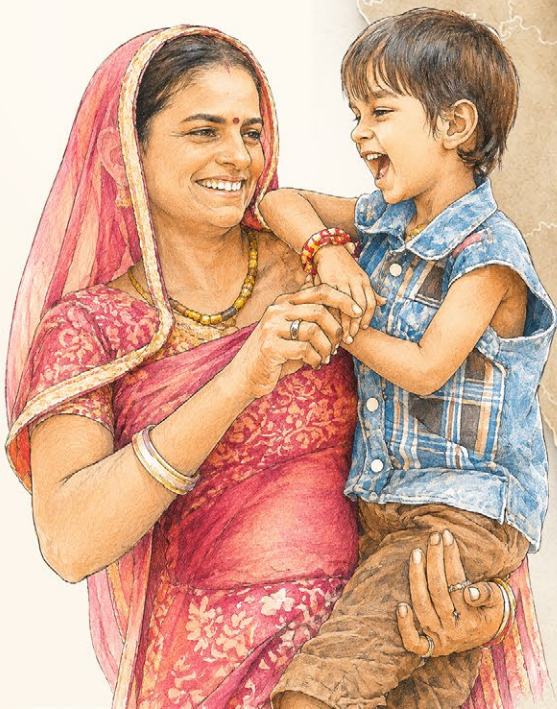


UTTAR PRADESH

Decentralised Take Home Ration Delivery Model

Community-Owned Fortified Food Production for
Maternal, Child and Adolescent Nutrition



At A Glance



204

THR
Production
Units



4,000+

Self Help Group (SHG)
Women Employed
(240 days/year)



77,642

Anganwadi Centres in
Coverage Network



7.2 Million +

Beneficiaries
Currently Covered



5 MT

Finished THR Output
per Unit per Day

Model Type

Decentralised **Cluster level Federation (CLF)** led
SHG micro-enterprise production

Production Facilities

Automated food processing units in **204 locations** with each unit
approx. 5 MT/day capacity supplying to 354 blocks

BACKGROUND AND EVOLUTION

Uttar Pradesh's transition to a decentralised, Self-Help Group (SHG)-led fortified Take-Home Ration (THR) production model represents one of India's most ambitious structural reforms in public nutrition delivery. Prior to COVID-19, THR was supplied as fortified blended foods manufactured and distributed through the private sector. The shift to dry ration (raw commodity) distribution emerged during the pandemic, as a stop-gap measure necessitated by disruptions to centralised production and supply chains. The current move toward decentralised, SHG-led THR production marks a further evolution one that seeks to combine local community-based manufacturing with the quality and fortification standards previously associated with private-sector production.

The institutional foundation was a formal agreement between the Uttar Pradesh State Rural Livelihoods Mission (UPSRLM) and the Integrated Child Development Services (ICDS), which embedded Cluster-Level Federation (CLF)-led SHG micro-enterprises directly within the ICDS supplementary nutrition supply chain.

The model was piloted through two block-level production units: Bighapur Block, Unnao District, and Malwa Block, Fatehpur District, established around 2020-21. The pilot was led by the World Food Programme (WFP) in collaboration with WCD and UPSRLM. The WCD component focused on product formulation, associated research, demand generation for THR recipes and capacity building of Field Level Workers

