An Assessment of the Beneficiary Perception of Satisfaction, and Health Benefits of the Community Kitchen Scheme in Palakkad District in Kerala.

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ABSTRACT:

The ‘Community Kitchen’ Scheme is a nutritional intervention programme initiated in 2013 by the Government of Kerala, to address the malnutrition issues of the tribal population of Attappady block, in Palakkad District. Eligible beneficiaries are given meals from the community kitchens set up in their respective hamlets. The current study aimed at assessing the beneficiary perception of satisfaction, and health benefits from the scheme. The study used mixed methods to get a more complete understanding of the scheme from the perspective of the beneficiaries. It was conducted in Attappady block of Palakkad District of Kerala, in 2017. The study included a quantitative survey of 343 beneficiaries, in-depth interviews of six beneficiaries, and collection of secondary information from the programme office. Out of the 343 approached, 289 beneficiaries agreed to be participate in the survey. Majority (79.24%) of the beneficiaries’ households were supported through irregular wage labour, and this suggests that the tribe members are still not in a position to ensure timely and proper nutrition of their children, expecting, and lactating mothers, and the elderly. The number of beneficiaries who reported interruption of services were 150, and the average duration of continuous interruption was 6.5 weeks. Many reasons ranging from delay in fund release to operational difficulties were cited for the interrupted function of the community kitchens. Majority of the participants (230) were satisfied with the meals provided by the kitchens. Suggestions for improvement included changes in the facility, and changes in the menu. The tribe members prefer their traditional Ragi, and Chama- based cuisine to the rice-based cuisine of the mainstream population. More than 50% of the beneficiaries reported feeling a change in their energy-levels after availing the services of the scheme. The official health data also shows improvement in the nutrition status of the community. The beneficiaries have witnessed the change brought by the scheme, and want the scheme to continue, and they feel that they may not be able to sustain the practice of proper and timely nutrition, without external support, at this point of time. The scheme was a well-placed intervention, and the high involvement of tribe members in its operations, and the mode of service delivery have boosted its acceptance by the beneficiaries. The scheme has helped to improve the nutritional status of the community to a great extent. Issues do exist which hinder its efficiency, which if taken care of could help further improve the performance of the programme.

DEDICATION

I dedicate this capstone to my Pithasree, Amma, and Kathu, who are my sturdiest pillars of support.

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LIST OF ABBREVIATIONS:

ACT-PVTG- Attappady Comprehensive Tribal and Particularly Vulnerable Tribal Group

AHADS- Attappady Hills Area Development Society

APO- Assistant Programme Officer

BPL-AAY- Below Poverty Line- Antyodaya Anna Yojana

CDPO- Child Development Project Officer

CDPO- Child Development Project Officer

COO- Chief Operating Officer

CRP- Community Resource Person

DALY- Disability Adjusted Life Year

GDP- Gross Domestic Product

ICDs- Integrated Child Development Services

KILA- Kerala Institute of Local Administration

MAM- Moderate Acute Malnutrition

MKSP- Mahila Kisan Sashaktikaran Pariyojana

MUAC- Mid Upper Arm Circumference

NEFT- National Electronic Funds Transfer

NFHS- National Family Health Survey

NHG- Neighbourhood Group

NRLM- National Rural Livelihoods Mission

PEM- Protein-Energy Malnutrition

SAM- Severe Acute Malnutrition

SD- Standard Deviation

ST- Scheduled Tribe

SUPPLYCO- Kerala State Civil Supplies Corporation Limited

WHO- World Health Organization

INTRODUCTION:

Malnutrition is one of the most persistent health issues globally. Malnutrition, in its both forms- undernutrition and overnutrition- are affecting the health, and productivity of the population. The former is predominant in the lowest socio-economic[1] groups, while the latter predominate in the middle, and upper wealth quintiles of the nation. The World Bank reported[2] that individuals earn 10 percent less over a lifetime and the world economy misses 2-3 percent of its Gross Domestic Product (GDP) due to malnutrition annually.

A number of interventions have been implemented worldwide to address the issue. Community-based approach in the nutritional interventions[3,4,5] have been adopted in many areas, although these vary in scope, and pattern of the target community involvement. Although, the short, and medium-term objectives of such interventions were mostly achieved, the long-term sustainability[6,7,8] of the outcomes were questionable, and depended heavily on the knowledge, attitude and behaviour of the community; and community's ability to continue the required nutritional practices. The role of the target community, as a stakeholder[6,9] was somewhat understated in many of these interventions, and as such, comprehensive approaches involving strong community participation have been a rarity in the world of nutritional interventions. The success of any nutritional intervention[6,7,8,9] depends upon the availability of services, the accessibility of the services, and the utilization of these services by the target community at adequate levels. The perception of the necessity, adequacy, and benefits of these interventions, by the community is essential for the achievement and sustainability of their intended outcomes. Following, is an assessment of a targeted nutritional intervention, from the beneficiary perspective. Administrative, and Official health data have been utilized for a better understanding, and a more objective view of the beneficiary perceptions.

Kerala, the state lauded to be having the best critical health indices in the country, has also been facing the issues of malnutrition[10]. The situation is worse for the state's tribal population. In 2013, the undernutrition issues in Attappady block[11] of Palakkad district in Kerala garnered attention of the public, the media, and the government highlighting the tribal infant deaths attributed to undernutrition in the district. There were 58 malnutrition related[10,11] deaths in the block in 2013. The authorities, realizing the seriousness of the issue, strengthened their efforts to improve the nutrition status of the tribal population, and the efforts were channelized through a new scheme- called the 'Community Kitchen' scheme[10,11] or 'Annapradayini' (translates as "the lady/Goddess who provides food")- launched in

September 2013. Four years after the initiation of the scheme, an effort is being made to analyse the efficiency and effectiveness of the scheme from the perspective of the beneficiaries of the scheme.

STUDY OBJECTIVES:

1. To investigate the satisfaction, of the beneficiaries of 'Community Kitchen' Scheme in Palakkad district in Kerala.

2. To assess the perceived health benefits of the beneficiaries of 'Community Kitchen' Scheme in Palakkad district in Kerala.

BACKGROUND:

Malnutrition

Nutrients are those substances that are not synthesized in adequate amounts in the body, and need to be supplemented through their intake from outside[12], through diet. The essential nutrients include those which provide energy-Carbohydrates, fats, Proteins (more involved in growth and development from the cellular level)-, micronutrients like vitamins, minerals, and electrolytes, and water. Proper nutrition/ intake of adequate amounts of nutrients is essential for the proper functioning of the organism, and there are recommended daily intake amounts of nutrients for individuals of different genders, age, and of different activity load. The WHO refers to malnutrition[13,14] as the deficiencies, excesses, or imbalances in the intake of energy, and/or nutrients. Malnutrition can be deficient intake of the nutrients- undernutrition-, or excess intake of nutrients- overnutrition. The latter is manifested as obesity, overweight, and further consequences like Non-Communicable diseases including cardiovascular and metabolic diseases, while the former manifests as stunting (low height for age), wasting (low weight for height), underweight (low weight for age), and micronutrient deficiencies. PEM or Protein- Energy Malnutrition[13,14] refers to the deficient intake of energy and protein.

For the rest of this document, the term 'malnutrition' is used for 'undernutrition'.

Malnutrition can be an acute condition- resulting in rapid loss of fat and muscle, and weight loss manifesting as low weight for age/height, or oedematous conditions[13,14] like 'kwashiorkor' or 'marasmic kwashiorkor'. Chronic protein and energy malnutrition occurs over time, and results in growth failure, and stunting. Acute Malnutrition can be moderate, or

severe. WHO defines Moderate Acute Malnutrition[14] (MAM), and Severe Acute Malnutrition (SAM), based on body measurements, and clinical signs (Table1).

Table A: Types of Malnutrition- WHO

Type of Malnutrition	**WHO/UNICEF Definition**
Moderate Acute Malnutrition	Weight-for-Height less than 2 Standard Deviations (S.D), but more than 3 S.D from the median, as per the WHO growth charts.
Severe Acute Malnutrition	Weight-for-Height less than 3 S.D from the median MUAC<11.5cm (Mid Upper Arm Circumference) Bilateral pitting oedema Marasmic-kwashiorkor (both wasting and oedema)

Source: WHO child growth standards[15] and the identification of severe acute malnutrition in infants and children A Joint Statement by the World Health Organization and the United Nations Children's Emergency Fund.2009.

The latest WHO reports state that around 462 million adults worldwide, are underweight, while 155 children under the age of 5 years are stunted and 52 million under-5 children are wasted. Also, 528 million women in the reproductive age group are anaemic, of which at least half could be attributable to nutritional deficiency anaemia[16]. It is estimated that nearly 20 million children under the age of five years suffer from SAM at any one point in time[17]. This suggests that there are potentially 40 million children suffering from SAM every year.

Undernutrition leads to many physiological, and pathological consequences like reduced immunity, increased susceptibility to disease, impaired physical and mental development- leading to poor school achievement, behavioural abnormalities, and reduced productivity in later life[18]. It is a major cause of child deaths, globally. Poor foetal growth or stunting in the first 2 years of life leads to irreversible damage- including shorter adult height, lower attained schooling, reduced adult income, and decreased off spring birthweight. Children who are undernourished in the first 2 years of life and then put on weight rapidly later in childhood and in adolescence are at elevated risk of chronic diseases related to nutrition like dyslipidaemia, hypertension etc. It was estimated in 2008 that maternal and

child undernutrition is the underlying cause of 3·5 million deaths, 35% of the disease burden in children under the age of 5 years and 11% of total global DALYs. The number of global deaths in children less than 5 years of age, attributed to stunting, severe wasting, and intrauterine growth restriction were estimated to be 2.2 million; 26% of the total DALYs for under-5 children were attributed to the same. Maternal short stature and iron deficiency anaemia increase the risk of death of the mother at delivery, and accounted for at least 20% of maternal mortality[19]. An estimated 0.5 million to 2 million children with SAM die each year[20].

