

INTRODUCTION TO COMMUNITY :-

• Definition of community: The term Community may be defined as a group or collection of groups that inhibit in a limited geographical area & whose members live together in such a way that they share the basic conditions of a common life.

• Characteristics of community: Community refers to " a group of individuals & families living in a defined geographic area, usually comprising a village or town or a city." The basic characteristics of a Community include:

- (i) A group of people.
- (ii) Specific geographical area.
- (iii) The relation of community to locality.
- (iv) Common Social values, norms & other aspects of culture.
- (v) Common set of organization & institution.
- (vi) Some common interests

• Types of Community:

Communities can be classified in various ways:

- (i) On the basis of governance: e.g. Nation, State, District.
- (ii) On the basis of locality: e.g. Rural community or Urban community.
- (iii) On the basis of family income: e.g. low income group, middle income group and high income group.
- (iv) On the basis of food habits: e.g. vegetarian, Non-vegetarians, vegan and Xenomacrobiotics etc.
- (v) On the basis of age group: e.g. preschoolers, schoolers, adolescent peer groups, adult community, aged community.

Final
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NUTRITIONAL ANTHROPOMETRY

Nutritional anthropometry is the tool concerned with the measurement of the variation of the physical dimensions & the gross composition of the human body at different age levels & degrees of nutrition.

■ Application of nutritional anthropometry:

Nutritional anthropometry is a very useful tool. Its application includes:

(i) Assessment of extent of under nutrition in vulnerable group of population.

(ii) Monitoring of individual children at regular intervals (monthly or quarterly) to find out whether there is any faltering in growth during the intervals and to help in early detection & in initiating prompt remedial measures.

(iii) Identification of children who are 'at risk' of under nutrition, to target, and prioritise nutrition action programmes, so as to control the extent of under nutrition.

(iv) Anthropometric measurements are useful in mid-term appraisal or terminal evaluation to assess whether intervention programmers have achieved the objectives or not.

(V) It is also useful in assessing an individual's response to nutritional rehabilitation.

(vi) Anthropometry can be utilized as a tool for nutritional surveillance & for collection of secondary data on indicators, which may directly or indirectly affect the nutritional status.

(vii) It is used to assess the impact of seasonal variation of food supplies on nutritional status of the community. This would also provide data on time trends when measured at regular intervals.

(1) BODY WEIGHT:

Body weight is the simplest reproducible anthropometric measurement for over all nutritional status of individuals, especially for children.

■ Equipments & techniques of weight measurement

The choice suitable weighting Scale is vital to obtain accurate measurement of body weight. The Weighing scale must be sturdy, inexpensive, easily transportable, & accurate to within the limits required (e.g. 0.1 kg)

Weight should be taken as far as possible with minimum clothing, without shoes, & without holding any support.

In case of infants the weight could be taken with an elder person (preferably) mother) carrying the infant & subtracting @ the weight of elder to get the correct weight of infant.

The zero errors of the Weighing scale should be checked before taking measurement & corrected as & when required.

The mean of 3 successive measurements will give the final body weight of the subject.

(2) Height: Height is a very reliable parameter that reflects that the total increase in size of individual upto the moment it is determined.

Height is affected only by long term nutritional deprivation, it is considered as an indicator of chronic or long term malnutrition.

■ Equipment & technique:

Standing height is measured by Anthropometer rods or stadiometer scales, whereas in case of infant & early pre-school children, recumbent length (crown-heel length) is measured with the help of infantometer.

The infant is laid on the board which is itself on a flat surface. The head is positioned firmly against the fixed head board with eyes, looking vertically. The knee are extended, usually by firm pressure applied by an assistant, & the feet are fixed at right angles to the lower legs. The upright sliding foot-piece is moved to obtain firm contact with heels & the length reads to the nearest 0.1 cm.

CHEST CIRCUMFENCE MEASUREMENTS IN FIRST FIVE YEARS OF LIFE

Age (Month)	Chest Circumference (cm)
At birth	35.00
03	40.0
06	44.0
12	47.0
18	48.0
24	50.0
36	52.0
48	53.0
60 ✓	55.0

[Source: Growth & Development of Children, Fourth ED, by E.H. Waston & G.H. Lowmyer copyright © 1962 year Book Medical Publishers Inc.]

(3) Chest Circumference:

The chest is normally nourished child's grows faster than head during the second & third year of life. As a result the chest circumference overtakes head circumference by about one year of age. Therefore, between the ages of six month & 5 years, a chest/ head circumference ratio of < 1 may be due to failure to develop or to wasting of muscle & fat of the chest wall, and can be used as community indicator of PEM of early childhood.

■ Equipment & technique:

A narrow, flexible & non-stretch fibre glass tape should be used, & measurement made at the nipple line, preferably in mid inspiration. Measurement should be made to the nearest 0.1 cm.



Chest Circumference

(4) Mid-upper arm circumference (MUAC):

The Mid-Upper Arm circumference (MUAC or MAC) is recognised to indicate the status of muscle development. The MUAC is considered more feasible as it is simpler & easily accessible in any age & gender & so is practical to measure.

Instrument & technique: The MUAC is taken on the left hand. The midpoint between the tip of the acromion of scapula & the tip of the olecranon of the fore arm bone ulna with the arm flexed at the elbow at right angle & marked with a marker pen. The hand should hang freely and the measurement is taken using a flexible non-stretch measuring tape made of fibre glass. The tape should not exert too much pressure on soft tissue. The reading is taken to the nearest millimetre with the tape still in position. Reading below 12.5 cm indicates Severe PEM, 12.5 to 13.5 moderate PEM & above 13.5 is normal.

- Anthropometric Measurement/
Condition of Boys Children(Boys)

SI NO	Name	Gender	Age (Yrs)	Wt (Kg)	Ht (cm)	MUAC (cm)
1.	A	M	2.5	11	95	11
2.	B	M	3.2	12	98	11.2
3.	C	M	3.5	12.5	100	12.3
4.	D	M	4	14	102	12
5.	E	M	4.2	13.5	103	12.3

Underweight:

It can be defined as weight for age < -2 standard deviations (SD) of the WHO Child Growth Standards median. In other words, the child weight is less in comparison to this age.