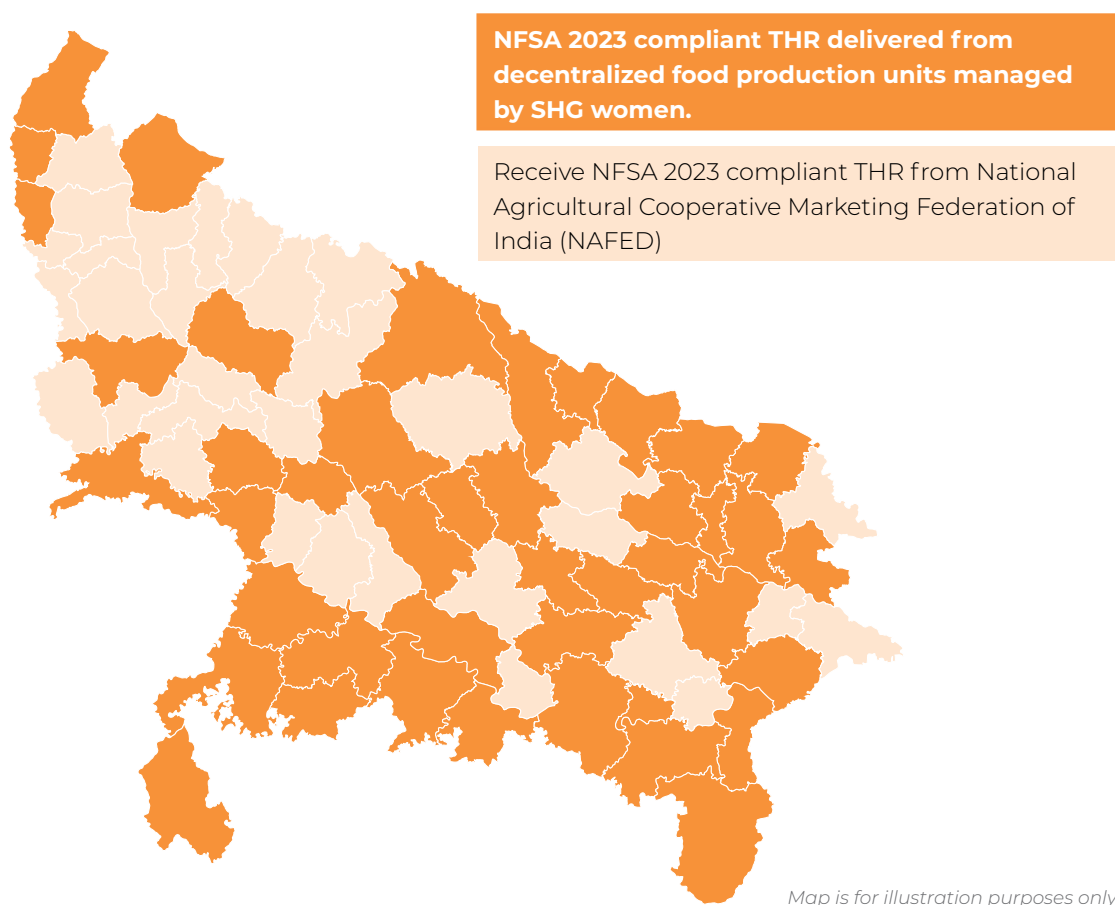
(FLW). The UPSLRM component focused on operationalizing the women-led THR production model.

WFP also conducted site visits to different scale-up locations and provided support in selecting sites, securing FSSAI licenses, validating equipment, capacity building of Self Help Groups (SHG), developing of Standard Operating Procedures (SOPs) for plant and conducting production trials at the new sites, an approach that preserved the model's localised production and distribution footprint, keeping THR within close geographical proximity of beneficiaries and limiting the shelf-life challenges typically associated with longer supply chains.

Both pilot units were designed as fully automated Centres of Excellence, simultaneously functioning as training facilities for SHG workers from districts targeted for scale-up, ensuring the pilot directly fed into the replication pipeline. Following successful proof-of-concept validation, the Government of Uttar Pradesh announced scale-up to 43 districts, including Prayagraj, Lucknow, Gorakhpur, Mirzapur, and Aligarh, with production units to be established across 202 development blocks. Figure 1 below represents the geographical distribution within state where THR is made available via decentralized production facility.



