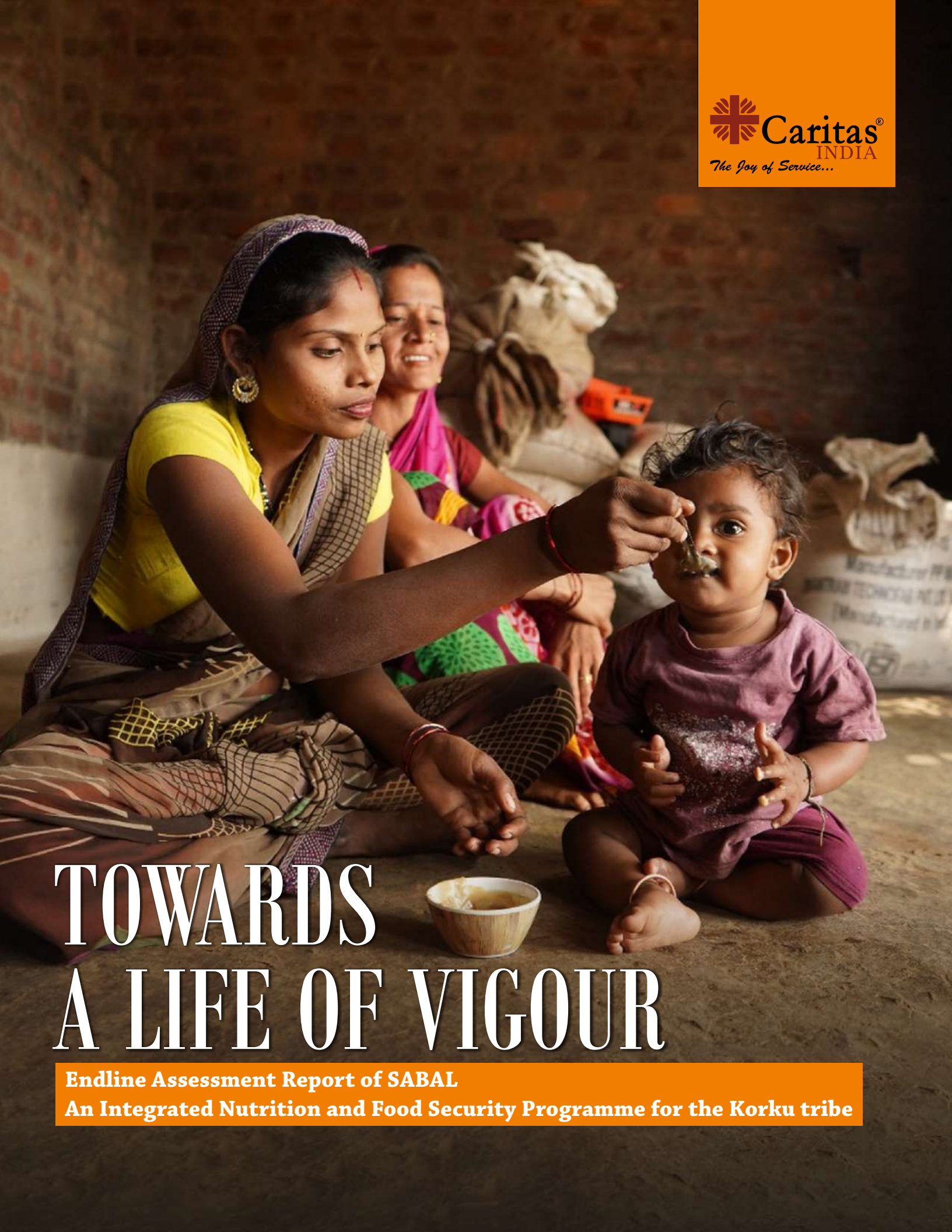

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TOWARDS A LIFE OF VIGOUR

Endline Assessment Report of SABAL
An Integrated Nutrition and Food Security Programme for the Korku tribe

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Endline Assessment Report of
SABAL – An Integrated Nutrition and Food Security
Programme for the Korku tribe

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TOWARDS A LIFE OF VIGOUR

Endline Assessment Report of SABAL
An Integrated Nutrition and Food Security Programme for the Korku tribe

