Mobile Creches in Keonjhar, Odisha: An Impact Assessment Study

Submitted by
Catalyst Management Services (P) Ltd.

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Abbreviations

ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
CMC	Creche Management Committee
CMS	Catalyst Management Services
DMF	District Mineral Foundation
DDS	Dietary Diversity Score
ECD	Early Childhood Development
ECCD	Early Childhood Care and Development
ECCE	Early Childhood Care and Education
FGD	Focus Group Discussion
HAZ	Height-for-Age Z-score
ICDS	Integrated Child Development Services
IFA	Iron and Folic Acid
KII	Key Informant Interview
MAM	Moderate Acute Malnutrition
MC	Mobile Creches
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIS	Management Information System
MoU	Memorandum of Understanding
NCF	Nurturing Care Framework
OBC	Other Backward Classes
PMU	Project Management Unit
PVTG	Particularly Vulnerable Tribal Group
QCA	Qualitative Comparative Analysis
RBSK	Rashtriya Bal Swasthya Karyakram
REEIS	Relevance, Effectiveness, Efficiency, Impact, and Sustainability
SAM	Severe Acute Malnutrition
SC	Scheduled Caste
SOP	Standard Operating Procedure
ST	Scheduled Tribe
ST-PVTG	Scheduled Tribe – Particularly Vulnerable Tribal Group
THR	Take Home Ration
ToC	Theory of Change
VHND	Village Health Nutrition Day
WAZ	Weight-for-Age Z-score
WCD	Women and Child Development
WHO	World Health Organization
WHZ	Weight-for-Height Z-score

Executive Summary

The Mobile Creches programme represents the first large-scale rural adaptation of its flagship childcare model in Banspal block of Keonjhar district, Odisha, designed to address critical gaps in early childhood care, nutrition, and safety among migrant and marginalised tribal communities where over 85.4% of beneficiary households belong to ST/ST-PVTG groups, 57.9% of mothers have no formal education, and median household incomes remain as low as ₹8,500 per month. Implemented through a partnership between the District Mineral Foundation (DMF) and Mobile Creches, the programme established 150 creches across eight clusters, targeting children aged 6 months to 3 years - an age group underserved by existing public systems.

The evaluation employed a mixed-methods design anchored in Contribution Analysis, combining quantitative surveys of 328 mothers (covering 336 children) and 55 creche workers with qualitative insights from FGDs and KIIs. Analytical tools used included descriptive statistics, a creche composite index, child health transition analysis, and Qualitative Comparative Analysis (QCA), structured within the OECD-DAC framework of relevance, effectiveness, impact, and sustainability.

Prior to the intervention, 98.2% of mothers were the sole primary caregivers, spending approximately 7.5 hours daily on childcare and domestic work, while 45.1% had no paid employment. The absence of childcare for children aged 0–3 meant that 22.6% of mothers took children to worksites, and older siblings (often girls) were withdrawn from school for caregiving responsibilities. Further, the programme directly addressed overlapping needs identified by beneficiaries: requirement of nutrition for their children (89.3%), lack of time for childcare due to domestic work (76.5%), child safety (71.0%), and occupational constraints (55.2%). These served as the primary drivers for creche enrollment.

Given this context, the findings strongly establish the high relevance of the programme, situated within a context of acute structural vulnerability. Households in Banspal face low incomes, high levels of poverty, limited dietary diversity, and a near-complete absence of childcare support for children under three. Prior to the intervention, mothers bore the entire burden of childcare, often compromising both child wellbeing and livelihood opportunities. The programme directly addressed this dual deficit of childcare and nutrition responding to clearly articulated community needs.

In terms of effectiveness, the programme successfully operationalised a high-intensity childcare model across all 150 creches. Core services such as serving hot meals regularly, structured daily routines, early stimulation, and responsive caregiving were delivered consistently. The creche worker model, based on local recruitment and training, emerged as a key strength, enabling high levels of trust, participation, and retention. The composite index analysis further demonstrated variation in service quality across centres, but overall indicated functional service delivery systems aligned with the WHO nurturing care framework principles.

The programme has generated significant impacts across multiple stakeholder groups. For children, improvements were observed in dietary intake, health trajectories, and developmental engagement, with transition analysis indicating movement from severe and moderate health categories towards improved status for a substantial proportion of children. The programme has led to meaningful shifts

in child health outcomes, with clear evidence of upward mobility for a significant proportion of children. Transition analysis indicates that approximately 28% of children moved to higher health categories, including shifts from severe to moderate and moderate to high health status, reflecting positive gains associated with sustained exposure to creche services. At the time of the survey, 34% of children were in the high health category, 58% in moderate, and 8.6% in low health (in contrast to 20.24% in the severe health category as per the MIS records) suggesting a significant improvement in health outcomes for the children. Improvements are strongly linked to programme-driven pathways, particularly enhanced dietary intake and feeding practices - diet diversity scores were consistently highest among children in the high health category and aligned with creche feeding protocols. Additionally, children in higher health categories reported lower incidence of illness and better access to clean water, indicating the role of hygiene and preventive care in driving outcomes.

For mothers, the programme produced transformative changes in time use and wellbeing: childcare burden reduced significantly, enabling increased participation in livelihood activities and improved rest (childcare time reduced from 3.66 hours to 1.9 hours per day, with 90.5% reporting reduced caregiving burden, enabling increased participation in livelihood activities and improved rest). Behavioural shifts in hygiene and caregiving practices were also widely reported. Creche workers experienced enhanced skills, agency, and social recognition within communities.

However, the evaluation also highlights limitations in outcomes dependent on external structural factors. Nutritional improvements at the household level remain constrained by poverty and food insecurity, limiting the translation of knowledge into practice. Father involvement in childcare remains low, shaped by entrenched gender norms, migration patterns, and social behaviours such as alcoholism. Similarly, while community acceptance of creches is high, formal community ownership and governance capacity are still evolving.

Further, looking at the program Theory of Change through the Six Conditions of Systems Change lens shows that the programme has achieved strong progress in structural dimensions - aligning policies, practices, and resource flows - whilst relational and transformative changes are emerging but require longer time horizons to mature. The programme's strongest contribution pathways lie within its direct sphere of control (nutrition, caregiving, learning), while broader system-level outcomes depend on sustained engagement and ecosystem strengthening.

In terms of sustainability and scalability, the programme demonstrates high potential. Its convergence with ICDS, alignment with DMF priorities, and relevance to Odisha's planned expansion of creche services position it as a viable model for replication. However, the study indicates that having a sustained programmatic impact will require strengthening community governance structures, aligning operational standards with government systems, and addressing systemic constraints beyond the creche.

1. Introduction

Banspal block in Keonjhar district, Odisha, is home to predominantly Scheduled Tribe (ST) and Particularly Vulnerable Tribal Group (PVTG) communities, including the Juangs. Livelihoods in the block centre on seasonal forest collection, agricultural labour, and daily wage work, with limited market access and water scarcity shaping household food security. National Family Health Survey data for the district records elevated rates of stunting and wasting among children under five, and fewer than one in ten children in the 6–23 month age group received an adequate diet at the time of the last survey round. Keonjhar is also a mineral-rich district, and the District Mineral Foundation (DMF), which reinvests mining revenues in the welfare of affected communities, identified early childhood nutrition and care as a priority area for investment. The Mamata Ghara programme was established in response to the identified need.

For children aged six months to three years in Banspal, the care environment prior to the Mamata Ghara programme was shaped by two overlapping gaps. First, no creche-like childcare arrangement existed for the 0–3 age group; the Anganwadi system served children aged three to six years and distributed Take Home Ration (THR) for younger children, but THR was typically consumed by the broader household rather than reserved for the child. Second, households were unable to provide the dietary diversity or caloric intake required for adequate early childhood nutrition: home diets consisted largely of rice, dal, potato, and occasionally biscuits or packaged snacks. Mothers, who served as the sole primary caregiver in nearly all households, faced daily trade-offs between earning a livelihood through seasonal forest collection, agricultural labour, or construction work and ensuring their child's safety, feeding, and supervision. Children accompanied mothers to forests and worksites, while older siblings were routinely pulled from school to care for younger children at home.

The DMF, recognising the convergence of childcare and nutrition deficits in mining-affected tribal communities, entered into a formal Memorandum of Understanding (MoU) with the District Administration to establish creche-based childcare across Banspal block. Mobile Creches (MC), an organisation with decades of urban childcare experience across Indian cities, was selected as the technical and operational partner to adapt its proven model to a rural tribal setting.

Launched in October 2022, the programme established 150 creches across eight clusters in Banspal block, each staffed by two locally recruited workers and operating six days a week for eight hours daily. The programme's design drew on Mobile Creches' EAT–PLAY–LOVE framework, which structures service delivery around three pillars: nutrition (hot cooked meals meeting a large share of daily caloric requirements), early stimulation and learning (play-based activities for cognitive, motor, and socio-emotional development), and responsive caregiving (safe spaces, emotional security, and community engagement). The framework draws from the WHO Nurturing Care Framework and India's National Early Childhood Care and Education (ECCE) Curriculum Framework.

With approximately eighteen months of operational experience, Mobile Creches commissioned Catalyst Management Services (CMS) to conduct an independent impact assessment. The assessment aimed to generate an evidence base on what the programme had achieved, how its operational model had functioned in a rural tribal context, and which elements were ready for

scaling or required strengthening to inform decisions on programme continuation, resource allocation, and potential replication in other mining-affected districts.

2. Research Methodology

2.1 Objectives of the Evaluation

The evaluation was structured around five objectives, each designed to address a distinct dimension of the programme's performance and future trajectory.

Objective 1: Assess Programme Impact. The evaluation measured changes attributable to the intervention across four stakeholder levels: children (on the status of their nutrition, health, safety, learning and development), mothers (on their time use, care burden, livelihood access, and confidence), creche workers (on their skills, agency, professionalisation, and social standing), and the broader community (to understand the demand for Early Childhood Development services and local governance capacity).

Objective 2: Examine Processes and Systems. The assessment evaluated the effectiveness of implementation strategies and identified operational enablers and barriers within the rural context, including field strategies for attendance and behaviour change, barriers to programme uptake, supply-chain robustness, and the influence of external factors such as seasonal migration and festivals on service utilisation.

Objective 3: Evaluate Programme Relevance. The evaluation determined the fit between the intervention and community needs, examining how communities perceived the value of childcare, the extent to which norms around childcare had shifted, and how well the programme sat within the existing service landscape.

Objective 4: Analyse Sustainability and Scalability. The assessment identified replicable elements of the model and pathways for integration into public systems, examining which components were robust enough for immediate replication, which required strengthening, and what responsibilities could be transitioned to the DMF, Integrated Child Development Services (ICDS), or Women and Child Development (WCD) department.

Objective 5: Generate Evidence for Policy Engagement. The evaluation provided actionable insights for state-level decision-makers, defining the evidence-backed narrative on the model's successes and challenges, and clarifying Mobile Creches' potential role as a systems partner in similar rural contexts.

2.2 Research Design

The evaluation employed a mixed-methods design anchored in Contribution Analysis. The methodology combined quantitative surveys with qualitative data collection through Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs), alongside a systematic review of the programme's Management Information System (MIS) and secondary data sources. The evaluation framework was structured around the OECD-DAC criteria of Relevance, Effectiveness, Impact, and

Sustainability, and drew on systems change frameworks to examine both direct programme outcomes and broader systemic shifts.

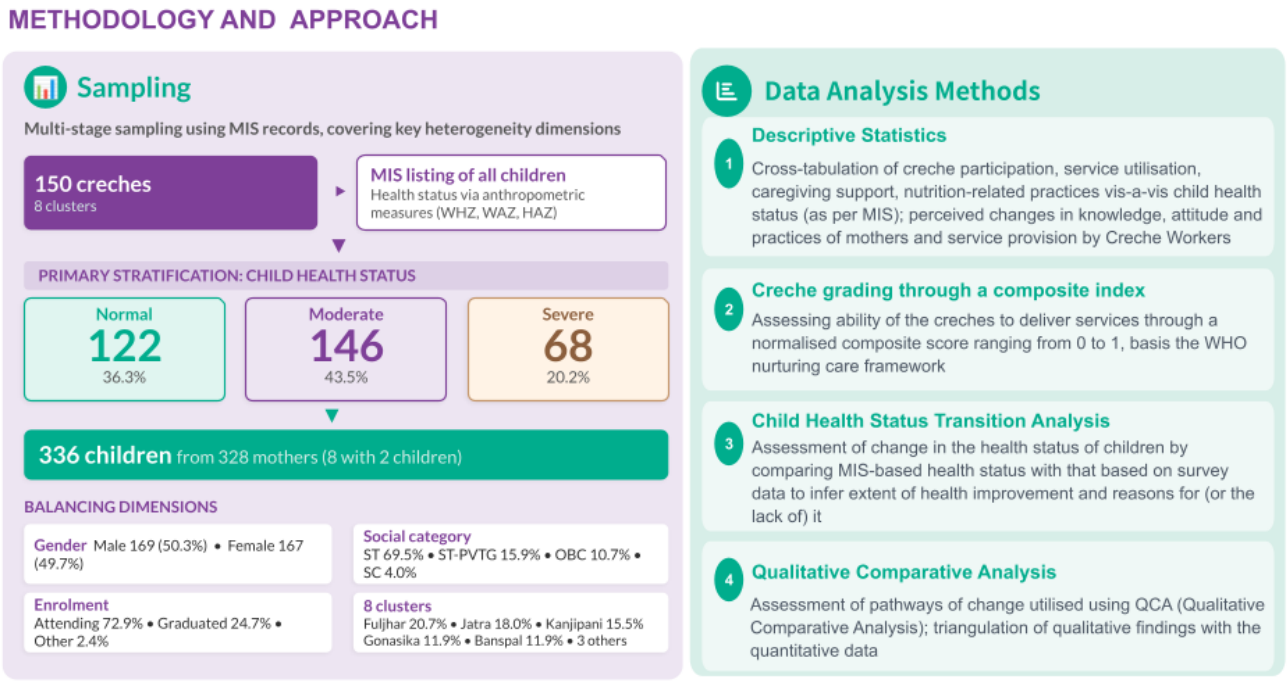

Figure 1: Methodology and approach

Quantitative Data Collection

Two structured surveys were administered. While the mother's survey covered 328 mothers corresponding to 336 children (eight mothers had two children enrolled), drawn from across all eight programme clusters; the creche worker survey covered 55 workers distributed across the eight clusters. Both instruments captured service utilisation, caregiving practices, nutrition indicators, perceived changes in knowledge and behaviour, and programme satisfaction from the demand and supply perspectives respectively.

Sampling Strategy for Quantitative Surveys

For sampling mothers of children, a multi-stage stratified sampling approach was employed, using programme MIS records as the sampling frame. The MIS data listed all children enrolled across the 150 creches, and their health status was classified using anthropometric measures: weight-for-height (WHZ), weight-for-age (WAZ), and height-for-age (HAZ). The primary stratification variable was MIS-based child health status, which yielded three categories: Normal (122 children, 36.3%), Moderate (146 children, 43.5%), and Severe (68 children, 20.2%) health categories. The sample was then balanced across gender (male 50.3%, female 49.7%), social category (ST 69.5%, ST-PVTG 15.9%, OBC 10.7%, SC 4.0%), enrolment status (currently attending 72.9%, graduated 24.7%, other 2.4%), and the eight programme clusters to ensure adequate representation of population heterogeneity.

