

Chapter III

Life – Women and Children

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In this chapter we confine ourselves to a few indicators that determine the status of a household in reference to poor socio economic condition in fringe villages of our study area involving the women (housewife) as the pivotal character. Nutritional level of children measured in terms of weight is also discussed. This approach has been adopted to understand-

- How basic elements of people's lives like house type and fuel used correlated with poverty.
- Patterns across villages, and within villages across households
- Making a realistic analysis of nutritional requirements of a women and children to lead a healthy life.

Survey is designed in line with PAHELI 2011 with necessary modifications taking into consideration the local needs, environment and social customs. The following important points have been kept in mind while undertaking the survey-

A set of **selected measurable household-level indicators** was developed for the domain called “life” e.g. the type of house people live in, the cooking fuel used, the food intake of women etc.

To make our survey more interactive and easy to use, the survey sheets were simplified and our surveyors were trained to help them fill the forms. The main respondent for the surveys at the household level was an adult woman in the household. In addition, the questions about the PDS (food security schemes) and the MGNREGS were posed to members of the household who were BPL/ration card-holders or labourers who had worked under the MGNREGS.

1. Type of house:

The type of house that people live in is one of the easiest things to observe. This is the reason that it is often used in surveys as a correlation to poverty. While housing may depend on the availability of local materials, cultural influences and agro- climatic factors, it is one of the basic requirements for human survival. Table1 shows the types of house among the households surveyed.

Table 1: Type of Houses Villagers Live In (%)					
Village	Sample size	Kutchha	Semi pucca	Pucca	Total
Kohora 2	22	91.2	7.5	1.3	100
Kohora 1	18	36.6	33.7	29.7	100
Sildubi	10	72.6	24.5	2.9	100
Halodhibari	14	75.1	23.5	1.4	100
Bamungaon	20	81.8	12.7	5.5	100
Bohikhuwa	25	75	20.3	4.4	100
Agoratoli	16	60.1	20.2	19.6	100
Total	125	65.9	25.7	18.2	100

The findings reveal that a majority of the people (65.9%) in the seven villages live in kutchha (mud) houses.

The people living in semi pucca and pucca houses were 25.7% and 18.2% respectively.

2. Primary cooking fuel:

Cooking fuel is another easy to observe item in households. This indicator is also a good correlate of poverty. Better off people tend to use fuels that do not need time to collect or burn. A large proportion of time of rural households members, especially women and girls, is spent in gathering firewood. This prevents them for using their time for employment, income generation or education. Further, the indoor air pollution caused by smoke from the fuels used by household is considered a serious health risk factor. Half a million premature deaths and nearly 500 million cases illness are estimated to occur because of this, children below five years and women appear to be particularly affected. Besides health risks, the use

traditional biomass has other negative social affects-the main being the time spent in collecting biomass fuel.

Village	Sample size	Sticks and firewood	Biomass	kerosene
Kohora 2	22	99.4	0.1	0.8
Kohora 1	18	98.2	0.9	0.1
Sildubi	10	96.4	6.7	1.9
Halodhibari	14	93.5	6	2.2
Bamungaon	20	97.1	0.3	0.7
Bohikhuwa	25	96.7	4	1.2
Agoratoli	16	97.4	2.5	6.9
Total	125	96.9	2.9	1.9

The findings reveal that 97% of the rural households surveyed used (including dried twigs and grasses) and fire-woods as the main household fuel. There was not much variation across the seven villages. Only 1.9% of the households reported using kerosene as a cooking fuel, with the highest usage in Agoratoli at 6.9%.

Village	Sample size	%					total
		Only one	Two	Three	Four	No response	
Kohora 2	22	96.7	2.9	0	0	0.4	100
Kohora 1	18	94.2	5.7	0	0	0.1	100
Sildubi	10	89.9	9	0.8	0	0.3	100
Halodhibari	14	90.3	8.2	0.7	0.4	0.4	100
Bamungaon	20	93.7	5.9	0.2	0	0.2	100
Bohikhuwa	25	94.6	4	0.5	0.1	0.8	100
Agoratoli	16	83.4	14	1.8	0.8	0	100
Total	125	91.8	7	0.6	0.2	0.3	100



biomass fuel or fuels. What we found in the survey was that only 25% of the households

among the 7% that used two types of fuel, used kerosene alongside sticks and firewood. There were variations among villages for multiple cooking fuels, that is, the use of a combination of firewood, biomass fuels or other fuels or a gas stove. In Agoratoli, 14% of the households used two types of cooking fuel, while the figures for Sildubi and Haldhibari were 9% and 8.2% respectively. Predominance of the firewood use is due to easy access to the same in the national park fringe areas.

