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Multi-dimensional Nutrition-Sensitive Assessment

Bihar, Madhya Pradesh and Odisha

Multi-Dimensional Nutrition-Sensitive Assessment (MDNA) In The Project Area under SOUL

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Glossary of abbreviations used	
AG-Adolescent Girls	MDNA- Multi Dimensional Nutrition Sensitive Assessment
ASHA-Accredited Social Health Activist	MDM-Mid Day meal
AWC- Angan Wadi Centre	MP-Madhya Pradesh
AWW-Angan Wadi Worker	MW-Married Women
HH-Household	NRC- Nutrition Rehabilitation Centre
HS-Homestead	PDS-Public Distribution System
JK- Jharkhaman (sample village)	SG- Sundargarh (sample village)
KM- Khaliamunda (sample village)	SDG-Sustainable Development Goal
LN-LailinNagar (sample village)	SOUL -Sustainable Options for Uplifting Livelihood
'Lead' women/men (who facilitate livelihood in fam)	WHO- World Health Organisation

Preface

Food insecurity and malnutrition continue to be a major problem in our country despite interventions at different level. While the intensity of the problem varies across the geographical locations, communities, gender and age groups multiple and complex factors contribute to the problem.

Empirical studies, data base at govt. and other institutional level have identified and ranked different parts of the country as per degree of vulnerability. Studies have widely documented linkages and underlying factors leading to food insecurity and nutrition across community, gender and age groups.

The ' Study on the multi-dimensional nutrition-sensitive assessment in the project area under SOUL' has focussed on generating insight on addressing at the community level with sustained nutritional outcomes. MDNA explored from a community perspective, why it continues to be a problem across communities, gender and age groups, and the possibilities, opportunities to bring about a positive change. The other dimensions than just nutrition specific (immediate determinants – intake, practices etc) like Nutrition- sensitive (underlying determinants – food security, livelihood and living environment sanitation and hygiene, access to support systems and care , initiatives, etc) are also analysed.

MDNA conducted in 3 micro clusters covering 6 to 9 villages of predominantly Tribal and Dalit inhabited, distributed across 3 States with relatively greater food and nutrition problem (MP, Bihar, Odisha). The 'study' is primarily based on community level exploration and 'proxy indicators'

In order to plan effective to achieve nutritional outcomes, it is important to empower communities and other stakeholders to analyse their vulnerabilities and capacities and plan locally feasible nutrition sensitive and specific measures. We hope the suggestions and recommendations will help partners to take the process forward robustly, along with the communities worked for.

Mr. K C Sahu
Head Livelihood

Multi-Dimensional Nutrition- Sensitive Assessment' (MDNA)

SUMMARY REPORT

1. Context and Process

The MDNA was focussed to generate insight to the problems, issues and opportunities at the community level (instead of adding to already existing comprehensive data relating to food security and nutrition issues).

It was Nutrition- sensitive in the sense that it encompassed other dimensions - underlying determinants – food security, livelihood and living environment, sanitation and hygiene, access to support systems and care , initiatives, etc- than just 'nutrition' (immediate determinants – intake, practices, etc).

It envisaged to explore, from community perspective, the linkages relating to determinants of food security and nutrition; pathways, mechanisms in place to reduce vulnerability and build resilience; the family and community level practices, perceptions that influence outcomes

The MDNA was situated in 3 micro clusters, 6 villages predominantly inhabited by ST and SC communities distributed across 3 States with relatively poor ranking in Nutrition status (Bihar, Odisha & MP). Among other aspects, the sample villages were representative of two contrasting situation; villages with limited livelihood resource and practices and villages having access to diverse livelihood resource and practices.

The sample villages located in typical rural setting, were purposefully selected with relatively easy access to all weather road and mobile connectivity to make a better representation of average villages (with road connectivity and other standard facilities that assumed to be available at present) to better understand the influencing factors, other than 'remoteness', on Food and Nutrition.

- The MDNA was carried with three broad objectives:
    - Identify the groups at risk in context of food security and nutrition
    - Identify nutrition issues (including the constraints/ barriers) and the contributing factors – socio-economic, cultural, climatic, institutional, etc
    - Identify opportunities to address the food security and nutrition issues
- The 'Assessment' involved rapid appraisal of one day each in 6 villages located in Jhabua (MP), Nawada (Bihar) and Kalahandi (Odisha) and collection in-depth of information and observation in 2 villages each in Nawada district (landless SC focus) and Kalahandi district, (forest based ST focus). The local partners of IGSSS were involved in collection of data and observation that involved compressive FGD at the community level, household survey and interview of sample women below 30 year (25 each in Nawada and Kalahandi cluster) and interaction with AWWs, ASHA, and school teachers; the process primarily focussed on 'proxy indicators'. The rapid appraisal and generation of data and observation was done between August - October, 2018. Rapid appraisal, facilitation of the process of input generation through IGSSS partners, data analysis and development of the report was done by one Consultant Facilitator.

Nutrition Facts on the States and districts where micro clusters involved in the Multidimensional Nutrition Sensitive Assessment are located (Source- NFHS 4)			
State level selected parameters	**Odisha**	**Bihar**	**Madhya Pradesh**
Stunting under 5	34.1 (med)	48.30(high)	42.(high)
Wasting	20.40 (med)	20.80 (med)	25.80 (high)
Under weight	34.40 (high)	43.90(high)	42.80 (high)
Under 5 severely wasted	6.4%	7%	9.2%
Complementary feeding	54.89 (med)	30.70 (low)	38.10 (low)
Children exclusive breast fed under - 6 months	65.60 (high)	53.50 (med)	59.20 (med)
Children breast feeding within 1st hour of birth	68.60 (high)	34.90 (low)	34.50 (low)
Immunization	78.10 (high)	61.70 (med)	53.60 (med)
Institutional delivery	85.40 (high)	63.30 (med)	80.80 (high)
Anaemic children -6-59 months	44.60	63.50	68.90
Anaemic all women – 15-49 years	51.00	60.30	52.50
Mothers who had at least 4 antenatal care visits	62.00	14.40	35.70
Diarrhoea in children under 5	9.80	10.40	9.50
District level – selected parameters	**Kalahandi**	**Nawada**	**Jhabua**
Institutional births	74.52	67.80	74.50
Children breast fed within 1 hour of birth	71.86	42.60	21.99
Children exclusive breast fed under 6 months	67.37	32.80	55.80
Children -6 to 23 months receiving adequate diet	4.49	14.60	7.50
Stunted children below 5 years	36.64	48.40	45.60
Wasted children below 5 years	24.77	21.40	24.40
Under weight children below 5 years	39.68	45.90	43.60
Anaemic children below 5 years	67.23	56.40	72.40
Women -15-49 years Anaemic	68.71	58.80	58.80

"...there is limit how much the AWW and ASHA can influence at family level unless family gives attention; many families take their children along to the place of outmigration, as a result the children are not able to get the benefit of THR, MDM ..... Institutional delivery has increased but has no influence on reduction of family size; considerable percentage of parents continue to have more than 6 children" , observed supervisor, ICDS and AWWs during interaction during one of their cluster meetings (Rangpura, Jhabua)

2. Key Findings and Insights

2.1. The broad picture in brief

Indicators/dimensions	Nawada cluster (2 villages, Roh Block, Nawada district, Bihar- Lailin Nagar vill- 100SC, 145 hh, Sundargarh- 100% SC, 86hh)	Kalahandi cluster (2 villages, M.Rampur Block, Kalahandi district, Odisha; Khaliamunda vill, 86%ST, 68hh; Jharkhaman, 84% ST,94hh)
1. Nutrition sensitive aspects – demo. features// livelihood resource, practice, security// living environ, sani & hygiene		
o Nuclear family	o 70% + in both the clusters (husband +wife+ children)	
o Large family -6 to 10+ person	o 48% family	o 32% family
o Literacy of 'lead' women/men	o W-0/M- 0.7%	o W -29% / M -37%
o % farming own land	o 0 %	o 90% (65% have less than 1 acre)
o Outmigration -% family	o 80% (with wife children- most cases)	o 12%
o Small animal rearing/poultry	o 12%	o 70%+
o Forest collection (food/income)	o 0	o All hh
o Income –av per fam /annum	o Rs. 46,000	o Rs. 54, 000
o Expense on food purchase	o 35,000/ (76% of total income) 60% on staple+ 21% non veg+8% veg	o 11,000 (20% of total income) o 3% on staple,70% on non veg,15% on veg
o Own production of staple	o 3% (share copping)	o 90%
o Food secure - own prod/ PDS	o 0 / 40% have card, access irregularly	o 20% /90% have card, most access regularly
▪ **Living environment, sanitation hygiene practices**		
o Homestead land- area/% fam	o 1 dcml / 57%	o 3-5 dcml/ 96%
o Housing -area	o 90% - 100-200 sq ft	o 70% - 200-250 sq ft
o No of room/ having window	o 1 room-40% / window 30%	o 40% -2 rooms / window 75%
o Access to electricity - % fam	o 60%	o 90%
o Toilet/ open defecation-% fam	o 1% fam / open defecation-100%	o 100% one vill & 13% in other / open def- 90% +
o Use sleeper / wash hand with soap post open defecation	o Only in few cases / none	o 90% cases / few cases
2. Nutrition specific issues- dietary intake , food source, Av consumption per month		
▪ Had 3 meals /day last year-% fam	o 60%	o 100%
o Most common dietary practice	o At least 2 meals of water rice with salt, onion chilli in most days, most families ;both clusters	
▪ **AV. Consum. Fam/ month**		
o Staple / Pulses	o 79 kg (rice+ wheat) / 800 gram	o 75kg (rice & ragi) / 1 kg
o Potato & onion / leafy greens	o 10.5kg / 200 gram (most wild collect.)	o 6kg / 1.5 kg (mostly wild collection)
o Vegetable / non-veg	o 3kg / 5kg (60% + wild collection)	o 8 kg / 5.5. kg (close to 50% of both wild collect)
o Fruit / oil for cooking	o 0.6kg / 1.5 ltr	o 15kg / 1 ltr (close to 45% of both wild collect)
o Drinking /smoking- % of adult	o 70% , including about 30% women in both the clusters	
2.1.Married Women (MW) below 30 years, Maternity, Malnutrition and Accessing service delivery		
o MW below 30 -% fam	o 60% fam / 20% blow 20 yrs @ MDNA	o 40% fam / 18% blow 20 yrs @ MDNA
o Ferti status MW below 30 @ MDNA	o 19% with 5 to 8+ children// pregnant / having new born / lactating- 50%	o 14% with 5 to 6 children // pregnant / having new born / lactating- 20%
o MW below 30 - status of delivery at hospital	o 18 % cases of total delivery; 36% delivered at hospital once or more.	o 53% cases of total delivery, 82% delivered at hospital once or more.
o Accessing THR	o None of preg/lactating women/ 6m + child // few children irregularly access cooked meal at AWC/ school	o THR-Women 15% fam / 6 m-3yr 28% fam ; MDM at school –from 75% fam/ cooked food at AWC- children from 30% fam

Immunization/ complication during delivery/ malnutrition	
o No clarity from source of AWW/ASHA o **Observation of women:** o 35% women said their children took one two times o Complication during preg inclu. LBW - 6% women responded o blood deficiency 10% pregnant women o other problem : Jaundice/pneumonia of mother and child , about 100 cases of diarrhoea ; typhoid, malaria o post delivery 50% resume work including field within one-two week o 60% feed 1st milk; 78% breast feed till 1.5 to 2 year o Birth spacing/family panning-- none	**Observation of women:** o Complication during preg. inclu. LBW - 4% women responded o 12% women responded to have had malnutrition of self /children o Infant malnutrition inclu. jaundice, anaemia- 20% women responded **Observation of ASHA/AWW (ref to last year) :** o Five cases referred to NRC including 2 LBW o 7 yellow zone malnourished children attended inclu. stunting/wasting o 3 women referral cases–anaemia, high risk pregnant women /2 cases of prolonged bleeding post delivery (workload few days after delivery) o 3 LBW cases -below 1.5 kg and one case of underweight baby serviced o 10% women below 30 went for family planning - tubectomy o 50% resume work, including field, within one-two week post delivery o 90% feed the 1st milk; 80% breast feed till 1.5 to 2 year

2.2. Summary of findings and insights

The information and insights generated through the MDNA captured in the matrix broadly indicate about absolute limiting factors as well as the influencing factors. The following is a further elaboration of the findings.

2.2.1. Demographic profile

- Considerable percentages of families in both clusters are relatively large -6 to 10+ persons per family in 48% and 32% families, respectively in Nawada and Kalahandi clusters. Good percentage of women and men below 30 years 'lead' the livelihood of the family – women in 30 to 50% families, and men in 20 to 35% families , respectively in Nawada and Kalahandi clusters
- More than 70% families in both the clusters are 'nuclear families' with husband wife and their children. In a situation where both husband and wife are working, especially when wife doubles as homemaker and livelihood earner, the care of infants and children , dietary diversity etc are observed to be neglected.
- Substantial percentage families have married women (MW) below 30 year of age (the MDNA especially focused on this age group 40% + to 60% +, respectively in Kalahandi & Nawada clusters. At the time of assessment, greater percentages MWs were below 25 years of age (more than 50% in both clusters, including close to 20% below 20 years of age).
- Significant participation of the women in all the livelihood earning activities- average 70% of 'Lead' women go for out migration wage earning with their husbands in Nawada. In Kalahandi close to 80% directly participate in own farming; 42% go for non-wage earning and about 12% manage home when men are away in outmigration or accompany husbands for outmigration.
- Considerable percentage of MWs below 30 delivered their 1st child within the 1st year of marriage (27% & 48%, respectively in Nawada and Kalahandi clusters). By the age of 30, average14%-19% MWs, respectively in kalahandi and Nawada had delivered 5 to 8+ children (5+ in Kalahandi) that constitute whopping 20 to 32% of the total population, respectively in Kalahandi and Nawada clusters.
- In one scenario none of the women and only 0.7% men that 'lead' the livelihood of the families are literate (Nawada), and in the other, considerable percentage of women and men that 'lead' the livelihood are literate, some them up to high school and inter level (av. 30% women, 37% men in Kalahandi).This appears to have discernible influence on practices of hygiene, maternity and child care, and availing service delivery.

2.2.2. Livelihood resources, assets and practices

- Most families have limited livelihood resources to meet the food need of their families

  (48% & 32% families with 6- 10+ members, respectively in Nawada and Kalahandi) out of own production – none have farm land of their own in Nawada, and greater percentage families (65%) in Kalahandi cluster have less than 1 acre farm land. Considerable percentage of families have limited homesteads - while 57% families in Nawada cluster have 1 decimal, in Kalahandi, 96% families have 3-5 decimal of homestead.

- There is huge difference between the land based and non land based family in context of earning livelihood. Most families in predominantly landless SC inhabited Nawada cluster depend on wage earning, mostly migratory (80% family); only 12% family pursue very small scale small domestic animal & poultry rearing and handful of families do sharecropping of about 1 acre of land. Relatively limited access to livelihood resources and practices they pursue to a great extent influence their living environment and dietary diversity.

- The scenario is different in Kalahandi cluster inhabited by land+ forest based ST community. More than 90% families do farming (own land, sharecropping & shifting cultivation on hills) and produce varieties of crops; types done by considerable percentage of family include; staple crop- paddy (90% fam), ragi (70%); oil seeds -mustard (70% fam) & sesame (25% fam); four varieties of pulses (25% fam); Other major livelihood earning activities include small sale small animal and poultry rearing (80% fam ,) and internal wage earning.

  For greater percentages of family homesteads/backyards are additional sources of availing food and nutrition materials – growing seasonal crops, vegetables and long duration plants that yield fruits, vegetables, edible leaves. Crops, plants grown by more than 15% families include maize (70% fam) , lady finger (60%fam), ridge gourd (90%fam), pumpkin (65% fam), bitter gourd (45% fam), spike gourd (20%fam), brinjal (20%fam) in khariff ; tomatoes (15% fam); papaya- (15% fam), custard apple-(40 %fam), guava (35 fam%);drumstick (40% fam), Koilari/kachnar(edible leaves 30% fam), Jackfruit (35% fam), traditional mango (most families), neem (50%fam), tamarind (90% fam), jamun (most families); mahua (80%).

  One more advantage in Kalahandi cluster is the access to forest –varieties edibles that are collected by most families include tubers, bamboo shoots, edible leaves & greens, mushrooms through the seasons. Fruits collected from forest by more than 30% families include kendu, mango, jackfruit, jamun, khajur.

- But in Nawada cluster, mostly constrained by small homesteads, only handful of families grow few plants of vegetable in khariff and few families have drumstick and palm tree.

- One commonalty in both the clusters is the wild collection of fish and meat, though with variations. Catching rat for meat, especially in post rain months is common in Nawada cluster; all families catch fish from local water bodies; about 50% family collect crab/snail/shell during rainy season that are part of dietary intake. In Kalahandi cluster 70%+ families collect fish from runoffs, seasonal water bodies. Hunting for wild meat (mostly wild pig and wild cock) is limited to about 5% family; they also enjoy community fish cultivation in few community ponds.

- Some of the issues relating to growing and wild collection identified through FGD include the following. Overall, the practice of collection from wild is gradually decreasing owing to number of factors – depletion of forest resources due to unsustainable use, impact of the changing climate; use of fertilizer and pesticides; decrease in number of people who would go on foraging through the forest; change in food preference, etc. However, in both the clusters, collection from wild, though varied, form significant share in dietary intake.

  Even in Kalahandi cluster, though the diversity looks far better in comparison to Nawada cluster; in many cases very small percentage of family are involved in growing and the volume of production limited to few numbers, kilograms. Availability of seasonal vegetables are not well distributed over

the seasons, significantly comes down through winter, negligible in summer , and in most cases, even in khariff, limited to few plants.

A number of materials easily available are not part of the dietary practice of all, for instance, green papaya, drumstick leaves and flower, neem flower.

- As per community (exercise in FGD) average annual income for the majority families from all sources (agri /forest produce, wage, small domestic animal, poultry) is Rs. 46,000 in Nawada and Rs. 54, 000 in Kalahandi.

2.2.3. Livelihood security

- The clusters present two different scenarios. In Nawada cluster, only 3% families have some production of their own (up to 3 quintals of paddy each through sharecropping). In reality, all the family depend on open market. In Kalahandi cluster, for the majority, it's a combination of own production+ PDS.
- Going by the present scenario, in Nawada cluster, outmigration based income is the principal means of livelihood for the majority and there is hardly any dependable fallback system - only 40% have PDS card; irregularly used due to absence for outmigration; 12% have very small scale small animal & poultry rearing, very little internal wage earning (few families have MGNRGEA job card).No support from homestead due to very small size. Negligible benefit from the govt run food supplement programmes, THR and cooked meal – not all pregnant/lactating women register; even if they do they are away on outmigration (none of the women responded availing THR);only few children benefit from mid day meal at school and AWC (parent do not care to register, children accompany parents for out migration ; school and AWCs are away from the habituation). Average 7 persons per sample village avail different social security benefits (widow, old age, etc pension). This scenario in Nawada cluster has direct bearing on the food, nutrition, living environment, and overall well being.
- On the other hand, in Kalahandi cluster, though production for staple is not adequate to fulfil the need of the family for 80% of the family, production from land based farming (most landless do sharecropping) is the main plank of livelihood for the majority. It is complemented and supplemented by multiple other sources: PDS (90% fam), small animal and poultry rearing (70% fam), local wage earning including MGNRGEA (60% fam); varieties of materials of socio economic importance from forest (almost all fam), accessing food supplements through AWCs and Schools (THR / mid day meal - pregnant and lactating women from 15% fam, 6month to 3 year children from 28% fam; 3+ children attending play school-30% fam, school going children -75% fam); 25 persons in each village get social security pensions. Availing different food supplements are not free of problems and issues of quality, bottleneck in supply chain (for example, THR not given on scheduled date in 30% cases; children from hamlets not coming to AWC due to distance), overall, the level of access of community is impressive.