• Consequences & implications of underweight:

As weight is easy to measure, this is the indicator for which most data have been collected in the past. Evidence has shown that the mortality risk of children who are even mildly underweight is increased, severely underweight children are at even greater risk.

Stunting:

It can be defined as height for age < -2 SD of the WHO child Growth standards median. In other words, the child height is less in comparison to his age.

• Consequence & implications of stunting:

Children who suffer from growth retardation as a result of poor diet or recurrent infections tend to be at greater risk for illness & death. Stunting is the result of long

→ Anthropometric Measurement/Condition
of children (Girls) →

SI No	Name	Gender	Age (Yrs)	wt (kg)	Ht (cm)	MUAC (cm)
1.	F	F	2.8	11.5	95	12.7
2.	G	F	3.2	10	90	13.1
3.	H	F	3.6	12	102	12.8
4.	I	F	3.9	15	100	13.2
5.	J	F	4.6	14.5	110	13.5

-term nutritional deprivation & often results in delayed mental development, poor school performance & reduced intellectual capacity. This in turn affects economic productivity at national level. Women of short stature are at greater risk for obstetric complications because of a smaller pelvis. Small women are at risk of delivering an infant with low birth weight contributing to the intergenerational cycle of malnutrition, as infants of low birth weight are related intrauterine growth tend to be smaller as adults.

Wasting:

It can be defined as weight for height $< -2SD$ of the WHO child growth standards median. In other words, the child weight is less in comparison to the standard height.

- Consequences & implication of wasting:-
Wasting in children is a symptom of acute undernutrition, usually as a consequence of insufficient food intake or a high incidence of infections diseases, especially diarrhoea. Wasting in turn impairs the functioning of the immune system & can lead to infection.

sed severity & duration of & susceptibility to infectious diseases & an increased risk for death.

• Overweight: It can be defined as weight for height $> +2SD$ of the WHO child standards-median. In other words, the child weight is more in comparison to the standard height.

■ Consequences and implication of overweight:

childhood obesity is associated with a higher probability of obesity in adulthood, which can lead to a variety of disabilities and diseases, such as diabetes and cardiovascular diseases. The risks for most non-communicable diseases resulting from obesity depend partly on the age at onset and the duration of obesity. obese children & adolescents are likely to suffer from both short-term and long-term health consequences, the most significant being cardiovascular diseases, mainly heart disease and stroke; diabetes; muscle skeletal disorders, especially osteoarthritis and cancers of the endometrium, breast and colon.

NUTRITIONAL ASSESSMENT

• **Definition:** The nutritional assessment is a systematic process in which the state of nutrition & health of individual or group of individuals is determined.

• The goal aims & objectives of nutritional assessment:

(i) To map out the magnitude & geographical factors that are directly or indirectly of malnutrition as a public health problem.

(ii) To discover & analyze the ecological factors that are directly or indirectly responsible.

(iii) To suggest appropriate corrective measure not only for the control & eradication of malnutrition, but also for subsequent food nutrition.

• **Methods of nutritional assessment:**

Nutritional status of a community can be assessed by following two types of methods:

Weight-for-age BOYS
Birth to 5 years (z-scores)



World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
0: 0	0	2.1	2.5	2.9	3.3	3.9	4.4	5.0
0: 1	1	2.9	3.4	3.9	4.5	5.1	5.8	6.6
0: 2	2	3.8	4.3	4.9	5.6	6.3	7.1	8.0
0: 3	3	4.4	5.0	5.7	6.4	7.2	8.0	9.0
0: 4	4	4.9	5.6	6.2	7.0	7.8	8.7	9.7
0: 5	5	5.3	6.0	6.7	7.5	8.4	9.3	10.4
0: 6	6	5.7	6.4	7.1	7.9	8.8	9.8	10.9
0: 7	7	5.9	6.7	7.4	8.3	9.2	10.3	11.4
0: 8	8	6.2	6.9	7.7	8.6	9.6	10.7	11.9
0: 9	9	6.4	7.1	8.0	8.9	9.9	11.0	12.3
0:10	10	6.6	7.4	8.2	9.2	10.2	11.4	12.7
0:11	11	6.8	7.6	8.4	9.4	10.5	11.7	13.0
1: 0	12	6.9	7.7	8.6	9.6	10.8	12.0	13.3
1: 1	13	7.1	7.9	8.8	9.9	11.0	12.3	13.7
1: 2	14	7.2	8.1	9.0	10.1	11.3	12.6	14.0
1: 3	15	7.4	8.3	9.2	10.3	11.5	12.8	14.3
1: 4	16	7.5	8.4	9.4	10.5	11.7	13.1	14.6
1: 5	17	7.7	8.6	9.6	10.7	12.0	13.4	14.9
1: 6	18	7.8	8.8	9.8	10.9	12.2	13.7	15.3
1: 7	19	8.0	8.9	10.0	11.1	12.5	13.9	15.6
1: 8	20	8.1	9.1	10.1	11.3	12.7	14.2	15.9
1: 9	21	8.2	9.2	10.3	11.5	12.9	14.5	16.2
1:10	22	8.4	9.4	10.5	11.8	13.2	14.7	16.5
1:11	23	8.5	9.5	10.7	12.0	13.4	15.0	16.8
2: 0	24	8.6	9.7	10.8	12.2	13.6	15.3	17.1
2: 1	25	8.8	9.8	11.0	12.4	13.9	15.5	17.5
2: 2	26	8.9	10.0	11.2	12.5	14.1	15.8	17.8
2: 3	27	9.0	10.1	11.3	12.7	14.3	16.1	18.1
2: 4	28	9.1	10.2	11.5	12.9	14.5	16.3	18.4
2: 5	29	9.2	10.4	11.7	13.1	14.8	16.6	18.7

Weight-for-age BOYS
Birth to 5 years (z-scores)