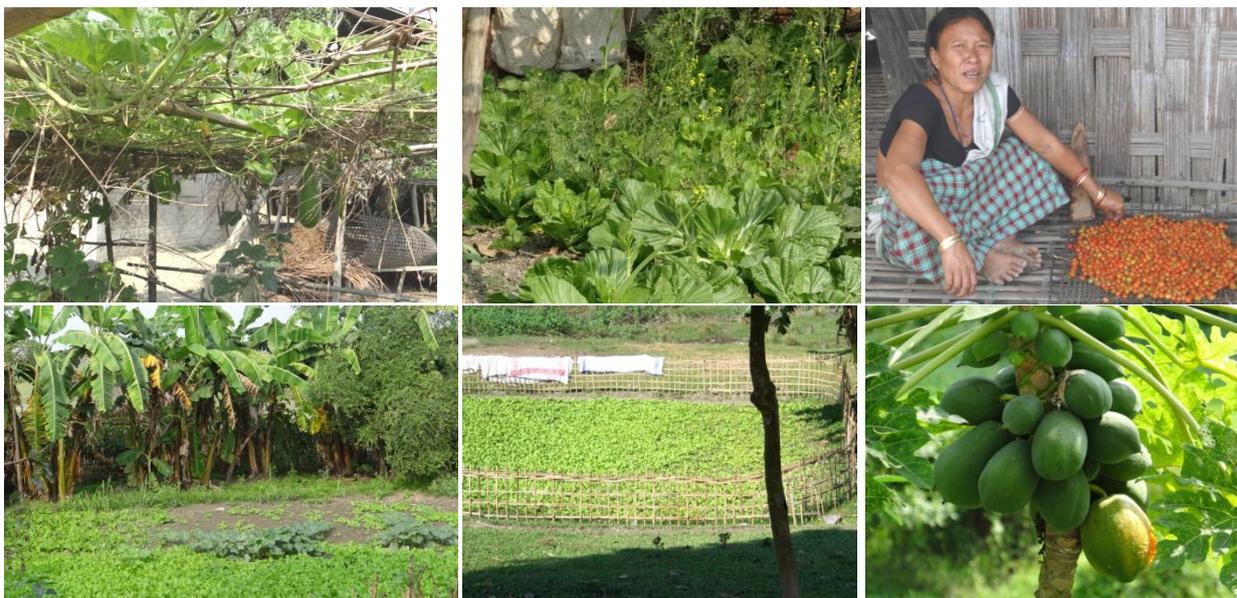
The social advantages of partial fuel switching –where wood continues to be used is partially substituted by cleaner fuels-such as health benefits and time savings for women and children need to be better understood. Partial fuel switching is the first step towards full fuel switching and may accelerate the process, and efforts to promote it may be justifiable even if its immediate social benefits are limited.

3. Food Habit of the Women living in the Fringe Villages of KNP:

High level of adult malnutrition (around 30%) were experienced in India's 11th Five-Year-Plan. Women form the most vulnerable groups requiring indepth analysis and remedy for such nutrient inadequacy.

We intended to have clear understanding and insight into the food consumption habits of poor adult women in the areas that were surveyed. Options were either the 24-hour diet recall or food frequency approaches to survey diets to find out the exact food and nutrient intake for standardization. While the food frequency method focuses on consumption frequency, the 24 hour diet recall method takes into consideration the food consumed in the last 24 hours.

In our survey respondents (adult women) were asked to recall their intake in the last 24 hours. Based on this, we recorded which foods (pertaining to nutritional food groups) were consumed at least once during the day. 24-hour recall was conducted for two days, one of which is a weekend day. Table 4 presents the findings on food intake by adult's women in the 7(seven) representative village in the area. This approach was adopted in PAHELI 2011.