Caritas India
New Delhi, 2022

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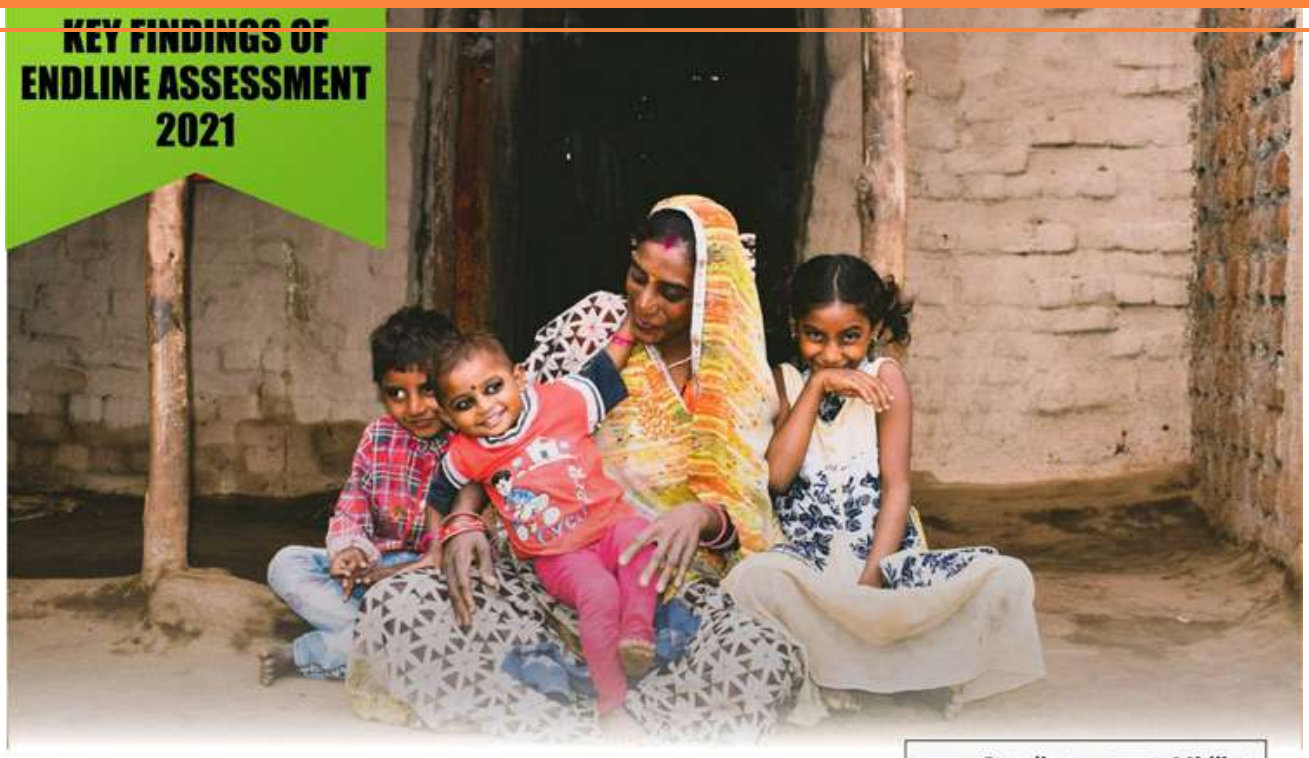
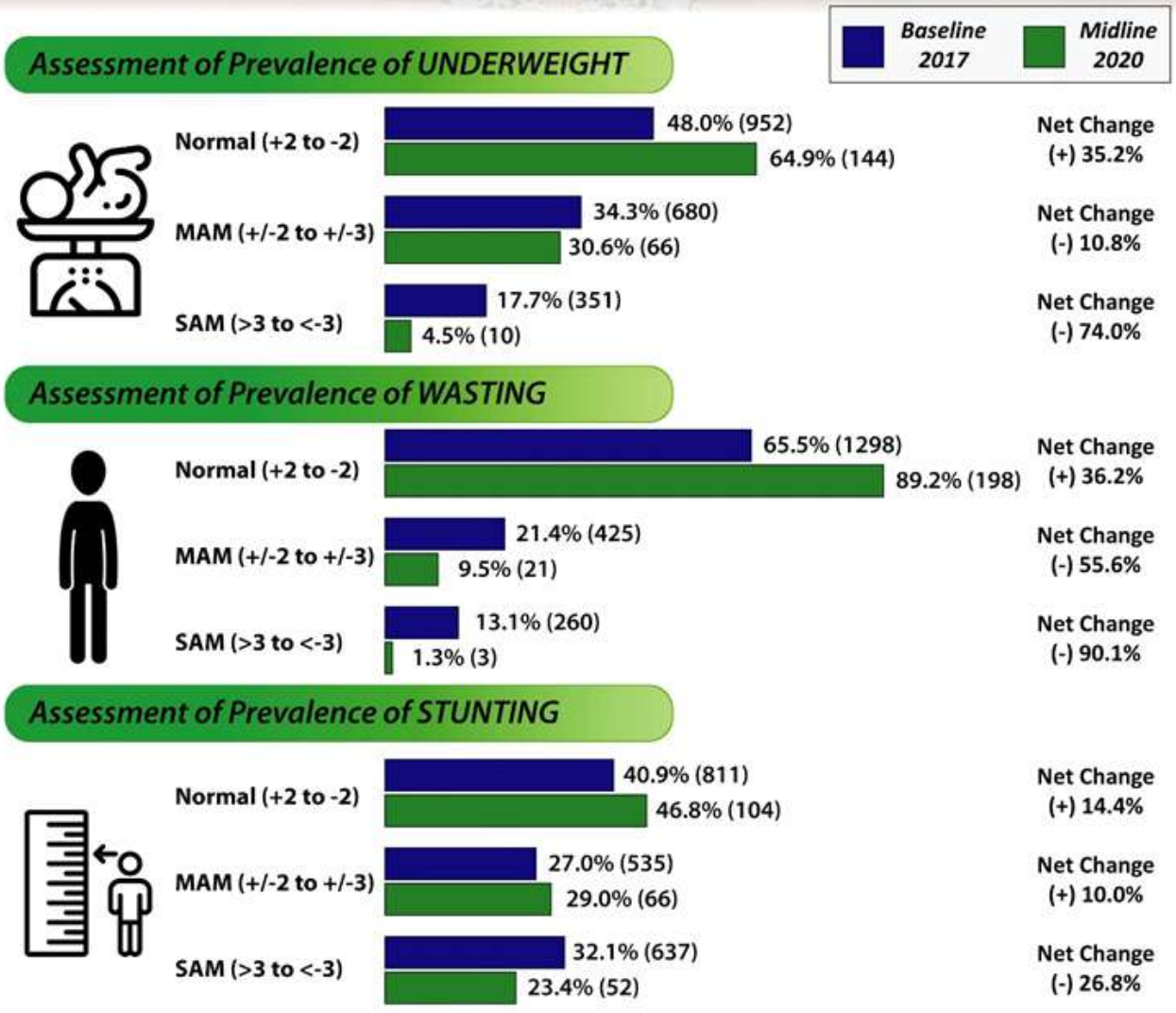
KEY FINDINGS OF ENDLINE ASSESSMENT 2021





FOREWORD

Investment in nutrition and health has critical importance to the future of our families, communities and our nation. Today's children are the sculptors of our future who will determine how beautiful and how prosperous our tomorrows will be. Hence, providing our children with opportunities to grow healthily and to fully develop their capabilities is the inescapable responsibility of every society.

