Evaluation Study of Community Action for Nutrition Project Implemented By SATHI

Study Report By

Dr. Narendra Kakade, Dr. Nilesh Gawde,
Dr. Smitha Nair & Dr. Archana Diwate

Submitted to
Tribal Research and Training Institute (TRTI), Maharashtra

By
Centre for Public Health (SHSS) &
Centre for Health and Mental Health (SSW)
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Abbreviations

AAY - Amrut Aahar Yojana
ASHA - Accredited Social Health Activist
AWW - Aganwadi Worker
AWS - Anganwadi Supervisor
CAN - Community Action for Nutrition
CBMA - Community- Based Monitoring and Action
CBMP - Community- Based Monitoring and Planning
CDPO - Child Development Project Officer
CHC - Community Health Centre
CIAF - Composite Index of Anthropometric Failure
CMAM - Community Management of Acute Malnutrition
CSO - Civil Society Organisation
CTC - Child Treatment Centre
DH - District Hospital
EDNRF - Energy Dense Nutritional Food
GBD - Global Burden of Disease
ICDS - Integrated Child Development Services
IYCF - Infant and Young Child Feeding
MAM - Moderate Acute Malnutrition
MUW - Moderate Underweight
NFHS - National Family Health Survey
NNMB - National Nutrition Monitoring Board
NRC - Nutrition Rehabilitation Center
NRC - Nutrition Rights Coalition
NRG - Nutrition Right Group
PHC - Primary Health Centre
PHG - Poshan Hak Gat
RBSK - Rashtriya Bal Swasthya Karyakram
RUTF - Ready- to- Use Therapeutic Food

SAM - Severe Acute Malnutrition

SATHI - Support for Advocacy and Training to Health Initiatives

SDG - Sustainable Development Goals

SUW - Severe Underweight

TDD - Tribal Development Department

THR - Take Home Ration

TISS - Tata Institute of Social Sciences

TRTI - Tribal Research and Training Institute

VCDC - Village Child Development Center

VHSNC - Village Health Sanitation and Nutrition Committee

WFA - Weight for Age

WFH - Weight for Height

WHO - World Health Organization

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Executive Summary

Background:

The health of women and children is among the key indicators of social equity and socioeconomic development. Most countries including India have made remarkable progress concerning the survival of women and children which is reflected in declining infant and maternal mortality rates and the average life expectancy of women. Nutritional status is integral to health status and a key determinant of health especially in the formative childhood years. Adequate and balanced nutrition in the under-five age group prevents infections and disease in early childhood, saving lives and laying a foundation for adult life free from non-communicable diseases. While India has made considerable progress in child nutrition, sections of society lag. Tribal communities have faced development exclusions and have faced multiple layers of deprivation resulting in higher levels of undernutrition among them.

The Integrated Child Development Scheme (ICDS) was launched by the Ministry of Women and Child Welfare in 1975. ICDS scheme provides supplementary nutrition to children under six years of age. The puzzle of malnutrition has not been completely solved yet. Health services are now geared towards managing Severe Acute Malnutrition through Nutrition Rehabilitation Centres (NRC) and Child Treatment Centres (CTC). ICDS and the Public Health Department have been coordinating health and nutrition activities at the village level. In addition to this, the Tribal Development Department provides support through additional grants and schemes for the tribal areas. Under the tribal sub-plan, the tribal areas are provisioned with more human resources. The APJ Abdul Kalam Amrut Ahar Yojana (AAY) is one of the key interventions for the tribal areas. The scheme provides nutrition-rich supplements to the tribal children and mothers through Anganwadis.

The literature review points out that among the various conceptualizations of malnutrition, severe acute malnutrition (SAM) based on weight for height is easy for an objective and early diagnosis. Objective and early diagnosis pave the way for timely rehabilitation with supplementary nutrition resulting in better child survival. Several studies have documented

the successes of the community management of Severe Acute Malnutrition (SAM). It is also known that community involvement improves health outcomes. However, there is a lack of literature on the effectiveness of community-led approaches in improving community-based management of SAM. The Tribal Development Department, Government of Maharashtra engaged SATHI, a non-governmental organisation (NGO) to field tests the concept of community participation and action to strengthen the functioning of Anganwadi services, improve the utilisation of the services by tribal mothers and children, and capacitate the tribal families in improved home-based nutrition.

SATHI with field-level partner NGOs from seven districts executed the concept through a project titled 'Community Action for Nutrition'. These partner organisations had experience in strengthening health services through community-based monitoring. The project was initiated in late 2018 with the onboarding of partner organisations followed by the recruitment of project staff and their training at the state level. Ten tribal blocks were purposively selected. In each block, about 40 tribal village anganwadis were selected for the intervention. In early 2019, the Anganwadi workers and ASHA of the project villages were provided with training followed by community-level activities including the formation of Poshan Hak Gat, improving utilisation of Anganwadi services and follow-up and counselling of children with Severe Acute Malnutrition. The project started collecting anthropometry data systematically in June 2019. COVID lockdown halted the project abruptly in March 2020 with the closure of Anganwadis. In 2023, the Tribal Research and Training Institute (TRTI) asked TISS to evaluate the project.

Methodology:

The objectives of the TISS evaluation study included documentation of strategies and processes implemented by the CAN project and assessment of its implementation, outcomes and limitations. The theory of Change framework formed the basis of the research with a realistic evaluation lens. The study design was a case-study approach involving both quantitative and qualitative methods. The CAN project was implemented in 420 villages in 10 blocks. The block was thus a macro-unit of implementation.

Four blocks were purposively selected based on the performance indicators of reduction (absolute and relative) in the prevalence of SAM. Each block had 40 Anganwadis, out of which three Anganwadis were selected from among those with a sufficient number of children with growth faltering and a sufficient number of those with improved nutritional status based upon secondary data. Thus, a total of 12 villages in four blocks were visited and the key stakeholders including Anganwadi workers, supervisors, ASHA, beneficiary mothers, Poshan Hak Gat members, and project staff were interviewed through in-person interviews and focus group discussions. A total of 92 interviews and 8 FGDs were conducted. Audio records were transcribed, coded and thematic analysis was conducted with assistance from Atlas-ti.

The Quantitative assessment included secondary data provided by SATHI for all the blocks which includes data of children from Jun 2019 to Feb 2020. Secondary data was provided by ICDS for the selected four blocks for the same period and slightly prior to SATHI data (Apr 2019 to Mar 2020). ICDS data was also made available for Jan 2023 to Sep 2023 period which was analysed for calculation of SAM prevalence. The TISS team freshly collected anthropometric data of the children of the same cohort of the CAN project and currently enrolled children in the anganwadis from selected 12 villages and calculated the prevalence of SAM. The quantitative data was analysed by plotting time-trends using both CAN project data and ICDS data. Regularity of anthropometry and change in prevalence of SAM were chief process and outcome indicators respectively.

Key Findings:

Community-based monitoring (CBM) process, along with a strong network of organisations working on the issue of malnutrition in tribal Maharashtra, formed a strong basis for the initiation of the CAN project. The nodal agency's experience of the CBM process and as a member of the Nutrition Right Coalition was instrumental in implementing the CAN project.

The project could be initiated fast and smooth because of the existing networks, experienced human resources available with the field level organisations.

The collaborations with ICDS and public health department was strong which ensured training of ASHA and AWW workers and initiating the project strategies on time.

The facilitators and block coordinators went through extensive training to help them understand the processes under CAN project and its implementation. The training was on taking anthropometric measures of children, counselling the parents about the appropriate diet for the child, communication skills, and engaging with the community-level committees. The training provided the facilitators with an understanding of being culturally sensitive.

The preparatory phase also included training the Accredited Social Health Activist (ASHA) and the Anganwadi workers (AWW). The training was comprehensive with detailing and reiterating the roles and responsibilities of ASHA and AWW in preventing malnutrition. The content and the methods used in the training were useful to help them retain and impart the information. These training sessions were found to be effective in supplementing the training that they have received from the government.

Poshan Hak Gat (PHG) was an important strategy by the project to increase community participation. The group consisted of members from the community, Mata Samiti set up under the ICDS, Aahar samiti under the Amrut Aahar Yojana and the Village Health Sanitation and Nutrition committees (VHSNC) set up by the Public Health Department under the National Health mission. In many places the Poshan Hak Gat was successful in engaging the community in discussion about malnutrition, bringing different stakeholders together and resolving issues at different levels. These processes helped community members to raise their concerns, which resulted in enhanced accountability from providers. These PHGs succeeded with the support from NGOs but were not sustained in the post-project period. It can be highlighted that while the group was successful in resolving issues at the village level, they were unable to do effective coordination at the district level with the NRC and the Rashtriya Bal Swasthya Karyakram (RBSK).

CAN project had several strategies to improve nutritional levels as well as increase community participation. These worked at two levels-household and community. At the household level there was individualised counselling of mothers, follow-up, *bal kopra*. At the community level, the project had a growth faltering chart, *chavadi vachan (growth*

chart demonstration at a common place in the village), exhibition on *ranbhajya* (forest vegetables) and *matka* fridge. Individualised counselling, *chavadi vachan* and growth faltering chart were found to be most consistently reported by the beneficiaries.

The strategies were not implemented uniformly across the blocks. Some strategies, such as the use of growth faltering charts, individualised counselling, and regular follow-ups, were consistently implemented across the villages. Methods like *bal kopra* and *matka* fridge and street plays were implemented in select villages during 2019-20. These practices were not visible at the time of the study assessment in 2023-24. It was observed that CAN interventions that were implemented were not sustained, and community participation has weaned off over the period.

Field facilitators played a crucial role in engaging the different stakeholders, referring SAM and MAM children to the NRC as well as ensuring community participation in resolving various issues faced by the Anganwadi services. This also highlighted the relevant role played by an external entity to ensure 'convergence at the grassroot level'.

Monitoring project activities was crucial for measuring progress and optimizing performance. The regular visits by the nodal agency as well as systematic data collected of the anthropometric measurements, were important and it reflected the change in nutritional levels over the project period.

The pandemic halted the project processes abruptly, also the two-year irregular services institution may have reflected in the community engagement in the current times.

It is important to highlight that there was systematic data collection of anthropometric measurements in the project areas by the CAN project team. Overall, the key finding was that there was a decline in the SAM prevalence over the period of CAN implementation (from June 2019 to Feb 2020). The declining pattern was seen in both CAN project data (28.9% to 12.8 %) and ICDS data (9.2% to 5.5%) shared by CDPOs. CAN project data reported higher prevalence of SAM in comparison with ICDS data.

However, data reveals that nearly 10 percent of children did not undergo anthropometry during the project period, likely due to migration. The data trends highlight that the

proportion of children with anthropometry data was good in the first couple of months which dropped thereafter which was attributed to migration by stakeholders.

One-third of SAM-identified children continued to remain in the same category over the period of time with no changes to their health situation. This raises questions about the effectiveness of the services, especially Village Child Development Centers (VCDCs) in improving malnutrition outcomes of the children.

Primary anthropometry data collected from 12 villages by TISS indicated higher SAM and MAM cases compared to Anganwadi records, suggesting inaccuracies in Anganwadi data. There is a need for the community to be conscious of the malnutrition levels of the children. This requires training to empower them for demanding and ensuring quality services. A project like CAN is effective in the initial stages but there needs to be a mechanism to ensure that the community takes over the process over the period.

It is also seen that in the current times that children under two years have relatively better nutritional status compared to older children. The older children had disruption of anganwadi services during the pandemic while the younger children had continued benefits of the anganwadi services. Also, the majority of children above six years of age have high levels of malnutrition.

Recommendations:

- The CAN project model for community participation was effective as evident from the secondary data shared by ICDS and SATHI. While the public health department and ICDS are providing services, community has a crucial role in both utilisation of services as well as monitoring the services to ensure quality. Qualitative data highlights the facilitative role played by NGOs. Community Action for Nutrition model need to be scaled up. However, there is a need to outline exit strategies for the NGO partners.
- There is a need for a long-term mechanism for community engagement. Village Health Sanitation and Nutrition Committee members should be members of Mata samiti and Ahar samiti which supervise the functions of Anganwadi services.

Poshan Hak Gat may not be carved out separately but along with strengthening of VHSNCs.

- Migration is a key factor that resulted in dropouts and inconsistent utilisation of AAY through Anganwadi. There is a need to ensure that there are linkages across anganwadis so that the children continue to receive services even if they migrate from one place to another.

- The VCDC approach need to be made available and implemented with rigour for all SAM children (uncomplicated) with referral of complicated cases to NRC. It is important to monitor the outcomes of VCDC prospectively. If VCDCs fail to achieve improvement among SAM children, the strategy itself needs to be reviewed.

- The issue of Malnutrition has social, economic, cultural, and political determinants and should not be seen as a biological phenomenon, especially in the case of tribal communities. There seems to have various government interventions with specific schemes and programs aimed addressing some of the determinants. However, many of the departments with specific schemes seems to have working in the isolation without taking into considerations whether their own or the other departments schemes are resulting in overall development of the tribal communities. It is therefore recommended that there has to collective and collaborative approach between the concerned departments like, ICDS, Public Health, Water and sanitations, PDS, Rural development, Forest and Tribal Development department. There is a need for 'convergence at the grass root level and interdepartmental coordination at all levels'. This coordination is already established to some extent but needs to strengthening both for the authentic data convergence and effective and result oriented program implementations. There can be collaborative committees formed of the various officials of above-mentioned departments at district, block and village level.

Chapter 1: Introduction

Malnutrition, encompassing both undernutrition and overnutrition, remains a pervasive and critical public health challenge in India. Despite significant economic growth and numerous governmental initiatives aimed at improving nutritional outcomes, the country continues to struggle with high levels of malnutrition, particularly among children and women. To improve nutritional outcomes, India has implemented several nutrition-specific interventions such as the Integrated Child Development Services (ICDS) Scheme, a pan-India nutritional and child development scheme launched in 1975, and the nationwide mid-day meal scheme. The 'National Programme of Mid-Day Meal in Schools was started to provide free lunches to children in government-run institutions to improve nutritional status and encourage school attendance. The National Food Security Act (NFSA) 2013 was passed, legally entitling up to 75% of the rural and 50% of the urban populations to receive subsidised food grains under the targeted Public Distribution System (PDS). In 2017, the Government of India launched POSHAN Abhiyaan to improve nutrition among children, pregnant women, and lactating mothers (GOI, 2018). However, despite these welfare measures, such as anti-poverty and food security programmes, malnutrition continues to plague the country. The Global Nutrition Report (2021) highlights that 53% of women of reproductive age in India are anaemic, with serious implications for maternal and child health. The State of Food Security and Nutrition in the World (SOFI) 2020 report states that India has the biggest population experiencing food insecurity worldwide (Bansal, 2020). The Global Nutrition Report of 2021 expresses grave concerns about the worsening anaemia levels among women of reproductive age (53% of women), which has serious implications for pregnancy and the long-term health of the child. According to the National Family Health Survey (NFHS-5) conducted between 2019-2021, 35.5% of children under five years are stunted, 32.1% are underweight, and 19.3% suffer from wasting. The NFHS-5 also reported an increase in anaemia across age groups, especially among children and women, with the highest spike in children between 6-59 months (Kaunain, 2021). Stunting remains a huge challenge in India. Stunting in early life, particularly in the first 1000 days from conception until age two, has adverse functional long-term consequences on the child,

which continue into adulthood. It is irreversible by the age of two. The prevalence of child wasting increased from 15.1% (2010–14) to 17.3% (2015–19), signalling a worsening of the problem (The Hindu, 2020). Wasting, also known as 'acute malnutrition', decreases immunity, increases susceptibility to infectious diseases at an early age, and can be life-threatening. Based on three leading indicators-prevalence of wasting and stunting in children under five years, under-5 child mortality rates, and the proportion of undernourished in the population, India ranks 111 out of 125 countries as per the Global Hunger Index 2023. The report indicated and classified hunger as a severe issue in India, and the country is behind neighbouring countries like Pakistan, Nepal, and Bangladesh (Chandra, 2023; GHI-India, 2024).

Maharashtra, a developed and wealthy state, has failed to address malnutrition. The continuing high levels of malnutrition are a significant problem in Maharashtra. In a recent RTI query, it was found that Maharashtra has the highest rate of malnutrition among the states in India. The state admits that between 2019 and April 2022, 6,582 children died due to malnutrition. In these 39 months, the tally of children with severe acute malnutrition rose by over 26,000, while over one lakh children were added to the category of moderate acute malnutrition (Gora, 2022). Children's nutritional status in Maharashtra has hardly changed since NFHS-4 by all measures. The percentage of stunted children increased from 34% (NFHS-4) to 35% (NFHS-5). The percentage of children who are underweight (36%) or wasted (26%) has not changed since NFHS-4 (Global Hunger Index India, 2022). More than two-thirds (69.4%) of children aged 6-59 months are anaemic, of which 2.4% are severely anaemic. Anaemia among women has increased by six percentage points since NFHS-4 (IIPS, 2020). According to a study based on NFHS data (2015–16), the highest prevalence of underweight (56.17 per 100) and stunted (47.38 per 100) children is found in the Nandurbar district of North Maharashtra, while the highest prevalence of wasted (46.59 per 100) children is found in the Gadchiroli district of the Vidarbha region. It shows that household aspects like wealth quintile, religion, caste/tribe, mother's education, child ever born, and different regions of Maharashtra were the main factors contributing to poor child malnutrition (GOI, 2018). Additionally, the COVID-19 pandemic has significantly impacted nutrition outreach programs, such as the closure of Anganwadi and midday

meals, which has contributed to a rise in the burden of malnutrition in the state (Khandelwal, 2022).

The country and the state continue to face a considerable burden of malnutrition. The reasons are manifold – food access barriers and poor dietary diversity due to poverty and declining purchasing power, gender inequality, beliefs and practices around food, inadequate access to health services (including full immunisation), the PDS and targeted nutrition schemes, lack of synergy between departments, migration status, etc. Additionally, the social position of a person is also an extremely critical factor in nutritional inequity as there is ample evidence to show that Scheduled Castes (SCs), Scheduled Tribes (STs), and Muslims carry a higher burden of malnutrition (Chakraborty, 2021; Jain, 2021; Deshpande & Ramachandran, 2021).

To address the malnutrition issue, the Maharashtra government has added (in addition to the government mentioned above initiatives) two initiatives: Maharashtra Nutrition Mission 2005 and Bharat Ratna Dr A.P.J. Abdul Kalam Amrut Aahar Yojana (AAY) in 2015. AAY is specifically meant to tackle the issue of undernutrition in tribal areas of Maharashtra.

Even though the government implements various schemes, the issue of malnutrition has not been adequately addressed for multiple reasons. One of the significant reasons is gaps in implementation, treatment, reaching out to the beneficiaries, lack of convergence between different stakeholders at the grassroots level, and lack of community engagement and participation. Along with treatment, this multifaceted issue must be urgently addressed at various levels by converging different schemes/departments with active community involvement and participation and creating responsiveness of services towards the community.

In this context, the Tribal Research and Training Institute (TRTI) agreed with the Support for Advocacy and Training in Health Initiatives (SATHI) to implement an intervention project entitled "Empowering Tribal Communities to Improve Nutrition and Strengthening Awareness on Nutrition-Related Services: Community Action for Nutrition (CAN)". SATHI has a strong background in implementing community-based monitoring and

planning of health services in close association with government bodies. The Community-Based Monitoring Programme (CBMP), initiated by SATHI with support from the National Rural Health Mission in 2007, has positively improved quality health services at the community level by strengthening people's capacities in making services accountable and increasing community participation. The success of CBMP in health services was the foundation for the Community Action for Nutrition project. CAN was implemented with the understanding that participatory strategy implemented in nutrition-related services may prove to be effective

1.1. Community Action for Nutrition Project

SATHI was involved in Community-Based Monitoring and Action (CBMA) for nutrition services from 2013 to 2016 as a nodal agency for the Coalition for Nutrition Rights. The lessons learned from the CBMA became the first step towards initiating the Community Action for Nutrition (CAN) project. In 2018, a multicentric intervention project supported by the Tribal Development Department (TDD), Maharashtra, entitled "Empowering Tribal Communities to Improve Nutrition and Strengthening Awareness on Nutrition-Related Services: Community Action for Nutrition (CAN)" was approved. The project started with the aim to improve the nutritional status of children below six years of age, ensure community participation in crucial governance processes and improvement in nutrition and child-related services, capacity building of ASHA, Anganwadi workers, block facilitators and coordinators, review, and feedback of nutrition services across different levels providing nutrition services, strengthening the Anganwadi services and AAY through community-based monitoring. SATHI and eight local community-based organisations implemented the CAN project from September 2018 to August 2020. The project covered predominantly tribal blocks of seven districts in Maharashtra: Gadchiroli, Nandurbar, Nashik, Palghar, Pune, Raigad, and Thane. The project was carried out in the state in 420 villages of 10 blocks of these seven districts. The implementation of the project faced hurdles because of the COVID-19 pandemic. The Tata Institute of Social Sciences was approached to do an evaluation study of the CAN project.

1.2. Rationale

The Tata Institute of Social Sciences (TISS) is a multi-campus public university interested in community engagement and people-centred practice. TISS has been crucial in conducting fair and transparent research and assessment studies for various state and national government agencies. The more extensive interventions to reduce malnutrition have been done through a biomedical lens focusing on supplementation and curative treatment for SAM and MAM cases. This study is particularly interesting to TISS because the CAN project keeps community participation and system strengthening at the core of its engagement. It worked with multiple stakeholders and tried to solve governance issues at various levels. The focus was to improve existing systems and strengthen the capacities of the ASHA, Anganwadi workers, and other functionaries. They have used innovative strategies to engage the community through the project. The impact assessment of the study will help understand the processes followed during the project implementation, the perception among different stakeholders about the intervention, and the impact of the interventions. The study helps to assess the overall effect on the nutritional status of tribal children in the selected areas.

Chapter 2: Review of Literature

Child nutrition is an issue of rights and justice. Child undernutrition emanates from poverty, and social marginalisation through caste and class dynamics (Hanieh et al., 2020). Hanieh and others call the apathy of socio-political, legal, and economic systems that trap persons in adverse nutritional environments a form of 'structural violence'. This structural violence has trans-generational effects that are evident through maternal and child undernutrition. Haniel et al. (2020) used the historical trajectories of Australian Aboriginals to elucidate the point. The status of the tribal populace in India has some parallels. Tribal Indians have faced exclusion regarding forest rights, land ownership, know-how of modern agricultural practices, and education. ICDS has been providing supplementary nutrition but whether it really 'supplements' is an issue as the diet at home is not sufficient in the first place. The nutrition interventions therefore need to be based on rights and justice principles.

The Universal Declaration of Human Rights (UNDHR, 1948) and Convention on the Rights of the Child (CRC, 1989) mandate access to food. Access to nutritious food is the dominant strategy used across the interventions. Toro et al. (2023) have examined the issue of child malnutrition from a human rights perspective in Colombia (Mejía Toro et al., 2023). Existing literature points to minimal or no civic participation in the service delivery function; which is usually performed through a department or outsourced to an external agency. The service delivery of nutrition supplementation is therefore predominantly supply-driven with rudimentary civic participation. A lack of a rights-based approach and weak community participation have resulted in a weak accountability framework.

The chapter reviews the literature on childhood malnutrition globally and in India, especially focusing on community-based interventions for managing Severe Acute Malnutrition among children under five. The chapter begins with a section on malnutrition at the conceptual and global level followed by a second section on India-specific child malnutrition burden. The third section briefly covers the determinants of childhood undernutrition. The fourth section covers the treatment of severe acute malnutrition, specifically community-based management.

2.1. Malnutrition – Concept and Global Picture:

Malnutrition arises from inadequate or excessive caloric intake, carbohydrates, vitamins, proteins, or minerals, leading to undernourishment or overweight (Davis et al., 2020). Undernutrition among children clinically presents in multiple forms, kwashiorkor, and marasmus being the classical descriptions. Various forms and definitions have been used to describe and measure child malnutrition. Gomez's, Waterlow's, and WHO classifications were some of the most common systems for defining and measuring child undernutrition. However, considerable heterogeneity existed in the conceptualization and measurement of child undernutrition.

An interdisciplinary American Society for Parenteral and Enteral Nutrition (ASPEN) established a robust definition of child malnutrition (Mehta et al., 2013). Child undernutrition is defined as "an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein, or micronutrients that may negatively affect growth, development, and other relevant outcomes".

WHO relies on anthropometric measurements such as height-for-age, weight-for-height, and weight-for-age to assess and classify nutritional status, using standard deviation units (Z-scores) compared to a reference population's median (Clark et al., 2020). Classification based upon anthropometry makes the diagnosis more objective and reliable. The measurements can be performed by health workers or community volunteer with training and the dependence on healthcare professionals can be eliminated. This helps in improving early diagnosis of malnutrition at community level.

WHO defines Severe acute malnutrition (SAM) is an extreme type of malnutrition identified by a weight-for-height/weight-for-length ratio of-3 standard deviation units from the median of a reference population and a mid-upper-arm circumference of less than 115 mm accompanied by bilateral nutritional oedema (Das et al., 2020). Moderate acute malnutrition is identified with a weight-for-height/weight-for-length ratio between-3 standard deviation units and-2 standard deviation units (Clark et al., 2020). Ministry of Health and Family Welfare (MoHFW), India has incorporated the WHO guidelines in its nutrition rehabilitation interventions.

Roughly 17 million children globally experience severe acute malnutrition (SAM), (United Nations Children's Fund, World Health Organization, & World Bank Group, 2017). Despite advancements in addressing various malnutrition measures like stunting, the global count of children affected by acute malnutrition has seen minimal improvement, with only an 11% decrease over the past two decades (Annan et al., 2014). The immediate implications of SAM are grave, as a malnourished child faces a roughly nine-fold higher risk of mortality compared to a well-nourished child (Black et al., 2008, 2013).

Malnutrition severely impacts children's futures, particularly in low-and middle-income countries, where it remains a primary cause of mortality among those under five (Clark et al., 2020). Malnutrition represents the gravest outcome of inadequate food access for children below five years old. Severe malnutrition can result in physical impairment, hindering both cognitive and physical growth and raising susceptibility to multiple infections, sickness, and death (Wali et al., 2019). Children, due to their growth demands, are especially vulnerable to lacking essential nutrients, resulting in loss of lean body mass, muscle weakness, infections, immune dysfunctions, developmental delays, and in extreme cases, death (Mehta et al., 2013; Tebeje et al., 2017). Cognition, language, and overall development also suffer due to SAM (Khandelwal et al., 2020). A child's right to proper physical and mental development can be realized through adequate nutritional care, enabling them to reach their optimal health level.

The United Nations General Assembly proclaimed ten years starting from April 1, 2016, to tackle various malnutrition types by 2025 (Black et al., 2020). This initiative aligns with Sustainable Development Goal (SDG) 2, which is focused on eradicating hunger, ensuring food security, and enhancing nutrition. SDG-3 also concentrates on guaranteeing healthy lives and well-being for all age groups. Additionally, the Global Strategy for Women's, Children's, and Adolescent Health has established specific nutritional objectives to be achieved by 2030.

Deaths due to child malnutrition are on the decline globally. However, sub-Saharan Africa and South Asia continue to have a high burden of malnutrition (Liu et al., 2024; Mao et al., 2024). The nutritional deficiencies among children under five years have also declined but the improvement is not uniform globally. South Asia had an annual decline of 4.3% in

nutritional deficiencies but still, it accounted for the largest number of malnourished children (53 million) in 2019 (Yue et al., 2022). Malnutrition seen in South Asia is not limited to children alone. The age-standardised prevalence rate is the highest in the region (Zhang et al., 2022) highlighting that the disadvantage continues in the adulthood, elderly, and also to the next generation through maternal malnutrition. Within South Asia, India had the highest age-standardised prevalence rate and topped with respect to absolute number of Protein-Energy Malnutrition cases (Jiang et al., 2024).

2.2. Malnutrition in India:

The National Family and Health Survey (NFHS), the National Nutrition Monitoring Board (NNMB) rural surveys, and the global burden of disease (GBD) studies provide country level indicators and trends over time for India and other nations.

The NNMB surveys have highlighted the persistence of childhood undernutrition. Nearly one-fifth of boys and girls suffer from wasting (Shankar et al., 2017). The overall prevalence of wasting declined from 27% (1975-79) at the time of the launch of the ICDS project to 15.5% (2011-12) after nearly 35 years of the nutrition supplementation intervention through Anganwadis. The intake of various food groups was below the recommended dietary intake levels in the rural populace. The survey reports a decline in the consumption of coarse grains, millets, and pulses significantly which was compensated by rice and wheat which was supplied through the public distribution system. Pulses and milk showed high income elasticity which could limit their access to the poor. The surveys showed that energy consumption by children under six had declined from 1975-79 to 2011-12 and protein consumption had declined among children under three years.

In the past twenty years, India has witnessed a rise in severe acute malnutrition (SAM) despite positive national economic growth. This prevalence rose from 6.6% in 2005–2006, according to the National Family Health Survey-3 (NFHS-3), to 7.56% in NFHS-4 in 2015–2016. The most recent NFHS-5 survey (2019–2021) across 36 states and union territories reveals an alarming continuation at 7.6%. Previous analyses of NFHS-4 highlighted concerning levels of wasting, often occurring alongside other anthropometric deficiencies. These were concentrated in specific districts across India, requiring

immediate policy and program attention. An immediate review of data from NFHS-5 for some of these districts, reveals a troubling increase in SAM cases in various malnutrition hotspots.

The global burden of disease (GBD) projections estimated that malnutrition accounted for nearly two-thirds of the deaths among children under five in India (Swaminathan et al., 2019). The prevalence of wasting among children was 15.7%. The study projected a miss of the SDG 2030 goal for wasting with 10.4% excess wasting if the recent time trends continue in the same pattern. These warrant rethinking strategies for the management of malnutrition. Maharashtra was better-off among the states but the inequities between districts and disadvantage faced by tribal communities is a known phenomenon. Tribal districts such as Gadchiroli and Nandurbar have higher wasting prevalence compared to the state average (NFHS-5).

A district-wise analysis of NFHS-5 data showed that the prevalence of SAM had some rise in almost half the districts. Unexpectedly, certain districts outside the hotspots of NFHS-4, including areas not previously known for high malnutrition rates, displayed a rise in SAM prevalence at the time of NFHS-5. The NFHS-5 data was collected pre-COVID-19, thus not reflecting the likely impact of the pandemic on food security, livelihoods, and social stresses among the most vulnerable Indian households. Given this emerging trend of rising SAM, urgent policy and program interventions are advocated to fortify the Anganwadi system, which is responsible for preschool children in India, and to implement community-based acute malnutrition management based on recent evidence of their efficacy (Ulahannan et al., 2022).

There have been a few studies in Maharashtra that measured prevalence of malnutrition at community levels. In such a study in Panvel spanning 15 months, the composite index of anthropometric failure (CIAF) was used to evaluate undernutrition prevalence and patterns in preschool children. Results indicated that 50.6% of children were classified as experiencing "anthropometric failure" by the CIAF method, surpassing rates of underweight (32.9%), stunting (35.7%), and wasting (16.4%) according to traditional indices. The age group of 13–25 months showed the most significant impact, with 57% affected by CIAF-defined undernutrition. Prevalence rates were similar across genders and

age groups. The study highlights the necessity for a comprehensive policy to identify and treat all children experiencing anthropometric failure, particularly within the 13–25 months age bracket (Mhatre & Wadke, 2023).