Broadly speaking, in a nutritional sense, rice and cereals are energy giving foods: milk and milk products and pulses are body- building foods: and vegetables and fruits are protective food that provides micronutrients, which are required in relatively small quantities but are essential for protection against diseases.

From table 4, it can be seen that almost all surveyed women consumed cereals at least once during the day. Across the seven villages, more that 70% of the women also consumed pulses (dal) and vegetables (non-green leafy vegetables) at least once a day.

Table 4: Food Intake Estimates for Adult Women									
<i>What women consumed at least once a day (in per cent)</i>									
Villages	Sample size	Rice/ Cereals	Milk/ Milk products	Meat, Fish & Eggs	Pulses/ Dal	Green leafy veg.	Other veg.	Fruits	vegetables, other vegetables and fruits (protective foods)
		Energy giving foods	Body building foods			Protective foods			
Kohora 2	22	99.5	0.6	45.0	24.3	63.7	85.1	3.1	51
Kohora 1	18	97.6	14.3	68.5	65.5	34.7	78.6	8.2	39
Sildubi	10	99.7	3.4	55.6	46.5	71.1	78.3	2.9	50
Halodhibari	14	99.6	18.5	45.4	43.5	68.2	73.9	3.6	48
Bamungaon	20	99.2	13.7	58.7	20.8	85.9	31.7	4.0	40
Bohikhuwa	25	98.2	25.1	67.3	53.3	61.2	74.9	3.1	46
Agoratoli	16	99.4	17.8	53	33.2	60.6	64.7	1.4	42
Total	125	99.033	13.344	56.212	41.014	63.63	63.69	63.76	345.14



The table gives the proportion of women who consumed a particular food group at least once a day. For example, almost all the women from the 7 villages consumed rice twice or even thrice a day. The protein intake in the form of fish/meat or egg (**mostly fresh water fish and dry fish**) is very encouraging and in most case around 55%. This is due to the fact that KNP area is infested with large number of water bodies and the poor people can feed on the locally available fishes at a cheap affordable price. Back yard poultry as practiced in many households make way for consumption of eggs as a source of protein and fat. Fresh green leafy vegetables and other vegetables which are rich source of antioxidants, fibre, and carotenoids, precursors to vitamin A are consumed by the women in these areas in plenty. As may be evident from the table, intake of less quantities of food items like milk/milk products and fruits the deficiency is somewhat compensated by sufficient quantities of body

building protein foods and protective foods. The last column gives the percentage of women who consumed all the protective foods providing micronutrients at least once in the last 24hours. For example, in Kohora 1, such women were only 1.1%.

As per National Institute of Nutrition recommendations, an adult woman should consume the following number of portions of food every day.						
Component	Cereals and rice	Milk / Milk products	Pulses/Dal	Green leafy vegetables	Other vegetables	Fruits
Recommended daily intake of portions	9 to 17	3 to 5	1 to 5	1 to 1.5	2	1 to 2
Portions size (g/ml)	30	100	30	100	100	100

Among vegetables, green leafy vegetables (GLVs) are rich source of antioxidants, fibre, and carotenoids, precursors to vitamin A. Vitamin A is essential micronutrient that is instrumental in various physiological functions. Vitamin A deficiency can cause them body to malfunctions. Once such fallout is night blindness and eventually complete blindness. A national program to address Vitamin A deficiency and nutritional blindness has been in operation since 1970.

Consumption of green leafy vegetables was relatively good across the 7 surveyed villages. The proportion of women consuming green leafy vegetables once during the day ranged from 65% (sildubi) to 85% (bamun gaon).

Consumption of fruits, milk and milk products was very poor among women in all the seven villages. Almost 75% of the women did not consume any fruit and almost 50% did not consume any milk or milk product even once a day.

Overall, one fifth women across the five villages do not consume foods from three of the nutritional food groups- milk and milk products, green leafy vegetables and fruits- even once a day. Consumption of fruits was especially poor, with around 95% of the women not consuming any against a recommendation of one to two portions (100g to 200 g) every day.

In Kohora 2, half the women did not consume foods from four of the six nutritional food groups asked about, even once.

Bahikhuwa presented a relatively better picture. Cereal consumption, as in all other villages, was almost universal. Almost 30% of the women consumed milk and milk products, pulses and non-green leafy vegetables at least once a day. Consumption of green leafy vegetables, however, was 60% and that of fruits only 1.4%.

