

TELANGANA

THE CENTRALIZED

Take Home Ration Delivery Model

State Owned, Vertically Integrated, Industrial Scale Fortified
Take Home Ration Production



At A Glance



50+ Years

Uninterrupted Nutrition
Manufacturing
Operations



300 MT

Daily Production Capacity
(Combined, Both Plants)



6,000 MT

(3800 Andhra Pradesh
and 2200 Telangana)
Monthly Supply Across
Two States



~19.6 Lakh

Beneficiaries (6-36 months)
Reached Monthly in Andhra
Pradesh and Telangana



**149 Telangana +
257 Andhra Pradesh**

ICDS Projects Served
Across Two States



ISO 22000

2018-Certified
Manufacturing Facility



2,200 MT
Balamrutham and
200 MT
Balamrutham Plus

Monthly Supply
Within Telangana



3,800 MT

Monthly supply of
Balamrutham to Andhra
Pradesh



**35700 Telangana
55746 Andhra Pradesh**

ICDS Centres Supplied

Model Type

Centralised- Single state-owned public enterprise operating at industrial scale;
ISO 22000:2018 certifie

Production Facility

Telangana Foods, Hyderabad; established 1971; 200 MT/day main plant + 100
MT/day second plant on same premises

Technical Partners

ICMR-NIN | GAIN | CFTRI | CARE | UNICEF
Govt. of Telangana WDCW

BACKGROUND AND INSTITUTIONAL EVOLUTION

The Telangana Take-Home Ration (THR) delivery model is rooted in one of India's oldest and most enduring state-supported nutrition product manufacturing systems. Its origins date to 1971, when the Government of undivided Andhra Pradesh established a food processing facility at Hyderabad with support from CARE to produce nutritious foods for school feeding and child nutrition programmes, making it a foundational institution in India's public nutrition architecture.

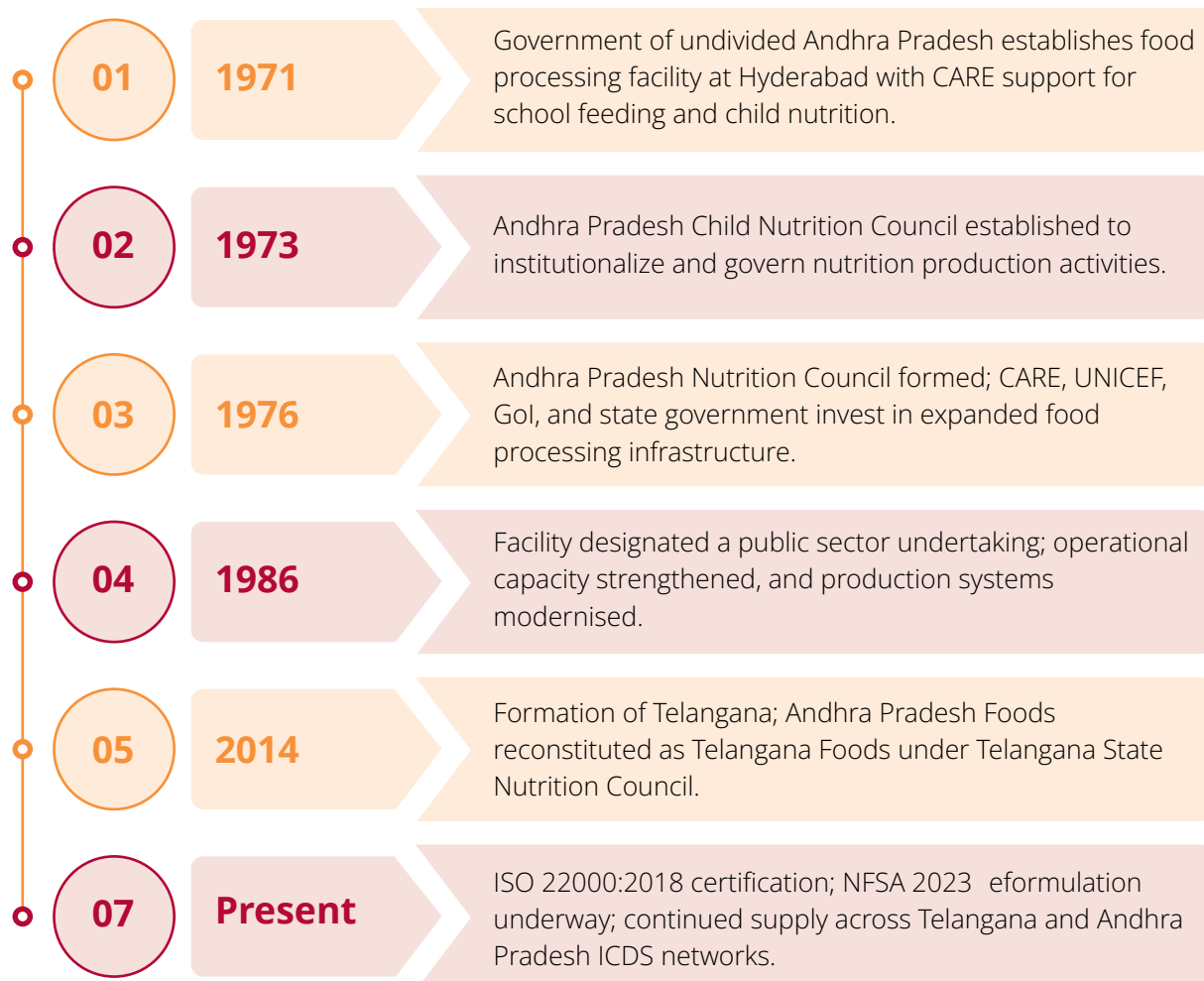
To institutionalise these efforts, the Andhra Pradesh Child Nutrition Council was established in 1973, followed by the Andhra Pradesh Nutrition Council in 1976. With financial and technical support from CARE, UNICEF and the state government, substantial investments were made in food processing infrastructure and modern production technologies. This support enabled the facility to expand from a school feeding initiative into a large-scale producer of fortified foods for children, pregnant women, and lactating mothers. In 1986, it was formally designated as a public sector undertaking, strengthening its operational capacity and enabling continued modernisation of production systems.