World Health Organization

Year	Month	Months	-3 SD	-2 SD	-1 SD	Median	+1 SD	+2 SD	+3 SD
2	6	30	9.4	10.5	11.8	13.3	15.0	16.9	19.0
2	7	31	9.5	10.7	12.0	13.5	15.2	17.1	19.3
2	8	32	9.6	10.8	12.1	13.7	15.4	17.4	19.6
2	9	33	9.7	10.9	12.3	13.8	15.6	17.6	19.9
2	10	34	9.8	11.0	12.4	14.0	15.8	17.8	20.2
2	11	35	9.9	11.2	12.6	14.2	16.0	18.1	20.4
3	0	36	10.0	11.3	12.7	14.3	16.2	18.3	20.7
3	1	37	10.1	11.4	12.9	14.5	16.4	18.6	21.0
3	2	38	10.2	11.5	13.0	14.7	16.6	18.8	21.3
3	3	39	10.3	11.6	13.1	14.8	16.8	19.0	21.6
3	4	40	10.4	11.8	13.3	15.0	17.0	19.3	21.9
3	5	41	10.5	11.9	13.4	15.2	17.2	19.5	22.1
3	6	42	10.6	12.0	13.6	15.3	17.4	19.7	22.4
3	7	43	10.7	12.1	13.7	15.5	17.6	20.0	22.7
3	8	44	10.8	12.2	13.8	15.7	17.8	20.2	23.0
3	9	45	10.9	12.4	14.0	15.8	18.0	20.5	23.3
3	10	46	11.0	12.5	14.1	16.0	18.2	20.7	23.6
3	11	47	11.1	12.6	14.3	16.2	18.4	20.9	23.9
4	0	48	11.2	12.7	14.4	16.3	18.6	21.2	24.2
4	1	49	11.3	12.8	14.5	16.5	18.8	21.4	24.5
4	2	50	11.4	12.9	14.7	16.7	19.0	21.7	24.8
4	3	51	11.5	13.1	14.8	16.8	19.2	21.9	25.1
4	4	52	11.6	13.2	15.0	17.0	19.4	22.2	25.4
4	5	53	11.7	13.3	15.1	17.2	19.6	22.4	25.7
4	6	54	11.8	13.4	15.2	17.3	19.8	22.7	26.0
4	7	55	11.9	13.5	15.4	17.5	20.0	22.9	26.3
4	8	56	12.0	13.6	15.5	17.7	20.2	23.2	26.6
4	9	57	12.1	13.7	15.6	17.8	20.4	23.4	26.9
4	10	58	12.2	13.8	15.8	18.0	20.6	23.7	27.2
4	11	59	12.3	14.0	15.9	18.2	20.8	23.9	27.6
5	0	60	12.4	14.1	16.0	18.3	21.0	24.2	27.9

WHO Child Growth Standards

1. Indirect methods:

(i) Vital Statistics

(ii) Ecological Factors Assessment

2. Direct methods:

(i) Anthropometry

(ii) Biochemical & laboratory estimation

(iii) Clinical Examination.

(iv) Diet Survey.

• WEIGHT-FOR-AGE

~~Weight-for-age reflects body weight relative to the child's age on a given day. This indicator is used to assess whether a child is underweight or severely underweight, but it is not used to classify a child as overweight or obese. Because weight is relatively easily measured, this indicator is commonly used, but it cannot be relied upon in situations where the child's age cannot be accurately determined.~~

Weight - For - Age (Boys)

SI NO.	Name	Gender	Age (yrs)	wt(kg)	Interpretation	Result
1.	A	M	2.5	11	$< M - 2SD$	Normal
2.	B	M	3.2	12	$< M - 2SD$	Normal
3.	C	M	3.5	12.5	$< M - 2SD$	Normal
4.	D	M	4	14	$< M - 2SD$	Normal
5.	E	M	4.2	13.5	$< M - 2SD$	Normal



Measurement of Weight

Weight-for-age GIRLS
Birth to 5 years (z-scores)



World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
0: 0	0	2.0	2.4	2.8	3.2	3.7	4.2	4.8
0: 1	1	2.7	3.2	3.6	4.2	4.8	5.5	6.2
0: 2	2	3.4	3.9	4.5	5.1	5.8	6.6	7.5
0: 3	3	4.0	4.5	5.2	5.8	6.6	7.5	8.5
0: 4	4	4.4	5.0	5.7	6.4	7.3	8.2	9.3
0: 5	5	4.8	5.4	6.1	6.9	7.8	8.8	10.0
0: 6	6	5.1	5.7	6.5	7.3	8.2	9.3	10.6
0: 7	7	5.3	6.0	6.8	7.6	8.6	9.8	11.1
0: 8	8	5.6	6.3	7.0	7.9	9.0	10.2	11.6
0: 9	9	5.8	6.5	7.3	8.2	9.3	10.5	12.0
0: 10	10	5.9	6.7	7.5	8.5	9.6	10.9	12.4
0: 11	11	6.1	6.9	7.7	8.7	9.9	11.2	12.8
1: 0	12	6.3	7.0	7.9	8.9	10.1	11.5	13.1
1: 1	13	6.4	7.2	8.1	9.2	10.4	11.8	13.5
1: 2	14	6.6	7.4	8.3	9.4	10.6	12.1	13.8
1: 3	15	6.7	7.6	8.5	9.6	10.9	12.4	14.1
1: 4	16	6.9	7.7	8.7	9.8	11.1	12.6	14.5
1: 5	17	7.0	7.9	8.9	10.0	11.4	12.9	14.8
1: 6	18	7.2	8.1	9.1	10.2	11.6	13.2	15.1
1: 7	19	7.3	8.2	9.2	10.4	11.8	13.5	15.4
1: 8	20	7.5	8.4	9.4	10.6	12.1	13.7	15.7
1: 9	21	7.6	8.6	9.6	10.9	12.3	14.0	16.0
1: 10	22	7.8	8.7	9.8	11.1	12.5	14.3	16.4
1: 11	23	7.9	8.9	10.0	11.3	12.8	14.6	16.7
2: 0	24	8.1	9.1	10.2	11.5	13.0	14.8	17.0
2: 1	25	8.2	9.2	10.3	11.7	13.3	15.1	17.3
2: 2	26	8.4	9.4	10.5	11.9	13.5	15.4	17.7
2: 3	27	8.5	9.5	10.7	12.1	13.7	15.7	18.0
2: 4	28	8.6	9.7	10.9	12.3	14.0	16.0	18.3
2: 5	29	8.8	9.8	11.1	12.5	14.2	16.2	18.7