As per recommendation, an adult Indian women, irrespective of the nature of physical activity she is involved in or the physiological state she is in, should consume at least 300 ml of milk and milk products and 100 gms each of green leafy vegetables, other vegetables and fruits daily.

Vegetables and fruits are categorized as protective food. They do not contribute to the build of energy requirements but are a source of the essential vitamins and minerals

(micronutrients) that are required in minute amounts and play a critical role in maintaining body functions. There have been national programmes in the country to combat and prevent micronutrient deficiencies such as vitamin a deficiency , anaemia and iodine deficiency disorders. Inadequacies in diets have been acknowledged as a challenge in national planning and policy documents. The overall consumption of protective foods was very poor . Women who consumed fruits and vegetables once a day ever only 1.1% across the seven districts. The situations was no different in Bhilwara.

In summary, the diets of a majority of rural women were dominated by cereals and pulses. Though the consumption of milk and milk products was low, fishes constitute a large portion of their diet in the body building (protein) food items. Diets were also lacking in protective food such as fruits, but fortunately most of the rural womens diets comprised of GLVs i.e. green leafy vegetables in contrast

From the above survey on food intake habits of the rural poor women in the KNP area, it may be concluded that most of them do not suffer from major deficiencies in terms of protein, carbo hydrate and minerals unlike their counterparts in other parts of the country in arid zones of climatic extremes.

Our survey attempted to assess the nutritional status of women and children. Instead of following the process of procuring height and weight of the target group as prescribed by many experts we started by collecting first hand information on diet and calorie intake of women.

*in preparing this report we have adopted the methodical approach as designed in PAHELI 2012 Report.



Health of Children:

The nutritional status of children are studied in terms of age, weight as records found in the Anganwadi centres across the villages of our study.

Malnutrition problems, like other health problems, can affect individuals, families and often communities as a whole. Thus communities afflicted by poverty and adverse living conditions may have a great majority of children and mothers showing signs of under nutrition.

As the nutrition plays a major role in prevention of diseases, and recovery from illness, our rural people should have a good understanding and awareness about nutrition in order to optimally promote health maintenance, prevent diseases, facilitate recovery from illness. Thus, awareness has a major impact on the healthcare in our society.



Assessment of Nutritional Status

To correlate between the various factors that affect the nutritional status of a population in general and child in particular and its implications on the development of the locality as a whole, the most important step is assessment of the nutritional status of the children who form the core of future citizens. To combat malnutrition assessment of nutritional status is vital in formulating strategy for action.

The nutritional status can be easily assessed for any child using standardised charts developed by World Health Organisation (WHO). For this assessment WHO has provided

charts for both boys and girls based on-length/height-for-age, weight-for-age, weight-for-length/height, BMI (body mass index)-for-age. In our study we have used the weight and age combination to find out nutritional status of children as these records are easily available with the Anganwadi centres in the villages.

Average Weight & Height

Girls			Boys		
Age	Weight (kg)	Height (cm)	Age	Weight (kg)	Height (cm)
Birth	3.2	49.9	Birth	3.3	50.5
3 months	5.4	60.2	3 months	6.0	61.1
6 months	7.2	66.6	6 months	7.8	67.8
9 months	8.6	71.1	9 months	9.2	72.3
1 year	9.5	75.0	1 year	10.2	76.1
2 years	11.8	84.5	2 years	12.3	85.6
3 years	14.1	93.9	3 years	14.6	94.9
4 years	16.0	101.6	4 years	16.7	102.9
5 years	17.7	108.4	5 years	18.7	109.9
6 years	19.5	114.6	6 years	20.7	116.1
7 years	21.8	120.6	7 years	22.9	121.7
8 years	24.8	126.4	8 years	25.3	127.0
9 years	28.5	132.2	9 years	28.1	132.2
10 years	32.5	138.3	10 years	31.4	137.5
11 years	33.7	142.0	11 years	32.2	140.0
12 years	38.7	148.0	12 years	37.0	147.0
13 years	44.0	150.0	13 years	40.9	153.0
14 years	48.0	155.0	14 years	47.0	160.0
15 years	51.5	161.0	15 years	52.6	166.0
16 years	53.0	162.0	16 years	58.0	171.0
17 years	54.0	163.0	17 years	62.7	175.0
18 years	54.4	164.0	18 years	65.0	177.0

Assessment of nutritional status in selected villages on the fringe areas of kaziranga.