2.3. Social Determinants of Child Undernutrition

Proximal determinants of child undernutrition have been well documented in literature. The mechanisms of nutrient imbalance in illness-related malnutrition include decreased nutrient intake, altered utilisation, increased nutrient losses, or increased nutrient requirements (hypermetabolism) not matched by intake (Mehta et al., 2013). Malnutrition in children below five years is influenced by a multifaceted interplay involving the availability, accessibility, and utilisation of both food and healthcare services in a review of papers from Sub-Saharan Africa (Drammeh et al., 2019). Specific nutritional aspects encompass insufficient food consumption, inadequate caregiving, improper feeding habits, and concurrent infections. The broader factors listed in this paper also apply to South Asia as food insecurity remains a major concern in most disadvantaged tribal groups, who have inadequate economic resources at the household and hamlet or village levels. The resource deficit affects not only health but also access to education, infrastructure, and hygiene services, all culminating in nutritional disadvantage for children.

Social factors underlie the proximal factors listed in the paragraph above. A case-control study from Nepal found that higher socioeconomic status, male gender, maternal education, and breastfeeding for more than six months protect against the development of SAM (Dahal et al., 2021; Hossain et al., 2020; Karim et al., 2021; Sand et al., 2018). Family size and household insecurity were the household-level factors associated with SAM (Anato, 2022; Gebremaryam et al., 2022; Sand et al., 2018). Birth weight and dietary diversity were specific individual-level factors that have also been documented (Ahmed et al., 2022; Gebremaryam et al., 2022). Maternal nutrition is a known risk factor for infant undernutrition. However, a randomised controlled trial of nutrition supplementation for lactating mothers did not improve child health at six months of age (Taneja et al., 2021). Prominent literature pieces are positivistic in approach and aim at identifying individual risk factors but may not adequately engage with the context.

Mother's age at birth, birth interval, socioeconomic status, father's education, initiation of complimentary food at six months of age, have been identified as key determinants of severe acute malnutrition among under-five children in India (Pravana et al., 2017). Analysis from secondary data from more than 51 low and middle-income countries also found that maternal age, maternal education, and household socioeconomic status were associated with child malnutrition. Additionally, socioeconomic status of the neighbourhood and location of residence were significantly associated with child nutrition (Fagbamigbe et al., 2020).

A study investigated maternal and child dietary diversity improvement strategies within the Project Spotlight initiative in Maharashtra's Gadchiroli and Chandrapur districts (Kumar & Mohanty, 2022). It demonstrates a significant link between maternal and child dietary diversity, emphasising higher consumption of fruits, vegetables, eggs, and flesh foods in mother-child pairs after system strengthening interventions. However, the study has limitations, focusing on household surveys rather than dietary content and lacking a control area for comparison. Despite this, the research suggests local interventions can enhance dietary diversity, crucial for combating maternal and child undernutrition. The study underscores the importance of dietary intake, advocating for its inclusion in nutrition policies and interventions for better maternal and child health. The study emphasises focus on both maternal and child nutrition in an integrated approach.

Child nutrition has always been on the forefront and maternal malnutrition has usually been secondary. ICDS has been providing supplementary nutrition to children for almost 50 years. Maternal nutritional supplementation has not received due attention. A review of interventions for maternal nutrition in South Asia identifies direct observation of nutritional supplements to be one of the effective strategies (Kurian et al., 2021). But, hardly one out of five pregnant women in India receive supplementary food. The primary studies mentioned in the paper predominantly covered the micronutrients especially Iron Folic Acid (IFA) whereas CAN project includes one full meal. The review however highlights major supply side concerns leading to non-availability of food supplementation, weak demand side due to misconceptions, food distribution pattern at family level and social environment including poverty, discrimination on socioeconomic status.

Perceptions of care providers and mothers are significant determinants as these perceptions determine uptake of services, adherence and retention in the intervention. Manivannan et al. (2023) explored the perceptions on client and provider side in urban and rural communities in Karnataka (Manivannan et al., 2023). The paper outlines key factors such as financial, social taboos, gender disparity as contributors to severe wasting. Mother's health, infant feeding practices were other two chief factors resulting in wasting. The qualitative data also provided a list of constraints at home, community and institutional levels. Migration, livelihood, and food insecurity were key concerns that had an effect on SAM status.

Vulnerability of Tribes

Children belonging to scheduled tribes face a distinct disadvantage which persists till today. A multi-state integrated nutrition and health project documented the disadvantages faced by children from scheduled caste and scheduled tribe communities (Kumar et al., 2009). Although with intervention, there was an improvement in key nutritional behaviours, the project did not cover nutritional rehabilitation as such.

Malnutrition, a condition where an individual's physical abilities decline, often correlates with poverty. However, India's case contradicts this association, creating what's known as the 'South Asian enigma.' Despite a 2.3% decline in stunting between 2006–2014, India still lags behind countries with similar economic levels in child nutrition. Undernutrition in India is concentrated in specific districts and villages, with a minority accounting for a significant portion of underweight children. This disparity is evident among different socioeconomic groups, such as Scheduled Tribes, Scheduled Castes, and Other Backward Classes. Baigas, among the 74 designated Scheduled Tribes, suffer from poor socioeconomic conditions and worse nutritional statuses compared to their rural counterparts. A study in the Mandla district of Madhya Pradesh highlights the Baigas' significant underweight, stunting, and wasting issues among pre-school children, emphasising their vulnerability (Jhariya & Gautam, 2013).

A qualitative study was conducted to comprehend the underlying reasons for malnutrition among Baiga tribal children (Shirisha, 2019). The Baigas, affected by government

development policies, saw their traditional self-sufficient lifestyle disrupted, forcing dependence on the state. Their culture, emphasising a deep connection with nature, communal ownership, shared consumption, strong kinship ties, and minimal hierarchies, contrasted with the perceived view in India that tribes lack social order and are primitive. Dominant cultural biases label these tribes as uncivilised, leading to policies aimed at 'civilising' and evolving them. This perspective stems from prejudices and a lack of understanding about the customs, traditions, and laws of settled and nomadic tribal communities, particularly those considered 'primitive,' despite each group's unique cultural heritage. Dissatisfaction with public services and the apathetic behaviour of officials contributed to the poor utilisation of these services, and worsening the malnutrition issue seemed to be critical factors contributing to the high levels of malnutrition. The qualitative approach uncovered nuanced aspects that quantitative methods might have overlooked, emphasising the need for a comprehensive policy addressing various factors beyond nutritional supplementation to improve the nutritional status of such populations.

A qualitative inquiry with healthcare providers, teachers, and local community representatives aimed to understand the reasons for poor Infant and Young Child Feeding (IYCF) practices in tribal communities in India (Lakhanpaul et al., 2022). Autonomy of mothers, agricultural and livelihood patterns, and availability of services and resources, and migration cycles were key factors determining IYCF practices identified through the discussions with the key stakeholders. The authors stated that the contextual understanding helped them create an intervention package.

Health System Factors

Addressing malnutrition in children under five years requires a comprehensive approach that extends beyond healthcare facilities and involves multiple sectors. A holistic strategy is necessary for effective management (Das, et. al, 2020). The primary healthcare worker serves as the initial point of contact for health concerns outside the home and plays a crucial role in managing malnutrition in this age group. The digitization of ICDS data lags. For the units where there is digitised data, the prevalence of wasting is only 7% as per ICDS dataset which is significantly lower than the NFHS-5 finding (Ulahannan, et. al, 2022). The substantial shortfall in recognizing SAM-affected children is attributed to inadequate

training of AWWs and limited availability of growth monitoring tools. Ongoing training and supervision focused on the correct use of growth monitoring tools by AWWs have proven effective in identifying SAM cases.

Yet, research reveals that beyond the capacities of individual AWWs, various systemic factors hinder the effectiveness of the Anganwadi program, particularly in underperforming states. These encompass insufficient funding and infrastructure, biased social dynamics based on caste, seasonal labour migration, governance deficiencies, delayed or inadequate payment, rigorous oversight, and excessive workloads (Taneja et al., 2012).

Resource deficit has been documented as a major constraint of the ICDS scheme. The resource constraint includes lack of buildings, vacancies and also absenteeism. Such a lack prevents children from receiving adequate nutritional supplementation. Corruption, leakage in the supply chain and false reporting of coverage are known issues and have been documented in the existing literature. Social audits have been used in the past in Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), an employment guarantee scheme. Swain and Sen (2009) report social audit pilots in Andhra Pradesh and Odisha of the ICDS project. The paper found a number of deficiencies in the governance (Swain & Sen, 2009). Anganwadis were not reaching to many children most-in-need, the nutrition provided was deficient in quantity, malnourished children were not being identified in time, absence of food committees and overreporting on attendance were issues identified in the social audit. The study, however, was of a cross-sectional nature and did not include support or strengthening the ICDS as an intervention.

A study evaluated the awareness of anganwadi workers regarding health and nutrition services for children (0-6 years) provided by the Integrated Child Development Services (ICDS) in Purmandal block, Jammu. Findings revealed that 55% of workers were aware of nutritional services at centres but lacked knowledge about energy and protein requirements for the targeted age group and the calorie content of provided foods. Regarding health assessment, 30% were unfamiliar with the assessment methods. Despite maintaining weight registers and growth charts, 65% were unaware of the charts' significance. Despite training, the workers' performance and awareness of nutrition and health aspects were

unsatisfactory, emphasising the need for frequent and on-the-spot training programs (Manhas et al., 2012).

Additionally, administrative pressure from higher authorities may compel AWWs to understate SAM cases, fearing repercussions for the district's reputation rather than receiving support to address SAM cases (Meshram et al., 2020). NFHS-4 findings (2015–2016) indicate that children from Scheduled Tribal communities or the poorest wealth quintiles, at higher risk of SAM, are less likely to access Anganwadi services, potentially leading to unnoticed SAM cases among these groups (Nakkeeran et al., 2020).

Under the National Rural Health Mission, Village Health Sanitation Committees were envisaged. The nutrition component was added at a later date to the committee functions. A recent assessment of Village Health, Sanitation and Nutrition Committees in one district in Jharkhand and Odisha documented the substantial under-performance of VHSNCs with nutrition being one of the most neglected domains (Srivastava et al., 2015). Odisha VHNSCs were monitoring the anganwadi centres and mid-day meals served at schools but this was not the case in Jharkhand. However, the lack of role clarity and trust in anganwadi workers meant that the monitoring was not universal and was not in-depth.

As per NFHS-4, the number of SAM expected was 0.8 million annually but only 20% reached NRCs. This is due to the suboptimal functioning of facility-based NRCs and a high dropout rate (Dasgupta et al., 2014). Considering the current prevalence of SAM-afflicted children and the limited number of Nutrition Rehabilitation Centers (NRCs) available in India, it's operationally impractical to accommodate all SAM-affected children in these centres.

An analysis of data from the fifth round of NFHS found that ICDS services were qualitatively weaker (Chakraborty et al., 2024). The data was collected from mothers about use of ICDS services. The study found that the coverage of SAM children did not differ significantly from that of non-SAM children. The authors thereby argued that ICDS is not necessarily able to identify and prioritise the SAM children. From the data collected from the mothers during NFHS, it was also inferred that the SAM children were receiving almost the same kind of services compared to their non-SAM counterparts.

Broad-Based Interventions for the Prevention and Management of Malnutrition

An ecological approach has been recommended for tackling child malnutrition because aetiologically, it originates from upstream social factors (Perez-Escamilla et al., 2018). The authors present the case of Brazil where conditional cash transfers, improvement in water and sanitation, paid maternity leave, and improvement in the quality of public health interventions were part of a broad ecological approach that resulted in a decline in child malnutrition. The authors state that "Food consumption is inherently an economic activity, with implications for the political economy of the food system, and the interests of powerful stakeholders within it". The authors argue for multi-sectoral policies that address social determinants of health.

Literature suggests that a multi-pronged approach that empowers women through a micro-credit approach may have lasting effects on the reduction in malnutrition among children (Marquis et al., 2015). A randomised controlled trial in Nepal found that intervention for livestock promotion helped alleviate poverty and the nutritional status of children in the intervention area was better than that in the control area (Miller et al., 2014). Longer participation in the intervention was associated with more improvement in the nutritional status of children.

Safe water, sanitation are also key determinants of child malnutrition but have not been addressed in the current model of CAN implementation. Educational level of mother, safe water and clean fuel were associated with good nutritional status in a geospatial mapping study (Rahut et al., 2024). There is evidence that kitchen-garden interventions result in better knowledge, favourable attitudes and behavioural interventions (Shah et al., 2023).

2.4. Management of Malnutrition Among Children

Hospital based interventions have been found to be less than optimal with respect to effectiveness. An outpatient-based nutrition therapy recorded recovery among two-third of beneficiaries and 22.5% did not recover despite therapy and the rest 11% discontinued (Ahmed, 2023). There was a high incidence of relapse among children who had received nutritional rehabilitation at institutions (Alyi et al., 2023).

However, a systematic review of studies found success of 72% among SAM patients receiving inpatient nutritional therapy in Ethiopia (Yazew et al., 2019). The success rate varied from region to region with some regions reporting more than 80% success.

Severe Acute Malnutrition (SAM) affects nearly 20 million under-five children globally; India accounts for nearly 40% of them (Ahmed et al., 2014). India's response includes Nutritional Rehabilitation Centres (NRCs) that have been established at the district and sub-district (Block) levels. These centres provide medical management of acute malnutrition with an energy-protein-rich diet and antibiotics (if needed). The anganwadis established under the Integrated Child Development Scheme (ICDS) were launched first time in 1975, and were scaled up over time to provide supplementary nutrition to all children under six years. However, children with SAM were expected to be catered to by NRCs. On the one hand, the number of NRC beds falls short of the number of SAM children. On another hand, there is a reluctance to get admitted. Community-based management has been attempted in India. Commercially available Ready-to-use Therapeutic Food (RUTF) and RUTF prepared from locally available food, have been tried in the past with the latter having better acceptability in the community. Initially, the RUTF was dispensed from health facilities, and over time, its integration with ICDS was attempted. India faced a lack of supplies, trained human resources, and guidelines for implementing community-based management of SAM.

A health and nutrition education interventional study followed up a cohort of 480 tribal children in the Palghar district of Maharashtra (Surve et al., 2022). The study found improvement in meal frequency and minimally acceptable diet with a commensurate decline in the prevalence of severe and moderate acute malnutrition. The nutrition supplementation intervention was implemented through ICDS. The study did not have a comparison arm and it did not measure the prevalence of malnutrition among all children in the villages but only those who were followed-up consistently over an 18-month period.

A review of the child malnutrition interventions in India point out operational and field level concerns with the strategies employed (Mohan & Mohan, 2017). The in-patient approach proposed by Indian Academy of Paediatricians (IAP) shows poor uptake (most SAM children not reaching to NRCs), high dropout, weak follow-up at the community

level. The review also synthesises evidence from multiple studies and concludes that locally prepared RUTF is effective and likely cost-effective than commercially available products for treatment of SAM. However, even this approach does not necessarily result in persistent well-being as many of the children who recover, fall back into malnutrition. Authors argue that in the long-run, socioeconomic and gender inequities must be addressed to prevent and manage acute malnutrition among children.

2.5 Community Participation

Alma-Ata conference brought a focus on community participation in the public health discourse globally (Morgan, 2001). However, the conceptualization of community participation varied greatly. Many times, it was meant to achieve a health outcome but was not sustainable. There have been wide variations in measuring and evaluating participation. Utilitarian logic sees community participation as a means to achieve health outcomes whereas the health activists have focussed on community empowerment as the goal. This section reviews a few papers on community participation processes, relevance, and conceptualisation. The section is followed by literature on community participation for prevention and management of malnutrition.

A scoping review noted that democratic decision-making, shared and agreed vision, transparency, relationships, and trust, were key factors in strong community participation interviews(Kenny et al., 2013). Community participation was in turn dependent upon the close-knit rural communities, social interactions, local leadership structures, and opportunities for new leaders.

Sacks et al. (2017) reviewed the Health Systems strengthening frameworks and examined the articulations of community participation and the role accorded to community in those frameworks. The review noted that there have been fewer interventions where communities have taken part in monitoring, evaluation or quality improvement. The paper notes that external support is usually strongly needed for the monitoring and quality improvement interventions. The paper highlights that the support is not only needed for initial planning but also for long-term sustainability (Sacks et al., 2017).

A systematic review of community participation interventions lists organisational processes and community processes as the precursors of community outcomes and health outcomes (Haldane et al., 2019). Earlier, community processes were thought to be a means of achieving the end of health outcomes. The authors argue that the processes themselves are important as the health outcomes are dependent upon social, economic, and political contexts. It highlights that community participation is not linear but a complex process. Strong community processes can nurture an environment of community resilience and empowerment which can contribute to overall development.

Village health, sanitation and nutrition committee (VHSNC) was a key communitization initiative under National Rural Health Mission (NRHM) in India. A review from Odisha points out that this committee's role was limited to planning but the village health plan was not reflecting aspirations of the community (Susanta Kumar Nayak & Dr. Iswasr Chandra Naik, 2020). The review found that in most cases, the activities of VHSNC was largely limited to the utilisation of untied funds. There was no monitoring or accountability framework or mechanisms in VHSNC functioning.

The Community Practitioners on Accountability and Social Action in Health (COPASAH) advocates for the participation of citizens in accountability for Health Systems Strengthening (Sandhya & Khanna, 2021). COPASAH argues that social accountability is not limited to direct or indirect civic engagement of citizens in demanding accountability from the systems. Participation includes various tools and mechanisms including community scorecards cards, social audits. Some of the tools and mechanisms were developed in the background of contextual realities and therefore is indeed a complex social intervention. Enabling marginalised, giving voice to people's perspectives, empowering processes that address power imbalances affecting community health and advocacy to influence policies and programmes were arrived upon as key principles of social accountability.

2.6. Community-Based Management of Malnutrition

Community based care literature is predominantly from Sub-Saharan Africa. In Arbegona (Ethiopia), a community-based intervention was conducted and its effectiveness was

compared with the institutional approach (Chaiken et al., 2006). The recovery from malnutrition was achieved for two out of three malnourished children. The intervention included take-home ration with adequate nutrition supplement to help the child recover. The project, however did not involve interphase with the facility. The approach had community participation but not community monitoring or facilitation of nutrition supplementation in day-care.

In a study in Rural Ethiopia, the researchers aimed to find out factors that affect interventions in the community (Tadesse et al., 2016). The caregivers reported satisfaction with services of the healthcare providers but nearly half reported pilferage in the therapeutic food. The pilferage was also reported by healthcare workers themselves. Data showed poor coverage of services and interruptions in services to a majority of the acute malnourished children. Many children exited from follow-up without recovery or admission to nutrition rehabilitation centres. Even those who were hospitalised received care that was deficient on quality grounds.

A systematic review assessing effectiveness of community-based management of acute malnutrition (CMAM) concluded that CMAM for uncomplicated SAM is equally effective as the WHO-recommended standard treatment involving F-100 (Gera, 2010). The finding paved the way to integrate community-based management of acute malnutrition (CMAM) as a strategy for managing uncomplicated SAM, noting comparatively lower mortality and morbidity rates among SAM children in India versus African nations.

In one of the first community-based management of SAM children in Bihar, one week's supply of RUTF was provided for uncomplicated cases (Burza et al., 2015). The supplies were provided through ambulatory centres in the community settings. It involved enhancing existing sub-centers and primary healthcare centres to offer facility-based treatment for medically complex SAM cases within the community. Little more than half of the children were improved but more than one-third discontinued the nutrition intervention. The study did not necessarily have a hospitalisation component in the beginning and yet the results were comparable.

A cohort study of SAM children from Odisha and Jharkhand found low mortality post-SAM of just 1.2% (Prost et al., 2019). Since the mortality in children aged 6-59 months

was far lower than expected, the authors argued that the community based RUTF for SAM children would not be able to reduce mortality further. The study concluded that prevention of undernutrition would have far better reaching outcomes than treatment of SAM children alone as the former would help prevent SAM from occurring.

Various CMAM interventions in Bihar, Madhya Pradesh, Odisha, Chhattisgarh, and Rajasthan have reported increased coverage for timely treatment in a more cost-effective manner (Mathur et al., 2018). Ultimately, a more sustainable resolution to SAM necessitates addressing socio-economic and gender disparities that constrain parental and household capacity to provide a nurturing environment for impoverished and marginalised children in India.

In Odisha's Kandhamal district, a community-based management of severe acute malnutrition was attempted through the ICDS centres. Perspectives of mothers and care-givers were presented in a paper (Pati et al., 2018). In this interventional study, three interventions were provided; Hot cooked meal (HCM), take home ration (THR), and energy dense nutritional food (EDNRF). In the first arm, the children were expected to visit Anganwadi on a daily basis and consume the hot cooked meals at the centre whereas in the other two, the mothers prepared food at home with THR or EDNRF. Community participation especially of the village leaders and multi-sectoral approach were enablers. Lack of awareness, increase in workload and delay in disbursement of claims were predominant bottlenecks. The challenges include lack of building, and vacancy of anganwadi workers.

Community management of acute malnutrition was studied in Pakistan and was found to be effective (Aguayo et al., 2013). Same kind of intervention was also successful within Mumbai where a non-governmental organisation was involved (Chanani et al., 2019). The NGO had strength in community participation and conducted community awareness activities. The NGO staff also conducted home visits, monitored the children and their utilisation of health services, linked them with services whenever necessary. The model was supportive of the ICDS functions.

There is evidence of effectiveness of management of acute malnutrition through day-care settings in tribal India (Prasad et al., 2018). Although the study was not a clinical trial or

implementation research, it showed that nearly three-fourth of SAM children improved after the intervention indicating that hospitalisation to treat SAM may not be necessary.

In the midst of successful interventions, one study found suboptimal improvement in malnutrition treatment centres in Jharkhand (Chaturvedi et al., 2018). A total of 150 children accessing services from malnutrition treatment centres in 2011-12 were followed up. The study noted that the weight gain was poor during the institutionalised days. Diet of nearly two-third of them was severely deficient in calories and proteins. Feeding practices at home were unimproved. The children also faced morbidities. Institutionalisation itself did not show effectiveness and the community-based component was very weak.

Global literature highlights the advantages and limitations of the CMAM approach. CMAM empowers local healthcare workers to detect and begin treatment for malnourished children before their conditions worsen (Ntenda & Chuang, 2018). This early intervention aids in identifying severe acute malnutrition within the community and offers treatment to those without severe complications. Strategies involve ready-to-use therapeutic foods or nutrient-rich options implemented at the community level (Makanjana & Naicker, 2021). Vigilant surveillance by these healthcare workers facilitates nutritional guidance, early detection, and treatment of malnutrition (Desyibelew et al., 2020). This approach allows primary healthcare workers to comprehend the malnutrition context, enabling them to create energy-dense child-friendly meals using locally available, culturally suitable, and cost-effective food items (Makanjana & Naicker, 2021). Ultimately, community-based malnutrition management can prevent both immediate and lasting effects of childhood malnutrition.

An integrated model for treatment of children with severe acute malnutrition was tested in Madhya Pradesh (Aguayo et al., 2018). The integrated model had an initial hospital-based two-week phase followed by a two-month community-based phase. The model had modest success. Nearly 20% of SAM children did not complete the two-week period. The remaining 80% moved to community-based phase out of whom about 44% recovered. The paper covered technical aspects and did not discuss details of the implementation challenges.

2.7. Studies on RUTF

Ready-to-use therapeutic food has been used to address the problem of severe acute malnutrition. RUTF approach is often used in community settings but effectiveness may get compromised due to availability, cultural appropriateness, acceptability, robustness of supply chain among other factors. A systematic review examined the evidence from trials on the effectiveness of RUTF (Schoonees et al., 2019). The review found RUTF to be significantly better for weight gain and improvement but the evidence for relapse and mortality was not statistically different than the conventional mode. The review called for more evidence generation with pragmatic Randomized Control Trails (RCTs).

Studies from India's National Institute of Nutrition point out that a cautious approach would be suitable due to contradictory evidence emerging (Kulkarni & Mamidi, 2019). Indian studies found mortality to be higher among those who received RUTF. Long-term effects of prolonged use of RUTF on health are not well-known. Facility based rehabilitation has high default rates. SAM without complication have been found to have good recovery in community-based management almost equalling that in facility-based intervention. Community-based management is also far more acceptable to the community. Even in community-based interventions, the sustainability of the RUTF strategy has been questioned and RUTF versus augmented home-prepared food did not show major difference in nutritional outcomes in NIN study.

RUTF has been associated with a negative spillover of reduction in dietary diversity impacting nutrition and overall development in the long-run. Hence, education about dietary diversity and meal frequency is essential along with RUTF treatments. Community-based RUTF provides opportunities for dietary diversity. A study examined whether decrease in dose of RUTF improves dietary diversity in community interventions for uncomplicated SAM children (Nikièma et al., 2021). However, the study did not find improvement in diet with reduction in dose of RUTF. Dietary diversity was dependent on maternal education, household wealth, and urban residence.

2.8. Relapse after SAM:

Relapse after severe acute malnutrition is common. Relapse was more common within the initial six months post-discharge. Long-term effect of community-based management on the nutritional status of the child was studied in Bihar (Burza et al., 2016). Children were tracked every three months over an 18-month period after discharge. About two-third to three-fourth were traced and these included those who were cured at the time of exit as well as those who had exited without recovery. Non-recovery rates were 41%, 30% and 10% at 3, 6, and 9 months. Relapse among those who were cured were 9%, 3% and 2% at the same intervals of follow-up. The study found that nutritional status shortly after engagement with CBM was associated with availability of food on a seasonal basis.

Studies and program assessments consistently highlight that children discharged before reaching recommended recovery standards or those who default from treatment face a higher risk of relapse. Defaulters, especially, show a considerable risk for relapse and even mortality in certain cases. This has been observed in studies from Niger and India, where children who defaulted had notably higher risks of relapse. However, considering defaulters as relapsed cases might inflate the relapse rates as some may not have truly relapsed but stayed malnourished post-treatment. The most consistent risk factor associated with relapse is the lower anthropometric measurements at admission and discharge from SAM treatment. The presence of illness at relapse was also observed in several studies, indicating that full immunological recovery might not have been achieved in some cases. Micronutrient deficiencies were rarely linked to relapse, and poor linear growth and stunting were consistently observed post-discharge. Household-level factors such as socioeconomic status, feeding practices, and living conditions showed mixed associations with relapse. Unconditional cash transfers during and after SAM treatment showed promise in reducing relapse rates. It's essential to shift the focus of acute malnutrition programs from immediate recovery to sustained recovery and long-term outcomes for SAM-affected children. Further research is needed to define relapse, identify high-risk children, explore different discharge criteria's impact on relapse, improve early detection of acute malnutrition, develop interventions or therapeutic foods to enhance immune function post-discharge, and reduce relapse among high-risk children (Stobaugh et al., 2019).

To enhance program effectiveness and facilitate research, there's a critical need for a standardised definition of relapse in SAM cases. Such a definition would enable better assessment of program quality in terms of sustained recovery and offer insights into the extent of relapse contribution to the local and global burden of severe acute malnutrition (Stobaugh et al., 2019). Current treatment programs for severe acute malnutrition (SAM) in children primarily focus on initial recovery, leaving post-discharge outcomes, particularly relapse, poorly defined and understood. Variations exist in how relapse is defined among studies and program reports, including different admission and discharge criteria, follow-up duration, and data collection methods. Typically, relapse refers to a child redeveloping SAM within a specific timeframe post-discharge, with varying definitions ranging from 1 week to 18 months. Research studies usually employ active follow-up visits, while program evaluations often rely on readmission data. Studies indicate a significant variance in relapse rates post-treatment, ranging from 0% to 37% over varying periods following discharge. However, the absence of a standardised definition for relapse hinders comparability among studies, leading to inconsistencies in reported relapse rates. These inconsistencies are further compounded by varying treatment protocols and inadequate adherence to established protocols.

The Council of Research and Technical Advice for Acute Malnutrition (CORTASAM) distinguishes between relapse and recurrence based upon the interim time period between two episodes of severe acute malnutrition. Both terms are used if the child is in normal range between the two episodes. Regression is the term suggested if the child recovers only partially from SAM to MAM before slipping back into SAM. Children who persist in SAM are classified into ongoing SAM episodes by CORTASAM. Theoretically speaking, the adverse outcomes mentioned here are as a result of contextual, structural, community, household and individual factors (Schaefer et al., 2021). The interventions therefore cannot be limited to individual feeding alone. The subsequent literature documents evidence about the phenomenon from studies.

While the majority of research on SAM focuses on its origins, immediate effects, and methods for swift recovery, there's limited understanding of children's health and nutrition post-discharge. Some studies tracking children after SAM treatment have revealed

concerning outcomes after recovery, such as increased mortality, illness, and functional challenges (Bahwere, 2012; Lelijveld et al., 2016).

The definition of relapse, encompassing both moderate and severe acute malnutrition, demonstrated a substantial surge in the proportion of relapse cases within specific time frames across various regions: from 38% to 86% over three months in India, 30% to 80% over 3.5 months in Ethiopia, 13% to 41% over six months in the Democratic Republic of Congo, and 15% to 44% over 12 months in Ethiopia. Only one study in Ethiopia had a control group of non-malnourished children for comparison; it found a relapse rate of 15% among post-SAM children compared to 1.2% among non-wasted community-matched controls within a year. The reporting of relapse varied between point prevalence (indicating the number of children in relapse at a specific time) and cumulative proportion or incidence rate (showing the number of relapsed cases during a period). (Girma et al., 2022)

To summarise, the literature points out that the medical management of SAM through Nutritional Rehabilitation Centres (NRC) is not adequate to deal with child malnutrition at the population level. Community-based management of uncomplicated SAM cases has been proven effective. However, the findings from experimental studies are difficult to replicate as the fidelity of interventions may vary in real practice. Community participation and monitoring are both rights-based and can ensure the 'fidelity' of the intervention as per the design. There is however lack of empirical data on community participation, monitoring, and auditing to improve public sector delivery of services and to improve nutrition literacy among communities. This study attempts to fill this knowledge gap by assessing the 'Community Action for Nutrition' project of the Maharashtra government implemented through partner organisations.

Chapter 3: Methodology

This chapter outlines the objectives of the end-line evaluation of Community Action for Nutrition (CAN) project implemented by SATHI and its field level partner organisations. The chapter details methods and analytical approaches. Ethical considerations, study challenges and limitations have also been discussed.

3.1. Objectives:

1. To outline the context and background for the emergence of CAN project to improve the nutritional status among the children targeted.
2. To document the strategies and processes followed by the project to ensure improved nutrition, promote household care (for prevention of undernutrition), strengthen community participation and interface with government functionaries in the provisioning of nutritional services.
3. To assess the implementation, outcomes and limitations of CAN project during its intervention period with its various outcome indicators.

The first objective aims to describe the context in which the intervention was implemented, second covers assessing **mechanisms or processes** that were implemented during 2019-20 and the last one focuses on **outcomes** of the Community Action for Nutrition project. In view of the above objectives, the following key areas of enquiries and observation were listed.