Following the bifurcation of Andhra Pradesh and the formation of Telangana in 2014, Andhra Pradesh Foods was reconstituted as Telangana Foods under the Telangana State Nutrition Council. The organisation retained its core mandate of producing and supplying nutritious food products for government welfare programmes while aligning its operations with the state's evolving nutrition priorities. Today, Telangana Foods functions as an ISO 22000:2018-certified government enterprise, operating large-scale production facilities and supplying fortified food products to ICDS beneficiaries across both Telangana and Andhra Pradesh.

The evolution of the THR model in Telangana reflects a gradual transition from externally supported nutrition interventions to a fully institutionalised, state-owned production and distribution system. Through sustained public investment, technological modernisation, and development partner support during its formative years, the model has developed into a mature nutrition delivery platform capable of supplying supplementary nutrition at industrial scale, while simultaneously undertaking product reformulation to align with the revised requirements under the National Food Security Act (NFSA) 2023.¹ Figure 1 describes the evolution of Telangana Foods over the years

¹ Under the National Food Security Act (NFSA), the revised Schedule-II nutritional norms introduced in January 2023 update the standards for THR. These guidelines shift from simple calorie counting to diverse, balanced nutrition, supplying quality proteins, healthy fats, and key micronutrients like iron, zinc, calcium, and vitamins for young children and mothers

Figure 1: Institutional Timeline



SECTION 2

PROGRAMME SCALE AND BENEFICIARY COVERAGE

Telangana Foods serves a broad and differentiated beneficiary population spanning multiple age groups and nutritional vulnerability categories. The programme delivers a stratified nutrition intervention model, moving away from a single universal product toward an evidence-based, need-differentiated approach aligned with NFSA 2023 standards in the form of Balamrutham plus.

Beneficiary Group	Product and Supplement	ICDS beneficiaries covered
Children 6-36 months	Balamrutham (2.5 kg/month) + 30 eggs/month by WDCW dept	~19.6 lakh
SAM and MAM Children (under 5 years)	Balamrutham Plus (weight-based dosage) + 30 eggs/month by WDCW dept.	4,49,135

Geographic Reach (Normal Balamrutham)

TELANGANA	Andhra Pradesh
2,200 MT per month 8.23 Lakh+ beneficiarie across 149 ICDS centres	4,000 MT per month 11.42 Lakh beneficiarie 257 ICDS centres across 13 districts

SECTION 3

OPERATIONS AND PRODUCTION SYSTEM

What distinguishes the Telangana THR model above all is its reliance on a single, state-owned, vertically integrated manufacturing system, encompassing procurement, production, quality assurance, and distribution, rather than the decentralised or contractor-dependent models prevalent in many other states.

