net Coverage in the Malkangiri District	10
Production of Fortified Rice in Malkangiri district	11
Estimates of RDA based on potential coverage and consumption of fortified rice received from the government schemes	11
Acronyms	12
Annexes	13
Annexure Table-1.1.1: Demographic and socio-economic status of the population	13
Annexure Table-2.1.1: Analysis of NFHS-5 Unit Level Data for the Malkangiri District	14
Annexure Table-2.1.2: Anaemia Status in Malkangiri District and Odisha	15
Annexure Table-2.1.3: Prevalence of Anaemia in Children (6-59 months) in Malkangiri District, by Sex	15
Annexure Table-2.1.4: Children (6-59 months) and Women (15-49 years) Anaemia Status by Districts in Odisha	15
Annexure Table-2.2.1: Iron Rich Food Consumed among Children (6-23 months) by Age in Months-Malkangiri district	16
Annexure Table-2.2.2: Iron Rich Food Consumed by Women (15-49 years) in Malkangiri District	17
Annexure Table-2.2.3: Iron Rich Food Consumed by Men (15-49 years) in Malkangiri District	17
Annexure Table-2.3.1: Types of ration card holders in Malkangiri district (July 2021)	17
Annexure Table-2.3.2: Block-wise/ULB wise coverage of the beneficiaries for the Malkangiri district covered under the pilot scheme for rice fortification	18
Annexure Table-2.3.3: Rice Allotment under Different Schemes in the Malkangiri District, July 2021	18
Annexure Table-2.3.4: Indicators on blending capacity, HR availability and Lab-testing facilities	19
Annexure Table-2.3.5: Calculations based on Allocation of fortified foods under various food safety net schemes	19

List of Tables

Table 1: Recommended Levels of Nutrients for Fortification by FSSAI	5
Table 2: Anaemia Threshold as per NFHS-5 (in g/dL)	7
Table 3: Prevalence of Anaemia by Demographic Groups	7
Table 4: Anaemia in adults by demographic group and severity – Malkangiri district.....	8

List of Figures

Figure 1: Location of Malkangiri District in Odisha	2
Figure 2: Process of Rice Fortification	4
Figure 3: Severity of anaemia in children 6-59 months, Malkangiri district.....	8

Executive Summary

Context

1. Malnutrition (macro- and micro-nutrient deficiencies and excess) often go unnoticed and has a long-lasting consequence on the population. Globally, iron deficiency is a foremost cause of anaemia. According to the World Health Organisation, “*Anaemia is a condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal*”¹. Anaemia reduces haemoglobin’s capacity to carry oxygen to the body’s tissue and results in fatigue, weakness, dizziness and shortness of breath.
2. Nutritional deficiencies, particularly iron deficiency, is a common factor leading to anaemia in addition to deficiencies in folate, vitamins B12 and A; haemoglobinopathies; or infectious diseases, such as malaria, tuberculosis, HIV and parasitic infections.². Anaemia, identified as a serious global public health problem, affects 42.0 percent of children less than five years of age and 40.0 percent of pregnant women worldwide (WHO estimates).
3. Iron deficiency anaemia is the most common form of anaemia in Odisha. There are many biological and social factors in the state that contribute to anaemia such as, iron loss during menstruation among adolescent girls, higher iron requirements among pregnant women for foetus growth and development, societal and gender norms affecting nutritional intake and incidence of malaria. Within Odisha, the *Malkangiri district* is a dense, hilly, forested region in the southern part of the state, bordering Chhattisgarh and Andhra Pradesh. This is a tribal-dominated district, with 1,137 females per 1,000 males, and yet with a high prevalence of anaemia.
4. Food fortification is a proven complementary strategy to overcome micronutrient deficiency along with diet diversification, micronutrient supplementation, health education, and public health measures. The World Food Programme (WFP) India has undertaken several demonstration projects with the state governments of Odisha to showcase the impact, operational feasibility and cost efficiency of rice fortification on children’s health and nutrition.
5. The Government of India approved the “**Centrally Sponsored Pilot Scheme on Fortification of Rice and its Distribution through the Public Distribution System**” from 2019-2020 for three years, to expedite India’s progress towards nutrition security. This pilot scheme was a vital step to address micronutrient deficiencies, and especially anaemia, among the most vulnerable populations.
6. To address the issue of high levels of anaemia in the district, the Government of Odisha (GoO) launched the Centrally Sponsored Pilot Scheme in July 2021 to introduce fortified rice into the Targeted Public Distribution System (TPDS) in *Malkangiri* district. This district is an aspirational district with a preference for rice consumption and a high prevalence of anaemia among children and women.
7. The key objectives of the pilot scheme are to: (i) distribute fortified rice through PDS and cover all the National Food Security Act (NFSA) beneficiaries under it; (ii) evaluate the provision, coverage and utilization of fortified rice by the target population; (iii) evaluate the efficiency and effectiveness of the consumption of fortified rice in reducing the targeted micronutrient deficiencies in different age and gender groups. For implementing the pilot scheme, five components are identified. These are:

¹ https://www.who.int/health-topics/anaemia#tab=tab_1 accessed on July 27, 2022.