Key Areas-

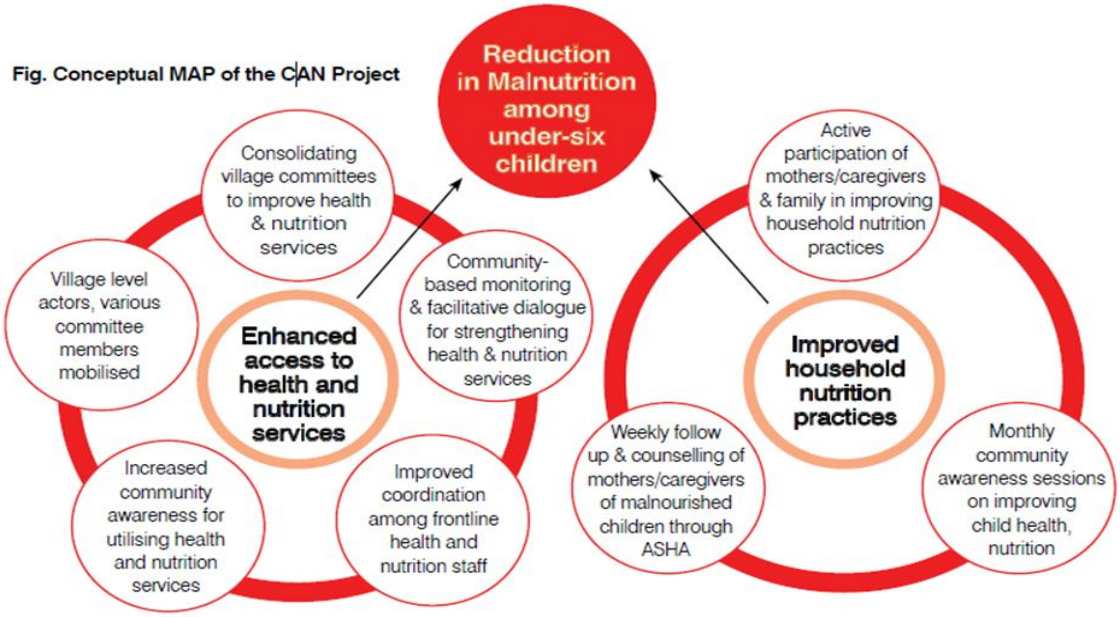
- Impact of CBMP for initiating CAN and strengthening processes for improved nutritional status of children in intervention area
- Outcomes of improved nutritional status of children below 6 years
- Improved Anganwadi services through community-based monitoring
- Enhanced capacities of ASHA, Anganwadi workers, block facilitators and coordinators for effective delivery of nutrition services
- Improved community participation in governance processes for better child and nutrition
- Strategies to ensure the responsiveness of the system (ICDS and AAY) for the provisioning of nutritional services

- Measurable improvements in the nutritional status of children in the intervention villages

3.2. Conceptual Framework for the Study:

As stated already, this study was an end-line assessment aimed at evaluation of the project. For programmatic evaluations in public health, **Theory of Change (ToC)** has been a preferred approach. Under this approach, the underlying theory of change is specified and then chief components of the same are assessed in the evaluation. Figure 1 presents a framework implemented by SATHI where the impact of **'Reduction in malnutrition among under-six children'** (Red circle) was proposed to be achieved through two intermediary outcomes; namely, **'Enhanced access to health and nutrition services'** and **'Improved household nutrition practices'.** Activities that lead to these intermediary outcomes have been mentioned in circles around respective outcomes. These activities represent processes employed by CAN projects during 2019-20. It was expected that the project resources (grant from Tribal Research and Training Institute, Government of Maharashtra, and the community organisations core resources and expertise) would lead to effective implementation of the processes. These processes in turn would result in the intermediary outcomes culminating in the project aim of reduction in malnutrition among under-six children.

Figure 1: Conceptual Map of the Community Action for Nutrition Project (reproduced with permission from SATHI)

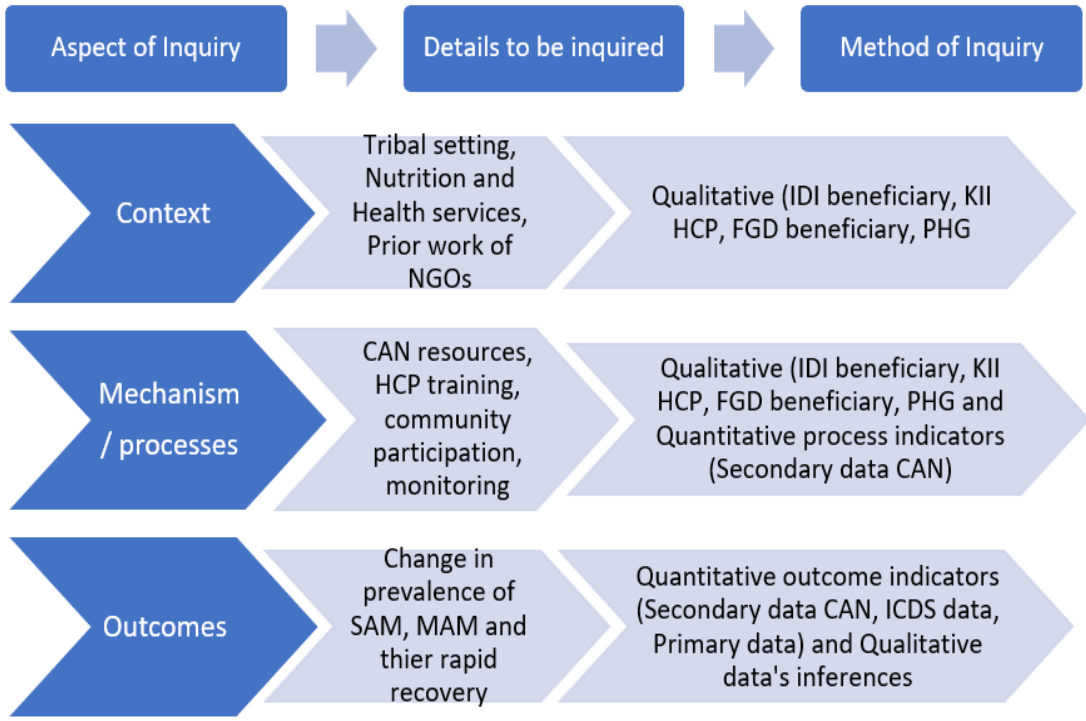


Theory of Change (ToC) approach warrants evaluating each aspect of the CAN project from **context/ input, processes, to outcomes/ impact**. ToC approach is a pragmatic approach and can use various types of study designs based upon the purpose and study objectives. The broad purpose of end-line assessment was to understand not only effectiveness of the intervention, i. e., reduction in malnutrition but also to understand the contextual factors which resulted in the effectiveness and the implementation facilitators and barriers. This is because an intervention successful in one area may not be equally successful in another area depending upon contextual factors and the way in which the intervention gets implemented. **Realist evaluation** approach tells us not only whether the intervention was successful but also under which conditions it was successful and in order for it to be successful in other contextual settings, what resources or processes that may be needed. **Case study** as a method is a pragmatic approach which helps answer the questions posed and has been used in realistic evaluations of public health interventions.

Case study approach can use quantitative or qualitative or mixed methods based upon the purpose of evaluation. The CAN project had a baseline assessment and an endline assessment. There was no mid-term assessment. Mid-term assessment (when conducted) focuses on input and process evaluation and in such cases end-line assessment can be quantitative focusing only on impact. At times concurrent evaluation obviates the need of mid-term evaluation. Since, CAN project did not have external mid-term or concurrent evaluations, it was important that in the end-line both processes and outcomes are assessed. Therefore, it was decided that the case study mixed methods approach, both **Quantitative and Qualitative** methods would be used.

Figure 2 provides details of the three chief aspects of Inquiry, namely; context, mechanism/ processes and outcomes. Details to be inquired for each aspect have been listed broadly. The key details included understanding the way in which CAN processes as outlined in Figure 3.1 were implemented in the field situations. Methods of inquiry of each aspect have also been outlined in the figure.

Figure 2: Evaluation Frame for End- Line Assessment of CAN Project



NGO: Non- governmental organisation, IDI: In- Depth Interview, KII: Key Informant Interview, FGD: Focus Group Discussion, PHG: Poshan Hakka Gat, CAN: Community Action for Nutrition, SAM: Severe Acute Malnutrition, MAM: Moderate Acute Malnutrition, ICDS: Integrated Child Development Scheme, HCP:Health Care Provider.

3.3. Qualitative Component: The intervention was implemented in 420 tribal Anganwadi through partner organisations. Each of the seven districts was supported by one field level organisation. Three districts had two blocks and the rest four districts had one block each, making it a total of 10 blocks. About 40 tribal villages were selected from each of the blocks for the purpose of intervention. Thus, within the state-wide CAN project, **block was macro level unit** of implementation. Each block level implementation was coordinated by a single field level organisation who had employed one block level facilitator. The intervention at the block was for about 40 villages under a single ICDS project and was under administrative jurisdiction of one administrative block where Panchayat Samiti was the chief Panchayat Raj Institution. **Anganwadi at village was the microunit** of CAN intervention. Following paragraphs detail on sample selection of major and micro units for the case study.

Sample Selection for Blocks:

Geographic region and programme performance were the selected parameters. The seven districts fell into four geographic regions and representation of each geographic region was necessary due to contextual differences. The regions included Vidarbha (Gadchiroli), North Maharashtra (Nashik and Nadurbar), Konkan-North (Palghar and Thane) and Konkan-Middle (Raigad and Pune). Hence four blocks, one from each region was proposed to be included as a unit of study.

Secondary data shared by SATHI was used to calculate block-wise indicators on the malnutrition data and performance. The percentage of children who had growth faltering during the first quarter of field level implementation (Jun 19-Aug 19) was calculated block-wise. Over the period of CAN implementation, fewer children had growth faltering and such percentage was calculated block-wise for the last (third) quarter of implementation (Dec 19-Feb 20). This data has been presented in Table 1.

Table 1: Block-Wise Percentage of Children with Growth Faltering in First and Last Quarter of CAN Project Implementation

Region	Block	Percentage of children with Growth faltering in 1st Quarter (Jun19-Aug19)	Percentage of children with Growth faltering in 3rd Quarter (Dec19-Feb20)
Konkan- Middle	Karjat	23%	5%
Vidarbha	Armori	41%	8%
Konkan- North	Mokhada	38%	10%
Konkan- North	Shahapur	34%	10%
Vidarbha	Kurkheda	39%	11%
Konkan- Middle	Junnar	26%	13%
North Maharashtra	Trambakeshwar	35%	14%
North Maharashtra	Shahada	31%	18%
Konkan- North	Jawhar	41%	19%
North Maharashtra	Dhadgaon	54%	35%

It can be seen from the table that in all the 10 blocks, the project had reported decline in percentage of children with growth faltering between these two reference periods. The magnitude of decline was not uniform though. Hence the absolute decline in the percentage values between the first and last quarter was calculated (Table 2). This absolute decline is dependent upon the baseline values, hence relative reduction was also calculated block-wise.

Table 2: Block- Wise Absolute and Relative Reduction in Percentage of Children with Growth Faltering from First to Last Quarter of CAN Project Implementation

Block	Absolute reduction in percentage of children with growth faltering	Block	Relative reduction in percentage of children with growth faltering
Armori	33%	Armori	81%
Mokhada	28%	Karjat	78%
Kurkheda	28%	Mokhada	74%
Shahapur	23%	Kurkheda	72%
Jawhar	22%	Shahapur	69%
Trembakeshwar	21%	Trembakeshwar	59%
Dhadgaon	19%	Jawhar	53%
Karjat	18%	Junnar	51%
Junnar	13%	Shahada	42%
Shahada	13%	Dhadgaon	33%

From the data presented in tables 3.1 and 3.2, it can be seen that Armori was best performing block in two out of three indicators whereas Dhadgaon was poor performing block on two indicators. Hence, these two blocks (one from Vidarbha and other from North Maharashtra) were selected purposively. Among the blocks in North Konkan, Jawhar was lagging most whereas Junnar in Middle Konkan had weakest absolute reduction and weak relative reduction and these two blocks were also selected. However, Dhadgaon had to be replaced as the intervention had not been established in the block with hardly any support

or collaboration in that specific block. Hence, Shahada the nearest block with poor indicators was selected – it had both poor absolute and relative reductions.

Selection of Sample Villages/Anganwadi:

The smallest unit (micro unit) of CAN intervention was **Anganwadi** at village level. At each Anganwadi, CAN project was expected to work with respective Anganwadi workers and ASHA who were the frontline workers. It was expected that a Poshan Hakka Gat (Nutrition Rights Group) would be constituted for each Anganwadi who would monitor the functioning of as well as support Anganwadi and encourage parents' participation in the nutritional management of the children. It was therefore important to study this unit as a whole for understanding context and process.

There were about 40 villages in each of the 10 blocks. Using secondary data received from SATHI, the number of children in each Anganwadi who had improved under CAN project and number of children who had growth faltering was computed. For the selection of Anganwadi samples, it was necessary that the number of children with growth faltering and number of children with improvement were sufficient. Purposive sample selection criteria were set as Anganwadi where at least five children had growth faltering in the last quarter of CAN implementation and at least 20 children with improved weight.

Number of Anganwadi that met these criteria were 14 each for Shahada and Jawhar and five for Armori. In the Junnar block, none of the Anganwadi met both the criteria. Hence, for Junnar block, Anganwadi where at least one criterion was fulfilled was computed and eight villages fulfilled one of the criteria. From this pool of Anganwadi, three were selected for each block taking into consideration logistics, functionality of Anganwadi currently, and whether the Anganwadi worker or ASHA who was working during the CAN period was still continuing during the end-line assessment study. A total of **12 Anganwadi (3 per block)** were selected.

3.4. Quantitative Component

From a quantitative point of view, the whole project was considered as a 'case'. In order to examine effectiveness, a counterfactual is needed. It is important to note that the intervention was in addition to the ICDS intervention under the Ministry of Women and

Child Welfare. Routine ICDS was supplemented by APJ Abdul Kalam Amrut Ahaar Yojana for the vulnerable tribal areas. Comparing the tribal villages with non-tribal villages was not appropriate. Hence, before-after comparison was proposed for the CAN implementation villages.

There were three possible sources for the Before-After comparison. One data source was the data collected by SATHI through partner organisations during implementation of the project. Second data source was data collected within the ICDS programme. Third possibility was primary data collection by the TISS research team. First dataset was made readily available by SATHI and was examined with a set of indicators listed subsequently. Attempts were made to collect secondary data from ICDS which took considerable time. The data requested and received has been presented subsequently in this chapter. Third component of primary data collection was although logical but not very reliable due to the time gap between close of the project and time of data collection.

3.5. Methods for Qualitative Component:

Purpose of the qualitative component was to understand the context and processes including chiefly 1) processes undertaken for intervention and analysis of the strategies used, 2) perception of different stakeholders regarding the implementation of the project, 3) assess the qualitative change in capacities and 4) governance related changes linked with the project interventions.

In-depth interviews: In-depth interviews (IDI) were conducted with the interventions' beneficiaries. These included women from the sampled villages who were pregnant or lactating or having at least one child under-six years of age registered with Anganwadi during the CAN project period. The list of such women was populated using the secondary data of the project. Two in-depth interview guides were prepared for the interview of these beneficiaries (Annexure 1a, Annexure 1b).

Focus Group Discussion: At each Anganwadi, the project was expected to establish and nurture a *village Poshan Hakka Gat (PHG)*. Members of the PHG were invited for a focus group discussion (Annexure 1c). FGD warrants five to eight participants but some of the PHG members were not available or were not in the role during end-line assessment. FGDs

could be conducted only in four villages and for the rest of the villages In-Depth Interviews (IDI) of available PHG members were conducted using the same themes from FGD guide (Annexure 1c). Four villages where sufficient number (five to eight) beneficiary mothers (of CAN project period) were available, FGD were conducted (using the same thematic areas listed in Annexure 1a and 1b). For the rest of the villages, beneficiary IDI was the chief method.

Key Informant Interviews: The healthcare providers including ASHA, ANM and Anganwadi workers were the first group of key informants (Annexure 1d). Supervisory officials at primary health centres and block level and Anganwadi supervisors and Child Development Project Officers were the second group of key informants (Annexure 1e). Field workers of CAN NGOs and their managerial level officials constituted the last group of key informants (Annexure 1f). Members of Gram Panchayat or its committees such as Village Health, Sanitation and Nutrition Committee (VHSNC) were approached as they would have witnessed the CAN processes and thematic areas developed for PHG FGD were used to interview them (Annexure 1c).

Perceptions of all stakeholders including beneficiaries, service providers, supervisors in health and nutrition departments, village level functionaries and volunteers, and CAN project staff were thus captured through IDI, KII and FGDs. The involvement of these stakeholders within CAN processes, capacity building they underwent, the processes of project they witnessed or participated and their impressions about those processes, innovations, its benefits (or lack of it), challenges or barriers and successes in improving governance and thereby child nutrition were captured through the qualitative methods.

3.6. Composition and Training of Research Team:

Research team included PI (Dr. Narendra Kakade), three co-PI (Dr. Nilesh Gawde, Dr. Smitha Nair, Dr. Archana Diwate) and one research associate (Dr. Nivedeeta Thombare), one research assistant (Mr. Alankar Shirsath) and four research investigators (Ms. Nikita Sonawane, Mr. Shrikrushna Bramhankar, Ms. Shubhangi Gaikwad and Mr. Ajit Kamble).

The research team underwent two days of in-house training at Tata Institute of Social Sciences. The training included methods in qualitative research, detailed explanation on

the study tools, sampling techniques for recruitment of participants and ethical considerations and procedures. The study PI and co-PI conducted the training. SATHI resource persons were also asked to make a presentation on the project objectives, activities and monitoring of the CAN project. Subsequently additional training were provided to research team at TISS as and when required.

The in-house training was followed by a pilot study in one of the selected blocks. Purpose of the pilot was to understand the appropriateness, exhaustiveness and acceptability of the study tools to potential beneficiaries. The pilot was supervised by Dr. Archana Diwate (co-PI). The nuances of the interview guides were better understood by the research investigators, assistant and associate. This also was part of the team's training in the study tools and capacity building as a research investigator. The pilot study was conducted over two days in the field and each of the study tool (Annexure 1a to 1f) was piloted during the period. Doubts, misconceptions of the study team were cleared and they were given inputs on communication skills, data collection skills, probing techniques and also on being sensitive to community culture, vulnerabilities and practices.

It was also clear to the research team that due to the long gap between the project and evaluation, it was difficult for the participants to recall the process. Co-PI provided inputs on key reference points such as 'prior to lockdown', 'during pregnancy of your xth child', etc. to get relevant information. It was also noticed that the participants knew the processes but were not able to remember the name of the project or organisation. They could identify NGO staff and could tell what they did but did not know the name associated with that activity. Use of terms in local languages was noted and appreciated by the research team. This learning was helpful for the research team which prepared them better for data collection during the study.

Table 3: ***Number of Respondent & Key Stakeholders Interviewed in the Project***

Zone Name	**Konkan 1**	**Konkan 2**	**North Maharashtra**	**Vidarbha**	**Total**
District Name	**Palghar**	**Pune**	**Nandurbar**	**Gadchiroli**	
Stakeholders Name/Block Name	**Jawhar**	**Junnar**	**Shahada**	**Armori**	
ANM	0	1	1	1	**3**
ASHA	2	2	3	4	**11**
AWS- Anganwadi Supervisor	2	2	1	1	**6**
AWW- Anganwadi Worker	3	2	1	2	**8**
NGO representatives	1	1	1	2	**5**
Beneficiary (mother-interview)	4	5	8	5	**22**
CDPO	0	1	1	1	**3**
Field Facilitator	2	2	2	2	**8**
Poshan Hak Gat (PHG-Interview)	2	4	3	1	**10**
Medical Officers	1	2	1	1	**5**
Community Stakeholders	4	4	1	0	**9**
FGD-Beneficiaries	1	0	1	2	**4**
FGD-Poshan Hak Gat	0	1	1	2	**4**
State Nodal Agency	2				**2**
Total	**22**	**27**	**25**	**24**	**100**

Analytical approach: The interviews were audio-recorded. Only in exceptional cases, field notes were used. All the audio recordings were transcribed by the research team. The transcripts were added to Atlas-ti software for ease of processing. All the transcripts were read and re-read. After first reading, a skeletal thematic map was prepared by a research associate. The thematic map was reviewed by PI and Co-PI. The thematic map underwent two rounds of iterations before finalisations. Coding was initiated by a research assistant

but managed largely by a research associate. Key quotations were selected for explaining the themes or sub-themes. This was synthesised to develop chapters.

3.7. Quantitative Component:

The project was expected to reach all children under six years of age. The indicators pertaining to undernutrition in this category were studied systematically. The indicators such as enrolled children under age six, pregnant and lactating mothers registered under Amrut Aahar Yojana (AAY), SAM, MAM & SUW children (beginning of intervention), and SAM, MAM & SUW children (toward end of the intervention) was considered for this study.

There were three possible sources of quantitative data. First (Implementation agency dataset), was quantitative data collected and maintained by SATHI. Since the first 8 months were preparatory, we referred to data of the implementation phase which was available from June 2019 to February 2020 (9 months). The second (Government dataset) source was secondary data prior to, during and after CAN project maintained by ICDS systems. The last one (Evaluation agency-TISS dataset) was primary data which could be collected at End-line assessment.

Implementation Agency Dataset: Dataset of the implementation agency was comprehensive and granular. Anthropometry data of each child was maintained by SATHI in spreadsheet format with help from partner NGO Anganwadi, block and district-wise. Every child was categorised on weight for height (WFH) indicator into normal, moderate acute malnutrition (MAM) or severe acute malnutrition (SAM) every month and on weight for age (WFA) indicator into normal, moderate underweight (MUW) or severe underweight (SUW). Raw data on height and weight measurements, and gender were not available. SATHI had implemented a Community Based Monitoring (CBM) project prior to CAN and some villages were overlapping. Since, it was felt that CBM villages may have baseline advantage, additional data elements of CBM village or non-CBM village were added to the database. Data missing was mentioned as missing. This dataset was used for assessment of process indicators (regularity of anthropometry measurements) especially in months following malnutrition episodes and outcome indicators on nutritional status of the children.

The following process indicators were proposed and measured.

a) Regularity of Anthropometry: Percent of children with anthropometry done at least once every three months. Indicator was calculated separately for WFH and WFA categories and for CBM and non-CBM villages.

b) Change in anthropometry coverage: Indicator chosen was the percentage of children who underwent anthropometry at least once in a quarter. The indicator was calculated for the first, second and third quarter for WFH and WFA categories.

c) Consistency of anthropometry: Indicator chosen was the percentage of children who underwent anthropometry every month. Indicator was calculated separately for WFH and WFA categories and for CBM and non-CBM villages.

d) Follow-up anthropometry for malnourished children: Percentage of SAM, MAM, and SUW children for whom regular anthropometry data was available over the next three months: These malnourished children were expected to be followed up regularly (month-wise for the first five months). This indicator was also assessed separately for CBM and non-CBM villages.

The following outcome indicators were proposed and measured.

a) Change in nutritional status from one month to subsequent month: This indicator was assessed for WFH and WFA categories.

b) Three-month outcome of SAM, MAM and SUW children: Nutritional outcome after three months of detection as malnourished baby was calculated at project level. CBM and non-CBM wise outcomes were calculated in addition for the SAM children.

c) Deterioration from normal to severe malnutrition: Percentage of children who deteriorated during the project period to SAM or SUW level at project level. This indicator was also assessed separately for CBM and non-CBM villages.

d) Stability in nutritional status over the project period: Stability in nutritional status was measured for both WFH and WFA indicators and for CBM and non-CBM villages.

Government Dataset: Every month, Anganwadi submits a report on nutritional status of the enrolled children. Such data gets compiled at the ICDS project level. This data was requested from CDPOs of the four blocks which were selected for the qualitative component. The data requested and received was as follows.

a) Number of children in the Anganwadi centres during the CAN implementation period (Jun 19-Feb 20). The purpose of this data is to correlate this with data from CAN project. If the total number in each Anganwadi (40 Anganwadi in each of the four blocks) would match with the data provided by SATHI, the denominator for calculation of indicators would be certain

b) Number of children for whom anthropometry was done during the CAN implementation period (Jun 19-Feb 20). It was observed on the basis of preliminary analysis of CAN project data that about 10% children had not undergone anthropometry even once during the nine-month CAN implementation period. This data was requested for understanding coherence between the government and implementing agency data. Both a) and b) were process indicators.

c) Third data requested was outcome data on the number of SAM, MAM and SUW children per month at each of the 40 Anganwadi in each of the four sampled blocks. This data was to be collected from April 2019 to March 2020 so that period just before CAN implementation and during CAN implementation would get documented. The trend in the indicators over implementation period (Rise or fall or sustenance of prevalence of undernutrition during the nine-month implementation) from ICDS could be then compared with the trend in data from the CAN project.

The data on SAM, MAM and SUW for each of the project Anganwadi was also requested from Jan 23 to Sep 23 period. This was because Anganwadi were closed for two years and there would be no reliable data in 2020-22 period. Hence, post-CAN data from Anganwadi was proposed from Jan 23 to Sep 23. After 2023 Diwali, there was a strike of Anganwadi workers and the services resumed only in Jan or Feb 24. Hence, data was not requested for the last quarter of 2023 or early 2024. The malnutrition prevalence from this period would be compared with that in the CAN implementation phase.

ICDS secondary data helped in calculation of acute malnutrition indicators on a monthly basis for CAN project implementation period. The time-trend of malnutrition indicators were compared between ICDS and CAN project datasets. Block-wise indicators from the two sources were also compared.

ICDS data after the project (2023) was compared with that during the project (2019-20) at overall four blocks and sub-group analysis of CAN villages and non-CAN villages was also performed. Malnutrition indicators based on ICDS data of four blocks after the project (2023) were also compared with those derived from the evaluation agency's (TISS) primary data from 12 villages.

During the qualitative data collection period, the research team visited Nutrition Rehabilitation Centres (NRCs) but they did not have village-wise data. They had only admission data and that too was not easy to classify into CAN and non-CAN villages.

Evaluation Agency Dataset: The original proposal did not propose primary quantitative data to be collected by the evaluation agency. It was felt by researchers because of more than three years of gap between project end and the end-line assessment. During the three-year period, Anganwadi was closed for nearly two years. COVID-19 pandemic also created loss of jobs and income for the most marginalised communities. These external factors would influence the nutrition parameters and researchers felt that effectiveness of the CAN project cannot be assessed through primary data collection.

However, the government agency felt that anthropometry was needed. This was because the government agency felt that in absence of primary data, the secondary data from the implementation agency alone lead to conclusions about end-line assessment. At the behest of the government agency, primary data collection was planned. A fresh request with rationale was sent to the Independent Review Board (IRB) of TISS and approval was sought for this data collection which was added to the study protocol after the close of the field operations for qualitative data collection.

Table 4: Gantt Chart

Tasks	Oct-Nov 2022	Dec-Jan 2023	Feb 2023	Mar-May 2023	June 2023	July 2023	Aug 2023	Sept 2023	Oct 2023	Nov 2023	Dec 2023	Jan-Feb 2024	Mar-April 2024	May-June 2024	July 2024	Aug 2024
Proposal Preparation																
Proposal Submission to TRTI																
Proposal Revision																
Final Proposal																
Drafting of MOU and MOU Signed																
Recruitment of Staff and Training																
Pilot of the Study																
Data Collection																
Transcription and coding of the primary data																
Initiated data analysis of the primary data																
Preparation and data collection of Anthropometry data																
Analysis of Anthropometry Data																
Initiated the process to collect secondary Data from ICDS and its analysis																
Report Writing																
Report Submission																

Field Operations: A team of four field investigators was freshly appointed for a task-based assignment. All the field investigators were pursuing masters and had field level experience. They were trained by PI and co-PI. SATHI resource persons were also invited so that the procedures used by ICDS, SATHI and TISS would be similar. In consultation with the government agency, it was decided to conduct anthropometry measurements for all available children currently in the Anganwadi of the 12 sampled villages. With help from SATHI and local Anganwadi, a list of children who were at the Anganwadi during CAN project period but currently not in Anganwadi (due to crossing of six years of age) was also created. These children were invited to Anganwadi to undergo Anthropometry.

TISS (evaluation agency) identified one volunteer for each block who connected and coordinated with the three Anganwadi in the respective block. These field volunteers' role was to prepare lists of children in coordination with Anganwadi, SATHI and partner organisations, to identify suitable date at the Anganwadi when the anthropometry measurements can be conducted, mobilising the community so that maximum number of children in Anganwadi currently and during the CAN project period would visit Anganwadi on the selected day for data collection.

Data: Since data collection per-protocol (original) was already over and the request of the government agency was to understand only malnutrition levels, it was felt that the data should be kept at basic minimum giving least trouble to the vulnerable tribal children and their families. Hence, their village, Anganwadi name, gender, date of birth was noted and height and weight were measured.

Analysis: The tribal development department of Maharashtra uses WHO's Weight for Height growth charts for classifying children as normal, SAM or MAM for children under six years of age. The TDD, Maharashtra anthropometry charts were used to categorise children according to age-gender specific anthropometry data. For children aged 6 years and above, WHO's BMI charts were used. In both cases children who fall between- 2SD (standard deviation) and- 3SD were classified as MAM (or thin for children aged 6 years and above) and those falling below- 3SD were classified as SAM (or super thin for children aged 6 years and above) babies. Data were presented gender-wise as the parameters vary between the two sexes. Children under six years were groups into CAN project beneficiary

and non-beneficiary. In each group number of children with and without malnutrition (MAM or SAM) was calculated. Since both variables were categorical, chi-square test was employed to check for difference in malnutrition levels in the two groups.

3.8. Ethical Consideration:

The study design and execution were done keeping in mind the tribal specificity in development approach. The design included interviews of members of Poshan Hakka Gat, Panchayat Raj members, and ASHA as they would provide community perspectives. In line with suggestions from IRB, the tribal specificity, their culture and food practices were also probed and the inquiry attempted to find whether the project supported bottom-up and community-led approach in building project activities or was western oriented prescriptive one.

Since the data collection did not involve any intervention with parents or children, there were no major ethical risks. However, it was anticipated that participants may not feel comfortable sharing their experiences due to fear of discrimination from the health and nutrition workers. Privacy and confidentiality were therefore of high importance to the team. Since the questions were about maternity, childbirth and postpartum care, and child nutritional supplementation, it was anticipated that some beneficiaries may feel uncomfortable or awkward. Research team was trained in communication skills, building rapport and making participants comfortable. However, whether to participate and continue in the interview remained the decision of the participant and their decisions were respected. There were a few potential participants who refused for an interview and their decision was respected. Some others were not comfortable with audio records and only field notes were taken.

The research team was trained in administration of Participant Information Sheet and Informed Consent Form. These documents have been added to the Appendix (annexure 2a, 2b, 2c). The audio recordings were transcribed. Original names were replaced with pseudonyms and the name of the village was not included in the selected quotations. All files were maintained under lock and key of PI and Co-PI and audio files were only on the research team's laptops with password protection.

As mentioned earlier, primary anthropometry data collection was not originally in the proposal and this component was added later. IRB was duly informed about the same. It was felt by the researchers that taking the measurements of the children may pose an additional inconvenience to the children. However, it was also their right to get the measurements done and if found undernourished, get access to the health and nutrition services. Hence, the data collection process could be potentially beneficial. IRB approved the protocol amendment. Data collection was initiated only after IRB approval.