2.2.4. Living environment, sanitation and hygiene

- As shared earlier, greater percentage of families have very small home site and housing area without window for ventilation and sunlight; moreover, the space is shared with domestic animals and poultry (in Nawada cluster 57% family have 1 decimal of homestead, 90% families have100-200 sq ft of very kutcha house; 40% have only 1 room; only few have courtyard or front yard, 70 % houses have no window). The situation is different in Kalahandi cluster- 96% families have 3-5 decimal of homestead; 70% HH have 200-250 sq ft housing area and 2 rooms, 50% HH have courtyard or front yard or both; 40% houses have separate sleeping room and 75% houses have at least 1 window.

All the families in both the clusters use traditional chula (in addition, in Kalahandi cluster, up to 8% have 'Ujjwala' or regular gas connection) and most cook inside the house. Almost all families (only some members in few families in Kalahandi use toilet occasionally) continue with open defecation practice irrespective of access to toilets constructed mainly under govt programmes (up to 1% families have toilet in Nawada; in Kalahandi, 100% families in one sample village under a special programme; 13% families in the other).

- Though greater percentages of families in both the clusters have access to electric connection (70 to 90%, respectively in Nawada and Kalahandi cluster) use of gadgets run by electricity is still limited to small percentage of families (in both the clusters 8% family have electric fan; 12% families have TV in Kalahandi). Because of large-scale outmigration all the families have mobile phones in Nawada and most women below 30 know how to use; in Kalahandi 50% families have mobile phone but only 12% of sample women know to use mobile phone. Small percentage of families have bicycle in Nawada (12%) and in Kalahandi 40% families have.
- Almost all the hh use mosquito net in Kalahandi cluster and 25% hh do so in Nawada.
- While there is commonalty in source of drinking and cooking water in both clusters – govt tube well, there is huge difference in practice of handling drinking water. In Nawada, aluminium pot and plastic buckets that are used for collection of waterare used for other purposes including bathing, feeding livestock, even carrying water for open defecation. In Kalahandi, drinking water collectionvessels are not used for other purposes. In both the clusters, where, mostly, no practice of storage, water is directly dispensed from collection vessel by bending or dipping smaller pot/tumbler inside. While in Kalahandi, drinking water vessels are usually kept covered, in Nawada, reportedly only 25% family cover.
- In Nawada, in case of 75% families utensil used for eating are shared by multiple persons before it is washed; in Kalahandi, utensils are usually washed before used by others. In both the clusters, cleaning of utensil & cooking vessels are done with ash and water. In Kalahandi, while it is mostly done in home compound at fixed place with/without stone platform , in Nawada, in case of 70% cases there is no fixed place for cleaning utensils/cooking vessels.
- In both the clusters women, adolescent girls and children take bath at govt tube wells but in Nawada, while only in 25% cases soap is every day or few times in a week, in Kalahandi use of soap for bath is a daily routine for most. In both clusters women reported to wash hand (with water) before eating and serving food but not the case with children. While most use sleepers while going out for deification in Kalahandi only small percentage do so in Nawada. Cleaning hand with soil and water post open defecation is common in both the clusters.

2.2.5. Food, dietary diversity and intake

Practice of Food intake

- For different reasons, eating '3 meals in day' has been taken as granted as a norm. Whether all families had opportunity for the same! While it was 60% families in the Nawada cluster that had 3 meals every day during last year, in Kalahandi cluster all the families had 3 meals. In both the clusters, community identified July to Oct/Nov as the difficult period to source food due to multiple reasons: lack of adequate wage work (brick kilns; major source of migratory wage earning in Nawada cluster closed during this period); limited wage opportunity and stock of food grains getting exhausted (kalahandi)
- Rice, cooked fresh, over the night/morning cooked and soaked in water continue to be the major staple in the daily dietary intake in Nawada as well as Kalahandi clusters. Greater percentage, across the age groups including women and children, prefer to take water-rice with salt, onion and chilli.

Consumption of vegetable and other items are not yet the major part of the day to day dietary intake; at least not in the sample villages of Nawada and Kalahandi cluster. But, as observed from interaction and transect walk,it is different in Jhabua cluster, where daily consumption of vegetable and other products than the staple seem to have entered to the daily practice of the most – 'never take staple food without side dish ; we always quickly fix some vegetable dish if we find not enough is left when we eat', observed women in Jhabua cluster , thanks to the increased practice of vegetable growing (mostly intercropped with other mainstream crops or grown separately in backyard).

- In Nawada and Kalahandi clusters, vegetable consumption is 'highest' during the rains (available from own source and relatively cheaper). Potato and lady finger are most consumed vegetable (in both clusters). Flower (pumpkin) and greens (spinach, amaranthus , gram leaf) are consumed by very small percentage families, sparingly. Chicken is the most consumed item among non-veg; other item includes fish, egg, mutton, pork and wild-meat.
- Going by the inputs from FGD with women and sample women interview there are three major systems of food intake:
  - In Nawada and kalahandi clusters, members across the age groups in most families take water rice (cooked over the previous night) in the morning with accompaniment of salt, chilli, onion. Women in small percentage of families cook rice for lunch before leaving for work. Morning meal is taken around 9AM, even earlier by children and others that go for work
  - Again, during lunchtime most families take water-rice of rice cooked over previous night as well as of rice cooked in the morning with accompaniment of salt, onion, chilli, and little of random side dishes. Very small percentage families cook fresh meal with one two dishes. Lunch is taken by 2 PM
  - At night, almost all families cook fresh meal early evening- rice or rice and roti accompanied with curry; dinner is taken by 7-8PM
  - So in most families major cooking is done twice in a day (morning/ evening or noon and evening). During daytime, the family members eat as per their work. In night, in most cases, children and husbands eat ahead of women.
  - Taking snack between the major meals is emerging practice over recent years, especially reported from Kalahandi: practice of taking tea with mixture / biscuit/ puffed rice or similar in morning and afternoon in considerable percentage of families; but no in between snacks in Nawada. In both the clusters, number of youth enjoying occasional chowmein, egg-roll, etc, when they go out to the market is steadily increasing; 2 minute noodle have reached most families in Kalahandi cluster.
  - **Festival food**: sweet, vegetable dishes, non-veg dishes are consumed for about one week in year. One or more adult members from about 70% family into drinking/smoking(including 30% women) in both clusters.

'Good', 'Nutritious' food: community perception

- Rice and chapati, with dal and vegetable or rice with dal or vegetable dish, at least one are considered 'good food' by women; rice with non veg item- chicken, mutton, etc by men. And, the same is perceived as 'nutrition' or 'nutritious' food.
- Lunch is considered as most important meal, as the first full meal of the day.
- Potato is the most common and preferred as side item with staple food; low cost, always available, easy to store, observed the women of Nawada; potato and pulses (dal) are most common, said

women from Kalahandi. Rice and roti, just with onion, chilli, salt are liked by many; easily available and adds to taste, observed women from both the clusters.

- Due to different reasons, considerable percentage of families do not use number items (usually considered rich in nutrition) easily available in their ecosystem, for instance, green papaya, raw jackfruit, drumstick leaf and flower, neem flower, etc
- Children are not very fond of certain vegetables; school going children sort-out the vegetables from curry and keep them aside during mid-day-meal.

Who are most vulnerable!

- Family having no or few young person for wage earning and having no access to income from out migration are most stressed in terms of food intake- quantity and quality, observed the women from Nawada; single women headed family with old persons not able to cultivate or buy are most stressed in context of food and nutrition, shared the women from Kalahandi cluster. Such families do skip meal (less than 3 meals /day) when there is less opportunity of wage (khariff) or when they go out for wage early morning and are not able to cook. Due to PDS, families do not starve any more but some families do skip meals, observed women from Kalahandi.
- There is big difference in 'quality' of food between families that are land less/ wage dependent ; they compromise with 'quality' when they buy from market, observed the women from Nawada cluster ; families depending on wage have comparatively less side dish, vegetable, opined the women from Kalahandi cluster.

Dietary diversity and intake

- Following is a rough estimate of **monthly average** of consumption of items by greater percentage families on the basis of inputs from FGDs and sample household survey from Nawada / Kalahandi. This gives fairly decent idea regarding the dietary diversity and extent intake (the quantity at right side refers to Kalahandi)
    - Rice /wheat- 79kg/75kg (rice & ragi)
    - Pulses-800gram/1kg
    - Potatoes-8kg/4kg
    - Onion-2.5kg/2kg
    - Green+ leafy vegetables-200gram/1.5kg+mostly wild collection
    - Green vegetable- 3kg+/8.5kg (12%own+27% purchase+58% wild collection
    - Fish-1kg+ (66% wild collection) / 3kg+ (62% wild collection)
    - Chicken-1.5kg+/ 800gram
    - Egg- 5/3no.
    - Mutton/pork/wild meat-2.5kg (65% wild) /1.5kg (10% wild)
    - Fruit-0.6kg/15kg (45% wild collection)
    - Oil-1.5ltr/1ltr+ (45% own + wild collection)
- This gives interesting observation , Nawada, if the quantity given is broken down to daily level, per family average consumption per day is : rice/ragi- 2.5 kg; pulses- 27 gram; potatoes, onion, greens, vegetable all put together less than 0.5 kg; all non veg put together -150 gram/day; fruit 20 gram and oil 50ml. It may be noted that more than 60% of the fish and meat consumed are from wild collection; the rest, including staple, are purchased from open market, almost all cases.

- In case of Kalahandi, the situation is different in number of aspects; per family average consumption per day is : rice/wheat- 2.6 kg; pulses- 33 gram; potatoes, onion, greens, vegetable all put together little above 0.5 kg ; all non-veg put together -180 gram/day; fruit 0.5 kg, and oil 30ml. It may be noted that more than 60% of the fish and 10% of meat; most of greens, more than 50% of vegetable and 45% of fruit and oil are from wild collection.
- One aspect common in both the clusters is very little consumption of items other than staple. It can be read as lack of interest / not in practice as there is hardly any difference between Nawada and Kalahandi in daily consumption of vegetable/greens despite Kalahandi having access to multiple sources. Preference for potato and onion (with staple) is worth noting- they constitute 70%+ and close to 40% of greens, veg put together, respectively in Nawada and Kalahandi cluster. So the staple rules the roost, and mark the share of wild collection!

Food expenses

- The input from FGD gives interesting insight to expense on food for the majority (purchased). In Nawada cluster, expenses on food estimated to be Rs.35, 000 (about 76% of the total income) and Rs.11, 000 in Kalahandi (20% of the total income) excluding drinking and smoking. About 60% of the expense in Nawada is on staple food material (rice/wheat) mostly sources from open market (majority do not access PDS), 21% on non-veg, 8% on vegetable. In Kalahandi, 3% on staple (own + PDS for most), 70% on non veg and 15% on vegetable.

Changes

- Diversity of food has decreased (traditional variety); variety and extent of millet farming has substantially decreased; paddy cultivation has increased (demands more attention ; less time for wild collection); podu cultivation has substantially decreased; no significant increase in cash crop; 'hunger food'- consumption of flour of mango kernel, tamarind seed, etc during crunch period have become things of past due to regularity of PDS, observed women from Kalahandi. Food intake, variety of items has become comparatively better due increase in income from out migration, but uncertainty continues due to increase in population, observed women from Nawada.

2.2.6. Maternity, malnutrition & Access to community level service delivery institutions

Married women below 30: fertility and place of delivery

Information about the married women below 30 years of age (considering greater fertility rate) was especially collected during the HH level baseline survey, and in-depth information from sample of 25 women below 30 years in each clusters (Nawada/Kalahandi)

Some observations relating to married women below 30 have already been shared under 2.2.1. It makes sense to reiterate some of the observations here before revealing the other aspects..

- In both the clusters, 40% + to 60% + families (Kalahandi / Nawada) have married women (MW) below 30 year of age - greater percentage MWs, at the time of assessment, were below 25 year of age (more than 50% in both clusters, including close to 20% below 20 year). Considerable percentage of MWs below 30 delivered their 1st child within the 1st year of their marriage (27% & 48%, respectively in Nawada and Kalahandi clusters). By the age of 30, average 14% &19% MWs, respectively in kalahandi and Nawada delivered 5 to 8+ children (5+ in Kalahandi) that constitute whopping 20 to 32% of the total population, respectively in Kalahandi and Nawada clusters.
- There is big difference between the clusters relating to the place of delivery ; overall, in Nawada, of total delivery 18% occurred in hospital and 36% of women delivered at hospital once or more; in

Kalahandi cluster, 53% of the total delivery happened in hospital, 82% of women delivered at hospital once or more.

- At the time of assessment 50% + women below 30 were either pregnant, having new born babies or lactating in Nawada cluster , and the same was 20%+ in Kalahandi cluster
- One of the factors behind huge difference in rate of fertility; place of delivery etc between both the clusters could be education; while 55% of the married women up to 30 are educated up to Upper Primary and higher in Kalahandi cluster, literacy is zero among women up to 30 in Nawada cluster.

Accessing service delivery

- Use of services from AWCs located away from habitation is comparatively less than the AWCs located inside or close to habitation; when AWC serves to multiple hamlets, attendance is mostly from the main hamlet (even the distance is within 0.5 km); type of road connectivity also matters.
- Facilities such as toilet, provision for hand washing, cleaning utensils, water storage, kitchen, etc are either absent or badly maintained.
- Performance of AWCs/ ASHA is comparatively more effective where there is follow up and vigilantism from CBOs; awareness and capacity building of the community through NGO intervention seem to contribute to this process (as in Jhabua and Kalahandi); lack of community interest and intervention is one of the major factors behind very poor service as well as use by community (Nawada cluster).
- One aspect common in all three sample clusters is the lack of concern and efforts on the part of AWW/ASHA to fill the gap in service delivery, reach out to the ones who are left out, or engaging with community for practice change at family level (including Kalahandi cluster, where AWCs /ASHA are comparatively better organised in facilitating the standard activities). Observation of AWW/ASHA in three clusters ,even one ICDS supervisor Jhabua is more or less similar, ' what can we do if people do not listen; after so many years, women know what we would tell, so very few come for meeting at village'.
- Outmigration is one of the major problems for greater percentage of women and children being left out from availing number of services, especially in Nawada cluster. Very poor living environment and livelihood seems to contribute to the inertia.
- It was difficult to get clear view on extent of immunization and malnutrition from AWW/ASHA in Nawada cluster. Only 35 % women shared that their children received immunization, once or more; 6 to 10 % women claimed to have had complication during delivery including Low Birth Weight (LBW) of the babies delivered; blood deficiency during pregnancy; large number of cases of diarrhoea, typhoid, malaria (total about 100 cases last year in both the sample villages of Nawada). Post delivery jaundice and pneumonia are also common. No case of birth spacing/planning.
- In Kalahandi cluster, 12% women claimed to have had malnutrition of self /children; 4 % had complication at the time of delivery including LBW; 20% shared that their child -3 to 9 months, was identified with malnutrition /other complications- jaundice, anaemia.
- None of the women in Nawada cluster shared to have received THR from AWC: outmigration for long period; distant location of AWC; irregular supply, lack of interest given as reason (same in case THR for children).
- In Kalahandi, delivery of THR /other supplements to children and mother (shared under 2.2.3) is comparatively impressive (though irregular as to delivery on scheduled date in about 30% cases); as well as immunization of mother and child (still 25% under 5 children not immunized) and deworming. However, 40% of the registered 3-6 children do not attend pre-school; distance and lack of interest of parents cited as major reasons.

- Unlike Nawada cluster, the AWW and ASHA in Kalahandi cluster shared to organize number of activities at the community level including feeding demo, dietary/nutrition counselling during home visits,nutrition counselling at school , observing national De-worming Day , Health and Nutrition Day , Mission Indradhanush, pulse polio, breast feeding week, hand washing day; etc; 10% of the women below 30 have taken family planning measures (tubectomy)
- Observation on malnutrition by ASHA/AWW in Kalahandi cluster (last year- 2 sample villages):
    - Five cases each of malnutrition including 2 LBW in both sample villages referred to NRC- all recovered - one child stayed at NRC for 12 days (in one case parent did not want to stay there for days together ; treated at home with digestive medicine and vitamins)
    - 7 cases of yellow zone malnourished children including stunting/wasting attended at home
    - 3 women referral cases–anaemia, high risk pregnant women /2 cases of prolonged bleeding post delivery (workload few days after delivery)
    - 3 LBW cases -below 1.5 kg and one case of underweight baby serviced
    - 10% women below 30 went for family planning - tubectomy
- Other issues in Nawada and Kalahandi cluster include:
    - Most of the women that receive IFA tablets do not use the full course – stop using after initial 10-15 tablets due fear of overgrowth of the baby and complications at the time of delivery ; some complain problem of constipation/gas formation
    - THR are usually shared with other family members
    - Recurring health problems jaundice, dysentery, diarrhoea, typhoid, malaria
    - Dependence on quacks than doctors

2.2.7. Socio cultural practices and perceptions

During pregnancy:

- Women need to avoid heavy work during pregnancy, shared women in FGDs across the clusters. But due to socio economic compulsions there is wide variation, during pregnancy, women in Nawada stop working just few days before delivery; in Kalahandi cluster, women avoid heavy work and stop going to forest for collection NTFP or other material during last trimester; in Jhabua, usually do not do heavy work at least 1.5 month prior to delivery but continue to do light work.
- Save money for related expenses in Kalahandi; usually no special preparation in Nawada
- Restriction on food during pregnancy varies across the sample clusters : tuber, wild mushroom restricted in Nawada; jackfruit and mushroom, pumpkin and papaya restricted in Klahandi ; ghee, peanut and curd are not advised during advance stage of pregnancy (*bacha andar chipak jata hai)* in Jhabua.
- Apart from problem of 'constipation', 'gas', perception regarding taking of IFA tablets that it would to lead to exceptional growth of child and create complications is common across the Nawada, Kalahandi and Jhabua clusters. So women stop taking after few tablets and avoid completely from 2nd trimester onwards.

Post delivery

- Not all women do breast feeding of fist milk (colostrums) after birth - 60% do so in Nawada and 90% in Kalahandi
- 70- 85 percent women in both clusters breast feed till 1.5 to 2 year + and the rest up to 1 year or so.
- In Kalahandi, greens, pumpkin, tomatoes, puffed rice, certain dal and mushroom are avoided (not good for 'stitch'); elders advise to take rice with salt, very small amount of selected vegetables and

light dal of hose gram. In Jhabua, milk, arhar, brinjal are not advised (considered not good for 'stitch'); roti of maize also avoided (it 'troubles the child'); diet of *dahlia, ghee and gud*...are advised at least for one month (easy to digest).