Malnutrition in India:

Malnutrition and its consequences are highly prevalent in the South Asian region, including India, and has been a persistent public health problem. As per the National Family Health Survey[21] 4 data (2014-15), the prevalence of stunting (height for age) in under 5-year children is 38.4%, that of wasting (weight for height) is 21%, of which 7.5% are severely wasted. 35.7 of the under-5 children are underweight, and 58.4% are anaemic. 50.3 % of pregnant women are also anaemic in the country. There are many factors contributing to under-nutrition in the country including poverty, lack of knowledge or misconception of nutritious food and food habits, low food security, maternal malnutrition, lack of family planning and resulting higher birth orders, and many cultural factors. Data suggests that prevalence of undernutrition in the country is higher in the low socio-economic strata[21], and rural and marginalized populations, and worst is the case of scheduled tribes. The Prevalence of wasting, and stunting in the tribal population of the country, and that for the whole nation, is given in Table 2, which reinforces the above fact.

Table B: Malnutrition- India

Indicator	INDIA	Scheduled Tribes
Prevalence of stunting in under-5* Children	NFHS 4 (2015-16)- 38.4% NFHS 3 (2005-06)- 48% NFHS 2 (1998-99) – 45.5%	44% 53.9% 52.8%
Prevalence of wasting in under-5* Children	NFHS 4- 21% NFHS 3- 19.8% NFHS 2- 15.5%	Unavailable 27.6% 21.8%
Percentage of under-5* children who are underweight	NFHS 4- 35.7% NFHS 3- 42.5% NFHS 2- 47%	45% 54.5% 55.9%

Source[21, 22, 23]- NFHS 4 Factsheet, NFHS 2,3 reports.

**Children Under 3 years old for NFHS 2*

Coming to the nutritional situation in Kerala, the NFHS 4 reports[21] that the Under 5 prevalence of stunting, wasting, and underweight were 19.5%, 15.5%, and 16.7% respectively. The prevalence of anaemia was more than 35% in 6-59-month children, and 22.6% in pregnant women. Similar to the situation in the rest of the country, the indices are worse for the backward classes especially, the tribal population of the state. As per NFHS 2, the percentage of children under 3 years who were stunted, wasted, and underweight were[23] 21.9, 11.1, and 26.9 % respectively, while that of the scheduled castes and tribes were 38.2, 12.2, and 43% *respectively. (* The values may be overestimated/ underestimated due to the low sample size).

The Study Setting:

Palakkad is a district in the northern part of the state of Kerala, in India. It is spread over an area of 4482 Sq. Km[24], with a population[24] of more than 28 Lakhs, of which the Scheduled Tribe(ST) Population is 48,972 (1.7%). Administratively, the district is divided[24] into 6 Taluks, 7 Municipalities, 88 Grama Panchayats, 13 Block Panchayats, and a District Panchayat. The district's ST population constitutes[25] 10.10% of the state's total ST population, and is concentrated in Attappady block (ST population of 27,627), constituting mainly three tribes- Irula, Muduga, and Kurumba[11]. Attappady is part of the Mannarkad Taluk and is subdivided into 6 revenue villages- Padvayal, Pudur, Kottathara, Kallamala, Agali, and Sholayur.

The Scheduled tribe population in Palakkad, and whole of Kerala, is marginalized[25] by factors and forces within and outside the tribes, and today, the socio-economic development indices of these tribes, is the worst in the state otherwise lauded nationally and internationally, for its high achievements in those fields. The Total literacy rate[24] for the state is 94%, and it is 89.31% in Palakkad district, while that of the Scheduled Tribes in the state, it is 75.81. Likewise, the health indices of these tribes are lagging way behind the mainstream population of the state, especially in the maternal and child health areas, even though these are better than those of the tribal population in the rest of the country

The Community Kitchen Scheme in Palakkad:

The Government of Kerala launched[11,26,28,29] the 'Community Kitchen' scheme in 2013, for the Attappady (ICDS) block of Palakkad district. The scheme was started by the Department of Social Justice of the state, in the backdrop of the high neonatal deaths, and high prevalence of undernutrition in the tribal population of the Attappady block. The scheme was inaugurated[26] on September 9, 2013, by the Hon. Minister of Social Justice, Dr. M.K Muneer, at the Nallasinga ooru (hamlet) in Sholayur Panchayat. The objective of the scheme was to improve the nutritional status of the vulnerable groups in the tribal population of Attappady, by providing meals to the target population. Initially, one meal of the day was provided, which was later expanded in many hamlets. Pregnant women receive three meals, and children receive 2 meals a day on week days, and 3 meals on weekends/holidays. The scheme was initially handled by the ICDS and was mostly operated through the Anganwadis, but was later handed over to the NRLM (National Rural Livelihoods Mission) to operate through the Kudumbasree Mission and its NHGs (NeighbourHood Groups). The scheme is now a part of the Attappady Comprehensive Tribal Development and Particularly Vulnerable Tribal Group (ACT-PVTG) Development Project, which aims at the comprehensive, and sustainable development of the tribal population of Attappady, including the achievement of food security, job security, and economic security.

The beneficiaries of the scheme included the existing beneficiary categories in the ICDS[27] (Integrated Child Development Scheme) – children from 6 months to 6 years of age, pregnant women, lactating mothers, and adolescent girls-, along with the elderly, impoverished, widows, sick and bedridden, mentally challenged, and disabled persons in the tribal population of the Attappady block. Later, the pupils in the bridge schools, and courses (which provide supportive education, parallel education, and training for equivalency exams to the tribal students) of the Attappady Comprehensive Tribal Development Project were also given meals in selected hamlets.

The operations under the ICDS were as follows- The list of required supplies will be made as per the beneficiary number and profile. The meals were mandated to have cereals, pulses, green leafy vegetables etc. in certain specified amounts for each beneficiary category. The food materials were procured from the Kerala Civil Supplies Corporation (SUPPLYCO), which were received from the Agali store of the SUPPLYCO, and transported to the Anganwadis (or the Cooking sheds near the Community Centres, in hamlets where the facilities for cooking in the Anganwadis were inadequate), by contract

agents. The vegetables, and firewood were locally procured, and the meal preparation was by the local self-help groups of tribal women. The cooking wages of Rs. 3 per beneficiary, and payments for firewood at Rs. 3 per beneficiary, were to be calculated and transferred from the CDPO's (Child Development Project Officer) account, before the 30th of each month. The payments to the SUPPLYCO, and transportation charges were also paid from the CDPO's account. Initial advance lumpsum allotments for 3 months, of Rs. 5000,000 were transferred to the CDPO's account from the account of the Director of Social Justice. The balance amounts were transferred on request.

After being taken up by the Kudumbasree Mission[27], the community kitchens are operated by the NHGs consisting exclusively of the tribal women. The Ooru samithis, which are local social Institutions for Participatory administration/monitoring of the projects operating in the hamlets, which consists of the NHG members in the hamlet. There are higher levels of such bodies- the Panchayat Samithis at the Gram Panchayat level, and the Block Samithis at the block level. ("Samithi" translates as a body of local representatives/people, with some authorities which are recognized by the community, for specific fields). The responsibility of the community kitchen is rotated among the kudumbasrees (NHGs) under the Ooru Samithi. The food materials as per the beneficiary list are purchased from the SUPPLYCO. The vegetables will be either locally cultivated in the hamlets, or purchased from the local shops. The NHG members also procure the firewood. The bills for purchases, vouchers for transportation and carrier charges are carefully kept, the copies of which will be submitted to the NRLM Office, along with the stock records. The Finance Manager, the Co-Ordinator for the Panchayat, and the Animator will verify the transactions, and a request for processing the settlement will be sent to the State Mission Office. The amounts, will be transferred to the NHG accounts through NEFT, as and when it is passed. The payments to the SUPPLYCO are directly done between the corresponding departments.

The funding for the scheme comes from the Social Welfare Department, Department of Tribal Affairs, and NRLM. The fund allotted over the years is given in table 3.

Table C: Annapradayini- Fund Utilization

ABSTRACT FUND UTILISED FROM 2013-2016

Month and Year	Particulars	Amount	Source of Account	Remarks
2013-2014	Annapradayini	48,00,000	HO Plan fund	Implemented by ICDS
		48,00,000		
2014-2015	Annapradayini	7,43,547	HO NRLP	Implemented by Kudumbashree wef Jan 2015
	Annapradayini	11,00,000	District Mission	
		18,43,547		
2015-2016	Annapradayini	87,81,416	HO NRLP	
	Annapradayini	3,56,81,057	HO Tribal fund+ HO Social Justice Dept Fund	
		4,44,62,473		
2016-2017	Annapradayini	1,00,00,000	HO MKSP ATTAPPADI	
		1,38,96,890	Fund from SJ Dept	
		59,46,911	Fund from SJ Dept	
		3,98,43,801		
	Grand Total	**9,09,49,821**		

Source[30]: Kudumbashree Kerala- Attappady Special Project-Abstract Funds utilized from 2013

The project management under the ICDS was headed by the CDPO (Child Development Project Officer) for the block (Attappady). At the field level, beneficiary committees were set up, to empower the beneficiaries, garnering their interest and involvement in the workings of the Community kitchens. The monitoring at the field level was conducted by bodies consisting of a Supervisor, Ward member, Anganwadi worker, Kudumbasree member, and one or more beneficiaries. Monthly review meetings would be conducted, wherein the members raise, address issues, and review the bills, which when passed by the Supervisor would be forwarded to the CDPO. Data quality checks were also done, by the Supervisors, and the health officials. The audit mechanism and frequency of the scheme followed that of the ICDS, and government mandates- with scheme audits, and AG audits.