The facility operates from its manufacturing premises at Hyderabad on a round-the-clock basis. The main plant processes approximately 200 metric tonnes per day, and a second plant with a capacity of 100 metric tonnes per day operates on the same premises, together enabling large-scale fortified supplementary nutrition supply across two states.

As a state-owned public sector undertaking operating under a public-service mandate, Telangana Foods is not driven by commercial profit objectives. Its pricing and production decisions are oriented toward programme requirements and beneficiary coverage rather than market returns, with the state government providing institutional and financial backing as required. This structure insulates quality and supply decisions from the commercial pressures that can constrain privately operated nutrition suppliers, a structural advantage that has proven especially consequential during periods of supply chain stress. Figure 2 summarizes the production cycle of THR at the facility

Figure 2: THR production process



Production for THR follows a multi-stage process of cleaning, pre-processing, roasting, including sand roasting of key ingredients at temperatures of 130 degrees C to 180 degrees C, milling, batch mixing, fortification, and packaging. Mechanised systems, including extruder plants and vibratory sieve feeders, process ingredients according to standardised formulations before packing for distribution. Dedicated quality-control laboratories test raw materials, in-process batches, and finished products at each stage, ensuring consistency, food safety, and nutritional compliance throughout the production cycle.

SECTION 4

SUPPLY CHAIN ARCHITECTURE

What makes the Telangana THR supply chain particularly notable is its end-to-end state ownership, from inbound raw material procurement through to last-mile delivery to beneficiary departments, providing a level of quality control, accountability, and operational continuity that few comparable nutrition programmes achieve at this scale.

Telangana Foods procures raw materials through a combination of government allocations and quality-based e-procurement processes. Wheat is sourced from the Food Corporation of India (FCI) under government allocation and transported directly to production and storage facilities. Key ingredients, including superior quality Bengal gram dal, skimmed milk powder, sugar, and edible oil procured along with vitamins and minerals, are sourced through a competitive e-tendering system. All raw materials, packaging materials, vitamins, and minerals are tested by Telangana Foods before acceptance into inventory, ensuring compliance with prescribed specifications at the point of induction.

Telangana Foods also operates a two-way beneficiary feedback mechanism. The facility maintains a dedicated team which call the beneficiaries to ask questions about the product or check distribution issues directly. Beneficiaries could also call the helpline in case of a grievance. This feedback mechanism is institutionally significant; it signals accountability to the beneficiary rather than solely to the government's procurement system, and it generates real-time quality intelligence.

The centralised supply chain model delivers clear systemic advantages: standardisation of product quality, economies of scale in procurement, and uniform implementation across geographies. These advantages were most visibly demonstrated during the COVID-19 pandemic, when Telangana Foods maintained uninterrupted distribution at a time when decentralised supply models across many states faced significant disruption, a compelling demonstration of the resilience of state-owned, vertically integrated nutrition delivery systems. Figure 3 summarizes the supply chain process adopted at Telangana Foods.

Figure 3: Supply chain of THR from Telangana Foods



INBOUND

- ◉ Wheat from Food Corporation of India (FCI) godowns
- ◉ Bengal gram dal - (e-tender)
- ◉ Skimmed milk powder (procured from Government cooperative federations), sugar, edible oil (e-tender)
- ◉ Vitamins, minerals, and packaging materials

Raw materials are tested before taking in for production

OUTBOUND

- ◉ Direct dispatch to ICDS beneficiary departments
- ◉ 2,200 MT/month within Telangana; 4,000 MT/month to AP
- ◉ Telangana Foods manages transport directly (no third-party)
- ◉ Biometric authentication at AWC level

Poshan Tracker integration for beneficiary distribution

SECTION 5

THE FORMULATION AND PRODUCT PORTFOLIO

Telangana Foods produces Balamrutham and its therapeutically enhanced variant Balamrutham Plus as its core THR products, distributed as 2.5 kg monthly packets to eligible beneficiaries. The product design reflects decades of iterative reformulation, with current work focused on aligning both products with NFSA 2023 requirements, including protein ratio improvement, sugar reduction, and age-specific differentiation. Below are the key characteristics of both- balamrutham and balamrutham plus.