² *ibid.*

- **Fortification of rice in the PDS at the state level:** blending of fortified rice kernels to regular rice in the ratio of 1:100.
 - **Capacity building and training of the rice millers are essential** to develop their understanding of their roles and responsibilities for mainstreaming fortified grains in the welfare schemes.
 - **Information, education, and communication for the success of the pilot scheme** through developing the concept of availability of fortified rice from the government safety net programmes.
 - **Quality control and Quality assurance** by the Food Safety and Standards Authority of India (FSSAI) and its food safety officers from procurement to distribution of fortified rice at fair price shops (FPS).
 - **Monitoring and Evaluation is an essential component** to generate evidence by assessing the programme's quality of implementation and delivery to its target beneficiaries.
8. As per the operational guidelines, the standards of fortification per kilogram for nutrients specified by FSSAI are:

Nutrients	Level of fortification per kg
Iron - Ferric Pyrophosphate	28 mg - 42.5 mg*
Iron - Sodium Iron (III) Ethylene Diamine Tetra Acetate Trihydrate (Sodium ferredetate - Na Fe EDTA)	14 mg - 21.25 mg
Folic Acid - Folic acid	75 µg - 125 µg
Vitamin B12 - Cyanocobalamine or Hydroxycobalamine	0.75 µg - 1.25 µg

9. WFP has also been providing support to the Government of Odisha to implement the Centrally Sponsored Pilot Scheme, including:
- **December 2019:** Conducted an initial assessment of 23 rice mills to gauge their capacity to produce fortified rice and then provided technical assistance for setting up the required blending equipment.
 - **March 2020:** Organised a capacity-building workshop for the 27 rice millers and 12 government officials (district officials).
 - **December 2020:** Participated in the Technical Advisory Group (TAG) meeting to provide inputs on the way forward in implementing the rice fortification project in the Malkangiri district.
 - **February 2021:** Conducted a trial validation of the equipment installed in the rice mills and checking the quality of fortified rice produced. WFP confirmed to the government that the system was ready to produce fortified rice.
 - **2021:** Supported the development of the Information, Education and Communication (IEC) materials at the national level for rice fortification, which was later translated into the Odia language for the state and district.
10. Both baseline and endline assessments are required to generate evidence and to learn from this pilot scheme. As the National Family Health Survey-5 (NFHS) coincided with the start of the pilot scheme and contained information on the biomarker (anaemia), the NFHS-5 data were analysed to develop this baseline report. To analyse the effectiveness of the pilot scheme on addressing anaemia among the TPDS beneficiaries, primary data will be collected during an endline assessment to measure any change in anaemia due to the pilot scheme.

Scope and Objectives of the Assessment

11. In Malkangiri district, the centrally sponsored pilot scheme covered seven blocks and 2 urban local bodies (ULBs) and allocated around 30,858 quintals of fortified rice (22,085.6 quintals of rice for Priority Households³ and 8,772.4 quintals of rice for Antyodaya Anna Yojana households per month) through 117 FPS (as of July 2021). Fortified rice was also allocated through other schemes such as the State Food Security Scheme (SFSS), and Annapurna scheme.
12. There are two objectives of the baseline assessment:
 - To assess anaemia levels among (i) children aged 6 to 59 months; (ii) women aged 15 to 49 years and (iii) men aged 15 to 49 years in Malkangiri district using NFHS-5-unit level data.
 - To generate baseline evidence on the coverage/distribution of the rice/fortified rice through PDS and enabling factors contributing to implementing the pilot programme in the district using secondary records/government reports.

Data Sources and Time Period

13. The baseline report used data from NFHS-5 for the Malkangiri district which was collected between December 2020 to February 2021. Information was collected from 916 households, 1,080 women and 137 men. The anaemia and consumption analysis covers the following target groups: (i) children aged 6 to 59 months; (ii) women aged 15 to 49 years and (iii) men aged 15 to 49 years. The baseline also used data from other sources such as from the Food Supply and Consumer Welfare Department (FSCW), Government of Odisha; Civil Block and ULB data on beneficiaries from Supplies Office-Malkangiri district.

Target users

14. The intended users of this baseline report include the District Administration of Malkangiri; Food Supply Department of the Government of Odisha; the Department of Food and Public Distribution, Government of India; other state governments implementing the pilot scheme on rice fortification; WFP, and national and international Non- Government Organisations (NGOs) working in the rice fortification domain.

Key Findings and Conclusion

15. Based on the analysis, the baseline **prevalence of any anaemia in children** 6-59 months of age was 77.1 percent: 1.8 percent with severe anaemia⁴, 38.3 percent with moderate and 37.0 percent with mild anaemia. The prevalence of anaemia was distributed highest in

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