- Supplementary feeding after 6month of the child birth appears to be one of the grey areas in Nawada as well as Kalahandi clusters. In Nawada, usually it includes mashed rice, sometimes with dal; biscuit dipped in water, porridge of rice flour or mashed rice with dal in kalahandi. After 2 years, the child takes normal food as other family members
- There is lack of adequate rest post delivery; in both the clusters, Nawada and Kalahandi, up to 50% women resume work, including field work within a week or two; frequency of feeding the new born is compromised in such cases.

2.2.8.. Impact of climate change and other challenges

- All the three micro clusters involved in the MDNA are predominantly rain-fed; hence the major source of livelihood, rain-fed farming-domestic animal rearing, farm related wage earning, and forest collection are vulnerable to climate variability; crop growing pattern is gradually transiting towards crops that are resilient to climate variability and that match the changing food preference and cash need – cereals including millets are the major casualty.
- In context of the food and nutrition security, one of the major challenges for the land based farming community is to produce adequate to meet the need of the family from ever shrinking per capita land holding in the midst of the changing climate. In comparison to the time of their grandfathers, landed property per family has become less than one third, observed community members in FGD across the clusters ('food future' at 5). Community has been trying to address the emerging situation; one of the major adaptations is switching over to 'high yield crops' and high yield seeds as well as application of external inputs in a bid to increase production. And, has been successful in doing so; increase in the number of family who are to large extent dependent on their own production is the indicator. In the process , cultivation of millets have substantially decreased and mostly abandoned by greater percentage families; mostly replaced with staple crops (paddy, wheat) as well as cash crop (soybean in Jhabua, for instance), observed the community in FGDs.

2.2.9. Community level institutions

- Wide variations observed as to type of community organisations present and their level of functionality. Except one/two irregularly functioning women self help groups, there is no community level organisation such as village development committee in Nawada cluster. One of the two villages has one Panchayati Raj Ward representative from the village. One of the sample village (habitation) is supposed to get services from the primary school and AWC in the main village within about 1 kilometre that they do not avail due to distance; neither the community take interest in getting the mini ICDS centre in the their habitation functional (building has been constructed since couple of years). The other village in Nawada cluster (Sundargarh) has a primary school and mini ICDS centre; as mentioned earlier, the services are irregular and grossly underutilized as well (THR, mid-day-meal and other services for mother and child). Lack of community interest and engagement with the service institutions, partly influenced by overall deprivation, long period absence of large percentage of families from village due to outmigration are contributing factors to the malfunction of the service delivery institutions. Presence of other govt programmes in sample cluster, relevant to the MDNA, include construction of toilet under Swochh Bharat Abhiyan, construction of houses under Pradhan Mantri Awas Yojana.
- Kalahandi presents a different picture; village development committee in both the sample villages; also school committee and committee for AWCs; 5 + WSHG in each sample village; youth & farmer club, seed/grain bank; PRI Ward representatives from both the sample villages; primary school and

AWCs in both village. Village community takes interest in the functioning of the institutions is apparent from the comparatively better function of the community institutions as shared in earlier sections. Govt programmes relevant to the MDNA at present include: construction of toilet under Swochh Bharat Abhiyan, construction of houses under State and Central govt programmes, MGNREGA, malaria test & supply of malaria medicine.

'Nutrition Facts: National Family Health Survey (NFHS)-4, 2015-16

Nearly every third child in India is undernourished – underweight (35.7%) or stunted (38.4%) and 21% of children under five years are wasted that every second child is anaemic (58.4%).

NFHS 4 findings reveal that around 26.8 per cent of currently married women in the age-group 20-24 years were married before attaining the age of 18 years.

India is among the countries with the highest prevalence of anaemia in the world. Anaemia is a major health problem affecting 53% of women (15-49 years) and 22.7% of men in India; 50.3% of pregnant women were found to be anaemic.

Balanced Diet

A balanced diet is one that contains variety of foods in such quantities and proportion that the need of all nutrients is adequately met for maintaining health, vitality and general well-being and makes small provision for extra nutrients to withstand short duration of leanness.

The major food issues of concern are insufficient and imbalanced intake of food/ nutrients. One of the most common nutritional problems of public health importance of India is low birth weight, protein - energy malnutrition in children, chronic energy efficiency in adults, micro nutrient malnutrition, and diet related non communicable diseases.

Foods can be categories according to the function as:

Energy rich food: carbohydrates and fats- whole grain cereals, millets, vegetable oils, ghee, nuts and oil seeds and sugars

Body building foods: proteins- pulses, nuts and oilseeds, milk and milk products,, meat and fish, poultry

Protective foods: vitamins and minerals- green leafy vegetables, other vegetables, fruits, eggs, milk and milk products, and flesh foods

Diet for different age groups:

Infants: A balanced diet is the key to protect against nutritional deficiencies—protein energy malnutrition more commonly affects children between the ages of 6 months and 5 years. Breast feeding- within one hour of birth including first milk –colostrums....breast feeding at least for first six months... complementary food after six months; fed small quantities at frequent intervals- 3-4 times a day- semi solid consistency that the child can swallow - prepared from available materials.. wheat, rice, bajra, jowar, pulses, and oilseeds-ground nut, sesame, oils-ground nut oil, sesame oil; sugar, jaggery and soft foods-potatoes, even eggs

Children/Teenage girls- require good amount of carbohydrates and fats for energy.... daily intake of energy rich foods as whole grains- wheat, brown rice, nuts, vegetables, vegetable oils, vegetable like potatoes, sweet potatoes, fruits like banana....fish, mushrooms cheese, egg yolks for proper body function and to boost the immune system... variety of fruits and vegetables of different colours.. dark green leafy vegetables, yellow, orange coloured vegetables and fruits- carrot, papaya, mangoes..etc for vitamins. Teen age girls: physiological changes and psychological stress on onset of menstruation, should eat diet which is rich in both vitamins as well as minerals ; milk and milk products prevent anaemia; should avoid junk foods

Pregnant and lactating mother- Additional food and extra attention required to improve weight gain in pregnancy- 10-12kg, and birth weight of infants 2.5 to 3 kg; in some cases micro nutrients –like folic acids and iron tablets- are especially required to reduce the risk of malformation of the baby and increase birth weight of the baby and prevent anaemia in expecting mothers; extra intake of calcium required during pregnancy and lactating period for secretion of breast milk rich in calcium; calcium rich food- milk, yogurt, leafy vegetables, legumes..iron rich food vitamin C rich fruits, guava, orange, citrus...meat, fish, poultry products

Micronutrient Deficiency

Malnutrition is defined as ' a state of poor nutrition caused by insufficient or unbalanced diet'. Deficiencies of key vitamins and minerals such as Vitamin A, Iron, Iodine and Zinc continue to coexist and interact with protein and energy deficits.

Vitamin A Deficiency is a well-known cause of morbidity and mortality, especially among young children and pregnant women. Vitamin A deficiency limits the growth of young children, weakening their immunity and in cases of acute

deficiency, leading to blindness and to increased mortality. Vitamin A supplementation has proven successful in reducing the incidence and severity of illness- overall reduction in child mortality, especially from diarrhoea, measles and malaria.

Iron Deficiency Anaemia (IDA) is common across all age groups, but highest among more vulnerable young children, adolescent girls, pregnant and lactating women. The consequences of IDA in pregnant women are increased risk of low birth weight or premature delivery, peri-natal and neonatal mortality, inadequate iron stores for the new-born, lowered physical activity, fatigue and increased risk of maternal morbidity. Iron deficiency impairs growth, cognitive development and immune function. It reduces the performance level of children in school and makes them less productive as adults.

Iodine Deficiency Disorders constitutes the single largest cause of preventable brain damage worldwide, leading to learning disabilities and psychomotor impairment. As per National Family Health Survey-4 (NFHS 4), 93% households were using salt that was adequately iodized; others were using salt that was either inadequately iodized or was not iodized at all.

Zinc deficiency results in the stunted growth of children. Zinc deficiency compromises the effectiveness of the immune system, increasing the incidence and severity of infections such as diarrhoea disease and pneumonia- hence, diarrhoea management is envisaged through ORS with zinc supplementation, which is used as a key indicator of programme interventions.

Excerpts from National Health Portal (NHP-India), Ministry of Health & Family Welfare, GoI

3. Synergistic Understanding

The Groups at risk

- With the adoption of the 2030 Sustainable Development Goal (SDG) Agenda, the member States of the United Nation pledged to ensure 'no one will be left behind' and to 'endeavour to reach the furthest behind first'. To a large extent, the 'left behind' include persons living in extreme deprivation, who endure disadvantages that limit their choices and opportunities relative to others in society.
- Going by the present benchmark relating to the 'nutrition sensitive' and 'nutrition specific aspects', greater percentage of families fall in the 'left behind' category. Families with 'double impact' of having very poor benchmark in relation to nutrition sensitive and nutrition specific aspects are most vulnerable (ref matrix of key findings at 2.1) ; they are the 'groups at risk' from the perspective of food and nutrition security and overall wellbeing.
- One of the objectives of the MDNA was to identify the 'groups at risk'. Findings from the MDNA indicate in favour of the following key factors for understanding the 'groups at risk', and why:
    - Family structure (nuclear/joint)
    - Size of family
    - Who 'leads' the livelihood – women/men- their age/education
    - Place of work for livelihood and period of absence
    - Access to livelihood assets and degree of dependence
    - Living environment – quality of facilities for living ,sanitation and hygiene
    - Hygiene and sanitation practices of family members (to prevent / break infection cycle)
    - 'Food' source – staple & other- macro & micro nutrients- (own farm, PDS/Open market)
    - Practice of having 'meals' (number of times, what it includes- type , quantity)
    - Access to diversity of materials that comprise the dietary intake in the community (own source, commons, seasonality)
    - Vulnerability of materials that comprise the dietary intake to climate variability and other factors
    - Age of marriage (women), frequency of delivery, practice of birth spacing/ planning
    - Workload and drudgery of women
    - Entitlements and utilization (food-nutrition-social security; sanitation, hygiene)

- Degree of access & utilization of community level service delivery systems- food ration & supplements; mother and child care; immunization and preventives
- Presence of Community level organisations and level of engagement for effective utilization facilities including convergence
- Community perceptions, practices (relating to dietary preference, pre & post natal practices, etc) and other such barriers

Nutrition sensitive/specific issues

- Nuclear family structure, high level of fertility at young age, poor sanitation and hygiene practices adversely affect 'nutrition-status' and the overall wellbeing.
- Very small living space and poor living environment has a direct bearing on the choices the family makes; personal sanitation and hygiene practices
- Relatively large family size and very high rate of fertility in food insecure, low income families make it double challenging for sustainable resilience building.
- Little change in practices to help break the infection (helminths) cycle .Just having provisions/facilities in place (for example, source of safe drinking water, toilet) does not necessarily lead to practice change which is critical precondition for the desired outcome.
- For different reasons, eating '3 meals in day' is accepted as a norm. All families, especially wage dependent families always do not have the opportunity for the same (40 %families in Nawada cluster did not have last year).
- Majority show preference for 'staple' dominated diet; little demand, aspiration for 'proper meal'. Spending almost two third of the income to purchase staple from open market (not having PDS card and other issues) limits the choices.
- 'Food security' to a large extent dependent on PDS, even in the rural community with access to multiple resources and options at their disposal (for instance, Kalahandi cluster). Dependence on PDS and open market to meet the 'food/dietary' need makes the goal of 'nutrition' resilience and overall wellbeing further challenging.
- Food insecure, low income families in general compromise with variety/quantity and live through certain period of difficulty- July to Oct/Nov due to lack of adequate wage opportunity (for instance, brick kilns; major source of migratory wage closed during the period); stock of food grains harvested in previous season are exhausted. Summer is the leanest period in context of dietary diversity – very little is grown; high market price of vegetable, and preference for water rice with salt, onion and chilli at its peak
- Very little consumption of items other than staple is common in both the clusters. It can be read as lack of interest or 'was never in practice' - there is hardly any difference between the sample clusters in daily consumption of vegetable/greens despite Kalahandi having access to multiple sources. Preference for potato and onion is worth noting; these two constitute 40 to 70 of all vegetables put together (also note the small quantity of everything else than the staple- per day/family 2.2.1.). So the staple rules the roost! And, and take note of the share of wild collection (2.2.5), the already thin dietary diversity would look much thinner in absence of 'wild collection'.

- Two contrasting insights are apparent in the observation of women from both the clusters. Till the recent past the community in Kalahandi cluster depended on diverse materials available in forest as well as village surroundings to deal with hunger and deprivation; the 'dietary diversity' decreased in sync with increase in 'standardised' farming and dependence on PDS (in a way, getting 'mainstreamed'!).

In case of Nawada, the community continue to deal with deprivation, but found a way to deal with it, at least for the present, through outmigration; it gives comparatively greater 'purchasing power', so 'dietary diversity' has 'increased' in terms what is bought from the market, but it has obvious limitation on quantity when they spend more than 75% of income to buy the 'staple' from the market.

On the other hand, when Kalahandi scores on diversity count, because of access to farming and forest, etc (2.2.1), it is not very different from Nawada in terms of quantity of diverse materials consumed.

- Use of services from AWCs located away from habitation is comparatively less than the AWCs located inside or closer to habitation; when AWC serves to multiple hamlets, attendance is mostly from the main hamlet (even the distance is within 0.5 km); type of road connectivity also matters. Facilities such as toilet, provision for hand washing, cleaning utensils, water storage, kitchen, etc are either absent or badly maintained.

- Outmigration is one of the major problems for greater percentage of women and children being left out from availing number of services.

- There is big difference between the clusters relating to the place of delivery - varies between 18 to 53% delivery at the hospital of the total, and 36 to 82 % of women below 30 delivered at hospital once or more. Apart from the stressors like poor living environment and wage dependent livelihood, the critical factor behind huge difference in rate of fertility; place of delivery etc between both the clusters could be education. While 55% of the married women up to 30 are educated up to Upper Primary and higher in Kalahandi cluster, literacy is zero among women up to 30 in Nawada cluster.

- Performance of AWCs/ ASHA is comparatively more effective where there is follow up and vigilantism from CBOs; awareness and capacity building of the community through NGO intervention seem to contribute to this process (as in Jhabua and Kalahandi); lack of community interest and intervention is one of the major factors behind very poor service as well as use by community (Nawada cluster). However, in general, food-nutrition, sanitation, hygiene, wellbeing are not yet area of priority of community (including the villagers having CBOs).

- Service delivery at the community level has contributed to increase in institutional delivery, immunization and reducing the severe cases of malnutrition but the intervention appear to have reached a plateau ; to a large extent, has been set to a standard pattern ; least engagement at community level to influence the practice change and reach out to who are left out. This state is well indicated in the almost similar observation of AWW/ASHA from three clusters including one ICDS supervisor in Jhabua , ' what can we do if people do not listen; after so many years, women know what we would tell, so very few come for meeting at village'.

- Big difference apparent in status of malnutrition, immunization and access to other services – between the records/ data maintained by AWW/ASHA and what the women perceive and experienced. LBW, blood deficiency, prolonged bleeding post delivery, low weight , gap in of immunization, gap in availing different services; low intake of IFA, sharing of THR with other family members; poor practice of food supplement to infants; large number of cases of worm infection, diarrhoea, typhoid, malaria; post delivery jaundice and pneumonia ; lack of adequate rest during pre-post natal period are some of the major issues that influence nutrition and wellbeing.

- There is wide range of perceptions; practices relating to what to do and what not in pre-post natal period. Use of nutrition rich materials easily available in the homestead and village surround are not used by large percentage families due to lack of practice, exposure. These issues have largely remained unaddressed.

- All the three micro clusters involved in the MDNA are rain fed; hence the major source of livelihood, rain-fed farming-domestic animal rearing, farm related wage earning, and forest collection are vulnerable to climate variability. The present crop growing pattern gradually transits towards crops

that are resilient to climate variability and that match the changing food preference and cash need – cereals including millets are the major casualty.

- Number of families (due to division) and population are constantly on increase; as a result it has been a challenge to produce adequate to meet the need of the family from ever shrinking per capita land holding in the midst of the changing climate. In comparison to the time of grandfather, landed property per family has become less than one third, observed community members in FGD across the clusters ('food future' at 5).

  One of the major adaptations to the emerging trend is switching over to 'high yield crops' as well as application of external inputs in a bid to increase production. So far it has shown 'good' result, indicated in comparatively greater percentage of families able to some extent depend on their own production. In the process , cultivation of millets have substantially decreased and mostly abandoned by greater percentage families; mostly replaced with staple crops (paddy, wheat) as well as cash crop (soybean in Jhabua, for instance). However, the cropping practice to meet the emerging need remains a major challenge.

4. Way forward

- Taking cue from the insight generated through the MDNA following broad approaches are suggested to shape responses: improve upon the present 'benchmark' relating to nutrition sensitive and nutrition specific aspects; introduce transformative actions contributing to overall resilience building and wellbeing.
- The 'benchmark'relates to wide range of factorswhich entail varying mix of actions.
- Absolute factors (relating to access to farm land, homestead and housing, livelihood options, , socio-economic status, deprivation, present family size and fertility status, etc- in a sense that they are there, independently influence number of other aspects; not easy to alter in immediate future). Potential strategy to address (indicative):
  - Improvise to bring change till something long-term happens (for instance require-ventilation; space for domestic animals, poultry,organised cooking, kitchen, fixed place for cleaning utensils, and so on relating to living environment; reduction of drudgery of women)
  - Long-termsolutions (for example improved housing, sanitation etc through convergence)
  - Additional/alternative options (especially relating to livelihood; creating source of contentious supply of vegetable ,fruit –micro nutrients considering the existing scope and limitation of space, seasonal & climatic factors)
  - Preventing further stress (birth spacing,family planning, etc)
  - Reaching out to the unreached (relating to the group that are 'left out' from different services, entitlements – specific families, women, children etc due to various reasons)
- Influencing factors (for example, creating demand, choice, aspiration relating to 'dietary intake; addressing practices, perceptions that are detrimental, barrier creating ; breaking preventing infection cycle; improving proper utilization of services, etc)
- Enabling, energising, rejuvenating (awareness, capacity building, demonstrating at family, community level as well as community level service providers; increased participation of CBOs, increase community engagement of service institutions; integration of policy ,programmes at local and beyond , etc)
- Building the Gen next (engaging with youth,adolescent girls, school going)
- Transformative (cross cutting- consciously choosing transformative actions- long-term, long lasting, vision driven)

- Opportunities (cross cutting; strategising around opportunities – good practices, women below 30 with relatively greater level of literacy, awareness and bulk of the users of present services; service delivery systems; convergence potential in line departments; emerging trends, etc)

> **Vision 2022**
>
> The National Nutrition Strategy is committed to ensuring that every child, adolescent girl and woman attains optimal nutritional status- especially those from the most vulnerable communities. The focus is on preventing and reducing under-nutrition across the life cycle- as early as possible, especially in the first three years of life. This commitment also builds on the recognition that the first few years of life are forever - the foundation for ensuring optimum physical growth, development, cognition and cumulative lifelong learning. The Vision – 'Kuposhan Mukt Bharat' - free from malnutrition, across the life cycle is elaborated as – "Healthy, optimally nourished children, realizing their growth and development potential, active learning capacity and adult productivity; Healthy, optimally nourished women realizing their social and economic development potential; In protective, nurturing, gender sensitive and inclusive community environments – That enhance human and national development in the present - and in the future. (Nourishing India, National Nutrition Strategy, Niti Aayog)

4.2. Concluding note

The concern expressed by the community regarding the need to find sustainable way to produce more from crops of their choice out of ever decreasing per capita landholding in the scenario degradation and the changing climate finds resonance with the concerns at the national level. India, highlighted as one of the most risk-prone nations for climate change impacts, water scarcity, and declining soil fertility, has to find way to feed its ever swelling population projected to reach 1.6 billion by 2050 from the current 1.26 billion.