Qualitative Data Collection

A total of 30 qualitative engagements were conducted: 20 FGDs with mothers in treatment villages, 7 FGDs with mothers in control villages, 2 KIIs with fathers and 3 KIIs with the Programme Coordinator, a Community Facilitator, and the DMF PMU. Control village FGDs were conducted in villages where earlier childcare arrangements had operated and subsequently closed, providing a comparative lens on community needs and the sustainability of alternative models. Qualitative data was analysed using thematic coding and further triangulated with quantitative findings.

Limitations

The programme launched in October 2022 without a baseline assessment; the evaluation was therefore retrospective. Current status and reported change were measured, but pre-programme conditions were reconstructed through recall-based survey questions, MIS records, and qualitative accounts. All self-reported change figures should be interpreted within the constraint that no baseline data existed.

3. Analytical Framework

The analytical framework brought together a programme Theory of Change as the evaluative roadmap, Contribution Analysis as the methodology for building the causal narrative, and the OECD-DAC evaluation criteria as the organising structure for findings. Four analytical methods operationalised the framework: descriptive statistical analysis of the quantitative survey data, creche grading through a composite index, child health status transition analysis, and Qualitative Comparative Analysis (QCA) of causal pathways.

3.1 Descriptive Statistical Analysis

The quantitative survey data from the mother survey (N=328 mothers; N=336 children) and the creche worker survey (N=55) were analysed using cross-tabulations of creche participation, service utilisation, caregiving support, and nutrition-related practices against child health status as recorded in the MIS. Perceived changes in knowledge, attitude, and practices of mothers and creche workers were examined through frequency distributions and disaggregated by child health severity, cluster, and social category.

3.2 Creche Grading Through a Composite Index

The ability of individual creches to deliver services was assessed through a normalised composite score ranging from 0 to 1, constructed from the creche worker survey data. The composite index comprised three sub-indices, each capturing a distinct dimension of the WHO Nurturing Care Framework.

Sub-Index 1: Infrastructure and Safety covered the number of items available from a 13-item checklist, clean water access, medical kit adequacy, safety protocol existence, and overall safety rating.

Sub-Index 2: Nutrition and Supervision covered supervisor visit frequency, types of support provided, supplement regularity, stockout incidence, meals per day, egg-serving days, active feeding practice, and meal-time adherence.

Sub-Index 3: Child Engagement covered the regularity of play activities across nine types, availability of materials across nine types, developmental activities across six types, weekly play hours, use of vernacular language while interacting with the children with an integration of folk songs and stories.

Item-level responses were aggregated and normalised across the full set of indicators. The resulting composite score was used to classify creches into three grading categories. Creches scoring below 0.50 were classified as low-graded (5 creches, median score 0.45); those scoring between 0.50 and 0.65 were classified as moderate-graded (24 creches, median score 0.59); and those scoring above 0.65 were classified as high-graded (26 creches, median score 0.71). The grading enabled cross-tabulation of service-delivery quality against child outcomes, infrastructure conditions, and community acceptance at the cluster level.

3.3 Child Health Status Transition Analysis

Each child in the sample was assigned two normalised composite scores, both ranging from 0 (lowest) to 1 (highest). The first score was derived from MIS data on height, weight, and age, and classified children into Normal, Moderate, and Severe health categories. The second score was constructed from indicators collected during the survey: dietary diversity and meal frequency at the creche, quality of responsive caregiving at the creche, illness frequency, availability of clean water at home, and participation of mothers in monthly creche meetings. Children were classified into Low, Moderate, and High health categories based on the survey-based score.

By cross-tabulating MIS-based health status against survey-based health status, the analysis tracked transitions in child health outcomes over the period of creche participation. Children who moved from Severe (MIS) to Moderate or High (survey) categories were identified as positive transitions; children who moved from Normal (MIS) to Low (survey) categories were flagged as negative transitions. The transition matrix enabled an assessment of where the programme's nutritional and care inputs had shifted health trajectories and where persistent gaps, such as inadequate water access or high illness incidence at home, continued to limit outcomes.

3.4 Qualitative Comparative Analysis

Qualitative Comparative Analysis (QCA) was applied to identify causal pathways associated with improved child outcomes. QCA systematically compared conditions across creches and clusters to determine which combinations of programme components produced positive results. Five conditions were examined: learning support, food and water access, other infrastructure availability, participation of mothers in meetings with the creche worker, and adoption of childcare practices at home. The analysis identified core causal conditions (those that appeared across all pathways to positive outcomes) and peripheral conditions (those that varied across pathways and functioned as contextual enablers rather than primary drivers). The QCA findings were triangulated with thematic coding of FGD and KII transcripts to validate the causal interpretation.

4. Analysis and Inferences

The analysis that follows is organised in three layers. The first layer presents the programme's Theory of Change as validated by the evaluation evidence, tracing the causal pathway from programme inputs through to outcomes and identifying which assumptions held and which did not. The second layer constructs the contribution narrative: a structured account of what the programme achieved, at which levels, and with what degree of plausible attribution. The third layer introduces the evaluation criteria and describes the lens through which the findings have been detailed out and presented.

4.1 Programme Theory of Change

The Mamata Ghara programme's Theory of Change articulated a causal pathway from community entry to systemic impact. At the input level, DMF funding via a formal MoU partnership provided the financial base; 150 creches staffed by 300 locally recruited workers (Didis) formed the delivery infrastructure; and Mobile Creches provided training, capacity-building support, nutrition supplies, kitchen equipment, learning materials, and community mobilisation. At the activity level, the programme delivered hot cooked meals three times daily alongside supplementary nutrition, play-based early stimulation structured around an Early Childhood Development (ECD) curriculum, health monitoring with growth tracking and immunisation linkage, parent education sessions and home visits, and community engagement through monthly meetings and Creche Management Committee (CMC) formation.

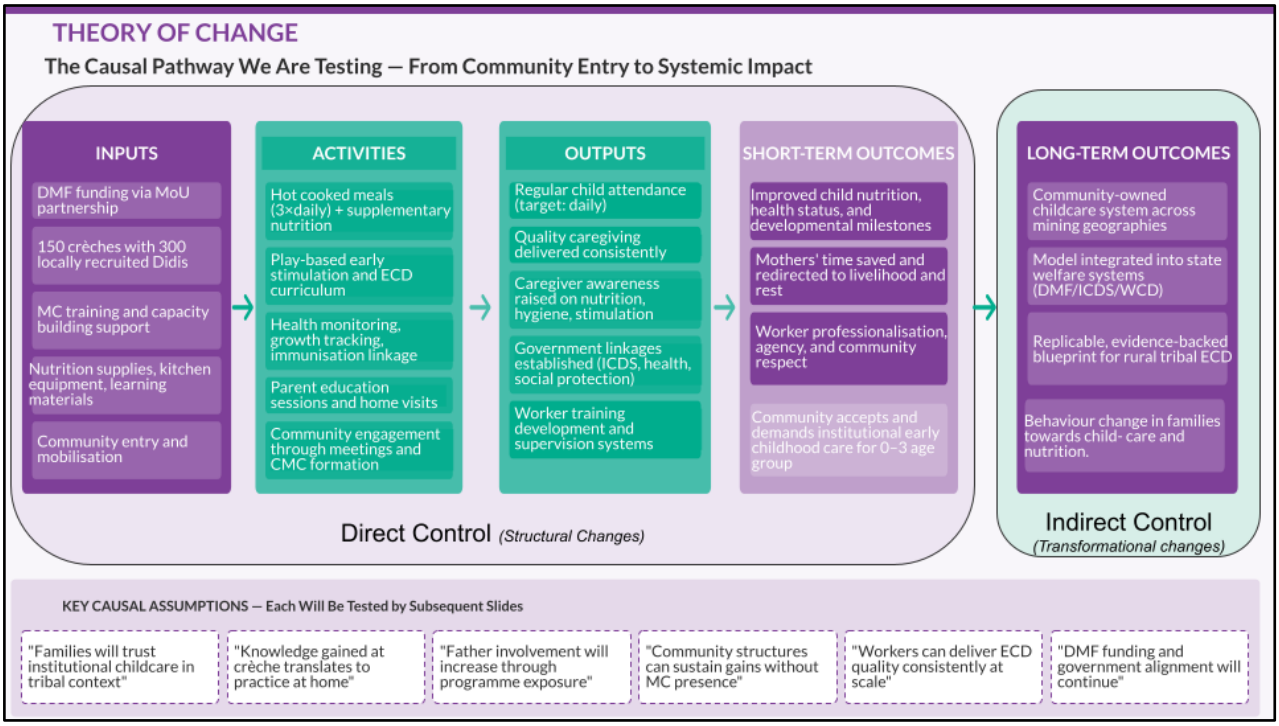

Figure 2: Theory of Change: the causal pathway from community entry to systemic impact

The expected outputs included regular child attendance, quality caregiving delivered with regularity, raised caregiver awareness on nutrition, hygiene, and stimulation, establishment of linkages with

existing government services, and development of worker training and supervision systems. Short-term outcomes were expected across four stakeholder levels: improved child nutrition, health, and developmental milestones; mothers' time saved and redirected to livelihood and rest; worker professionalisation, agency, and community respect; and community acceptance of and demand for early childhood care for the 0–3 age group. The longer-term outcomes envisaged behaviour change in families towards childcare and nutrition, leading eventually to a community-owned childcare system, integration of the model into state welfare systems, and a replicable, evidence-backed blueprint for rural tribal early childhood development.

The Theory of Change rested on six causal assumptions, each of which the evaluation tested against the collected evidence. The first assumed that families would trust institutional childcare in a tribal context where no prior arrangement had been sustained. The second assumed that knowledge gained at the creche would translate into practice at home. The third expected father involvement to increase through programme exposure. The fourth posited that community structures could sustain gains without ongoing Mobile Creches presence. The fifth assumed that workers could deliver ECD quality at scale across 150 centres. The sixth assumed that DMF funding and wider government alignment would continue.

The ToC distinguished between the programme's direct sphere of control and its sphere of influence. The direct sphere encompassed activities and outputs that Mobile Creches managed: DMF funding flow, worker training, creche delivery, and the resulting child and mother outcomes. The sphere of influence encompassed changes that depended jointly on programme inputs and on conditions beyond programme control: community trust and CMC governance, household nutrition adoption, and father engagement and income. The evaluation traced results along the gradient, and the analysis recognised that programme contribution was strongest where Mobile Creches exercised direct operational influence and weakest where outcomes depended on poverty, infrastructure, gender norms, and seasonal livelihoods.

4.1.1. Assessing the Programme ToC through the 6 conditions of Systems Change Lens

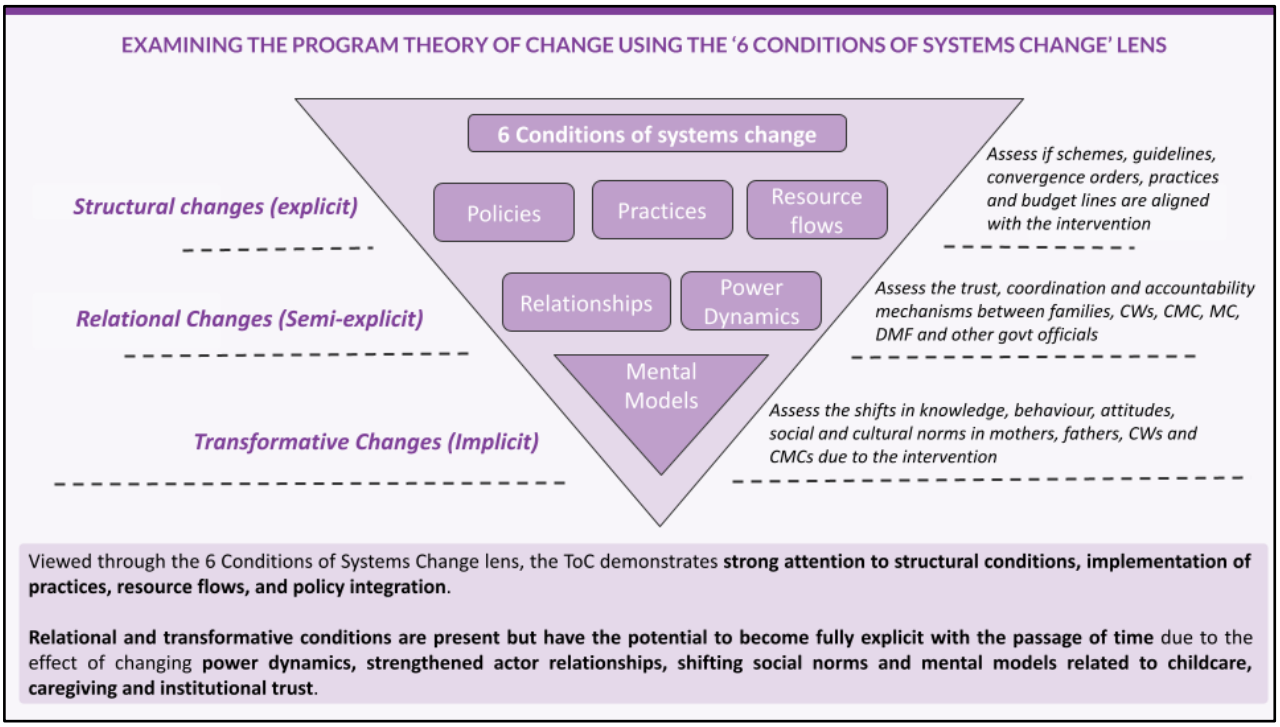

Figure 6: Examining the programme Theory of Change using the 6 Conditions of Systems Change lens

The 'Six Conditions of Systems Change' is a framework developed by FSG[1] (formerly Foundation Strategy Group, a global non-profit consulting firm specializing in social impact) to understand and influence complex social systems. It groups system elements into three levels: structural conditions (policies, practices, and resource flows), relational conditions (relationships and power dynamics), and transformative conditions (mental models, values, and beliefs). The framework recognises that lasting change requires shifts not only in formal rules and resources but also in how actors interact and how they think about problems. In evaluations, this framework is useful for going beyond traditional outcome measurement to assess how systems are evolving. Evaluators use it to map where change is occurring (e.g, policy shifts versus behaviour change), identify gaps (e.g, strong programs but weak relationships), and track progress across multiple dimensions of change.

The programme's systemic dimensions were thus examined through the 6 Conditions of Systems Change lens. At the structural level, the programme influenced policies (DMF utilisation for childcare), practices (replacing passive Take Home Ration distribution with hot cooked meals and active feeding), and resource flows (channelling mining revenues into human capital formation for the youngest children). At the relational level, the programme built new connections between communities and state systems and reconfigured power dynamics by strengthening women's economic agency and community standing. At the transformative level, the programme began to shift prevailing mental models around childcare: mothers, workers, and community leaders increasingly recognised the creche as a public good rather than a private household burden. Structural and practice-level conditions were well-established; relational and transformative conditions were present but remained in early stages, with full maturation requiring sustained engagement over a longer time horizon.