Caritas India is committed to protecting the rights of children and to help them gain access to everything – food, nutrition, education, recreation, skill and good health – that will help them grow as responsible and capable citizens. This mission of Caritas India, further stimulated by the call of Pope Francis 'to be attentive to children', has become even more relevant in the wake of the massive economic reverses that the pandemic slammed on the country's poor.

Towards A Life Of Vigour is a firm and clear expression of Caritas India's commitment to fighting the scourge of malnutrition with community-based solutions. I am excited to release this small but significant research which testifies the nutrition recovery that SABAL has accomplished in partnership with local Korku communities in the last five years in Madhya Pradesh and Maharashtra. SABAL from 2017 has been helping the Korku community to grow more food, increase and diversify food crops, reduce input costs of farming, adopt right feeding practices, increase communities' access to food and nutrition entitlements and free themselves from superstitions. We have strengthened the conviction of communities that the spectre of malnutrition could indeed be vanquished.

Caritas India, in partnership with local implementing organisations and government health and nutrition machinery, succeeded in reducing malnutrition (Underweight) by 32.5% in the year 2021 as compared to the Underweight prevalence rate in 2017. Similarly, the prevalence rate of Wasting was brought down by a significant 31.3% as compared to the Wasting rate in 2017.

I thank BMZ, the Federal Ministry of Economic Cooperation and Development of Germany, and Caritas Germany for standing by our side in our crusade against chronic hunger of Korku community. In a very special way, I gratefully remember the invaluable support and encouragement that Caritas India received from Ms. Julia Gietmann, Mr. Peter Seidel and Ms. Martina Appuhn of Caritas Germany. I also thank the five partner organisations JVS Amravati, KDSS Khandwa, DH Amravati, SSSS Khandwa and MSWS Amaravati for striving hard to accomplish creditable success in providing food and nutrition security cover to Korku community.

Fr. (Dr.) Paul Moonjely
Executive Director, Caritas India

MESSAGE

Malnutrition of children is a blemish on humanity that threatens the life of thousands of children, especially in the tribal dominated regions of the country. It is an alarming contradiction that millions of children are in the clutch of malnutrition when science and medicine have made incredible advancements and the country's food production has increased manifold. Malnutrition therefore is a malady that defiantly persists amidst sufficiency, if not plentifulness, of resources and solutions. One of the most worrying aspects of malnutrition is that it repeatedly grips some communities that have historically been victims of chronic hunger.

Caritas India supported project SABAL is an exceptional story of the success of Korku communities in fighting the menace of malnutrition with community-owned solutions. SABAL offered a spectrum of solutions to the triggering factors of the endemic malnutrition of Korku community. One of the first measures that SABAL had done was to increase household level food production with a slew of measures including popularisation of vegetable farming, bringing about a preference change towards food crops from cash crops and increasing cultivable area of food crops. SABAL also brought about a positive behaviour change among traditional healers and priests who are now skilled in scientifically identifying the degrees of malnutrition. Instead of resorting to superstitious practices, these traditional priests and healers now work as community catalysts who educate communities on malnutrition, its causes and scientific remedies.

Statistics on the malnutrition reduction among Korku community is indeed gratifying and encouraging. When SABAL was launched in 2017, prevalence of Severe Acute Malnutrition (SAM) among children below 5 years, in terms of Underweight, was 17.7%. SABAL managed to bring it down to 4.5% in 2021 which is a 74.0% reduction. Similarly, Severe Acute Malnutrition (SAM) in terms of Wasting, was 13.1% which was reduced to 1.3% which is a healthy 90.1% reduction. Behind these sparkling numbers of success, lie thousands of stories of recovery of malnourished children who were diagnosed and treated at the right time.

This impressive story of resilience and recovery would not have been possible without the cooperation and support of BMZ, the Federal Ministry of Economic Cooperation and Development of Germany. I also express gratitude to Caritas Germany especially Ms. Julia Gietmann, Mr. Peter Seidel and Ms. Martina Appuhn who have been very dependable allies of Caritas India. I also thank the the five implementing partners of SABAL for helping Korku communities to wriggle out of the tentacles of malnutrition. I also salute the resilience and persistence of Korku households who so courageously waged this campaign against hunger and malnutrition.

Fr. (Dr.) Jolly Puthenpura
Asst. Executive Director, Caritas India

ACKNOWLEDGEMENT

SABAL, in the last four years, with its diverse nutrition and agriculture solutions has helped Korkus stage a remarkable recovery from chronic hunger and malnutrition. The impact was evidently visible on the indicator of children's nutrition and health status, which is elaborated at length in this report. Caritas India and her partners express gratitude to the Federal Ministry for Economic Cooperation and Development (BMZ), Germany for financially supporting SABAL and thus contributing heavily to creating better and safer tomorrows for Korku children.

Caritas India and her partners express gratitude to Caritas Germany team for providing continuous technical and financial support to SABAL. Ms. Julia Gietmann, Mr. Peter Seidel and Ms. Martina Appuhn of Caritas Germany have played in improving the effectiveness of SABAL with their technical support and constant encouragement.

SABAL management team acknowledges the steadfast support, guidance and encouragement received from Fr. (Dr.) Paul Moonjely, Executive Director, Caritas India and Fr. (Dr.) Jolly Puthenpura, Assistant Executive Director of Caritas India.