Weight-for-age GIRLS
Birth to 5 years (z-scores)



World Health Organization

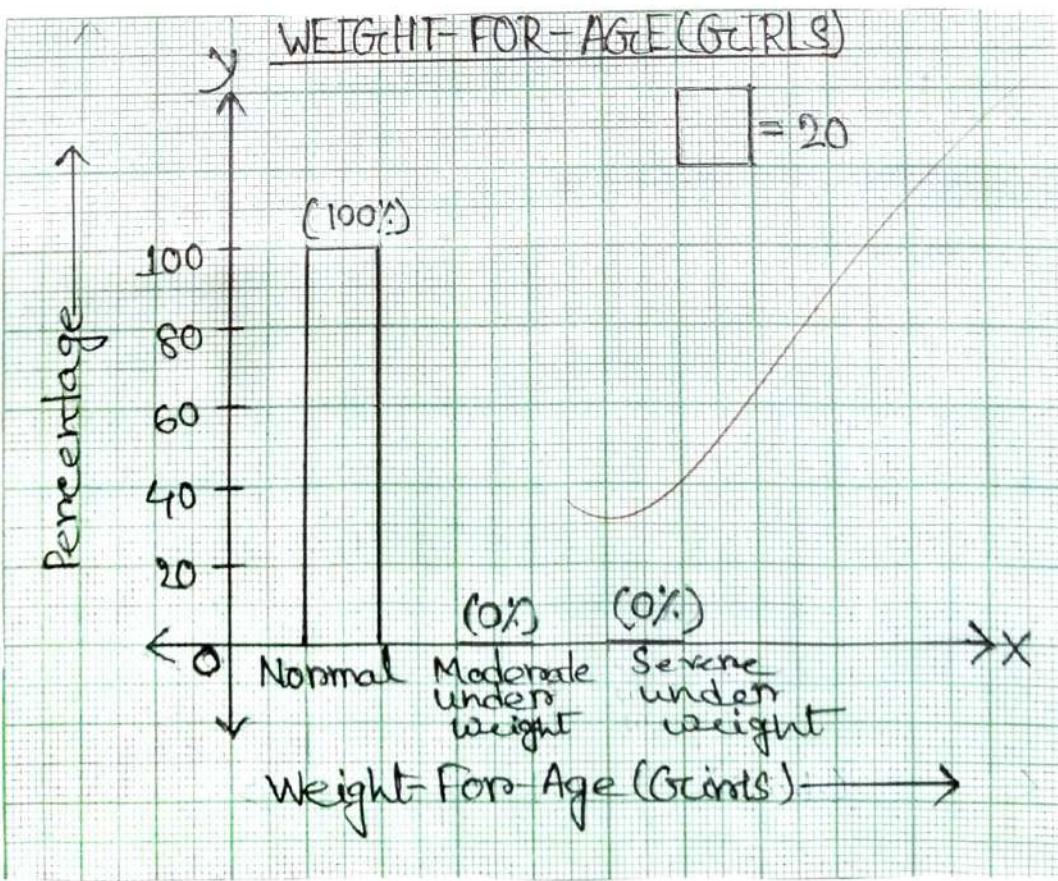
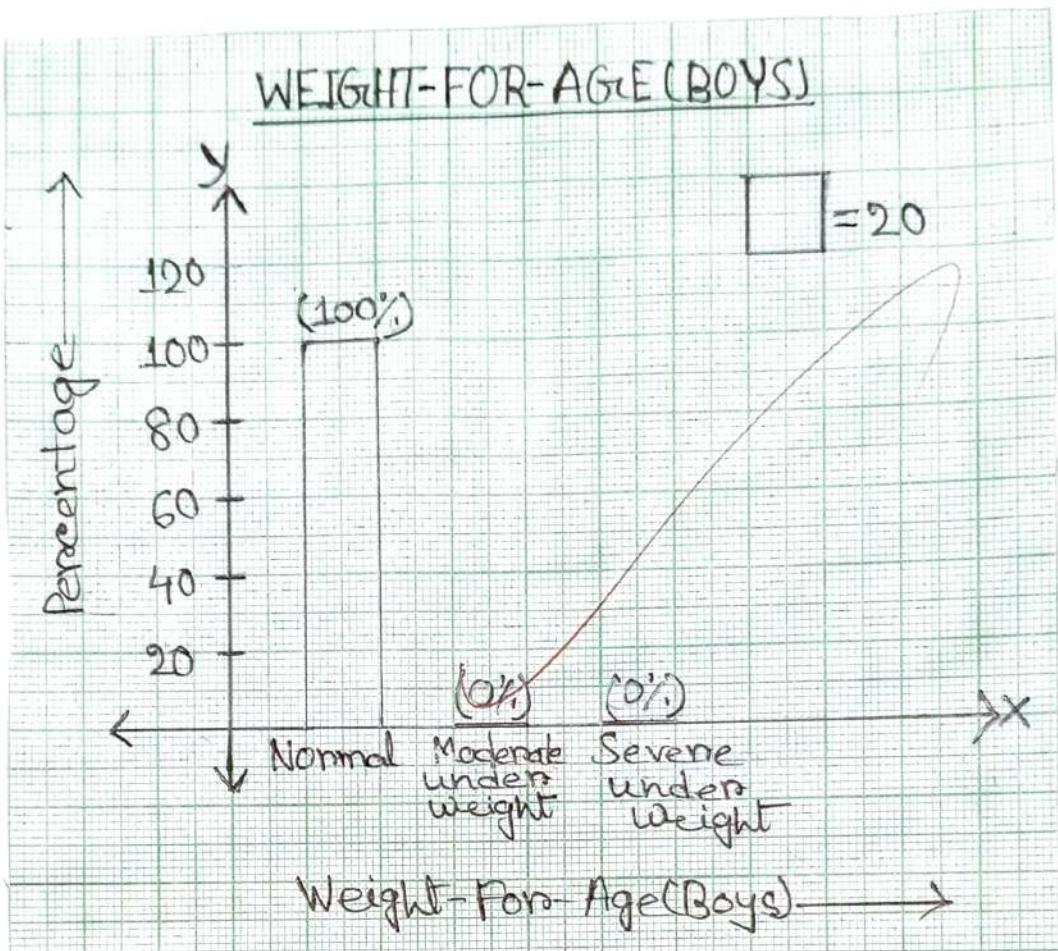
Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
2: 6	30	8.9	10.0	11.2	12.7	14.4	16.5	19.0
2: 7	31	9.0	10.1	11.4	12.9	14.7	16.8	19.3
2: 8	32	9.1	10.3	11.6	13.1	14.9	17.1	19.6
2: 9	33	9.3	10.4	11.7	13.3	15.1	17.3	20.0
2: 10	34	9.4	10.5	11.9	13.5	15.4	17.6	20.3
2: 11	35	9.5	10.7	12.0	13.7	15.6	17.9	20.6
3: 0	36	9.6	10.8	12.2	13.9	15.8	18.1	20.9
3: 1	37	9.7	10.9	12.4	14.0	16.0	18.4	21.3
3: 2	38	9.8	11.1	12.5	14.2	16.3	18.7	21.6
3: 3	39	9.9	11.2	12.7	14.4	16.5	19.0	22.0
3: 4	40	10.1	11.3	12.8	14.6	16.7	19.2	22.3
3: 5	41	10.2	11.5	13.0	14.8	16.9	19.5	22.7
3: 6	42	10.3	11.6	13.1	15.0	17.2	19.8	23.0
3: 7	43	10.4	11.7	13.3	15.2	17.4	20.1	23.4
3: 8	44	10.5	11.8	13.4	15.3	17.6	20.4	23.7
3: 9	45	10.6	12.0	13.6	15.5	17.8	20.7	24.1
3: 10	46	10.7	12.1	13.7	15.7	18.1	20.9	24.5
3: 11	47	10.8	12.2	13.9	15.9	18.3	21.2	24.8
4: 0	48	10.9	12.3	14.0	16.1	18.5	21.5	25.2
4: 1	49	11.0	12.4	14.2	16.3	18.8	21.8	25.5
4: 2	50	11.1	12.6	14.3	16.4	19.0	22.1	25.9
4: 3	51	11.2	12.7	14.5	16.6	19.2	22.4	26.3
4: 4	52	11.3	12.8	14.6	16.8	19.4	22.6	26.6
4: 5	53	11.4	12.9	14.8	17.0	19.7	22.9	27.0
4: 6	54	11.5	13.0	14.9	17.2	19.9	23.2	27.4
4: 7	55	11.6	13.2	15.1	17.3	20.1	23.5	27.7
4: 8	56	11.7	13.3	15.2	17.5	20.3	23.8	28.1
4: 9	57	11.8	13.4	15.3	17.7	20.6	24.1	28.5
4: 10	58	11.9	13.5	15.5	17.9	20.8	24.4	28.8
4: 11	59	12.0	13.6	15.6	18.0	21.0	24.6	29.2
5: 0	60	12.1	13.7	15.8	18.2	21.2	24.9	29.5