Target Group

Balamrutham: Children 6-36 months (standard)

Balamrutham Plus: SAM and MAM children (all age groups under 5)

Base Composition

Balamrutham: Roasted wheat, chana dal, skimmed milk powder, sugar, edible oil

Balamrutham Plus: Modified base: increased skimmed milk, added groundnuts and rice flours, reduced wheat flour

Protein Content

Balamrutham: Standard formulation (~11g/100g pre-reform)

Balamrutham Plus: Reformulated to approx. 18g/100g; a 64% increase supporting therapeutic nutritional needs

Sugar Content

Balamrutham: Standard level

Balamrutham Plus: Reduced from 20g to 5g per 100g, aligned with WDCW advisory; high acceptability confirmed by NIN sensory evaluation

Fortification

Balamrutham: Iron, Vitamin A, B1, B2, C, folic acid, niacin; 50% RDA per 100g serving

Balamrutham Plus: Enhanced micronutrient profile; 2:1 cereal-to-pulse ratio per NFSA 2023

Energy Density

Balamrutham: High :suitable for supplementary feeding of 6-36 month age group

Balamrutham Plus: Optimised for SAM/MAM therapeutic requirements; higher protein density

Pack Size

Balamrutham: 2.5 kg per month (100 gms/day for 25 days) **Cost:** INR 57/kg

Balamrutham Plus: Weight-based dosage per child's nutritional assessment **Cost:** INR 107/kg

NFSA 2023 Status

Balamrutham: Reformulation in progress

Balamrutham Plus: Reformulation completed; 2:1 cereal-pulse ratio achieved

SECTION 6

MODEL STRENGTHS

The core strength of the Telangana model resides in its capacity to combine institutional stability, large-scale production capacity, rigorous quality assurance, data-driven governance, and reliable last-mile delivery within a single government-owned system. This integrated architecture enables standardisation, operational continuity, and efficient delivery of supplementary nutrition service at industrial scale, qualities that are inherently difficult to replicate in contractor-dependent or fragmented delivery models. Below points encapsulates the strength of Telangana Foods:

Five-Decade Institutional Legacy

Telangana Foods has been supplying nutrition products since the early 1970s making it one of the longest-running state-owned nutrition manufacturing systems in India. This continuity has enabled the state to accumulate deep technical expertise, institutional memory, and operational credibility that no recently established system can replicate.



Rigorous Food Safety and Quality Control

Telangana Foods operates an ISO 22000:2018-certified facility with in house laboratories that test raw materials, fortificants, packaging materials, and finished products before distribution. Quality assurance is embedded throughout the production cycle not applied solely at the point of final product release.



Industrial-Scale Supply Continuity

The COVID-19 pandemic demonstrated the model's resilience: Telangana Foods maintained uninterrupted distribution at a time when decentralised supply models across many states faced significant disruption. The combination of state ownership, vertical integration, and round-the-clock operations provides supply continuity that externally dependent models cannot guarantee.



Competitive Procurement with Centralised Oversight

Key ingredients such as Bengal gram dal, skimmed milk powder, sugar, and edible oil are procured through competitive e-tendering, ensuring transparency, quality compliance, and competitive pricing at scale. Wheat is sourced from FCI under government allocation, providing price stability for the primary base ingredient.



Uniform Statewide Product Quality

Centralised production ensures that beneficiaries across all districts receive the same formulation, nutritional composition, packaging standards, and quality specifications, eliminating the batch-to-batch variability that characterises decentralised production systems and undermines programme credibility.



Integrated procurement, inventory management, and logistics systems support timely production and distribution. Direct transport management by Telangana Foods provides end-to-end traceability not available in models relying on ICDS logistics or third-party distributors. Biometric authentication at AWC level and Poshan Tracker integration extend traceability to the point of consumption.



Reformulation of Balamrutham Plus to achieve a 2:1 cereal-to-pulse ratio, increasing legume and milk powder content, raising protein from approximately 11g to 18g per 100g, and reducing sugar from 20g to 5g per 100g demonstrates a rigorous, evidence-led approach to product improvement validated through NIN sensory evaluation.



SECTION 7

TECHNICAL PARTNERSHIP ARCHITECTURE

Telangana Foods' technical partnership architecture spans more than five decades, reflecting a sustained pattern of external expert engagement that has been instrumental to the institution's continuous improvement. Partnerships have evolved from foundational infrastructure establishment in the 1970s to ongoing product reformulation and NFSA 2023 compliance work today.

National Nutrition Institute (NIN)

Role and Contribution: Institutional research partner providing food science expertise for product formulation and reformulation. Conducted sensory evaluations on reformulated Balamrutham Plus, confirming high acceptability despite reduced sugar content.