The Project Management Unit (PMU) manages the operations of the scheme under the ACT-PVTG Development Project, is headed by the Chief Operating Officer (COO), an Assistant Project Officer (APO) responsible for finances and administration of the

PMU (also has been delegated powers of a District Mission Coordinator of Kudumbashree), a Finance Manager, two Coordinators – one for social mobilization and the other for institution building and capacity building, three Young Professionals, and a Consultant for Mahila Kissan Sasaktikaran Pariyojana (MKSP). The project team has 120 Animators (selected from the target community), Community Resource Persons (CRPs) and Paraprofessionals who are paid by the project. The project management and monitoring are more decentralized, with the NHGs, and the different levels of social institutions. There are monthly review meetings of the oorusamithies, cluster meetings of 10 oorus, Animators, and at the PMU level, issues raised will be communicated to, and addressed at the higher levels, or at the local level when appropriate. Data entry at the field level is manual, by the NHG and Oorusamithi members, and the data is entered off-line in Microsoft Excel spreadsheets at the NRLM Office located in the KILA building (Kerala Institute of Local Administration), at Agali. The data is verified by the Animators, Co-ordinators, and the Finance Manager. In addition to the departmental audit, the scheme now has 6 monthly social audits. Supervisory visits are done by the animators, and the PMU, the former being more frequent. Trainings on book keeping, fund management, functions and responsibilities of each role, and social audits are given to the NHG members, Oorusamithi members, and animators. Additional visits are conducted as and when required.

METHODOLOGY:

Study Design:

A descriptive study was designed to assess the beneficiary perception of the satisfaction and health benefits derived from 'Community Kitchen' scheme in Palakkad district, using mixed methods. Mixed methods were employed, to obtain a more complete picture of the different aspects of the scheme.

Sampling frame:

The scheme operates in the three panchayats- Agali, Sholayur, and Pudur- of Attappady block, of Mannarkad Taluk of Palakkad District

For the quantitative study, community kitchens in Agali, Sholayur, and Pudur panchayats were chosen, where the program is going on. It has an estimated beneficiary strength[31] of 15538. The sample size was chosen based on 50% probability of occurrence,

with 5% error margin, 1% design error, and 90% Confidence Interval, the estimated sample size was, n= 266. Expecting a 25% non-response, a total of 343 beneficiaries were approached. Five community kitchen hamlets were randomly selected from each panchayat, from where 20 to 25 beneficiaries were randomly selected and approached for the survey, to obtain the required respondent strength, and minimizing the selection bias.

The Hamlets visited[29] were- Deivakunde, Dhonikunde, Nellipathy, Thazha Kakkupady, and Chemmannur- in Agali Panchayat; Anakkatty, Varagampady, Oothu kuzhy, Ukkalimattam, and Choriyannur – in Sholayur Panchayat; and Pudhur, Paloor, Mela Anawayi, Edavani, and Gottiyarkandi in Pudhur Panchayat.

In-depth interviews with two beneficiaries from each of the three panchayats were conducted. in order to assess the beneficiary perception of the programme. **The administrative information** for these regions was obtained to assess the governance, service delivery from the NRLM regional Office, and the ICDS state headquarters.

Method of Data Collection:

a) The beneficiary Survey

A culturally appropriate, socially acceptable and logistically manageable pre-structured questionnaire was developed based on extensive literature review and guidance from other researchers, social workers and program coordinators working in similar settings. The pretesting of the questionnaire was done on five beneficiaries. Based on the feedback from the pre-test, it was found out that, the people tended to confuse the Nutritional Education Sessions conducted as part of the scheme, with those conducted by the Health department field workers and Anganwadis. Hence it was decided that this question will be excluded from analysis. Need for clarification on the inquiry about the duration of service interruption was considered to be included in the questionnaire and thus a question regarding that was added.

Data was collected by the researcher through pre-validated structured questionnaire as per WHO guidelines[32], the answers were recorded in the survey questionnaire assigned to each beneficiary, after getting an informed consent.

b) Beneficiary Interviews:

In- depth unstructured interviews with beneficiaries were conducted in conducive settings after obtaining informed consent from them, and recorded on an electronic audio

device, which were transcribed for use. Since the conversation was in the local language, it was translated to English for analysis. The qualitative interviews were conducted with the help of a structured topic guide.

c) Secondary Data Collection:

Attempt was made to correlate the beneficiary satisfaction and perceived health benefits, with information gathered from the scheme officials, operators, and health department. The administrative data for fund allotment, resource procurement, training activities, number and distribution of Community Kitchen hamlets with beneficiary strength were obtained with permission for use, from the concerned authorities in the NRLM, Directorate of Social Justice, and ICDS. Likewise, the Health Department reports on tribal health and nutrition status were obtained from the Nodal Officer for Tribal Health, Attappady.

Data Management

The quantitative data collected were entered either into Microsoft excel, and SPSS version 16.0 for storage and analysis. The transcripts of the qualitative interviews were stored as word documents, used for thematic analysis using appropriate software.

Data Analysis Technique:

Mean, Median, Percentage, and Trends (Visualization/charts) were used to analyse and compare the Numerical variables. Attempts were made to correlate variables and conduct further analyses, based on the initial assessments. Software like SPSS (Version 16.0), Microsoft Excel were used for quantitative analyses.

Thematic analysis of the qualitative interviews was conducted.

Ethical Aspects

The study was conducted after getting ethical approval from the Institutional Committee for Ethics and Review of Research, Jaipur, Rajasthan.

Written informed consent were collected from each eligible participant after explaining about the study in a language that they understand clearly, for the survey, and the qualitative interviews. Confidentiality of the provided information was explained properly in a similar manner and confidentiality of the provided information was ensured. Records of the interviews were securely preserved under ensuring safety and confidentiality. The administrative and official reports were obtained after gaining permission from the concerned authorities, for use, analysis, and publishing of the data, through proper channel, explaining

the objectives of the study and data requirement.

FINDINGS:

1) Beneficiary Profile:

Out of the 343 beneficiaries approached for the study, 289 agreed to participate in the survey. The profile of the participants was such that 65.4% of the beneficiaries were females, and 34.6% were males. The median age of the participants was 65 years. (Tables 1&2)

Table1: Beneficiary Gender

BENEFICIARY GENDER	NUMBER	PERCENTAGE
Female	189	65.4
Male	100	34.6
Total	289	100

Table 2: Beneficiary Category

BENEFICIARY CATEGORY	NUMBER	PERCENTAGE
Pregnant Women	7	2.4
Lactating mothers	19	6.6
Children	72	24.9
Adolescents	40	13.8
Elderly	76	26.3
Others	51	17.7
Don't Know	24	8.3
Total	289	100

About 97.6% of the respondents were beneficiaries of one or more nutrition/food supplies related schemes of the government (Table 3). The under five children

were additionally given supplementary nutrition, including the nutrient-dense 'Nutrimix' packets. The school going children sometimes given two meals from the community kitchen, and were also availing the services of the midday meal programme (School meal programme). The Pregnant, and lactating women were beneficiaries of the supplementary nutrition programme at the Anganwadis, but many of them were found to be not availing these services. Free ration of 25 Kg rice and 7 Kg wheat per month (BPL- AAY cards) were allotted for most of the households, by the civil supplies system. It was found that the eligible beneficiaries were not availing services/ benefits allotted to them. Only five of the pregnant women, and seven of the lactating women interviewed were availing the supplementary nutrition from the Anganwadis. Due to the discrepancies made in the allotment of ration cards, some of the beneficiaries were found not currently eligible for free ration, even though steps were taken to address the same. In the children category, it was found that children were the beneficiaries of the school meal programme as well. Children who were enrolled in the scheme in the initial years continued to get the meals, under the scheme of continued nutritional support, of the vulnerable population.

Table 3: Percentage of Community Kitchen beneficiaries in the survey, who are availing the benefits of other food/nutrition related schemes.

Beneficiary category	Free Ration	Anganwadi	School meal programme	None
Pregnant women	100.0	71.4	NA	Nil
Lactating mothers	88.9	38.9	NA	5.6
Children	95.6	39.6	54.9	Nil
Adolescents	100.0	0.0	35.7	Nil
Elderly	94.7	NA	NA	5.3
Sick/widows	96.2	NA	NA	3.8
Others	100.0	NA	31.3	Nil

Majority of the beneficiaries' households were supported through manual labour (79%). The elderly and the widows were receiving pensions (of Rs.1000 per month, usually given as 3 or 6 monthly lumps) from the government. This was the only source of income in their households of 22 beneficiaries. (Table 4). Only 25 beneficiaries (8.7%) reported having a regularly employment as the income source in their households, of which 15 were temporary regular jobs. There were 5 beneficiaries who did not have any income. They were elderly or sick/widows, entirely dependent on the public distribution system, and the neighbours.