Chapter 4 Quantitative Data Analysis

This chapter covers analysis of the Quantitative Data collected by SATHI during the period of June 2019 to February 2020. The data represents nutritional status of children who were part of the CAN project. The data covers two aspects viz. weight for height and weight for age. The first aspect captures the status of children as Severe Acute Malnourished (SAM) and Moderate Acute Malnourished (MAM) whereas the later captures the status of children as Severe Under-Weight (SUW) and Moderate Under-Weight (MUW). The findings are divided into four sections. The first section presents indicators about the Process Evaluation (SATHI data) and the second section has indicators about the Outcome Evaluation (SATHI data). Both the sections also include a comparison of results between villages which were part of the Community Based Monitoring Project (CBMP) with their counterparts. Third section includes data from anthropometry measurements conducted in 12 villages in the four selected blocks (Data collected by TISS). Fourth section is based upon data shared by ICDS projects in the four selected blocks.

4.1. The Process Evaluation

This part talks about the Process Evaluation i.e. whether the anthropometry measurement activities in CAN Project were conducted regularly for the beneficiaries. This section is based upon data received from the CAN project. In the secondary data, there were entries for 20862 children overall. However, 2158 children (10.34%) out of these 20862 did not have a single anthropometry measurement during the whole nine months of implementation. A total of 702 children had birth dates before 2013 and after 2019. They were excluded because they were not in the CAN process for at least three months. There were 208 duplicate records with the same name, birth date, village and Anganwadi names. At the end of data cleaning, a total of 18415 unique children's data was ready for analysis.

4.1.1. Percent of Children with Anthropometry Done at Least Once Every Three Months

A) In Case of Weight for Height Indicator

Out of the 18415, children in the final database, majority, (11,758 children; 63.85%) have at least one reading in each of the three quarters (Jun19-Aug19; Sep19-Nov19; and Dec19-

Feb20), whereas 36.15% (6,657 children) did not have regular anthropometry measurements (i.e. at least one reading in each of the three quarters) (Figure 3).

The decomposition of the overall period in 3 quarters suggests that during the period of June 2019 to August 2019, almost 93.16% (17,155 children) have at least one reading in the three months, indicating a high level of consistency. In contrast, 6.84% (1,260 children) have not even had a single reading in the same period (Figure 4).

In the timeframe of September 2019 to November 2019, around 77.04% (14,187 children) have at least one reading in the three months, indicating a substantial majority, whereas around 22.96% (4,228 children) lack even a single reading in the same period (Figure 4).

In the period of December 2019 to February 2020, 72.76% (13,399 children) have at least one reading in the three months, signifying a majority. Conversely, 27.24% (5,016 children) have not recorded even a single reading during the same period (Figure 4).

Figure 3: Regularity of Weight for Height Indicator Measurement During CAN Project (Jun19-Feb20)

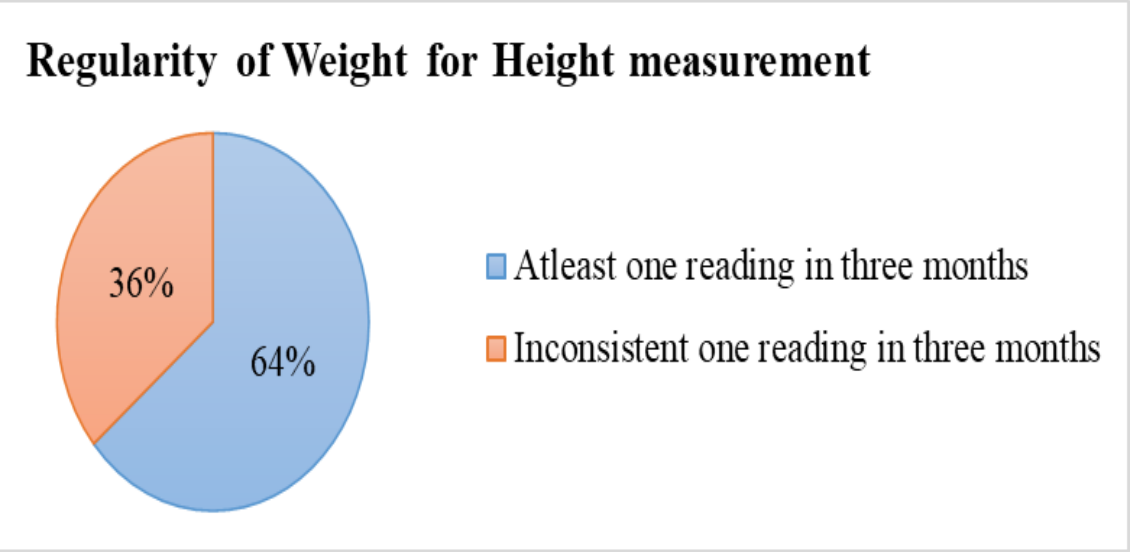
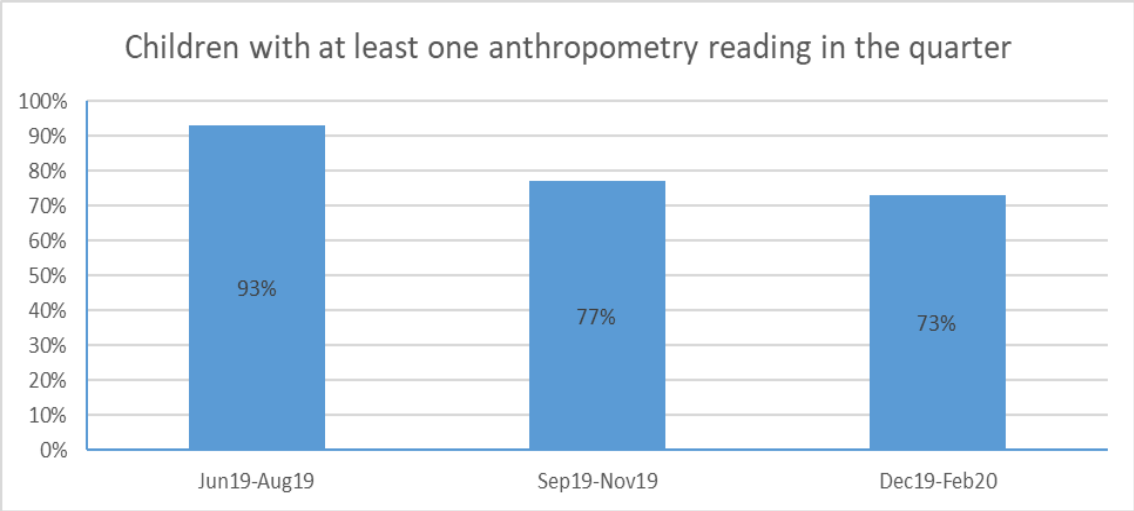


Figure 4: Percent Children with Weight for Height Measurement During Three Quarters of CAN Project Implementation



B) In Case of Weight for Age Indicator

For the overall period, 63.82% (11,752 children) have at least one reading in each of the three quarters, while 36.18% (6,663 children) did not have such consistent anthropometry measurements show inconsistent readings (Figure 5).

The decomposition of the overall period in 3 months reveals that during the period of June 2019 to August 2019, 93.24% (17,171 children) have at least one reading in three months, indicating a significant level of consistency. In contrast, 6.76% (1,244 children) have not recorded even a single reading in the same timeframe (Figure 6). In the timeframe of September 2019 to November 2019, 77.02% (14,183 children) have at least one reading in three months, while 22.98% (4,232 children) have not recorded any readings in the same period. For the period of December 2019 to February 2020, 72.7% (13,388 children) have at least one reading in three months, whereas 27.3% (5,027 children) lack even a single reading in the same period.

Figure 5: Regularity of Weight for Age Indicator Measurement During CAN Project (Jun19-Feb20)

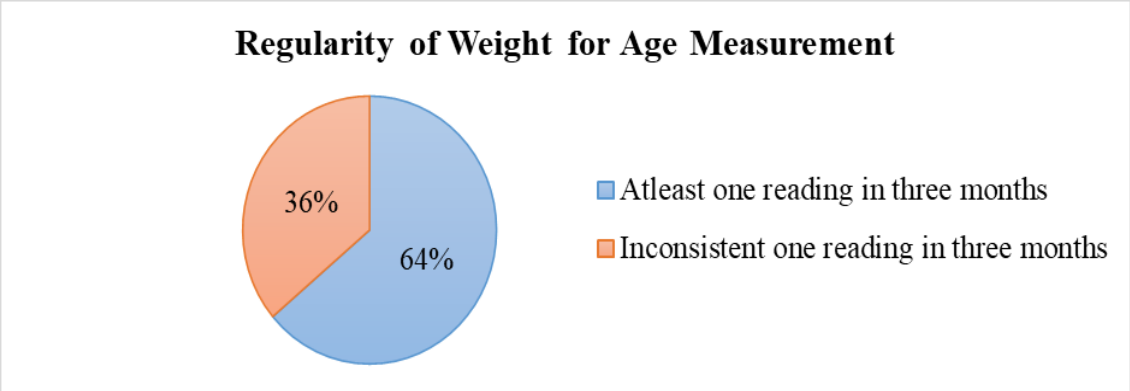
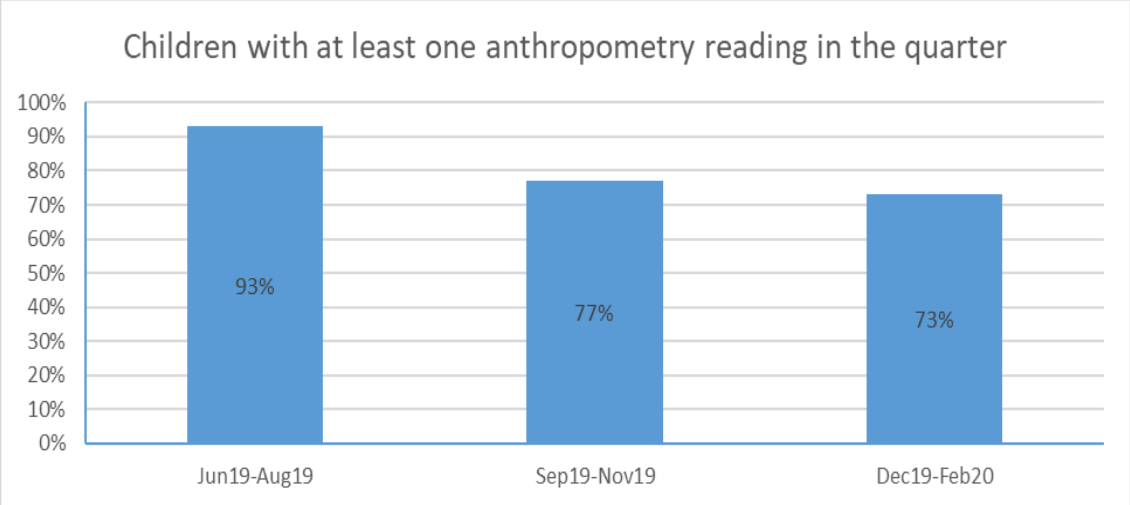


Figure 6: Percent Children with Weight for Age Measurement During Three Quarters of CAN Project Implementation



C) Situation in Villages Which Were Part of Community Based Monitoring Project

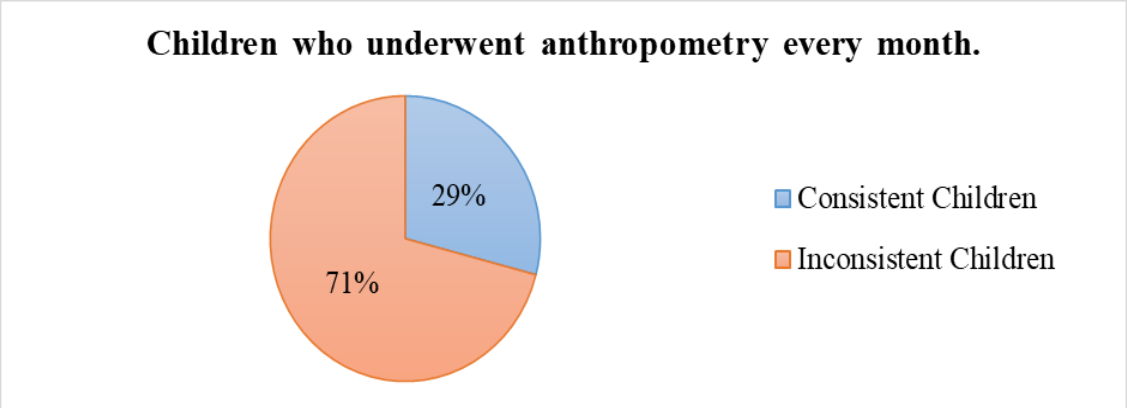
The results are almost the same between the villages which were part of CBM and their counterparts for both the aspects viz. weight for height and weight for age. In CBM villages, 63% children had at least one measurement in three months whereas it was 64% for non-CBM villages.

4.1.2. Percent of Children Who Underwent Anthropometry Every Month.

A) In Case of Weight for Height

Approximately 29.07% (5,353 children) were part of monthly anthropometry consistent measurements, while the majority, 70.93% (13,062 children) had irregular anthropometry readings (Figure 7).

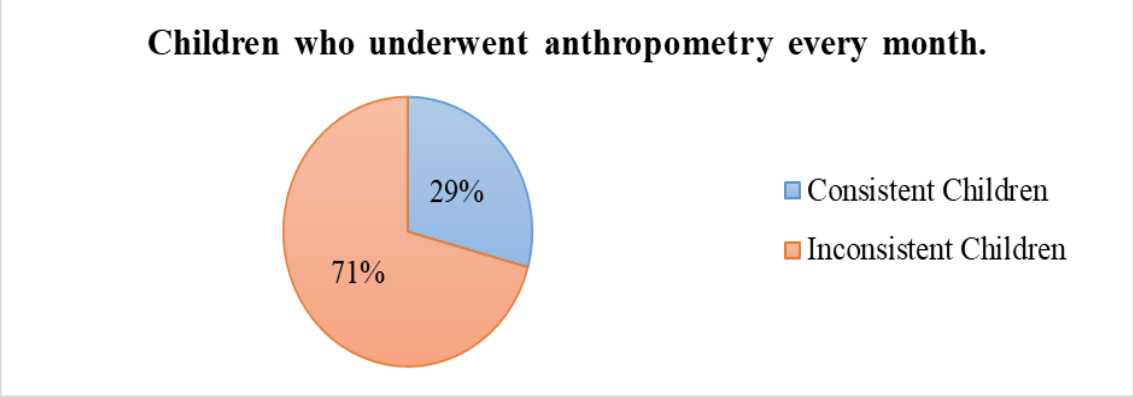
Figure 7: Percent Children Who Had Weight for Height Assessment Every Month During CAN Implementation Period (Jun19-Feb20)



B) In Case of Weight for Age

Around 29.25% (5,387 children) had monthly anthropometry consistently, while the majority 70.75% (13,028 children) were not consistent (Figure 8).

Figure 8: Percent Children Who Had Weight for Age Assessment Every Month During CAN Implementation Period (Jun19-Feb20)



C) Situation in Villages Which Were Part of CBMP

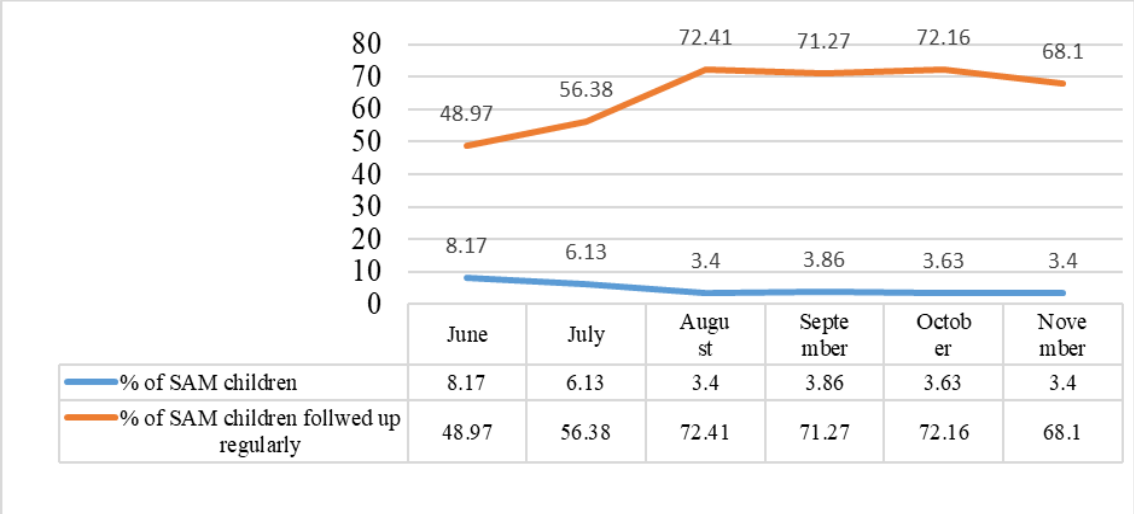
There is a marginal difference between villages which were part of CBMP and other villages. The consistency of monthly anthropometry was 31% in non-CBM and 27% in CBM villages.

4.1.3. Percentage of SAM, MAM, and SUW Children for Whom Regular Anthropometry Data is Available Over the Next Three Months:

A) In case of Weight for Height

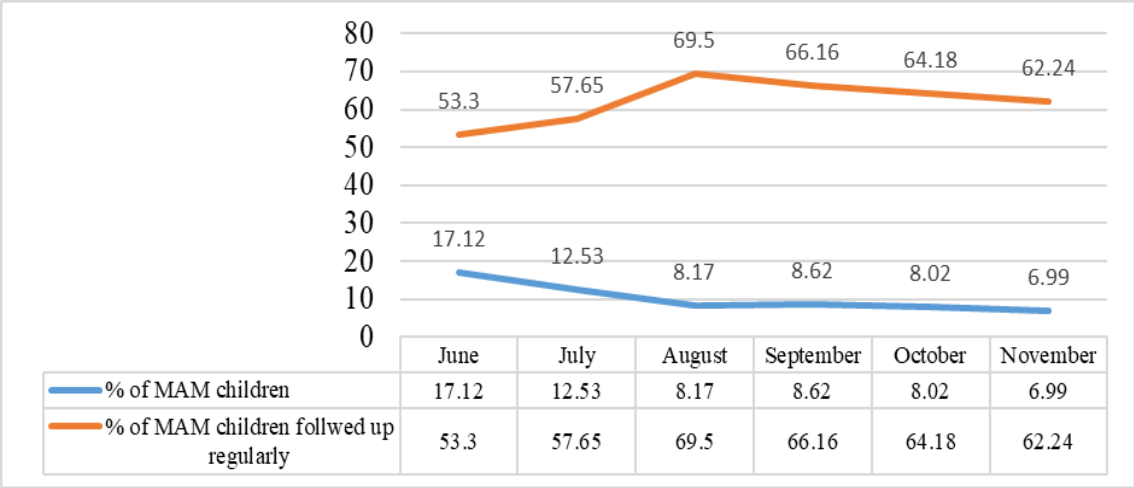
The Prevalence of SAM cases were high in June and July and it declined to under 4% by August and remained stable thereafter. The percentage of SAM cases followed up rose from about 50% to 70% in first couple of months and stabled thereafter (Figure 9).

Figure 9: Percent of Children with Severe Acute Malnutrition Followed Up Over the Subsequent Three Months



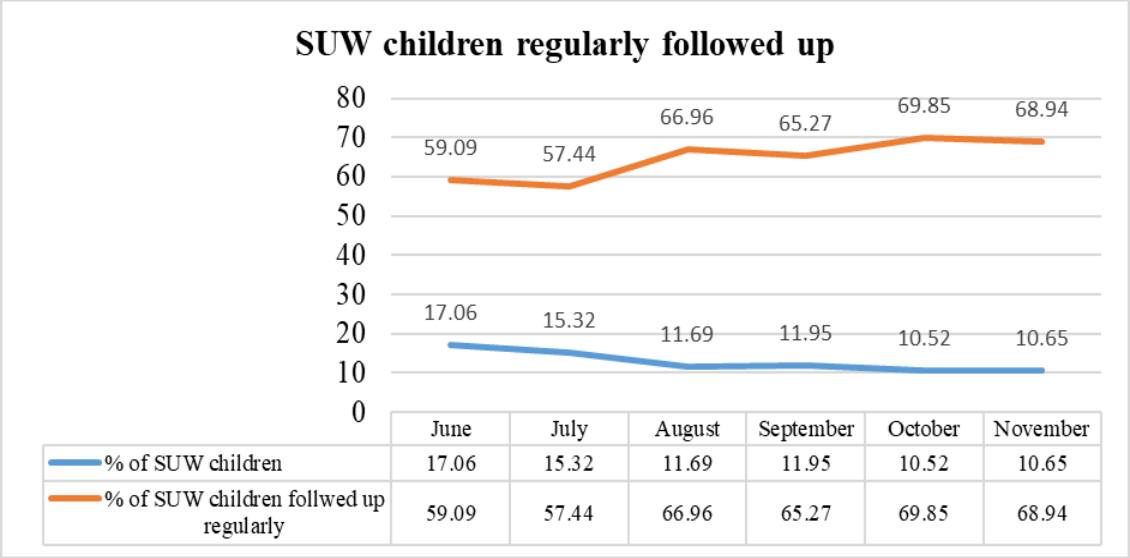
	June	July	August	September	October	November
% of SAM children	8.17	6.13	3.4	3.86	3.63	3.4
% of SAM children follwed up regularly	48.97	56.38	72.41	71.27	72.16	68.1

Figure 10: Percent of Children with Severe Acute Malnutrition Followed Up Over the Subsequent Three Months



	June	July	August	September	October	November
% of MAM children	17.12	12.53	8.17	8.62	8.02	6.99
% of MAM children follwed up regularly	53.3	57.65	69.5	66.16	64.18	62.24

Figure 11: Percent of Children with Severe Acute Malnutrition Followed Up Over the Subsequent Three Months



	June	July	August	September	October	November
% of SUW children	17.06	15.32	11.69	11.95	10.52	10.65
% of SUW children follwed up regularly	59.09	57.44	66.96	65.27	69.85	68.94

The number of MAM cases also declined sharply from June to August and after August the prevalence settled around 8%. The follow-up was poor for the first two months and then it was more than 60% from August onward (Figure 10).

The number of SUW cases also declined from June to August but the decline was not as sharp as in SAM or MAM cases. The Follow-up of SUW cases was mostly between 60% to 70% with slight improvement over the project period (Figure 11).

The follow-up was almost similar in CBM and non-CBM villages. It was marginally better in one group for some months and marginally better in another group for other months. Difference of more than 5% was noted only in September 2019 where the follow up was better for SAM and MAM babies in CBM villages (Table 5).

Table 5: Percent of Children with Malnutrition Followed Over the Next Three Months in CAN Project by CBM and Non-CBM Villages

		Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19
SAM	CBM villages	47.50%	54.00%	70.60%	73.80%	72.90%	68.70%
SAM	Non-CBM villages	45.00%	54.10%	71.90%	66.80%	72.50%	69.30%
MAM	CBM villages	52.70%	56.50%	69.50%	67.00%	62.20%	60.20%
MAM	Non-CBM villages	47.90%	53.20%	64.90%	57.90%	60.90%	59.00%
SUW	CBM villages	57.60%	55.10%	62.90%	63.00%	66.50%	67.90%
SUW	Non-CBM villages	56.30%	54.80%	65.70%	62.20%	69.90%	67.60%

4.2. The Outcome Evaluation

This section covers the Outcome of all the activities performed in CAN as captured in the anthropometry data collected by SATHI and its implementation partner organisations.

4.2.1. Month Wise Changes in Nutritional Status of Children

A) In case of Weight for Height

The nutritional status displayed highest changes during the period of June 2019 to September 2019. These changes included the children whose nutritional status improved from SAM to MAM, SAM to Normal and MAM to Normal. These changes also included children whose nutritional status worsened from Normal to MAM, Normal to SAM and MAM to SAM.

During the period of June 2019 to July 2019, nutritional status of 734 children (5.47 %) got worse, accurate reporting of malnourished children can be a possible reason for the highest proportion of worsen cases in the first two months. Whereas the highest proportion of improved cases was found in the following month i.e. during the period of July 2019 to August 2019, nutritional status of 1028 children (9.65 %) improved. In the remaining period, nutritional status of the majority of the children (90 %) remained constant (Table 6).

Table 6: Month Wise Changes in Nutritional Status of Children (Weight for Height)

Month / Nutritional Status	Constant	Improved	Worsen	Total assessable
June-July	11482 (85.59)	1199 (8.94)	734 (5.47)	13,415
July-August	9204 (86.37)	1028 (9.65)	424 (3.98)	10,656
August-September	8924 (88.43)	617 (6.11)	551 (5.46)	10,092
September-October	9407 (89.34)	664 (6.31)	459 (4.36)	10,530
October-November	9719 (90.34)	646 (6)	393 (3.65)	10,758
November-December	9636 (90.46)	576 (5.41)	440 (4.13)	10,652
December-January	9372 (90.67)	564 (5.46)	400 (3.87)	10,336
January-February	8777 (91.26)	443 (4.61)	398 (4.14)	9,618

B) In Case of Weight for Age

The changes in nutritional status for weight and age display relatively more variations than the nutritional status for weight and height. However, Nutritional status was constant in the majority of the observations in this case as well. The highest proportion of worsened cases occurred in December 2019 –January 2020 for 993 children (9.62 %), and the highest proportion of improved cases occurred in July 2019 – August 2019 for 1538 children (14.44 %) (Table 7).

Table 7: Month Wise Changes in Nutritional Status of Children (Weight for Age)

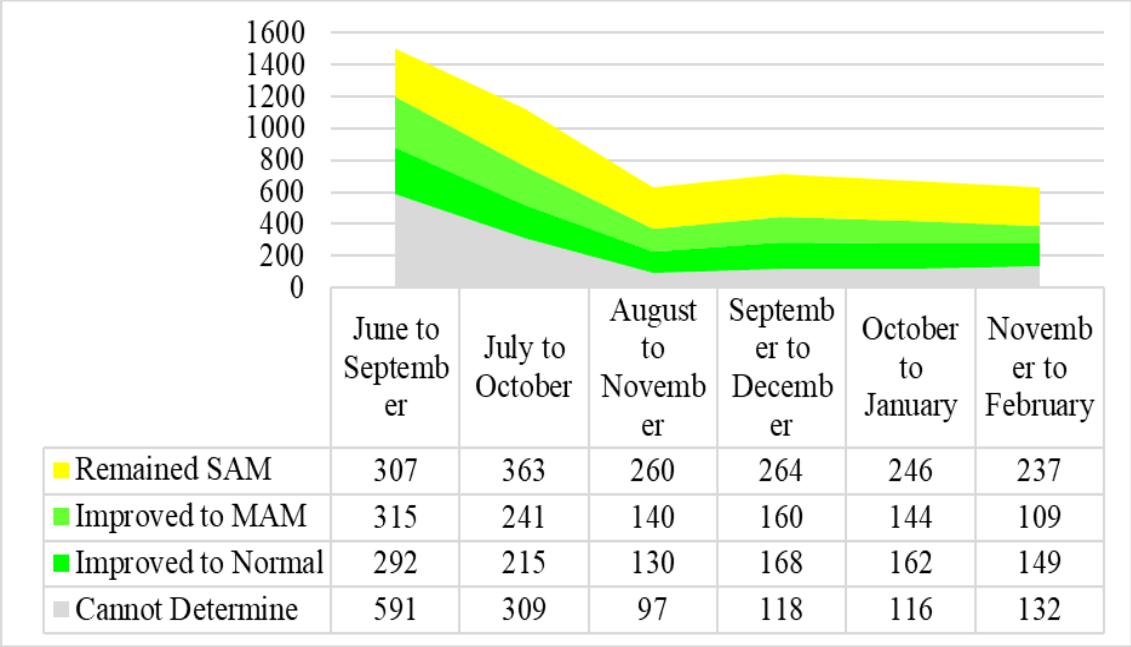
Month / Nutritional Status	Constant	Improved	Worsen	Total assessable
June-July	11313 (83.82)	1254 (9.29)	929 (6.88)	13,496
July-August	8482 (79.62)	1538 (14.44)	633 (5.94)	10,653
August-September	8838 (87.64)	728 (7.22)	518 (5.14)	10,084
September-October	9262 (88)	774 (7.35)	489 (4.65)	10,525
October-November	9488 (88.33)	781 (7.27)	472 (4.39)	10,741
November-December	9460 (88.85)	750 (7.04)	437 (4.1)	10,647
December-January	8624 (83.51)	710 (6.88)	993 (9.62)	10,327
January-February	8199 (85.38)	740 (7.71)	664 (6.91)	9,603

4.2.2. Changes in SAM, MAM and SUW Children

A) In Case of Weight for Height

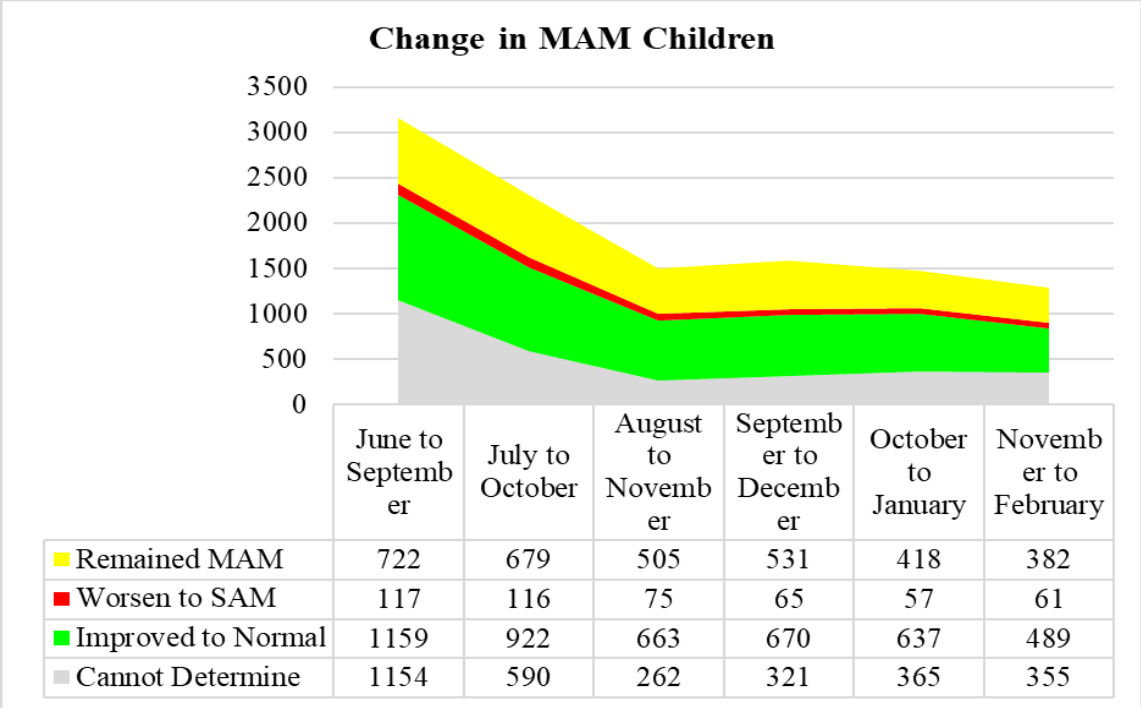
The overall trend of SAM cases displays a declining trend across the project period except for the month of September 2019. The count of combined cases of children who improved from SAM to MAM and SAM to Normal is relatively higher than the count of SAM children who remained SAM. Some children were not evaluated due to unavailability of anthropometric measurements (Figure 12).