The findings and understanding from the MDNA also find resonance with the observations made at the macro level. World Health Organisation (WHO) estimates that 50% of malnutrition is associated with repeated diarrhoea or intestinal worm infections as a result of unsafe water, inadequate sanitation or insufficient hygiene practices (causes of nearly11 percent of total deaths in the age group of under age of five); a 10% increase in open defecation is associated with 0.7% increase in both stunting and severe stunting in children. Out of the total of one billion people defecating in the open across the world, an estimated 59.7% (597 million) reside in India.

Global evidence shows that one fifth of maternal mortality can be averted by addressing maternal stunting and iron deficiency anaemia. One fifth of child mortality (under 5 years) in India can be prevented by ensuring universal exclusive breastfeeding for the first six months and appropriate complementary feeding practices after 6 months (along with continued breastfeeding till 2 years and beyond).

SDG Goal -2 targets to end hunger, achieve food security and improved nutrition and promote sustainable agriculture (Zero Hunger). It aims to end all forms of hunger and malnutrition by 2030; making sure all people – especially children and the more vulnerable – have access to sufficient and nutritious food all year round. This involves promoting sustainable agricultural practices: improving the livelihoods and capacities of small scale famers, allowing equal access to land, technology and markets.

While the government through its various initiatives works towards achieving the SDGs, there is huge scope for communities in different micro ecosystems to play significant role in furthering the process of transition towards greater sustainability; climate-resilient food-nutrition and wellbeing.

'The rationale for investing in Nutrition is globally well recognized – both as a critical development imperative, as well as crucial for the fulfilment of human rights- especially of the most vulnerable children, girls and women. It constitutes the foundation for human development, by reducing susceptibility to infections, related morbidity, disability and mortality burden, enhancing cumulative lifelong learning capacities and adult productivity. ', observes Niti Aayog in Nourishing India, National Nutrition Strategy.

'Child under nutrition rates have been declining, first at slow rate between 1992 and 2006, and at an accelerated pace since 2006. Between 2006 and 2014 in India, stunting rate for children has declined from 48 to 39 percent. Despite the progress, child malnutrition rates in India are among the highest in the world with nearly half of all children under three years of age being either underweight or stunted. India is still home over 40 million stunted children and 17million wasted children under five', observes India Health Report- Nutrition 2015, Public Health Foundation of India.

The MDNA shows how significant percentage of families that are being left behind across the key indicators - families that experience deprivation and the families that fall into the category of multidimensional food and nutrition poor (calorie and micro nutrients); over dependence on carbohydrate based diet low in protein, fat and micro nutrients. It also shows how host of other triggers contribute to malnutrition (for instance, poor sanitation, hygiene practices- infection-borne deficiencies) and general wellbeing, and how the service delivery institutions at the community level have been set to a pattern and have very limited engagement with community to influence perceptions and practices.

As MS Swaminathan, renowned geneticist observes, ' If one wants healthy mothers and children, there needs to be eradication of three kinds of hunger — protein hunger, caused by deficiency of protein; calorie hunger, caused by deficiency of calories, and hidden hunger caused by deficiency of micronutrients.... the need of bringing agriculture, health and nutrition together in a triangular relationship, which can only be achieved through partnerships '(The Hindu Business line 20th August 2018).

Studies point to the fact that improvements in nutrition have come from interventions in multiple areas which include both direct nutrition interventions and indirect interventions focusing on underlying determinants. No single stand alone intervention has been able to lead to substantive, rapid and sustainable reductions in maternal and child under nutrition. A comprehensive approach is therefore called for which addresses multispectral and inter related determinants of under nutrition across the life cycle, as also mandated by the National Nutrition Policy 1993 and reinforced two decades later by the call for addressing nutrition specific and nutrition sensitive interventions' (The LANCET Series on Maternal and Child Nutrition, 2013).

Nutrition: Policy and Programme commitments

High levels of maternal and child under nutrition in India have persisted, despite strong Constitutional, legislative policy, plan and programme commitments. Legislations such as the National Food Security Act 2013 mandating food and nutrition entitlements for children, pregnant and breastfeeding mothers with maternity support and the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act 1992, and Amendment Act 2003 provide a strong policy framework for protecting, supporting and promoting nutrition interventions – especially during periods of greatest vulnerability for children and women. The National Nutrition Policy 1993, complemented by other policies such as the National Health Policy 2002, the National Policy for Children, 2013 provides a strong foundation for addressing the immediate and the underlying determinants of under nutrition through both direct interventions and indirect interventions. The Twelfth Five Year Plan reinforced the commitment to preventing and reducing child under nutrition (underweight prevalence in children 0-3 years), articulated as one of its core Monitorable Targets, binding multiple sectors and States to collective action.

Nourishing India, National Nutrition Strategy, Niti Aayog

5. Snippets from the MDNA-Rapid Appraisal

I. Rapid appraisal in two villages* of Jhabua : Obervation of the Community, ICDS workers, school teachers

* deatails about the villages at 2.3

1. Livelihood and nutrition issues

- Livelihood is mostly dependent on *kharif* and *ravi* farming and wage earning; mostly outmigration based. Wheat, paddy, jowar, black gram and arhar and maize (twice) are cultivated mostly for family consumption. Soya, cotton are major cash crops
- Comparatively large houses with veranda, courtyard and backyard in comparison to other two sample clusters. . As observed during transect walk, considerable percentage of families have better sanitation and hygiene practices – storing and dispensing drinking water; cleaning of utensils and use of toilets, for example ,and comparatively greater intake of vegetables (type and quantity). Instances of investment of brought home outmigration income on land, livestock, and improved agri. equipment.
- Going by community observation, one family of 5 persons requires 50-60kg of wheat and rice per month and family with PDS card receives about 50% from PDS (5kg of wheat and 1 kg of rice per person , and kerosene- 5ltr.)
- People complain about the shortage of food but not nutrition. Old people, landless people are more affected.
- Some of the govt programs relevant to nutrition include - revival and development of traditional farming, horticultural mission, nutrition garden (*poshan batiaka*- ICDS/NRLM), long duration plants- *bahubarsi phasal*, precision farming promoted by Krishi Vikash Kendra.
- **Good practices relating nutrition, sanitation and hygiene:**
  - Stand /platform for keeping drinking water storage pot and dispensing tools
  - Storage of water for toilet use (including few cases of rainwater harvesting and storage in large beans) ; number of families regularly use toilet; also have added bath room, wash basin etc to toilet
  - Not keeping water storage pot inside the house during rainy season ,as type of 'germ' grows inside- pot with cover kept on a stand/platform outside during rainy season
  - Platform for cleaning utensils; ingeniously made utensil stand , soap stand, cover on drinking water pot, dispensing ladle
  - Backyard garden, intercropping of vegetable with other crops
  - Stall feeding of livestock and small animals (till harvesting of winter crops)
  - Considerable percentage of families consume milk and milk by-products thanks to rearing of stall fed milk-cows
- **Observation on dietary diversity :**
  - Comparatively greater consumption of vegetables than the other sample clusters- variety and quantity- at least in rain and winter: lady finger, sponge gourd, bitter gourd, pumpkin are common in rain and ridge gourd, bottle gourd, flat beans in winter. Jackfruit is one of the preferred vegetable for many (to compensate not eating non-veg) but only small percentage of families have jackfruit trees (few cases of planting jackfruit observed)
  - Dal, mostly from own production, is a common dish in summer - mostly from own production – to compensate non availability of home grown vegetable during this period except *meethi and plaak sag*)
  - Consumption of fruit most limited to seasonal fruits available in the village - mango, custard apple, guava, ber, jamun , pomegranate ; apple is common among the fruits occasionally bought from the market.
  - No major change in food pattern – use of oil and garlic has increased; consumption of *methi and palak sag*; pumpkin and bottle gourd has increased

2. Child and mother care

- Pregnant women take IFA tablet partly during the first trimester but avoid during 2nd and third trimester (may lead to exceptional growth of child, tablets trigger gas problem, some observed)- this includes women educated up to high school level
- Ghee, peanut and curd are not advised during advance stage of pregnancy (*bacha andar chipak jata hai);* usually do not do heavy work at least 1.5 month prior to delivery but continue to do light work till delivery
- Post delivery restriction : milk, arhar, brinjal not advised – considered not good for 'stitch'; not advised to take roti of maize – it 'troubles the child' . Diet of *dahlia, ghee and gud*...are advised at least for one month (easy to digest)
- Problems: low birth weight, fever , diarrhoea, dysentery are common ; women working in field do not feed in frequent interval- leads to dehydration
- Observation of women on ASHA/AWC: they do survey of birth, death, marriage, disease, etc during Feb-April and follow up afterwards ; they also give medicine for de-worming , facilitate disinfection of open well ; mobilize for immunization , address other problems on immunization day once in a month at AWC in presence of ASHA, ANM .
- Institutional delivery has increased; observed the ANM at a sub-health centre (Hatyedeli ,main road) where 29 delivery happened July- August (2018), including cases of women delivering their 1st to 5th child; post delivery food at the sub centre includes *dahlia* without salt, *roti*&*sabji*
- Observation of ICDS supervisor (cluster meeting Rangpura, Jhabua): Mothers are happy for the hours that the child spends at the play school so that they are not troubled and child also gets food. Most mothers do not bother about cleanliness, hygiene of the child .During *'Mangal divas*' and '*grihabhet* ' special attention is given to weak children , their hygiene; parents are counselled to keep track of children whether they remain active and return from school in time- 'these are some of the major indicators of child to have proper mental growth by the age of five. But there is limit how much the AWW and ASHA can influence at family level unless family gives attention'; many families take their children along to the place of outmigration, as a result the children are not able to get the benefit and THR, MDM and their education is affected.

  'Referral cases to NRC have come down- except no or one two cases of low weight over one or two year. Institutional delivery has increased but has no influence on reduction of family size; considerable percentage of parents continue to have more than 6 children'; observed AWWs in their cluster meeting at Rangpura, Jhabua.

  Parents continue to believe in quacks and shamans.

" actually the children are not fond of vegetables ...see they just take out the vegetable out of the plate and put in ground..as they are not habituated at their family level", observed the school teacher, AWW and staff of local NGO partner

(MDM at one U.P school at M.Rampur, Kalahandi, Odisha)

11. Food Future....

During the Rapid appraisal as a build up to indepth MDNA, the members of the community that participated in the FGDs were facilitated to engage in discussion around how they vision the future in terms of food production and its diversity. The following narrative emerged from the FGDs at three micro clusters that were involved in the MDNA.

- Families as well as population have been increasing; due to continuous divisionland per family has been decreasing.
- Production of some crops, especially staple cop has increased due to use of high yielding seedsandfertiliser. Hence There has been increase in number of families depending on own production. Cultivation of varieties of millets have substantially decreased and mostly abandoned by greater percentage families; millets have been replaced by cultivation of paddy, wheat, etc as well as cash crops(for example, soybean in Jhabua).
- A typical family of five requiresaround 7 quintal (processed -rice, wheat and in some cases millet - still in practice though the proportion has changed in favour of rice and wheat)
- Few cases relating to recurrent division of farm land inherited among the descendants :
  - Hemanta Majhi, aged 32, Jharkhaman, Kalahandi , Odisha ; at present farms 4 acres of land. Grandfather had 10 acres land and his father was the only inheritor. His father's property was divided among 2sons and one daughter- 40% each to sons and 20% to daughter. His property will be divided between 3 boys and 1 daughter. His family of 6 requires 15 quintals of paddy and 20 kg of ragi to meet their food need in year.
  - Samsing Majhi, aged 46 of Khaliamunda, Kalahandi, Odisha; at present cultivates 3 acres of land; Grandfather had 12 acres, inherited by Samsing's father as he was the only son. Father's property divided by his 4 brothers and sisters and Samsing got his share of 3 acres, which will be divided between 2 sons and 2 daughters. His family of 6 members requires 14 quintals of paddy including 0.5 quintal of ragi; at present his family produces 17-18 qtl of paddy and 50 kg of ragi from their land.
  - Tolu Parmar in his late thirties, Dongrlalu village, Jhbua, Madhya Pradesh; Grandfather had 35 *bigha* (1 *bigha* = 0.33 acre). His father inherited 12 *bigha* when divided between 3 siblings. Tolu's share, when divided between3 siblings, was 4 *bigha*, which will be divided between his 2 sons and 2 daughters.

III. Millets and Malnutrition

Revival of traditionalcrop- millets, pulses and oilseeds : Farmer facilitated demostration plot
(Hatyadeli village, Meghnagar, Jhabua, MP)

India celebrated the National Year of Millets during 2018. Soon after the Food and Agricultural Organisation of the United Nations Organisations approved India's proposal to declare 2023 as the International Year of Millets.

Of late, Millets, the climate smart crop with low carbon foot-print are being positioned as 'wonder' 'nutri-cereals' at different levels.

Loss of millets from the diet of vast majority is one of the major the reasons behind under nutrition particularly micronutrient deficiencies. Millets being rich in micronutrients, particularly minerals and B vitamins offer unique advantage for health. They are rich in fibre, digest slowly, release glucose slowly, and is better for diabetes, observe the experts.

Millet includes major millets; sorghum and pearl millet and several small grain millets - finger millet (ragi), foxtail millet (kangni), kodo millet (kodo), proso millet (cheena), barnyard millet (sawan) and little millet (kutki), etc.

Despite several advantages - drought tolerance, crop sturdiness, short to medium duration, low labour and external input intensive, resistance to pests and diseases , there has been drastic reduction in the area under cultivation of millets due to varieties of reasons: area diverted largely to soybean, maize, cotton, sugarcane and sunflower, low remuneration as compared to other food crops, lack of input subsidies and price incentives, subsidised supply of fine cereals through Public Distribution System (PDS), and change in consumer preference. Other reasons include difficulty in processing, low shelf life of flour and low social status attached to millets.

On the other hand, triggered by the phenomenal increase in lifestyle related health issues Millets-Jowar, Bajra, and Ragi-are gaining popularity in India's affluent circles due to their perceived medical and nutritional benefits.

Some experts argue that millets should be added to PDS-subsidised food rations, along with wheat and rice, to address the recommended dietary allowance (RDA) gaps. Others say there are limitations in presenting millets as a nutritional panacea, they are ' just one part of the staple food basket; the evidence regarding their nutritional value is not conclusive; and suggest consideration of alternatives such as dietary changes to lower the intake of cereals and increase the intake of pulses'. Some argue that there is not enough production of millets if the daily consumption objective is 100 grams daily and question whether millets through the PDS tackle pressing food security issues of malnutrition.

During the Appraisal we came across mixed scenario...

Demonstration of few types of paddy and millets are promoted to revive the diversity of traditional paddy and millets organically –varieties of paddy, millets and pulses jowar, bajra, ragi, sama, kodo, sinna, kutki, gurji, Farmers (5 to 10%) continue to cultivate millets(mostly ragi) as mixed crop with cash crops such as soybean for festival food (khir and other preparations) Hatyadeli village, Meghnagar district Facilitated through IGSSS supported programme

Ref: Indian institute of millet research:http://millets.res.in/millets_info.php; Role of Millets in Nutritional Security of India, National academy of agricultural sciences new Delhi, 2013; ' Can Millets solve India's nutrition security problems?; expert panel discussion hosted by Indian School of Business and the National Institute of Nutrition 16 February, 2018 - https://www.isb.edu/news-media/research-updates/can-millets-solve-indias-nutrition-security-problems

...considerable percentage of women become mother at very young age...the young mother of 17 years at extreme right is prepared for the 6th day celebration of birth of her child ...3 families with separate kitchens share a smll cramped house (Lailin Nagar,Nawada, Bihar)

....Poori & and khir day at AWC... children taking food to their 'families'(Hatyadeli,Jhabua)

..

...helsmith infection cycle (Khaliamunda, M.rampur, Kalahandi)

....poor personal hygiene and care...considerable percentage of children do not take bath every day... (Sundargarh, Nawada, Bihar)

..

....Rate of fertility is quite high for greater percentage of women below 30 years

Consumption of vegetable is very low ..limited to 3-4 brinjal, lady finger or bitter gourd for entire family even in rain season... that graduallydecreasesthrough summer..only in Jhabua cluster most families take more than 0.5 of vegetable per day in rainy season , as evident from the vegetable resiude of a family given to the goats (Dongar lau, Jhabua)

Huge difference in terms of number of children attending, quality of food, care and cleanliness, respect to the dignity of the child across the micro clusters owing to number of factors- attitude of the AWW & teachers; supply chain, facilities and most important ,the level of engagement of the community (pix : AWC, tribal village Khaliamunda, Kalahandi , Odisha)

Detailed Report /Appendices

1. Context and methodology

Food insecurity and malnutrition continue to be a major problem in India despite interventions at different levels. State of livelihood resources and practices, living environment, day to day practices and perceptions, community engagement with the issues and host of factors influence the degree of intensity of the problem that varies across the micro eco systems.

Empirical studies, data base at govt. and other institutional level have identified and ranked different parts of the country as per degree of vulnerability. Studies have widely documented linkages and underlying factors leading to food and nutrition insecurity across community, gender and age groups.

The 'Multi-dimensional nutrition-sensitive assessment' (MDNA) carried out in the IGSSS facilitated project area under SOUL (Sustainable Options for Uplifting Livelihood) was not focussed to add to the data base, complex ranking relating to the food insecurity and malnutrition, but to generate insight to the problems, issues and opportunities from the perspective of rural community to help bring about a positive and sustainable change and resilience building..

The'Assessment' was tagged as multi-dimensional in the sense that it envisaged to explore the linkages in relation to Nutrition- sensitive determinants (livelihood and living environment, sanitation and hygiene, cultural practices and perceptions, access and utilization of support systems, community engagement and initiatives, etc) as well as the nutrition specific determinants (intake, access and utilization of services delivery and vulnerability reduction mechanism, prevention and practices etc).

The 'assessment' was situated in 3 micro clusters, 6 villages predominantly inhabited by ST and SC communities distributed across 3 States with relatively greater food and nutrition problem (MP, Bihar, Odisha). The sample represent two contrasting situation; one set of villages with limited livelihood resource and practices, and the others thathave access to diverse resources and practices. The sample villages, located in typical rural setting with relatively easy access to all weather road and mobile connectivity were purposefully selected to eliminate the dimension of remoteness as a factor influencing nutrition issues, and for better representation of average villages (with road connectivity and other standard facilities that assumed to be available at present) as well.