[1] https://www.fsg.org/resource/water_of_systems_change/

4.2 Contribution Narrative

Contribution Analysis served as the overarching methodology to assess whether and how programme activities led to the observed results. The contribution narrative was built by collecting evidence from multiple stakeholder groups (mothers, creche workers, community members, programme staff, and the DMF PMU), triangulating quantitative survey findings with qualitative accounts from FGDs and KIIs, and testing the causal claims embedded in the Theory of Change against the patterns observed in the data.

Testing against the ToC's directives, it is clear that - within the creche, the programme delivered regular nutrition, structured daily routines, and responsive caregiving across all 150 centres. The worker model, anchored in local recruitment, a 12-day training investment, and home-visit-based attendance strategies, sustained high levels of community trust and child retention. Beyond the creche, the programme produced strong and stable gains in maternal time use: childcare hours fell from 3.66 to 1.9 hours per day, and 90.5% of mothers reported feeling less burdened. Awareness of nutrition and hygiene practices increased, and hygiene practices were widely adopted at home, as these required no additional household expenditure.

Where outcomes depended on conditions outside the programme's control, results were more partial. Nutrition adoption at home remained constrained by poverty; home diets still consisted of rice, dal, and potato. Father engagement declined rather than increased: a direct tension with the Theory of Change's third assumption, and one attributable to migration, work patterns, and entrenched gender norms rather than to programme design. Community ownership of the creche, while high in acceptance, lagged behind in formal governance capacity and resource mobilisation.

The QCA analysis reinforced the contribution narrative by identifying learning support and food/water access as the two core causal conditions that appeared across all pathways to improved child outcomes. Participation of mothers in meetings with the creche workers, broader infrastructure availability, and adoption of nutrition and care practices at home functioned as peripheral conditions: they varied across pathways and acted as contextual enablers rather than primary drivers. The implication for the programme is that its strongest contribution pathway runs through the two inputs it most directly controls (in-centre nutrition and learning), while the household and community-level conditions that would deepen and sustain impact require a longer and more resource-intensive engagement strategy.

4.3 Evaluation Criteria and Structure of Findings

The detailed findings of the evaluation, presented in the following chapter, are organised using four evaluation criteria drawn from the OECD-DAC framework. Each criterion examines a distinct evaluative question, drawing on the full range of quantitative and qualitative evidence collected during the study.

Relevance asked whether the programme responded to the actual conditions, constraints, and unmet needs of its intended beneficiaries. The Relevance section assessed the prevalence of child malnutrition and the care deficit in Banspal block, the demand for creche-like childcare given prevailing social norms and livelihood realities, the reasons why earlier childcare arrangements did not sustain in some control villages, and the fit of the Mamata Ghara model with the needs identified

by the DMF and by households. Evidence for this section was drawn from the mother survey, household profile data, control village FGDs, and the DMF PMU interview.

Effectiveness assessed the extent to which the programme was implemented and functioned as intended at the creche, community, and household levels. The Effectiveness section is organised along two axes: at the creche level, it examined service delivery quality, creche worker motivation and capacity, supply readiness through the creche composite index, and the regularity of nutrition and caregiving routines; beyond the creche, it examined programme participation, the services mothers reported receiving, and the interface between the creche and the wider community. Evidence was drawn from the mother and creche worker surveys, creche grading results, and treatment village FGDs.

Impact measured the changes attributable to the intervention across the programme's principal stakeholder groups. For children, the impact section examined nutrition outcomes (dietary diversity, health status transitions, illness patterns) and learning and behavioural development. For mothers, it covered changes in knowledge, attitudes, and practices pertaining to childcare; shifts in time use, rest, and livelihood participation; and changes in reported stress and wellbeing. For fathers, it examined shifts in engagement and the structural barriers that limited change. For creche workers, it assessed professionalisation, agency, and social standing. Evidence was drawn from the child health transition analysis, mother survey data on time use and employment, qualitative accounts across treatment FGDs, and the creche worker survey.

Sustainability examined the conditions under which the programme's gains could endure beyond the current funding cycle and the elements required for long-term integration into public systems. The Sustainability section assessed community ownership and CMC governance capacity, perspectives from the programme team and the DMF on continued funding and transition planning, the gap between Mobile Creches' operational standards and the government Standard Operating Procedure (SOP) that is required if Mobile Creches exited, and the opportunity presented by Odisha's planned statewide creche expansion for sharing the tested Mamata Ghara model as a reference template. Evidence was drawn from the CMC FGD, the DMF PMU and Programme Coordinator KIIs, the Community Facilitator interview, and the operational comparison between MC standards and government norms.

5. Analysis and Findings

5.1 Programme Relevance

5.1.1 Framing Relevance

Under the Relevance, Effectiveness, Impact, and Sustainability (REIS) framework, relevance asked whether the intervention fit the problem it set out to address. The criterion required examining whether the programme responded to the specific conditions, constraints, and unmet needs that shaped everyday life for its intended beneficiaries, and whether it did so in a way that existing institutions could not.

5.1.2 The Local Context: Structural Vulnerability and the Care Deficit

Banspal is a deeply marginalised tribal block. The population served by the programme faced compounding vulnerabilities across income, education, housing, and social position. The household survey (N=328) provided a detailed profile of the families whose children the programme was designed to serve.

Table 1: Household profile of programme beneficiaries (N=328 mothers)

Source: Mother survey (N=328).

Indicator	Value
Average household size	5.5 members
Mean household income	₹10,582/month (median ₹8,500)
Mean mother's income	₹2,326/month (median ₹2,000)
Housing: kutcha	68.3% (224/328)
Mother's education: no formal education	57.9% (190/328)
Social category: ST or ST-PVTG	85.4% (280/328) overall; ST 69.5% (228/328), ST-PVTG 15.9% (52/328)
Religion	Hindu 67.1% (220/328), Sarna/Tribal 30.5% (100/328)
Pre-creche primary caregiver: mother alone	98.2% (322/328)
Father's daily childcare	30 minutes/day, playing only
Mothers with no paid work before creche	45.1% (148/328)

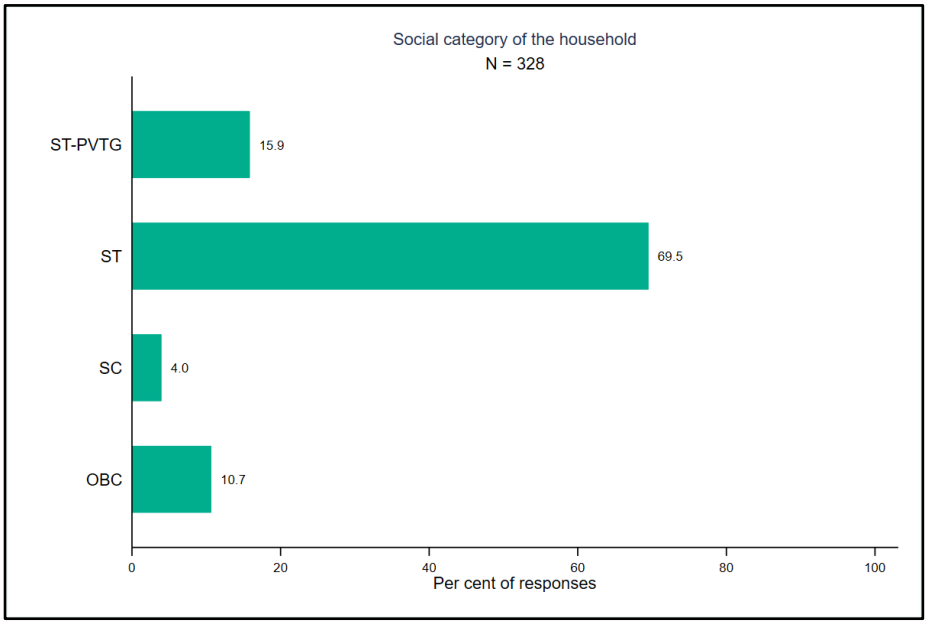

Figure 3: Social category of the household (N=328)

Over 85.4% (280/328) of mothers belonged to Scheduled Tribe (ST) or Particularly Vulnerable Tribal Group (ST-PVTG) categories. Nearly 57.9% (190/328) had no formal education. Two-thirds of families lived in kutcha houses: structures of mud, thatch, and untreated wood that offered limited protection from monsoon rains, heat, and insects. Average household monthly income was approximately ₹10,582, although the median sat lower at ₹8,500. The gap between mean and median reflected a small number of better-off households pulling the average upward. The social composition of the sample showed a clear vulnerability gradient. Among children classified as severe by Management Information System (MIS) anthropometric data, ST-PVTG representation was 30.9%, compared with 2.5% among normal-status children. Other Backward Classes (OBC) families concentrated in the normal category (23.5%) and were almost absent from the severe group (2.9%).

Livelihood Reality

The livelihoods that sustained these families were precarious and seasonal. Mothers worked on average 3.3 to 5.0 months per year and 10 to 12 days per month, earning roughly ₹2,326 monthly. The income came largely through irregular daily wage labour, agricultural work on other people's fields, and long trips into the forest to collect firewood. Before the programme began, 45.1% (148/328) of mothers had no paid work at all, and a further 48.8% (160/328) worked only irregularly. Only 6.1% (20/328) had regular employment (mother survey, N=328).

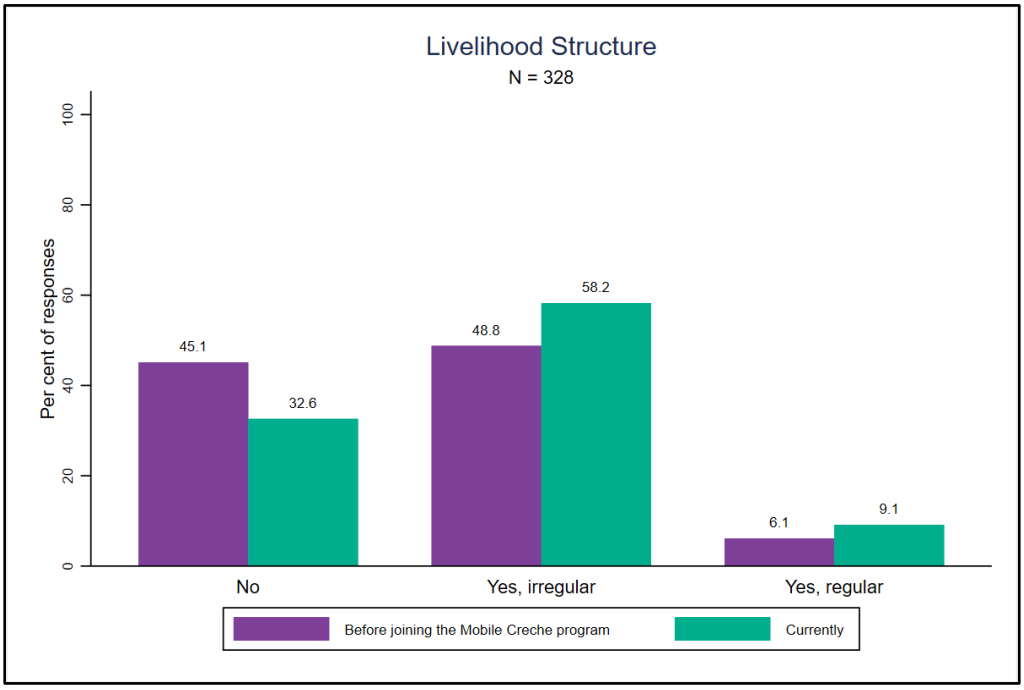

Figure 4: Livelihood structure (N=328)

Women's work in Banspal was dominated by forest collection (four to five hours daily during the season), agricultural labour at ₹200–250 per day, and intermittent Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) work. In the control village of Ambadahara, women described MGNREGA work as available for only two weeks per year. Men earned significantly more, at ₹400–600 per day for masonry, ploughing, or mine-related labour. Male migration to Bhubaneswar, Andhra Pradesh, or Cuttack for three to seven months after the harvest was reported in some villages. This pattern left women to manage both income and household alone for extended stretches.

Agriculture was limited to kharif paddy for subsistence. Water scarcity constrained cultivation beyond a single season. The livelihood pattern mattered directly for the childcare problem: when mothers needed to work, whether in the forest, the fields, or at a construction site, there was no one available to care for children under three.

The Caregiving Burden and Gendered Norms

Before creche enrolment, 98.2% (322/328) of mothers reported being the primary caregiver for their child. According to 99.4% (326/328) of the sample, the traditional caregiver for children aged 0–3 was the mother. On an average day before creche, a mother spent 3.66 hours on direct childcare and 3.8 hours on domestic chores: cooking, cleaning, fetching water, and sweeping. The total combined to roughly 7.5 hours of unpaid labour. In Jamdudiha, the figure was higher, with mothers reporting 5 to 6 hours spent on domestic work alone. Fifty-nine per cent (194/328) of mothers reported receiving no support with domestic chores from anyone else in the household (mother survey, N=328).

The programme operated within deeply held gendered norms around caregiving. In the survey, 85.6% (281/328) of mothers agreed or strongly agreed that mothers should stay home to care for

young children instead of working. In the absence of childcare, this belief worked as a structural constraint on women's economic participation. At the same time, 92.4% (303/328) agreed that fathers should share equal responsibility for childcare, and 81.1% (266/328) strongly disagreed that it was unacceptable to leave children in institutional care. These three numbers together revealed a complex normative environment: mothers simultaneously endorsed the primacy of maternal care and the principle of paternal responsibility, while overwhelmingly accepting institutional alternatives. Creche offered a practical resolution to the tension between the expectation that mothers care for children and the economic necessity that they work.

Fathers' involvement in childcare was minimal. The survey recorded an average of 30 minutes per day spent by fathers, limited almost entirely to playing with the child or holding the child while the mother cooked. Across treatment village FGDs in Fuljhar, Jamdudiha, and Rabapanasadihi, mothers described fathers' roles as limited to brief evening interactions. In Fuljhar, mothers said directly that alcoholism prevented fathers from spending quality time with children. In Jamdudiha, mothers reported that despite earning ₹500–600 per day, many men spent a large portion of their earnings on alcohol.

5.1.3 The Two Problems: No Childcare for 0–3 Year Olds, and Households Unable to Provide Adequate Nutrition

The Childcare Gap

Anganwadi centres, the backbone of India's child development infrastructure under the Integrated Child Development Services (ICDS), serves children aged three to six years. For children below that age, from six months to three years, there was, as the DMF PMU respondent described, no availability of services, and the gap was severe. The mother survey confirmed the finding: only 1.2% (4/328) of mothers named any government institution as a traditional caregiver for children aged 0–3 (mother survey, N=328). There was no full-day crèche care mechanism for children aged 0–3. While take-home ration (THR) was available through Anganwadi, it did not address day-time childcare and was often consumed at household level rather than reserved for the child.

Without full-day institutional care, children were left with grandmothers (reported as supplementary caregivers by 84% (46/55) of creche workers) or older siblings (38%, 21/55). In 7% (4/55) of cases, creche workers reported that children had been left entirely alone (creche worker survey, N=55). The mother survey recorded that 22.6% (74/328) of mothers took their child to work before enrolment in creche. Among mothers of severely malnourished children, the figure was 30.9% (21/68) (mother survey, severe category N=68). Across every treatment FGD, mothers described carrying infants, sometimes as young as nine months, on their backs with a cloth gamucha to the forest or fields, or laying them on the ground while they worked. In Rabapanasadihi, mothers recalled returning to work as early as one to two months after childbirth. In Dudhaposhi, community leaders described mothers carrying children into the forest to cut wood.