Figure 1: Districts covered with THR intervention in Uttar Pradesh



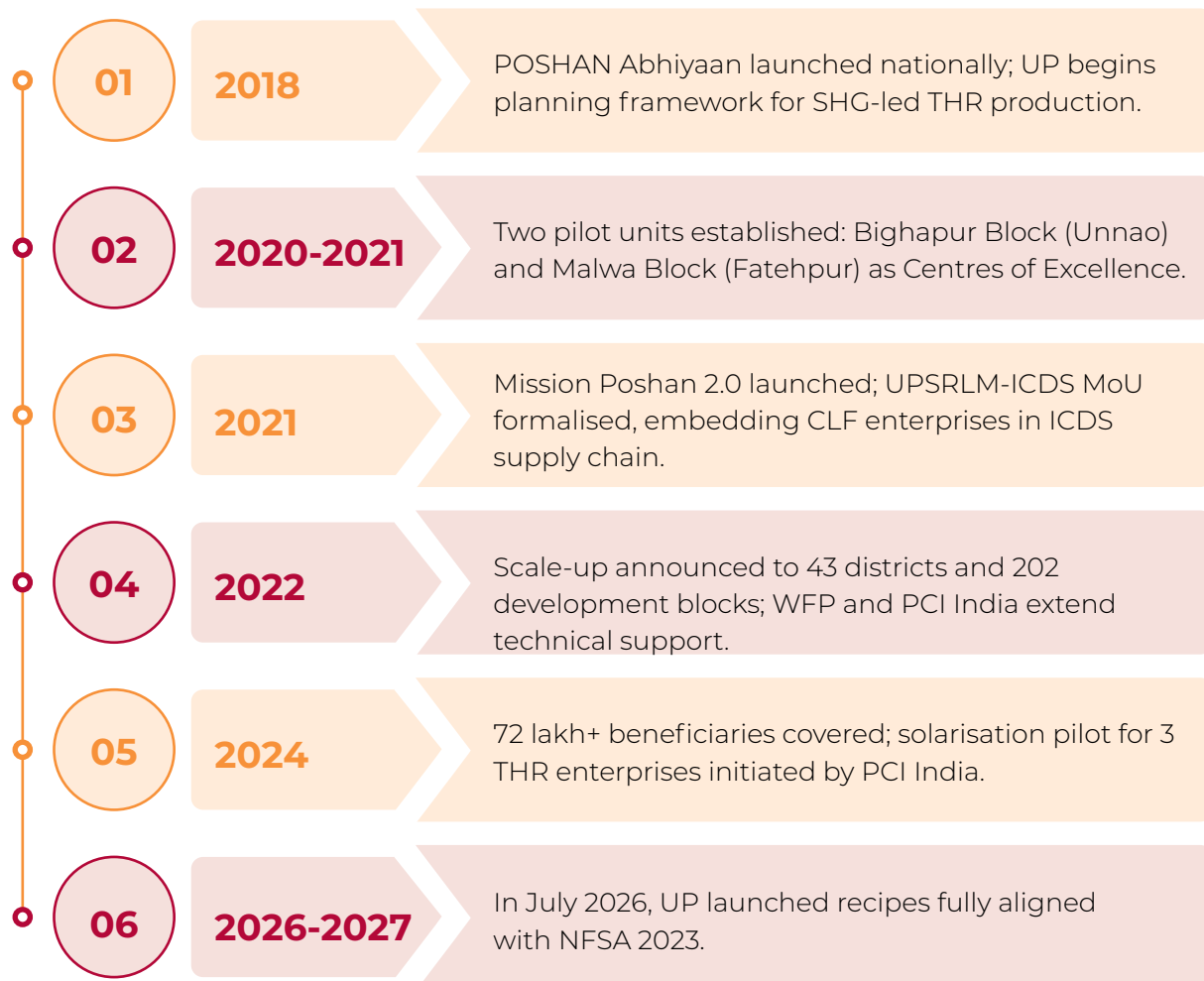
Among India's large states, Uttar Pradesh stands out as a first state to fully adopt NFSA 2023¹ norms for THR delivery. The state government demonstrated political commitment at the highest level, driven by a dual objective: enhancing the nutritional quality of THR and advancing women's empowerment through SHG-led production. This commitment was backed by resources, with the state to fund the incremental costs of the transition. Technical partners supported the task with

the requisite expertise. This combination of a nutritionally superior product already in production, political will at the highest level backed by the ability to fund incremental costs, and technically competent partners is what made UP's NFSA 2023 adoption real rather than notional, and what distinguishes it from states that have acknowledged the new norms without operationalising them. Below image (Figure 2) represents program timeline for NFSA 2023 adoption.

¹Under 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 2: Programme Timeline