Figure 12: Health Status of SAM Children Over Subsequent Three Months



	June to September	July to October	August to November	September to December	October to January	November to February
Remained SAM	307	363	260	264	246	237
Improved to MAM	315	241	140	160	144	109
Improved to Normal	292	215	130	168	162	149
Cannot Determine	591	309	97	118	116	132

Figure 13: Health Status of MAM Children Over Subsequent Three Months



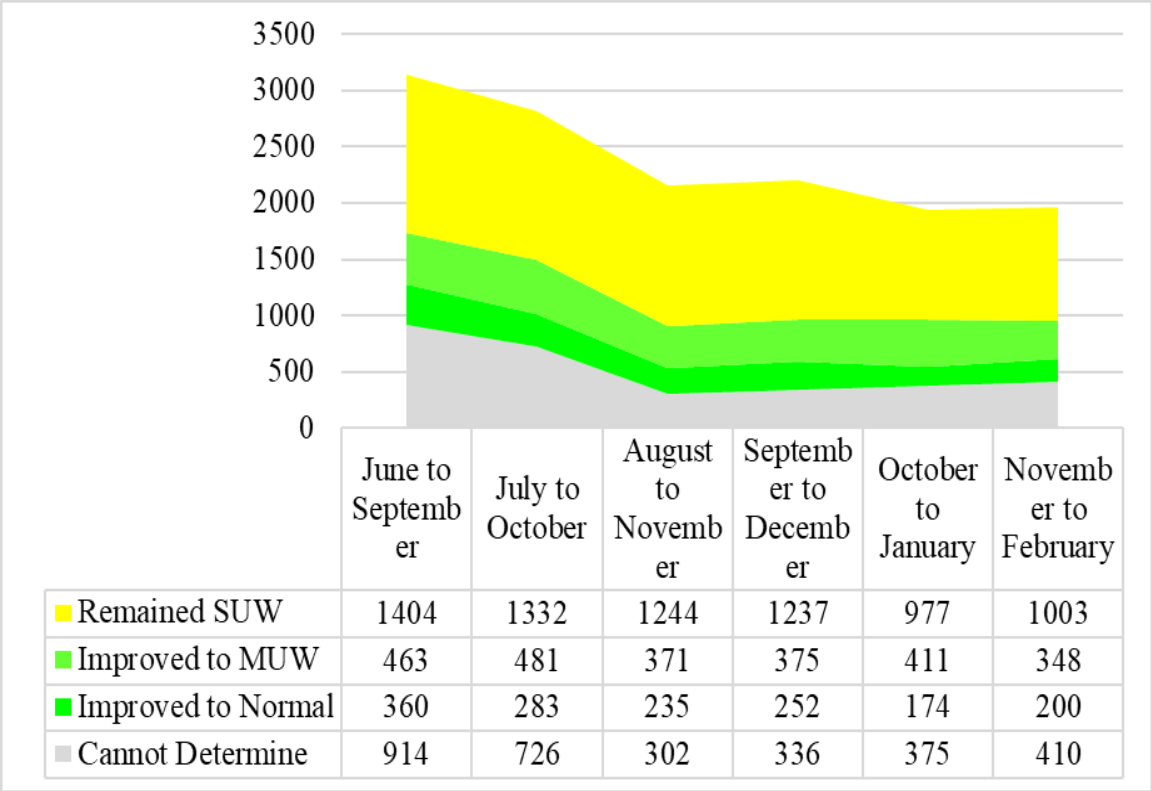
	June to September	July to October	August to November	September to December	October to January	November to February
Remained MAM	722	679	505	531	418	382
Worsen to SAM	117	116	75	65	57	61
Improved to Normal	1159	922	663	670	637	489
Cannot Determine	1154	590	262	321	365	355

In the case of MAM children, there were a few cases of children whose nutritional status worsened from MAM to SAM during the project period but the count is low. Similar to the SAM cases, the MAM cases display a declining trend. Count of children whose nutritional status was improved from MAM to Normal is relatively higher than the count of MAM children who remained MAM or worsened (Figure 13).

B) In Case of Weight for Height

The nutritional status of SUW children was constant in majority of the cases. Improvement of SUW children to MUW and Normal was relatively less proportionate than the children who remained SUW and the children whose nutritional status was not assessable (Figure 14).

Figure 14: Health Status of SUW Children Over Subsequent Three Months



	June to September	July to October	August to November	September to December	October to January	November to February
Remained SUW	1404	1332	1244	1237	977	1003
Improved to MUW	463	481	371	375	411	348
Improved to Normal	360	283	235	252	174	200
Cannot Determine	914	726	302	336	375	410

Table 8: Percent of SAM Children with Status in Subsequent Three Months by CBM and Non-CBM Villages

	Follow-up status	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19
CAN project	Remained SAM	20.4%	32.2%	41.5%	37.2%	36.8%	37.8%
	Improved	40.3%	40.4%	43.1%	46.2%	45.8%	41.1%
	No data	39.3%	27.4%	15.5%	16.6%	17.4%	21.1%
CBM Villages	Remained SAM	20.9%	32.2%	41.3%	34.9%	36.3%	36.2%
	Improved	41.1%	40.8%	42.7%	47.1%	44.5%	42.3%
	No data	38.0%	27.0%	15.9%	18.0%	19.2%	21.4%
Non-CBM Villages	Remained SAM	19.8%	32.2%	41.6%	39.8%	37.5%	39.9%
	Improved	39.3%	40.0%	43.5%	45.2%	47.7%	39.6%
	No data	40.8%	27.9%	14.9%	15.1%	14.8%	20.5%

Table 8 shows the follow-up status by CBM and non-CBM villages. The percentage of SAM children improving or remaining SAM was almost the same for CBM and non-CBM villages with all differences less than 5% in magnitude.

4.2.3. Incidence of SAM or SUW Among Children Who Were in Normal Range:

Providing children with both supplementary nutrition and improved food security at home was expected to reduce the likelihood of them falling into malnutrition (From Normal ranges to SAM or SUW)

A). In Case of Weight for Height

The worsening of nutritional status from Normal to SAM was uncommon during the project period. The proportion of children whose nutritional status degraded from normal to SAM exhibit a declining trend over the months (Table 9). Overall, a tiny proportion (1.2%) of the children displayed worsening nutritional status with CBM (1.2%) and non-CBM (1.1%) villages having similar indicators.

Table 9: Number and Percent of Normal Children Who Deteriorated to Severe Acute Malnutrition Status

Month	No of Normal Children	No of Children Worsen to SAM Later	% of Normal Children Worsen to SAM
June	11764	224	1.9
July	10350	135	1.3
August	9243	110	1.19
September	9728	99	1.02
October	9947	93	0.93
November	10236	94	0.92
December	10132	101	1
January	9873	82	0.83

B) In Case of Weight for Age

The degradation of nutritional status was uncommon here also but there was no clear trend as seen for WFH (Table 10). Overall, 1.5% children became severely underweight with CBM villages (1.8%) having higher deterioration than non-CBM villages (1.3%).

Table 10: Number and Percent of Normal Children Who Deteriorated to Severe Underweight Status

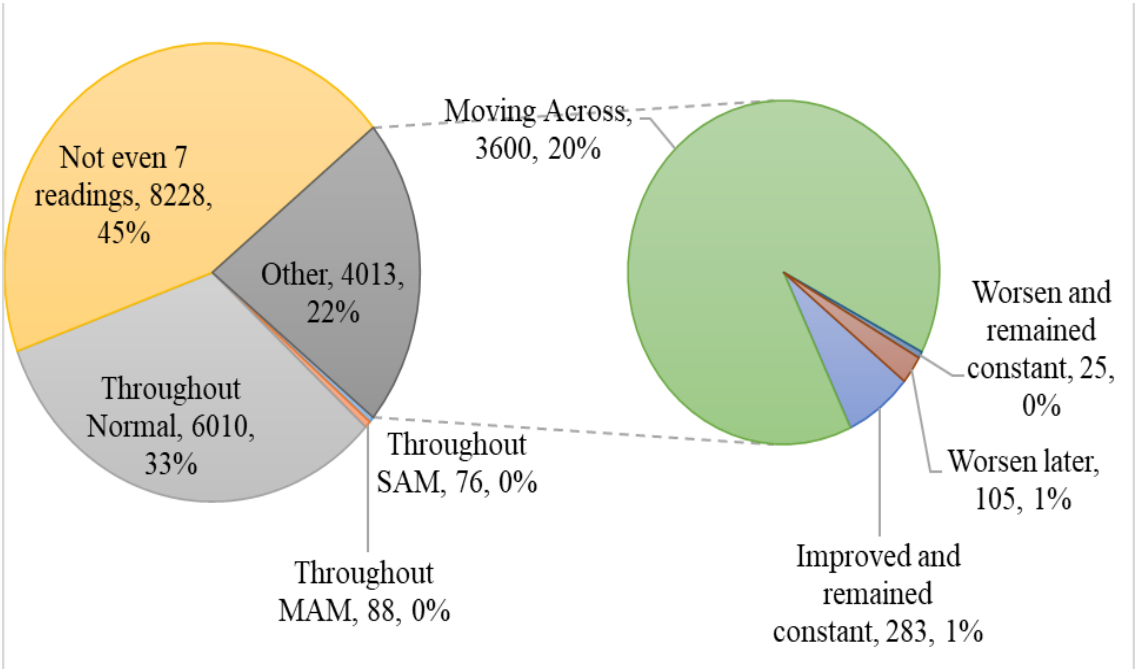
Month	No of Normal Children	No of Children Worsen to SUW Later	% of Normal Worsen to SUW
June	7227	91	1.26
July	6447	151	2.34
August	6446	131	2.03
September	6837	92	1.35
October	7177	101	1.41
November	7368	90	1.22
December	7404	93	1.26
January	6710	92	1.37

4.2.4. Nutritional Status Throughout the Project Period:

A) In Case of Weight for Height

The pie of pie is representing the nutritional status throughout the project period. In the primary pie, the majority i.e. 32.66 % (6,010 children) remained within the normal nutritional status category throughout the project period. Less than one percent of children remained SAM (76 children) or MAM (88 children). Around 21.78 % (4,013 children) children had variations in nutritional status across the project period, the secondary pie represents these variations. In the secondary pie, the majority i.e. 20% (3600 children) of the overall children were moving across different categories of nutritional status. Around one percent (283 children) improved and remained constant. Almost zero percent (25 children) worsened and remained constant. Approximately one percent (105 children) worsen later (Figure 15).

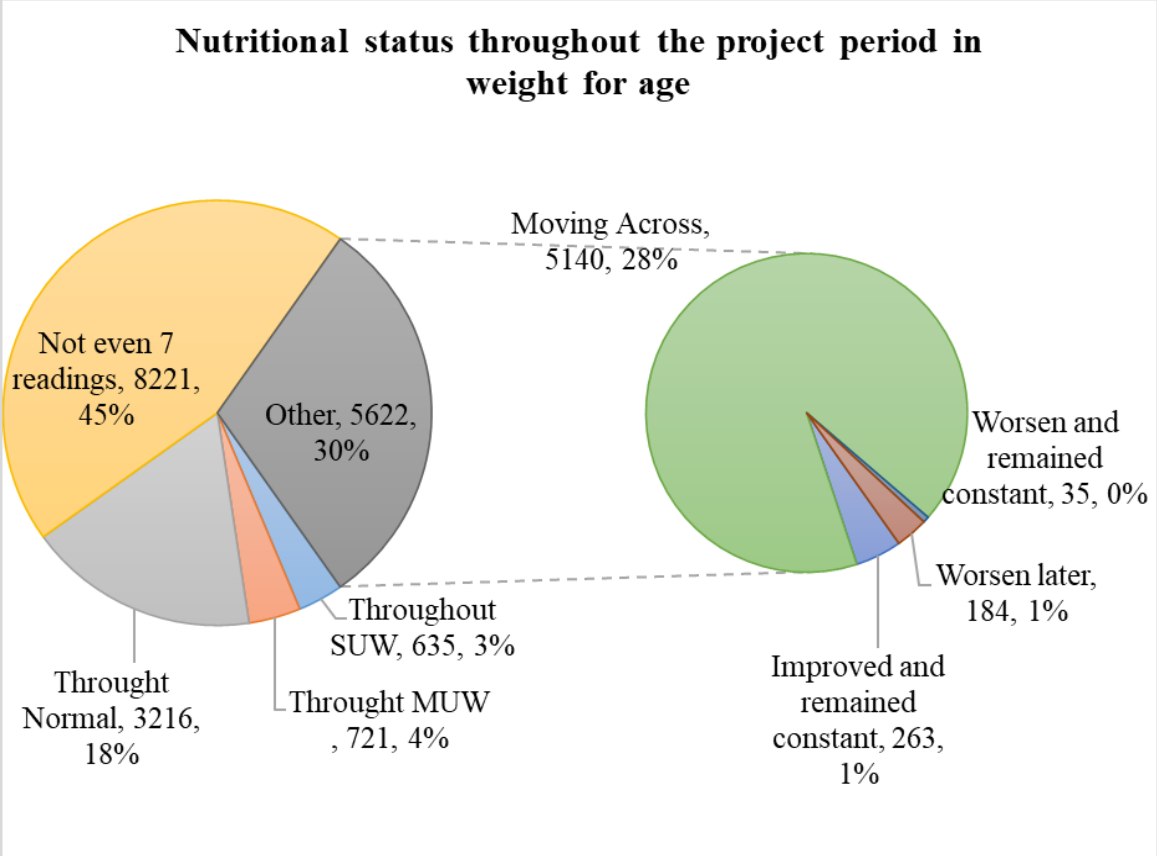
Figure 15: Change in Nutritional Status (Weight for Height) Throughout the Project Period



B) In Case of Weight for Age

In the primary pie, the majority i.e. 18 % (3216 children) remained normal. Almost three percent (635 children) remained SUW and around four percent (721 children) remained MUW. In this case the proportion of varying observations was relatively higher than the combined proportion of constant observations. Around 30 % (5,622 children) had variations in the nutritional status throughout the project period. The decomposition of these variations suggests that 28 % (5,140 children) of the overall observations were moving across different categories. Almost one percent (263 children) improved and remained constant, almost 0 percent (35 children) worsened and remained constant. Around one percent (184 children) worsen later (Figure 16).

Figure 16: Nutritional Status Throughout the Project Period in Weight for Age



4.3. Anthropometry Findings at Sample Villages

As stated, 12 villages were selected for assessing the process with qualitative research methods. In addition to qualitative research, primary anthropometry data was collected at these villages and the findings have been presented in this section.

Some of the children who were in Anganwadi during CAN implementation were still under six with most of them still enrolled at Anganwadi and their anthropometry measurements were conducted (n = 88). There were another 12 children who were just under six years but were no longer enrolled for services at Anganwadi. Rest of the children who were in Anganwadi during CAN implementation were more than six years of age in 2023-24 were out of Anganwadi and anthropometry was conducted for 310 out of them.

Table 11: Distribution of Female Children Aged 0-6 Years by Nutritional Status from 12 CAN Project Villages

	Total	No Undernutrition	MAM	SAM
	Number	Number (%)	Number (%)	Number (%)
Girls currently in Anganwadi but were not CAN beneficiaries	156	127 (81.4)	25 (16.0)	4 (2.6)
Girls who were in Anganwadi during CAN and who are currently in Anganwadi	43	31 (72.1)	12 (27.9)	
Girls who were in Anganwadi during CAN but are not currently in Anganwadi	3	2 (66.7)	1 (33.3)	
Total	202	160 (79.2)	38 (18.8)	4 (2.0)

Table 11 shows distribution of 202 female children who were under six years of age in the 12 sampled villages. Out of the 202 girls, 46 were CAN beneficiaries and 156 were not. Out of the 156 girls who were not in Anganwadi during CAN (born after CAN period), 4 (2.6%) were SAM and 25 (16%) were MAM children. There was no SAM girl among CAN beneficiaries but 13 (28.3%) of them were MAM. Overall, there were 4 SAM girls (2%) and 38 MAM girls (18.8%) in the under-six age group in the sampled villages.

Table 12 shows distribution of 224 male children who were under six years of age in the 12 sampled villages. Out of the 224 boys, 54 were CAN beneficiaries and 170 were not. Out of the 170 boys who were not in Anganwadi during CAN (born after CAN period), 7 (4.1%) were SAM and 31 (18.2%) were MAM children. There were only 2 SAM boys among CAN beneficiaries but 12 (22.2%) of them were MAM. Overall, there were 9 SAM boys (4%) and 43 MAM boys (19.2%) in the under-six age group in the sampled villages.

Table 12: Distribution of Male Children Aged 0-6 Years by Nutritional Status From 12 CAN Project Villages

	Total	No Undernutrition	MAM	SAM
	Number	Number (%)	Number (%)	Number (%)
Boys currently in Anganwadi but were not CAN beneficiaries	170	132 (77.6)	31 (18.2)	7 (4.1)
Boys who were in Anganwadi during CAN and who are currently in Anganwadi	45	36 (80.0)	8 (17.8)	1 (2.2)
Boys who were in Anganwadi during CAN but are not currently in Anganwadi	9	4 (44.4)	4 (44.4)	1 (11.1)
Total	224	172 (794.2)	43 (19.2)	9 (4.0)

Overall, there were 13 SAM children under six years of age, with only 2 of them being CAN beneficiary and the rest 9 were post-CAN children. Prevalence of SAM was 3.4% in post-CAN and 2% in CAN beneficiaries. Prevalence of MAM babies was 17.2% in post-CAN and 25% in CAN beneficiaries. It was important to check whether these differences were statistically significant.

Table 13 provides chi-square analysis of the malnutrition data. Since the number of SAM children was very small, children were categorised into undernutrition present and undernutrition absent. Both SAM and MAM categories were combined to create a new category of undernourishment present. Out of 316 post-CAN children, 259 (79.4%) were not undernourished whereas the rest 67 (20.6%) were undernourished. Out of the 100 CAN

beneficiaries, 73 (73%) were not undernourished whereas the rest 27 (27%) were undernourished. Chi-square value was 1.85 with p value of 0.17 (> 0.05). There was no statistically significant difference in the two groups with respect to prevalence of acute malnutrition.

Table 13: Distribution of Children Aged 0-6 Years by Binary Nutritional Status from 12 CAN Villages

	Undernourished (SAM + MAM)	No undernutrition	Total	Chi-square value	P value
CAN beneficiary children	27	73	100	1.8501	0.17
Post-CAN children	67	259	326		
Total	94	332	426		

A total of 310 CAN beneficiary children were more than 6 years of age at the time of conducting anthropometry in the sampled villages. WHO's BMI based categorization was used to classify these children as thin or super-thin. About half (156 out of 310) children were thin or super-thin (Table 14). Table shows that 101 children (32.6%) were thin and 55 (17.7%) were super-thin. Prevalence of thinness was higher among boys (34.1%) than girls (30.8%). Similarly, prevalence of super-thinness was also higher among boys (20.1%) than that among girls (15.1%).

Table 14: Distribution of Children Aged 6 Years and More According to Nutritional Status in 12 CAN Project Villages

	Total	No undernutrition	Thin (-2SD)	Severely thin (-3SD)
Sex of child	Number	Number (%)	Number (%)	Number (%)
Male	164	75 (45.7)	56 (34.1)	33 (20.1)
Female	146	79 (54.1)	45 (30.8)	22 (15.1)
Total	310	154 (49.7)	101 (32.6)	55 (17.7)

Key inferences from anthropometry can be summarised as follows. CAN beneficiaries had lower prevalence of SAM status but overall, there was no statistically significant difference in acute undernutrition among CAN beneficiaries and post-CAN beneficiaries. It is important to note that the time gap between the CAN process getting halted due to COVID-19 pandemic and actual anthropometry measurement was four years. In the interim period, the pandemic situation and public health response had closed Anganwadi for nearly two years. In 2023-24, the anthropometry data collection had been delayed because of a state-wide strike during which the Anganwadi centres were not providing key services.

It is important to note that prevalence of undernutrition is high among tribal children above six years of age. Prevalence of severe thinness was 17.7%. Prevalence of super-thinness was higher (20.1%) among boys than among girls (15.1%). This could be potentially due to chronic malnutrition among tribal girls manifesting in form of stunting which in turn could potentially mask underweight status. The study did not collect data on energy consumption (calories spent due to sports and other recreational activities or household chores) which could potentially affect nutritional status.

4.4. Anthropometry Data from ICDS Projects

This section covers analysis of data received from ICDS projects in the four selected blocks.

Figure 17: Prevalence Trend of Acute Malnutrition (SAM And MAM) in CAN Project Villages in Four Blocks During June-19 To Feb-20 as per ICDS and SATHI Databases

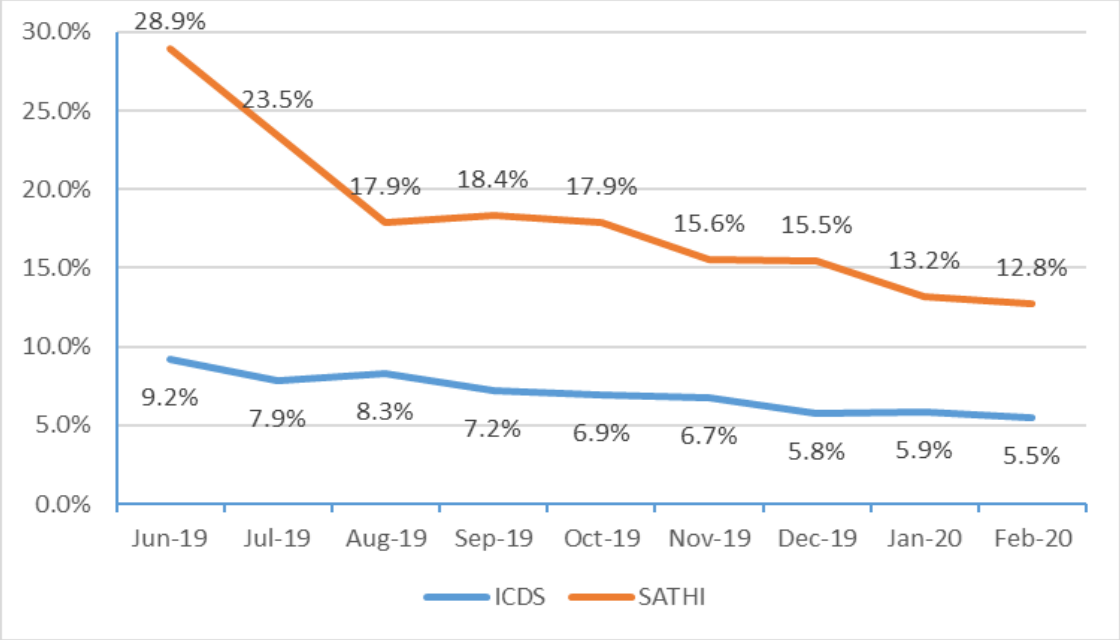


Figure 17 depicts prevalence of acute malnutrition in CAN project villages in the four selected blocks during the project period. SATHI data shows that in June 2019, 28.9% children in CAN project villages had acute malnutrition (SAM and MAM together) whereas ICDS data showed malnutrition to be 9.2%. It can be seen from the figure that consistently, malnutrition indicators reported by SATHI were significantly higher than those reported by ICDS for the same project villages for the same period. Time trend showed that the prevalence of acute malnutrition declined from 28.9% in Jun-19 to 12.8% in Feb-20 as per SATHI data. ICDS data also showed a significant decline from 9.2% in June-19 to 5.5% in Feb-20.

Figure 18 depicts prevalence of malnutrition (Severe underweight) in CAN project villages in the four selected blocks during the project period. SATHI data shows that in June 2019, 17.1% children in CAN project villages were severely underweight (SUW) whereas ICDS data showed SUW prevalence to be 9.0%. It can be seen from the figure that consistently, malnutrition indicators reported by SATHI were significantly higher than those reported by ICDS for the same project villages for the same period. Time trend showed that the

prevalence of severe underweight declined from 17.1% in June-19 to 12.2% in Feb-20 as per SATHI data. ICDS data, on another hand, showed a consistent pattern of severe underweight from 9.0% in June-19 to 8.9% in Feb-20 ranging between 8.8% to 9.5%.

Figure 18: Prevalence Trend of Malnutrition (Severe Underweight) in CAN Project Villages in Four Blocks During June-19 To Feb-20 as per ICDS and SATHI Databases

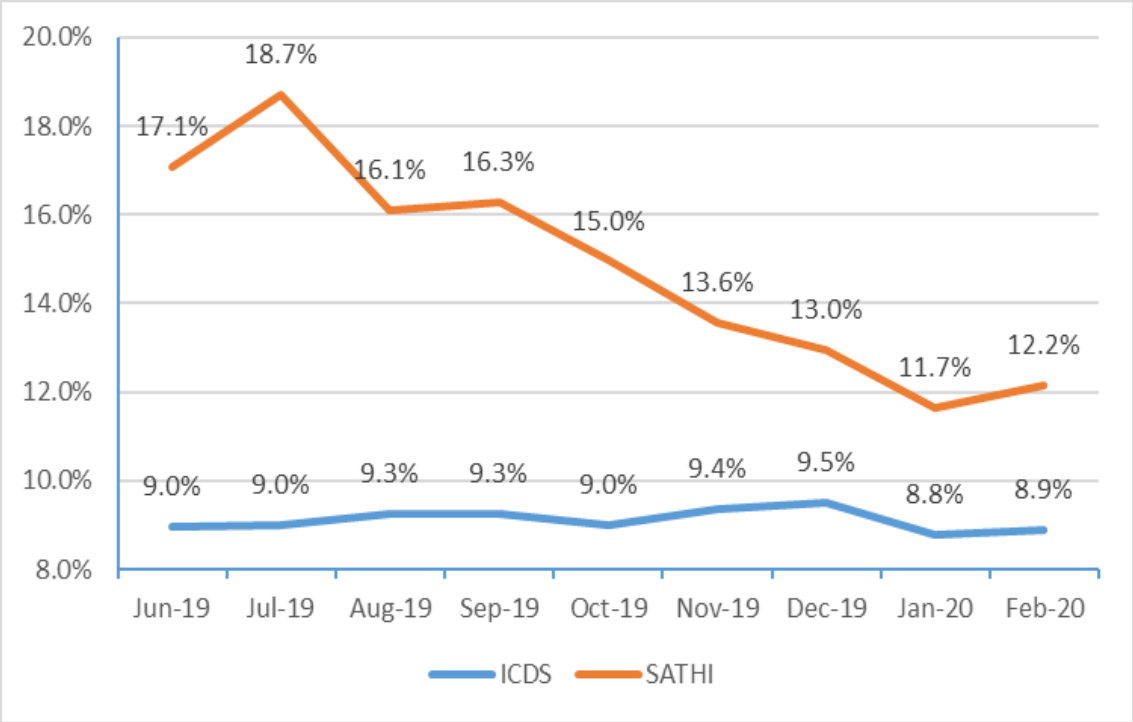


Figure 19 and 20 show block-wise aggregate prevalence of acute malnutrition (SAM and MAM) and that of severe underweight during June-19 to Feb-20 from both data sources. Prevalence of acute malnutrition (SAM and MAM) ranged from 0.5% in Junnar to 13.8% in Shahada villages according to ICDS data while according to SATHI database, the range was 12.9% in Armori to 29.5% in Junnar. Similarly, prevalence of severe underweight ranged from 2.3% in Junnar to 17.1% in Shahada villages according to ICDS data while according to SATHI database, the range was 10.6% in Armori to 17.9% in Shahada. In all blocks, malnutrition indicators reported by SATHI were significantly higher than that reported by ICDS.

Figure 19: Prevalence of Acute Malnutrition (SAM And MAM) in CAN Project Villages in Four Blocks During June-19 To Feb-20 as per ICDS and SATHI Databases

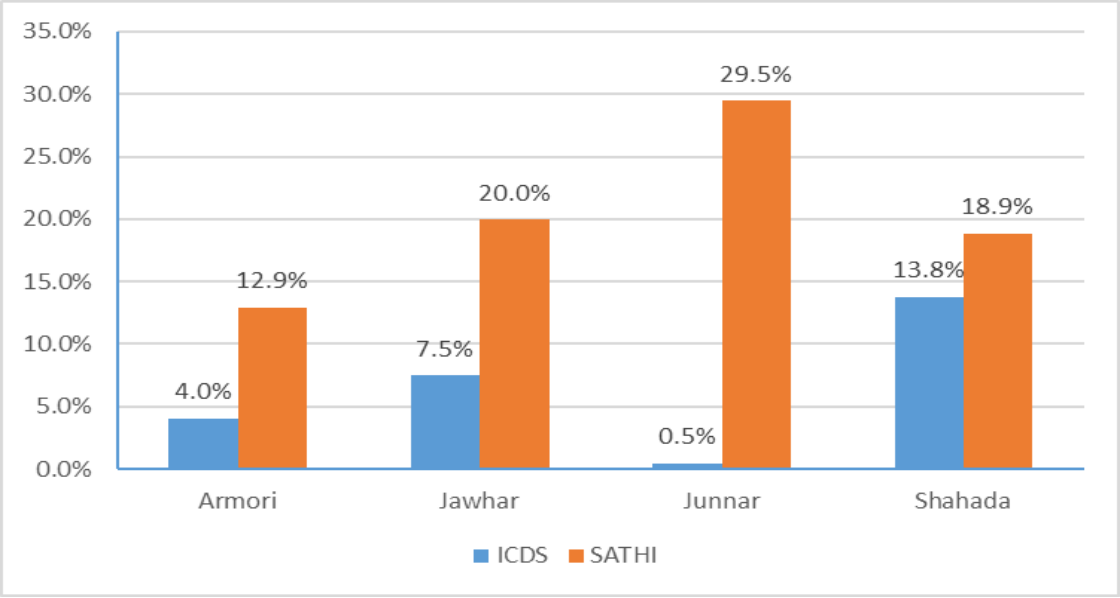
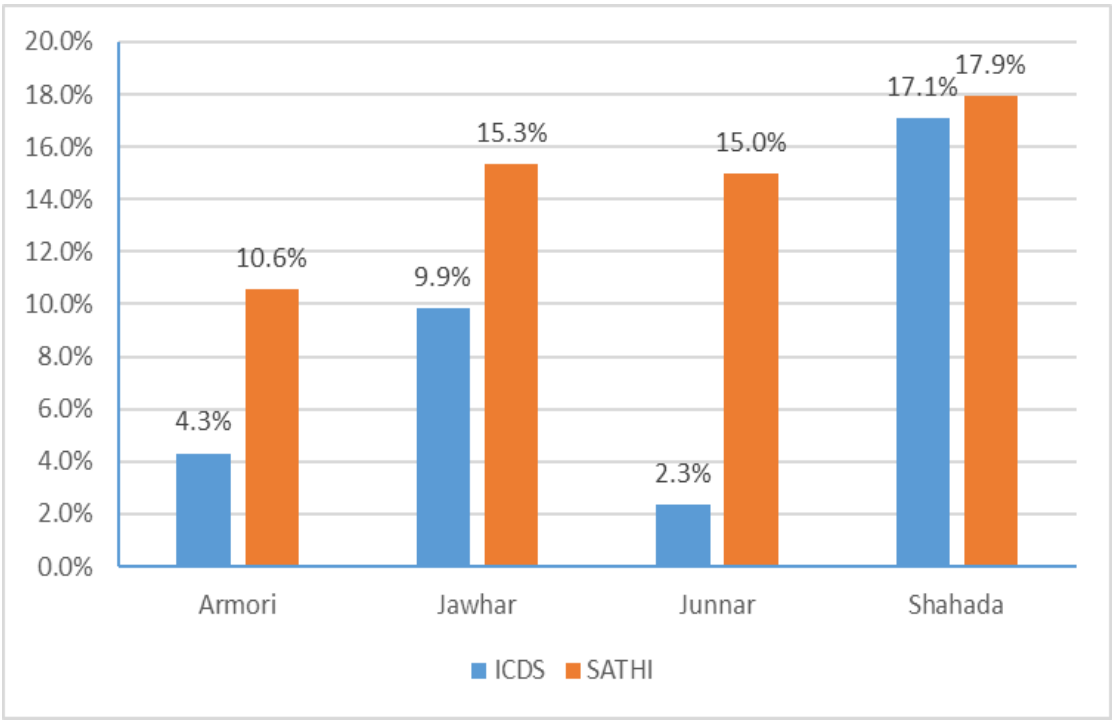


Figure 20: Prevalence of Malnutrition (Severe Underweight) in CAN Project Villages in Four Blocks During June-19 To Feb-20 as per ICDS and SATHI Databases



Change in malnutrition after the project closure was also an area of interest. Data collected from ICDS for period January 2023 to September 2023 was used for calculating prevalence of acute malnutrition. Figure 21 shows block-wise prevalence of acute malnutrition during 2019-20 and in 2023 both based upon data supplied by ICDS. Figure shows that prevalence of acute malnutrition increased from 4.7% to 5.1% overall. The rise was sharper from 5.4% in CAN project villages in 2019-20 to 6.0% in 2023. Other villages which were not under CAN also reported a rise of 0.3% prevalence from 4.7% to 5.0%. The prevalence of severe underweight did not change much overall (6.6% to 6.5%) and in non-project villages (6.5% to 6.5%), although project villages reported a decline of 1% from 7.3% to 6.3% which was inconsistent with 0.6% rise in acute malnutrition.