Table 4: Income source of the beneficiary's household.

Income source	Number	Percentage
Manual labour	229	79.24
Manual labour (as main source)	152	52.60
Agriculture	10	3.46
Pension (-old age/widow pension-main/suppl source)	107	37.02
Pension as the only source	22	7.61
Regular job	10	3.46
Own business (including NHGs)	3	1.04
temporary regular job	15	5.19
None	5	1.73

2) Beneficiary Satisfaction:

Regularity of the services:

The average duration for which the participants had been availing the services of the Community kitchen was 29 months. There were 150 participants who were not getting regular services from the Community kitchen. (Table 5) This was solely due to the non-availability of the services of the kitchen. Out of the 150 participants who reported

interrupted services, 149 reported an average of about 6.5 weeks of longest continuous interruption of services, and 66 reported a minimum interruption of 1 day, in the services (Table 6). The interruptions in the functioning of the community kitchens included delayed fund release, shortage of water for cooking, and operational issues hindering the smooth, and continuous functioning of the kitchens.

Table 5: Regularity of the services availed

Obtaining Regular services	Number of beneficiaries	Percentage
Yes	139	48.1
No	150	51.9
Total	289	100

Table 6: Duration of interrupted services (continuous interruption)

Duration of continuous interruption in services experienced by the beneficiary	Longest- in weeks	Shortest- in days
Mean	6.5	1.3
Median	4	1
Mode	4	1
Range	16	6

Satisfaction on the Services Provided:

Majority of the participants (230) were content with the food provided at the Community kitchen (Table 7). Out of the 59 participants were unsatisfied (Tables 8) with the services provided, 49 participants (83.05%) wanted a change in the menu and 10 people wanted better facility for everyone to sit and eat, near the community kitchens

Table 7: Beneficiary Satisfaction on the meals provided at the community kitchens

Satisfied with the meals provided	Number of Beneficiaries	Percentage
Yes	230	79.6
No	59	20.4
Total	289	100

. *Table 8: Suggestion for improvement of the services*

Suggested Change	Number of beneficiaries	Percentage
Improve Facility	10	17
Improve Menu	49	83

3) Perceived Health Benefit:

Of the 289 participants, 147 (50.9%) reported feeling a change in their energy levels, after availing the services of the Community Kitchen (Table 9). Of these 147 respondents (98.7%) reported feeling more energetic, while one respondent reported feeling less energetic, and another respondent did not clarify the change felt (Table 10)

Table 9: Perceived Health benefit- Change in energy levels.

Feeling change in energy levels after availing the services of the community kitchen	Number of beneficiaries	Percentage
Yes	147	50.9
No	119	41.2
Don't know	23	8.0
Total	289	100.0

Table 10: Perceived Health benefit- nature of change in energy levels after availing the services.

Nature of Change in energy levels after availing the services of the community kitchen	Number of beneficiaries experiencing the change	Percentage
Better	**145**	**50.2**
Worse	**1**	**.3**
Total	**146**	**50.5**

MAJOR INSIGHTS FROM THE STUDY:

1) Beneficiary Profile:

Representation of females was higher in the survey. This is because, children, elderly, sick, and bridge school students are the categories which involve both males, and females, while the others are women-exclusive ones. However, the tribal population has nearly equal percentages of males and females.

Highest percentage of the participants were elderly (above 60 years of age), and children. The beneficiary category profile of the survey was comparable to the beneficiary profile of the scheme, with most of the beneficiaries belonging in the child or elderly categories. (Tables 1, 2, 9). But there are differences in the actual proportion of each beneficiary category. This might be due to the timings of the survey, convenience factors of the elderly, sick, and the adolescents.

Efforts were made to limit the selection bias in the survey, by randomly selecting the hamlets in each panchayat, and randomly selecting the prospective respondents. Yet, the timings of the survey, and the convenience issues of the beneficiaries have brought a degree of participation bias to the survey. Efforts were made to minimise this, by conducting the surveys during the meal times, so that most of the beneficiaries were present, to select from.

However, the beneficiaries who were interviewed for qualitative investigation belonged to different age, gender, and beneficiary categories, and they were deliberately chosen to understand the perception of the different beneficiary groups.

Table 11- Beneficiary Profile of the scheme, March 2017

Category	Number	Percentage
Pregnant women	409	3.0
Lactating mothers	769	5.6
Children	3172	23.0
Adolescents	2361	17.1
Elderly	5858	42.5
Widows/sick	1199	8.7

Source: Administrative data obtained from NRLM Office, KILA, Agali.

Majority of the beneficiary households were supported through manual labour, which is irregular source of income, which also limits the labourer's priorities, and his/her involvement in ensuring timely, and proper nutrition of the expecting, and lactating mothers, children, and the aged members of the family. Thus, the socio-economic situations that led to the introduction of the 'Community kitchen' scheme are still relevant in the community. The interviews with the beneficiaries threw more light into this matter, and provided a better understanding of the realities that may have been overlooked by the survey. All of the beneficiaries had felt the necessity of such an initiative in the background of the poor socio-economic status, and health situation of their tribes, and were very much appreciative of the idea of the 'Community Kitchen'. Almost all of them reflected on the situation of the elderly in the tribes. As most of the tribe members were manual labourers, sometimes in plantations, the elderly members of the family have had to wait for them to come home, and do the household chores, to finally get their food. Similar concern was for there for the children also. The family members were not in a position to ensure regular food intake by their children, pregnant women, and lactating mothers.

A tribe member says, ***"...the situation of many of us is that we cannot do it ourselves. It is difficult to grow crops here…Since the rain is poor, there is not enough water also for***

cultivation. So, we cannot grow our own food, and sustain on it. So many of us go for manual labour in someone else's lands. Most of us earn livelihood with manual labour. Even that is also occasional, with no regular income…"

Another beneficiary reflected- ***"…Community Kitchen is a good thing because…the aged grandmothers, they get food. The pregnant women get timely food. It is good because if there isn't anyone to make food for the aged mother and the small children, they will be given food…"***

However, majority (more than 97%) of the beneficiaries were also availing the benefits of other food/nutrition related schemes. This may question the necessity of the scheme, but it should also be taken into account that those other schemes were still existing during the introduction of the 'Annapradayini' Scheme. In this context, the coverage, quality, and actual beneficiary acceptance of these schemes need to be looked into.

2) Beneficiary Satisfaction

Regularity of the Services:

Very few attempts have been made to assess the beneficiary perceptions of the nutritional interventions globally, and in India. One such attempt on the ICDS, conducted by A.B Biswas et al, in 2007 in two districts of West Bengal[33] has reported better regularity of the services (almost 78% Anganwadis provided regular services). A cross-sectional community-based study[34] conducted in 2004 by Davey et al, on the beneficiaries of Anganwadis, in Delhi, reported dissatisfaction of the beneficiaries with the irregularity of the services.

In this context, however, the scheme has been operating for more than 2 years in most of the hamlets visited, and therefore, an element of recall bias could be attributed to the responses on the regularity of the services, and duration of service interruptions. But, in many of the hamlets visited, the interruptions were more recent- within a year- and the respondents seemed to remember the longer interruptions (negative incidents) better. However, some of the respondents were aged and their responses may have higher elements of the recall bias. This could not be verified, as the information on the individual hamlets were not available, for the entire period from 2013-2017. Data was available only on the total number of functioning hamlets each month for the duration.

The beneficiaries expressed mixed feelings on the interruption of the services. Some of them were grateful for the meals, and understanding of the interruptions. A beneficiary from Pudur says- ***"… I don't know much about it… All I know is that I get food, in the morning and the evening...It has been working regularly for only a few months now. Sometimes, they don't get all the materials, sometimes water. They can make food only if they have all the things, right?"***

Others expressed their discontent on the matter, and it would seem that the displeasure was also expressed to the operators of the kitchen. The 2 interviewees who were kudumbashree members were worried by the bad reactions of the beneficiaries who were often very vocal in expressing their displeasure. But the two of them felt differently about the service interruptions. While one felt that the occasional unavoidable shortage of supplies, and water could not be put entirely on their shoulders, the other blamed the NHG members for taking home the supplies allotted for the non-working days, thus trying to benefit from it.