SECTION 2

OPERATIONS AND SUPPLY CHAIN

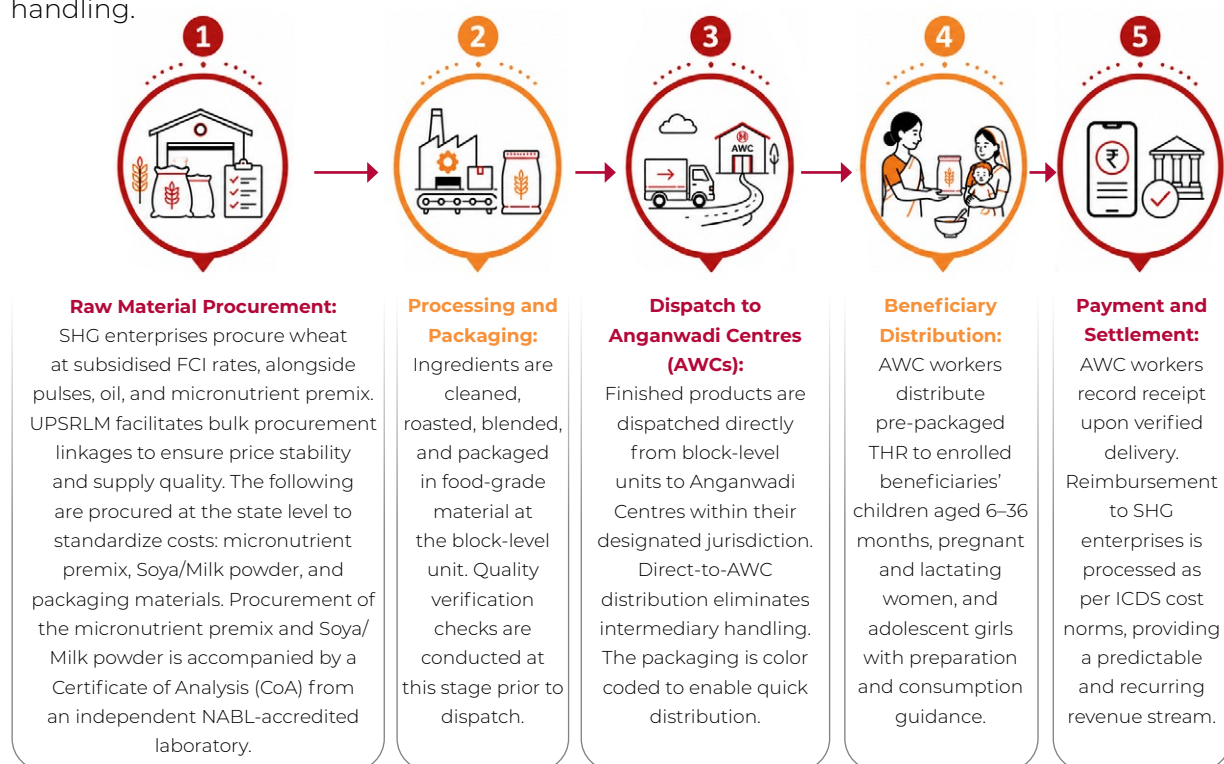
Each THR production unit in Uttar Pradesh is structured as a CLF-led SHG micro-enterprise operating within the UPSRLM network, employing approximately 20 SHG women per unit.

Units are fully automated food processing facilities equipped with dedicated machinery for cleaning, roasting, milling, mixing, and packaging, with a production capacity of approximately 5 metric tonnes of finished product per day.

A standardised production cycle progresses through five sequential operations, cleaning, roasting, milling, mixing, and packaging, governed by SOPs developed and monitored by WFP to ensure batch consistency and product safety across all operational sites. WFP additionally supported the development of terms of reference for procurement of raw material at both state and unit levels in collaboration with UPSRLM. The fortified formulation incorporates locally available cereals, pulses, and other ingredients combined with a standardised micronutrient premix. Below Figure 3 represent Supply Chain Architecture.

Figure 3: Supply Chain Architecture

UP's supply chain follows a structured, short-loop model which minimises the risk of leakage, maximises product freshness, and delivers directly to the last mile without intermediary handling.



SECTION 3

THR FORMULATION AND PRODUCT PORTFOLIO

The THR programme in Uttar Pradesh produces a differentiated portfolio of fortified products across multiple beneficiary categories, fully aligned with NFSA 2023 nutritional norms. This has become effective from July 2026 onwards. Products produced have distinct brand names and packed in age- and category-specific Stock Keeping Units (SKUs) to facilitate accurate identification and distribution at the AWC level.

Challenges in operationalising the NFSA 2023 recipes:

The shift from NFSA 2013 to NFSA 2023 standards introduced a substantially more demanding technical engagement, which was fulfilled by WFP. Where the 2013 norms required only minimum energy and protein thresholds with a 12-micronutrient premix at 50% RDA, the 2023 framework added age-specific carbohydrate and fat standards, a revised seven-micronutrient specification, mandatory cereal-to-pulse ratios (2:1 for children and 3:1 for PLW) and a Protein Digestibility-Corrected Amino Acid Score (PDCAAS) protein quality score requirement between 0.8 and 1.0 across all beneficiary categories. Reformulating to meet this more complex brief while remaining within existing ICDS cost norms proved the most significant technical challenge: maintaining the required cereal-to-pulse ratio while simultaneously hitting energy, protein, and PDCAAS targets pushed against the cost ceiling, particularly given that higher-protein ingredients such as legumes at the proportions required carry a higher unit cost.