2. Objective and scope

The objective of the MDNA included the following:

- Identify the groups at risk in context of food security and nutrition
- Identify nutrition issues (including the constraints/ barriers) and the contributing factors – socio-economic, cultural, climatic, institutional, etc
- Identify opportunities to address the address the food security and nutrition issues

Scope of MDNA included the following:

- Understand the access to livelihood resources and practices
- Understand the sources of food and nutrition
- Understand the impact of local climate variability on livelihood
- Understand the food intake practices and diversity
- Understand the changing scenario of food production consumption in future perspective
- Understand the living environment, sanitation and hygiene practices

- Understand the maternity and childcare issues – access to food supplement , institutional access, socio cultural perceptions
- Understand the inter-linkages of different dimensions and opportunities to help effect a positive change

3. Methodology

- MDNA primarily focussed on community level exploration based on 'proxy indicators'(indirect measure that provides sufficient information for assessment).
- Methodology included the following:
    - Rapid appraisal of one day each per village in six villages; 2 each in three micro clusters in Jhabua, MP, Nawada, Bihar and Kalahandi, Odisha, in collaboration with selected local IGSSS partners involving FGD, transect, institutional visit, and interaction and orientation of selected staff of local Partners that carried the 'detailed assessment', later on.
    - The 'detailed assessment' was carried out carried out in 2 villages each in 2 clusters in Nawada, Bihar and Kalahandi, Odisha. It involved household level baseline, information and observation from sample of 25 married women below 30 years in each cluster, multiple FGDs as per structured checklist, visit and interaction with community level service delivery institutions.
    - The rapid appraisal, design of the methods of collection of information and observation ; data analysis and the report developed were facilitated by one Consultant Facilitator

Table-1 Sample villages: Basic information

Sl no	Name of the sample villages	Bock/District/ state	Community/ HH	Highlight	Participation in MDNA process
1	Lailin Nagar	Roh Block/Nawada district/ Bihar	SC 100%	Land less, dependence on wage earning, mostly out migration; 5 minute walking distance to all weather road	Rapid appraisal; household baseline, sample women data collection, multiple thematic FGD
2	Sundar Garh	Roh Block/Nawada district/ Bihar	SC100 %	Land less, dependence on wage earning, mostly out migration; 10 minutes walking distance to all weather road	Rapid appraisal; household baseline, sample women data collection, multiple thematic FGD
3	khaliamunda	Urladani/ M.rampur/ Kalahandi/Odisha	84% ST and rest SC/OBC	Multiple sources of livelihood, including forest; within 0.5 km from all weather road; rain fed slope and plain land	Rapid appraisal; household baseline, sample women data collection, multiple thematic FGD
4	Jharkhaman	Urladani/ M.rampur/ Kalahandi/Odisha	86% ST and rest SC/OBC	Multiple sources of livelihood, including forest, within 0.5 km from all weather road, rain fed slope and plain land	Rapid appraisal; household baseline, sample women data collection, multiple thematic FGD
5	Hatyadeli	Meghnagar Block, Madhya Pradesh	ST 100%	Multiple sources of livelihood, within 0.5 km from all weather road, rain fed undulated elevated land, mostly double cropped	Only Rapid appraisal
6	Dongra Lalu	Jhabua Block, Madhya Pradesh	ST-100%	Multiple sources of livelihood, ,within few meters from all weather road, rain fed undulated elevated land , mostly double cropped	Only Rapid appraisal

Table-2. Details about Sample married women below 30 years of age

Vill/ref	Total sample	Distribution of sample women by present age-% of total							Distribution of sample women by number of delivery - % of sample women							
		<15 year	16 to 18yr	19 to 20yr	21 to 22yr	23 to 25yr	26 to 28yr	29 to 30yr	0	1	2	3	4	5	6	7
Nawada Cluster	25	0	4	0	12	28	20	36	8	4	24	16	16	16	12	4
Kalahandi Cluster	25	0	4	0	25	13	21	38	12	15	31	12	15	8	8	0

Having own source of diverse production matters in context of dietary intake, diversity as well as practice...' ..never take staple food without side dish ; we always quickly fix some vegetable dish if we find little is left when we eat (women from farm families Hatyadeli &Dongar Lalu, Jhabua)

Heavily loaded: Participation of women in all the livelihood earning activities is substantial in all the sample clusters over and above the traditional responsibilities; routine household chores, and so on (pix: khalimunda region,M Rampur,Kalahandi ,Odisha)

4. Findings

4.1.Nutrition Sensitive Aspects

4.1.1. Sample villages: Community and Centrality

- Sample villages, where detailed exploration was carried out in collaboration of local IGSSS partners, are located in 2 clusters, 2 each in Nawada district in Bihar and Kalahandi district in Odisha.
- Both thesample villages in Nawada cluster are of SC, Musahar community located at about 20 kms from each other. Being landless, the community in both the villages depend mostly on wage earning; outmigration and local, and live in deplorable living environment. The villages are not very remote going by road and mobile connectivity and proximity to Block, Panchayat administration and local health facility centres.
- The other two sample villages in Kalahandi cluster of Odisha are not very remote either, but different in context of the community living there and their livelihood; the ST community , unlike Nawada cluster, have comparatively wider livelihood options – farming including shifting cultivation, collection of forest produces; rearing of livestock and small animals, poultry; wage earning, etc.

Table-3 Sample villages for the in-depth study: Community and Centrality

Sl no	Name of the sample villages	Name of Census village /Gram Panchayat/ Block/District/State	Community/ sub community	Community/ sub community
1	Lailin Nagar	Koshi/ Koshi/ Roh/ Nawada/Bihar	100 % SC, predominantly Mushar Community	o Within 2-3 Km from Panchayat HQ and within 8km from Block HQ, SHC/ ANM /PHC o Within 7-8 km from weekly market, bus stop, and 18-28 km from the nearest railway station o Connected with all weather road o Receive mobile signal
2	Sundar Garh	Samrigarh /Samrigarh Roh /Nawada/Bihar	100 % SC, Predominantly Musahar Community	
3	khaliamunda	Khaliamunda/ Urladani/ M.rampur/ Kalahandi/Odisha	84% ST-(Desia kondh & Gond) , and rest SC/OBC	▪ Within 4 Km from Panchayat HQ and within 13 -18 km from Block HQ , SHC/ 4 km from ANM /PHC ▪ Within 4 km from weekly market, 1-2 km from bus stop and 43 -48kms from the nearest railway station ▪ Access to all weather road- 0.5km ▪ Receive mobile signal
4	Jharkhaman	Jharkhaman/Urladani M.rampur/ Kalahandi/Odisha	86% ST-(Desia & Panga Kondh) , and rest SC/OBC	

4.1.2. Demographic profile

HIGHLIGHT

- Average persons per family are 5.3 to 5.9 persons in Nawada cluster and 4.7 in Kalahandi cluster. Substantial percentage families have 6 + to 10+ persons per family, 41 to 55% in Nawada cluster and 32 % families in Kalahandi cluster.
- Information on the persons, women and men that lead the livelihood of the family is important in the context of the MDNA. In both clusters substantial percentage young married couples, up to age of 30,'Lead' the Livelihood earning of the family – more than 30 to 50% women and more than 20 to 35% men in Nawada and Kalahandi cluster, respectively; indicates marriage at early age; family divisions and nucleus families.
- Poor rate of literacy of the persons that Lead the livelihood earning in both the clusters -Kalahandi cluster 13 to 45% lead women are literate (45 to 66% of the literate are up to high school level) and 27 to 47% lead men are literate (29 to 58 % of the literate up high school/inter).But in contrast,in Nawada cluster, none of the women that lead the livelihood of families are literate and only 0.7 lead men are literate.

4.1.2.1. Population and family size

- Female population constitute 49 to 52% in Nawada cluster and 50 to 51 % in Kalahandi cluster. Average persons per family is 5.3 to 5.9 persons in Nawada cluster and 4.7 in Kalahandi cluster
- Families with 6 to 10+ person constitute the highest in Nawada cluster (41 to 55%) followed by families with 4-5mebers (25 to 35%) and families up to 3 mebers (18 to 23%)
- Kalahandi cluster presents a different picture- 4 to 5 person per *family* constitute the highest (38 - 44%), followed by families with 6 to 10 mebers (31-32 %) and families up to 3 members (24 to 29%)

Table-4 Family size & distribution of families as per range of family members

Sample village/habitation	Total recorded fam	Population				Distribution of families by number of fam members				
		Total pop	% F	%M	Av Per fam	Up to 3 (%)	4-5 (%)	6- 8 (%)	9-10 (%)	10+ (%)
Lailin Nagar	145	773	49	51	5.3	23	35	32	6	3
Sundargarh	86	509	52	48	5.9	18	25	46	4	5
Khaliamunda	68	320	51	49	4.7	29	38	28	4	0
Jharkhaman	94	443	50	50	4.7	24	44	29	2	0

4.1.2.2. 'Lead' women and men

- The women and men that 'lead' the livelihood of the families (mentioned as lead women & men in the report) are considered important in context of the objectives of the MDNA. The Lead women and men are mostly couples that lead the livelihood of family except small percentage cases of widows and widowers. In both clusters substantial percentage young married couples up to age of 30 Lead the Livelihood of the family – more than 30 to 50% women and more than 20 to 35% men in Nawada and Kalahandi cluster, respectively. Relatively greater percentage of young couples leading the livelihood of families indicates greater percentage of marriage at young age; greater percentage ofnucleus families.
- In Nawada cluster, women of 21-30 age group constitute the highest percentage of Lead women (48 to 50%), followed by 31 to 50 age group (35 to 37%); only 5% Lead women are from 15-20 age group. Among Lead men 31 to 50 age group constitute the highest (51- 52%)followed by 21 to 30 age group (32-33%); 15 to 20 age group constitute the lowest 0-2% .
- In Kalahandi cluster, Lead women in 31 to 50 age group constitute the highest (47 to 56%) followed by 21-30 age group (29 to 34%); only 0-7 % are from 15-20 age group. None of the lead men are from 15 to 20 age group; 31 to 50 age group constitute the highest (54 to 67%) , followed by 21 to 30 age group (18-26 %).

Literacy

- Poor rate of literacy of Lead women & men in both the clusters –in Kalahandi cluster, 13 to 45% lead women are literate (45 to 66% of the literate are up to high school level) and 27 to 47% lead men are literate (29 to 58 % of the literate up high school/inter).But in contrast,in Nawada cluster, none of the women that lead the livelihood of families are literate and only 0.7 lead men are literate.

Table 5: Lead men & women : age group, literacy

Sample village/habitation	Lead WOMEN *										Lead MEN *								
	Total recorded fam	Distribution as per age group					Literacy				Distribution as per age group					Literacy			
							Literate - %of total	Distribution as per level of edn								Literate - %of total	Distribution as per level of edn		
		15-20 (%)	21 + 30 (%)	31 + 50 (%)	51 + 60 (%)	61 + (%)		primary (%)	high school (%)	inter & +(%)	15-20 (%)	21 + 30 (%)	31 + 50 (%)	51 + 60 (%)	61+ (%)		Primary (%)	high school (%)	inter & + (%)
Khaliamunda	68	7	29	47	13	3	13	33	66	0	0	26	54	10	6	27	61	11	28
Jharkhaman	94	0	34	56	10	-	45	49	45	2	0	18	67	13	2	47	41	56	2
Lailin Nagar	145	5	50	35	10	0	0.6	0	0	0	2	32	52	7	6	0.7	0	0	0
Sundargarh	86	5	48	37	8	2	0	0	0	0	0	33	51	8	8	0	0	0	0
	*Lead WOMEN /MEN : persons that primarily lead the livelihood of the family; includes mostly couples, widows & widowers Small variation in total number of lead women and men depending number of widows and widowers																		

4.1.3. Livelihood practices, resources, assets

HIGHLIGHT

Type and pattern of livelihood has a direct bearing on overall wellbeing and nutrition issues. The scenario emerging from the assessment is quite complex and nuanced.

- Nawada cluster: Outmigration based wage earning is the major source of livelihood for most families (70 to 91 %) in predominantly landless SC families; most of them go to different places out of the State every year for six months or more at a stretch with family including children.Only 2-5% families do sharecropping and 5 to 19% have very small scale rearing of small animals, poultry.
- Kalahandi cluster: Most families of the predominantly ST community pursue multiple sources of livelihood including farming, wage earning, livestock/small/animal/poultry and collection of socio economically important materials from forest.
- Significant participation of the women in all the livelihood earning activities- 65 to 80% of Lead women go for out migration wage earning with their husband in Nawada. In Kalahandi 72 to 86 % directly participate in own farming; 32 to 52% go for non-wage earning and 4 to 9 % of the lead women accompany their husbands for out migration ; also manage home when in 6 to 19% cases lead men are away in outmigration.

4.1.3.1. Livelihood practices

- The landless SC Community in both villages in Nawada cluster mostly depend on wage earning including outmigration (70 to 91 %); most of them go with family to different places out of the State every year for six months or more at a stretch; local wage earning is done when they are not in outmigration.

Only 2-5% families do farming through sharecropping; 5 to 19%of families have livestock/ small animals/ poultry; forest collection mostly includes fuel for family use; none are in pvt/govt job.

- Scenario is different in predominantly ST community of Kalahandi cluster; families pursue multiple options - 89 to 91% families do farming in their own land in addition to shifting cultivation (95% families in one village), about 95% have livestock/small animal/poultry ; 54 to 71% families do agri wage earning and 32 to 52% non agri wage ; all the families collect various items of socio economic importance from forest and small percentage do go for outmigration (6 to 19%); 7% families in both the villages are in pvt /govt. Job.
- There is significant participation of the women in all the livelihood activities. In Nawada cluster almost all'lead' women do agri/non agri labour (include the ones when not in outmigration) and 65 to 80% go for out migration with their husband.

  In Kalahandi cluster 72 to 86 % of 'lead' women directly participate in own farming (89 to 91% lead men); 32 to 52% go for non-wage earning (54 to 71% lead men); and 4 to 9 % of the lead women accompany their husbands for out migration; 2% lead women in pvt/govt job (5-7% lead men)

Table-6. Community observation on wage earning/ outmigration

Type of wage earning	Nawada cluster	Kalahandi cluster
Agricultural wage work in village/area	▪ Mostly in khariff season for about 15t o 20 days; wage Women: Rs.155/day & men Rs.175/day	▪ Available for about 60 days over 3 seasons- rain, winter, summer; average wage is Rs. 100, both for women and men
MGNRGEA	▪ Small percentage family, sporadically, if not on outmigration	▪ Mostly available during winter and summer for about total about 40- 50 days- widely varies from year to year
Non Agri. wage Govt/Pvt	▪ Construction and other work - local: women Rs. 200/day & men Rs.250/day. Small percentage of people not going for outmigration work	▪ Opportunity for non-agri work has increased; wage Rs.160/day.
Out migration	▪ More than 60% people going on outmigration are married – husbands, wives and children go together. ▪ Persons going on outmigration wage earning is on increase due to lack of opportunity locally	▪ Mostly young below 25 go (av 12% fam); includes small percentage of married men that go with their wives and children .

Table 7. Livelihood practices

Sample village/habitation	Total recorded fam	Major sources of living ...multiple sources										Remark
		Farming % of HH			Livestock/samll animal/poultry -	Forest collection--% of	Wage – local %		Outmigration %	Business--% of hh	Pvt/govt job--% of hh	
		Own land	Podu shifing	Share cropping			Agri-% of hh	Non agri--% of hh				
Lailin Nagar	145	0	0	5	5	90*	95%	95%	70#	0.6 %	0	* mostly fuel #mostly brick kiln
Sundargarh	86	0	0	2	19	0	100	100	91#	-	0	
Khaliamunda	68	91	95	0	94	100	71	32	6	-	7%	
Jharkhaman	94	89	0	13	95	100	54	52	19	-	7%	

Table-8. Involvement of 'Lead' women & men in livelihood earning activities

Involvement of 'Lead' women / Men in economic and productive activities (Multiple)												
Sample village/ habitation	Lead WOMEN (% of total)*						Lead MEN (% of total)*					
	Total recorded fam	Agriculture	Local agri/ non agri labor	Outmigration	business	Pvt / govtJob	Agriculture	Local agri/non agri labor	outmigration	business	Pvt / govtJob	Remark
Lailin Nagar	145	5	90	65		1	5*	90	65	1		* includes 5 & 2% sharecroppers, respectively
Sundargarh	86	2	95	80			2*	95	85			
Khaliamunda	68	86	32	4	0		91	71	6		5	teacher
Jharkhaman	94	72	52	9	1	2 (pvt)	89	54	19		7	
*Lead WOMEN /MEN : persons that primarily lead the livelihood of the family; includes mostly couples, widows & widowers												

4.1.3.2. Livelihood resources

HIGHLIGHT

Livelihood resources and assts have a direct bearing on the living environment and food intake and diversity. The sample villages in both the cluster present contesting picture.

- Nawada cluster: No access to neither land nor forest resources. Dependence on outmigration for longer period at strtetch limits the scope to pursue other options. For historical resons they have very small homsteads. None of agri land ; only 2 to 5 % families do small-scale share cropping; very small scale livestock, small animal and poultry are pursued by very smallpercentage of families -Cow for milk -1% hh, Goat-5% HH (av 1- 3 , Pig-4 to 15% hh (av 3 – 5) and poultry 5% HH.
- Living condition is constrained by majority of families (57%) having only up to1 decimal of homestead land no courtyard or front yard for most families.
- Kalahandi cluster : access to forest at close proximity for collection of wide variety of material of socioeconomic importance. More than 90% families are doing farming (65% families have less than 1 ha of rain-fed land) ; other livelihood earning activities include small animal and poultry rearing - 70% have goats (av 2-3), 90% have chicken (av 5) and 20-40% have (av 2); 7% families have cow/ she buffalo for milk (av 1/2); community fish cultivation in few community ponds, all families collect materials of socio economic importance from forest.
- Situation relating to having homestead lnad is comparatively better in Kalahandi cluster – 96% families have 3-5 decimal of HS land ; 88% families have more than 3 to 5decimal, and 50% HH have courtyard or front yard or both.

- **Hills and Forests**: In Nawada, the sample villages have no hill/forest in the village; the community access the hill and scrub forest located at 6-8 kms away mainly to collect fuel. But both the villages in Kalahandi cluster have access to forest within the jurisdiction of the village (200-1100 acres) as well as other neighboring forests.
- **Access to farm land**
  - None of the families in Nawada cluster own agricultural land - 2 to 5 percent families do share cropping; around 1acre each.
  - In Kalahandi cluster,the villages have agricultural land - 255 to 286 acre; all rain fed and about 35% are leveled and bunded.In both villages, 65%+ families have up to 2acres of land (13 to 22% up to 1 acre) and 30% families up to 3 acres. In one village almost all families do some amount of shifting cultivation and in the other, 13% families do small amount of share cropping
- **Access to homestead land (HS)**
  - In Nawada cluster, 57% of hh have just 1 decimal of HS land (436 sq. feet), the rest have 2 to 4 decimal; only 2% have backyard of up to 2 decimal; no courtyard or front yard for most families.
  - In Kalahandi cluster, 50% families have 3-4 decimal of HS land; 46% have more than 5 decimal and 8% have up to 2 decimal. All the families have some amount of backyard- 55% more than 5decimal, 33% 3 decimal and 12% 2decimal. About 50% HH have courtyard or front yard or both.