Words of the former- ***"…if we don't provide the rice, for one or two days, some people say bad things… when you give food for some days and not for some days in between, they ask why there is community kitchen? There are interruptions in between...there are...not much...not very much. All materials won't be there every day...If we have the materials, we prepare and give them...it is not possible to give all things everyday…and they say they don't want the community kitchen... On the days we provide food, they…the aged mothers come and eat the food and go. When we can't give food for one or two days, because of lack of supplies, they scold us"***

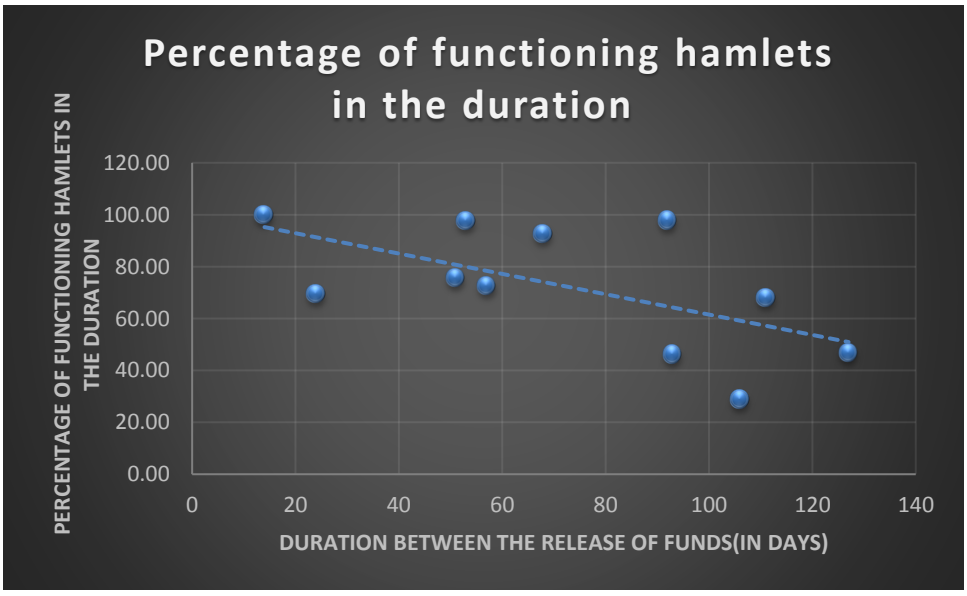
Attempt was made to understand the reasons for the interruption of services, by communicating with the NHG members, beneficiaries, and the project officials. The main reasons given were the shortage of clean water, long delays in the release of funds, delays made due to the transfer of the community kitchens to other NHGs, delays in supplies replenishment, and convenience of the women who cook the food. Attappady had low rainfall during the previous year, leading to water shortage in many outer hamlets. The inner hamlets closer to the forest, or in the forest did not suffer much from water shortage. The NHGs attempted to address the problem through buying water, transporting it to the hamlets and storage in big tanks. It would seem that the water shortage issue has taken longer than expected to be resolved in a satisfactory manner. But, whatever efforts by the NHGs to fix the

matter, should be appreciated in the backdrop of their relative inexperience in the operations of such a scheme.

The long delays (sometimes even 6 months) in the release of funds made it difficult for the NHGs to obtain supplies from the shops. As the Civil Supplies Corporation was directly paid through interdepartmental transactions, the issue was not related to the supplies obtained from the Civil Supplies. The NHG members reported some shops denying them purchases on credit owing to the delays, and some NHGs were unwilling to take up the running of the kitchens due to these delays. This led to delays in the transfer of the running of the community kitchens to other NHGs (the running was rotated between the different NHGs in a hamlet). Some internal issues in the NHGs and Ooru samithis were also attributed for these delays. Short interruptions of one or two days were reported due to the convenience problems of the cooks.

Findings from the analysis of the fund flow to the scheme, correlated with the reported interruption of services due to delays in fund release (Figure1). From January 2015, the percentage of functioning hamlets was inversely related to the duration between the release of funds. (r= -0.596, p=.053).

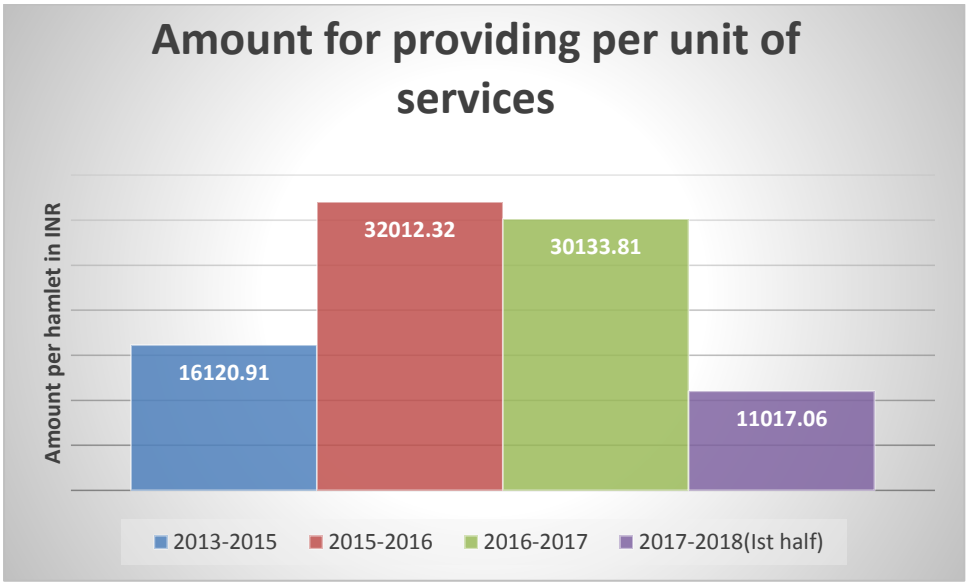
Figure 1: Duration between release of funds and Percentage of functioning hamlets from 2015



Source[26,29]: Administrative information collected from ACT-PVTG Development Project Programme Office, KILA.

From the reports obtained, the functioning of the community kitchens during 2013-15, had been maintained**.** It was also found that, post September 2016, the functioning of the hamlets has been maintained without much fluctuations. An attempt was made to assess the financial efficiency of the scheme, by calculating the average amount of money spent for providing unit volume of services. The results showed-

Figure 2: Amount per unit volume of service provided



Source[26, 29]: Administrative information collected from ACT-PVTG Development Project Programme Office, KILA.

The amount spent per unit volume of services increased in 2015, showed a slight reduction in 2016, and has sharply declined since then (Figure 2). This means that the shift in the programme operations and management, showed an initial decrease in the financial efficiency, which picked up in later years. This may be due to the shift to the participatory approach, requiring training and adaptation of the NHG members to operate the hamlet kitchens. The experience, and sense of ownership among the NHG members, and the local procurement of supplies by the members themselves, who are also a part of the community, might have led to the saving of expenditure per service delivered, in the following years. But, the bulk of the services provided also seem to be increasing, with provision of two to three meals per day to select beneficiary categories. Thus, a question on the comparative quality of

the supplies, and services may also arise. Answer to such a question is beyond the scope of this study, and requires further researches.

The regularity of service-provision is a very important factor for the trust of the beneficiaries in any scheme. The managerial issues contributing to the interruptions in the service-provision of the 'Community Kitchen' Scheme ranges from serious, long delays in the fund release to problems in the operations management at the individual hamlet level. The Officials, and operators should take lessons from the past experience in these, and consider improving the concerned areas of the scheme. This will help improve the operational efficiency of the scheme in the coming years.

b) Satisfaction on the services/meals provided:

The observations, and the communications with the beneficiaries, and staff, revealed that, there was no prescribed menus, and that each NHG operates the kitchen in its own way, with the dishes prepared varying from 'delicious' to 'palatable', the menu was varied and rich in some kitchens, while almost monotonous in others.

Of the 49 participants who wanted a menu change, 47% suggested the addition of egg once in a week to the meals, 32.7% wanted a change in the rice used for cooking, 14% wanted the inclusion of spinach, and moringa leaves in the meals, as they felt green leafy vegetables ought to be in the diet, but was not provided at the hamlet kitchens. More than 10% suggested the inclusion of 'Ragi' (finger millet), and 'Chama' (little millet) in the meals (Table 12). These were the traditional food of the tribes. The tribe members prefer the traditional fare to the rice-based cuisine of the mainstream population of Kerala.

Table 12: Suggested change in the food provided at the kitchens

Suggested Change in the Menu	**Number of beneficiaries**	**Percentage**
Change type of rice used	16	32.7
Addition of Ragi and Chama items	5	10.2
Addition of Leafy vegetables.	7	14.3
Addition of Egg	23	47

It seemed that the beneficiaries were more aware of nutritious food, then before. Nutrition education, imparted through the community kitchens seem to have emphasised on their local traditional fare, thus helping the community to understand them better. All of the interviewees named their traditional foods, including ragi (Finger millet), chama (little millet), corn, pea varieties, and locally available vegetables and leafy vegetables, when asked about nutritious food. Many of the participants in the survey, and the interviews wanted to improve the fare at the community kitchens by including their conventional fare like ragi, and chama. Ragi was preferred to the currently given rice meals. The NHG members expressed their aspirations to improve the menu at the kitchens, but the practicality of procuring the necessary supplies were a concern. Procuring Ragi in necessary amounts will be a problem.