To understand the condition of child nutrition in the fringe areas of kaziranga, data was collected from anganwadi centres covering the villages surveyed. A description of the nutritional status is discussed below. The analyses are based on the empirical evidence during our field visits to the villages in the fringe mostly inhabited by poors including ex-tea garden and mishing communities.

The scenario of child malnutrition in the villages is certainly within acceptable limits. Most of the children display a normal weight. The number of moderately underweight children is declining every year. There has been a miniscule rise in the number of severely underweight children in the year 2015-16. Overall the villages have a healthy nutrition environ.

Haldhibari lacks cases of severe malnutrition for the past three years. Its numbers on the moderately underweight population is constant. The infant population displays a healthy nutritional status with the ever growing population of each generation of children.

No. 2 japoripathar displays a good track record over the past few years on the nutritional status of infants. However presence of a miniscule population of moderately underweight infant, in recent years, is a matter of concern. The Anganwadi worker and other

organizations must co-ordinate to maintain the spotless track record on malnutrition in the future as well. Population of this village is of mixed origin.

Bamungoan has a large proportion of its infant population under normal nutritional status. However ever year the number of moderately malnourish infants have been growing. It is a matter of concern that malnourishment in the village has taken an upward trend. The village in 100% mishing tribal village.

In contrast to Bamun gaon this Mishing tribe dominated village displays a much better condition in terms of child health. **Bhaikhowa** has an increasing infant population. The number of moderately underweight children has remained more or less constant. The village has completely eradicated severe malnourishment. A high proportion of infants exist in the normal weight category which is encouraging. Yet the numbers pertaining to moderate malnourishment should diminish so as to ensure full nourishment in the village.

The analyses made above are based on the empirical evidence during his field visits to the villages.

The Growth Charts:

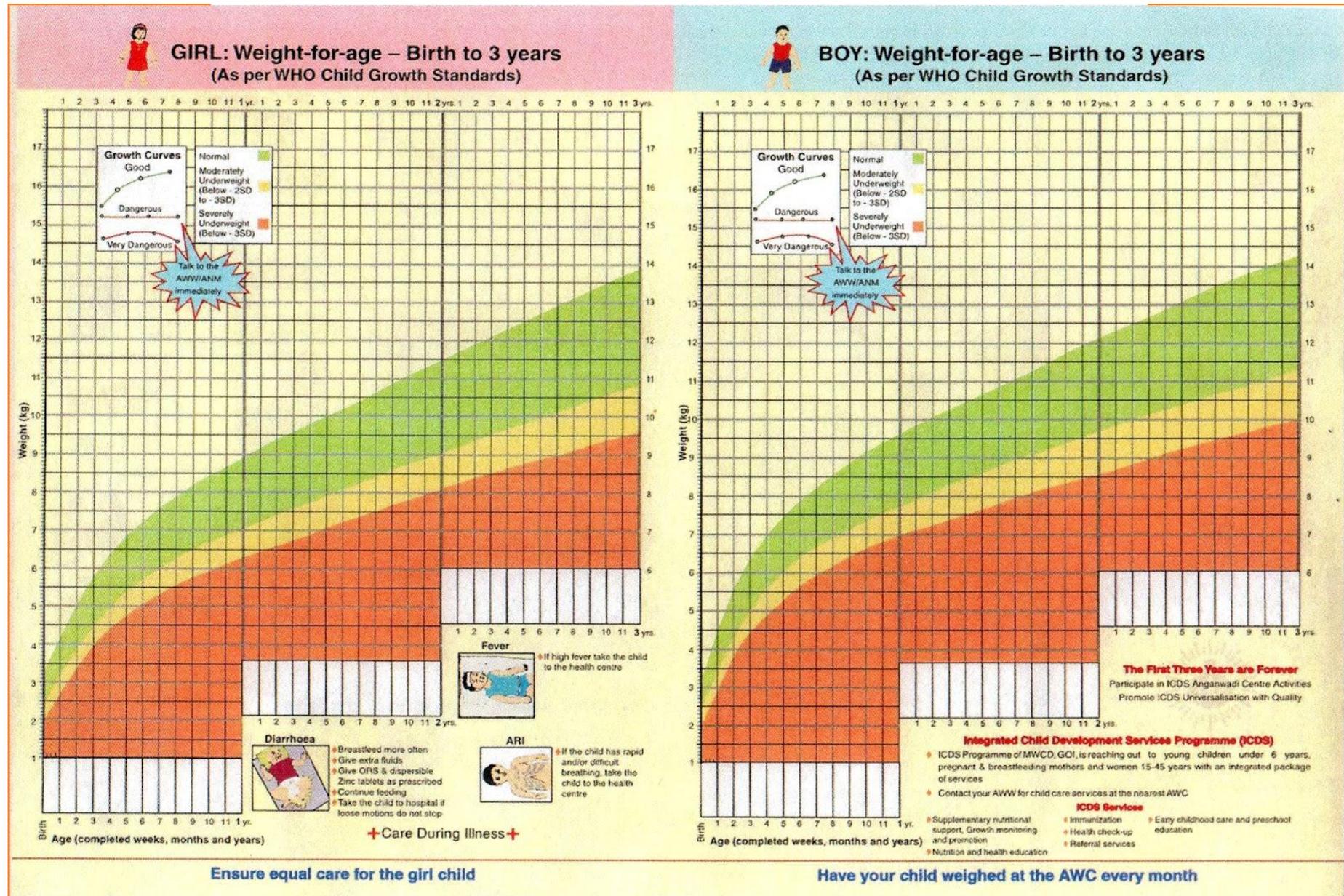
India has adopted the new WHO Child Growth Standards (2006) in February 2009, for monitoring the young child growth and development within the National Rural Health Mission and the ICDS.