A second operational challenge was the transition of SRLM WSHGs to the revised THR model. The WSHGs required

additional training on the revised recipes and production processes. The transition of production units was phased to ensure that raw materials procured for the 2013 recipes, including specific packaging materials and micronutrient premix, were used fully and not wasted.

Another operational challenge was sustaining beneficiary interest across the distribution cycle. A wider range of products can help address the monotony associated with single-product systems, but it also increases the complexity of production, procurement, and packaging at the production unit level. Product variations therefore need to be introduced consistently without disrupting SHG production workflows or causing supply gaps. All the major challenges are summarised below in Figure 4.



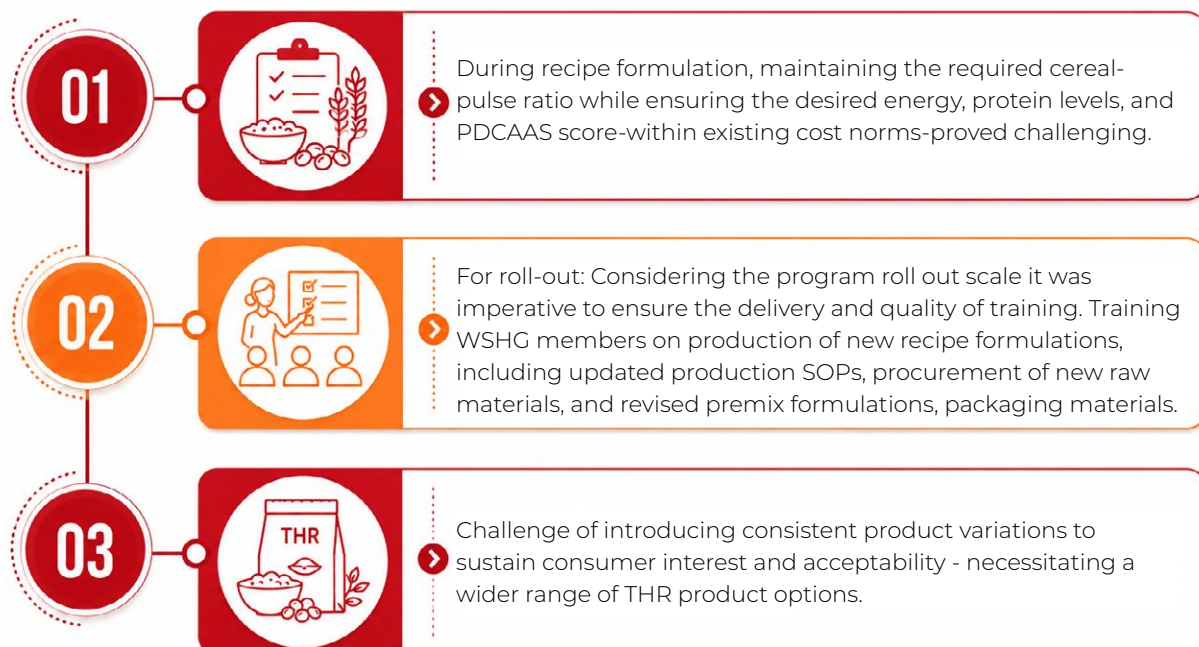
Product formulation and the transition to NFSA 2023 recipes

The transition to NFSA 2023-aligned recipes in UP was anchored in technical partners' expertise. WFP developed 20–25 recipe variants using locally available ingredients, which were reviewed by a technical committee comprising WFP, UNICEF, UP TSU and PCI, later on shortlisted recipes were presented to WCD-UP for finalisation. NIN provided the scientific validation and approval required for state-level adoption. Production feasibility was tested through two sequential trials by WFP: first by Vitaline Nutri Foods contracted by WFP then within an existing THR production unit under real operating conditions. An acceptability study using Govt. platform followed, with 100 kg of product distributed through DPOs across 17 districts and community feedback recorded on a Likert scale at 30–40 beneficiaries per AWC was also undertaken with WFP support along with shelf life studies. By

documented accounts, the resulting product range was appreciated by the community as monotony was beginning to set in from the previous THR.