"… Earlier, we used to eat mostly ragi, and chama. And it was healthier for us. Now, we are thinking to include our foods like ragipputtu, chama, and more amount of green leafy vegetables like spinach in the menu. We have talked with madam about it. But since there is water shortage, and all, it is difficult to cook. Also, water and land will be needed to cultivate ragi and chama. For spinach, it will be possible to grow in grow-bags, for a few people, but for a regular supply for 50 or more beneficiaries, we need more water"

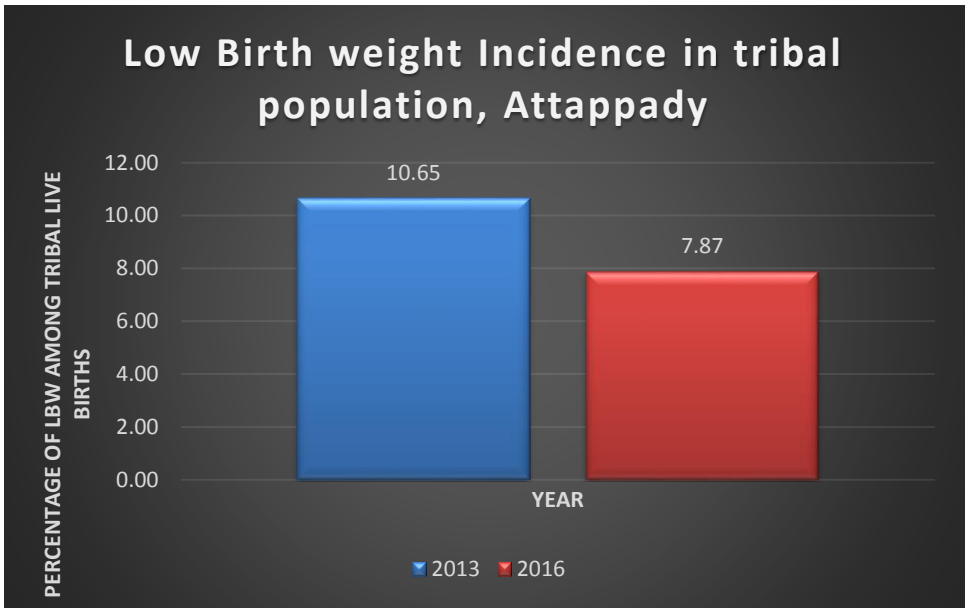
But, the operators were open to criticism and complaints, as they were hamlet members themselves. The operators and the beneficiaries agreed that the menu could be made more varied, with some contributions from the hamlet members themselves. Efforts need be made to ensure the quality of the meals provided at the kitchens, lest inadequate nutritional value of the meals undermine the progress towards the objective of the scheme.

3) Health Impact:

Attempt was made to assess the impact of the scheme, from the information obtained from the Health Department, and ICDS. The parameters used for assessing the impact of the scheme were the incidence of Low Birth Weight in the tribal population of Attappady, the prevalence of MAM, and SAM among under 5 tribal children. The Issue which brought the situation under attention- the infant and child deaths due to malnutrition, was also considered

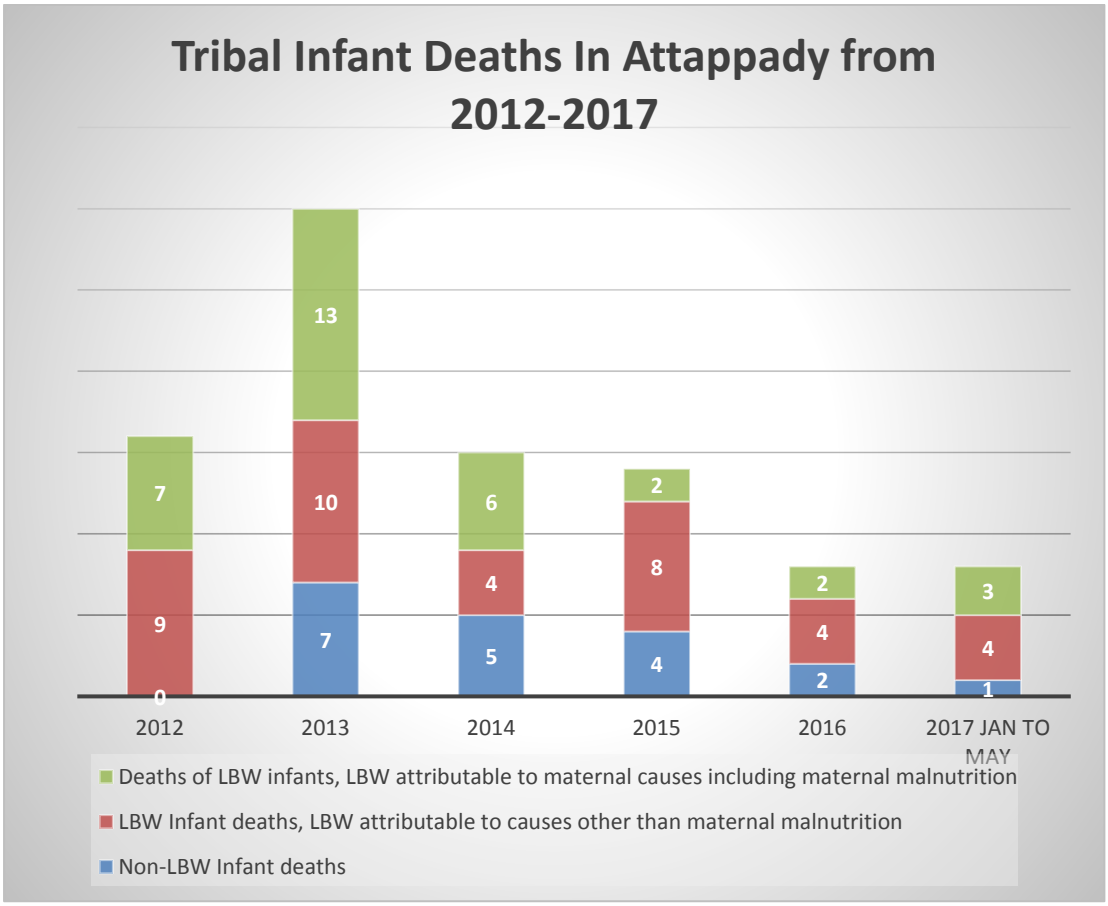
The Incidence of low birth weight has gone down from 10.65% to 7.87% of all tribal live births in the area from 2013 to 2016.

Figure 3: LBW in tribal population of Attappady



Source[14]: Attappady Nodal Medical Officer for Tribal Health's Report.

Figure 4: Tribal Infant deaths in Attappady (2012-2017)



Source[14]: Attappady Nodal Medical Officer for Tribal Health's Report.

The percentage of tribal infant deaths who were of low birth weight attributable to maternal causes including maternal malnutrition has decreased (Figure 4) from 43% of all tribal infant deaths in 2013 to 14.29% in 2015, which then shows a gradual increase to 25% in 2016, and 37.5% in the first half of 2017. There has also been reduction in the number of tribal children suffering from malnutrition in the area (Table 13). The overall decrease may be due to the nutritional, and medical interventions in the area. A matter of concern is that, a higher proportion of the tribal infant deaths in the first half of 2017, in Attappady seem to have a history of low birth weight attributable to maternal causes including malnutrition, deviating from the decreasing trend from the previous years. A question arises that, whether the efforts of the Social Welfare (including the community kitchens), and the Health departments are losing focus.

Around 5000 children up to 6 years of age are under growth surveillance[35] in the block. These include children from mainstream and tribal populations of the block. The number of tribal children till 6 years of age, with MAM, and SAM has come down respectively from 600 (15.36% of the children under surveillance) and 99 in 2013 to 296 (6%), and 24 in 2016.

Table 13: MAM, SAM in under pre-school tribal children in Attappady

Year	Number of pre-school* tribal children with MAM	Number of pre-school tribal children with SAM
2013	**600**	**99**
2016	**296**	**24**

Source[14]- Attappady Nodal Medical Officer for Tribal Health's Report.

****Children up to 6 years of age***

The common tribe members had perceived a visible change in the health, and energy levels of the children in the hamlet. Some of these were themselves the mothers, grandmothers, or relatives of beneficiary children, and were in a position to observe the change in their kids. The children are weighed monthly at the Anganwadis, and it was reported that many children, previously underweight, were now having normal weight, and in the normal stage of growth. It would also seem that this change was communicated to the other hamlet members as well, and thus helped to reinforce the ideas of growth-monitoring of children, and importance of nutritious food, among the tribal population. The animator also

explained that the weights of new-born babies have increased, following the implementation of the scheme. It would seem that, the scheme's efforts on the health behavioural change of the target community, for sustainable outcomes, have left lasting impressions in the community. Words of a mother- ***"…My child is also a beneficiary of the community kitchen. At home, when I give my child food, she wouldn't eat it. But at the community kitchen, sitting with the other kids, she eats well. In Anganwadi, every month, screening is done for all children, they will be weighed. Before, her weight was low, when weighed at the Anganwadi. After eating good food, in the mornings and evenings – we make the lunch- she is better, and normal weight and stage now."***

The tribe members who don't have children have also noticed the improving health of the children. One of them reflected that there are no longer any reports of the children in the hamlet fainting in school- ***"…. Children used to faint in school, because they don't eat on time. Now they are given timely breakfast from here Children will just go and play and won't remember to eat food on time. People in their houses also won't be able to care about that much…Because this community kitchen is there, we call them and make them sit and eat the food on time… This is good…now because of this, the children are more energetic. They eat daily on time. I haven't heard about the children fainting at school or such nowadays. I don't know about the other people who eat from here..."***

However, it should be noted that the 'Community Kitchen' scheme was not the only nutritional intervention programme operating in the area. ICDS was providing supplementary nutrition even before the launch of the 'Community Kitchen scheme. The public distribution system has also been providing allotted quotas of cereals to the community. The malnutrition related issues, which brought the state's attention to the situation of the tribal community were still persistent despite the operations of these two schemes. Hence, the change in the nutritional status of the target community could be attributed to a larger extent to the 'Annapradayini; scheme, which began its operations only in the latter half of 2013. The participatory approach, and greater community involvement in the operations of the scheme could have added greater acceptance to the scheme's services, along with the added convenience factor, which helped to ensure timely food intake by the beneficiaries. However, it should not be forgotten that the scaling up of the intensity of monitoring, and focused care of pregnant women, and malnourished children of the tribal population by the ICDS, and the Health Department have complemented the efforts of the 'Community Kitchen' scheme.