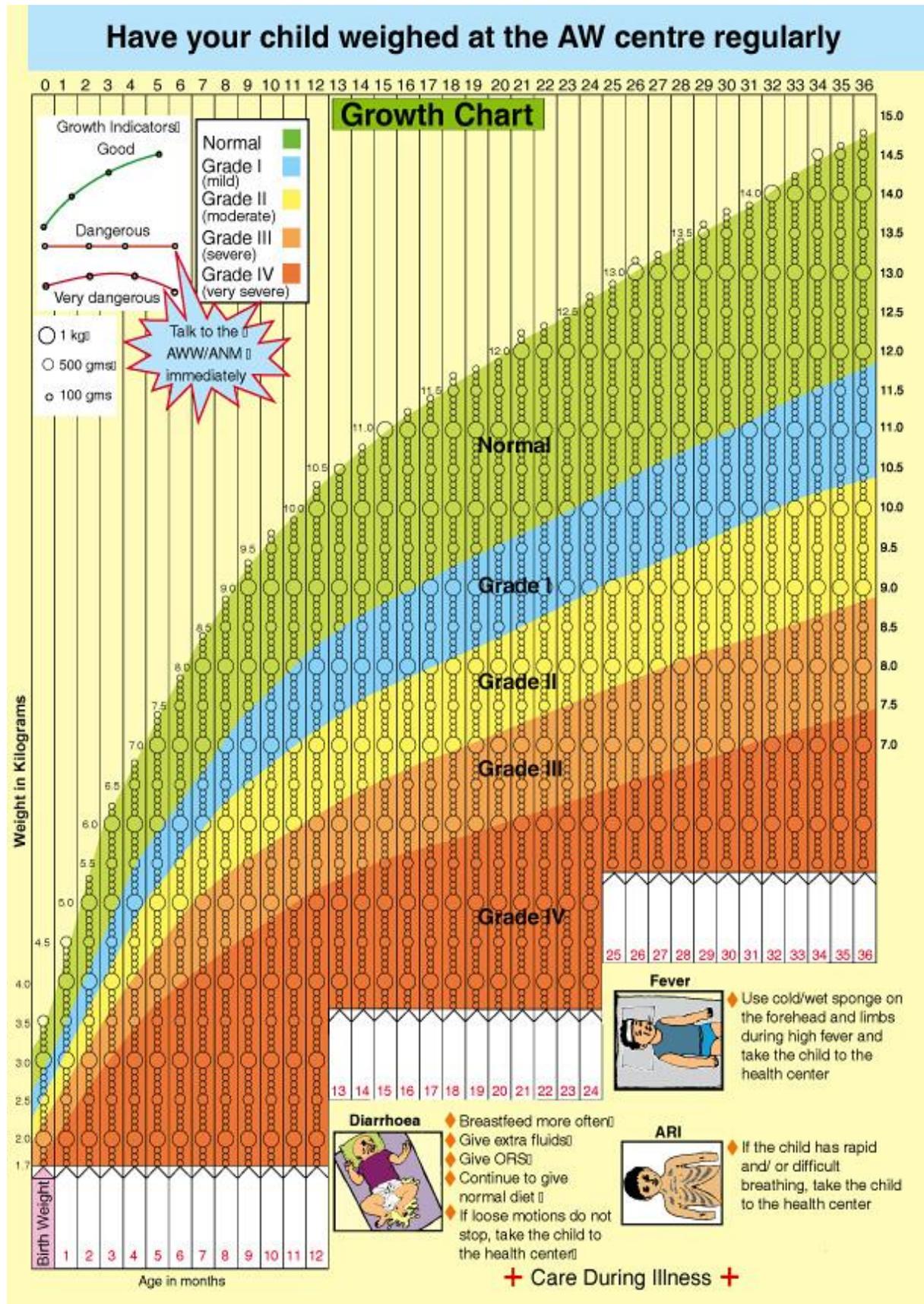
The nutritional status can be easily assessed for any child using standardised charts developed by World Health Organisation (WHO). For this assessment WHO has provided charts for both boys and girls based on.