UNICEF

Role and Contribution: CARE and UNICEF founding partners in the establishment of Telangana Foods in the 1970s; supported the original facility setup and programme design. UNICEF's engagement with Telangana Foods spans nearly five decades, beginning in the 1970s when it partnered with CARE to support the establishment of the Hyderabad facility and lay the technical and infrastructural foundation for the state's nutrition manufacturing system. Over time, this role has evolved from institution-building to technical support, including serving as the technical partner in developing Balamrutham Plus in 2020, a therapeutic product for children with Acute Malnutrition. More recently, UNICEF has supported Telangana Foods in transitioning to NFSA 2023, including reformulation to meet revised protein and sugar standards, strengthening packaging compliance, and improving last-mile delivery systems for THR

Govt. of Telangana Women Development and Child Welfare (WDCW) Department

Role and Contribution: State-level execution and monitoring authority; manages procurement relationships, oversees ICDS project coordination, and provides the government mandate and funding that sustains the non-profit operating model.

Food Corporation of India (FCI)

Role and Contribution: Supplies wheat as the primary base ingredient through a regulated government channel, providing price stability and supply continuity for the most significant raw material input.

SECTION 8

FINANCIAL ARCHITECTURE

From its origins in the early 1970s, Telangana Foods has operated as a non-profit public enterprise manufacturing food for government welfare schemes, reimbursed through a defined service contract model. Any income over expenditure is reinvested into plant maintenance and improvement; in the event of a shortfall, the organisation absorbs losses through its corpus. This structure provides financial sustainability without profit extraction, while maintaining the operational discipline of a defined cost framework.

The facility today generates an annual turnover of approximately ₹ 300 crores, with an operating surplus of ₹ 4-5 crore that is fully reinvested into operations. The average cost of production stands at ₹ 61/- per kg of finished product, against a government reimbursement rate of ₹ 61/- per kg, a margin that has historically been sufficient to sustain operations. Below is the unit cost break up for Balamrutham produced at Telangana Food.

Unit Cost Structure

Cost Component (Balamrutham)	% of Total	INR/kg
Production / Raw Materials	80-85	49/-
Transport and Distribution	5-6	3/-
Administration and Overhead	10-15	9/-
Total Cost per Beneficiary per kg		61

Way Forward: Towards Financial Resilience and Broader Impact

Telangana Foods' long-term sustainability should not rest solely on THR production. The facility's ISO 22000:2018 certification, industrial-scale automated production, five decades of formulation expertise, and FSSAI compliance constitute a commercial asset base that extends well beyond its current welfare mandate. Five strategic directions offer a credible path toward financial resilience.

01

Telangana Foods could manufacture fortified blended foods and supplementary nutrition products for neighbouring states on a contract basis, generating revenue from spare capacity without altering its core mandate. With NFSA 2023 increasing demand for technically validated production facilities, states lacking established infrastructure offer a potential market. This should, however, be governed by clear safeguards to ensure commercial orders do not compromise priority welfare-scheme supplies, particularly during demand spikes or emergencies, and that any cross-subsidisation supports rather than dilutes the institution's public-service mandate.



02

Five decades of institutional knowledge in formulation, quality management, and supply chain design is a marketable asset. Telangana Foods could offer expertise in formulation development, quality protocol design, and operational training to states establishing new THR facilities or reformulating existing products for NFSA 2023 compliance, positioning itself as the national reference facility for centralized/contract based THR models and generating revenue from expertise.



03

Telangana Foods' quality testing infrastructure could be offered as an accredited testing service to food producers in the region, including small and medium enterprises, other state THR producers, and private food manufacturers seeking FSSAI compliance verification. This monetises a fixed-cost asset that is already operational, with marginal additional investment required.



04

The most transformative option is bringing Telangana Foods' formulations to the open market. The products are already formulated, production-tested, and community-validated, adapted for retail; they map directly onto the fast-growing mother and child nutrition segment, where demand for affordable, scientifically grounded fortified foods remains underserved. A retail presence would also establish the facility's national profile.



SECTION 9

KEY LESSONS FOR REPLICATING STATES

The Telangana model offers the most complete available illustration of what a well-functioning centralised THR system can achieve. Its lessons for replicating states are not primarily about production design, they are about the conditions that make quality and scale simultaneously sustainable.