The WFP Programme Management Unit, under UP SRLM planned the phased roll-out across all 204 THR units, with SHG women worker training as the critical next step. The training investment carries a dual significance: it is a quality assurance requirement for producing a more complex recipe range, and a direct women's economic empowerment outcome, each trained SHG member building the skill and institutional standing within the UPSRLM ecosystem that sustains her livelihood alongside the programme's nutritional ambition. as on date all 204 decentralized production units are supplying NFSA 2023 compliant THR.

Figure 4: Challenges faced in the transition to NFSA 2023



The transition of UP THR to the updated NFSA 2023 norms was a collaborative process, underpinned by strong political commitment at the highest levels of government and an institutional culture willing to identify and address implementation gaps as they emerged. Due to the low cost of reimbursement on THR recipes by the Government of India, WFP supported the development of an in-depth, inflation-adjusted viability gap funding (VGF) proposal for improved reimbursement rates on the new THR

recipes. This process was strengthened by formalised collaboration between the Department of Women and Child Development (WCD) and the UP State Rural Livelihoods Mission (UPSRLM), which helped anchor the transition within existing community-based production structures, where THR continues to be produced by women from within the community, enhancing local ownership and accountability while generating livelihood opportunities.

The reformulated recipes were validated against both nutritional specifications and the practical realities of block-level automated production before being standardised for rollout. Below are the details of finalized THR recipes for the state are mentioned in figure 5.

Figure 5: New recipes



Product name: Atta Besan Halwa (Sweet)

Brand Name: Shishu Amrit

For: Children 6-12month

Daily Serve Size: 65 gms

No. of packets/month: 2



Product name: Atta Besan Halwa (Sweet)

Brand Name: Shishu Aahar

For: Children 1y-3y

Daily Serve Size: 110 gm

No. of packets/month: 3



Product name: Atta Besan Barfi
(Sweet)

Brand Name: Bal Pushtik

For: Children 3-6y

Daily Serve Size: 55 gm

No. of packets/month: 1



Product name: Dalia Moong Dal Soya
Khichadi (Savoury)

Brand Name: Bal Pushtik

For: Children 3-6y

Daily Serve Size: 55 gm

No. of packets/month: 1



Product name: Aata Besan Soya Barfi
(Sweet)

Brand Name: Sampoorna Matru Aahar

For: Pregnant and Lactating women

Daily Serve Size: 160 gm

No. of packets/month: 2



Product name: Dalia Moong Dal
Khichadi

Brand Name: Sampoorna Matru Aahar

For: Pregnant and Lactating women

Daily Serve Size: 170 gm

No. of packets/month: 2



Product name: Urja Yukt Halwa (Sweet)

Brand Name: Arogya Poshan

For: Undernourished children 6m-1y

Daily Serve Size: 110 gm

No. of packets/month: 3



Product name: Urja Yukt Halwa (Sweet)

Brand Name: Bal Sanjeevni

For: Undernourished children 1-3y

Daily Serve Size: 185 gm

No. of packets/month: 5



Product name: Urja Yukt Halwa (Sweet)

Brand Name: Saksham Poshan

For: Undernourished children 3-6y

Daily Serve Size: 210 gm

No. of packets/month: 3

SECTION 4

MODEL STRENGTHS

Uttar Pradesh's most distinguishing programmatic feature is the deliberate embedding of nutrition service delivery within a women's economic empowerment framework, positioning SHG women not as passive delivery agents but as enterprise owners, producers, quality managers, and accountability holders. Rather than treating decentralised THR production as a pilot initiative, the state embedded it within existing government systems through formal institutional partnerships, dedicated procurement arrangements, and statewide monitoring mechanisms.

Key strengths of the model are reflected below:

Institutional Foundation at Scale

UPSRLM manages one of India's largest SHG ecosystems, with millions of women organised into SHGs, Village Organisations, and CLFs, providing ready institutional infrastructure that eliminated the need to construct parallel community structures. CLF women already bring demonstrated experience in collective governance, financial management, and government scheme linkages, making them credible enterprise operators from programme inception.



Sustained high-level political commitment coupled with adaptive course correction

The Uttar Pradesh model benefits from strong political ownership at the highest levels of government, which has translated into consistent prioritisation of nutrition on the state's development agenda. This commitment is matched by an institutional culture of continuous self-assessment, where implementation gaps and bottlenecks are proactively identified and addressed through iterative programme adjustments.