Weight - For - Age (Girls)

SI NO	Name	Gender	Age (Yrs)	Wt(kg)	Interpretation	Result
1.	F	F	2.8	11.5	$< M - 2SD$	Normal
2.	G	F	2	10	$< M - 2SD$	Normal
3.	H	F	3.6	12	$< M - 2SD$	Normal
4.	I	F	3.9	15	$< M - 2SD$	Normal
5.	J	F	4.6	14.5	$< M - 2SD$	Normal

INTERPRETATION FOR BOYS & GIRLS:

Indicator	Interpretation
Normal	$< M - 2SD$
Moderate underweight	$M - 2SD$ to $M - 3SD$
Severe Underweight	$< -3SD$



INTERPRETATION FOR BOYS:-

Indicator	Frequency	Percentage
Normal	05	100%
Moderate underweight	00	00%
Severe underweight	00 N=5	00% 100%

INTERPRETATION FOR GIRLS:-

Indicator	Frequency	Percentage
Normal	05	100%
Moderate underweight	00	00%
Severe underweight	00 N = 05	00% 100%

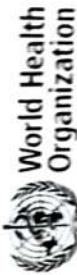
CONCLUSION:

Thus, from the above table (Weight-For-Age) 100% boys are normal, NO boys are moderate underweight and NO boys are severe underweight which is expressed through the Bar Diagram

Thus, from the above table (Weight-For-Age) 100% girls are normal, NO girls are moderate underweight and NO girls are severe underweight which is expressed through the Bar Diagram.