Where children were not taken to work, they were often in the care of older siblings. Sixteen per cent (52/328) of mothers reported the arrangement in the survey, rising to 22.1% (15/68) among mothers of severely malnourished children (mother survey, severe category N=68). In some cases, both children accompanied the mother to the work site, and the elder child would take care of all younger siblings while the mothers worked. The cost of the arrangement fell on the older child's

education. The DMF PMU respondent confirmed that older siblings were missing school; school dropout was occurring. Mothers in Rabapanasadihi confirmed that before creche, older daughters missed school to look after younger children. In Jamdudiha, mothers reported that their older children could now attend school regularly because they were no longer needed for babysitting.

The Nutrition Gap

The average reported age of solid-food introduction was 4.3 months, earlier than the WHO recommendation of six months of exclusive breastfeeding. Qualitative evidence suggests the gap reflected a mix of limited awareness of the recommended timing, work-related difficulty in sustaining breastfeeding, food scarcity, and the practical challenge of preparing age-appropriate food while managing domestic and livelihood burdens. The story is not that nobody knows; it is that awareness and practice vary, and practice is constrained by context. In control villages, mothers in Upar Kainsari reported introducing rice, dal, and potato as early as three to four months because they could not continue to breastfeed while working full days in the forest. In Dudhaposhi, community members described families feeding young children dal pani (lentil water) or mashed rice from three to four months of age. The DMF PMU respondent described a practice that captured the depth of the crisis: families gave children locally brewed rice beer, hadia, to stop them crying for food and put them to sleep.

Home diets across all FGDs comprised rice, dal, potato, and occasionally biscuits or Maggi noodles. The home diet provided a narrow nutritional base, insufficient for the approximately 1,000 calories per day required by a child in the age group. Mothers in Fuljhar acknowledged they could not replicate the creche diet at home because household income ranged between ₹2,000 and ₹5,000 per month. Eggs, at ₹6–9 each, were unaffordable on a daily basis. There was no dietary diversity in the home feeding environment.

Table 2: Reasons for creche enrolment (N=328 mothers, multiple responses)

Source: Mother survey (N=328). Sub-group Ns reflect MIS health categorisation of the child. Multiple responses permitted; percentages may sum to more than 100%.

Reason for enrolment	Total (N=328)	Normal (N=119)	Moderate (N=141)	Severe (N=68)
Nutrition and meals for child	89.3% (293/328)	89.1% (106/119)	87.9% (124/141)	92.6% (63/68)
Lack of time due to domestic chores	76.5% (251/328)	82.4% (98/119)	73.0% (103/141)	73.5% (50/68)
Safety and supervision of child	71.0% (233/328)	68.1% (81/119)	72.3% (102/141)	73.5% (50/68)
Lack of time due to occupational work	55.2% (181/328)	58.8% (70/119)	51.8% (73/141)	55.9% (38/68)
Learning and development for child	43.9% (144/328)	42.0% (50/119)	47.5% (67/141)	39.7% (27/68)

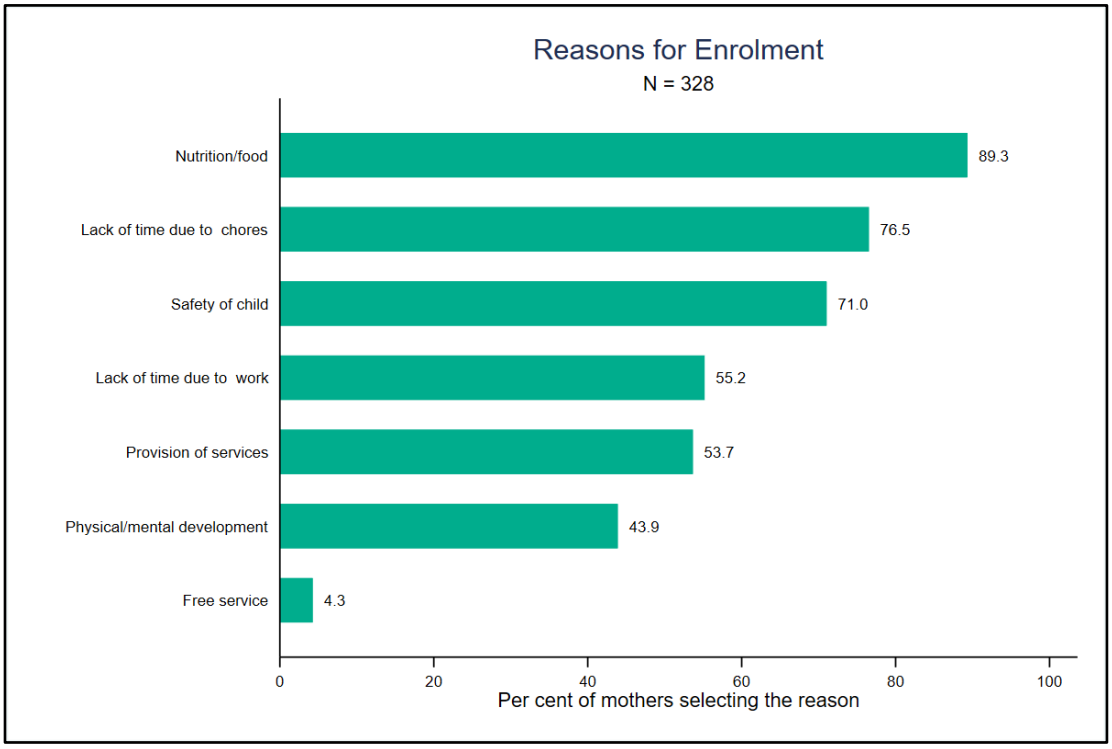

Figure 5: Reasons for enrolment (N=328)

These four reasons: nutrition (89.3%, 293/328), domestic time constraints (76.5%, 251/328), safety (71.0%, 233/328), and occupational time constraints (55.2%, 181/328), converged to confirm that the programme sat at the intersection of several pressing and overlapping needs.

These needs correspond to the domains of the WHO Nurturing Care Framework for early childhood development: nutrition, safety and security, responsive caregiving, and opportunities for early learning.

5.1.4 Why the District Mineral Foundation Stepped In

DMF identified a severe nutritional and childcare gap concentrated in an age group for which full-day childcare support was absent and existing government provisions were not sufficient to meet care and feeding needs during the day, also in a geography where household resources were insufficient to compensate. The DMF's mandate is to invest mining revenues in the welfare of mining-affected communities. The nutritional data from Banspal provided a clear case for this intervention.

The first 1,000 days framing, widely recognised in global evidence as the window of highest returns to investment in nutrition and cognitive stimulation, was explicitly invoked by the DMF respondent. The Programme Coordinator articulated the same logic: if the child was looked after well now, their future was secured; if neglected, there would be no improvement even with providing nutrition or education support later.

At the institutional level, creche operated in convergence with the ICDS system: Anganwadi workers participated in monthly growth monitoring at creche, and the Poshan Tracker was updated jointly. An Advisory Committee met every six months, bringing together the Chief District Medical Officer, Child Development Project Officers, the Additional District Magistrate, and Zilla Parishad members. The creche ensured that the children were ready to get into the Anganwadi. All mothers, 100%

(328/328), reported planning to send their graduated children to the Anganwadi centre. The DMF respondent noted that children who transitioned from creche arrived better prepared in socialisation, hygiene habits, and early learning readiness than children coming directly from families.

The Odisha state government was separately planning statewide creche operations. At the time of the evaluation, there was no formal linkage between the DMF-funded model and the state's parallel pathway. No sharing of learnings between the two had occurred. The Mobile Creches model, with its tested operational design and accumulated community trust, could serve as a template for the expansion. The absence of integration between the two systems represented both a gap and an opportunity.

5.1.5 The Institutional Gap: Why Earlier Childcare Arrangements Did Not Sustain in Some Control Villages

The evidence from control villages was the most telling part of the relevance picture. It showed what happened when the childcare and nutrition needs went unaddressed, and why previous attempts to address it had collapsed.

Daily Life Without a Creche

In Jaladihi, where no creche operated, mothers in nuclear families described a daily reality of taking infants as young as nine months into the forest for firewood collection. The trip took three to four hours. Their fears were specific: snake bites, encounters with bears, and exposure to sun and rain. When children were left at home instead, mothers worried about them crying, falling, or wandering towards vehicles. Feeding was routinely delayed or missed because of workload pressures. An Anganwadi centre existed in the area, although mothers reported it was located far from their settlement and children could not attend because there was no one to escort them.

In Ambadahara, mothers described spending three to five hours daily on intensive childcare alongside four hours on other domestic chores. Women's livelihood options were limited to irregular MGNREGA work at ₹200–220 per day, often available for only two weeks per year. The absence of a creche forced a hard choice: mothers in nuclear families either took children to the forest or stayed home and forfeited their daily wages.

The health conditions in these villages told their own story. In Jaladihi, the nearest hospital was at Suakati, roughly 10–12 kilometres away, and families often walked because they could not afford transport. Canal water used for bathing was contaminated: mothers described it as reddish and dirty, causing recurring skin diseases among children. In Upar Kainsari, mothers reported that their first recourse for a sick child was not the health system but a traditional healer, a Guni or Dishari for jhada phunka (exorcism). Only when that failed would they travel to the hospital.

Why Earlier Childcare Arrangements Weakened or Closed

In some control villages, earlier childcare arrangements were reported to have weakened or closed over time. The closure was not caused by a lack of need. The need was as acute as anywhere in the block. The evidence suggests that earlier childcare arrangements in some control villages were not sufficiently adapted to local access conditions, attendance patterns, settlement geography, and the

level of sustained community trust-building required for regular use. The evaluation identified six reasons from the control village FGDs:

First, attendance was irregular. Attendance averaged just three to four children per day, against twelve to fifteen in the Mobile Creches programme. Second, mothers sent children only when they had work, treating the centre as an occasional convenience. Third, temporary diarrhoea after dietary change led some mothers to withdraw children. Fourth, there was no sustained community ownership: no systematic mobilisation, no community governance structure analogous to Mobile Creches' Creche Management Committee (CMC) model, and no follow-up on absentee children. Fifth, mothers lacked trust in the creche's ability to provide adequate care. Sixth, mothers tended to care for the child themselves until one to two years of age and stopped work in between, making sustained engagement difficult to achieve.

In Ambadahara, a creche had been proposed and then retracted because only five to six infants could be identified in a single hamlet. The village's fragmentation into three separate sahis with poor road connectivity, along with the active presence of wild elephants, made a single-location model impractical.

State-run creches also lacked the systematic community mobilisation (CMC formation, home visits for absentees, trust-building through locally nominated workers) that the Mobile Creches model treated as central. Closure risk increased where the childcare model did not sufficiently account for access barriers, regular attendance realities, dispersed settlement patterns, and ongoing community mobilisation needs. The mere presence of a childcare service was not sufficient. Where the design of the service did not match the access conditions, settlement patterns, and daily rhythms of the communities it served, the service collapsed.

The mothers in control villages were not indifferent to the problem. In both Jaladihi and Upar Kainsari, they explicitly and urgently requested the re-establishment of a childcare centre where they could leave children safely from 8:00 in the morning to 4:00 in the afternoon and go to work.

5.2 Effectiveness of Creche Services

5.2.1 Defining Effectiveness and the Sphere of Control

Effectiveness, under the REIS framework, referred to the extent to which the Mobile Creches model was implemented and functioning as intended. For the evaluation, effectiveness was assessed within what the programme defined as its sphere of control: the domain of outcomes over which Mobile Creches exercised direct operational influence. The sphere included centre routines, nutrition provision, daily care, worker training and deployment, community governance structures (the CMC), and the supply chain for food and materials.

The sphere of control is separate from the sphere of influence, which covers outcomes shaped jointly by programme delivery and household or structural factors: maternal knowledge adoption, household nutrition practices, and father engagement. The sphere of influence is examined under Impact (Section 5.3).

The analysis of effectiveness is structured around three pillars: the creche worker as the central implementation actor, the quality of creche as an operating environment (assessed through a composite index), and the role of the community in supporting programme functioning.

5.2.2 Programme-Level Operational Performance

From the service supply lens, the regular and effective execution of the creche's operations (from the creche workers perspective) can be gauged from the following indicators.

Table 3a: Programme-level operational indicators (creche worker survey, N=55)

Source: Creche worker survey (N=55).

Indicator	Value (Median)
Creches operational in Banspal block	150
Median children enrolled per creche	15
Average daily attendance per creche	12
Days open per week	6
Hours open per day	8
Workers per creche	2
Monthly attendance of children 60–100%	82% (45/55)
No stock-outs in past 3 months	85% (47/55)
Food supply delivered monthly	100% (55/55)
Staff retention	95% (52/55)

Table 3b: Programme-level enrolment indicators (mother survey, N=336 children)

Source: Mother survey (N=336 children).

Indicator	Value
Mean months enrolled (mother-reported)	20.2 (SD 8.0)
Mean days/week at creche	5.9 (SD 0.7)
Dropout rate	1.2% (4/336)

The programme operated 150 creches across Banspal block, each staffed by two workers and open six days a week for approximately eight hours. The median enrolment was 15 children per creche, with average daily attendance of 12. These numbers carry weight when read against the backdrop of previous available child-care facilities in the same geography, which closed after sustaining only 3–4 children per centre. Children attended creche on an average of 5.9 days per week and spent

approximately 6.4 hours daily at the centre. Mean enrollment duration was 20.2 months. The dropout rate was 1.2% (4/336) (mother survey, N=336 children). Attendance variation across clusters warrants operational attention: seven workers reported average daily attendance below 8, concentrated in Gonasika, Kanjipani, and Nayakote.

Food supply chains worked with reasonable regularity: 100% (55/55) of centres received monthly deliveries, and 85% (47/55) of creche workers reported no stock-outs in the preceding three months (creche worker survey, N=55). Where stock-outs did occur (15%, 8/55), they affected staple items such as rice, dal, and ragi. The pattern pointed to supply-chain fragility at the margins rather than systemic breakdown.

5.2.3 Creche Worker: Engine of the Model

The creche worker occupied the central position in the programme's theory of change. She was the child's daily caregiver, the household's first point of contact, and the community's trust anchor. Understanding who she was, how she was recruited and trained, what she did each day, and how mothers and the community perceived her is necessary to understand why the programme worked where previous models had not.

Who the Creche Worker Is

Table 4: Creche worker profile (N=55)

Source: Creche worker survey (N=55).