ADDITIONAL FINDINGS FROM THE BENEFICIARY INTERVIEWS:

The beneficiaries interviewed belonged to different categories- an elderly woman aged more than 70 years, dependent on family members, an elderly male manual labourer aged 62 years, a widow in her forties, another single woman of 24-years, an ex-NHG member and cook who is the grandmother of beneficiary children, and an animator-cum-mother-of beneficiary children and ex-beneficiary, in her thirties. Four of them belonged to Irula tribes, and two were from Muduga tribes.

The participants' knowledge of the scheme varied with their closeness to the operations of the kitchen, and interactions with the operating team. As expected, the animator had a better idea of the scheme than the rest of the interviewees. The other beneficiaries' awareness of the scheme, and its services, came from hamlet gatherings, and interactions with other hamlet members, and their observations and experience at the community kitchens. Most of the interviewees' knowledge of the scheme was limited to the timings, and the foods given. The foods varied from just rice and some vegetable side dish, to diverse menu including porridge, peas, upma, and ragi.

The varied responses – ***"Aged mothers who don't have anyone to give them food, pregnant women…then...lactating mothers, and adolescents…community kitchen provides food for them. Food is given in the morning, and the evening. It started here about 2.5 years ago. I came to know about it after a meeting… The meeting was at AHADS- for the animators. After meeting, the animators came and told everyone in the hamlet…In the mornings...it will be breakfast like upma, porridge and peas...like foods…especially for children. In the evening, it will be foods like rice, rasam, pappadam etc…especially for the mothers."***

"I don't know much about it. If you tell me what to say, I will… I haven't completely understood what the community kitchen is yet. All I know is that I get food, in the morning and the evening. Nobody told me when it started. I came to know about it when I saw that they are giving food. It has been working regularly for only a few months now. Sometimes, they don't get all the materials, sometimes water…But it is a good thing the government is doing. They give food to everyone here. Specially for pregnant women, small children, and school-going children. I get rice, and sometimes ragi, from here."

Along with the NHGs, and samithis at various levels, gaining experience in operating such a scheme, many added benefits of the scheme were also pointed out by the interviewees. other benefits from the scheme. The vegetables, and firewood were

locally procured. Some kudumbashrees grew their own vegetables, and these were bought for the kitchens' requirements. Similarly, the firewood suppliers were also local tribal women, as were the cooks. This gave an additional income to the tribal women. These additional benefits were expounded on by the interviewees who were, or had been involved in the operations of the kitchens. ***"I was jobless, initially when I came here following my marriage. Then I was asked to be the animator, and I took it up. Initially, I did not know what 'community kitchen' was. Then they told me it will give food for the lactating women, pregnant women, children up to 6 years, adolescents, and old, widows, and mentally sick. We started with a kitchen for 2 hamlets, but it was seen that the real benefit was reaped only by one hamlet, as the other was a bit distant from the kitchen, and it was difficult to obtain the benefits. Then we started another community kitchen for us- the pregnant, lactating mothers, widows and all. There is added benefit for the people who operate it, in addition to the beneficiaries, as they get an income. It is done by the kudumbashrees. They procure the materials, and prepare the food, and get the vouchers. The rate is Rs. 3 for vegetables, and cooking, and 2 rupees for the fire wood."***

One of them also felt that the personal satisfaction of giving food to the needy and the people's goodwill, were also the motivating factors for their work***. "…Our children get food and they learn also. It is a good thing. Also, giving food to the poor who are unable to afford it or unable to make it, is a very good thing. For me, not only ourselves, but everyone should be well. Even if we don't take the food, I am happy if the poor gets it. We should not hate others and make them hate us. If we make them hate us, who will care for us in the future? Even those who are not allotted food are given the meals. I don't want to stop it…"***

So being, all of the participants expressed concern about their situation, once the scheme stops. While, they wanted to have timely nutrition for their children, and themselves, the participants voiced their doubts about the families' capacity to provide it effectively. While all of them stated that the NHGs could not continue to run the kitchens without some external support and funding, there was mixed opinions about the tribe members' ability to provide proper nutrition to their children, and pregnant women. Three of the participants felt that that if the mothers take care, they could provide timely, nutritious food to their children.

"…even if this scheme stops, if the mother takes care in their homes, the undernutrition won't be a big issue. Earlier we used to have farming- ragi, chama, and all. But nowadays

we don't have land. People don't have time to devote to farming, as they have other jobs, manual labour. There is not enough water for farming…rainfall is very low now. But if it comes it might help in the nutrition issue, even if the community kitchens stop…"

The nutritional support provided by the Anganwadis, and the free ration to the tribal people, would also be helpful- one of them believed. The rest of them were doubtful that the family members would be able to ensure the proper nutrition of their children, pregnant women, and the aged. The worry was more over the fate of the added, and sick members of the tribe, who don't have any family.

"If this scheme stops, most people can cook at home, except for the aged persons… It will be a difficulty how to provide them food…"

An elderly female beneficiary says- ***"…I don't know about it stopping… If it stops, I will have to just sit about without food, and most of them also... it is difficult to get job here... If they get ragi and all, they can make it themselves...It is difficult to get though... If we get nice rain, and there is enough water in the forest streams, we will have enough Ragi, and all..."***

The animator underlined that it would indeed be difficult to continue the efforts of the community kitchen without external support. However, she was hopeful that the community which now understands the necessity of proper nutrition will put efforts for such. Many other beneficiaries also reflected on the possibilities of growing their own food like earlier times- ragi, chama, and vegetables- in assisting with the nutrition problem.

" If the Ooru samithis are strong, they can request that the scheme be continued in Attappady. Our situation is such that we cannot continue to run the kitchens without external support. We have Ooru samithi, panchayat samithi, and block samithi at different levels. This project was conceived for 7 years. After that, we won't have the position of 'animators'. But, the Ooru samithis, and the samithis at the higher levels will continue to exist. If all the ooru samithis collectively take initiative, and do what they can to grow ragi, chama, and vegetables, in their land. It will be like old times, and we could give good food to our children…But I feel that, the people in general have a realization of nutritious food, and its importance."

The lack of regular income, and long working time away from the hamlet for the manual labour would put the tribal families again at a disadvantage. Poor rains and resulting water

shortage, crop destruction by peacocks, wild boars, and wild elephants, unavailability of lands, and lack of time to give enough attention to agriculture due to the nature of their occupations, were pointed out as potential barriers to pursue that course of action.

"Everyone now want to give good nutritious food to their children… But even if this stop, if the mother takes care in their homes, the undernutrition won't be a big issue. Earlier we used to have farming- ragi, chama, and all. But nowadays we don't have land. People don't have time to devote to farming, as they have other jobs, manual labour. There is not enough water for farming…rainfall is very low now. But if it comes it might help in the nutrition issue, even if the community kitchens stop."

From the interviews, it seems that a lasting impression about the importance of proper nutrition, has been created in the tribal population, as a result of the scheme. The IEC activities associated with the scheme, as well as the efforts for comprehensive development of the tribal community, as part of the broader project, have supported this. The community seems to be gaining insights from their experience- the situations that necessitated the implementation of the scheme, the experiences from the scheme, the witnessed benefits, and concern-inducing aspects of the scheme. It would also be reasonable, to make inclusive efforts to address the concerns of the beneficiaries, as the trust of the target community on the services, will go a long way in cementing their acceptance of the interventions, thus making them sustainable.

CONCLUSION:

The Community Kitchen scheme in Palakkad seems to be a well-placed, well-timed intervention for its target community. The necessity, and relevance of the scheme's interventions, are still significant, though they are somewhat blunted. Nearly 80% of the beneficiaries' households were supported by irregular manual labour, while only a small proportion having regular employment. The community is still not in a condition where the members can devote adequate time to ensure timely, and proper nutrition of its women, children, and the aged.

While the official data obtained were insufficient in determining the actual impact of the scheme in the beneficiaries' nutritional, and health statuses, more than 50% of the respondents felt definite change in their energy levels after beginning to avail the services of the community kitchens, with most of them having higher energy levels than before. Though the incidence of Low Birth Weight, prevalence of MAM, and SAM in Under-5 children seem

to have come down in the target community, the changes could only be said as a result of the combined efforts of the various nutritional, and medical interventions in the area, and not exclusively due to the community kitchens.

There have been long interruptions, averaging more than 6 weeks, in the services provided by the kitchens in different hamlets, A multitude of causes, including delayed fund release, and water shortage have been given for these interruptions. The fund flow history shows long delays of often more than 3 months in the fund releases, corresponding with fewer, and fewer functional hamlet kitchens. However, post 2016, the financial efficiency of the scheme seems to be improving, along with the maintenance of the functioning of most of the hamlet kitchens, even in the faces of delays in fund releases, and the operational decisions and mechanisms employed during this period could be used as references for the same henceforth.

However, the quality control efforts on the meals provided seem to be lacking, leading to discontent among the beneficiaries. Around 20% of the beneficiaries expressed dissatisfaction with the services provided by the kitchens, with most of them reminiscing on their traditional fare including ragi, and chama, and past efforts by other NHG groups who ran the hamlet kitchens previously. Although there are prescribed amounts of cereals, pulses, vegetables, and condiments for the beneficiaries, there are no standard menus or cooking methods for preparing the meals. This, coupled with the blurring of the eligibility lines, could be potential obstacles in achieving the scheme's objective. A higher proportion of the tribal infant deaths in 206, and the first half of 2017, in Attappady seem to have a history of low birth weight attributable to maternal causes including maternal malnutrition- deviating from the decreasing trend from the previous years, and warranting sharper focus of the interventions, and a review of the quality of the meals provided across the different hamlets.