Table 9. Access to agricultural land

Sample village/habitation	Total recorded fam	Distribution of land owning families as per range of land - **% of fam having land**							Irrig ated land	% family doing shifting/podu culti	% fam doing share cropping	remark
		Average per family -acr	Land less % of total	Up to 1 acre	1+ to 2acr	2+ to 3 acr	3+ to 5 acr	5 acre +				
Lailin Nagar	145	0	100	0	0	0	0	0	0	0	5*	*0.25 to 1 acre each
Sundargarh	86	0	100	0	0	0	0	0	0	0	2*	
Khaliamunda	68	1.8	9	33	34	30	3	0	0	95	0	
Jharkhaman	94	2.9	11	13	52	30	2	1	0	0	13	

Table 10- Access to Homestead land and Backyard

Sample village/habitation	% fam not owning the HS	Distribution of families as per range of homestead land - % of HH					Having backyard - % of HH					Having front yard/ courtyard - % of HH	Remark
							Not having	Distribution of families having backyard with rage of area					
		Up to 1 dcml	2 dcml	3-4 dcml	5 dcml	6+ dcml		2 dcml	3-4 dcml	5-6 dcml	6+ dcml		
Nawada cluster	100*	57	29	14	0	0	98	2	-	-	-	-	* community claim that they have their houses on 'govt land' yet be fully regularized in their name
Kalahandi cluster	0	0	8	50	21	25	12	12	33	34	21	50%	6% families have Open Wells at backyard

- **Livestock, small animal and poultry**
  - In Nawada cluster, very small percentages of families use livestock as dependable asset; as most of the families are out on migration for substantial part of the year and they have very small accommodation for the family members; Cow for milk -1% hh, Goat-5% HH (av 1- 3 , Pig-4 to 15% hh (av 3 – 5) and poultry 5% HH.
  - Situation is different in Kalahandi cluster – apart from the livestock to support farming operation, small animals, backyard poultry are part of earning livelihood – more than 70% have goats (av 2-3), 90% have chicken (av 5) and 20-40% have (av 2); 7% families have cow/ she buffalo for milk (av 1/2); community fish cultivation in few community ponds.

Table -11. Extent of families rearing Livestock, small animal and poultry

	Nawada cluster	Kalahandi cluster
Livestock	o Cow for milk -1% hh/av-2, recent practice (milk consumed and marketed)	o Cow for milk (mostly Jharkhaman)- 5% HH ,av-1 o Cow-50- 60 % hh /av2 o Bullock 50-60% hh /av-2 o She buffalo-15-20%hh /av-2 o Plough buffalo-15-20% hh/av2
Small domestic animals	o Goat-5% HH /av 1- 3 /grow up to 8kg/yr/marketed o Pig-4 to 15% hh respectively in Lailin nagar & Sundargarh /av 3 – 5 /grow up to 15 kg when marketed around 1.5 yr	o Goat-70-75%hh/av -2-3/ marketed av 2 /yr o Pig- 20 -40%hh /av2/ marketed
Poultry	o 5% hh	o Chicken- 90%/av-5
Fish cultivation		o Community fish cultivation in common water bodies - artificially stocked.

4.1.3.3. Crops grown and wild collection

Nawada cluster: only 2 to 5% families are involved in farming through small-scale share copping; they mostly grow khariff paddy; average take home share is 3 quintal

Very small percentage of families in one village grow few vegetables plants in khariff in strip land along embankments- this practice is of very recent origin .

Wild collection: all hh catch rat for meat, especially in post rain months; catch fish from local water bodies. About 50% hh also catch crab/snail/shell during rainy season for consumption

- **Kalahandi cluster**: Varieties of crops are grown in agricultural land as well as homesteads. In agricultural land paddy, ragi and mustard are the only crops done by greater percentage of (70%) families; pulses such as black gram, horse gram and gram and oil seed,(sesame) are grown by 15- 35 % families in small scale (p average production limited to 20 to max 60kg/fam) . Brinjal is the only vegetable grown in agricultural land by few farmers for marketing (small scale).

  Maize is the only crop cultivated by most families (70%) at homesteads, in Khariff. Vegetables that are grown at backyard of homesteads by 10% or more families mostly in khariff include :lady finger (60%hh), ridgegourd (90%hh),bottle gourd-12%hh; pumpkin 65% hh, bittergourd-45%hh, spike gourd-20%hh, brinjal-20%hh,tomatoes-15%hh (Rabi). But in most cases limited to few plants.

  Long duration trees/plants that yield fruits, vegetables, edible leaves with 10% or more families (at homestead/backyard) include:Papaya- (15% hh), Banana (10%hh),Custard apple-(30 to 70 %hh), Guava (35hh%);Drumstick (40% hh), Koilari/kachnar(edible leaves 30% hh), Jackfruit (10-60%hh), traditional mango (most families have), neem (50%hh), tamarind (90%hh), Jamun (most families)

  Most families (80-90 %) have mahua tree at homestead, backyard, and farmlands.

  Wild collection: Edibles that are collected by 50% or more families include tubers, bamboo shoots, edible leaves& greens, mushrooms through the seasons. Similarly, fruits collected by 30% or more familiesinclude kendu, mango, jackfruit, jamun, khajur. During rainy season about 70% HH collect fish from runoffs, seasonal water bodies. Hunting for wild meat (mostly wild pig and wild cock) is limited to about 5% families.

  Items marketed for cash include (refer to families that cultivate as above): mustard,brinjal, greens, mahua flower and fruit

  Trends: Kalahadi cluster

  - ladyfinger, tomatoes, banana recent practice
  - 50% fam do not use papaya as vegetable
  - 85% use drumstick , 50% use drumstick leaves and only 12% use flower to prepare dishes
  - 90% use neem flower to prepare dishes

Table-12.Crops grown in different landscapes and wild collection			
12.1. crops grown in Agricultural land			
	Nawada cluster	**Kalahandi cluster**	**Remark**
Food grain	Only few families do farming on share cropping, mostly paddy - average take home share 3 qtl/acre	▪ Upland & wetland paddy all land owing families (Khariff)	▪ Paddy 9 quintal per acre / ▪ Mostly consumed
Millet		▪ Ragi 60 to 90% families (khariff)	
Pulses		▪ Urad (Rabi season)-30% hh ▪ Horsegram-35%hh (Rabi) ▪ Gram(chana)-15% hh (Rabi)	▪ Urad 30-60kg per family, mostly consumed
Oil seed		▪ Mustard 75% Rabi season) ▪ Til-25% Rabi season (Jharkhan)	▪ Mustard –most families produce up to 20kg , mostly marketed @ Rs.40kg
Vegetable	- very small scale- potato, lady finger, few families – recent trend	▪ Brinjal-5% (khariff) ▪ Greens (bhaji)- 5% -30-50 kg	▪ Brinjal 70kg/mostly marketed ▪ Greens/bhaji consumed and marketed
12.2.Crops grown in Homestead land Back yard			
Foodgrain		-	-
Millet		▪ Maize, 70%hh in khariff ▪ Bajra; very small percentage of families do in khariff	
Pulses		-	-
Oil seed		▪ Mustard- most families grow in Rabi	▪
Vegetable	Only handful of families grow potatoes in Rabi	▪ Lady finger-60%hh ▪ Ridgegourd-90%hh ▪ Bottle gourd-12%hh ▪ Tomatoes-15%hh (RabI) ▪ Pumpkin 65% hh ▪ Bittergourd-45%hh ▪ Spike gourd-20%hh ▪ Brinjal-20%hh ▪ Turmeric-5%	▪ Ladyfinger, tomatoes, banana recent practice
Long duration trees/plants	▪ Palm in one village (Sundarnagar)	▪ Papaya- about15% families ▪ Banana-about 10% families ▪ Custard apple-about 30 to 70 % families , respectively in Khaliamunda and Jharkhaman ▪ Guava-35hh% ▪ Drumstick-about 40% in both villages ▪ Kolari/kachnar30% & 5% respectively in khaliamunda and Jhakhaman- tender leaves used as green ▪ Jackfruit -60% and 10 %, , respectively in khaliamunda and Jhakhaman av. 1; consumed in fam ▪ Mahua- about 80-90 %/ families in both the villages ▪ Mango- traditional , most fam have ▪ Neem-50%hh ▪ Tamarind-90% hh ▪ Jamun-90%hh	▪ Mahua: up to 2 quintal from a matured tree; most families harvest 3.5 quintals of flower and market @ Rs.20/kg ▪ Families produce up to 50lg of mahua fruit per matured tree/ most families extract oil and use for own use-cooking and other purposes ▪ 50% fam do not use papaya as veg ▪ 85% use drumstick, 50% use leaves and only 12% use flower as veg ▪ 96% use neem flower as veg ▪ Mango- production varies over the years- mature tree can yield up to 2 qtl+
12.3.Wild collection			
Edibles		▪ Root/tuber-Puti Kanda, Ladka kanda-60%hh during Rainy season ▪ Bamboo shoot-50% hh during rainy season ▪ Leaf/green (gunjer) and	Trend (materials used in food system): ▪ Nawada cluster: catching rat for meat is a decreasing trend; volume of catch of fish and

		mushroom : (*putkel, halden, dima, bihiden, bhodu mahala*) during rain and *sunsuniua, barda, godrang ,bahal* in summer – 90 % hh ▪ Fruit-Kendu40%hh/Char20%hh/ Jamun30%hh/ Khajur40%hh in summer	crabs decreasing due to use of fertiliser and pesticides in crop ▪ Kalahandi cluster :substantially decreased : o Animals-Deer, sambhar. rabbit, ,porcupine o Reptile- Bajrakapta, saurian, Pangolin o Birds-Peacock, Harai, kochilakhai, o Insect- Khajur insect o Fish- Balia, Singal, Seula, Tortoise, Boud
Animal , birds, fish	▪ Rat-all hh- round the year ▪ Fish-all hh (*phothi, ichana,tengra,garai*) during rainy season ▪ Crab/snail/shell -30-50% hh during rainy season	▪ Wild pig, wild cock-5% round the year ▪ Fish- (*butu,serna, pusra, kalipoi, tengna*)- 70%hh during rain	
Medicinal		o About 20%hh for self treatment :*nagvel, bhui koruna, arjun, indradev, khir kanchan, bhuin neem, kahrsel, shatabari* , etc	

4.1.5. Income (of greater percentage family- 70-80%, leaving aside the income of small percentage of family that make income from specific sources)

- Nawada cluster: for the majority , except the small percentage that rear small animals (5-17% with average income of Rs.10,000), income source is local wage earning and brought home money from outmigration; averages around Rs.46,000/per year. Average 7 persons per sample village get social security pension.
- Kalahandi cluster: Comparatively wider income options; the following is the rough estimate of cash income that involves greater percentage of family (items that involves small percentage families excluded) marketing of agri produce (mostly pulses, oil seed)-Rs.12,000/; forest produce, including landless-Rs.15,000(mostly mahua, char, tamarind), local wage Rs.12,000, small animal rearing,including land less Rs.15000/ (mostly goat poultry). Average 25 persons per sample village avail social security pension (old age, widow and disable pension)

  For greater percentage families the average income is estimated to be Rs.54, 000/

Table .13. Sources of income : community observation

Particulars	Nawada cluster	Kalahandi cluster
Farming – marketing of agri produce	-	▪ Greater percentage of farming families (around 80%) earn Rs. 12,000/ (mostly pulses, oil seed)
Forest collection/backyard	-	▪ Greater percentage families earn Rs.15,000/ (including landless)- mainly from Mahua, char, tamarind
Wage- local	▪ Greater percentage families earn up to – Rs.10,000 /year	▪ Greater percentage of family including Landless earn Rs.12000/
Small domestic animal	▪ Small percentage of families earn up to Rs.10,000/ from goat/pig (5 to 17% families keep)	▪ Greater percentage of family including Landless earn Rs. 15000/ (mostly goat poultry) ▪ Small percentage of families earn about Rs.8000/ from pig (20%+ families keep)
Outmigration	▪ Brought home- Rs 25000 - 30000/; greater percentage of family	▪ Brought home money-Rs 20,000/ for small percentage of family
Social security	▪ Old age pension -4hh & 8hh, respectively in Lailin Nagar and Sundargarh ▪ Widow pension -2hh each village ▪ Disable pension -0	▪ Old age pension-13 & 22 persons, Widow pension -6hh & 7 persons, respectively in Khaliamunda and Jharkhaman ▪ Disable pension – both villages 2 persons each

4.1.6. Impact of climate variability

- All the clusters involved in the MDNA are rain fed and major source of livelihood earning is rain fed farming-animal rearing and farm related wage earring hence vulnerable to climatic variability. Going by the trend the crop growing pattern is gradually transiting towards crops that are resilient to climate variability and that match the changing food preference and cash need – cereals including millets are the major casualty.

Table-14 climate variability & impact in sample cluster

Nawada cluster	Kalahandi cluster
o Monsoon usually starts from 1st week of July and comes to an end around 1st week of September o Average rain days- 30 to 35 , community observation o Crop growing and volume of production adversely affected due to deficit and excess rainfall and untimely rainfall at frequent intervals o Feel of winter is from 2nd week of October to mid march and summer from beginning of April to end of May o As per metrological data long-term average rainfall of Nawada is 1042 mm; 86% is received during June-July-August-September , 7% during Oct-December and 5 during April to May	o Monsoon usually starts mid June and comes to an end around Mid September o Average rain days- 65 , community observation o Crop growing and volume of production adversely affected due to deficit and excess rainfall and untimely rainfall at frequent intervals o Feel of winter is from last week of October to Feb last and summer mid March to end of May o As per metrological data long-term average rainfall of Kalahandi is 1403 mm; 86% is received during June-July-August-September , 6% during Oct-December and 6 during April to May

Jhabua cluster

- As per metrological data long-term average rainfall of Jhabua is 813 mm (fluctuated between 632mm to 1189mmn over recent past) ; 92% is received during June-July-August-September , 7% during Oct-December and about 1 during April to May
- The principal kharif crops include: maize, rice, jowar, urad, soybean and cotton. Area under commercial crops like soybean, cotton and urad in the kharif season are on the increase; area under maize (these crops are better adaptability to climate fluctuation and better market price, observed community) is increasing as well but area of cultivation of cereals jowar and rice are declining (poor adaptability to climate fluctuation, the community observed. The cereal crops that are fast declining or almost abandoned , due to change in food preference and need of cash, include ragi, jowar, kodo-kutki and bajra. Major crops in rabi season include wheat and gram along til, alsi, groundnut and mustard. The area under wheat is increasing, observed community.

...57%hh have only up to 1 decimal of homestead land ....90% only 100-200 sq ft housing area & 40% houses have just 1 room.. (Lailin Nagar,Nawada, Bihar)

4.1.7. Living environment, sanitation, hygiene

Table.15 .Living environment, sanitation, hygiene

Nawada cluster	Kalahandi cluster
▪ **Family structure** : Most of the families (70% +)consist of Husband wife and their children; in 15-20% cases parent(s) live separately and the rest with unmarried brother/sisters & in some cases parents	
▪ **Housing** o Housing area – 100-200 sq ft-90%hh; 200+ to 500sq ft-10% o 30% houses made through govt housing programme o 40% houses have just 1 room, 30% houses with 2 rooms and 30% houses more than 2 rooms o About 8% houses have verandas o Most of the houses do not have separate sleeping room o Except the houses made through govt housing programme(with brick walls) rest of the houses have mud/wattle and mud walls. o Roof of 30% houses are made of straw; 15% khapar, 20% polythene, 30% concrete (under govt programme) & 5% asbestos o Except the houses made through the govt programme, floor of rest of the houses are made of compacted soil/mud . Floor remains damp during rain due to plinth at lower elevation o About 30% houses have windows-of them 50% are with 1 and 50% with 2 windows. Interior of 50% houses remain dark during daytime. ▪ **Assets and Facilities** o **Electric connection and gadgets**: 70 families have electric connection, most of them over the last few months. o Most families have 2 light points o Only 8% family have electric fan o Few HH have transistor Radio but all families have mobile phone, all women below 30yr know how to use mobile phone o 30% families use small solar charging systems o 12% families have Bi-Cycle o None of families have improved agri equipment o **Kitchen and Cooking**: o 70% families cook inside the living house, rest cook outside, in open or some temporary shed. All families use traditional chula , no Ujjala gas connection; use multiple type of fuel : split wood, twigs, crop residue, cattle dung cake o Fuel is mostly collected by women from forest about 6km, and agricultural land; mostly few times in month; husbands sometimes help. o **Animal shed**: Most families that have small animals (goat) and poultry keep them inside the house; pig are kept out of house in separate shed	▪ **Housing** o Housing area – 200-250 sq ft-70%hh; 300+ to 400sq ft-30% o 25% houses made through govt housing programme o 70% houses have 2 rooms, 25% houses have 3 rooms or more and 5% houses have just 1 room o 65% houses have verandas o 40% houses have separate sleeping room o Walls of 60% houses are made of mud/wattle & mud; 22% have brick and mud mortar walls and about 18% brick and cement mortar walls o Houses made through govt programme (20%) are with RRC roof; 58% are with traditional khappar, and the rest 22% asbestos. o About 20% houses are with plastered floor and the rest with traditional reinforced mud floor. In 50% cases the floors feel damp during rains. o 75% houses have 1 window and rest 2 windows ▪ **Assets and Facilities** o Electric connection and gadgets: 90% families have electric connection since 5 to 7 years o Most families have 1-2 light points; only 38% hh have electric light at place of cooking o 15% families have mixer; 8% have electric fan, 12% have TV and 10% have fridge o Few hh have transistor radio; 50% families have mobile phone but only 12% of sample women know to use mobile phone o Solar charging-3%hh;Emergency light-30%hh o Bicycle-40%hh o Improved agri equipment- Sprayer-8%hh o **Kitchen and Cooking**: o 92% households cook insides the house, 8% have separate kitchen. However, 50 % cases occasionally cook in Chula in the open or on veranda o All families use traditional chula, along with improved chula (about 4%); about 4% families have Ujjala gas; 8% have regular gas connection. o Cooking fuel used in traditional chula- splitwood-100%; 50% hh use twigs along with split wood o Fuel is mostly collected by women from forest (0.5 to 2 kms) and trees on agricultural land; mostly weekly; in most cases husbands also participate o **Animal shed**: While livestock are kept in separated shed at back or front yard; 30 % cases small animals (goat) are kept inside the house and the rest separately outside the living house; poultry in

- **Sanitation and hygiene**
  - **Toilet :** Less than 1% hh have toilet under govt programme, no one uses
  - **Use of mosquito net**-25%hh have and use
  - **Family level water use practice**
  - Most HH use Govt Tube-well for drinking and cokking as well (few families in Sundergarh have private shallow tube-well)
  - Mostly daughter in laws collect water – mostly govt tube-well located at distance of 5to 30 meters; 4-5 times in a day; 6 to 10 pitchers required for the household chores; sometimes they are assisted by adolescent girls.
  - Except in few cases (stored in bigger plastic drum) water is used directly from collection vessel (not stored separately); water is kept both inside and outside the house (courtyard veranda); covered only in 25% cases; usually water is dispensed dipping smaller pot/tumbler inside
  - In most cases aluminium pot and plastic bucket used for collection of water; in about 25% cases bell metal and earthen pitchers are used. In most cases collection pots are used for other purposes as well- bathing, feeding livestock and few cases for cleaning after open defecation.
- **Washing /cleaning of cooking vessel/utensil , vegetable and utensil**
- In most cases cooking appliance used include aluminium pot, deep frying pan and flat pan; and for eating families use steel /aluminium plate
- Washing of vessels, plates are done with water from multiple sources- tube well, pond, seasonal stream , etc
- In most cases same plate is used by multiple persons before it is washed; only about 25% cases plates are washed soon after eating. Routine washing is done either in morning, noon or night. As responded by the sample women, in 70% cases there is no fixed place for cleaning utensils/cooking vessels – at home site, public tube well, pond; only few families do it at a fixed place with/without stone platform. In most cases cleaned with water, ash, soil. Adolescent girls also do cleaning.
- **Personal hygiene :** Most of the women (including below 30), adolescent girls and children take bath at govt tube well; the families having own shallow tubewell/open well prefer to take bath there; in few cases they prefer to take bath at home with water collected from public tube wells.
- Only 25% sample women below 30 years use soap every day or few times in a week; others do so occasionally

  Washing hand before serving food: All the sample women responded as to washing hand before eating and serving food- with water; however, most children do not do so before eating.
- **Cleaning of cloth**:done at family level, mostly done by daughter in-laws, adolescent girls. As reported by the sample women most families clean with most cases are kept inside the living house in separate enclosure.