Indicator	Value
Median age	27 years
Social category	ST 75% (41/55), ST-PVTG 11% (6/55), OBC 11% (6/55), SC 4% (2/55)
Education	Secondary (Class 9–10) 62% (34/55); No formal education 4% (2/55)
Marital status	Unmarried 85% (47/55)
Previous occupation*	Agricultural labourers 45% (25/55), homemakers 36% (20/55), ASHA/ANM/AWW 25% (14/55), students 22% (12/55)
Median tenure	2 years
Median salary	₹6,000/month
Staff retention	95% (52/55)
Tribal community	Bhuyan 64% (35/55), Juang 11% (6/55), Munda 9% (5/55)

**Previous occupation was a multiple-response question; percentages may sum to more than 100%.*

Creche workers were young, local, and community-rooted women, recruited from within the communities they served. They shared the language, cultural practices, and daily rhythms of the families whose children they cared for. Their median age was 27 years and 85% (47/55) were unmarried, placing them at a life stage where the programme role was both a livelihood opportunity and a pathway to social standing. Before joining, nearly half (45%, 25/55) had worked as agricultural labourers and over a third (36%, 20/55) had been homemakers. A quarter (25%, 14/55) had prior experience as frontline health workers (Accredited Social Health Activist (ASHA), Auxiliary Nurse Midwife (ANM), or Anganwadi workers), which gave them some familiarity with community engagement. Workers who had previously worked as ASHA or ANM reported that those roles required frequent travel and a heavy workload. The creche position allowed them to work near their homes and for their own community.

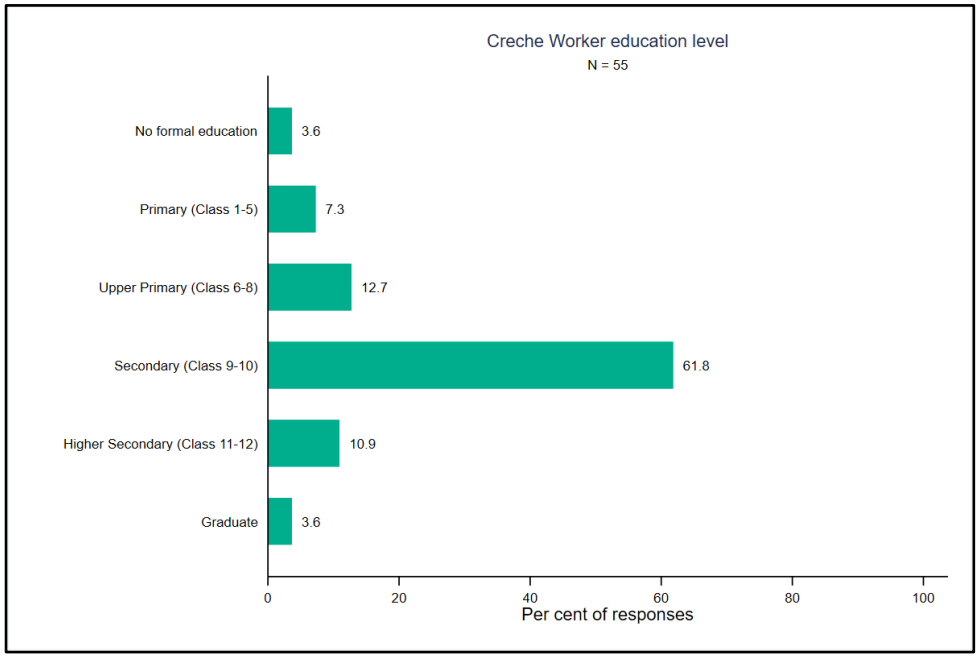

Figure 7: Creche worker education level (N=55)

What the Creche Worker Does

The creche worker's daily responsibilities went far beyond what the title might suggest. Each day, she managed a structured routine: mobilisation and home visits for absent children in the morning; health screening and a supplementary nutrition snack; structured play and early childhood development activities covering physical, language, and cognitive domains; preparation and serving of a full hot cooked meal with active responsive feeding; rest and growth monitoring; afternoon activities and a second snack; and parent interaction at the time of pick-up. Across the routine, she also maintained six types of registers (attendance, health, nutrition, activities, supplies, and parent interaction) and communicated daily with her supervisor.

She functioned as a community health worker (identifying Severe Acute Malnutrition (SAM) and Moderate Acute Malnutrition (MAM) signs, supporting vaccination access, linking families to health services), a nutrition counsellor (conducting monthly parent education sessions at 91% (50/55) of centres), an early childhood educator (delivering structured Early Childhood Care and Development (ECCD) activities), an attendance officer (95% (52/55) used home visits as their primary attendance strategy, with 76% (42/55) rating home visits as the most effective approach), and a scheme facilitator (supporting families to obtain Aadhaar cards, bank accounts, Mamata scheme enrolments, and birth certificates).

How the Creche Worker Builds Trust

The Community Facilitator described the trust-building mechanism in detail. Workers begin by discussing the family's daily life, their happiness and sorrow, before introducing childcare topics. The relational approach, which put the family's concerns before the programme's agenda, was how the programme overcame the initial resistance it encountered in many villages. Creche workers navigated alcoholism, resistance to institutional care, and traditional healing beliefs. The creche worker tackled such belief systems head on by saying - 'Do that also, but first we have to go to the

medical doctor.' The community called the creche worker "Didi", a term of familial trust, rather than using a formal programme title.

Motivation, Satisfaction, and Challenges

The survey data from creche workers (N=55) showed strong professional engagement. Ninety-one per cent (50/55) cited a desire to serve the community as their primary motivation, alongside income opportunity (84%, 46/55). Job satisfaction was high: 85% (47/55) were very satisfied overall, 87% (48/55) felt very confident in performing their duties, and 95% (52/55) took pride in their work. Seventy-three per cent (40/55) reported being very respected in the community. Ninety-seven per cent (53/55) said their social status had improved since joining the Mobile Creches team as a creche worker. 93% (51/55) stated that their role in household decision-making had increased. For young tribal women who had previously worked as homemakers or agricultural labourers, the shift in standing was real (creche worker survey, N=55).

However, the creche workers also reported some challenges that inhibit them from performing their work to the best of their ability.

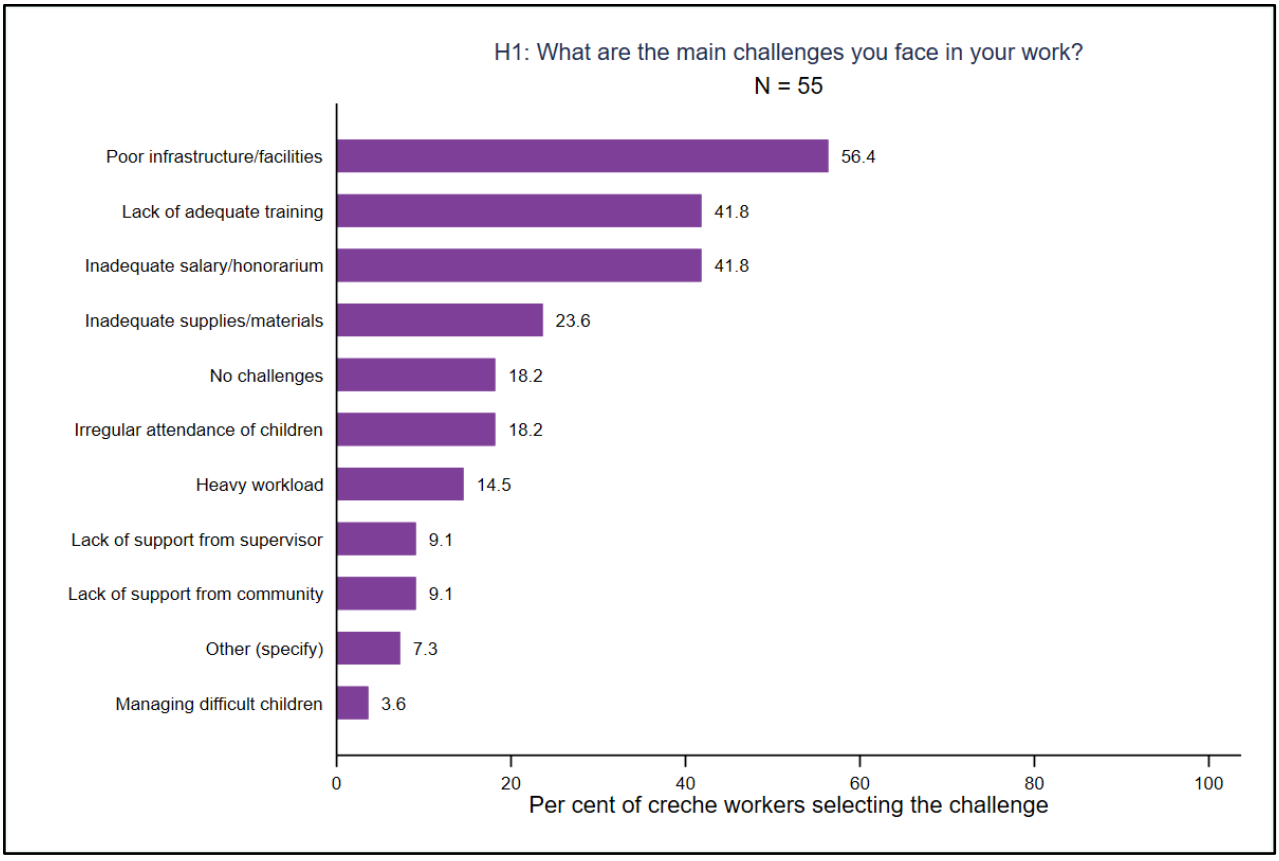

Figure 8: Creche worker challenges (N=55)

Source: Creche worker survey (N=55). Multiple responses permitted; percentages sum to more than 100%.

Infrastructure issues such as unavailability of fans in summers, no separate toilet, lack of a compound wall or presence of a drain nearby etc (56%, 31/55) was the most commonly cited difficulty, followed by inadequate salary (42%, 23/55) and inadequate training (42%, 23/55). 80% (44/55) of workers identified improved infrastructure as their top support need. About 25% (14/55) reported not having received induction training, and 20% (11/55) said they had not received refresher training; (i.e. 75% of creche workers reported receiving induction training, 80% refresher training).

Here, it is worth noting that some workers may not have recognised the term 'refresher training' in the survey instrument, which could have contributed to the gap. Training coverage was strong for core topics: nutrition and feeding (100%, 55/55), hygiene and sanitation (96%, 53/55), child safety (87%, 48/55), and growth monitoring (87%, 48/55). It was weaker for topics such as communication with parents (34%, 19/55), first aid (30%, 17/55), immunisation linkages (26%, 14/55), and early childhood development/stimulation (43%, 24/55). These gaps in softer skills may partly explain why some aspects of the care model translated unevenly to the household level.

Where creche workers had infrastructure, supervision, and supplies, the programme was delivered. When these supports were absent, the model weakened: not because of the worker herself, but because of the conditions she worked in.

5.2.4 Creche Quality: The Composite Index

Index Calculation Methodology

To assess how well each creche delivered services, the evaluation constructed a normalised composite index for each of the 55 creches surveyed. The composite score ranged from 0 (lowest quality) to 1 (highest quality). It was built by aggregating item-level responses from the creche worker survey across a set of observed service-delivery and facility-related indicators. The composite was formed from three equally weighted sub-indices, each measuring a different dimension of creche functioning. The logic was straightforward: a good creche needs decent physical conditions (Sub-index 1), reliable food and supervisory support (Sub-index 2), and activities that engage children (Sub-index 3). Each sub-index scored individual components, normalised them to a 0–1 scale, and averaged them. The overall composite was the mean of the three sub-indices.

Sub-index 1 (Infrastructure and Safety) had five components. Items Available was the sum of 13 binary checklist items (presence of specific facility items) divided by 13. Clean Water Access was scored as Yes=1, No=0. Medical Kit Adequacy was scored as Partially adequate=0.5 and Not adequate=0. Safety Protocol Exists was Yes=1, No=0. Safety Rating was scored on a five-point scale from Very safe (1.0) to Very unsafe (0.0). The sub-index score was the average of these five scores.

Sub-index 2 (Nutrition, Provisions, and Supervisor Support) had nine components: Supervisor Visit Frequency (Weekly=1, Fortnightly=0.5, Monthly=0.25), Types of Supervisor Support (sum of 4 binary items divided by 4), Satisfaction with Supervisor (4-point scale), Supplement Regularity (Regular=1, Sometimes=0.5), No Stockouts (binary), Number of Meals per Day (4 meals=1, 3 meals=0.75), Egg Days per Week (2 days=1, 1 day=0.5), Active Feeding Practice (binary), and Meal Time Adherence (Always=1, Most of time=0.75). The sub-index was the average of these nine scores.

Sub-index 3 (Child Engagement) had six components: Regular Activities (sum of 9 activity types divided by 9), Materials Available (sum of 9 material types divided by 9), Developmental Activities (sum of 6 developmental activity types divided by 6), Play Hours per Week (min-max normalised across observed range), Tribal Language Use (5-point frequency scale), and Folk Songs/Stories (Regular=1, Sometimes=0.5, No=0). The sub-index was the average of these six scores.

Based on the overall composite, creches were classified into three categories: low-graded (below 0.50), moderate-graded (0.50–0.65), and high-graded (above 0.65).

Results

The average score of indicators/indices across creche categories is showcased below.

Table 6: Creche composite index by grade (N=55 creches)

Source: Creche worker survey (N=55). Composite index constructed from three equally weighted sub-indices.

Index / Component	Low (n=5)	Moderate (n=24)	High (n=26)	Gap (H–L)
OVERALL COMPOSITE	0.45	0.59	0.71	+0.26
Sub-index 1: Infrastructure & Safety	0.30	0.56	0.75	+0.45
Clean water access	40% (2/5)	83% (20/24)	100% (26/26)	+60pp
Safety protocol exists	0% (0/5)	50% (12/24)	96% (25/26)	+96pp
Medical kit adequacy	0.00	0.21	0.27	+0.27
Items available (of 13)	39%	45%	67%	+28pp
Sub-index 2: Provisions & Support	0.70	0.79	0.82	+0.12
Active feeding practice	100% (5/5)	96% (23/24)	96% (25/26)	−4pp
Mealtime adherence	95%	96%	100%	+5pp
No stockouts	60% (3/5)	88% (21/24)	89% (23/26)	+29pp
Sub-index 3: Child Engagement	0.35	0.42	0.54	+0.20
Regular activities (9 types)	0.33	0.49	0.71	+0.38
Materials available (9 types)	0.20	0.37	0.49	+0.29

The overall composite across all 55 centres was 0.63, with a clear gradient from low-graded centres (0.45) to high-graded centres (0.71). Infrastructure and Safety (Sub-index 1) drove the largest gap between low and high creches (+0.45). Provisions and Supervisor Support (Sub-index 2) showed a much smaller gap (+0.12). Active feeding (100% in low, 96% in high) and meal timing (95% in low, 100% in high) were near-universal regardless of creche grade. The data revealed an important pattern: all centres, whether low or high graded, scored similarly on nutrition and basic care. What separated them was the physical environment: water access, safety protocols, medical kits, learning materials, and supervision frequency. The variability was in infrastructure and materials, which depended on local conditions, building quality, and supply-chain reach.

5.2.5 Safety as a Binding Constraint

Safety was the single largest infrastructure gap across the creche network. Safety protocols existed in 96% (25/26) of high-graded creches and in 0% (0/5) of low-graded creches. Safety protocol coverage was the largest gap of any indicator across the entire composite index (+96 percentage points). Clean water access showed the second-largest gap: 100% (26/26) in high-graded versus 40% (2/5) in low-graded centres (+60 percentage points). Medical kit adequacy was weak everywhere: 100% (5/5) of low-graded creches and 42% (11/26) of high-graded creches reported medical kits as not adequate. No centre across any grade reported a fully adequate medical kit.