National technical resource for Centralised THR models

Telangana Foods has the institutional depth to function as a central technical resource for states building or reforming centralised THR systems, offering formulation expertise, quality protocols, production learnings, and NFSA 2023 compliance pathways that other states are currently trying to develop from scratch. The barrier is not capability but visibility: the facility's knowledge has not been systematically packaged or disseminated beyond its immediate operational mandate, and its potential as a national reference point remains largely unrealised.

Invest in Quality-Control Infrastructure, Not Just Production Infrastructure

Telangana Foods established dedicated quality-control laboratories that test raw materials, fortificants, packaging materials, and finished products before release. This embedded quality architecture, rather than end-of-line testing, has enabled the state to maintain consistent standards across large production volumes for decades.



Build Technical Partnerships That Can Support Ongoing Nutrition Reformulation

Sustained collaboration with NIN, CFTRI, ICMR, and UNICEF has enabled continuous improvement of product formulations. This capability has become particularly critical for aligning products with NFSA 2023 recommendations on reduced sugar content, improved protein ratios, and age-specific differentiation.



Treat NFSA 2023 Compliance as a Technical Transition, Not a Procurement Change

Telangana has responded to revised national nutrition standards by investing in product reformulation, laboratory testing, and rigorous technical validation. The experience demonstrates that compliance requires scientific expertise and sustained product development capacity, not merely revised procurement specifications.



Standardise Production Before Attempting Scale

Telangana Foods operates through fixed formulations, standard operating procedures, and controlled manufacturing processes. This standardisation has enabled the state to deliver nutritionally uniform products across districts while substantially reducing the variability that frequently undermines decentralised production systems.



Integrate Quality Assurance Throughout the Production Cycle

Rather than relying solely on end-product testing, Telangana applies quality checks at multiple production stages, including raw material procurement, processing, fortification, packaging, storage, and dispatch. This multi-stage architecture substantially reduces the risk of quality failures reaching beneficiaries.



Use E-Procurement to Strengthen Ingredient Quality and Price Transparency

Key ingredients such as red gram dal, skimmed milk powder, sugar, and edible oil are procured through competitive tendering, strengthening supplier accountability, ensuring input standardisation, and maintaining cost competitiveness without sacrificing quality specifications.



Continuously Modernise Even Mature Systems

Despite operating for over five decades, Telangana Foods continues to invest in process improvements, quality systems, and product reformulation. The ongoing alignment with NFSA 2023 standards demonstrates that even the most mature delivery systems require continuous technical adaptation, institutional longevity is not a substitute for ongoing investment.



Match the Model to State Fiscal Capacity and Beneficiary Population Size

The centralised model requires substantial upfront capital investment. The investment case is strongest where beneficiary populations are large enough to justify fixed infrastructure costs and where WDCW has the institutional capacity to manage procurement, quality oversight, and distribution relationships at scale. The Telangana Foods model should be understood as a long-term institution-building model rather than a production facility that can be replicated quickly. Its current capabilities reflect more than five decades of institutional development, including established production infrastructure, FCI-linked raw material supply, quality-management systems, certification and technical capacity. Therefore, for a state starting from zero, replication should be planned as a phased process.



Design Beneficiary Engagement and Behaviour Change Communication into the Programme from the Outset

Suboptimal utilisation of THR remains a key programme risk. Evidence from Telangana has shown that intra-household sharing, product monotony and misconceptions can limit consumption by the intended beneficiary.^[2] Earlier evidence found that although coverage was high, sharing was widespread and children consumed substantially less than the intended quantity.^[3]

This creates a risk that distribution and coverage may overstate the actual nutritional benefit reaching the target child. States should therefore strengthen monitoring beyond receipt of THR to capture who consumes the product, how much is consumed, frequency of consumption and reasons for non-consumption or sharing. These findings should be used to guide product diversification and reformulation, clearer preparation and consumption messaging, and targeted behaviour-change communication. Periodic beneficiary feedback should also be institutionalised so that emerging issues with taste, acceptability or perceptions are identified and addressed before they translate into sustained declines in utilisation.



² Dasi T, Augustine LF, Banjara SK, et al. Unpacking the Perceptions on Take Home Rations for Under-3 Children in Telangana State: Insights from the STAR Trial. Indian Pediatrics, 2025.

³ Leyvraz M, Wirth JP, Woodruff BA, et al. High Coverage and Utilization of Fortified Take-Home Rations among Children 6–35 Months of Age Provided through the Integrated Child Development Services Program: Findings from a Cross-Sectional Survey in Telangana, India. PLOS ONE, 2016;11(10).

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