- length/height-for-age
- weight-for-age
- weight-for-length/height
- BMI (body mass index)-for-age

In our study we have used the weight and age combination to find out nutritional status of children as these records are easily available with the Anganwadi centres in the villages.







Assessment of nutritional status in select villages on the fringe areas of kaziranga.

To understand in- depth, the condition of child nutrition in the fringe areas of kaziranga, data was collected from anganwadi centres located in the villages. A description of the nutritional status is discussed below-

No. 2 kohora

No. 2 kohora is a village located on the fringe area of Kaziranga National Park. The village is primarily inhabited by people belonging to the ex-tea tribe community. The nutritional status of the infant population of the village is as follows:-

Village	2 No. Kohora		
year	2013-14	2014-15	2015-16
Severely underweight	2	2	4
Moderately underweight	10	9	7
Normal weight	36	47	36

The scenario of child malnutrition in the village is certainly within acceptable limits. Most of the children display a normal weight. The number of moderately underweight children is declining every year. There has been a miniscule rise in the number of severely underweight children in the year 2015-16. Overall the village has a healthy nutrition environ.

Haldhibari

village	Haldhibari		
year	2013-14	2014-15	2015-16
Severely underweight	0	1	0
Moderately underweight	6	7	6
Normal weight	36	21	54

Haldhibari lacks cases of severe malnutrition for the past three years. Its numbers on the moderately underweight population is constant. The infant population display a healthy nutritional status with the ever growing population of each generation of children.

No.2 japoripathar

village	2 No. Japoripathar		
year	2013-14	2014-15	2015-16
Severely underweight	0	0	0
Moderately underweight	0	0	4
Normal weight	37	32	15

No. 2 japoripathar displays a good track record over the past few years on the nutritional status of infants. However presence of a miniscule population of moderately underweight infant, in recent years, is a matter of concern. The Anganvadi worker and other

organizations must co-ordinate to maintain the spotless track record on malnutrition in the future as well.

Bamungoan:

village	Bamungaon		
	2013-14	2014-15	2015-16
Severely underweight	0	0	0
Moderately underweight	4	6	8
Normal weight	80	47	28

Bamungoan has a large proportion of its infant population under normal nutritional status. However ever year the number of moderately malnourish infants have been growing. It is a matter of concern that malnourishment in the village has taken an upward trend. The reason may be the poverty of the majority of the inhabitants. They are also backward socially and economically.