The importance of proper nutrition, seem to have been cemented in the minds of the tribal population, and all of the interviewed beneficiaries felt that the tribe wants to ensure proper nutrition of its women, and children. A number of obstacles for this are still present- including erratic rains, crop destruction by wild animals, and the poor financial situation which won't allow them to concentrate on their efforts to grow their own crops and vegetables. But, all of them reiterated that, with some external support, the tribe could manage to assure adequate nutrition of its members. It would seem that, even though its current socio-economic situation renders external support a necessity. the community wants

the benefits of the intervention to be sustained, and is willing to put efforts on the score. It would be a prudent decision on the part of the authorities, to continue the scheme, for a few more years than that was anticipated earlier, and a gradual scaling down in congruence with the progress of the efforts to bring self-sufficiency and subsistent development of the community.

REFERENCES:

1. **Socioeconomic inequality in malnutrition in developing countries, by Ellen Van et al, in the Bulletin of the World Health Organization, accessed in September 2017 from** http://www.who.int/bulletin/volumes/86/4/07-044800/en/
2. **Impact of Maternal and Child Health on Economic Growth: New Evidence Based Granger Causality and DEA Analysis, by Arshia Amiria , Ulf-G Gerdtham, accessed in August 2017 from** http://www.who.int/pmnch/topics/part_publications/201303_Econ_benefits_econometric_study.pdf
3. **Ambition and Action in Nutrition 2016–2025, WHO report, accessed in September 2017 from** http://www.who.int/nutrition/publications/nutrition-strategy-2016to2025/en/
4. **Learning from Nutrition Programme Evaluations: A Thematic Evaluation Synthesis Report, UNICEF Report, accessed in August 2017 from** https://www.unicef.org/evaluation/files/Final_learning_from_nutrition_17_07_2014.pdf
5. **Key issues in the success of community-based management of severe malnutrition by Steve Collins et al, accessed in August 2017, from WHO Website,** http://www.who.int/nutrition/topics/backgroundpapers_Key_issues.pdf
6. **Building Evidence for Sustainability of Food and Nutrition Intervention Programs in Developing Countries, by Sunny et al, Adv Nutrition. 2013 Sep; 4(5): 524–526, accessed in August 2017, from** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3771137/
7. **Sustainable Food and Nutrition Security Orientation Framework, accessed in August 2017 from** http://www.welthungerhilfe.de/fileadmin/user_upload/Themen/Hunger/verborgener_Hunger/OF_Sustainable_Food_and_Nutrition_Security.pdf
8. **Review Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy, by Shediac-Rizkallah MC, Bone LR, in Health Education Res. 1998 Mar; 13(1):87-108, accessed in August 2017, from** https://www.ncbi.nlm.nih.gov/pubmed/10178339/
9. **STRATEGIC EVALUATION Joint Evaluation of Renewed Efforts Against Child Hunger and under-nutrition (REACH) 2011-2015 Volume I – Evaluation Report, WFP Report, accessed in August 2017 from** http://documents.wfp.org/stellent/groups/public/documents/reports/wfp278694.pdf?_ga=2.257562184.259910013.1505538216-632813743.1505538216

10. **Otimé- Adivasi Kudumbashree of Attappady, Report accessed from Kudumbashree website in August 2017, from** http://www.kudumbashree.org/pages/106
11. **Attappady Comprehensive Tribal Development and Particularly Vulnerable Tribal Group Development Project, accessed from Kudumbashree website in March 2017, available at** http://www.kudumbashree.org/storage/cmspages/downloads/1441968848_Attappady-Comprehensive-Tribal-Development-Project.pdf
12. **Fauci AS, Braunwald E, Kasper DL, Hauser SL, Longo DL, Jameson JL, et al. , editors. Harrison's Principles of Internal Medicine, 17th edition. New York: McGraw-Hill: 2008.**
13. **K. Park, Park's Textbook of Preventive and Social Medicine, 22nd edition; Banarsidas Bhanot-Jabalpur; 2013.**
14. **Nutrition- Training Modules of UNICEF, accessed in August 2017 from https://www.unicef.org/nutrition/training/2.3/17.html**
15. **WHO child growth standards15 and the identification of severe acute malnutrition in infants and children A Joint Statement by the World Health Organization and the United Nations Children's Fund.2009**
16. **WHO Double burden of malnutrition: Infographics, accessed in August 2017 from** http://www.who.int/nutrition/double-burden-malnutrition/infographics/en/
17. **WHO/UNICEF/SCN/WFP Joint Statement 2007, accessed in August 2017 from UNICEF website,** https://www.unicef.org/publications/index_39468.html
18. **Long-Lasting Effects of Undernutrition, Vinicius et al, in International J Environ Res Public Health. 2011 Jun; 8(6): 1817–1846, accessed in August 2017 from** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3137999/
19. **Maternal and child undernutrition: global and regional exposures and health consequences, by R>E Black et al, in Lancet. 2008 Jan 19;371(9608):243-60. doi: 10.1016/S0140-6736(07)61690-0, accessed in August 2017 from** https://www.ncbi.nlm.nih.gov/pubmed/18207566
20. **Addressing Severe Acute Malnutrition Where It Matters, by Bhutta Z, in The Lancet, Volume 374, No. 9684, p94–96, 11 July 2009; accessed in August 2017 from** http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)61264-2/abstract
21. **National Family Health Survey- 4, India- Reports accessed from NFHS website in August 2017 from** http://rchiips.org/nfhs/
22. **National Family Health Survey- 3, India- Reports accessed from NFHS website in August 2017 from** http://rchiips.org/nfhs/

23. **National Family Health Survey- 2, India- Reports accessed from NFHS website in August 2017 from** http://rchiips.org/nfhs/
24. **Palakkad: Basic details, available at** http://palakkad.nic.in/en/about.html
25. **Welfare of Scheduled Castes, Scheduled Tribes, other Backward Classes and Minorities, report available at** http://spb.kerala.gov.in/EconomicReview2016/web/chapter04_14.php
26. **Administrative documents from Directorate of Social Justice, Kerala, for the study purposes, in June 2017.**
27. **Integrated Child Development Services(ICDS), details available at** http://googleweblight.com/i?u=http://wcd.nic.in/schemes/integrated-child-development-servicesicds&grqid=RHbfY4xu&hl=en-IN
28. **Kudumbashree- State Poverty Eradication Mission of the Government of Kerala- details available at** http://www.kudumbashree.org/pages/171
29. **Administrative information gathered from the ACT-PVTG Development Project Office, KILA, Agali in June 2017.**
30. **Kudumbasree Kerala- Attappady Special Project-Abstract Funds utilized from 2013-16.**
    Accessed from Kudumbashree website in June 2017, from http://www.kudumbashree.org/pages/91
31. **Annapradayini- Community Kitchen Year-wise Report, available at** http://www.kudumbashree.org/storage//files/9gsqb_attappady%20annapradayini%20fund%20details.pdf
32. **WHO | Process of translation and adaptation of instruments; http://www.who.int/substance_abuse/research_tools/translation/en/PD-1: http://apps.who.int/iris/ bitstream/10665/51340/1/WHF_1990_11(1)_p75-77.pdf**
33. **Awareness and perception of mothers about functioning and different services of ICDS in two districts of West Bengal, by Akhil Bandhu et al: Indian Journal of Public Health 2010 Volume 54, Issue: 1, P: 33-35, accessed in August 2017 from** http://www.ijph.in/article.asp?issn=0019-557X;year=2010;volume=54;issue=1;spage=33;epage=35;aulast=Biswas
34. **Perception Regarding Quality of Services in Urban ICDS Blocks in Delhi, by A. Davey et al; Indian J Public Health. 2008 Jul-Sep;52(3):156-8; accessed in June 2017 from** https://www.ncbi.nlm.nih.gov/pubmed/19189840

35. **Towards Improving Status of Nutrition of the Children of Attappady- A UNICEF-Riddhi Foundation Report on the 'JATAK' initiative of National Health Mission, Kerala; accessed in June 2017 from** http://www.riddhifoundation.org/reports/prj_nsak.pdf

ANNEXURE: IRB APPROVAL

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Institutional Review Board (IRB) under Federalwide Assurance (FWA) for the Protection of Human Subjects

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Format for Approval
June 13, 2017

	Serial No. of Institutional Committee for Ethics and Review of Health Management Research office	2017	2
1	Project Title	Community Kitchen Scheme in Palakkad District in Kerala- An Evaluation	
2	Name of Project coordinator/ MPH Student	Dr. Juby Raj Aswathymana Raju	
2.1	Name of Faculty In-charge/ Advisor	Dr Monika Chowdhury	
3	Date of Submission to the Committee	26/05/2017	
4	Review Category of the Proposal		
	Expedited Review		
	Full review	✓	
5	Date of Review	05/06/2017	
6	Reviewer's Name	Dr S D Gupta Dr Suresh Joshi Dr D K Mangal Dr Anoop Khanna Dr Nutan P Jain	
7	Reviewer's Feedback (Please tick the following, if you are satisfied)		
7.1	Respect for person	✓	
7.2	Fair subject selection	✓	
7.3	Informed consent	✓	
7.4	Maintaining privacy	✓	
7.5	Maintaining confidentiality	✓	
8	Final Comment		
	Approved without suggestions		
	Approved with suggestions	✓	
	Sent back for revision and re-submission		
	Not approved		
9	Suggestions: Consent is incomplete, should be written consent Date of interview need to be recorded	Signature of the Chairperson/ Member Secretary	