Table 7: Safety indicators by creche grade (N=55)

Source: Creche worker survey (N=55).

Safety Indicator	Low (n=5)	Moderate (n=24)	High (n=26)
Safety protocol exists	0% (0/5)	50% (12/24)	96% (25/26)
Safety rating: Very safe	0% (0/5)	38% (9/24)	42% (11/26)
Safety rating: Somewhat safe	80% (4/5)	58% (14/24)	54% (14/26)

Safety Indicator	Low (n=5)	Moderate (n=24)	High (n=26)
Safety rating: Neutral or below	20% (1/5)	4% (1/24)	4% (1/26)
Clean water access	40% (2/5)	83% (20/24)	100% (26/26)
Medical kit: Not adequate	100% (5/5)	58% (14/24)	42% (11/26)
Medical kit: Partially adequate	0% (0/5)	42% (10/24)	58% (15/26)

Physical conditions on the ground compounded the safety concern. Many creches operated in private rented rooms that did not meet the space requirements of the SOP (250 sq ft per Mobile Creches standards). Workers reported that finding adequate space of 200–250 sq ft was very difficult in Banspal's geography. Some centres lacked separate kitchens, boundary walls, reliable water supply, and toilets. In Fuljhar, mothers noted that the creche's location near a road required a boundary wall for child safety. The Programme Coordinator confirmed that a systematic review had identified centres where kitchens and childcare spaces were co-located, and where external hazards such as open drains, proximity to roads, and absence of fencing posed risks. The programme responded by closing centres temporarily and mobilising communities to construct separate kitchens. Structural gaps, particularly around medical kits, fencing, and fire safety, persisted even in some high-graded centres.

Safety was the dimension on which centres varied most and the dimension the programme controlled least, given its dependence on available local infrastructure.

5.2.6 Mapping Effectiveness to the WHO Nurturing Care Framework

The WHO Nurturing Care Framework identifies five interrelated domains for early childhood development: good health, adequate nutrition, responsive caregiving, opportunities for early learning, and safety and security. The creche index data and creche worker survey allowed an assessment of how the programme covered each.

Nutrition

Nutrition was the strongest domain. All centres served three meals daily (median), with eggs provided twice weekly. Active responsive feeding was practised by 96% (53/55) of workers. Foods regularly served included rice/grains (100%, 55/55), dal/pulses (98%, 54/55), green leafy vegetables (91%, 50/55), ragi malt (75%, 41/55), sattu (75%, 41/55), eggs (73%, 40/55), fortified khichdi (56%, 31/55), and dates/dry fruits (64%, 35/55) (creche worker survey, N=55). The dietary diversity score across all children was 5.6 out of 7 food groups (mother survey, N=336 children). Meal time adherence was near-universal (98%, 54/55, always on time). Dairy (2%) and fruits (7%) were absent from most menus, reflecting the absence of dairy farming in the district and difficulty sourcing perishable items like milk in remote areas. The provisions and supervisor support sub-index (0.80 overall) confirmed that nutrition delivery was the most reliable dimension of creche functioning.

Health

Iron and folic acid (IFA) supplementation was provided regularly by 78% (43/55) of workers. Deworming within the past six months was reported by 98% (54/55) of centres. Growth monitoring was conducted monthly at 100% (55/55) of centres, with height and weight measurement recorded for every child. Water treatment was practised through boiling (95%, 52/55) and filtering (91%, 50/55). Vaccination facilitation followed multiple pathways: 60% (33/55) referred children to health

facilities, 16% (9/55) hosted ANM visits at creche, and 5% (3/55) used both. Eighteen per cent (10/55) of workers did not facilitate immunisation directly. Preventive health check-ups were mixed: only 35% (19/55) of centres reported a check-up within the past month, and 42% (23/55) reported that no check-up had ever taken place at the centre. Health convergence depended on the timing of government Village Health Nutrition Day (VHND) and Rashtriya Bal Swasthya Karyakram (RBSK) mobile health team visits rather than any formal arrangement (creche worker survey, N=55).

Responsive Caregiving

Responsive caregiving was evidenced through daily practice. Active feeding (sitting with the child, putting on bibs, encouraging eating, hand-feeding infants) was practiced by 96% (53/55) of workers. Ninety-eight per cent (54/55) sat with children during meals. Ninety-one per cent (50/55) encouraged eating. Ninety-one per cent (50/55) hand-fed infants who could not self-feed. Parent education sessions were conducted monthly at 91% (50/55) of centres. Home visits were used by 95% (52/55) of workers as the primary attendance strategy. The structured daily routine, covering washing, meals, activity-based development, and rest, turned creche from a custody arrangement into an organised developmental care environment (creche worker survey, N=55).

Early Learning

ECCD orientation had been received by 85% (47/55) of workers, and 74% (41/55) had received play-based learning training. Regular activities conducted included usage of songs and rhymes (84%, 46/55), playing with balls (85%, 47/55), physical play (85%, 47/55), drawing and scribbling (60%, 33/55), and storytelling (67%, 37/55). More specialised activities had lower coverage: sensory play at 53% (29/55) and language games at 35% (19/55). Materials availability was the weakest component across the entire index (0.41). Only 31% (17/55) of centres had picture books, 11% (6/55) had blocks or building toys, and 22% (12/55) had puzzles. Play hours averaged 12 per week. Tribal language was used at the majority of centres, and folk songs and stories were integrated into the curriculum (creche worker survey, N=55).

Safety and Security

Safety and security was the weakest domain, as detailed in Section 5.2.5. The programme had made progress: separate kitchens were constructed and safety protocols introduced. Structural deficits in clean water access, medical kit adequacy, fencing, and safety equipment persisted, particularly in low-graded centres.

In summary, four of the five Nurturing Care Framework domains (nutrition, health, responsive caregiving, and early learning) were present and actively used across all creches. Nutrition and responsive caregiving were the strongest. Safety remained the primary gap and represented what most sharply separated high-graded from low-graded centres.

5.2.7 Community Engagement, Acceptance, and the Path to Ownership

Community Perception and What Families Value

Community acceptance was high across data sources. Among mothers (mother survey, N=328), 77.4% (254/328) described their community as very accepting of leaving young children at a creche with non-family caregivers, and 18.6% (61/328) as somewhat accepting. Only 1.8% (6/328)

reported hesitancy. Among creche workers (creche worker survey, N=55), the figure was 91% (50/55) very accepting, and 75% (41/55) said acceptance had increased significantly over the programme period.

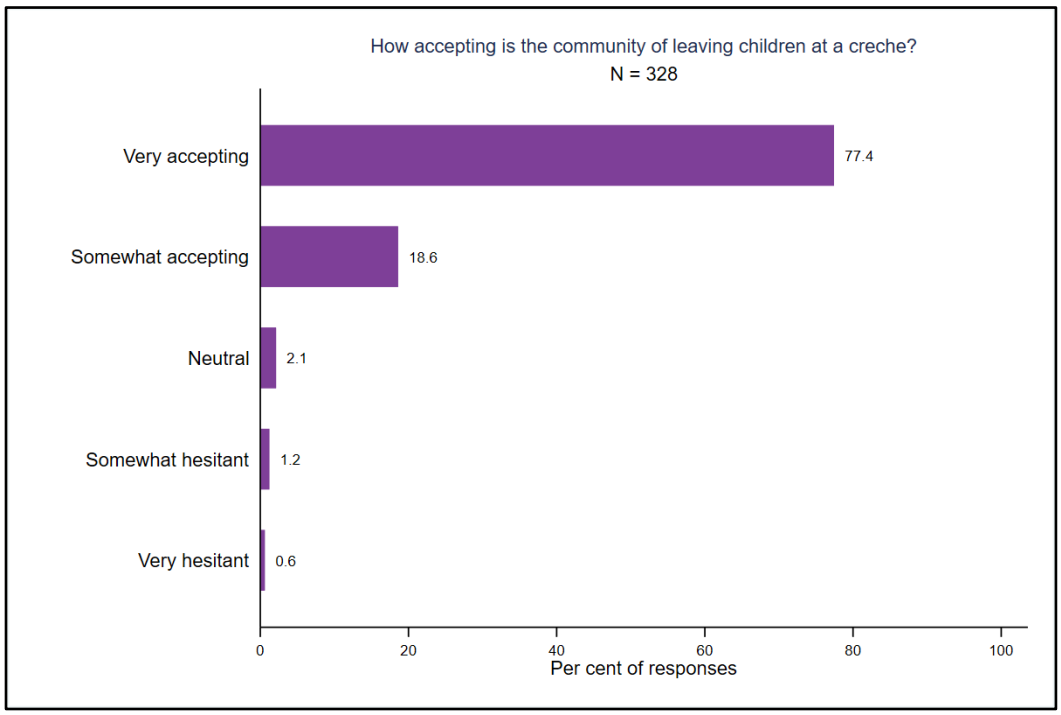

Figure 9: Community acceptance of leaving children at a creche (N=328, mothers survey)

When asked what families valued most about creche, workers reported: nutrition and meals (100%, 55/55), learning activities (100%, 55/55), safe childcare (95%, 52/55), health monitoring (67%, 37/55), enabling mothers to work (64%, 35/55), freeing family time (42%, 23/55), and social interaction for the child (31%, 17/55) (creche worker survey, N=55, multiple responses: percentages may sum to more than 100%). Families saw creche primarily as a nutrition and learning institution, with safety and time-release as secondary benefits.

When asked, 98% (308/328) of mothers said the community now recognised the importance of cleanliness and nutrition for children; only 6.4% (21/328) said traditional childcare techniques were considered sufficient (mother survey, N=328). Community discussions in Dudhaposhi captured the sentiment: leaders described creche as a vital safety net. In Rabapanasadihi, discussions in the Palli Sabha (village assembly) had addressed the need for a permanent building for the centre. The response was not passive acceptance: communities were beginning to invest in the programme's continuity.

Creche Management Committee: The Local Governance Layer

The Creche Management Committee (CMC) is a formal community structure established by Mobile Creches at each centre after it became operational. It includes the Ward Member, Anganwadi worker, ASHA worker, creche workers (as member conveners), and parents of all enrolled children. Monthly CMC meetings are conducted to address practical issues: repairs, fencing, kitchen gardens, water supply, toilets, and electricity.

The CMC fulfilled several functions. It gave the programme legitimacy by linking it to recognised community authority figures. It provided an accountability channel: members monitored creche worker performance. It supported mobilisation: when families had irregular attendance, workers and CMC members conducted joint home visits. Its composition ensured convergence with existing public health systems: the presence of ASHA and Anganwadi workers enabled referral pathways for malnourished children to Nutrition Rehabilitation Centres, immunisation coordination, and access to government entitlements.

From Acceptance to Ownership: An Ongoing Transition

Despite high acceptance of the model, ownership (defined as the community's ability and willingness to sustain and manage creche independently) remains at a nascent stage. When asked what they were willing to contribute, mothers reported cleaning and maintenance support (71.3%, 234/328), time and volunteer support (36%, 118/328), and food support (21%, 69/328) (mother survey, N=328). These figures showed practical willingness to participate, although they fell short of the deeper governance functions (resource mobilisation, independent decision-making, infrastructure provision) needed for community-owned operation.

Local governance systems, including Ward Members, ASHA workers, Anganwadi workers, and Panchayati Raj institutions, could support stronger creche functioning, although their roles were not yet formalised beyond the CMC structure. Handholding support is still needed to develop agency of the mothers and the leaders. It is evident that the programme has established the conditions for ownership; however, the transition from valuing creche to owning it is an active and ongoing process.

5.3 Impact on Children, Mothers, Fathers, and Creche Workers

5.3.1 Framing Impact and the Sphere of Influence

The section examines the changes in outcomes that can be attributed, in whole or in part, to the Mobile Creches programme. It draws a line between the programme's sphere of control (outcomes creche manages directly: meals, hygiene, structured routine, safety during centre hours, growth monitoring) and its sphere of influence (outcomes shaped jointly by programme delivery and household or structural factors: practice adoption at home, knowledge gain, income effects, father engagement). For outcomes in the sphere of control, the programme can be held directly accountable. For outcomes in the sphere of influence, the programme contributed through knowledge transfer, counselling, and enabling conditions, although whether those outcomes were realised depended on household resources, behaviour, gender norms, and livelihood realities.

5.3.2 Impact on Children

Nutrition and Feeding at Creche

The programme's strongest direct contribution to child nutrition operated through the creche menu. Children consumed food from an average of 5.6 out of 7 food groups (mother survey, N=336 children). The food groups intake breakdown includes: grains 99.7% (335/336), legumes and pulses 99.4% (334/336), eggs 95.5% (321/336), flesh foods 72.3% (243/336), vitamin A-rich fruits and vegetables 74.1% (249/336), other fruits and vegetables 97.0% (326/336). Dairy consumption was low at 22% (74/336), because dairy farming does not exist in the block.

Egg consumption at 95.5% (321/336) deserves specific attention. It reflected a convergence arrangement: eggs from the Anganwadi's take-home ration were redirected to creche so that the child ate the egg directly rather than it being shared across the household. The DMF PMU described the arrangement as a deliberate policy to address leakage. Mothers in multiple FGDs confirmed the behavioural change: they now handed eggs to the creche worker rather than taking them home.

The creche menu equalised nutritional intake during centre hours regardless of how vulnerable the child's household was.

Child Health and Illness

The mothers surveys reveal that two-thirds of children (67.9%, 228/336) had no illness in the three months preceding the survey (mother survey, N=336 children). Among those who did fall ill (N=108, or 32.1%), respiratory infections (75.9%, 82/108) and fever (45.4%, 49/108) were the most common types. Diarrhoea affected 25.9% (28/108) of ill children. Treatment-seeking among ill children was high at 92.6% (100/108), with government health facilities as the primary source of healthcare provision (81%, 81/100 of treatment-seekers).

Among all surveyed mothers (N=328), about 72.6% (238/328) mothers overall reported that the illness frequency in their children had decreased after joining the creche. A further 22.9% (75/328) reported instances of illness for the child as always low. Three per cent (10/328) reported it as always high, and 1.5% (5/328) said illness frequency had increased (mother survey, N=328).

Also, it can be posited that the extent of reported improvements in health increased with longer duration in creche - however it is difficult to establish this statement with confidence, given that

about 31% of the children who had been enrolled in the creche for less than 12 months, informed that the illness occurrences in their family was quite low. Among children enrolled for less than 12 months (N=57), 57.9% (33/57) reported decreased illness. For those enrolled from 12–17 months (N=58), reduction in illness was reported by 75.9% (44/58). For those enrolled in the creche for more than 18 months (N=221), about 75.6% (167/221) mothers reported a reduction in illness occurrence and frequency. The duration-response pattern provides suggestive evidence that the programme's health benefits strengthened with sustained exposure.

Illness attributable to poor water conditions, particularly diarrhoea and scabies, persisted. Gaps also remained in preventive care and health system linkage: reliance on unqualified local practitioners and traditional healing methods was common across several villages.

Table 8: Reported change in child illness by duration of enrolment (N=336 children)

Source: Mother survey (N=336 children).