Formalised inter-departmental convergence

A notable strength of the UP model is the structured, formalised collaboration between the Department of Women and Child Development (WCD) and the UP State Rural Livelihoods Mission (UPSRLM). This institutionalised partnership, enables more effective linkage between nutrition service delivery and community-based livelihoods platforms (such as SHGs), strengthening last-mile convergence and programme reach.



Livelihoods and Incentive Alignment

SHG women are employed on structured wages at THR units for processing, quality checking, packaging, and distribution. Revenue is generated from ICDS cost-norm payments upon verified delivery, directly linking women's income to production performance and creating a powerful institutional incentive structure that aligns commercial self-interest with nutrition programme outcomes.



Solar Energy Integration

PCI India has piloted the solarisation of three THR enterprises, demonstrating that food processing units can operate on renewable solar power, reducing energy costs and ensuring production continuity in areas with unreliable grid supply. This has been scaled up to almost 40 decentralised THR production units.



Technology-Driven Programme Management

PCI India designed and is integrating Enterprise Resource Planning (ERP) platforms into UPSRLM's operational infrastructure, enabling real-time tracking of procurement, production, dispatch, and payment. These digital systems support convergence with the national Poshan Tracker and provide the data architecture required for adaptive programme management at state scale.



Pioneer Compliance Status

Upon programme completion, Uttar Pradesh has become the first state in India to achieve full compliance with NFSA 2023 nutritional norms across its supplementary nutrition programme, establishing a national benchmark and policy precedent for other states.



TECHNICAL PARTNERSHIP ARCHITECTURE

Technical support in Uttar Pradesh is distributed across complementary functional domains, including WFP leading the food science, fortification, and production process expertise and PCI strengthening and streamlining the systems and processes of UPSRLM. The division of responsibilities reflects a deliberate co-design of the programme's technical support framework.

Summary of Key Stakeholders and Roles & Responsibilities

- **Government of Uttar Pradesh (GoUP) / Department of WCD & UPSRLM:** Lead implementer. Provides policy framework, subsidised raw materials (e.g., wheat), reimbursements per ICDS norms, infrastructure support, and monitoring. Direct bank transfers to SHGs for transparency.
- **Self Help Groups (SHG) / Women's Micro-Enterprises:** Core operators. Groups of ~20 women per unit handle procurement (local where possible), production, quality checks, packaging, and delivery to Anganwadi Centres (AWCs). Rotational employment and enterprise management.
- **UN World Food Programme (WFP):** Technical partner. Supported pilots, formulations, equipment/processes, acceptability studies, shelf-life analysis, capacity building for SHGs, and Knowledge transfer for scaling, generating awareness in the community on the value add of the nutritionally superior THR as well as training of the Anganwadi workers.
- **Project Concern India (PCI):** Technical partner to UPSRLM has provided technical assistance to UPSRLM in conceptualising the decentralised production and distribution of THR through SHG-operated Food enterprise.

FINANCIAL ARCHITECTURE

The Government of Uttar Pradesh has demonstrated sustained financial commitment through phased public investments. While the initial network of 204 THR production units was established through government-supported livelihood and nutrition initiatives, to preserve the financial viability of SHG enterprises, an initial infusion of approximately INR 262 crore in 2023 was provided by the ICDS - UP government. Followed by a second tranche of INR 290 crore estimate has been developed and under approval. Reflecting strong institutional commitment to scaling women-led nutrition enterprises and reinforcing the decentralised production architecture.

Operational costs encompass raw materials, packaging, quality assurance, repair and maintenance, rent, electricity and transportation, typically accounting for approximately 85% of total production costs and labour representing around 20% of monthly operational costs. This means that there could be on an average 5% loss at each unit which is currently managed by revenue received directly from ICDS. Each block-level unit operates with a working capital requirement of approximately ₹50-80 lakh per production cycle, with government reimbursement typically expected to be released within 15 days of verified delivery as per the SOP. Financial sustainability is anchored by the ICDS procurement framework, under which SHG enterprises receive payments of ₹8 for children 6-12 months and 1-3 years; Rs 9.5 for pregnant/lactating women; Rs 12 for severely underweight children across age groups per day for verified THR supplies

delivered to Anganwadi Centres according to government-approved 2017 nutrition cost norms, providing a predictable and recurring revenue stream that reduces market uncertainty and enables long-term enterprise viability. At the unit level, this translates to an estimated monthly revenue of ₹45-75 lakh and an operating loss of approximately ₹3-10 lakh per unit per month. The losses are adjusted with the provision of VGF (Viability gap fund) paid by WCD to the THR units and so far an amount of Rs 262 crores have been reimbursed. An additional VGF of INR 290 crores have been under approval to support THR production units.