Caritas India acknowledges the inspiring dedication and tireless efforts of the five implementing partners i.e., JVS Amravati, KDSS Khandwa, DH Amravati, SSSS Khandwa and MSWS Amaravati to the cause of helping Korku community out of the clutches of hunger and malnutrition. All five project teams had braved numerous challenges, even traversing treacherous terrains on a regular basis, to reach out to the remotest villages for helping communities on agriculture, food and nutrition. They accepted the challenge of working in a tough geography as their mission and embraced the Korkus as their brethren.

This success narrative, which is emphatic considering the context in which it was accomplished, would not have been possible without the cooperation of Korku community. We are so moved by the enthusiasm and the openness of Korku community. One of the most valuable learnings of SABAL was the courage and openness of the Korku community to critically reflect on the reality of malnutrition and identifying the underlying, often invisible, social and cultural factors of malnutrition. The participation of Korku community, especially of women and adolescents, in the field level processes of the project were amazing and inspiring.

SABAL Management Team

CHAPTER 1
CONTEXT

Korku community, a Scheduled Tribe (ST) that inhabits the Satpura mountain range that runs along the border of Madhya Pradesh and Maharashtra, continues to live in socio-economic and political backwardness. Khalwa block of Khandwa district in Madhya Pradesh and the Melghat region of Maharashtra have high concentration of Korku community, an originally hunting and gathering community that has now settled down as cultivators. Caritas India with the support of Caritas Germany and BMZ, implements SABAL in 141 villages of Khandwa and Amravati districts as a response to the grave malnutrition among Korkus. National Family Health Survey-4 (NHFS-2015-16) had reported that 49.9% of Under 5 years of age (U5) children of Khandwa district were Underweight (weight for age), 23.2% are Wasted (weight for height) while 46.8% are Stunted (height for age). The district also had very high levels of anaemia with 59.2% non-pregnant women and 65.8% pregnant women suffering from anaemia (NFHS-4).

SABAL was launched in December 2016 to work with Korku community of 60 villages of Khalwa block of Khandwa district, Madhya Pradesh and 81 villages of Chikaldhara block of Amravati District, Maharashtra. SABAL envisaged, as its main objective, "ensuring food

security and enhancing the nutrition status of the Korku Communities in the Indian States of Madhya Pradesh and Maharashtra". SABAL helps Korkus achieve food and nutrition sufficiency by diversifying on-farm and off farm practices, use of locally available nutrition resources and strengthening public health and nutrition systems. The five implementing partners of SABAL are Khandwa Diocesan Social Services (KDSS) Khandwa, Spandan Samaj Seva Samit (SSSS) Khandwa, Dayasagar Hospital (DH) Amravati, Jeevan Vikas Sansthan (JVS) Amravati and Matruschaya Social Welfare Society (MSWS) Amravati.
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1.1. Goal and Objectives

SABAL project strategy focuses reducing nutritional vulnerabilities of Korku community by diversifying indigenous food and agriculture systems and by addressing micro-level gaps of service delivery. This way SABAL is a multi-sectoral intervention with thrust areas of agriculture, behaviour change and good governance leading to improved service delivery and engagement with duty bearers. The four-fold objective of SABAL are;

- Enhancing food and nutrition security of 8000 Korku households in the Khalwa block of Khandwa District (Madhya Pradesh) and in Amravati district (Maharashtra) with diversification in food production and intake.
- 6000 Korku households have achieved protein self-sufficiency.
- Korku communities, especially women and children, will have access to benefits of institutional health and nutrition services and schemes.
- Nutrition care and support institutions as well as local governance systems are made more responsive and accountable with the initiatives of Korku collectives.

1.2. Target Population

Widespread malnutrition of Korku community is not just a food or health issue but an outcome of several systemic factors. A comprehensive approach, involving every section of the community was necessary for addressing the hunger and malnutrition which had assumed chronic nature in the Korku belt. For achieving sustainable results, SABAL worked with all stakeholders especially, mothers having children under the age group of 0-5 years, farmers, adolescent girls, community opinion makers or traditional priests and healers and community level health and nutrition workers of the government.

CHAPTER 2
OBJECTIVE AND METHODOLOGY OF ASSESSMENT

2.1. Rationale for Endline Assessment

Improving the nutritional status of the children under five years is one of the primary outcomes of the SABAL project. A baseline study was conducted on the nutrition status of children (0-5 Years) in the third quarter of 2017 to understand the nutritional status of children. The nutrition profiling, conducted as the baseline survey, helped project team to benchmark nutritional status of children. The endline assessment conducted in 2020 was for measuring the progress against the baseline value. More specifically, endline survey helped SABAL to identify the impacts of food, nutrition, behaviour change and agriculture strengthening initiatives of SABAL.

2.2. Endline Assessment Methodology

The endline assessment, the third one conducted in four years, is a longitudinal study completed in December 2021 on nutrition outcomes of children under 5 years. The study was based on a similar study that was conducted in 2017 covering 1983 U5 children. The nutrition profiling was conducted in 2017 to study the extent of malnutrition among children and to define the point of departure of SABAL.

Baseline Survey – 2017

A three-factor assessment covering (i) age, (ii) weight and (iii) height/length was conducted by trained enumerators with door-to-door survey in July-August 2017 in 30 villages of Khandwa district where SABAL programme was implemented. Village-wise lists of all children below-five years were generated based on the database maintained by local Anganwadis. Subsequently door-to-door visits were conducted to take the measurements of children below 5 years.

A total of 1983 children[1] were profiled during the census survey using a tailor's tape for measuring height/length and salter machine/weighing scale for measuring the weight. All children below five years who were available at the time of study in the villages were covered by the survey. The date of birth, weight, height/length were then entered in Anthro software[2] for generating the Z-score[3]. Based on the Z-score for Weight for Age

[1] There were 4821 children below 5 years registered with Anganwadis at the time of the profiling in 2017; of these 2838 were not available at the time of the assessment due to migration, short-distance travel or other factors.
[2] Anthro software developed by WHO for the application of the WHO Child Growth Standards in monitoring growth and motor development in individuals and populations.
[3] A Z-score is a numerical measurement of a value's relationship to the mean (average) of a group of values, measured in terms of standard deviations from the mean.