Duration in creche	N	Illness decreased	Always low	Always high	Increased
Less than 12 months	57	57.9% (33/57)	31.6% (18/57)	3.5% (2/57)	7.0% (4/57)
12–17 months	58	75.9% (44/58)	19.0% (11/58)	5.2% (3/58)	0% (0/58)
18 months and above	221	75.6% (167/221)	21.7% (48/221)	2.3% (5/221)	0.5% (1/221)

Vaccination coverage was broadly strong at 97.3% (327/336) (mother survey, N=336 children). Among mothers who reported child illness (N=108), 28% (30/108) said the creche worker had supported them in accessing health services. The proportion varied by vulnerability: 47.6% of severe-category mothers who reported illness received such support, compared with 8.6% of moderate-category mothers. Workers appeared to direct more health support towards the most vulnerable children.

Enumerator observations provided a harder check on self-reported data. Among children who could be observed (N=192, excluding 42.9% not present at the time of the visit), 6% (12/192) showed visible symptoms of illness or pallor, and 11% (21/192) appeared unhygienic. Both figures rose sharply for the severe category: 17.6% showed visible symptoms versus 1.6% for normal-category children. Creche improved routine health during the day. Home conditions, particularly water access (only 47%, 154/328, reported clean water at home) and near-universal open defecation (97.3%, 319/328), continued to shape health outcomes outside programme hours (mother survey, N=328).

Child Health Index: Methodology and Transition Analysis

To assess change in child health outcomes, the evaluation constructed two composite health indices for each child. Each worked differently and measured different things, which is why comparing them is informative.

The MIS-based index (before/during intervention) drew on anthropometric measurements from the programme's MIS. It used three measures: weight-for-height (which captures wasting), weight-for-age (which captures being underweight), and height-for-age (which captures stunting). Each child received a score between 0 and 1 based on these criteria and was placed into one of three health status groups: Normal, Moderate, and Severe. The index was used as the basis for sampling. It represented the child's nutritional status at or near programme entry.

The survey-based proxy index (post-intervention) drew on indicators collected during the evaluation survey. It used five components: dietary diversity and frequency at creche, quality of caregiving at creche, frequency of illness, availability of clean water at home, and whether the mother participated in monthly creche meetings. Again, each child received a score between 0 and 1 and was placed into one of three groups: Low health, Moderate health, and High health. The index captured the child's current health-enabling environment, combining both in-creche and at-home conditions.

The transition matrix compared each child's MIS-based category with their survey-based category. It showed how children's health-enabling conditions had shifted during the programme period.

Table 9: Cross-tabulation of entry MIS nutrition status and current survey-based health-enabling categories (N=336 children)

Source: Mother survey and MIS data (N=336 children).

MIS Health Status	Survey: Low	Survey: Moderate	Survey: High	Total
Normal	1.8% (6/336)	19.1% (64/336)	15.5% (52/336)	36.3% (122/336)
Moderate	3.6% (12/336)	28.3% (95/336)	11.6% (39/336)	43.5% (146/336)
Severe	3.3% (11/336)	10.4% (35/336)	6.6% (22/336)	20.2% (68/336)
Total	8.6% (29/336)	57.7% (194/336)	33.6% (113/336)	100% (336/336)

The matrix showed several patterns. At the time of the MIS data collection, 20.2% (68/336) of children were in the severe category. At the time of the survey, only 8.6% (29/336) were in the low category. The majority of children who had been classified as severe by MIS had moved to moderate or high categories in the survey data: of the original 20.2%, 10.4% were now moderate and 6.6% were high, with only 3.3% remaining low. Second, 97% of children originally in the severe MIS category belonged to ST or ST-PVTG communities. The most nutritionally vulnerable children came from the most socially marginalised groups. Third, 80% of children from the OBC category fell in the normal MIS category.

Child Health Status vis-a-vis Nutrition and Service Conditions

Median scores (0-1) by indicator for children based on their health status as per survey data categories (N)	In creche		At home		In creche
	Diet diversity score	Responsive feeding score	Illness score	Clean Water score	Mother's meeting participation score
High (113)	0.87	1	1	1	1
Moderate (194)	0.75	0.5	1	0	1
Low (29)	0.63	0	0	0	0

Figure 10: Child health status vis-a-vis nutrition and service conditions (N=328)

The cross-tabulation of child health status with service conditions confirmed a pattern: children with high survey-based health scores had higher dietary diversity, stronger responsive feeding, no recent illness, access to clean water at home, and mothers who attended monthly creche meetings. The 8.6% (29/336) of children in the low health category had the opposite profile: limited responsive feeding, high illness, no clean water at home, and low maternal participation in meetings.

Qualitative Comparative Analysis

To identify which combinations of programme conditions were most associated with positive child outcomes, the evaluation used Qualitative Comparative Analysis (QCA). QCA is a method from set-theoretic social science. Unlike statistical regression, which isolates the effect of individual variables one at a time, QCA examines how different conditions combine to produce an outcome. It asks: what configurations of factors, present or absent together, are sufficient for the outcome to occur? It is suited to evaluations with a moderate number of cases and complex causal pathways, where the same outcome can be reached by more than one route.

Pathway	Configuration	Learning	Food and water	Other infrastructure availability	Mother Meetings	Home care and adoption	Raw coverage	Unique Coverage	Consistency
1	Learning*food_water*~mother_meetings*~home_care_adoption	◍	◍		○	○	0.444638	0.096812	1
2	Learning*food_water*~Other_Infra_avail*~home_care_adoption	◍	◍	○		○	0.435362	0.087536	1

Figure 11: QCA Results

The QCA examined five conditions: Learning support, Food and water access, Other infrastructure availability, Mother's meeting participation, and Home care adoption, against the outcome of improved child health (measured by the survey-based index). Two sufficient pathways emerged:

Pathway 1: Learning support AND food/water access, in the absence of mother's meeting participation and home care adoption (raw coverage: 0.44, consistency: 1.0).

Pathway 2: Learning support AND food/water access, in the absence of other infrastructure and home care adoption (raw coverage: 0.44, consistency: 1.0).

Two conditions appeared as core drivers across both pathways: learning support and food/water access. These were the programme components that creche controlled directly. The remaining conditions (mother's meetings, other infrastructure, and home care adoption) varied across pathways. They were contextual factors rather than primary drivers. Both pathways achieved positive child outcomes even where home care adoption and mother's meeting participation were absent. The programme's direct service delivery (learning and food/water) was sufficient to produce improved child outcomes even where household-level adoption was limited.

Child Development and Behaviour

Developmental milestones for the 25–36-month age group (N=300; the sub-sample reflects the age filter applied to the full sample of 336 children) showed near-universal attainment: 100% could run and climb, 98.7% (296/300) spoke in short sentences, 99.7% (299/300) played with other children, and 96.3% (289/300) followed two-step instructions. The most differentiated indicator was "child is well-behaved," where 83.3% of normal-category children received positive assessments compared with 73% of severe-category children.

Creche workers and the research team identified the programme's behavioural contribution in softer gains that are hard to capture in numbers: children lining up their chappals, standing in queues to eat, requesting handwashing before meals, addressing relatives with respect. Mothers across

treatment FGDs reported these changes. Children were described as 'clever' and 'active' by mothers. In Fuljhar, mothers noted that even on Sundays, children asked to go to creche.

A Note on Vulnerability and Inclusion

The evaluation recorded two instances (out of 336 children) where mothers reported that their child had experienced discrimination on the basis of caste within creche activities. The finding was not a systemic pattern. It is reported here as a matter of completeness, because caste-based vulnerability is a known risk in institutional settings serving mixed social groups, and even rare instances require attention in programme monitoring and worker training.

5.3.3 Impact on Mothers

Time Release and Psychosocial Wellbeing

The impact on mothers - in terms of time available for work and rest and feeling an enhanced sense of well-being - is showcased through the indicators listed in the table below.

Table 10: Mother time-use and wellbeing

Source: Mother survey (N=328).

Indicator	Total (N=328)	Normal (N=119)	Moderate (N=141)	Severe (N=68)
Childcare hrs/day: before	3.66	3.9	3.6	3.4
Childcare hrs/day: current	1.9	1.9	1.8	2.0
Change	−1.8	−2.0	−1.8	−1.4
Rest hrs/day: before	1.6	1.8	1.4	1.7
Rest hrs/day: current	2.9	3.1	2.7	3.1
Change	+1.3	+1.3	+1.3	+1.4
Feels less burdened (agree/strongly)	90.5% (297/328)	85.7% (102/119)	97.2% (137/141)	85.3% (58/68)
Less worried about child safety	68.9% (226/328)	—	—	—
Never/rarely stressed (last 3 months)	66.1% (217/328)	—	—	—

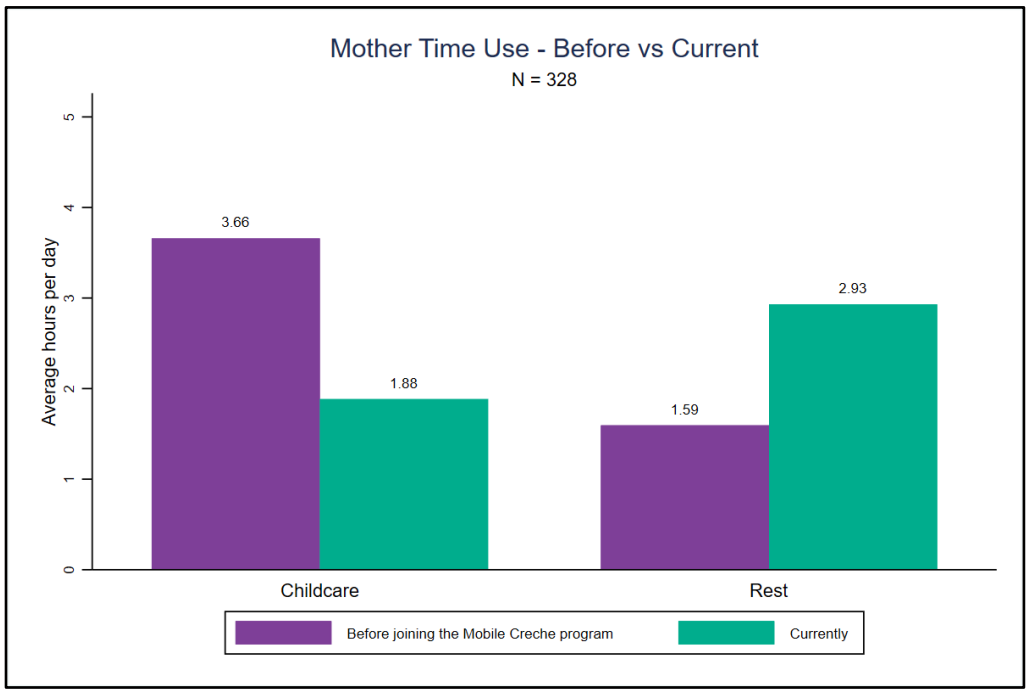

Figure 10: Mother time use: before vs. current (N=328)

Childcare hours dropped from 3.66 hours per day before enrolment to 1.9 hours currently, a reduction of approximately 1.8 hours (mother survey, N=328). Rest hours increased from 1.6 to 2.9 hours per day, a gain of 1.3 hours. These changes held stable across all vulnerability categories. The time-release effect did not depend on household wealth. Ninety-one per cent (297/328) of mothers agreed or strongly agreed that they felt less burdened since enrolment.

The FGD evidence adds further texture. Mothers in Jamdudiha described the intervention as providing 'mental peace.' In Fuljhar, mothers used the phrase 'tension-free.' The Rabapanasadihi FGD recorded that the elimination of mental worry was the most transformative change for mothers.

> ***"Mothers are now tension-free and can complete household chores and have time for rest. The most profound change is being free from worry about their children's safety and hunger."***
>
> ***— Community leaders, Dudhaposhi***

Among households where an older sibling previously provided childcare (N=53), sibling caregiving hours dropped from 1.8 to 1.2, and 56.6% (30/53) of mothers reported that the sibling's school attendance had increased. Creche freed older children to attend school.

Sustained attendance reflects continued value of the creche to mothers and children

Child attendance remained high throughout the week, indicating mothers continue to value creche for the nutrition, safety, routine, and wellbeing it provided to the child.

Maternal Confidence and Knowledge

Of those who participated in training sessions (90.2%, 296/328; mother survey, N=328), 97.6% (289/296) reported learning about food and nutrition practices for toddlers, and 96.3% (285/296)

about hygiene and cleanliness (N=296, mothers who received training). Childcare confidence was high: 91.1% (299/328) agreed or strongly agreed that they felt more confident in providing childcare. 69% (226/328) felt less worried about their child's nutrition and development. Knowledge increase was self-reported as strong: 53.9% (177/328) said it had increased 'to a great extent' and 41.1% (135/328) 'to some extent.' Only 5.1% (17/328) reported no change (mother survey, N=328).

Livelihood and Economic Impact

Before joining creche, 54.9% (180/328) of mothers did paid work (6.1% (20/328) regular, 48.8% (160/328) irregular). The figure rose to 67.4% (221/328) currently (9.1% (30/328) regular, 58.2% (191/328) irregular). The shift was 12.5% points (mother survey, N=328). 47% (154/328) of mothers reported no income change. Mean monthly income was ₹2,326. Available livelihood options ran to 10–12 days per month for 3.5 to 5 months per year, comprising MGNREGA (when available), agricultural labour (monsoon only), forest collection (primarily for self-consumption), and construction labour (₹200–250 per day when available).

Paid work participation is higher now than before enrolment (54.9% to 67.4%), suggesting improved work-enabling conditions for mothers. However, direct causal attribution should be treated cautiously, and income gains remain constrained by seasonal and irregular livelihood opportunities.

Practices That Translated to the Household

Hygiene practices had the strongest uptake at home: 93.2% (276/296) of mothers adopted them (N=296, mothers who received training), with 94.9% adoption even among severe-category mothers. Children now asked parents to wash hands before eating. Mothers reported children wearing slippers, maintaining cleanliness, and following routines learnt at creche. The egg behaviour change was another clear adoption: mothers now handed eggs from the Anganwadi to the creche worker for the child's consumption, rather than taking them home for the wider household.

Food and nutrition practices were adopted regularly by 88.5% of trained mothers, though the figure dropped to 79.7% among severe-category mothers. 64% (189/296) of trained mothers correctly identified six months as the exclusive breastfeeding duration (N=296, mothers who received training).

Here, it is imperative to note that the adoption of nutrition practices reported by the mothers in the quantitative data is in contrast to the responses gathered from the qualitative data. Most likely, the 88.5% figure likely represents knowledge adoption rather than behavioral adoption. From the qualitative interactions, it was understood that the mothers are highly aware of the nutritional practices discussed at the creche. When responding to quantitative surveys, they report their intent or their theoretical understanding of what should be done. The qualitative data clarifies that while 88% understand the 'what' and 'why,' the 'how' (actual replication) is hindered by domestic constraints like not being able to procure the food type, lack of time due to household chores, collecting of firewood, labour work etc. Hence, this seems to be a case of 'social desirability bias' which is the tendency of individuals to overreport socially acceptable behaviors or attitudes and underreport undesirable ones during surveys.

Practices That Remained Structurally Constrained

Child engagement and learning activities had the weakest home adoption at 29.7% (88/296; N=296, mothers who received training), dropping to 22.0% for severe-category mothers. Among the 39 mothers who did not adopt any practices, 89.7% (35/39) cited lack of time due to domestic and occupational chores. Among severe-category households, the figure was 100%. No mother cited the practices as not useful. The barrier appears to be primarily structural rather than attitudinal: poverty, heavy workloads, and domestic labour burden prevented uptake outside creche.