No. 1 Bohikhowa:

village	No.1 Bahokhowa		
	2013-14	2014-15	2015-16
Severely underweight	1	4	79
Moderately underweight	1	7	110
Normal weight	0	7	136

The village of bhaikhowa has an increasing infant population. The number of moderately underweight children has remained more or less constant. The village has completely eradicated severe malnourishment. A high proportion of infants exist in the normal weight category which is encouraging. Yet the numbers pertaining to moderate malnourishment should diminish so as to ensure full nourishment in the village.

We have data/information on the nutritional status based on weights of children in the age groups as maintained by the local Anganwadi Centres for the years 2014, 2015 and 2016

The overall picture

Nutritional Status, 2014

Nutritional Status of Children(Residents as per new WHO Growth Charts)			
No. of children weighed	0 m-1 yr	Girls	2268
		Boys	2156
	1 yr- 3yrs	Girls	3920
		Boys	3988
	3yrs-5 yrs	Girls	5085
		Boys	4772

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Kaziranga Landscaping through Community Participation*

	All children	Girls	11273
		Boys	10916
		Total	22189
Total no. of children as per Annual Population Summary	0 m-1 yr	Girls	2352
		Boys	2184
	1 yr- 3yrs	Girls	4026
		Boys	4029
	3yrs-5 yrs	Girls	5217
		Boys	4963
	All children	Girls	11595
Boys		11176	
Total		22771	
Out of the children weighed no of children found			
Normal (Green) Number	0 m-1 yr	Girls	1760
		Boys	1724
	1 yr- 3yrs	Girls	3016
		Boys	3107
	3yrs-5 yrs	Girls	3992
		Boys	3785
	All children	Girls	8768
Boys		8616	
Total		17384	
Moderately underweight(yellow) Number	0 m-1 yr	Girls	4398
		Boys	369
	1 yr- 3yrs	Girls	822
		Boys	797
	3yrs-5 yrs	Girls	1023
		Boys	919
	All children	Girls	2284
Boys		2085	
Total		4369	
Severely underweight(orange)	0 m-1 yr	Girls	69
		Boys	63
	1 yr- 3yrs	Girls	82
		Boys	84
	3yrs-5 yrs	Girls	70
		Boys	68
	All children	Girls	221
Boys		215	
Total		436	



Nutritional status, 2015

Nutritional Status of Children(Residents as per new WHO Growth Charts)			
No. of children weighed	0 m-1 yr	Girls	2055
		Boys	2189
	1 yr- 3yrs	Girls	3453
		Boys	3419
	3yrs-5 yrs	Girls	3872
		Boys	3590
	All children	Girls	9380
		Boys	9198
		Total	18578
Total no. of children as per Annual Population Summary	0 m-1 yr	Girls	2571
		Boys	2405
	1 yr- 3yrs	Girls	3865
		Boys	3788
	3yrs-5 yrs	Girls	4793
		Boys	4845
	All children	Girls	11229
		Boys	11038
		Total	22267
Out of the children weighed no of children found			
Normal (Green) Number	0 m-1 yr	Girls	1706
		Boys	1830
	1 yr- 3yrs	Girls	2892
		Boys	2881
	3yrs-5 yrs	Girls	3247
		Boys	2992
	All children	Girls	7845
		Boys	7703
		Total	15548
Moderately underweight(yellow) Number	0 m-1 yr	Girls	294
		Boys	291
	1 yr- 3yrs	Girls	461
		Boys	465
	3yrs-5 yrs	Girls	573
		Boys	546
	All children	Girls	1328
		Boys	1302
		Total	2630
Severely underweight(orange)	0 m-1 yr	Girls	55
		Boys	68
	1 yr- 3yrs	Girls	100
		Boys	73
	3yrs-5 yrs	Girls	52
		Boys	52
	All children	Girls	207
		Boys	193
		Total	400

Nutritional status, 2016

Nutritional Status of Children (Residents as per new WHO Growth Charts)			
No. of children weighed	0 m-1 yr	Girls	2055
		Boys	2189
	1 yr- 3yrs	Girls	3453
		Boys	3419
	3yrs-5 yrs	Girls	3872
		Boys	3590
	All children	Girls	9380
		Boys	9198
		Total	18578
Total no. of children as per Annual Population Summary	0 m-1 yr	Girls	2571
		Boys	2405
	1 yr- 3yrs	Girls	3865
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