(Underweight) the profiled children were categorized into three categories of Normal, 'Moderately Acute Malnourished' and 'Severe Acute Malnourished'. The Underweight categorization based on the nutrition assessment done in 2017 is given below:

Underweight /WAZ (Weight for Age Z-Score) Indicators	Severity level (Visually Distinguishing)	Children Profiled in 2017
	Normal (+2 to -2)	**952**
	Moderately Acute Malnourished (+2 to +3 or -2 to -3)	**680**
	Severe Acute Malnourished (>3 or <-3)	**351**
	Total	**1983**

Endline Survey – 2021

The three-factor assessment for assessing the nutrition status of children which was conducted in 2017 was repeated in October 2021 using random sampling method. The universe of the study consisted of all children whose nutrition status was profiled in 2017 and who were still below 5 years of age as on 30 September 2021. Hence, 1609 children who were above 5 years as on 30 September 2021 were excluded from the study. Out of the remaining 374 children, who were still within the 'below-5-year' bracket, 190 children were selected using the Random function of MS Excel while conforming to the reliability expectation of 95% confidence level and 5% confidence interval. Another 57 more children or 30% of the sampling population were included in view of probability of children who may not be traceable due to migration, no-response and other factors. Random function of MS Excel was used for selecting all samples from the pre-entered database of 374 children who were below 5 years. Random selection of children was done from the group of 374 children even though they belonged to Normal, MAM and SAM categories in 2017.

Sampling Grid				
Under-5 Children Profiled in 2017	Children profiled in 2017 and are under 5 years as on 30 September 2021	Selected Sample (Confidence Level 95% and Confidence Interval 5%)	Contingency (30%)	Total
1983	**374**	**190**	**57**	**247**

All 374 children who were below 5 years of age as on 30 September 2021 were taken as the universe of study, without any categorization of 'Normal', Moderately Acute Malnourished' and 'Severely Acute Malnourished'. The below-given table shows the categories to which the randomly selected 374 children had belonged to in the nutrition profiling that was conducted in 2017.

[4] Indicates conditions related to nutritional deficiency with Z-score ranging from -3 to -2 and +2 to +3.
[5] Indicates life threatening condition below Z-score of -3 or above +3.

Sampling Grid				
Underweight/ WAZ (Weight for Age	Severity level (Visually Distinguishing)	Children Profiled in 2017	Total <5 Years Children (2021)	U5-children Selected for Assessment in 2021
	Normal	952	216	146
	Moderately Acute Malnourished	680	110	64
	Severe Acute Malnourished	351	48	37
	Total	1983	374	247

2.3. Data Collection: Tools and Processes

Nutrition profiling of children, during baseline and endline surveys, was conducted by an 8-member field team that was trained in collecting accurately measurement data of children under 5 years and the data was collected on smartphones using KoBoCollect form that was developed based on the anthropometric calculation used by WHO. All personnel had attended trainings, both at the time of the baseline and at the time of endline, on data collection and data entry. A two-tier verification and validation system was put in place to ensure accuracy of data. The data of sample population was collected by surveyors and fed into KoBoCollect App. The project coordinator was responsible for the first round of data verification. The entered data was verified again by the programme manager before the database was finalized. The list generated by KoBoCollect App was then transferred to MS Excel for generating various tables for analysis. The study also used count functions, percentage techniques using pivot table and other appropriate excel functions for the quantitative analysis.

2.4. Analysis

Data collected on the nutrition status of children was subjected to a round of internal validation for avoiding wrong entries. Data analysis was completed centrally by a Caritas India team which also conducted another round of reliability check by verifying selected samples.

2.5. Limitations of The Study

Despite taking an additional 30% or 57 samples as contingency provision to account for the children who might not be traceable during the endline, 25 children out of the total 247 randomly selected samples could not be contacted. Only 222 children, who are below five years were contacted during the endline survey. Out of 25 children who could not be contacted, 23 children had moved out of village with their parents who migrated for work and 3 children were at relatives' families away from their native villages. Significantly, none of the identified children had died.

All 1983 children who were measured during the baseline in August 2017 were below-five-years old. The endline considered the list of these 1983 children and the children below five years were considered as the universe. The data of children who were above five years at the time of endline but were less than five years at the time of baseline were not considered. This is because the WHO malnutrition measurement standards and calculations are designed for assessing the growth parameters of children below five years.

CHAPTER 3
FINDINGS OF ENDLINE ASSESSMENT

3.1. Assessment of Prevalence of UNDERWEIGHT

The longitudinal study conducted of the children who were profiled in three severity levels of Underweight category in 2017 and then in 2020 as midline study and finally as endline study in 2021 shows considerable recovery from SAM and MAM categories to normal category. The assessment recorded the nutritional status of 222 out of 247 children traced during the assessment survey.

Change in Underweight (Weight for Age) Prevalence of Children Below 5 Years					
Status	**Baseline (2017)**	**Midline (2020)**	**Endline (2021)**	**Variance (Baseline to Endline)**	**Net Change (Baseline to Endline)**
Normal (+2 to -2)	48.0% (952)	63.2% (170)	64.9% (144)	(+)16.9 %	(+)35.2%
MAM (+/-2 to +/-3)	34.3% (680)	30.1% (81)	30.6% (66)	(-)3.7%	(-)10.8%
SAM (>3 or <-3)	17.7% (351)	6.7% (18)	4.5% (10)	(-)13.2%	(-)74.0%
Total	**100% (1983)**	**100 % (269)**	**100% (222)**	**-**	**-**

The endline survey revealed a significant 74.0% reduction in the severe malnutrition cases. The recovered children either moved to the normal or moderate categories. Percentage of normal children increased significantly to 64.9% as compared to 48.0% children in normal category in 2017. The most impressive change recorded is the reduction in SAM children which came down from 17.7% in 2017 to 4.5% in 2021. The prevalence rate of moderate malnutrition among children also recorded 10.8% reduction over the prevalence rate recorded in 2017.