Replicating the creche's dietary diversity at home was the most constrained area. Home diets across all FGDs comprised rice, dal, and potato. Mothers in Fuljhar said they could not replicate the creche diet because household income ranged between ₹2,000 and ₹5,000 per month. Work was irregular. Women earned ₹200–220 per day from construction and other labour. Broader nutrition adoption depended on income, market access, and household routine: factors the programme could not alter directly.

Table 11: Practice adoption at home (N=296 mothers who received training)

Source: Mother survey (N=296 mothers who received training).

Practice domain	Adopted (%)	Adopted regularly (%)	Severe: adopted (%)
Hygiene and cleanliness	93.2% (276/296)	94.9%	94.9%
Food and nutrition practices	84.1% (249/296)	88.5%	78.0%
Child engagement/learning	29.7% (88/296)	67.2%	22.0%
Non-adopters citing lack of time	—	89.7% (35/39)	100%

5.3.4 Father Engagement

Father involvement in childcare was limited and selective.

Table 12: Father involvement in childcare

Source: Mother survey (N=328).

Indicator	Total (N=328)	Normal (N=119)	Moderate (N=141)	Severe (N=68)
Helps with doctor visits	58.2% (191/328)	53.8% (64/119)	64.5% (91/141)	52.9% (36/68)
Feeds the child	52.1% (171/328)	55.5% (66/119)	56.7% (80/141)	36.8% (25/68)
Plays with the child	48.8% (160/328)	55.5% (66/119)	48.2% (68/141)	38.2% (26/68)
Puts child to sleep	31.1% (102/328)	34.5% (41/119)	31.2% (44/141)	25.0% (17/68)
Does none of the above	15.9% (52/328)	10.1% (12/119)	13.5% (19/141)	30.9% (21/68)
Father childcare hrs/day: before	1.2	1.2	1.4	1.0
Father childcare hrs/day: current	0.9	1.0	1.0	0.8

The most common paternal activities were helping with doctor visits (58.2%, 191/328), feeding the child (52.1%, 171/328), and playing with the child (48.8%, 160/328). Putting the child to sleep was least common (31.1%, 102/328). 15.9% (52/328) of fathers did none of these things. In the severe category, the figure rose to 30.9% (21/68).

Three barriers stood in the way of fathers getting more involved in childcare. First, migration: fathers in some villages were absent for three to seven months per year, working in Bhubaneswar, Andhra Pradesh, or Chennai. Second, alcoholism: across FGDs in Fuljhar and Jamdudiha, mothers named alcohol use as a barrier to fathers spending time with children. Third, deeply held norms about who does what: while 92.4% (303/328) of mothers agreed that fathers should share equal responsibility, in practice childcare remained almost entirely the mother's domain. Major decisions (medical care, schooling) rested with the father. Day-to-day caregiving rested entirely with the mother.

Programme engagement with fathers was uneven. Among mothers (mother survey, N=328), 36.3% (119/328) reported regular meetings between the programme and their husband, 21.3% (70/328) reported irregular meetings, and 32% (105/328) reported no engagement at all. The Community Facilitator confirmed that fathers were the hardest group to mobilise and that meeting timings had to be adjusted to early morning or evening. In low-graded creches, the proportion of mothers reporting no engagement with fathers was 49.3%, compared with 27.3% in high-graded creches.

The programme had likely increased some awareness. Sustained paternal behaviour change was beyond its current reach. Father engagement was constrained by entrenched gender norms, male migration, and alcohol use: a structural challenge that the programme alone could not resolve, although deeper household-level outreach could begin to address it.

5.3.5 Impact on Creche Workers

Beyond the satisfaction and confidence data in Section 5.2.3, the programme's impact on workers extended to their social position within the community and household. 97% (53/55) reported improved social status. 73% (40/55) were very respected in the community. 93% (51/55) reported an increased role in household decision-making. For young tribal women (median age 27, 85% (47/55) unmarried) who had previously worked as homemakers or agricultural labourers, the change in standing and agency was tangible (creche worker survey, N=55).

The Programme Coordinator described the workers as having progressed from an initially difficult period, when community trust was low and attendance hard to sustain, to a point where they felt proud and self-sufficient. The programme had generated a dual outcome through its worker model: it served children and mothers through the daily care function, and it simultaneously created a group of women whose professional role gave them economic independence, social respect, and household influence that they had not had before.

Worker confidence and centre performance were closely linked: only 40% (2/5) of workers in low-graded creches were very confident, compared with 92% in moderate and high-graded creches. Worker satisfaction with working conditions was 24% (13/55) very satisfied, compared with 85% (47/55) for overall job satisfaction. The infrastructure, not the role, was the primary source of worker dissatisfaction (creche worker survey, N=55).

5.3.6 Variation Across Clusters

The programme operated across eight clusters within the Banspal block, and outcomes varied across them.

Table 13: Key indicators by cluster (N=336 children)

Source: Mother survey (N=336 children).

Cluster	N	% PVTG	% Normal (MIS)	% Severe (MIS)	% Community Very Accepting
Banspal	39	5% (2/39)	44% (17/39)	10% (4/39)	85% (33/39)
Fuljhar	69	7% (5/69)	49% (34/69)	16% (11/69)	83% (57/69)
Gonasika	41	85% (35/41)	0% (0/41)	39% (16/41)	71% (29/41)
Jatra	63	0% (0/63)	32% (20/63)	14% (9/63)	75% (47/63)
Kanjipani	52	25% (13/52)	25% (13/52)	25% (13/52)	81% (42/52)
Kumundi	10	0% (0/10)	70% (7/10)	30% (3/10)	100% (10/10)
Nayakote	31	0% (0/31)	52% (16/31)	39% (12/31)	58% (18/31)
Taramakanta	31	0% (0/31)	48% (15/31)	0% (0/31)	81% (25/31)

Two clusters warranted particular attention. Gonasika, with 85% (35/41) PVTG population, had 0% (0/41) of children in the normal MIS health category and 39% (16/41) in severe. Community acceptance was lower there (71%, 29/41). Gonasika was the programme's most difficult operational environment. Nayakote had a similar severity profile (39%, 12/31) combined with the lowest community acceptance of any cluster (58%, 18/31), despite having no PVTG representation. Kumundi showed 100% (10/10) community acceptance alongside strong health outcomes (70% (7/10) normal), though its sample (N=10) was small. These patterns confirmed that vulnerability, community acceptance, and health outcomes were shaped by cluster-specific factors including PVTG concentration, geographic remoteness, and local community dynamics. The programme would need differentiated strategies for the most difficult clusters.

6. Conclusion and Recommendations

6.1 Conclusion

The Mobile Creches programme in Keonjhar represents a highly relevant and context-responsive intervention that addresses a critical and previously unmet need for childcare among children aged 0–3 in rural tribal settings. By simultaneously addressing childcare, nutrition, and early stimulation, the programme effectively responds to the interconnected challenges of child development and women's economic participation. The evidence clearly demonstrates that the model works most effectively in domains where it exercises direct operational control - particularly in delivering nutrition, ensuring safe childcare environments, and enabling early learning.

The evaluation highlights that the programme's most significant contribution lies in altering immediate care environments and reducing structural burdens on mothers, thereby unlocking both developmental and economic benefits. At the same time, it underscores the limits of programme influence in addressing deeper structural and socio-cultural constraints. Persistent poverty, limited dietary diversity at home, entrenched gender norms, and weak community-level governance continue to shape the extent to which programme gains can be sustained and amplified.

From a systems perspective, the programme has successfully established strong structural foundations, including institutional convergence, resource alignment, and operational systems for service delivery. However, the transition toward relational and transformative change, such as shifts in norms, power dynamics, and community ownership, remains ongoing and requires sustained, long-term engagement. These dimensions are critical for ensuring that gains are not only achieved but also institutionalised and scaled.

Looking ahead, the programme offers a compelling, evidence-backed model for rural early childhood care, particularly in contexts characterised by migration, poverty, and service gaps. Its scalability will depend on careful adaptation to government systems, strengthening of community ownership mechanisms, and complementary investments in household-level nutrition and behaviour change. If these elements are addressed, the Mobile Creches model has the potential to serve as a replicable blueprint for integrated early childhood development in rural and mining-affected regions across India.

6.2 Recommendations

The evaluation evidence points in two directions at once. Inside the creche, the programme works. Meals are served, routines are maintained, children attend, and workers are trusted. The nutrition model, the care routine, and the worker-community relationship have all held up under examination. Outside the creche, the picture is more mixed. Mothers have gained time and relief. Hygiene practices have moved into the home. But dietary diversity at home has not changed much, because households remain poor. Father engagement has not improved, because the barriers to it (migration, alcohol, and the assumption that childcare is a mother's job) sit beyond the programme's reach. Community acceptance is high, but community ownership of the creche as an institution is still at an early stage.

The recommendations are organised into two parallel tracks. The first addresses what Mobile Creches can do now, within its direct operational control: fixing infrastructure, filling training gaps faced by creche workers, formalising health arrangements, and writing down what it knows so that others can use it. The second addresses what requires time, partners, and community agency: building ownership structures, deepening household engagement, and connecting with the state government's own plans for creche expansion.

Neither track works alone. Operational improvements without a transition plan leave the programme dependent on Mobile Creches indefinitely. A transition plan without operational strengthening hands over a model with gaps that communities cannot fix on their own.

6.2.1 Operational Priorities: Strengthen the Model

Close the infrastructure gap in the lowest-graded centres

The evaluation found that infrastructure, not motivation or nutrition delivery, separated high-graded creches from low-graded ones. The gap between the top and bottom of the network was wide: safety protocols existed in 96% of high-graded centres and in none of the low-graded ones. Clean water access ran from 100% at the top to 40% at the bottom. No centre anywhere in the network reported a fully adequate medical kit (creche worker survey, N=55).

The centres need priority attention on four fronts: reliable water supply, written and practised safety protocols, separate kitchen spaces, and stocked medical kits. 24 moderate-graded centres (122 children) need targeted improvements in medical supplies and safety equipment. The returns from fixing these gaps are direct and immediate: the same workers, the same routines, and the same meals would function better in a safer physical environment.

Sustain the core nutrition and care model

The Qualitative Comparative Analysis confirmed what the descriptive data already suggested: learning support and food/water access are the two conditions that consistently produce positive child outcomes. Both pathways to improved health identified by the QCA contained these two elements. The in-centre feeding routine, the dietary diversity score of 5.6 out of 7, the structured daily schedule, and the active responsive feeding practised by 96% of workers: these are the programme's validated core. They should not be diluted, underfunded, or taken for granted as the programme evolves.

In practical terms, the protection of the supply chain for food and materials is essential. Eighty-five per cent of centres reported no stock-outs in the past three months (N=55), but the 15% that did experienced disruptions in staple items. The monthly delivery system should be monitored for reliability, particularly in clusters that are harder to reach.

Deepen worker training in softer skills

Training coverage was strong for nutrition, hygiene, and child safety. Creche workers need more training in the areas that connect the creche to the household and the health system. About 25% reported not receiving induction training, and 20% had not received refresher training (creche worker survey, N=55).

These gaps matter because the creche worker is the programme's sole face in the village. When a mother has questions about feeding, when a child falls ill, when a father needs to be persuaded to attend a meeting, the worker is the one who responds. The 12-day training investment that Mobile Creches already makes is one of the model's strengths. Extending it to cover parent communication, first aid, and health referral pathways would sharpen the worker's ability to do what the community already expects of her.

Formalise health convergence

The programme does a good job of feeding children and monitoring their growth. It does less well at connecting children to the health system. Health linkages currently depend on whether the government's Village Health Nutrition Day or RBSK mobile team happens to visit: an arrangement that works sometimes but is nobody's responsibility to maintain (creche worker survey, N=55).

A structured arrangement with the district health system, whether through a formal memorandum of understanding or a documented coordination protocol, would move health convergence from something that happens when schedules align to something that happens by design. The existing ASHA and Anganwadi presence on the CMC provides a ready entry point. What is missing is a standing commitment to regular check-ups at creche centres.

6.2.2 Systemic Change: Build Ownership and Governance

Move from acceptance to ownership

Community acceptance of the creche is high: 77% of mothers described their community as very accepting (mother survey, N=328), and 91% of workers reported the same (creche worker survey, N=55). The acceptance has grown over time. Villages have begun discussing permanent buildings for creche centres through Palli Sabha resolutions. Mothers are willing to contribute cleaning and maintenance (71%), time (36%), and food (21%) (mother survey, N=328).

Acceptance, however, is not ownership. Ownership means the community identifies and provides creche space. It means the CMC takes decisions about operations, follows up on attendance independently, and mobilises local resources without waiting for the programme to initiate. It means Ward Members, ASHA workers, and Anganwadi workers have defined roles in creche functioning that go beyond attending monthly meetings.

The transition from valuing the creche to owning it is already underway in some villages. The task is to support it deliberately: through structured CMC capacity building, clearer role definitions for local governance actors, and regular follow-up that reinforces community agency rather than programme dependence.

Build a phased transition roadmap

The evaluation evidence does not support an abrupt withdrawal of Mobile Creches from Banspal. Two items in the operational comparison between MC standards and government SOP can transfer relatively easily (basic supply chain, growth monitoring). Four require significant government investment. Two (cultural integration and the Community Facilitator role) are likely to need continued MC involvement for some time.

A phased approach is more realistic: three years of full-resource consolidation, during which infrastructure gaps are closed, ownership structures are deepened, and protocols are codified; followed by two years of resource-light handover, during which Mobile Creches shifts from an operational role to an advisory one. The five-year frame gives communities enough time to build the capacity that sustainability requires, and it gives the programme enough time to document what it has learnt in a form that others can use.

Ensure continued funding

The programme operates on funding through a memorandum of understanding. Continued investment is a precondition for the transition roadmap described above. Without it, the gains of the past two and a half years (150 functioning centres, 300 trained workers, a community that has begun to trust institutional childcare) risk reversal. The experience of control villages, where earlier childcare arrangements closed and the gap returned, makes the risk concrete rather than theoretical.

The case for continued funding rests on what the evaluation has documented: a working model that has achieved sustained attendance (mean 20.2 months), dietary diversity that households cannot replicate, and maternal relief that does not depend on household wealth.

Deepen household-level engagement

Monthly meetings reach 90% of mothers, and training sessions have shifted awareness on nutrition and hygiene. But the programme's household engagement is largely limited to these monthly touchpoints. Home adoption of child engagement practices stands at 30% (88/296 trained mothers). Among the 39 mothers who did not adopt any practices at all, 90% cited lack of time. No mother cited the practices as not useful. The barrier is poverty and workload, not willingness.

Expanding household engagement beyond monthly meetings could take several forms: indigenous nutrition guidance that works within the foods families can actually afford, support for kitchen gardens where land and water allow, and closer follow-up by creche workers and CMC members on home practices. Father engagement remains limited. Programme contact with fathers was absent for 32% of mothers (105/328). Meeting timings, adjusted to early morning or evening, and direct outreach through CMC members and Ward Members offer a starting point; although the evaluation is candid that the structural barriers (migration, alcohol, gender norms) are not ones the programme can resolve on its own.