S. S. Patel

Height-for-age BOYS 2 to 5 years (z-scores)



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Year: Month	Month	L	M	S	SD	Z-scores (height in cm)				
						-3 SD	-2 SD	-1 SD	Median	1 SD
2: 0	24	-	87.1161	0.03507	3.0551	78.0	81.0	84.1	87.1	90.2
2: 1	25	-	87.9720	0.03542	3.1160	78.6	81.7	84.9	88.0	91.1
2: 2	26	-	88.8065	0.03576	3.1757	79.3	82.5	85.6	88.8	92.0
2: 3	27	-	89.6197	0.03610	3.2353	79.9	83.1	86.4	89.6	92.9
2: 4	28	-	90.4120	0.03642	3.2928	80.5	83.8	87.1	90.4	93.7
2: 5	29	-	91.1828	0.03674	3.3501	81.1	84.5	87.8	91.2	94.5
2: 6	30	-	91.9327	0.03704	3.4052	81.7	85.1	88.5	91.9	95.3
2: 7	31	-	92.6631	0.03733	3.4591	82.3	85.7	89.2	92.7	96.1
2: 8	32	-	93.3753	0.03761	3.5118	82.8	86.4	89.9	93.4	96.9
2: 9	33	-	94.0711	0.03787	3.5625	83.4	86.9	90.5	94.1	97.6
2: 10	34	-	94.7532	0.03812	3.6120	83.9	87.5	91.1	94.8	98.4
2: 11	35	-	95.4236	0.03836	3.6604	84.4	88.1	91.8	95.4	99.1
3: 0	36	-	96.0835	0.03858	3.7069	85.0	88.7	92.4	96.1	99.8
3: 1	37	-	96.7337	0.03879	3.7523	85.5	89.2	93.0	96.7	100.5
3: 2	38	-	97.3749	0.03900	3.7976	86.0	89.8	93.6	97.4	101.2
3: 3	39	-	98.0073	0.03919	3.8409	86.5	90.3	94.2	98.0	101.8
3: 4	40	-	98.6310	0.03937	3.8831	87.0	90.9	94.7	98.6	102.5
3: 5	41	-	99.2459	0.03954	3.9242	87.5	91.4	95.3	99.2	103.2
3: 6	42	-	99.8515	0.03971	3.9651	88.0	91.9	95.9	99.9	103.8
3: 7	43	-	100.4485	0.03986	4.0039	88.4	92.4	96.4	100.4	104.5
3: 8	44	-	101.0374	0.04002	4.0435	88.9	93.0	97.0	101.0	105.1
3: 9	45	-	101.6186	0.04016	4.0810	89.4	93.5	97.5	101.6	105.7
3: 10	46	-	102.1933	0.04031	4.1194	89.8	94.0	98.1	102.2	106.3
3: 11	47	-	102.7625	0.04045	4.1567	90.3	94.4	98.6	102.8	106.9
3: 12	48	-	103.3273	0.04059	4.1941	90.7	94.9	99.1	103.3	107.5
4: 0	-	-	-	-	-	-	-	-	103.3	111.7

WHO Child Growth Standards

Height-for-age BOYS

2 to 5 years (z-scores)



Year: Month	Month	L	M	S	SD	Z-scores (height in cm)						
						-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
4: 1	49	1	103.8886	0.04073	4.2314	91.2	95.4	99.7	103.9	108.1	112.4	116.6
4: 2	50	1	104.4473	0.04086	4.2677	91.6	95.9	100.2	104.4	108.7	113.0	117.3
4: 3	51	1	105.0041	0.04100	4.3052	92.1	96.4	100.7	105.0	109.3	113.6	117.9
4: 4	52	1	105.5596	0.04113	4.3417	92.5	96.9	101.2	105.6	109.9	114.2	118.6
4: 5	53	1	106.1138	0.04126	4.3783	93.0	97.4	101.7	106.1	110.5	114.9	119.2
4: 6	54	1	106.6668	0.04139	4.4149	93.4	97.8	102.3	106.7	111.1	115.5	119.9
4: 7	55	1	107.2188	0.04152	4.4517	93.9	98.3	102.8	107.2	111.7	116.1	120.6
4: 8	56	1	107.7697	0.04165	4.4886	94.3	98.8	103.3	107.8	112.3	116.7	121.2
4: 9	57	1	108.3198	0.04177	4.5245	94.7	99.3	103.8	108.3	112.8	117.4	121.9
4: 10	58	1	108.8689	0.04190	4.5616	95.2	99.7	104.3	108.9	113.4	118.0	122.6
4: 11	59	1	109.4170	0.04202	4.5977	95.6	100.2	104.8	109.4	114.0	118.6	123.2
5: 0	60	1	109.9638	0.04214	4.6339	96.1	100.7	105.3	110.0	114.6	119.2	123.9

WHO Child Growth Standards

• HEIGHT-FOR-AGE :

Height-for-age reflects attained growth in length or height at the child's age. This indicator can help identify children who are stunted (short) due to prolonged undernutrition or repeated illness. Children who are tall for their age can also be identified, tallness is rarely a problem unless it is excessive & may reflect uncommon endocrine disorders.

~~Height-For-Age (Boys)~~

SI NO	Name	Gender	Age (yrs)	HT(cm)	Interpretation	Result
1.	A	M	2.5	95	$> M + 2SD$	Normal
2.	B	M	3.2	98	$> M + 2SD$	Normal
3.	C	M	3.5	100	$\approx M + 2SD$	Normal
4.	D	M	4	102	$< M - 2SD$	Normal
5.	E	M	4.2	103	$< M - 2SD$	Normal

Height-for-age GIRLS 2 to 5 years (z-scores)