If the total malnourished children including MAM and SAM are taken together, the positive change in terms of recovery of nutrition status has been significant. Percentage of malnutrition (Underweight) including MAM and SAM in 2017 was 52.0% which came down to 35.1% which is a 32.5% reduction as compared to the malnutrition rate in 2017.

Inter-category shift of Underweight Children (<5 Years)

Longitudinal studies reveal that nutritional status of the children can possibly move within the three parameters of Normal, MAM and SAM especially in those areas where food and nutrition availability is not constant. There are possibilities that children who are in Normal

category may slip to either MAM or SAM category and vice-versa. This is particularly true in the case of Korku families which have seasonally fluctuating degrees of food and nutrition security. The below-given table shows the inter-category movement of children in the last four years;

Categories	Sample Selected from Baseline-2017	Endline Survey - 2021		
		Normal (+2 to -2)	MAM (+/-2 to +/-3)	SAM (>3 or <-3)
Normal (+2 to -2)	59.5% (132)	69.7% (92)	27.7% (36)	3.1% (4)
MAM (+/-2 to +/-3)	26.1% (58)	30.1% (81)	32.7% (19)	5.1% (3)
SAM (>3 or <-3)	14.4% (32)	50.0% (16)	40.6% (13)	9.4% (3)
Total	**100% (222)**	**64.9% (144)**	**30.6% (68)**	**4.5% (10)**

Of the 222 children assessed in the study of 2021, 132 children were in the Normal category in 2017. While conducting the case-to-case tracing of the children nutritional status, the 2021 endline study revealed that 36 children (27.7%) who were in Normal category in 2017 had slipped to MAM and 4 (3.1%) had become SAM while 92 children (69.7%) continued to be in the Normal category. At the time of baseline in 2017, there were 58 children in MAM bracket. Of these, 36 (62.2%) became normal while 3 children (5.1%) slipped into SAM category. Whereas 19 children (32.7%) continued to be in MAM category. The most striking change had happened in the SAM category with 50% of children (16) who were SAM in 2017 found to have recovered to Normal range during the endline study in 2021. Of the 32 children who were SAM in 2017, 13 children (40.6%) had moved to MAM while only 3 (9.4%) continued to remain in SAM category.

Migrant worker couple Shyamlal and Pramila had to frequently migrate for work leaving their six-months-old child Riya with her grandparents. SABAL team, during a home visit, found Riya in critically ill condition and counselled her grand-parents to admit her in the Nutrition Re-habilitation Centre (NRC). Her life was saved and she became healthy after 14-day stay in NRC. SABAL team continued to monitor her health recovery and linked her with the local Anganwadi from where she started getting regular supply of nutrition supplements, especially Take-Home Ration (THR). SABAL team also helped the family to start a nutrition garden which supplies vegetables to the family. The timely intervention of SABAL saved the life of Riya.

3.2. Assessment of Prevalence of WASTING

Wasting also known as acute malnutrition is one of the three forms of malnutrition associated with low weight for height. It is the most immediate, visible and life-threatening form of malnutrition. Though there are three types of malnutrition (Underweight, Wasting and Stunting), grassroots public health centres including Anganwadis monitor wasting because it is the most reliable assessment of the condition of malnutrition.

Changes in WASTING (Weight for Height) of Children Below 5 Years					
Status	**Baseline (2017)**	**Midline (2020)**	**Endline (2021)**	**Variance (Baseline to Endline)**	**Net Change (Baseline to Endline)**
Normal (+2 to -2)	65.5% (1298)	80.7% (217)	89.2% (198)	(+)23.7%	(+)36.2%
MAM (+/-2 to +/-3)	21.4% (425)	13.0% (35)	9.5% (21)	(-)11.9%	(-)55.6%
SAM (>3 or <-3)	13.1% (260)	6.3% (17)	1.3% (3)	(-)11.8%	(-)90.1%
Total	**100% (1983)**	**100 % (269)**	**100% (222)**	**-**	**-**

Prevalence of wasting, as presented in table above, recorded a significant reduction of 90.1% in the SAM and 55.6% reduction in the MAM category. Correspondingly there was an increase of 36.2% in the number of children who are in the Normal category. In 2017 the percentage of children in Normal category was 65.5 whereas the percentage increased considerably to 89.2 which is a 36.2% gain over the prevalence rate in 2017. In both MAM and SAM categories, there has been significant reduction thereby impacting a positive change in the percentage of children who are in the normal range of nutrition.

Malnutrition percentage, in terms of Wasting, upon taking together MAM and SAM was 34.5% in 2017. The came down to 10.8% which is a 31.3% reduction as compared to the malnutrition rate in 2017. This change becomes ever more significant considering the steep reduction that was recorded in the SAM category which saw the rate dipping by 90.1% from 13.1% to 1.3%.