Figure 21: Prevalence of Acute Malnutrition (SAM and MAM) in CAN Project Villages, Other Villages and Overall in Selected ICDS Projects in Apr-19 to Mar-20 and Jan-23 to Sep-23 as per ICDS Database.

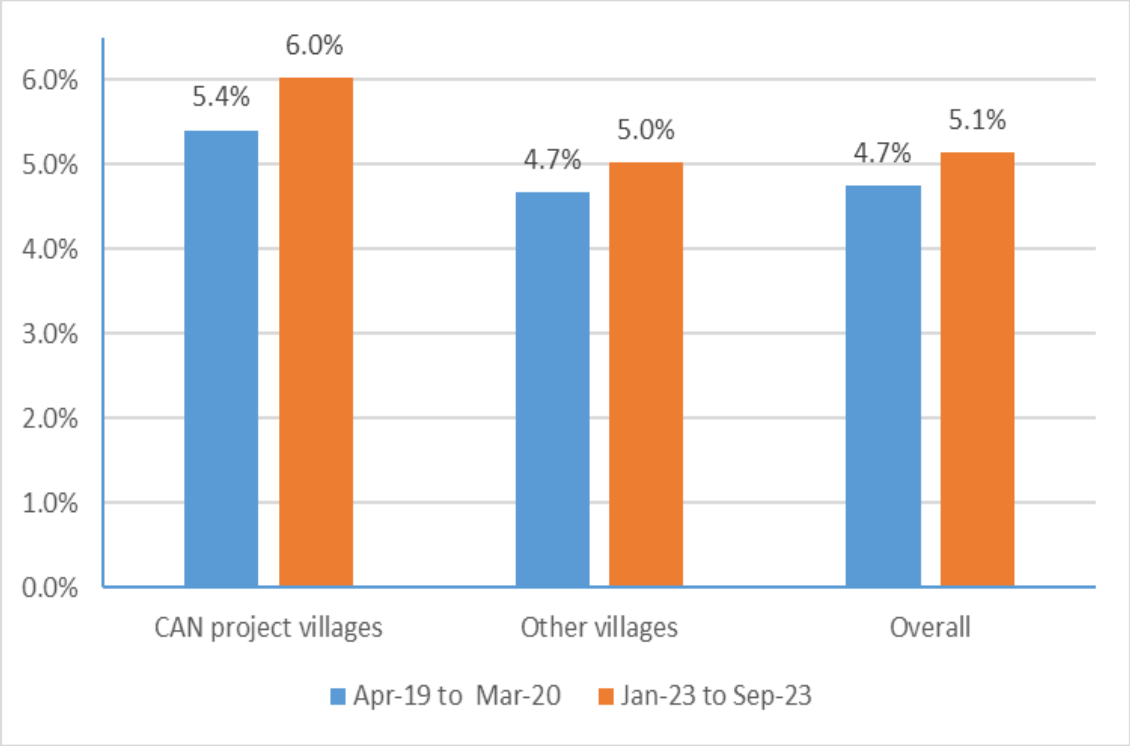


Figure 22: Comparison of Acute Malnutrition (SAM and MAM) Prevalence in CAN Project Villages After Completion of Project (Source: TISS Primary Data and ICDS Secondary Data)

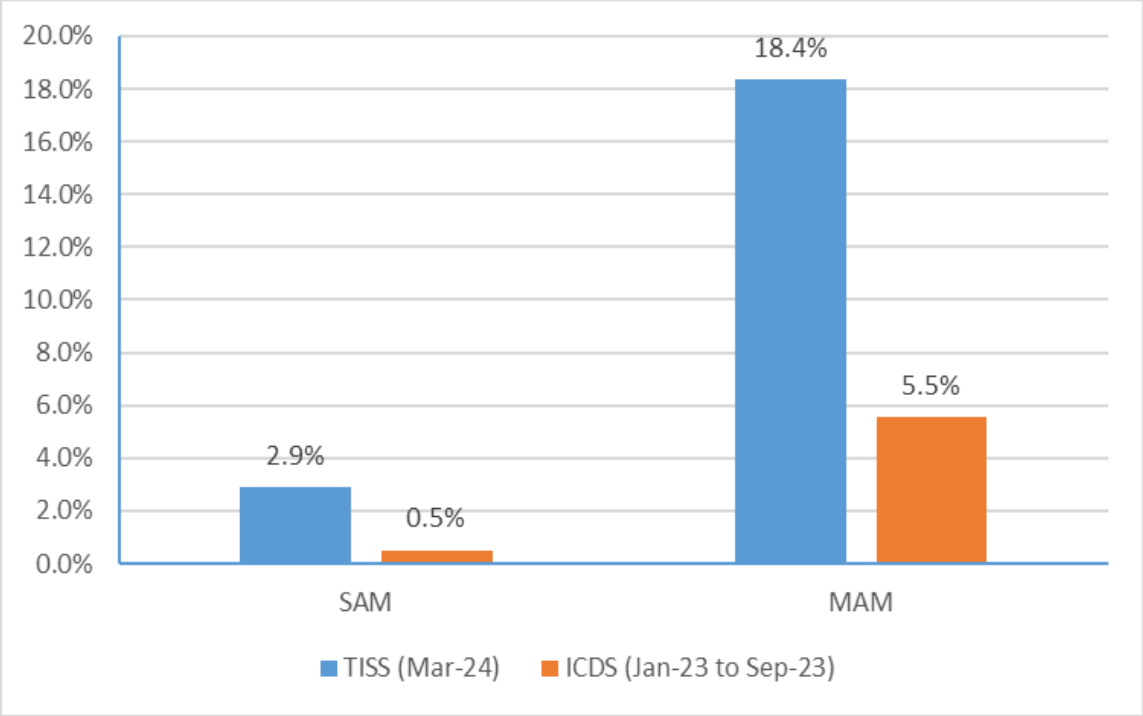


Figure 22 shows that the prevalence of SAM was 2.9% in 12 project villages as measured by TISS teams in March-24. Prevalence of MAM was 18.4%. Compared to this, ICDS reported much lower prevalence of 0.5% SAM and 5.5% MAM during the period (Jan 2023 to Sep 2023). ICDS data was for all CAN villages in the four blocks whereas TISS data included only 12 CAN project villages.

4.5. Summary of Quantitative Assessment:

Anthropometry assessment by CAN project was good (93%) in the quarter Jun-19 to Aug-19 but in subsequent quarters Sep-19 to Nov-19 and Dec-19 to Feb-20, nearly one-third of children did not undergo anthropometry. About 3 in 10 children had anthropometry assessments done every month by CAN project during the period. There was no remarkable difference between CBM and non-CBM villages with respect to regularity of anthropometry.

- For the children who were identified with malnutrition, the anthropometry follow-up over the next quarter was between 60% to 70% for SAM, MAM and SUW children. There was no remarkable difference between CBM and non-CBM villages.
- During the project period, the percent of children who improved was consistently better across all months compared to those who deteriorated. More than half of the children with SAM improved subsequently to MAM or normal. Only 1% of normal children deteriorated to SAM status.
- One-third of the children were consistently 'normal' throughout the nine-month period (Jun-19 to Feb-20). For 45%, children there were 6 or less readings during the nine-month period. About 22% of children were moving across categories of normal, MAM and SAM.
- Both ICDS dataset and SATHI dataset recorded a remarkable decline in prevalence of acute malnutrition over the CAN project period. However, ICDS data had remarkably lower prevalence rates.
- Primary data collected by TISS showed prevalence of SAM to be 2.9% and MAM to be 18.4%. There was no statistically significant difference between children who were beneficiaries of CAN project and non-beneficiaries with respect to prevalence of acute malnutrition.
- ICDS data shows that prevalence of acute malnutrition was more in 2023 (6.0%) compared to CAN project period (5.4%) for CAN project villages. Overall, also the prevalence increased by 0.4% from 4.7% to 5.1% as per ICDS data.
- Primary data collected by TISS showed prevalence of acute malnutrition in Mar-2024 to be 21.3%. ICDS data (Jan 23-Sep 23) reported same to be 5.1% only. CAN project data (SATHI) showed prevalence of 19% during Jun-19 to Feb-20. There is consistency between TISS and SATHI data whereas ICDS reported prevalence was far lower than TISS or SATHI findings.
- Nearly half children more than 6 years of age were undernourished (thin) as per WHO criteria as per TISS primary data.

Chapter 5: Qualitative Analysis

This chapter analyses the qualitative component that has played a significant role in the CAN process. The present chapter will delve into the intermediaries' role in running the process to strengthen both the systems and the local communities, including its end users-beneficiaries. It provides comprehensive qualitative insights into how effectively these processes worked, their strengths and limitations, and ways to improve them. The various aspects and components of these processes of strengthening systems and the communities are examined with the help of multiple extracts of over 100 in-depth interviews of stakeholders from the selected villages and blocks. The broad categories through which the processes are being examined are mentioned below. As mentioned earlier, the study has selected 12 villages-one each from 4 blocks (Junnar, Shahada, Jawahar, and Armori) of tribal districts of Maharashtra. The pseudo names of the blocks and villages to maintain its anonymity.

5.1. Context and Background: Emergence of CAN

Malnutrition among children in Maharashtra, especially within tribal communities, remains a pressing public health issue for years together. Contributing factors include economic hardship, limited healthcare access, food insecurity, and a lack of nutritional awareness from the beneficiary side whereas some issues of provisioning from providers. Community involvement and improving household dietary practices are weak points in government initiatives. To address these issues of community participation, the Community Action for Nutrition (CAN) project was initiated, supported by the Tribal Development Department of Maharashtra in September 2018. The focus of CAN was on raising nutrition-related awareness, establishing connections between communities, health & nutrition services through enhanced participatory, accountability mechanisms, and improving household nutrition practices.

The data highlighted that the foundation for a community-based participatory project focussing on nutrition was the Community-based monitoring and planning (CBMP) of health services under the National Rural Health Mission; launched on a pilot basis in nine states of India in 2007. Maharashtra was one of these states. CBMP is implemented in over

a thousand villages across 19 state districts of Maharashtra. The community-based strategies of CBMP led to a platform for community mobilisation around health entitlements. The primary emphasis of CBMP was not directly on nutrition but rather on the strategies for engaging a broad spectrum of stakeholders, including community members, local organisations, and health systems at the level of block and above (PHCs and CHCs). This collaborative approach formed the basis for developing and implementing nutrition-focused plans through active community participation.

> *CBM's approach involved local community members and empowered them to monitor public health services. This process was initiated by facilitating local organisations (Partner organisation stakeholder)*

> *CBMP work was happening in 6 PHC, and I was involved in 3 PHC. At that time, we were working on health services and issues related to health services. The emphasis was also on RKS and patient issues, water facilities at the health centre, and the unavailability of medicines. The focus was not on Nutrition. [A1] (Field Facilitator, Sabarmati)*

> *What I want to emphasise is that CBMP was the first time in India's history, and I am saying this with some amount of deliberation, first time in India's history when a large public health service like the health system decided to institutionally collaborate with community based actors and civil society organisations working with communities in a structured manner from the village to the state level. The last clause is very important. Very important. Community action is not just about communities. Community action must be supported by decisions, officials, and processes stretching from the community to the state and even the national levels. (Partner organisation stakeholder)*

During the work of CBMP the gravity of the nutritional issues of mother and children was realised. As a result, the Nutrition Rights Coalition (NRC), Maharashtra, was [A2] established in 2012 and adopted similar processes as CBMP to address nutrition. A state-wide collective comprising civil society organisations, social activists, health professionals, academics, and researchers dedicated to improving child nutrition in Maharashtra. In 2013, the NRC initiated the Community-Based Monitoring and Action (CBMA) process related to the Integrated Child Development Services (ICDS) in selected tribal areas of Maharashtra. The CBMA aimed to include stakeholders to improve ICDS services and make them more accountable, participatory, and effective through community-based monitoring. This process also included child nutrition practices within

households through counselling and nutrition education. This background set the basis for developing the Community Action for Nutrition (CAN) project with support from the Tribal Development Department, Maharashtra in 2018. As stated by the organisation's head

> *In the CBM process, we had taken a component of Anganwadi, but it was very less. So, on this basis, in 2013, we started a community-based monitoring and action on WCD departments. This was implemented in 120 villages in the tribal area and in the rural areas. Based on this, we planned to build CAN. (Partner Organisation Stakeholder)*

The CBM process, along with a strong network of organisations working on the issue of malnutrition in tribal Maharashtra, was considered as an essential foundation for initiating the CAN project. The multi-centred project titled 'Empowering Tribal Communities to Improve Nutrition-Related Services and Practices in Selected Tribal Blocks of Maharashtra was approved by the Tribal Development Board. The project was carried out over two years, from September 2018 to August 2020. The nodal agency's experience of the CBM process and as a member of the NRC was instrumental in implementing the CAN project.

> *There are seven districts involved in the CBMP process, and the organisations were those that implemented community-based monitoring and planning of health services. The same partners are also there in the CAN process because they have experience implementing such community-based processes. So we selected those partner organisations, and after consultation with the tribal development department, they finalised those institutions. (Partner Organisation Stakeholder).*

> *There were a lot of processes included in initiating the CAN project. We had meetings and I was involved from the initial stage. Many processes were already in place because of the CBMP. I was part of GABHA samiti so there were already a lot of discussions about the malnutrition issue in tribal areas of Maharashtra., and we also selected local people as facilitators for the project (Partner Organisation Stakeholder)*

> *"We initially did not get sufficient support from the ICDS department. So, we tried to establish effective dialogue with the community members taking help from AWWs, ASHAs, ANMs, and active committee members. We aimed to allay their fears and reservations towards us by working in collaboration with these local-level actors and began gaining their trust. aimed to alleviate their fears and reservations by collaborating with these local-level actors, gradually earning their trust. This improved coordination at the grassroots level, which*

in turn enhanced cooperation at the level of Child Development Project Officers (CDPOs) and eventually ICDS supervisors. Once the village-level perspective towards us shifted and they trusted our intervention, the process became much smoother," (Partner Organisation Stakeholder)

The aim of CAN was to implement a comprehensive set of nutrition-related activities at the village level in ten tribal blocks of Maharashtra. As process, CAN was started to train the health workers, panchayat members, and NRC organisations, to generate awareness about the nutrition-related programmes focussing on Bharat Ratna Dr APJ Abdul Kalam Amrut Aahar Yojana (AAY) and entitlements of the Government of Maharashtra and to improve the community interface with governance processes. CAN process primarily, aimed to strengthen the existing systems, ensure that the information reaches the beneficiaries, and encourage community participation for action on issues.

The aim of the CAN project was to create awareness among people. In the initial stages we had several meetings with the main organisation persons. We three met a number of times to discuss how the awareness will be done. Initially it was about information of different schemes and strengthening the Tribal development board's scheme of Amrut Aahar Yojana. The initial discussions were also a push for us.. means they worked with us to ensure that the information was reaching all the beneficiaries. (CDPO, Ganga)

In the preparatory phase CAN collaborated with organisations who were part of the CBMP process, with their background in social development and community involvement. This strategic partnership enabled CAN to implement projects at the local level effectively.

5.1.1. Preparatory Phase:

A) Identifying the Partners

CAN partnered with well-known local social organisations in their communities and shared a common interest in societal welfare and development. For instance, one of CAN's partner organisations in Armori was Amhi Amchya Aarogya Sathi, which was already engaged in social development and welfare activities. Other partner organisations included Janarth in Nandurbar (Dhadgaon & Shahada), Vachan in Nashik (Trimbakeshwar), Disha Kendra in Raigad (Karjat), Van Niketan in Thane (Shahapur), Kamgar va Majur Sangh (Kashtakari Sanghatana) in Palghar (Jawhar & Mokhada), and Rachana Society for Social Reconstruction in Pune (Junnar). Partnering with such organisations helped CAN

implement their projects more effectively. The local partners' familiarity and trust within the community facilitated CAN's efforts to build rapport and trust, ensuring successful project execution.

> *We have chosen the same partner organisations that were involved in the CBMP process. We selected them because they have extensive experience in implementing community-based processes and have built strong relationships within the villages. After consulting with the tribal development department, we have confirmed these partner organisations. Around 50 percent of villages were selected where CBMP was implemented and the remaining 50 percent of villages selected newly. (Partner Organisation Stakeholder).*

> *7 members are there in the coordination team of community action for nutrition. Seven plus one data person is there and the head, nodal agency is overall guiding this process in the initial period. So this is the nodal agency's team and at the block level, we have selected 10 villages. There was one field facilitator there. That was a partner organisation person. Seven partner organisations are there. One coordinator, one field facilitator for every ten villages. (Partner Organisation Stakeholder).*

> *When the project was to be initiated in the village, the organisation head and other employees organised a meeting with ASHA workers and us. In the meeting, they told us about CAN, the organisation's role, our expectations, and how it would benefit the people. (Gram panchayat member, Godavari)*

B) Appointment of Staff

The organisations part of CAN project interviewed and appointed experienced personnel with an understanding of the local context to be part of the project. A block coordinator was appointed to supervise the block level, and the field facilitators undertook the activities with the help of the ASHA and the AWW. The field facilitator was an experienced local person and was purposefully chosen because they understood the community's context and language.

> *We interviewed young people to be the facilitators because they would know the local language and know the area. So it would not be difficult for them to work with the community. They were also provided with training but it was an advantage that they were from the community. (Partner organisation stakeholder).*

They have selected local people who were working in 40 villages. They selected people who were local, had good networks with village people, were educated, and were not employed. The selection included both males and females who were friendly and willing to work on the project. These workers always stayed in touch with ASHA workers, Anganwadi Workers, Medical Officers, etc. (CDPO, Jhelum)

C) Training of Staff

The field facilitators were explicitly appointed for the CAN project and provided training and information regarding the different processes. The training was on taking anthropometric measures of children, counselling the parents about the appropriate diet for the child, communication skills, and engaging with the community-level committees. The training provided the facilitators with an understanding of being culturally sensitive.

When we joined the CAN project, we were given training in Pune and then in the organisation here. We were given training on how to give information to mothers about providing a healthy diet to the children. In training we were told how to meet with a group and talk to them, most important was how to observe and what to observe during a home visit. The condition of the house and the family members. If a child has measles then people would take them to the local healer. We were told to respect the beliefs of the people and tell them that 'now you have done as per your wish now please also do what we tell you and see if it helps the child'. Then people will also think that we are respecting their beliefs so we should also listen to what the organisation people are saying. (Field facilitator, Ganga)

During the training, we were taught how to address issues that are raised by community members with their support. Encouraging people's participation in resolving issues has made it easier for us to work in the community. (Field Facilitator Sabarmati)

One sir went to Pune gave us five days of training. He taught us how malnutrition occurs and how it is categorised and how we inform the door by making the homemade ORS.How categorise children who are SAM, MAM children, and how to provide information to nursing and pregnant mothers. They taught us a lot during the training but I am not able to recall (Field Facilitator Godavari)

Four trainings were conducted, two training were conducted in Pune and two trainings conducted at block level in the office of the partner organization. (Field Facilitator, Sabarmati).

The initial training process helped the organisation, field facilitators and block coordinators to engage with the community and undertake several planned activities.

> *When I was new in the project, I learned a lot from the training and the work we did. We would visit pregnant women and breast-feeding mothers and provide them with the information. We learned from them also and would use that information in the meetings with other pregnant women and breastfeeding mothers. (Block coordinator, Godavari)*

Table 15: Capacity-Building Workshops Conducted Under the Community Action for Nutrition Project During the Intervention Period

No.	*Training*	*Duration*	*Number of Workshops*	*Period*
1	*Initial state-level orientation workshop for Field Facilitator and Block Coordinator of 10 blocks regarding CAN project*	*2 days*	*1*	*8th and 9th October 2018*
2	*Community action for nutrition project Field investigators Training held at TISS Mumbai conducted by Dr. Some Sen, PHRS, New Delhi, TISS team & SATHI team*	*2 days*	*1*	*29th & 30th October 2018*
3	*State-level Multistakeholder Orientation workshop jointly organized by TDD and SATHI at Quest Mumbai (including all partners)*	*1 day*	*1*	*19th Dec 2018*
4	*First State-level Regional Training of Field Facilitators and Block Coordinators of Junnar, Karjat, Shahapur, Shahada, Dhadgaon blocks held at Pune conducted by Dr. Mohan Deshpande and SATHI team*	*5 days*	*1*	*23rd to 27th January 2019*
5	*Second State-level Regional Training of Field Facilitator and Block Coordinators of Tryambakeshwar, Armori, Kurkheda, Jawhar, Mokhada blocks held at Nashik conducted by Dr. Mohan Deshpande and SATHI team*	*5 days*	*1*	*1st to 5th February 2019*
6	*Block level training of ASHA, Anganwadi Worker, Field Facilitator and Block Coordinator of Junnar, Karjat, Shahapur, Shahada, Dhadgaon, Tryambakeshwar, Armori, Kurkheda, Jawhar, Mokhada blocks*	*4 days each block*	*10*	*27th February 2019 to 22nd April 2019*
7	*State level Refresher and technical training for Field Facilitators and Block Coordinators conducted by technical experts Dr. Vandana Prasad and Ms. Saman Zaman of PHRS, New Delhi*	*4 days*	*1*	*4th to 7th November 2019*

8	*Block level refresher training of ASHA, Anganwadi Worker, Field Facilitator and Block Coordinator of Junnar, Karjat, Shahapur, Shahada, Dhadgaon, Tryambakeshwar, Armori, Kurkheda, Jawhar, Mokhada blocks*	*4 days each block*	*10*	*27th November 2019 to 12 Feb. 2020*

Source: Date Retrieved from State Nodal Agency

D) Initiation of Work in the Village

In the initial stages the facilitators met the stakeholders and gathered demographic information about the communities and explained the work that would be done through CAN.

> *We first gathered basic data from the anganwadi about the number of children, population of the village, if there was any other organisation that worked in the area. After gathering the data we started work by holding meetings with different stakeholders to explain to them what work we will be doing in the villages. (Field facilitator, Godavari)*

5.2. Processes of CAN:

This section details the impact of the mechanisms–process implementation, strategies, household care, coordination and collaboration–undertaken by the CAN project essentially to promote access and improvement in the utilisation and delivery of nutrition and health services, and to improve household nutrition practices.

It was observed that activities and initiatives undertaken by the CAN Project focussed on strengthening the Anganwadi and Bharat Ratna Dr A.P.J. Abdul Kalam Amrut Aahar Yojana (AAY) through community-based monitoring and facilitative dialogue, weekly follow-up and counselling of mothers or caregivers of malnourished children through ASHA and AWWs, increased community awareness for utilising health and nutrition services, mobilising village-level actors and committee members, and introducing innovative strategies in the community. All these aspects are discussed in detail below:

5.2.1. Trainings with Aganwadi Workers and Asha Workers

As a part of the preparatory process, the CAN project focussed on brainstorming and refining the strategies to tackle tribal malnutrition and the overall implementation model

of the project, capacity-building activities, national and state-level consultations on critical policy issues, regional training of trainers, orientation and planning workshops and consultations for field facilitators, Accredited Social Health Activists (ASHAs) and Anganwadi workers (AWWs), members of Poshan Hakk Gat were conducted. The primary focus of these meetings encompassed seeking active support from various stakeholders, comprehensive discussions on nutrition, malnutrition, child growth and development, components of a balanced diet, high-risk pregnancies, nutrition services, and topics discussed in village meetings.

CAN facilitators conducted comprehensive training sessions with AWWs and ASHAs about the knowledge and skills necessary to address malnutrition effectively within tribal communities. This included educating them on the importance of nutritional foods, anthropometric measurements of children, counselling, growth charts, and conducting weekly home visits to prevent child malnutrition. Training on maternal and child health aspects, including breastfeeding practices and the importance of early childhood nutrition, was also provided. The AWWs and ASHAs reported that the training helped explain nutrition and health, demonstrating ways to feed children, make locally grown and homemade nutritious food, and develop good hygiene practices. They also reported that the training has helped do an individualised follow-up of the children, counselling mothers and caregivers of malnourished children regarding specific foods to be given to these children, frequency and quantity of diet, as well as actively engaging them to enhance the nutritional quality of the food available at home.

> *"They were taught how to take anthropometric measurements of children during their five-day training session with CAN facilitators. "Initially, we were clueless as to what was expected of us in this CAN Project as it was newly introduced. However, when they [CAN facilitators] took our training for five days, they taught us how to correctly measure the weight of the child using correct weight tools, calculate gradations, how to pacify a crying child, and so on," (ASHA, Ganga)*

> *"We were trained on how to take holistic care of children below six years of age, lactating mothers, and pregnant women. We were also taught how to counsel these mothers on breastfeeding practices and teenage girls on their reproductive health." (ASHA, Jhelum) they were trained by CAN facilitators*

on how to listen to the grievances of the people and address them accordingly (Field Facilitator, Sabarmati)

There was capacity building of the AWW and ASHA workers that took place. They were able to answer in a better manner when asked questions. They did get training from the government, but because of the CAN project training they became equipped to note things down and answer in a detailed manner if a question was asked to them. (Gram Panchayat member, Godavari)

5.2.2. Formation of Poshan Haq Ghat-(Nutrition Rights Group)

One of the strategies used by the CAN project to increase community engagement was to start Poshan hak Gat (Nutrition rights group). The Poshan Hak Gat consisted of members from the community, mata Samiti set up under the ICDS, Aahar samiti under the Amrut Aahar Yojana and the Village Health Sanitation and Nutrition committees set up by the Public Health Department under the National Health mission.

"We formed a seven-member Poshan Hak Gat. The members of Poshan Hakk Gat comprised the incumbent village sarpanch, a former sarpanch who was quite old, a few women from women co-operatives, AWW and myself as an ASHA. We included the village elderly so that there is one knowledgeable person to talk in-depth about all the questions that are asked about the interventions," (Interview with ASHA, Sabarmati)

We formed a Poshan Hakka Gat by incorporating a few members from each of the existing samitis and a few active community members. Such as few members from Mata Samiti, Aahar Samiti, Village Health and Sanitation committee and few members from the community. (Block Coordinator, Ganga)

It was seen that the ASHA and AWW actively remembered the presence of the Nutrition Rights group. Many of the community members or beneficiaries could only remember that meetings were held and that they were present to implement strategies such as Chawadi Vachan and growth chart monitoring. The continuity of the poshan haq ghat after the project period was limited. This was because of various reasons such as the pandemic, the absence of facilitators as a push factor to bring everyone together, some of the mothers who were part of the groups had a limited role to play and the busy schedules of the AWWs and ASHA workers.

In the beginning we established the poshan haq ghat. There were many groups already present but they were not active. Initially, I would have meetings with these groups then the nutrition rights group was made. We would have regular meetings with the group, once every month. So in one month there were 10 meetings that took place (Field Facilitator, Ganga)

"Members from Poshan Haq Gat, ASHA, AWW, sarpanch, and beneficiaries (pregnant women, lactating mothers, parents who have malnourished children) used to attend these meetings," (Anganwadi Worker, Jhelum)

"We also discussed various issues related to the Anganwadi. For instance, we checked whether the funds received from the Gram Panchayat were being properly utilised. If there were any problems, we used to address them. For example, there was an issue with rain water coming into the Anganwadi courtyard, so we discussed the need for a shed to protect the area. Additionally, we focused on ensuring that all necessary resources and support were provided to the Anganwadi to facilitate its smooth operation and to improve the overall well-being of the children and mothers in the community. (Poshan Hakka Gat member, Jhelum).

In some places it was found that not all the members of these committees were active, very few of the individuals who were active and engaged in much of the activities at village level. The number of individuals active in this work was around 4-5 people only. Thus limiting the scope of reach and effectiveness of the CAN interventions. It was also highlighted that in some places, although the groups were formed, bringing them together for a meeting was difficult beyond a point. As stated by a field facilitator

"The Poshan Haq Ghat was created. We had breastfeeding mothers, pregnant mothers, mothers who had SAM and MAM children, interested mothers and volunteers. The ASHA worker was not very involved so we asked a volunteer. We could only conduct one or two meetings successfully, after that it was difficult getting them all together so the meetings did not happen" (Field facilitator, Godavari)

5.3 Strategies and Innovations in the Community by CAN

During the period of the CAN project, the field facilitators adopted an approach that emphasised community participation and problem-solving for their innovations. These innovations facilitated ground-level implementation and provided valuable practical insights and generalisable tools for strengthening community nutrition programs. Some of

the significant innovations and strategies included displaying the growth faltering chart, Ranbhajya Mahotsav, children's corner (Bal Kopra), use of earthen pots to store fruits and vegetables (Matka fridge), Chawadi Vachan, Parasbag, organising street plays, and so on. These are explained below:

A) Improving Household Nutrition Practices

(i) Parental Counselling and Awareness Creation:

The CAN project focused on community awareness and individualised counselling for parents. In interviews with the beneficiaries, it came out that the ASHA, AWWs and CAN project members did home visits of pregnant and lactating mothers, as well as for their children, to explain the nutritional value of food, malnutrition, growth monitoring, what to consume, meal timings, breastfeeding, and the importance of health checkups. The data reveals that CAN has tried to reach out to the people to create awareness. The beneficiaries had a distinct memory of the home visits. Individualised counselling was also seen as supplementing the government's existing activities.