Year Month	Month	Age	Z-scores (height in cm)					
			-3 SD	-2 SD	Median	1 SD	2 SD	3 SD
2; 0	24	85.7153	0.03764	3.2267	76.0	79.3	82.5	85.7
2; 1	25	86.5904	0.03786	3.2782	76.8	80.0	83.3	86.6
2; 2	26	87.4462	0.03808	3.3500	77.5	80.8	84.1	87.4
2; 3	27	88.2830	0.03830	3.3812	78.1	81.5	84.9	88.4
2; 4	28	89.1004	0.03851	3.4313	78.8	82.2	85.7	89.4
2; 5	29	89.8991	0.03872	3.4809	79.5	82.9	86.4	90.4
2; 6	30	90.6797	0.03893	3.5302	80.1	83.6	87.1	90.4
2; 7	31	91.4430	0.03913	3.5782	80.7	84.3	87.9	91.4
2; 8	32	92.1906	0.03935	3.6259	81.3	84.9	88.6	92.1
2; 9	33	92.9229	0.03952	3.6724	81.9	85.6	89.3	92.7
2; 10	34	93.6444	0.03971	3.7186	82.5	86.2	90.2	93.4
2; 11	35	94.3553	0.03989	3.7638	83.1	86.8	90.6	94.4
3; 0	36	95.0515	0.04006	3.8078	83.6	87.4	91.1	95.2
3; 1	37	95.7399	0.04024	3.8526	84.2	88.0	91.9	95.7
3; 2	38	96.4187	0.04041	3.8963	84.7	88.5	92.3	96.4
3; 3	39	97.0885	0.04057	3.9389	85.3	89.2	93.1	97.4
3; 4	40	97.7493	0.04073	3.9813	85.8	89.8	93.7	98.4
3; 5	41	98.4015	0.04089	4.0236	86.3	90.4	94.4	98.4
3; 6	42	99.0448	0.04105	4.0658	86.8	90.9	95.0	99.4
3; 7	43	99.6795	0.04120	4.1088	87.4	91.5	96.6	99.3
3; 8	44	100.3058	0.04135	4.1470	87.9	92.0	96.1	100.3
3; 9	45	100.92248	0.04150	4.1885	88.4	92.5	96.7	100.3
3; 10	46	101.5337	0.04164	4.2279	88.9	93.1	97.3	101.3
3; 11	47	102.1360	0.04179	4.2683	89.3	93.6	97.7	102.2
4; 0	48	102.7312	0.04193	4.3075	89.8	94.1	98.1	102.2

WHO Child Growth Standards

Height-for-age GIRLS

2 to 5 years (z-scores)



Year: Month	Month	L	M	S	SD	Z-scores (height in cm)						
						-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
4: 1	49	1	103.3197	0.04206	4.3456	90.3	94.6	99.0	103.3	107.7	112.0	116.4
4: 2	50	1	103.9021	0.04220	4.3847	90.7	95.1	99.5	103.9	108.3	112.7	117.1
4: 3	51	1	104.4786	0.04233	4.4226	91.2	95.6	100.1	104.5	108.9	113.3	117.7
4: 4	52	1	105.0494	0.04246	4.4604	91.7	96.1	100.6	105.0	109.5	114.0	118.4
4: 5	53	1	105.6148	0.04259	4.4981	92.1	96.6	101.1	105.6	110.1	114.6	119.1
4: 6	54	1	106.1748	0.04272	4.5358	92.6	97.1	101.6	106.2	110.7	115.2	119.8
4: 7	55	1	106.7295	0.04285	4.5734	93.0	97.6	102.2	106.7	111.3	115.9	120.4
4: 8	56	1	107.2788	0.04298	4.6108	93.4	98.1	102.7	107.3	111.9	116.5	121.1
4: 9	57	1	107.8227	0.04310	4.6472	93.9	98.5	103.2	107.8	112.5	117.1	121.8
4: 10	58	1	108.3613	0.04322	4.6834	94.3	99.0	103.7	108.4	113.0	117.7	122.4
4: 11	59	1	108.8948	0.04334	4.7195	94.7	99.5	104.2	108.9	113.6	118.3	123.1
5: 0	60	1	109.4233	0.04347	4.7566	95.2	99.9	104.7	109.4	114.2	118.9	123.7