Inter-category shift of Children in WASTING category

Categories	**Sample Selected from Baseline-2017**	**Endline Survey - 2021**		
		Normal (+2 to -2)	**MAM (+/-2 to +/-3)**	**SAM (>3 or <-3)**
Normal (+2 to -2)	46.4% (103)	90.3% (93)	8.7% (9)	1% (1)
MAM (+/-2 to +/-3)	21.6% (48)	87.5% (42)	10.4% (5)	2.1% (1)
SAM (>3 or <-3)	32.0% (71)	88.7% (63)	9.9% (7)	1.4% (1)
Total	**100% (222)**	**89.2% (198)**	**9.5% (21)**	**1.4% (3)**

The above table shows that in baseline, 103 children were profiled to fall under Normal category. During the endline study, 9 (8.7%) children slipped to MAM and only 1 (1%) to SAM category while 93 (90.3%) children remained to Normal category. A major positive shift can be observed in both SAM and MAM categories where 63 (88.7%) out of 71 children retained their health and vigour who were reported as severely wasted and 42 (87.5%) out of 48 moderately wasted children moved to Normal category. The slipping down to severely wasted (SAM) category in all the three severity levels is recorded to marginal ranging from 1 to 2.1%.

During one family visit SABAL team found the 5-months-old Shivam suffering from life-threatening malnutrition. SABAL team persuaded his mother Anita to immediately admit her son in Nutrition Rehabilitation Centre (NRC). Shivam recovered after his 14-day stay in NRC. From SABAL team Anita learned healthy feeding and hygiene practices and more importantly, preparing Sattu a local nutrition mix. With SABAL help Anita also started a nutrition garden in the family homestead which continues to provide fresh vegetables to her family of five including the three children all of whom are now healthy. She regularly feeds her children with Sattu which she prepares at home and fresh vegetables which she collects from her nutrition garden. Anita is now an active member of the mothers' group which meets regularly to discuss health and nutrition of children, vegetable growing, sanitation and hygiene etc.

3.3. Assessment of Prevalence of STUNTING

Stunting, a feature associated with the increased mortality of children, is one of the three forms of malnutrition characterized by impaired growth or a condition where children have a low height for their age. It is the result of chronic or recurrent undernutrition and if left unaddressed can be irreversible and lead to long term developmental risks. Stunted growth refers to the failure to reach one's full potential for growth and may become a permanent impairment for the child. The definition of stunting according to the World Health Organization (WHO) is for the 'height for age' value to be less than two standard deviations of the WHO Child Growth Standards median. Once established, stunting and its effects typically become permanent. Children may never regain the height lost if they suffer from stunting and most stunted children will never gain the corresponding body weight. The endline study contacted and collected growth parameters from 222 children who were assessed in 2017 as part of the baseline. The result of the endline survey on Stunting is given below;

Change in Underweight (Weight for Age) Prevalence of Children Below 5 Years					
Status	**Baseline (2017)**	**Midline (2020)**	**Endline (2021)**	**Variance (Baseline to Endline)**	**Net Change (Baseline to Endline)**
Normal (+2 to -2)	40.9% (811)	48.7% (131)	46.8% (104)	(+)5.9%	(+)14.4%
MAM (+/-2 to +/-3)	27.0% (535)	30.1% (81)	29.7% (66)	(+)2.7%	(+)10.0%
SAM (>3 or <-3)	32.1 % (637)	27.5% (74)	23.4% (52)	(-)8.6%	(-)26.8%
Total	**100% (1983)**	**100 % (269)**	**100% (222)**	**-**	**-**

The table above shows the prevalence of stunting and the recovery status during the course of 5 years project intervention. The baseline shows high rate of stunted children with a record of 32.1% children severely stunted (SAM) and 27.0% children moderately stunted (MAM). The recovery rate shows a significant 26.8% reduction in SAM category even though it is much lesser compared to the recovery rate recorded under other two forms of malnutrition proving that stunting can lead to permanent impairment if to addressed at the early childhood stage.

In 2017, the percentage of malnourished children, including SAM and MAM was 59.1 which had reduced marginally to 53.1 which is a 10.2% reduction in the stunting rate. The difference in stunting rate is much lesser than the recovery that was seen in Underweight and Wasting categories because of the permanent impact of stunting which is very difficult to reverse. Unlike the conditions of Underweight and Wasting, which are relatively easier to reverse, Stunting may prove to be a permanent loss in many cases. Recovery or reversal of malnutrition status has been encouragingly high in the cases of Underweight and Wasting categories. However, this trend of recovery in these two categories of malnutrition has not had a significant impact on the Stunting rates. Though there was a very high percentage of Stunted children (32.1%) in SAM category in 2017, recovery in terms of number and percentage was low largely due to the nearly perennial loss. The recovery rate in the SAM category of Stunting is just 26.8% which is much less as compared to the recovery rates of Underweight and Wasting categories. This goes on to prove that Stunting can indeed be a permanent impairment. SABAL interventions, however, succeeded in reducing the intensity of Stunting which is evident from the small but significant reduction in the prevalence of MAM and SAM categories of Stunting.

Health of Jai, a four-year-old boy of a poor Korku family, had become so precarious that he had to be admitted in Nutrition Rehabilitation Centre (NRC). Jai was found to be suffering from Protein Energy Malnutrition (PEM). Though Jai recovered during his stay in NRC, he faced the dangerous prospect of a relapse. With the support of SABAL, Jai's mother Sarju Bai started a poultry unit which she kept expanding. She started regularly feeding Jai with egg and included chicken in the family diet. While she earned some income from the poultry unit, the poultry unit increased the protein availability for the family. Sarju Bai admits that there is visible improvement in family's health ever since she started the poultry unit with SABAL support. Sarju Bai also acknowledges that she learned a lot on health and nutrition after she joined the mothers group, which was started by SABAL. Sarju Bai's family also installed a handwash station near the kitchen. One of the first in her family to learn and demonstrate the proper way of handwash is Jai!