> *I got to know my girl child's nutritional status from ASHA and AW when they took the height and weight measurements. My child was falling under the yellow colour code. They told me she was malnourished and needed to make efforts to bring her out of malnutrition. So, they counselled me about the food to consume and guided and demonstrated the bal kopara where we used to keep tiffins of peanuts, jaggery, and rajgira laddus. At that time her weight was 11kg and later it increased to 14 kg. (Interview with beneficiary, Jhelum)*

> *We discussed how the children's weight and height were measured using a chart. The chart had different colours to indicate various health statuses. The yellow colour represented moderate underweight, while the red colour signified severe underweight (Beneficiary, Godavari)*

> *AAY has been in operation since 2016. However, it did not reach many people, resulting in less participation by the beneficiaries. The initiation of the CAN project led to an increase in home visits, created awareness among the beneficiaries, and ultimately increased beneficiary participation at the Anganwadi.". (Anganwadi Supervisor, Jhelum).*

They explained to me the different weight categories using a colour-coded system. If the infant is underweight, they fall into the red zone (Beneficiary, Ganga)

"Tai used to come and provide crucial information. She guided us on what to take care of during pregnancy, the appropriate diet, and the importance of monthly check-ups. She also instructed us on how to feed the baby, emphasising exclusive breastfeeding for the first six months and then introducing small meals every two hours. (Poshan Hakka Gat member, Jhelum).

Even though the CAN project has ended, we continue to inform and educate pregnant women about the benefits of consuming beets, dates, green vegetables, peanuts, groundnuts, jaggery, etc. We also provide counselling to the woman's in-laws (ASHA, Jhelum)

(ii) Children's Corner (Bal Kopra):

Bal Kopara is a food corner for children where nutritious food is available. Parents were encouraged to create such a food corner at home where nutritious food items like *groundnut and jaggery ladoo, ragi ladoo, rajgira ladoo, ground nuts, chana*, etc, are kept. It was a creative strategy to encourage children to consume nutritious foods instead of junk food. This kind of strategic placement of the bowl ensured that children could access the snacks effortlessly, enabling them to choose these healthier options over junk food. During the data collection process, it was noticed that some of the houses still had a Bal Koapra or remembered the benefits of Bal Kopra that were told to them. Bal Kopra's strategy was found in few villages

We had bal kopara. If they could not afford peanuts and jaggery we would ask them to have chana/harbara. We would ask them to eat home grown leafy vegetables. We have legumes also but people don't eat that so we would counsel them about the uses of legumes (Field facilitator,, Godavari)

"In Bal kopara we used asked them to keep peanuts, jaggery, dates and channa (ASHA worker, Jhelum)

we used to provide the food for the children at village level through creating Bal Poshan Kopara at household levels (Vistar Adhikari, Jhelum)

(iii) Growth Faltering Chart:

CAN facilitators created a 'Faltering Chart', which recorded the growth information of a child in one place. These charts would be displayed in Anganwadis for all the community-based actors to monitor the children's growth and identify which child needs immediate care. The chart also helped ASHAs, field facilitators, committee members, and Anganwadi workers focus more on the child while interacting with the parents. It enabled the discussion on making nutrient-rich food at home using local foods to facilitate the child's growth. CAN field facilitators also initiated a 'Growth Chart Campaign' to spread public awareness. The data reveals that the method included displaying colour-coded growth charts in open spaces in the village area to understand malnutrition levels. Data highlights that this campaign was quite successful, and the respondents remember the colour-coded growth chart activity. One of the block coordinators mentioned how they effectively carried out this campaign in the villages.

> *We selected open spaces in villages for this intervention. We used to lay out growth charts (different for boys and girls) and display them using colour codes, such as red, yellow, and green (healthy). We used to make children stand on each of the colours and explain to the parents why the child was standing on that particular colour and how to measure the growth of their children. This colour-coded system allowed villagers to easily understand where their children stand in terms of malnutrition and enabled them to identify any potential issues that need attention resulting in wider awareness among the villagers as well as beneficiaries. (Block Coordinator, Sabarmati)*

> *I received information about nutrition and nutritious food from both the AW and CAN project members. They used to measure the height and weight of the child separately every month to analyse the nutritional category of the child using red, yellow, and green indicators. Although I didn't understand the categories, the AW and CAN project members explained to us. But now I cannot recall it. (Beneficiary, Jhelum).*

> *"I remember that event clearly. A growth chart was displayed, and everyone gathered around it. We measured the weight and height of the children and provided detailed information about health status. During the event, pregnant women, including myself, were also weighed to check if we were underweight. We were monitored to ensure we were eating properly. This prompted us to*

improve our diets. After realising the importance of proper nutrition, we made sure to eat well and take better care of ourselves." (Beneficiary, Sabarmati)

Image 1: Aganwadi worker doing anthropometric measurement of the children

One of the important strategies followed by the CAN project was the regular anthropometric measurements of the children coming to the Aganwadis. This happened as a collective process with the ASHA, AWW and field facilitators coming together. This process was appreciated by many ASHA and AWW.

It was also seen that in some places there was a resistance from the AWW workers to allow the field facilitators to do the anthropometric measurements. This stemmed from the notion that the field facilitators were detecting more SAM and MAM cases than those recorded by the anganwadi workers.There were discrepancies in the measurement of SAM and MAM children between Anganwadi and CAN. Faulty instruments and improper measurement techniques in Anganwadis led to inconsistent data. CAN addressed this by providing training and guidance, resulting in improved measurement accuracy and the provision of new instruments.

We confidently say that ICDS workers do not show SAM and MAM figures accurately. SAM children are shown as MAM and MAM as normal. There is a tendency to hide the correct status of undernourishment. We are confident to identify the exact SAM and MAM children (Field Facilitator, Sabarmati).

(iv) Chavadi Vachan (Village level group awareness sessions)

This innovation was introduced by CAN facilitators as a community engagement activity to raise awareness about malnutrition, mainly focusing on SUW and MUW. This initiative involved gathering all members of the community or village at a central location, typically a main square or central area within the village. During a *Chavadi Vachan* session, a CAN facilitator used the local language to explain malnutrition. The presentation aimed to simplify complex concepts related to malnutrition, making them accessible to everyone in the community. The success of the chawadi vachan was that the sessions were done in the local language. It was observed that through Chawdi Vachan, CAN sought to empower community members with knowledge about malnutrition, enabling them to recognize its signs and take appropriate action to address it.

We used growth charts that were specific to boys and girls. These charts were set up in public areas in the village so everyone could easily see them. We also had to measure instruments for height and weight on hand and carried out measurements in real-time. Instead of keeping the discussions at Anganwadi closed doors, we included parents in the process in public spaces. After taking the measurements, we provided advice based on the results. People were curious about the work of the Anganwadi workers, so we showed them how we work publicly. We explained the growth chart and pointed out their children's weight status. If a child's measurement fell in the red zone, we explained to the parents why this was a cause for concern for the child. (Block Coordinator, Sabarmati)

In our understanding, "Chavadi Vachan" involves gathering people to inform and educate them. We call out to the villagers or make announcements in a loud voice to assemble everyone. This ensures that even those who don't regularly visit the Anganwadi get to hear important information. We emphasise the importance of monitoring the weight and height of children for their future well-being. To ensure this message reaches everyone, we also involve parents and grandparents, including those from the Zilla Parishad schools. For schools with students up to the 7th grade, we specifically engage 6th and 7th graders—two boys and two girls. The idea is to educate them early about issues

like malnutrition, which many of us, even as graduates, were unaware of. By understanding malnutrition at a young age, these children will be better equipped to address and prevent it in the future. This approach not only raises awareness among the current generation but also empowers the next generation with vital knowledge for a healthier community (Field Facilitator, Jhelum).

Chavadi Vachan means...We had a chart with different coloured lines—red, green, and yellow. These lines convey important information. The red line indicates that if your child is malnourished, they fall into the red zone. If your child is not malnourished, it shows green and Yes, and if the child is in a medium state, it shows yellow. (Focus group discussion, with Poshan Hakka Gat Members, Ganga).

(v) Ranbhajya Mahotsav (Forest vegetables/Wild vegetables):

Another strategy implemented by the CAN project was to have a local festival that celebrates local wild vegetables, 'Ranbhajya Mahotsav'. This was done to address food diversity and improve nutrition among tribal children. The promotion of forest vegetables was done to provide community members with access to affordable and readily available sources of nutrition, aligning with their dietary preferences and cultural traditions. By leveraging the abundance of locally available food resources and promoting their nutritional value, it was seen that CAN empowered communities to improve their dietary habits and sustainably and cost-effectively enhance their nutritional status.

"They (CAN Team members) also demonstrated how ranbhajya, available in the local area, could be used by showcasing these vegetables and educating everyone on their benefits. This initiative showed that even without much money or access to conventional vegetables, the community could utilise what was readily available in their surroundings. Additionally, they organised large-scale programs in collaboration with ICDS (Integrated Child Development Services), turning the Anganwadi into a "Hat Bazar" where children could learn and benefit from these resources. This hands-on approach not only solved practical issues but also educated the community on sustainable practices" (Vistar Adhikari, Jhelum)

Meetings were held every two months featuring food demonstrations and ran bhajya mahotsav, during which the community members and we brought various vegetables to display. Then the nutritious value was explained (Anganwadi Worker, Godavari).

With the initiative of Anganwadi, a "Hat Bazaar" was held in the villages, where children sold vegetables to the villagers. This aimed to enhance the children's practical knowledge of handling money, while allowing villagers to buy fresh vegetables. This activity helped children and villagers understand the nutritional value of the vegetables (Anganwadi Worker, Jhelum).

(vi) Matka Fridge:

This was an innovative strategy implemented by CAN to address the storage needs of eggs, fruits and other veggies naturally and sustainably. This approach involves storing eggs, fruits and other veggies in a traditional sand pot called a "Matka," which serves as a natural refrigerator. Tribal hamlets are at a geographical disadvantage when accessing the local market villages. Therefore, it became difficult to provide a complete meal of vegetables, eggs, bananas, or fruits according to the Department for Tribal Development regulations. Perishable items such as leafy vegetables, eggs, bananas and other fruits spoil quickly. A lack of storage facilities for such items in Anganwadi makes it impossible for Anganwadi workers to store them. It is also impractical for the Anganwadi workers to fetch these raw materials or vegetables daily from the market. Moreover, it was observed that the use of the Matka Fridge aligns with traditional practices and promotes the preservation of cultural heritage. It also offers a cost-effective alternative to conventional refrigeration methods, particularly in resource-constrained environments.

"The concept of Matka Fridge was born from discussions within our Poshan Hakka Gat meetings. Under the Amrut Aahar Yojana, Anganwadis used to receive supplies like eggs and leafy vegetables. They needed to prepare a vegetable dish daily, so they would collect a week's worth of ingredients. However, because the eggs were delivered monthly, they would spoil after a few days, and the vegetables would perish within two or three days. To address this issue, we initially proposed reducing the delivery period from a month to fifteen days. However, this increased transportation costs. We needed a more sustainable solution. Drawing inspiration from traditional practices, we recalled how large earthen vessels, known as "ranjan," were used to store salt and other items in the past. We suggested using similar large earthen pots or "matkas" to store the eggs and vegetables. These pots, when used correctly, could keep eggs fresh for up to a month and preserve vegetables for a longer period. This low-cost, practical solution helped maintain the quality of the supplies. Unfortunately, this project was discontinued, and the operations were halted. Nevertheless, during its implementation, the Matka Fridge provided an

effective method for preserving perishable items without the need for modern refrigeration" (Field Facilitator, Jhelum)

"We have implemented this concept of Matka Fridge in certain areas. This is essentially a vessel placed in front of an Anganwadi center. Local farmers bring fresh vegetables from the area and store them in this vessel, which are then used to prepare meals for the children. This innovation helps keep the eggs and vegetables fresh without the need for a conventional fridge" (Vistar Adhikari, Jhelum)

(vii) Parasbag (Vegetable Gardens):

This is a strategic initiative introduced by CAN to promote self-sufficiency and sustainability within Anganwadi centres. Under this initiative, Anganwadi centres are encouraged to establish vegetable gardens (Parasbag) on their premises. The purpose of these gardens is to provide a continuous and accessible source of fresh vegetables for the Anganwadi, eliminating the need to purchase them from external vendors. By cultivating their vegetables, Anganwadi centres can ensure the availability of nutritious and high-quality produce for the meals they serve to children and community members. The aim was to enhance the nutritional content of the meals and promote healthier eating habits among beneficiaries. The vegetable garden was also intended to teach the children and community members about vegetables, their nutritional value, and the relevance of consuming vegetables regularly.

In our area, some of the villagers have developed beautiful village vegetable gardens (Vistar Adhikari, Jhelum).

(viii) Street Plays:

CAN utilized street plays as a tool to raise awareness within the community about prevalent local issues such as child marriage, addiction, and malnutrition. Street plays addressed problems of malnutrition and the importance of proper nutrition, hygiene, and healthcare practices for children and families. These street plays were used to convey important messages and encourage behavioural change.

"We conducted street plays on pregnant women, one was on breastfeeding practices, and one was on malnutrition in which we also emphasized for prevention of child marriage" (Field Facilitator, Sabarmati).

They used to hold meetings in the Anganwadi or go to people's homes to hold meetings. They also performed street plays to raise awareness about malnutrition, and sometimes showed them to people. They provided information that pregnant and lactating mothers would not become malnourished if they ate a healthy diet." (Anganwadi Worker, Godavari)

5.4. Enhancing Accountability Process:

The collaborative efforts between CAN and the existing stakeholders worked towards encouraging active participation and accountability among all involved stakeholders. The different village-level committees were not functioning or were not found to be proactive. The nutrition rights group brought them together to encourage communication and engagement between the community members and the Aaganwadi. This included monthly meetings with Anganwadi workers and the group. They were also involved in implementing the different strategies under CAN project.CAN project attempted to ensure the convergence of community-based actors and frontline functionaries by initiating participatory dialogue and problem-solving channels at the local level. Parents, beneficiaries, and other village committee members were encouraged to raise issues and actively participate in overcoming nutrition and health service gaps. The interviews emphasise the importance of collaborative efforts and coordination among all state-and local-level stakeholders.

"We formed convergence committees at the gram and taluka level and ensured the active involvement of the officers across all the departments. For instance, secretaries, block development officers, tahsildars, field representatives, etc., were made a part of these committees. With our active involvement and a nudge from the district collector, we were able to carry out the tasks required for the project. We mediated between the committees and the communities and addressed the challenges. This eventually helped in increased accountability and strengthening of committees. We were also able to monitor and do a follow-up on all the activities discussed during these meetings through CBM," (Partner organisation stakeholder)

...the food is being provided by the AW through AAY. However, if we find that more supplementary food is needed, we used to discuss it in the presence of Gram Panchayat members, Organisation Members, AW supervisor, and the members of the health department. In some places, we have provided extra supplementary food for the children (Vistar Adhikari, Jhelum)

Local committees or the AHAR committees in villages, MATA committees, and VHSNC committees. These committees are working independently in different places. It is on paper. We have brought all three committees together and tried to make them functional. We have created a portion of the budget. We have also made a difference in how we give ownership to the community (Partner organisation stakeholder)

Image 2: Dry Ration provided in the Aganwadi

A) Resolving Issues Through CAN

i) Repairs and Renovations of Anganwadis; Infrastructure and Development:

It was found that Poshan Hak Gat meetings proved quite helpful in flagging several issues like lack of accessibility to the Anganwadis and the repairs and refurbishment needed for the Anganwadis that were severely damaged due to rains, or simply, due to lack of infrastructure, and so on. During the period of the CAN project, several Anganwadis were damaged due to the rainstorms in one of the districts in 2019.

"Back in 2019 when rain storms hit the area between July and August, many Anganwadis were severely damaged. The roofs of these Anganwadis were blown off, which eventually affected the services and also restricted access to nutritious food to pregnant women and lactating mothers who regularly visited Anganwadis. This issue was raised in the Poshan Hakka Gat meeting where we emphasised the urgency to repair the damages. We presented the resolution before the Gram Panchayat and it was immediately re solved. (Field facilitator, Jhelum)

Another point we managed to put across in these meetings was that, in several villages, we found out that although the construction work of building new

Anganwadis was officially approved, actual work has not yet started on the ground. We urged the authorities to expedite this process and seek a follow-up on the progress of the construction. So, due to this intervention, within the next five to six months, the work of building new Anganwadis began. We tried to work on similar issues, which caused a hindrance in the smooth functioning of the Anganwadi services, and resolve it." (Field Facilitator, Jhelum)

We have raised multiple issues at the gram panchayat level members about the toilets, washrooms, broken windows and the Fan (Sangita Sonavane, ASHA Worker Shahada)

Image 3&4: Toilets in Anganwadi-Resolving issues through CAN

*ii)***Access to Aganwadi**

A few field facilitators also reported that tribal hamlets are often located at considerable distances and face geographical disadvantages. Consequently, children, pregnant women, and lactating mothers are frequently unable to visit the Anganwadis. This issue is exacerbated during the rainy season when roads and small bridges connecting the hamlets become submerged, hindering access and preventing beneficiaries from reaching the Anganwadis. Such concerns were highlighted in the Poshan Haq Gat meetings, where they urged the relevant authorities (especially the Gram Panchayat) to address them. The Gram Panchayat resolved these issues by repairing the roads and temporarily hiring someone to deliver food and rations to these villages, ensuring the beneficiaries could still access the

services. This intervention, facilitated by CAN, ultimately fostered improved coordination among the Poshan Hakk Gat committees, the Gram Panchayat, ASHAs, and AWWs, strengthening their roles (ASHAs and AWWs) as primary healthcare providers.

> *One of the pada's there are around twenty children who are beneficiaries of the Anganwadi, but due to the distance, it was challenging for them to come regularly to the anganwadi. To address this issue, we held frequent meetings at the Gram Panchayat level and within the poshan hakka gat (Nutrition Rights Group). Our goal was to facilitate how these children could receive the necessary food despite being two kilometres away from the Anganwadi. Initially, we organised a cook to prepare the food near their home, ensuring they received nutritious meals. (Field Facilitator, Sabarmati)*

> *"In one of the villages, there was a challenge where one of the pada was located far away across a river with no bridge for the villagers to access Anganwadi services. This caused difficulties for pregnant and lactating mothers and children to get the benefit of these services. The Poshan Hakka Gat (Nutrition Rights Group) raised this issue in the Gram Panchayat meetings and advocated for a solution. Consequently, the Gram Panchayat appointed a woman from that ward, provided raw materials for cooking, and ensured that beneficiaries received the necessary services. (Field Facilitator, Sabarmati)*

Image 5: Food provided to anaemic pregnant women

One of the ASHA Workers mentioned how they raised the issue of lack of adequate facilities in the Anganwadis with the Gram panchayat members who used to be present during these meetings.

"We often raised issues such as broken weight scales, unavailability of height measurement tools, lack of utensils for serving food to the children, building a small toilet and ensuring proper ventilation by installing fans and lights in the Anganwadis for the toddlers and children who suffer a lot during the summers." (ASHA worker, Sabarmati).

Our organisation did not directly provide assistance in supplying materials. However, during this process, we compiled a comprehensive list of issues observed in the Anganwadis, such as broken furniture, lack of height measurement bars, and inadequate utensils. Subsequently, we shared this list with the village sarpanches. It was formally presented during a meeting of the Panchayat Samiti, specifically in the presence of the ICDS officials. This initiative aimed to highlight and address the urgent needs of the Anganwadi centres, advocating for improvements to enhance the quality of services provided to children and families in the community. (Field Facilitator, Jhelum).

Well, initially, we had some simple drinking water filters installed. The Nutrition Rights Group emphasised that it's essential for our babies to have access to clean, filtered water. We ensured that the filters provided clean water efficiently. Additionally, in one of our villages, the area in front of the Anganwadi was often muddy, particularly during rainy days. This posed difficulties for children walking to and from the Anganwadi. Recognizing this issue, the poshan hakka gat took action. We drafted a letter addressed to the Gram Panchayat, highlighting the challenges caused by the muddy conditions and requesting for a solution. As a result of our advocacy, the Gram Panchayat responded positively and took steps to pave the area with murum. This improvement ensured that children, both girls and boys, could access the Anganwadi safely and comfortably, regardless of weather conditions. (Block Coordinator, Ganga)

B) Bureaucratic Bottlenecks Related to AAY Funds:

It was found that there were some bureaucratic bottlenecks related to the release of the AAY funds. Initially, the AAY funds were not directly transferred to the Anganwadis. However, this system was revised to enable direct fund transfers to the Anganwadis. The data highlights that one important bottleneck was the time taken to disperse AAY funds by the district to the ICDS supervisor and then the supervisor used to transfer the funds to the Anganwadi Sevika.This process was addressed by the CAN and community member

"However, this long process has been cut short and the funds are now directly transferred to the Amrut Ahar Samiti bank account which is accessed only by an Anganwadi Sevika, Gram panchayat member or Sarpanch," (Filed Facilitator, Ganga)

There was a delay in the disbursal of AAY funds at the Anganwadi levels and therefore AW workers were facing issues in providing AAY food to beneficiaries. They were facing the financial burden of providing the services as they were providing the food at their own expenses. Members of the CAN project followed up on this issue at the block level by conducting meetings with the CDPO. Since then, the AAY fund started arriving on time (Field Facilitator, Jhelum)

When there was a delay in receiving these funds, AWW used to shell out their money to buy eggs and nutrition plates for their beneficiaries, which then amounted to around Rs 35 per plate for all their beneficiaries. However, despite the delays and hindrances, they continued working. These issues were identified by the CAN field facilitators during their field visits back in 2018 and raised to the relevant authorities. As a result, these bottlenecks were resolved, allowing for the timely implementation of the AAY program. This change has significantly contributed to reducing malnutrition and improving nutritional status within the community with the assistance of CAN. CAN's initiatives and efforts achieved effective regulation and smoother implementation of AAY funds.

It was observed that various topics, including child marriage and crop loss or damage leading to household food insecurity, which are indirectly related to malnutrition, as well as discussions on nutrition and healthcare, were addressed during these meetings.

"We usually began the conversations by asking them about the issues they are facing at the village level, like crop damage, accessibility, child marriage, and so on. This makes them feel heard and seen and they are able to open up better when we discuss the issue of malnutrition and healthcare. We ensured that they understood that their child must regularly attend school, and be taken to see the doctor or ANMs when sick instead of taking them to their vaidu (faith healers) first. However, we also had to ensure their sentiments were not hurt, so we told them to consult vaidus once they visited the doctor." (Field facilitator, Ganga)

"Since Junnar comes under tribal division, we have had several malnourished (SAM and MAM) children. Through these meetings, we were told how we can

overcome this challenge of malnutrition in the children by implementing various methods and were encouraged to collaborate with other relevant stakeholders." (Aganwadi worker, Jhelum)

C) Identification and Referrals of SAM Children

The referral system played a crucial role in promptly addressing malnutrition among children. Children under six years of age who are severely acutely malnourished (SAM) are typically referred to the Nutrition Rehabilitation Centre (NRC) for the improvement of their nutritional status. The management of the nutritional status of SAM and MAM children is generally carried out by Village Child Development Centres (VCDCs) at the Anganwadi level, Child Treatment Centres (CTCs) at the sub-district level, and the Nutrition Rehabilitation Centre (NRC) at the district hospital level. However, during their project tenure, serious gaps were found by the CAN field facilitators in the referral system and in services at respective centres depicting poor coordination between health and ICDS departments in managing these referrals. According to the *Community Action for Nutrition in Tribal Areas of Maharashtra: Framework, Process and Impact Report* published in January 2022, "Once discharged from the NRC after initial improvement (15% weight gain), many children would fail to improve further and even relapse in the absence of effective engagement of the family and community in tackling malnutrition."

The field facilitators associated with the CAN project referred malnourished children to the Nutrition Rehabilitation Centre (NRC) and District Hospital (DH) to improve their deteriorating health status. Initially, it was found that families were reluctant to take their children to the NRC. This reluctance stemmed from several factors: lack of trust in the healthcare system, greater faith in traditional healers, communication and travel difficulties due to the geographical isolation of tribal hamlets, and the loss of daily wages. Parents, particularly mothers, had to devote approximately 14 days to stay with their child at the NRC, which many could not afford due to the loss of income. However, through continuous counselling of families and parents, as well as efficient coordination between parents, Anganwadi, and hospital officials, CAN facilitators were able to convince parents to take their children to the NRC. Their initial strategy focused on managing SAM and MAM children within their hamlets to accommodate the parents' convenience. Despite these efforts, if the children did not show signs of recovery, they were then referred to the NRC.

However, It should be noted that no corroborating data is available to cross-check these referrals with the NRC.

> *The children who were SAM and MAM, we did home visits for them and we would counsel the family. If the counselling did not work and the child showed no improvement, we would refer the child. I had 4-5 children. When they were in the NRC their weight used to increase but after 14 days when they would return and then if their parents did not pay attention to them or there were issues of alcoholism in the house then the child's weight would go back to the same state. We would follow up with them and advise them not to give junk food but proper meals. Still in some cases the weight of the child would decrease (Field Facilitator, Godavari)*

An FGD interaction with Poshan Hak Gat members revealed how the committee members had to persistently counsel and convince the parents about the nutritional as well as monetary benefits of taking their child to the NRC.

> "*When we identified one or two babies in the red zone, we informed the parents through the committee, ASHA workers, and the health department. Initially, some parents were reluctant to seek treatment because they were unfamiliar with the hospital procedures. We explained that severe malnutrition is very dangerous, and immediate intervention is crucial. Our team, along with the health department, emphasised the long-term benefits of proper treatment. We told them that untreated malnutrition could lead to severe consequences, including death, which would bring a lifetime of regret. To avoid this, we suggested that they admit their child to the health centre in taluka for proper care and treatment. We reassured them that the child would receive comprehensive treatment over a 14-day period. The government provided additional support, such as food and financial incentives for the family, making it easier for them to agree. By explaining these benefits, we convinced them to seek help. As a result, the children were admitted to the health centre, and after a few days, we began to see improvements in their weight and overall health".*

(Image 6: Focus Group Discussion with Poshan Hakka Gat Members, Ganga)

There were malnourished children in villages before the CAN however, through the CAN project ASHA and Anganwadi workers started monitoring the weight and height of every child every month. If a child was found to be severely malnourished, they would report it to us, indicating that the child's weight was not increasing and intervention was needed. We would then inform officials from the Health Department to arrange a vehicle for the child to be transported to a Nutrition Rehabilitation Center (NRC). After 14 days of treatment at the NRC, the child would be brought back to the village (ANM, Ganga)

We used to do home visits and counselling to the identified SAM and MAM children but if we find they are not going to recover then we referred them to NRC (Field facilitator, Godavari)

Once We have referred around 10 children from ten villages to NRC (Interview with Field Facilitator, Ganga).

when the CAN project started, we did not have to refer the child to the NRC. I think we only referred one child who was not recovering. (Anganwadi Worker, Godavari)

D) Project Monitoring

Monitoring project activities was crucial for measuring progress and optimising performance. The nodal agency officials made regular visits to the field, the visits included meetings with the project team of partner organisations, and visits to anganwadis in project

villages. They also collected data on a monthly basis-both anthropometric data and process data. Process data included poshan haq gat formation, meetings, issues identified at village level and issues resolved. Key monitoring processes of CAN included monthly activity reports from block coordinators, analysis of ICDS report cards, quarterly state-level review and planning meetings with CSOs, and monthly field visits by state-level team members. These measures ensured effective execution and data collection, facilitating timely problem detection and strategy adjustments.It was found that CAN provided tablets to their facilitators for field data collection, streamlining the process and facilitating centralised monitoring. All PHG members, CAN facilitators, and active volunteers collaboratively monitored the nutritional status of malnourished tribal children. They held monthly meetings to discuss these issues and actively participated in the discussions.

“measurement was there, reporting was there. One was directly ICDS and our own measures and recordings. Two different recordings in parallel for the same month. (Partner organisation stakeholder)

Observations from the Field:

Common Observation Across Blocks

It was observed that some anganwadis in all blocks were poorly maintained and lacking basic facilities such as safe drinking water, electricity, a separate room for the kitchen, poorly maintained washrooms, and unhygienic conditions. Some anganwadis were well-equipped with essential facilities.

The beneficiaries remember the work and activities conducted under the CAN project, but they have forgotten the name of the project and the partner organization. However, they do remember the name of the NGO worker who was involved in implementing the project.

In one anganwadi, the anganwadi helper had taken over the responsibilities as the Anganwadi Worker was on maternity leave. In another anganwadi, the helper's position was vacant, so the Anganwadi Worker was taking on the additional duties. The observation highlights that both positions at the anganwadi are not fulfilled. Then

service provisioning became a difficult task because one person became burdened with multiple tasks.

In most anganwadis the study team was well received and they participated in the data collection process. However, in some of the places the AWW were reluctant to participate which highlights some degree of mistrust between CAN project team and AWW at select places.

Based on our interactions with the Poshan Hakk Gat (PHG), in some of the villages it was noted that only the ASHA, Anganwadi worker, Poshan Sathi, and Field Facilitators were actively involved. Other members were unable to recall information about the PHG. In fact, some Poshan Hakk Gat members were not even aware that they were part of the group. However, in one of the villages in Ganga block the Poshan Hakk Gat was still active and had taken up the initiative of total prohibition of alcohol in the village.

In some of the Focus Group Discussions, it was observed that some of the PHG members remained silent throughout the discussion. Furthermore, it was noted that VHNC, Mata Samiti, and Aahar Samiti were not active in any of the villages.

One of the major issues noted was delay in AAY fund disbursement. From the conversation with the Anganwadi workers, it was apparent that these delays affect the successful implementation of the AAY at the local level.

Specific Observations

In one of the villages, in Jhelum block, the Sarpanch provided a lot of valuable information about the project. The Sarpanch actively participated in the nutrition-related program implemented in his village, and it was observed that he made significant efforts to help the malnourished children there.

The presence of the other organisations was evident in providing infrastructural and nutritional support to anganwadis in Godavari and Sabarmati block. The purpose and mission related wall paintings were present on the Anganwadi.

During the monsoon season, specifically in Godavari, the areas far from the anganwadi

faced challenges in accessing services. It was observed that the roads became flooded, landslides occurred, and the villages lost connectivity. Tribals had to cross flooded roads while carrying their children. One of the villages was remote and had poor road connectivity with PHC.

The people in Godavari and Dhadgaon are living in extreme poverty and hence cannot afford to spend much on food. As a result, even though they are aware of what should be included in a healthy diet to reduce malnutrition, they are unable to prioritise a balanced diet at home.

In one of the villages in Godavari the Anganwadi Worker was unable to recall the CAN project and its activities.

Across the blocks there was utilisation of the AWW services and acceptance of the Aaganwadi worker and helper. However, in Ganga block in one of the villages there was poor utilisation of anganwadi services in which the anganwadi worker and the helper were from the SC category. Consequently, the tribal community in that area did not visit the Anganwadi for food nor did they send their children there.

In one block the concept of "Kurma Ghar" was observed. It involves women staying for 4-5 days in a small hut when they menstruate. During the data collection, it was noted that three women were staying in one of these huts. The conditions of these "Kurma Ghars" were poor, with a lot of mosquitoes, a foul odour, unhygienic conditions, and a lack of basic facilities such as safe drinking water, washrooms, fans, and electricity. The Kurma Ghar followed stringent practices that specially affected the mothers who were menstruating because they could not avail the Anganwadi services.