At full scale across 204 units, the UP THR programme is projected to generate annual revenues of approximately \$250 million (₹2,000+ crore), representing the totality of government reimbursements and economic activity flowing through the SHG enterprise network². The capital investment model is integrated into the broader ICDS framework rather than structured as a discrete per-unit investment; the government provides subsidised inputs and machinery for automated production units with a capacity of approximately 5 metric tonnes per day, with operational support flowing through UPSRLM's institutional infrastructure. The livelihood impact is equally significant, the programme targets direct income generation for over 4,000 women, with participating SHG members expected to earn ₹8,000 per month, while local raw material procurement creates a broader economic multiplier effect in the communities where units operate.

² PCI. <https://www.pciglobal.in/take-home-ration/>

SECTION 7

LESSONS FOR REPLICATING STATES

The state's achievement resided not in adopting decentralised THR production, but in building the institutional, financial, operational, and technological systems required to implement the model consistently at scale.

Policy reform succeeds when implementation architecture is designed alongside policy change. Uttar Pradesh's achievement was not merely adopting decentralised THR production, but building the institutional, financial, and operational systems required to implement the model consistently across the state. State have become a pioneer and set an example for other states.

Formalise Inter-Departmental Agreements as the Primary Design Decision

The UPSRLM-ICDS MoU was the single most consequential design choice; it created durable programme infrastructure independent of individual political cycles or administrative transitions, embedding the model within existing government systems rather than treating it as an externally driven initiative.



Start with Proof of Concept Before Massive Capitalisation

The Unnao and Fatehpur pilot units allowed technical and operational learning before large-scale investment, substantially reducing the risk of expensive failure at scale. Both pilots were deliberately designed as training facilities to ensure lessons fed directly into the replication pipeline.



Build on Pre-Existing Community Structures

Building the programme on UPSRLM's established SHG ecosystem avoided the costly and time-consuming construction of new institutions and leveraged existing community trust, accountability, and governance experience.



Integrate Technical Partners from the Design Phase

WFP and PCI India's involvement from conceptualisation through operationalisation ensured that product quality, enterprise management, supply chain architecture, and government systems integration were addressed as a coherent whole rather than sequentially after problems emerged.



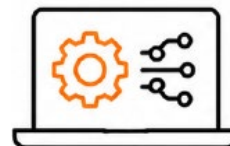
Align Enterprise Viability with Social Purpose Through Incentive Design

Making SHG enterprise income contingent on verified AWC delivery created a powerful institutional incentive structure, aligning commercial self-interest with nutrition programme outcomes and reducing dependence on compliance monitoring as the primary accountability mechanism.



Invest in Technology Systems from Programme Inception

ERP and KMS systems, while requiring significant upfront investment, are essential for managing complex, multi-site operations and generating the real-time data required for adaptive programme management. Deferring technology integration compounds operational complexity as programmes scale.



Embed Formulation Diversity and Cultural Fit as Core Programme Design

The UP experience demonstrates that alternating sweet and savoury product formats, combined with active AWC worker demonstration of preparation methods, substantially strengthens beneficiary uptake and consumption compliance, reducing the monotony that has historically undermined sustained THR programme effectiveness.



Create Dedicated and Long-Term Enterprise Support Structures

Many SHGs possess strong social capital but limited experience in managing manufacturing enterprises. Continuous handholding in business management, inventory control, accounting, procurement, and regulatory compliance is critical to enterprise performance. Replication budgets should account for long-term capacity-building.



Plan Renewable Energy Integration to Protect Operational Continuity

The solarisation pilot demonstrates that decentralised food processing units can operate on renewable energy, reducing input costs and ensuring production continuity in areas with unreliable grid supply. States should incorporate energy resilience planning as a standard element of unit infrastructure design.



Recognise Policy Reform as an Implementation Systems Challenge

Uttar Pradesh's experience confirms that large-scale nutrition policy reform requires far more than revised guidelines, it demands institutional arrangements, financing mechanisms, technology systems, quality assurance protocols, and implementation capacity. States must design the implementation architecture alongside the policy change itself.



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