- **Sanitation and hygiene**
- **Toilet:** all the families in one village has toilet in one village under a special govt program (khaliamunda) and 13% hh have in the other sample village ; overall, less than 10%hh use toilet sparingly
- **Use of mosquito net**-100%hh-most families have multiple mosquito nets, used regularly
- **Family level water use practice**
- Most HH use Govt Tube-well for drinking; and cooking as well ; in few cases families use govt open well
- Primarily daughter in laws collect water from sources located at distance of 50 to 200 meters; in most cases 4-5times in a day - 6-10 pitchers; sometimes assisted by adolescent girls. Collection vessel is not usually used for other purpose. Mostly water is directly used from the collection vessel; not stored. Water collected is usually kept inside house or inner courtyard veranda; drinking water pot is covered and water dispensed by bending the vessel or dipping smaller pot/tumbler inside.
- **Washing /cleaning of cooking vessel/utensil , vegetable and utensil**
- In most cases cooking appliance used include aluminium pot, deep frying pan and flat pan, about 10% hh have pressure cooker. Most families use steel plate/aluminium plate for eating; some families use bell metal and plastic plates as well Siali leaf plates in some occasions. In most cases cleaning is done with water from govt tube well; in few cases govt open well
- In most cases plates are washed soon after eating and not used by multiple persons. Routine cleaning cooking vessels and plates are done in morning and noon mostly by daughter in-laws, sometimes assisted by adolescent girls. In Jharkhaman , greater percentage of hh have fixed place of cleaning with stone platform in house compound; in Khaliamunda most clean at fixed place without platform; small percentage clean at tube well. In most cases cleaning is done with ash ; only few hh use detergent soap.
- **Personal hygiene:** Women, adolescent girls and children take bath at govt tube well (also pond and stream in Khaliamunda); in few cases they prefer to take batch at home with water collected from tube wells.Young men prefer to take batch in ponds/ streams. Almost all women below 30 years use soap every day
- **Washing hand before serving food :** All the sample women responded as to washing hand before eating and serving food- with water; children and other family members also do so they responded..
- **Cleaning of cloth:** Clothes are cleaned at family level using soap/ detergent powder; mostly done by daughter in-laws weekly few times and before

soap weekly few times and before ceremonies / festivals; in about 25% cases cleaned with soap only occasionally.

- **Toilet practice:** All the sample women responded going for open defecation along with other family members. Few toilets under the Swocch Bharat Yojana are under construction but sample women were not sure of use owing to different reasons - too exposed to public, need to carry large quantity of water from distance. However, for open defecation, in most cases they carry water (use surface water bodies in season). They use water and soil for cleaning. Other family members – adolescent girls, children do the same; Except few adolescent girls, none of them use sleepers.

ceremonies / festivals.

- **Toilet practice**

  Despite the toilets, as mentioned earlier, 80% go for open defecation, only some members having toilet use occasionally; problem of water is given as one of the reasons for not using. Sample women shared that they carry water for open defecation; use water and soil for cleaning; in 4% cases sample women clean hand with soapafterwards. Other family members – adolescent girls, children use water and soil; most of the women, adolescent girls and children use sleepers.

Division of work: gender perspective

- All the household chores, cleaning of domestic animal shed & disposal of waste; sweeping, smearing, repair of floor/walls, fetching water for drinking and other household chores; feeding/care of domestic animals; cleaning utensil, collection of fuel for cooking, serving food to family members are done by married women- young or old.
- Cooking – 2times (morning, evening) or 3 times (including mid noon) is done by women- young or old; they also collect vegetable/green/mushroom from garden, forest, village environment as well as NTFP; also and catch fish in shallow water bodies .
- Farming/ agri wage earning: except ploughing, women, younger or elder participate in almost all operations –sowing, transplanting, weeding, application of fertiliser/pesticide ,uprooting/cutting, harvesting, post production care, storage of agri produce, home garden, etc . Adolescent girls, men also participate.
- They also participate in marketing provisions, collecting PDS items, agri non agri wage earning including MGNRGEA. Women also join their husbands on outmigration, with children.

....one of the few good practices.. (Dongr lalu, Jhabua)

4.1.8. Community level institution/govt program

Table- 16. Community institution & Govt program : Community observation	
▪ No village development committee or any other operational committees ▪ WSHG- 2 in Lailin Nagar and 1 in Sundargarh ▪ Lailin Nagar shares Ward with another habitation and the elected Ward Representative is from that habitation ; in the other village Elected Ward representative is from the habitation ▪ Lailin Nagar : No Primary school in the habitation. Mini ICDS centre building is there but not operational. The habitation continue to be part of Services of the ICDS centre at main village, Koshi (since 2009) , located about 1 km away . The other village, Sundargarh has Primary school since 2002/03; Mini ICDS centre since 2013-14. ▪ Major festivals : Jitiya, Chhat, Karma; families contribute Rs. 500-1000/year for different festivals ▪ Govt program include: construction of toilet under Swochh Bharat Abhiyan, Construction of Houses under Pradhan Mantri Awas Yojana, MGNREGA	▪ Village committee in both villages; also school committee and committee for AWCs ▪ There are 5 and 6 WSHGs in Khaliamunda and Jharkhaman, respectively; one Youth club and Farmers club ,seed/grain bank in both the villages ▪ Elected Ward representative is from the habitation in both the sample villages ▪ Khaliamunda has Primary school since 2009 and full ICDS centre since 2003; Jharkhaman has UP school; mini ICDS centre since 2009 ▪ Major festival : Ramanavami- Rs.100/ contribution per family ▪ Major community initiative recently- Land patta through FRA ▪ Govt program include: construction of toilet under Swochh Bharat Abhiyan, Construction of Houses under Pradhan Mantri Awas Yojana, MGNREGA. Malaria Test by ASHA, Supply of malaria medicine

..on their way back from the Anganwadi Centre, about 0.5km from the village (Sundergarh, Roh, Nawada, Bihar)

4.2. Nutrition specific aspects

4.2.1. Sources of food

Highlight

- Major source of staple food for food deficient farm families (around 50% families manage up to 6 months from own production), consists of own production + PDS + open market (5 member family gets about 25 kg form PDS but need about 60 kg per month) ; wage earning in kind only supplements in small way
- Landless wage dependent families mostly depend on PDS and open market, and families going for outmigration for longer period and not having PDS card for various reasons mostly depend on open market for staple food material (Nawada cluster- almost all landless; most go on outmigration with family and greater percentage do not have PDS card)
- Access to food/nutrition supplements help fill the critical gap , for example Kalahandi cluster, where access to food/nutrition supplements looks comparativelyimpressive, students from 70-80% families access MDM at schools; three year + children of 30% families get nutrition rich breakfast and cooked foodthrough playschool at AWC; pregnant/lactating women from 15% families get THR .
    - **Issues:**
        - Considerable percentage of families not having PDS card (in Nawada cluster only 40% have)
        - Irregularity in availing PDS due to problem in supply chain and mismanagement at dealer level
        - Large percentage of 3+ children do not have Aaadhar card , prerequisite to have PDS card
        - Poor access to food supplements , THR and MDM etc due distance to schools, AWC; mal functioning of AWCs, outmigration and absence of community vigilance (as in Nawada cluster)
        - It is observed that due to lack of dietary practice at the family level, children accessing MDM are not interested in vegetable- they aviod vegetable when used in some of the items in the menu. At MDM children like rice,egg and mixed curry of potato and gram/soybean and arhar dal in Nawada cluster, and rice with egg /arhar dal in Kalahandi cluster.

Table 17- Sources of staple food and supplement

Nawada Cluster	Kalahandi cluster
▪ Only few families that do share cropping (2-5%) to some extent enjoy own production (brought home share) that takes care of the food need of the family for about 3 months o Almost all families depend on buying from open market and only a limited extent on PDS, as only small percentage of families have PDS card (40%) and, most of the families who have remain absent in greater part of the year due to outmigration. Those avail PDS get 5 kg of rice/wheat combination per person /month and kerosene. There is huge irregularity in PDS due to problem in supply chain and mismanagement at dealer level, observed the community. o About 8% families get part of the wage in kind against certain agri. work contribute to the food need.	▪ Over 90% of families have own production in varying extent from own/share cropped land. ▪ About 80% families produce far less than what they need – 20% family manage up to 3months from own production ; 30% family up to 6months and another 30% up to 9 months; only 20% family up to 12 months. Hence, greater percentages of families depend on sources other than their own production. ▪ About 90% families have card and access PDS. Except about 5% families that take combination of wheat and rice, the rest take rice (5kg/person/month) and kerosene. Supply is mostly regular, community observed. ▪ About 30% families get part of the wage in kind against certain agri. Work that contributes to their food need.

- Overall, all the families depend on market to fulfil their food need fully or partially.
- Access to food supplements (throughMDM at school and AWC) is negligible due to several factors- large percentage families are on outmigration with children; women do not register with AWC or send their children; problems at AWC- lack of follow up by AWWs , irregularity in supply chain, etc; as a result greater percentage of children and mothers do not benefit from THR/MDM

- Dependence on open market for food grain is substantially less- just to fill the gap between own production +PDS ration and what the family needs- roughly 60% family buy staple food material from open market in varying quantity.
- Access to food supplements (through MDM at school and AWC) is impressive- students from 70-80% families access MDM at schools; children from 30% families access food supplement through playschool at AWC; pregnant/lactating women from 15% families get THR (THR for adolescent girls discontinued at present)

Mid Day Meal (MDM)

Students from villages with large number of families on outmigration remain absent from school as they go with their parents- for example, most of the 39 students of sample village Sundargarh in Nawada are irregular , especially remain absent during Oct to March; same with number of students in Khaliamunda of Kalahandi cluster.

However, welcome change is parents taking interest in education of children; number of girls and boys are at present studying in govt and private residential /day schools – primary to high school (67 – includes 23 girls from 2 sample villages in Kalahandi; 6 – includes 2 girls, from Sundargarh in Nawada).

MDM menu		
	Nawada cluster	Kalahandi cluster
Monday	Dal Bhat & Sabji	Rice & dalma
Tues day	Rice & Soyabin with potato	Rice & soybean
Wednesday	Khichari and Chokha	Rice & egg
Thursday	Dal Bhat & Sabji	Rice & dalma
Friday	Rice, egg & mix vegetable with potato and gram	Rice & soybean
Saturday	Khichri and Chokha	Rice & egg

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...the plate shows what is in the family food basket ...(family that depends on outmigration with relatively good house, Sundargarh, Nawada)

4.2. 2. Food Intake: Practice and Diversity

Table-18 Food intake: Practice and diversity		
	Nawada cluster	Kalahandi cluster
	Particulars	Particulars
The last year	▪ 60% families had 3 meals to eat throughout last year. July to Oct/Nov was the difficult period to get 3 meals/every day; getting adequate wage work was the reason (brick kilns where most of them go for outmigration wage earning are closed during this period)	▪ 100% families had 3 meals to eat throughout last year ▪ However, July to October was not so smooth due to limited wage opportunity and stock of food grains getting exhausted.
Broad eating/ cooking practice	▪ Getting up from bed – 5-6 AM, all age group, all season ▪ No tea biscuit ▪ Morning meal by 11AM, mostly over the night cooked water rice ; children take ealier around 7 AM ▪ 'Lunch' around 2PM ▪ No late afternoon/ evening snacks ▪ Night meal between 7-8PM ▪ Women decide what to be cooked as per available of materials ▪ Cooking: mostly 2 times- morning (eat overnight cooked food and cook for lunch) and evening; some percentage of families cook at noon (after coming back from work or by practice) ▪ **Eating:** o Only in 10% of cases family members eat together in day time but in 90% of cases family members eat together at night o Usually persons going for work east first, otherwise children and husbands eat ahead of women ▪ No readymade snacks at home except festivities ▪ Almost all families take over the night cooked rice (water-rice) during morning and some during lunch ▪ Small percentage of family take roti with rice/only during night meal ▪ Except handful of families, no practice growing vegetable; considerable percentage of families take morning rice (water-rice) as well as roti with salt, chili, onion ▪ Slowly, the young are developing taste for chowmein, egg-roll, etc, consume when they go out to the market.	▪ Getting up from bed – 4-6 AM, all age group, all season, children get up little late. ▪ Small percentage of people take tea, biscuit- recent practice ▪ Morning meal by 11AM, mostly over the night cooked (water-rice) with salt, chili, onion ▪ 'Lunch' around 2PM- good percentage families take over the night cooked- water -rice ▪ No late afternoon/ evening snacks ▪ Night meal between 7-8PM; mostly freshly cooked rice , small percentage of family take roti /rice ▪ Women decide what to be cooked as per availability of material; sometimes men ask to cook specific dishes (mostly curry), women observed. ▪ Cooking: Cooking: mostly 2 times- morning (eat overnight cooked food and cook for lunch) and evening; some percentage of families cook at noon (after coming back from work or by practice) ▪ **Eating** o During daytime the family members eat as per their work. In night, children and husbands eat ahead of women ▪ No readymade snacks at homes but most families buy biscuit and puffed rice every month ▪ But most families prepare light food items- pancake made of rice powder/sooji few times in year apart from festivals **Recent practice** o Increase of vegetable with staple food but amount is very low- just 3-4 of bitter gourd or similar. o Deep fried sooji and rice flour cake ;occasionally, during festivals o Maggi- 60% hh (Jharkhaman)

		▪ **Abandoned /reduced:** o Some tubers due to non availability o steamed mahua flower; no more in practice o kodo, gurji, kang- not produced
Staple food consumed in month	o Average consumption of a family of 5 per year as worked out by the Community : Rice: 6.5qtl and wheat 3 quintal	o Rice (100% hh) and Ragi (60%hh) : (60 kg+15kg) 75 kg per month per 5 member family-9qtl yr
Pulses	o Masoor (red lentil) : greater percentage of families (about 60%) take couple of times especially in summer months (about 150 grams at a time); only 3% families couple of times every month o Average consumption per family - 10 kg/year; from open market	▪ Dal is taken by most families regularly (black gram, kulthi, chana, arhar- about 100 grm at a time o Couple of times every month- most families take horse gram/black gram ; about 20% take arhar – mostly own sources
Vegetable	▪ Vegetable is sparingly used mostly during rain and winter (comparatively cheaper); not much in summer due to high cost (masoor dal during this period). Potato and lady finger are most consumed vegetable, followed by brinjal – quantityof vegetable consumed by most families is not much –vegetable up to 250gram at time. o Almost all families consume potato almost every day – average1qtl of potatoes purchased by family/year o Average 30 kg of onion/ year purchased per family ▪ Almost all families reported consuming taro/elephant yam few times especially in summer (purchased) ▪ Community took name of lady finger/brinjal/spike gourd and bitter gourd (like to take in rainy season) that are consumed occasionally throughout the year ; about 40/kg year (purchased)	▪ About 30% family take some type of vegetable every day – most families purchase ▪ Most families take potato/onion every day (few families produce potato and onion in small scale) ▪ Potato and lady finger are most consumed vegetable, followed by brinjal;
Edible Flower	▪ Pumpkin flower, about 5% family, seasonally	▪ Pumpkin flower, most families seasonally- 8 to 10 times
Green /leafy veg	▪ Greens are sparingly consumed during season- spinach, amaranthus (lalsag)and gram leaf (chana sag)	▪ Greens are sparingly consumed during season- spinach, amaranthus (lalsag)and gram leaf (chana sag)- dish of greens mostly taken during morning /mid day meal. About 10% families couple of times in month throughout the year.
Non veg	▪ Fish- occasionally ,mostly during rainy season festivities; almost all families, couple of times in a year -5kg/yr, purchased ▪ Egg- almost all families, couple of times year ; mostly during winter- 50-60 nos/yr/purchased ▪ Of the non-veg , chicken and pork used by greater percentage of families (500 gram at a time)	▪ Fish- occasionally , during rainy season, during festivities- about 500gram when taken ▪ Dry fish 200 gram when taken ▪ Egg 1-2 times in month as per availability ▪ Chicken and pork used by greater percentage of families -1-2 times in month (500 gram at time) ▪ Mutton- small percentage of families once in while