Overall in Ganga block it was observed that the presence of the CAN project was prominent, beneficiaries were aware of the activities conducted under the CAN project, informed about the nutritional status of the children, committee members of Poshan Hakka Gat found to be active.

The study team met the coordinator for the RBSK programme in one block. It was apparent from discussion with him that RBSK was not part of the CAN project

discussions at district level although the RBSK programme aimed at identification of SAM and MAM children through health check-up at Anganwadis.

The study team visited NRC at a District hospital. It was noted that SAM children from Sabarmati block were admitted at this NRC (NRC was not usually provided in each of the blocks). The study team met RBSK doctors who were not aware of the CAN project. One of the medical officers who was the resident of one of the villages was not aware of the CAN process and his child was not enrolled despite being a member of the tribal community.

None of the NRC staff or RBSK staff had heard about the NGO or have had any meeting with NGO workers during the CAN project period. The staff nurse spoke about volunteers and some NGO workers who would help in facilitating referral to NRC but did not remember whether any of them belonged to the CAN project. None of the Anganwadi workers could remember the name of the NGO.

In another block during conversations with RBSK teams, the doctors mentioned that they had seen NGO workers at the anganwadis during their visits to screen children for multiple conditions including malnutrition. The RBSK team had not heard the name of organisation or project CAN and could not recollect any meeting or referral to them or NRC by NGO. Only in one block we observed that the RBSK members were aware of the CAN project and the members of the NGO.

Dhadgaon block was originally selected for evaluation. However, the intervention was not completely implemented in the block due to the resistance to the NGO in entering the anganwadis locally. This had been discussed at the state level in 2019 where the state administrative authorities instructed local administration to facilitate the intervention. COVID-19 pandemic followed soon and the block hardly had intervention. Based upon this narrative, it was decided to drop this block. However, it was also important to understand the vulnerability context of the Dhadgaon block as it has the worst indicators on nutrition among the CAN project blocks. In another block which was a hilly region with limited facilities. NRC was situated at Sub-District Hospital (or CHC – check). At the NRC, paediatricians described the social conditions

and disadvantages with respect to literacy, livelihood, land ownership, migration, early marriages. These disadvantages had culminated in higher malnutrition in the block. The NRC staff said that the mothers used to get 60 rupees per day (to cover loss of wages) in the past. That amount was too less than the minimum employment guarantee. The staff nurses mentioned that there were high probabilities of the mother-baby pair absconding or going home with Discharge against medical advice (DAMA). It can be inferred that the NRC stay was further compromising the economic condition of the household and they chose to save livelihood than keep mother-baby pairs in the NRC for 15 days. It was also understood that most children needed only a nutrition supplement and did not require intravenous fluids or injectables. The SAM children were not necessarily ill and they were playful – thus, making it furthermore difficult for staff to convince the parents to stay till the recovery of the children.

The team also visited a couple of project villages which were not sampled for the study. In both the villages, AWWs mentioned that one NGO worker used to visit the Anganwadi prior to COVID lockdown. Upon asking what they actually did, both of them mentioned that the NGO worker used to sometimes conduct sessions (behaviour change communication) at the anganwadis with expecting and lactating mothers. Both AWWs said that the sessions were more effective. They also said that the NGO worker used to visit homes of the mothers and motivate them to visit anganwadis for services. Both AWWs felt that the NGO worker's activities helped them in their work. However, they did not recollect the name of the worker or that of the NGO. When prompted name they remembered the name of the organisation.

5.5. Summary of Qualitative Data:

CAN project was implemented in both CBMP and Non-CBMP villages. The understanding of CBMP processes and familiarity with existing organisations along with a strong network for nutrition in tribal areas played an important role in the CAN processes starting smoothly in many places.

CAN projects preparatory work to include the officials as well as appointment of local facilitators helped the project to facilitate the strategies.

The training provided by the CAN project supplemented the existing knowledge of the ASHA and AWW. The pedagogy used was useful to help them retain and impart the information.

Poshan Haq Gat was an important strategy to ensure proactive participation of the community members and bring together members from committees that were existing in the communities but not functioning well. In many places the PHG functioned well for the time the project was working but later they also became defunct. This could be attributed to the lack of an external facilitator after the CAN project had to stop due to the pandemic.

During the project period the PHG played an important role in resolving the issues at the village level in many places. The PHG's proactive role in resolving issues resulted in enhanced accountability from providers. It was also seen that during the CAN process period the community were able to raise their concerns. It can be highlighted that while the group was successful in resolving issues at the village level, they were unable to do effective coordination at the district level with the NRC and the RBSK.

Some of the strategies used by CAN were uniformly seen across all the blocks. Individualised counselling was seen as a strategy that worked effectively within the communities. Both the grass root health providers and the beneficiaries highlighted that the counselling increased their knowledge base and took actions towards positive health. Growth faltering chart and *chavadi vachan* were also strategies that the community remembered gaining information from during the CAN project implementation. However, the strategies such as *bal kopra*, *matka fridge*, *paras baug* were limited to certain areas. Strategies such as the *bal kopra* and *paras baug* were not sustained.

Chapter 6: Key Findings and Recommendations

This chapter highlights the key findings of the study encapsulating both the qualitative and quantitative data and the inferences and interpretations that can be derived from the data collected. It also offers a range of recommendations based on the discussion of the study.

A) Key Findings

1. Initiation and Initial Implementation:

It was found that the project had a strong foundation because of their experience with the Community-Based Monitoring Process (CBM) and presence of existing networks for malnutrition allowed for the rapid initiation of the CAN (Community Action for Nutrition) project with minimal lead time. Existing agencies, partners, and networks were leveraged effectively. The nodal agency played a pivotal role in supporting the collaborating organizations in establishing the intervention.

2. Collaboration with ICDS Functionaries:

The state and district-level coordination was well-established by the stakeholders (State Tribal Development Department, Tribal Research and Training Institute, Women and Child Development Department, Public Health Department, and the nodal agency) at the initiation of the project. At the ground level, the collaboration outcomes varied. The data highlights that in certain areas, the acceptance and facilitation by Anganwadis provided a significant boost for the CAN project, enabling it to commence early and operate smoothly. These areas exhibited better results. For example, Amrori, where the CAN project had a smooth initiation, it showed the best results in terms of improvement in SAM and MAM cases.

In contrast, in other areas, resistance from Anganwadis impeded the project's progress. Dhadgaon faced significant resistance, leading to poor implementation. The state-level intervention addressed some of the bottlenecks in this block. However, the intervention remained relatively weak which reflected in poor improvement in nutritional indicators.

3. Process Effectiveness:

The rigor of interventions varied across villages. CAN project followed community-led strategies to ensure participation and action. Establishing Poshan Haq Gat was one such process. In some villages, forming and engaging members in the Poshan Haq Gat proved challenging, with uneven involvement and inactive committees observed during visits. These PHGs succeeded with the support of facilitation but did not sustain the post-project implemented period.

Regarding the specific planned strategies, the extent and rigour of implementation varied. Some strategies, such as the use of growth faltering charts, individualised counselling, and regular follow-ups, were consistently implemented across the villages. Methods like bal kopra and matka fridge and street plays were implemented in select villages during 2019-20. These practices were not visible at the time of study assessment.

4. Anthropometric Measurements

It is important to highlight that there was systematic data collection of anthropometric measurements in the project areas by the CAN project team. These measurements were collected parallelly to the data collected by the AWW. One important finding is that there is no anthropometric data of 10.3 percent of the children whose names are there in the list, but no data is available across the 9 months. It can be inferred that this is because of migration or other unknown factors. This ‘missed out’ population is worrisome because they don’t get reflected in the nutritional indicators also they get missed out from getting in services.

The data trends highlight that in the months of June and July showed higher numbers of children with anthropometry data. There was a drop in the number of children undergoing anthropometry by September. Missing anthropometric data for some children in the third month suggests irregular attendance at Anganwadis which was possibly due to migration and absenteeism, as expressed by the nodal agency. This also affected SAM children with 39.3% of the SAM children identified in June 2019, who have not been followed up. Regarding follow-up, the MUW follow-up data was not available.

Overall, the key finding was that there was a decline in the SAM prevalence over the period of CAN implementation (from June 2019 to Feb 2020). The declining pattern was seen in both CAN project data and ICDS data shared by CDPOs. CAN project data reported higher prevalence of SAM in comparison with ICDS data.

One-third of SAM-identified children continued to remain in the same category over the period of time with no changes to their health situation. This raises questions about the effectiveness of the services, especially Village Child Development Centers (VCDCs) in improving malnutrition outcomes of the children.

Data collected by TISS indicated higher SAM and Moderate Acute Malnutrition (MAM) cases compared to Anganwadi records, suggesting inaccuracies in Anganwadi data. There is a need for the community to be conscious of the malnutrition levels of the children. This requires training and also enabling them to raise their voice to ensure services. A project like CAN is effective in the initial stages but there needs to be a mechanism to ensure that the community takes over the process over the period of time.

It is also seen that in the current times that children under two years have relatively better nutritional status compared to older children, likely due to the disruption of services during the pandemic.

5. Sustainability of the Interventions and Community Engagement

It was observed that CAN interventions that were implemented were not sustained and community participation has weaned off over the period of time. This could be because of the halt in the project. The facilitators had played an important role in ensuring participation at different levels in the community and among different stakeholders. This highlights the relevance of an external entity that is able to boost the process of participation and ensure interdepartmental coordination. One important point that needs to be stated is here that pandemic resulted in the abrupt ending of the project interventions. The project faced significant challenges due to the outbreak of COVID-19. The pandemic, which began in early 2020 and continued through various phases of lockdown, isolation, and quarantine, severely disrupted the project's implementation. The lockdown measures led to the suspension of activities, delayed fund flows, and restricted the movement of field staff. As

a result, the project's ability to achieve its objectives was notably compromised. This included difficulties in strengthening systems from the village to district levels and in improving the nutritional status of children to reduce SAM and MAM conditions. One may have better community engagement if the project would have ended at its stipulated time. This also reflects the need for sustained interventions over a long period of time and the community to be conscious of the importance of community action.

6. Training and Facilitation:

The CAN project conducted training for project staff at the state level. Various stakeholders, including ASHA and AWW were trained twice at the block level during the project period. The intervention attempted to build the capacity of the Poshan Hak Gat members through village level meetings and activities such as chavadi vachan. Field facilitators were instrumental in garnering involvement of community and parents, support from systems at local and district level. However, this also meant overdependence on them for project activities. There is a need for a sustainable exit strategy so that the withdrawal of field facilitators does not suspend the activities in the field.

B) Recommendations:

Based upon the key findings, there is a strong need for community participation in nutrition interventions. The specific key recommendations have been listed below.

1. Sustainability of Community Participation:

Implement a long-term strategy for community engagement which is sustained in the long-run. Many committees exist at the village level but have little functional competence. The village health sanitation and nutrition committee can be revived or supported (as the case may be) instead of creating an independent Poshan Hak Gat.VHSNC members should be members of Mata samiti and Ahar samiti which supervise the functions of Anganwadi.

2. Role of Civil Society Organisations:

The catalyst role played by the NGOs was a crucial factor in the implementation of the project. The communities are not yet equipped to fulfil the monitoring function for

Anganwadi services and negotiate with the systems for meeting their demands. Interdepartmental coordination and convergence is also an area that requires support. There is a need for NGOs as external agencies to provide that necessary support in the initial period. There is also a need to assess the strength of community ownership and accordingly plan an exit strategy for the NGOs.

3. Resource Allocation:

The intervention model was effective in its implementation. A set of suggestions to improve the intervention design were deduced from the key findings. These include

Consider a rotational village model to enhance resource efficiency: With the community strengthening efforts, some village communities may become self-sufficient and continue to function without external support. The project can then shift the resources such as field facilitators to other tribal villages which have higher degree of child malnutrition.

Resource allocation: In case, the resources are adequate to meet requirements for all the tribal villages, the focus could be on those villages with higher malnutrition rates and weaker community participation.

4. Preventive Strategies:

Preventive interventions that were home-based (bal kopra, individualised counselling and follow up) and at the level of the community (chavadi vachan and growth faltering chart) were found to be effective. These strategies should continue as these would play an important role in supplementing the existing interventions to alleviate malnutrition amongst the most vulnerable population. Important to have community participation strategies and emphasise preventive measures for malnutrition.

5. Interdepartmental Coordination:

The assessment highlights that the lack of interdepartmental coordination percolates to the village level so there is a need for ‘convergence from below and coordination at all levels’. Data convergence between ICDS and the public health department is the need of the hour. It is important to design coordination mechanisms between community action for nutrition project with Rashtriya Bal Swasthya Karyakram (RBSK) and Nutrition Rehabilitation

Centers (NRCs). This will ensure flow of data, follow-up of malnourished children post-NRC among others.

6. Nutrition for School Children:

The study found high levels of undernutrition among children who are more than six years old and in schools. Tribal development department needs to strengthen the school nutrition programme and monitoring of the Mid-Day meal scheme could also be potentially covered through community action for nutrition.

7. Develop Strategies for Migrant Children:

One important observation was that the migrant children were lost to follow up and did not receive the services offered by anganwadi. Some of them were also SAM children. So it is important to address gaps in service and monitoring for migrant populations. It is important to ensure that there are linkages across anganwadis so that the children continue to receive services even if they migrate from one place to another.

8. Evaluate VCDC Effectiveness:

The children with SAM were expected to have additional nutrition through VCDC, however, this was not a commonly observed practice. One third of the children's nutritional levels did not improve from the SAM category. The VCDC's strategy needs to be assessed from a systems perspective.

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Annexure I: Tools for Data Collection

Annexure I. a: IDI guide for Beneficiary: Parents (7 months to 6 years of the child) Background Information including village, age, gender, number of family members and children, age of child, caste, occupation, monthly income

1) Have you ever visited the Anganwadi? If yes for what purpose you visited the AW?
2) What do you know about Anganwadi Services?
3) What are the services you/your child received from AW/ASHA?
4) What is the information that you received from AW/ASHA? Probs-feeding practices, nutritional practices, supplementary nutrition, health services, immunization, household nutritional practices etc Follow-up was this information useful? (Follow-up question was this information useful? What were the changes that you made after receiving the information)?
5) What was the frequency of AW/ASHA's visits to your house? Were the follow-up visits done by the AW/ASHA for your child's nutrition? What did they do during these home visits? Did they provide information? What method was used to convey the information?
6) How frequently the weight and height (anthropometry) of the child were measured? after the measurement did AW informed you about the child's nutritional status? how and what way it was informed? Was there a card? What was written on it?
7) What do you know about AAY? Who told you about it? For whom the AAY is implemented? What are the benefits that are being given under the AAY to your child?
8) Did you aware that in your village the CAN project is going to be implemented?
9) What do you know about CAN? What was included under the CAN project?
10) Can you please list the activities implemented under CAN project? In which activity you were involved under CAN? How?
11) Have you ever participated in monthly meetings in AW or the meetings held in the community? If yes, what were the meetings all about? What discussions did take place in the meetings? (was it part of CAN)
12) What were the discussions in the meetings?

13) Did you receive any type of food from AW? If yes, can you please explain it in detail? (Probs menus, frequency, grocery or cooked food)
14) How was the quality of the food provided by AW?
15) How much quantity of the food was served? Was there any difference that you observed while providing the quantity of the food?
16) Did you see any improvement in AAY? if yes for what reason?
17) What kind of difference that you observed while getting food at AW? Do you think, CAN project helps in improving the food served in AW? How?
18) What was the frequency of measuring the weight and height of the child? (awareness regarding growth monitoring), have you ever monitored your child's weight and height taken in the AW.
19) Have you ever taken your child to the AW or any other place to measure weight and height? What was the information provided in the center? What the information was all about?
20) Did your child came under the category of undernourished? If yes what measures were taken for improving the nutritional status? Who told you about these measures?
21) What is your opinion on improvement in the child's nutritional status? Probs-Does the CAN helps in improving the nutritional status of the child? If yes to what extent
22) Have ever received any help from the CAN project in improving the nutritional status of the child (probs-health services, services at NRC, CTC, VCDC; Reffreal service, etc)
23) What is your overall opinion about the CAN project? Was it useful/beneficial and how?

Annexure I. b: IDI Guide for Beneficiary

Pregnant and Lactating Mothers Background Information Including Village, Age, Gender, Number of Family Members and Children, Age of Child, Caste, Occupation, Monthly Income

1) Have you ever visited the Anganwadi? If yes for what purpose you visited the AW?
2) What do you know about Anganwadi Services?
3) When you were pregnant what are the services that you received from AW?
4) When you were pregnant what are the services that you received from ASHA?
5) after childbirth what are the services you received from AW/ASHA? (Specify AW & ASHA separately)
6) What is the information that you received from AW/ASHA? Probs-feeding practices, dietary patterns, number of meals consumed in a day, household nutritional practices, supplementary nutrition, health services, immunization, what care to be taken etc (Follow-up question was this information useful? What were the changes that you made after receiving the information)
7) What was the frequency of AW/ASHA's visits to your house? Was the follow-up visits done by the AW/ASHA for you and your child's nutrition?
8) Did you receive any type of food from AW during pregnancy and lactation? If yes, can you please explain it in detail? (Probs-At what period of pregnancy you received the benefit of AAY? menus, frequency, grocery or cooked food)
9) What do you know about AAY? Who told you about it? For whom the AAY is implemented? What are the benefits that are being given under the AAY?
10) How was the quality of the food provided by AW? Did you observe any difference in providing the quality of the food?
11) How much quantity of the food was served? Was there any difference that you observed while providing the quantity of the food?
12) What do you know about CAN? What was included under the CAN project? Can you please list the activities implemented under the CAN project?
13) At the time of pregnancy and after childbirth, have you ever participated in monthly meetings in AW or the meetings held in the community? If yes, what were the

meetings all about? What discussions did take place in the meetings? (was it part of CAN)

14) What were the issues that were raised in the meetings?
15) Did you see any improvement in AAY? if yes for what reason?
16) What was the frequency of measuring the weight and height of the new born baby? (awareness regarding growth monitoring), have you ever monitored your child's weight and height taken in the AW
17) Did your child come under the category of undernourished? If yes what measures were taken for improving the nutritional status? Who told you about these measures?
18) What is your opinion on improvement in the child's nutritional status? Probs-Does the CAN helps in improving the nutritional status of the child? If yes to what extent
19) What is your overall opinion about the CAN project? Was it useful/beneficial and how?

Annexure I. c: FGD Guide for Members of Poshan Hakka Gat

(Guide Was Also Used as IDI Tool in Case of Small Number of PHG Members and Also KII Tool for Members of Gram Panchayat, Village Health Sanitation and Nutrition Committee, Aahar Samiti, Etc.)

Background information: Age, gender, village, current designation, postions held earlier especially during CAN project period, association with CAN project

1) Since how long you have been a member of the Ahar Samaiti/Mata Samiti/VHNSC members/panchayat members
2) Are you still a member of the committee? When you were member, which activities you were involved in?
3) What do you know about CAN? Are aware that in your village CAN project was implemented?
4) How you have been involved in the process of CAN?
5) What are the processes that have been implemented under the CAN Project?
6) What did you know about Poshan Hakka Gat?
7) How did the Poshan Hakka Gat was formed? What do you think why it was formed?
8) How you have been involved in the Poshan Hakka Gat?
9) What was the role of PHG?
10) Have you ever been involved in the discussions of Poshan Hakka Gat meetings?
11) What was the frequency of conducting PHG meetings? Follow-up question-Did monthly meetings conducted during CAN project implementation? Which were the members involved in these meetings?
12) What were the discussions that did take place in the PHG meetings? Follow-up question: What were the issues that have been discussed in the PHG meetings? How many issues have been raised by the community and how did you resolve them? Please give some examples of some resolved issues.
13) What were the challenges that you faced while resolving the issues?
14) What was your / PHG's role in improving the implementation of AAY?
15) What was the role of AW and ASHA workers in the CAN project?
16) Can you please explain, how was the child's nutritional status was measured?
17) Have you ever seen the growth monitoring chart that has been used in AW for measuring the nutritional status of children?
18) Have you seen improvements in the child's nutritional status? If yes, would you please explain how the child's nutritional status has been improved?
19) Do you think the CAN project helps in improving the nutritional status of the child? If yes, How and to what extent it can help?
20) What is your overall opinion and suggestions about the CAN project?

Annexure I. d: Key Informant Interview Guide for AW and ASHA

Background Information including village, current position, age

1) What do you know about CAN? Are you aware that in your village CAN project was implemented?
2) What was the period in which CAN was implemented?
3) How you have been involved in the process of CAN?
4) What was your role in the CAN project?
5) What were the processes that have been implemented under the CAN Project?
6) What were the intervention strategies implemented under the CAN Project?
7) Would you please discuss the number of training that you received for the implementation of CAN project? What was the training all about? Was it useful? How it was delivered?
8) What was the information provided in the training? (Probs-feeding practices, dietary patterns, number of meals consumed in a day, household nutritional practices, supplementary nutrition, health services, immunization, what care to be taken, etc)
9) Were you able to transact the information that you received in the training with the parents and specifically with the pregnant and lactating mothers and parents of the child?
10) How frequently you used to measure the anthropometry of the child?
11) How did the records of the child, pregnant and lactating mothers were maintained? What was the purpose of maintaining records?
12) What was the frequency of home visits to the beneficiary? What was the information provided to the beneficiary during home visits? Under what circumstances you used to do follow-up visits?
13) What was the frequency and process of conducting community meetings?
14) Which members were involved in the community meetings?
15) What were the meetings all about? What discussions did take place in the meetings? (was it part of CAN)
16) What were the issues that were discussed in the community meetings?

17) Which issues get resolved in the community meetings? Please specify and give examples of resolved issues
18) What were the issues that did not get resolved in the monthly meetings? Please specify.
19) What was the process followed for issues that did not get resolved in community meetings?
20) What was the role of Poshan Hakka Gat in CAN Project? Which are members were involved in PHG? How did the Poshan Hakka Gat was formed? What do you think why it was formed?
21) What were the issues and challenges that you faced while implementing CAN project? Please specify (any conflicts while working together ASHA and AW, how did you resolved it)
22) How many children were identified as malnourished prior to the implementation of CAN project?
23) Have you seen improvements in the child's nutritional status? If yes, would you please explain how the child's nutritional status has been improved?
24) Do you think the CAN project helps in improving the nutritional status of the child? If yes, How and to what extent it can help?
25) What do you think about your capacities being improved due to CAN project? What capacities and how it got strengthened?
26) Do you think CAN helps in improving AAY and AW services in the community?
27) What is your overall opinion and suggestions about the CAN project?

Annexure I. e: Key Informant Interview Guide for Supervisors
(TDD Project Officers/CDPOs/ Taluka Health Officers/ Anganwadi Supervisors)

Background information including age, gender, block, district, designation, association with CAN project

1) What do you know about CAN?
2) Why CAN was initiated?
3) In one block, how many villages have been covered under CAN project? What was the period of CAN project?
4) Can you recall what activities were conducted under CAN project?
5) Who was implementing the activities of CAN? (please specify, at the village level, block level, implementing organization etc.)
6) What was your role in the CAN project?
7) In your tenure, how many meetings were conducted with the community and with the committee in regard to CAN project?
8) Who were the members involved in the meetings?
9) What were the issues raised by the community and committee members in the meetings? Can you please explain it in detail?
10) How did you resolved it?
11) Can you recall, how many children were referred to VCDC/NRC? Was there improvement in the child's nutritional status? What was the follow-up process for understanding child's nutritional status?
12) What were the challenges or issues you faced while implementing the CAN project?
13) What is your opinion about CAN? To what extent it helps to improve the nutritional status of the child?
14) To what extent does it help to improve the ICDS and AAY services as well as in reducing the malnutrition level in the community?
15) What do you think, was the AW/ASHA or community members' capacities got strengthened due to CAN?
16) What do you think about the inter-departmental coordination of ICDS, public health and Tribal development department which took place under CAN?
17) Do you think the Anganwadi and ASHA worked together and the convergence did take place under the CAN project? If yes, please explain how? If not why not?
18) What is the innovation in CAN project? How did it affect overall CAN outcome?
19) What is your overall opinion about the CAN project? (Implementation continuation, Generalisation)

Annexure I. f: Key Informant Interview Guide for Participants from CAN Implementing Organisation

Background information age, gender, designation, duration of association with CAN project, trainings received, blocks or villages coordinated

1) Please explain in detail about the CAN project (mandate, process, strategies, components etc)
2) Why there was a need for CAN project?
3) What was the implementation structure of the CAN project? (Please, explain the structure from Village level to the State level)
4) What were the activities undertaken by the CAN project?
5) What were the strategies incorporated for the implementation of CAN project?
6) What were the major components of CAN project and why it was incorporated in it?
7) Which government officials were involved in the CAN project? What was the involvement?
8) What is the difference between ICDS and CAN projects?
9) What were the major issues and challenges that you faced while implementing the CAN project? How did you resolve it?
10) What were the improvements that you could notice in ICDS and AAY services? (was there any improvement in the nutritional status of the children? If yes, how did the CAN project helps in bringing improvements in nutritional status?
11) To what extent the malnutrition issue was improved?
12) What were the issues raised by the community members? how many issues were raised?
13) Can you please explain the positive experience of the CAN project?
14) What are your suggestions for the CAN project (regular implementation, Generalisation)

Annexure II: Information Sheet and Consent Form

Annexure II a: Participant Information Sheet

Title of Project: Evaluation Study of Community Action for Nutrition Project Implemented by SATHI

1. What is the study about?

The study is an impact assessment of Community Action for Nutrition Project implemented by SATHI from September 2018 to August 2020. The study will help understand the processes followed during the project implementation and the perception among different stakeholders about the intervention and the impact of the interventions. It will help assess the overall impact on the nutritional status of tribal children in the selected areas. The CAN project covered predominantly tribal blocks of seven districts in Maharashtra-Gadchiroli, Nandurbar, Nashik, Palghar, Pune, Raigad and Thane.

2. What is the rationale for the selection or screening of the respondents?

The respondents are stakeholders involved with the CAN project. This includes women who were pregnant or women who just had children using the Aganwadi facilities during the period of the intervention by the CAN project. This will help to understand the process of the implementation, its effectiveness and quality of interventions. The ASHA workers and Aganwadi workers of the villages where the project was implemented. Aahar samiti and VHNSC members, panchayat members, village poshan hakk gat who were actively involved in the interventions. Field level worker of the CAN project, managerial level officials who were instrumental in implementing the project. This data will help the researchers gain an insight into implementation processes, innovative strategies used for linkages with the governance system and the challenges faced in the implementation in the of the programme. Government functionaries such as CDPOs, beat supervisors, health officials (THO/MO) who were involved/ supported the CAN project interventions. This will help understand the perception of the functionaries about the project implementation and assessment of the governance related changes in relation to interventions.

3. What is the relevance of the information being collected to the community or respondents?

The evaluation will help understand the processes followed during the project implementation and the perception among different stakeholders about the intervention and the impact of the interventions on nutritional status of the children enrolled in the intervention. It will help provide insights into the field realities, facilitators, barriers, which

components work and which do not work. These may help TRTI to improve their interventions in the area of child nutrition.

4. Who can take part in this research study?

The main criteria for inclusion of the study are that the respondent was a stakeholder and was involved when the CAN project was being implemented. This includes pregnant women and women who just had children and were using the Aganwadi facilities during the implementation of the CAN project. ASHA and AWW workers, aahar samiti and VHNSC members, panchayat members, village poshan hakk gat who were actively involved in the interventions. The employees of SATHI who were actively involved in interventions and the field level workers of CAN project. Government functionaries such as CDPOs, beat supervisors, health officials (THO/MO) who were involved/ supported the CAN project interventions.

5. How long will you be in the research study?

The respondents will only be involved in the study during the period of the interviews or focus group discussions. Each interview or group discussion may last 45 to 60 minutes.

6. What are the possible risks and inconveniences that you may face by being in the research study?

There are no major risks anticipated to participants as a result of participating in this study. Some of the participants may feel discomfort as the questions may pertain to their pregnancies and child health. Strict ethical procedures regarding confidentiality and anonymity will be followed. The participants will be free to not respond to any question(s) and/or withdraw from their participation at any point. In case, the women need any linkages for medical/ psychosocial support, liaison with local health authorities and counselling services shall be facilitated. The research team will maintain list of local resources in each district.

7. What are the possible benefits to you being in the research study?

There are no direct benefits to the participants of the study. Their responses will help in analyzing the impact of the study and will be useful to provide recommendations to the sponsoring agency.

8. How will your privacy and confidentiality be maintained?

Study participation will be completely voluntary, confidential, and non-discriminatory. The information obtained from participants will be for purposes of research and in the form

of deidentified data and audio recordings only. Focus groups, and in-depth interviews will be audio-recorded. The recordings will exclude participants' identities. All paper measures will be stored in locked file cabinets in the office of the PI or Co-PI. All data collected and will be stored in a password protected computer.

9. Will you have to bear any Expenses or Costs by participating in the research study?
The participant will have to bear no expenses by participating in the study.

10. Whom do you call if you have questions or problems regarding rights as a participant?

Name of Principal Institution: Tata Institute of Social Sciences

i) Principal Investigators: Dr Narendra Kakade

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V.N. Purav Marg, Deonar, Mumbai 400088

E-mail –

Contact no –

Annexure II. b: Informed Consent Form for Group Discussion

Project Title: Evaluation Study of Community Action for Nutrition Project implemented by SATHI

I_____ have read the participant information sheet for the above-mentioned project.

The information contained in the participant information sheet regarding the nature and purpose of the study, safety, and its potential risks / benefits and expected duration of the study and other relevant details of the study including my role as a study participant have been explained to me in the language that I understand. I have had the opportunity to ask queries, which have been clarified to my satisfaction. I understand that my participation in this group discussion is voluntary and that I have the right to withdraw from the study at any stage without giving any reasons for the same. I understand that there will be an audio recording of the discussion.

I understand that the information collected during the research study will be kept confidential. The representatives of sponsoring agencies, government regulatory authorities, ethics committee may wish to examine my records/study related information at the study site to verify the information collected. By signing this document, I give permission to these individuals to access my records.

I hereby give my consent willingly to participate in this research study.

For Limited or non-readers: I have witnessed the consent procedure of the study participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Name of the consenting person/Guardian Witness

Name of the Person administering the consent

Note: All parties signing the consent section must date their own signature.

PI of the project
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Annexure II. c: Informed Consent Form for In-Depth Interviews

Project Title: Evaluation Study of Community Action for Nutrition Project implemented by SATHI

I_____ have read the participant information sheet for the above-mentioned project. The information contained in the participant information sheet regarding the nature and purpose of the study, safety, and its potential risks / benefits and expected duration of the study and other relevant details of the study including my role as a study participant have been explained to me in the language that I understand. I have had the opportunity to ask queries, which have been clarified to my satisfaction. I understand that my participation in this in-depth interview is voluntary and that I have the right to withdraw from the study at any stage without giving any reasons for the same. I understand that an audio recording of my interview will be done.

I understand that the information collected during the research study will be kept confidential. The representatives of sponsoring agencies, government regulatory authorities, ethics committee may wish to examine my records/study related information at the study site to verify the information collected. By signing this document, I give permission to these individuals to access my records.

I hereby give my consent willingly to participate in this research study.

For Limited or non-readers: I have witnessed the consent procedure of the study participant and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Name of the consenting person/Guardian Witness

Name of the Person administering the consent
Note: All parties signing the consent section must date their own signature.

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