Inter-category shift of Stunted Children (<5 Years)

Categories	Sample Selected from Baseline-2017	Endline Survey - 2021		
		Normal (+2 to -2)	MAM (+/-2 to +/-3)	SAM (>3 or <-3)
Normal (+2 to -2)	58.1% (129)	48.1% (62)	26.4% (34)	25.6% (33)
MAM (+/-2 to +/-3)	22.1% (49)	53.2% (26)	30.6% (15)	16.3% (8)
SAM (>3 or <-3)	19.8% (44)	36.4% (16)	38.6% (17)	25.1% (11)
Total	**100% (222)**	**46.8% (104)**	**29.7% (66)**	**23.4% (52)**

3.4. Nutrition Recovery as per Anganwadi Data

Anganwadis, rural childcare centres widely present in SABAL intervention areas, are critical link between government and families when it comes to childcare, mother care, nutrition, adolescent health, etc. Anganwadis are part of Integrated Child Development Services (ICDS) programme which have been mandated to work on child hunger and malnutrition. A typical Anganwadi centre provides basic health care including nutrition education, vaccination, referrals, counselling, nutrition delivery along with the preschool activities. Anganwadi workers with the support from Accredited Social Health Activists (ASHA) –

both grassroots level government functionaries working on health and nutrition - continuously monitor the nutrition status of children. Anganwadis in Khandwa, where SABAL had conducted baseline, midline and endline surveys, have been maintaining monthly records of weight and height of children below 5 years to continuously monitor Wasting of children below five years. Anganwadi workers are responsible for monthly measurement of children below five years and recording of the growth parameters. The register, locally called as Vajan Register or Weight Register, is kept at Anganwadis and is available to the public.

Leela Bai had taken her three-year-old son Sadaram several times to local traditional healer, though vainly, for getting rid of his frequent illnesses. Not only his condition worsened but he grew paler and thinner. SABAL team identified the nutrition distress of Sadaram and linked the child with the services of local Anganwadi. Leela Bai was initiated into the mothers' group which SABAL had raised as a platform to discuss matters of health of mothers and children. From the mothers' group Leela Bai learned preparing Sattu a locally prepared protein mix that works wonders for children. With the help of SABAL she started a nutrition garden as well and planted a Moringa tree. The remarkable recovery of Sadaram further convinced Leela Bai about the virtues of the nutrition and health practices that SABAL has been popularising in the region. Leela Bai regularly feeds Sattu to her two children, includes Moringa leaves in the family diet and seeks nutrition support only from Anganwadi and not from the traditional healer.

There are 73 Anganwadi centres in the thirty villages where SABAL was implemented. Identification numbers were assigned to all 73 Anganwadis of intervention areas. By using

the random function of excel, 30% or 22 Anganwadis were finalised for data collection. Children's data, after it was collected from the randomly selected Anganwadis, was entered in KoBoCollect App for consolidation and analysis. The longitudinal study, based on the Anganwadi records, covered the children's nutrition data of children below five years for five years from 2017 to 2021. Below-given table shows the result of the study based on Anganwadi data on Wasting (Weight for Height);

Year	Total				Total(%)				Net Change			
	SAM	MAM	Normal	Total	SAM	MAM	Normal	Total	Year	SAM	MAM	Normal
Jul-17	54	155	1437	1646	3.3%	9.42%	87.3%	100%	Jul-17	0	0	0
Jul-18	42	139	1381	1562	2.7%	8.90%	88.4%	100%	Jul-18	-18.0%	-5.5%	1.3%
Jul-19	45	139	1436	1620	2.8%	8.58%	88.6%	100%	Jul-19	-15.3%	-8.9%	1.5%
Jul-20	30	116	1478	1624	1.8%	7.14%	91.0%	100%	Jul-20	-43.7%	-24.1%	4.2%
Jul-21	25	140	1400	1565	1.6%	8.95%	89.5%	100%	Jul-21	-51.3%	-5.0%	2.5%

The analysis of Anganwadi records show that there is a continuous improvement, barring 2020, in the wasting of children and the malnutrition prevalence also shows progressive reduction. For example, the SAM percentage was as high as 3.3% in 2017 which declined to 1.6% in 2021. The percentage of MAM children, which steadily declined for three years increased in the year 2021 ostensibly because of food and nutrition insecurity caused by the pandemic. The above-given analysis of the Anganwadi data corroborates the findings of SABAL baseline study but it does not reflect the high positive difference that was evident in the SABAL study.

Multiple reasons could be cited for the underrepresentation of the severity of malnutrition among children as per the Anganwadi records. The principal ones are inadequate skills of Anganwadi workers to progressively and accurately monitor the growth parameters and their tendency to suppress the malnutrition data. Growth monitoring of children is one of the many tasks of Anganwadi workers who are already heavily multitasked. Anganwadi workers are often found to be short of necessary skills and in some cases short of the accurate tools (like weighing machine and measuring tape) for recording the growth parameters. In the cases where Anganwadi workers have to manage with inaccurate equipment, they tend to approximate 'safely' often towards a higher side. There have also been cases where Anganwadi workers suppress the data related to malnutrition because of the fear that accurate reporting might indicate higher prevalence of malnutrition which in turn will attract a reprimand or even punitive action for the higher malnutrition prevalence.

Three years ago, Divyashu was in a rare critical condition of being Severe Acute Malnourished (SAM) in all three categories – Underweight, Wasting and Stunting. Upon finding his condition extremely grim, SABAL team helped Divyanshu's family to admit him in Nutrition Rehabilitation Centre (NRC). SABAL also helped his mother Gorabai to start healthy child feeding practices, start a nutrition garden in homestead and prepare Sattu, a local nutrition mix, for feeding Divyanshu. The family was also assisted to access health and nutrition support from government centres. With the improved and diversified diet and positive changes in feeding habits, Divyanshu recovered fully. Doctors in the NRC consider his recovery nothing short of a miracle. Divyanshu's family has started cultivating vegetables regularly and has diversified farming which has increased dietary diversity of the family.

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