	▪ Chicken-almost all family, couple of times in year - 20kg/yr /purchased ▪ Mutton-almost all families, couple of times in year- 5kg/yr /purchased ▪ Pork- almost all families, couple of times in year- 8kg/year /purchased	
Wild collection	▪ Veg: few families collect greens couple of times in rainy season ▪ Non veg: most families consume rat meat couple of times in a year; catch from agri field mostly in winter, summer ▪ Fish-all hh (*phothi, ichana,tengra,garai*) during rainy season ▪ Crab/snail/shell -30-50% hh during rainy season	▪ Root/tuber-Puti Kanda, Ladka kanda-60%hh during Rainy season ▪ Bamboo shoot-50% hh during rainy season ▪ Leaf/green (gunjer) and mushroom : (*putkel, halden, dima, bihiden, bhodu mahala*) during rain and *sunsuniua, barda, godrang ,bahal* in summer – 90 % hh ▪ Fruit-Kendu40%hh/Char20%hh/ Jamun30%hh/ Khajur40%hh in summer; also Mango- almost every day-30 kg/season ▪ Wild meat, 4-5 times in year as per availability (wild pig, wild cock)-5% fam round the year ▪ Fish- (*butu,serna, pusra, kalipoi, tengna*)- 70%hh during rain
Fruit	▪ Varieties of fruits, though in small quantity, are taken sparingly ; prominent among them are mango, jackfruit, guava, jamun, kendu , papaya-ripe, banana -ripe ,orange, pineapple, berries; about 5-8kg/yr , purchased ▪ Few families have palm trees at the backyard-raw and ripe palm-fruits are consumed	▪ Mango-all families during the season- almost every day; about 30 kg in season- 70% from forest collection and 30% own ▪ Most families – ripe papaya/banana
Festival food	o Diwali – Oct-Nov- 1-2 days - sakarpala, jalebi – made of maida, sugar; deep fried and laddu o Durgapuja-Oct-Nov-1-2 days mutton, chicken, sweet o Karma- Sept-Oct- 1 day- rice, pulses, vegetable, fish o Chaat- Oct-Nov-1 day, fruit, special sweet item made of rice flour – *thekua* ,ladoo No recent change in the festive foods, community observed	▪ Nuakhai-Sept- 2 days (ceremonially eat new paddy) New - rice and non veg, steam cake (rice flour) and deep fried cake is prepared ▪ Chitra-4 days, April ceremonially taking new Mahua flower ▪ Semi Jatra-2 days, December, ceremonially taking new Beans ▪ Guruji Nua-2 days, August, ceremonially taking new millet ▪ Anka Puja- 2 days November, ceremonial mango kernel ritual Expect Nuakhai, no special food is prepared, however, more people indulge in drinking on these occasions
Cooking oil	▪ Mustard oil-all families, every day-24 ltr/yr	▪ Three types of oil used by most families - mahul seed oil (from own collection) , mustard oil and palm-oil- total about 15 ltr/year (mahua seed oil is slowly replaced with mustard and palm oil)
Drinking/ smoking	▪ Drinking: One or more family members in 80% families : 75% men, 50% women ▪ Smoking : One or more family members in 50% families : 90% men, 60% women	▪ Drinking: One or more family members in 70% families : 70% men, 30% women (during festive occasions) ▪ Smoking : One or more family members in 90% families : 95% men, 80% women

Community perception / Understanding : FGD with married WOMEN/Men below 30 years
▪ Rice and Chapati, with dal and vegetable or Rice with dal or vegetable curry, at least one *sabji* are considered as good food by women. (rice with non veg item- chicken, mutton, etc by men) . And, the same is perceived as 'nutrition' or 'nutritious' food. ▪ Stale food is considered bad. ▪ Lunch is considered as most important meal, as the first full meal of the day. Rice and vegetable/non-veg most satisfying. ▪ Potato is preferred as side item with staple food; low cost, always available, easy to store, observed the women of Nawada ; dal and potato , said women from Kalahandi. Rice and roti , just with onion , chilli, salt are liked by many; easily available and adds to taste. ▪ Gram leaves (chana sag), amaranthus (lal sag) , bathua (cheel bhaji) are preferred for taste and availability, shared the women from Nawada; drumstick leaves, said the women from Kalahandi. ▪ There is big difference in 'quality' of food in families that are land less/ depend on wage earning; they compromise with 'quality' when they buy from market, observed the women from Nawada cluster; families depending on wage have comparatively less side dish , vegetable, opined the women from Kalahandi cluster. ▪ Family having no or few young person for wage earning and having no access to income from out migration are most stressed in terms of food intake- quantity and quality, observed the women from Nawada. Single women family with old persons not able to cultivate or buy are most stressed in context of food and nutrition, shared the women from Kalahandi cluster. Such families do skip meal (less than 3 meals /day) when there is less opportunity of wage (khariff) or when they go out for wage early morning and are not able to cook. Due to PDS families do not starve any more but some families do skip meals, observed women from Kalahandi. ▪ Diversity of food has decreased; variety and extent of millet farming has substantially decreased; paddy cultivation has increased, hence agriculture demands more attention; podu cultivation has decreased; no significant increase cash crop, observed women from Kalahandi. Food intake, variety of items has become comparatively better due increase in income from out migration but population increase create additional burden, observed women from Nawada.

4.2.3. Expenses on food

Table 19. Expenses on food: Community exercise at FGD
Quantity of consumption and expense if purchased (as the case for majority HH)

	Nawada Cluster	Kalahandi cluster
Staple food	o Family of 5 / year -Rice: 6.5qtl and wheat 3 quintal o Rs. 21,000/ @Rs.22/kg	▪ Rice -60 kg+ Ragi 15kg) 75 kg per month per 5 member family-9qtl yr (own produce+ PDS combination for most) o PDS (3qtl/ Rs.300/)
Pulses	o Masoor (red lentil) 10 kg/year o Rs.500	▪ Mostly from own produce (black gram, kulthi, chana, arhar)
Vegetable	o Potatoes 1 quintal/ Onion 30 kg , other vegetable 40/kg fam/ year o Potato-Rs.1000/ o Onion -Rs.600/ o Veg-Rs.1000/	o Potato Rs.500 @ Rs.10 o Onion Rs.500 @ Rs.20 o Vegetable, tomato, ladyfinger, -brinjal-30kg-Rs.600
Non veg	o Fam/year : Fish -5kg/ egg- - 50-60 no / chicken 20kg/Mutton- 5kg/yr /Pork-8kg o Fish-Rs.800/ o Egg-Rs,300/ o Chicken-Rs.2200 o Mutton-Rs.2500/ o Pork-Rs.1600/	o Fish & dryfish-15kg- Rs.2400 o About 30 eggs-Rs.150 o Chicken-10kg Rs.1200/ o Mutton 8kg Rs.4000

fruit	▪ Mostly some of the following variety: mango, jackfruit, guava, jamun, kendu, papaya-ripe, banana -ripe ,orange, pineapple, berries) 5-8kg o Rs.600	▪ Mango-all families during the season about 30 kg in season- 70% from forest collection and 30% own backyard trees and ripe papaya from own source
Cooking oil	▪ Mustard oil- -24 ltr/yr- Rs.2800/	▪ Partly purchased –mustard 2ltr+ palm-oil 5 litre Rs. 600/ (+ 12 ltr of mahua oil from own source)
Drinking / smoking	▪ Drinking/ smoking : Rs.6000/	▪ Drinking/ smoking : Rs.3000/
Total	Rs. 40,900	Rs. 13,500

4.2.4. Mother and childcare practices and accessing service delivery

4.2.4.1. Married women below 30

Information about the married women below 30 years (because of greater fertility rate) was especially collected during the HH level baseline survey, and later more in-depth information was collected from sample of 25 women below 30 years each in both the clusters.

- The data reveals interesting patterns. In Nawada cluster, 65 to 77% HH have married women below 30 years and the same is 41 to -43% in Kalahandi cluster.
- In Nawada cluster married women below 30 constitute 25% of the total married women and 12% of the total population; the same in Kalahandi cluster is 17-18% of the married women and 9% of the total population.
- Distribution of married women in both the clusters by age group shows:
  - 18-20% married women in both clusters, at the time of assessment were below 20 years, 33 to 38 percent between 21-25 years and 42-49% between 26- 30 years respectively in Nawada and Kalahandi cluster.
  - There is considerable improvement in the age of marriage (table-20)- more than 75% of the women below 30 were married by the age of 20.

Sample cluster	**Table-20 Distribution of married women as per age group- %**				
	< 15 years	16-18 years	19-20 years	21 to 25 years	26 - 30 years
Nawada cluster	0	5	15	38	42
Kalahandi cluster	0	4	14	33	49

Sample cluster	**Table-21. Distribution of married women by age at marriage- %**					
	Below 15 years	16-18 years	19-20 years	21 to 22 years	23 to 25 years	25years+
Nawada cluster	21	71	4	4	0	0
Kalahandi cluster	0	74	21	5	0	0

- In Nawada cluster 27% of the married women below 30 years delivered their 1st child within the 1st year of marriage; 31% delivered their 1st child in hospital; in Kalahandi cluster 48% delivered within 1st year of marriage and 35% delivered their 1st child in hospital
- Fertility rate is quite high; in Nawada cluster, 12 to 26% women up to 30 year have delivered 5 to 8+ children, and in Kalahandi cluster, the 9 to 19% women have delivered 5 to 6 children by the age of 30. Women up to 30 have contributed to the total population by 29-34% in Nawada cluster and 18 to 21% in Kalahandi cluster.
- Average delivery per married women up to 30 is 2.7 to 3.7 per women in Nawada cluster; the same is 2.5 to 2.7 in Kalahandi cluster.
- Overall, of the total delivery of women up to 30 year, 13 to 22% occurred in hospital in Nawada cluster; 27 to 45% of women delivered at hospital once or more. In Kalahandi cluster 44 to 62% of the total delivery happened in hospital, 75 to 90% of women delivered at hospital once or more.
- Fertility Status of women up to 30 yearat the time of assessmentcontinue to show the contrasting pattern between the clusters. As the table shows, two villages in Nawada cluster have far greater percentage of women up to 30 are either pregnant, having new born (up to 2mnth babies) or lactating 50%+ of total women below 30 (same is 20%+ in Kalahandi)

Sample village	Table-22. Presentstatus (pre/postnatal) of women below 30 (in %)		
	Pregnant	New born	lactating
Lailin nagar	24	6	35
Sundergarh	19	20	27
Khaliamunda	10	4	13
Jharkhaman	5	13	16

- One of the factors behind huge difference in rate of fertility; place of delivery etc between both the clusters could be education; while 55% of the married women up to 30 are educated up to UP and higher (includes 17% high school level) in Kalahandi cluster, literacy is zero among women up to 30 in Nawada cluster.

Table-23. Details about married women below 30

Sample village/habitation	Total recorded family in baseline	% family having married women below 30 yr	% of below 30 married women to total women pop	% of below 30 married women to total population	Distribution of married women below 30 women (reported delivery) by total no of delivery- % of women reported								Av delivery per below 30 women responded	% of children delivered by women below 30 to total pop	Status of delivery of women below 30 year		
					1	2	3	4	5	6	7	8 or more			% of delivery at hospital of the total delivery	% cases of the women below 30 that reported delivery at hospital once or more	**% reported alive** of total delivered
Lainnagar	145	65	25	12	36	20	20	11	4	4	0	4	2.7	29	22	45	88
Sundargarh	86	77	25	13	21	18	26	10	13	8	0	5	3.7	34	13	27	92
Khaliamunda	68	41	17	9	34	29	6	11	17	2	0	0	2.7	21	44	75	96
Jharkhaman	94	43	18	9	16	45	23	6	6	3	0	0	2.5	18	62	90	88

4.2.4.2. Prenatal & Postnatal care and Practices

Table-24. Prenatal & Postnatal care and Practices	
Nawada cluster	**Kalahandi cluster**
During pregnancy ▪ Avoid heavy work close to delivery ▪ Only in some cases place of birth is decided, mostly no special preparation is done- about 60% of women that are pregnant at present expect to deliver at home	**During pregnancy** ▪ Stop doing heavy work around 1-2 months earlier to delivery, but continue to do light work up to 1-2 days of delivery. Usually do not go to the forest to collect materials during the last trimester ▪ Most families save money for related expenses ▪ Restricted food during pregnancy include: tuber, wild mushroom
Post delivery ▪ Celebration birth as Chhathi- almost all families do, cost Rs.1000/ ▪ Breast feeding of fist milk (colostrums) after birth- 60% women did so birth, 85% women breast fed till 1.5 to 2 years or above and the rest up to 1 year or so. ▪ All most all women responded to give mashed rice or rice and dal as supplement to babies along with breast feeding after 6months ▪ Post delivery, 50% women resume work after about 3 weeks and the rest after one or two weeks; elder children take care of babies when mothers go to work	**Post delivery** ▪ More than 90 % shared to have given first milk(colostrums) after birth ▪ About 70% breast feed for about 1.5 to 2 years and the rest up to 1 yearor till the birth of the next child. ▪ Post delivery rice and boiled horse gram is given to the mother ▪ Child is given semi solid/solid food after 6-7 months- biscuit and water, porridge of rice flour, mashed rice ▪ **Restriction of food for the mother**: greens, pumpkin, tomatoes, puffed rice, certain dal and mushroom ▪ After 2 years the child takes normal food as other family members ▪ 50% resume work in about a week time and rest within maximum 3 weeks. Mother in law, elder children, husband take care of the baby when mother goes to work

4.2.4.3. Accessing service delivery

Table-25- Accessing service delivery	
Nawada cluster	**Kalahandi cluster**
AWC ▪ Both the sample villages of Nawada are serviced by 2 mini centres (since 5 to 9 years); located within 0.5 to 1.5 k from the habitation. One village (LN) has one building constructed for AWC but no staff appointed, so they are still attached to the centre at the main village at a distance of 1.5km; hence, the services are mostly not used. In the other village, though the AWC is located within 0.5 km away only few families send their children; location in isolated place away from habitation is cited as one of the reasons.	**AWC** ▪ Both the villages have full centre (9 to 15 years old) inside the habitation. One already has pucca building (KM) and the building for the other is under construction; it continues to operate from the school premises. ▪ AWC of one village covers- 1 village (no hamlets) of 94 hh (JK) and the other services one village with 5 hamlets (KM) ▪ Registration of Children and pregnant mothers are observed to be regular by the Community. But not all the children registered attend AWC regularly from the hamlets about 0.5 Km away, in case of KM.

- The AWCs have access to tube well water but no toilet, no facility for washing hand, cleaning utensils, no kitchen garden

- **Services to mother and child**

(Observation of AWW/ASHA& women in FGD)

- The AWCs in both centres (main village centre in case of LN) are aged between 35 and 38. They studied up to Inter and are on the job since 2009 and 2013, respectively; both have received training including refreshers
- The helpers at both the AWCs are between 42-45 years, studied up to 7th ; received training and on the job since 2009 and 2013 respectively
- The ASHAs in LN and Sundargarh (SG) are aged 40 and 42, respectively; both studied up to 10th, received training including refreshers and on the job since 2006
- Over the last 3 years, 60% women delivered at hospital and ASHA accompanied in all the cases; ASHA also accompanied in few cases of delivery at home.
- Only 30% of sample women confirmed home visit of ASHA and counselling
- Of the two sample villages, only in one village, (SG), about 12 children of 3- 6 attend preschool
- Only 50% pregnant women receive TT 2 times

Immunization/ birth spacing/planning

- No clarity about extent of coverage of immunization; out migration with children is a problem; sometimes ASHA lines up children for immunization; last year, 12 children of one sample village (SG)had received immunization.
- Only in 35% cases sample women shared their children received immunization few times
- Not a single case of use of any family planning measures reported

Malnutrition

- As the eye sees child and mother malnutrition must be high. However, there was no clarity of information from AWW and ASHA. But 6% women claimed to have complication during delivery and Low Birth Weight of the babies delivered.

Services to mother and child

(Observation of AWW/ASHA & women in FGD)

- The AWWs in both centres , KM and JK are aged between 35 and 30, respectively; both studied up to matric have received training including refreshers and are in the job since 2009
- The ASHA in KM and JK are aged 35 and 42, respectively; both studied up to 8 th, received training including refreshers (ASHA modules) and on the job since 2006
- Persons registered/serviced last year:
  - Pregnant /lactating -20 and 18 , respectively in KM/JK; all received THR
  - 3- 6 children: KM- registered 22,attended regularly 13; JK- registered 51, attended regularly 32; get to eat breakfast (assorted sprouts) and cooked food
  - Adolescent girls: KM- registered 15, serviced 12; JK registered 17 and serviced 17. THR stopped at present
  - 6month + child THR : present-14 and 28 respectively in KM/JK- received 2kg chatua (made of wheat, horse gram, peanut, rice, sugar flour) in two times in a month and 6-8 eggs ; not in time due to problem in supply chain

Other activities during last year- both the sample villages :

- Feeding demo -2-3 times
- Dietary/nutrition counselling -5/6 cases (home visits are confirmed by some women- counsel for immunization, taking IFA tablet, use of mosquito net)
- Nutrition counselling at school -9 / 10 times
- National De-worming Day observed
- Health and nutrition day observed last year-12 & 8 respectively
- Other special programme/day organised include - Mission Indra dhanush 6t, pulse polio/ breast feeding week, hand washing day

Immunization/birth spacing/planning

- Almost all pregnant women taken TT 2 times
- Immunization drive done last year-4 times in both sample villages and cases lined up
- All the new born during last year immunized -7/11 (KM/JK)
- Most children under 3 immunized last year- 14/28 (KM/JK)
- 75% under 5 children immunized last year -31/23 (KM/JK)
- All the pregnant women immunized last year-10/11 (KM/JK)
- under 5 and 5+ received deworming & calcium supplement last year-29 / 23 (KM/JK)
- In 10% cases women shared to have taken family planning measures.; all tubectomy -12 /14 (KM/JK)

Diseases/health complications

- During pregnancy **:** Blood deficiency- in case of about 10% pregnant women
- Post delivery: Jaundice of mother and child and Pneumonia are common (2 cases in one village, last year)

Diseases/health complications (women/children related)

Diarrhoea (about 30 cases last year) ; typhoid (25 cases last year), malaria (45 cases last year)

Families usually go to quacks and spend Rs.200-2000+ for the above ailments

Issues

- Apathy of parents, outmigration of greater percentage of families with children for number of months at a stretch, etc are some of the reasons for many children not availing services.
- Not all the pregnant women register with AWC – outmigration; distance and lack of seriousness are the reasons
- Pregnant women get IFA but do not take; they have 'no faith on the tablets and some fear that the child might have abnormal growth leading to complications'.
- None of the women shared to have received THR from AWC : outmigration for long period; distant location of AWC; irregular supply , poor quality are given as reasons (same in case THR for children)

Malnutrition

- During the HH survey, 13% women claimed to have malnutrition of self and 11% claimed that their child suffer from malnutrition; 3% claimed to have complication at the time of delivery; 5% shared to have child with LBW; 20%shared that their child between 3to 9monhts was identified with malnutrition- jaundice, anaemia

- **Observation of ASHA/AWW (referring to last year)**
  - Five cases each of malnutrition in KM/JK referred to NRC- all recovered - one child stayed at NRC for 12 days
  - 2 cases of red zone (low birth weight) – one was referred to NRC, but parent unwilling to take – do not want to stay there for days ; one case treated at home with digestive medicine and vitamins
  - 3 referral cases of women (anaemia)
  - 3/4 (KM/JK) yellow zone malnourished children attended
  - 2/3 (KM/JK) high risk (anaemia) pregnant women serviced
  - 3 low birth weight (LBW) babies serviced – below 1.5 kg
  - One case of underweight baby serviced – weight reduced after 2 month of birth
  - Case of Stunting/wasting registered -3/4 (KM/JK)
  - 2 cases of prolonged bleeding after delivery (due to resuming work / workload few days after delivery)

Diseases/health complications (women/children related)

- Jaundice, loose motion, dysentery, malaria

Issues

- THR is irregular in about 30% cases of scheduled delivery - problem in supply chain is the reason
- Children not coming regularly due to apathy of parent; distance , especially when the AWC located away from the habitation or serving number of hamlets
- Most of the women that receive IFA tablets do not use the full course – stop using after initial 10-15 due fear of overgrowth of the baby and complications at the time of delivery ; some complain problem of constipation
- THR are usually shared with other family members

Much more needed than stand alone activities - picture says it all .. children attending & not attending school... difference as well as commonalities.. (from Nawada and Jhabua)

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