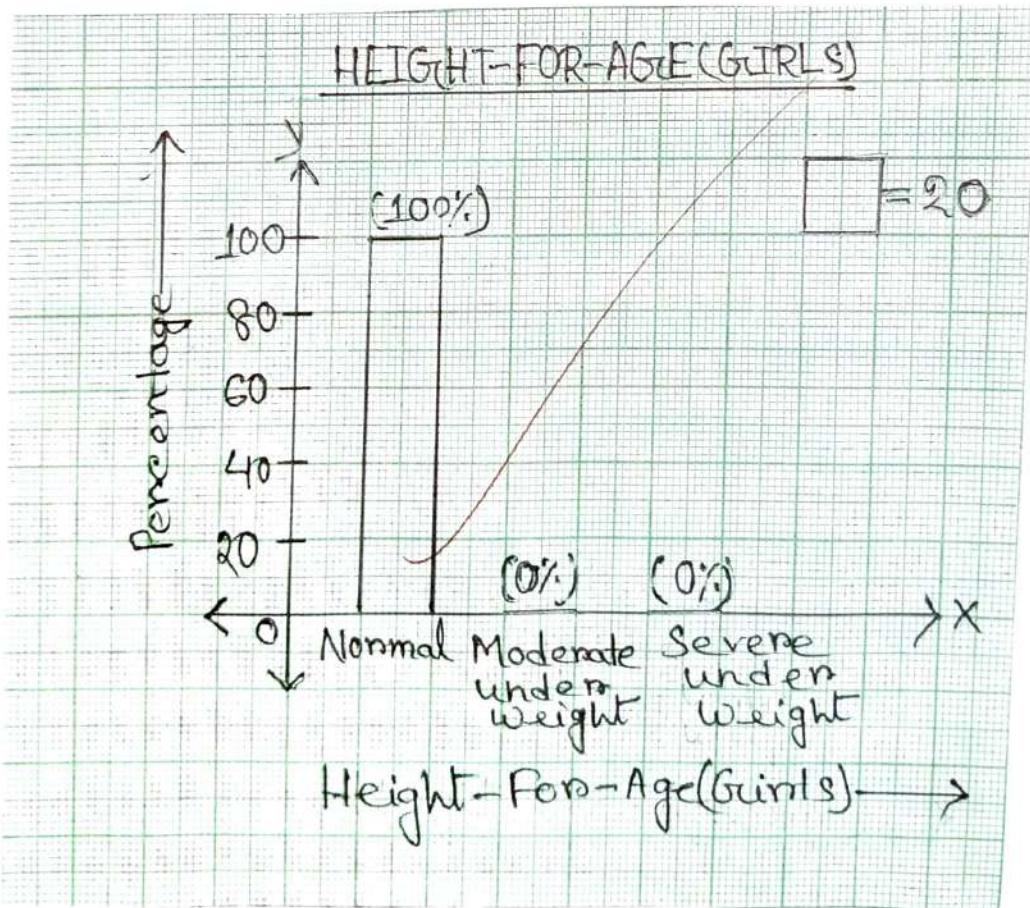
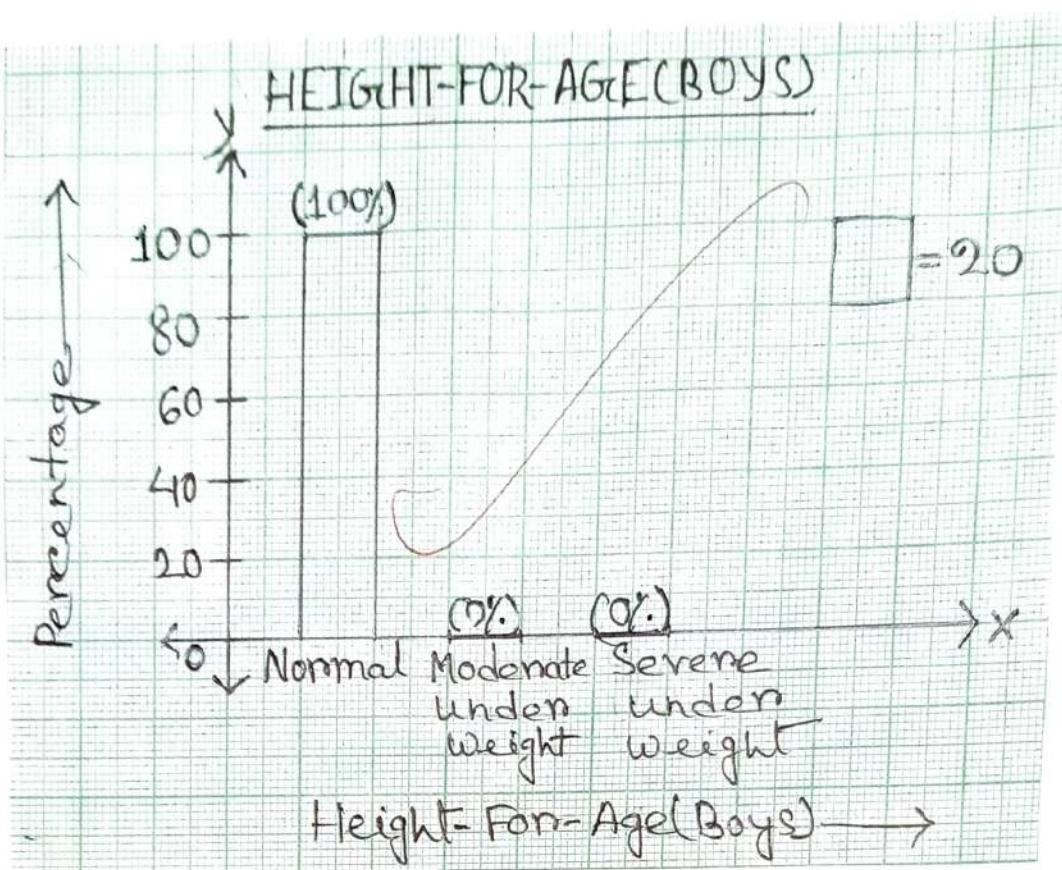
WHO Child Growth Standards

Height - For - Age (Girls)

SI NO	Name	Gender	Age (Yrs)	HT (cm)	Interpretation	Result
1.	F	F	2.8	95	$> M + 2SD$	Normal
2.	Gc	F	2	90	$> M + 2SD$	Normal
3.	H	F	3.6	102	$> M + 2SD$	Normal
4.	I	F	3.9	100	$< M - 2SD$	Normal
5.	J	F	4.6	110	$> M + 2SD$	Normal

INTERPRETATION FOR Boys & GIRLS

Indicator	Interpretation
Normal	$< M - 2SD$
Moderately Stunted	$M - 2SD \text{ to } M - 3SD$
Severely Stunted	$< -3SD$



INTERPRETATION FOR BOYS:

Indicator	Frequency	Percentage
Normal	05	100%.
Moderate stunted	00	00%.
Severe stunted	00	00%.
	N= 05	100%.

INTERPRETATION FOR GIRLS:

Indicator	Frequency	Percentage
Normal	05	100%.
Moderate stunted	00	00%.
Severe stunted	00	00%.
	N= 05	100%.

CONCLUSION:

Thus, from the above table (Height-For-Age) NO boys are moderate stunted, 10% boys are normal and 80% are severe stunted, which is expressed through the Bar-Diagram.

Thus, from the above table (Height-For-Age) 100% girls are normal and NO girls are moderate stunted and 10% girls are severe stunted, which is expressed through the Bar-Diagram.

5/10/1917

**Weight-for-height BOYS
2 to 5 years (z-scores)**



**World Health
Organization**

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
80.0	8.3	9.0	9.7	10.6	11.5	12.6	13.7
80.5	8.4	9.1	9.8	10.7	11.6	12.7	13.8
81.0	8.5	9.2	9.9	10.8	11.7	12.8	14.0
81.5	8.6	9.3	10.0	10.9	11.8	12.9	14.1
82.0	8.7	9.3	10.1	11.0	11.9	13.0	14.2
82.5	8.7	9.4	10.2	11.1	12.1	13.1	14.4
83.0	8.8	9.5	10.3	11.2	12.2	13.3	14.5
83.5	8.9	9.6	10.4	11.3	12.3	13.4	14.6
84.0	9.0	9.7	10.5	11.4	12.4	13.5	14.8
84.5	9.1	9.9	10.7	11.5	12.5	13.7	14.9
85.0	9.2	10.0	10.8	11.7	12.7	13.8	15.1
85.5	9.3	10.1	10.9	11.8	12.8	13.9	15.2
86.0	9.4	10.2	11.0	11.9	12.9	14.1	15.4
86.5	9.5	10.3	11.1	12.0	13.1	14.2	15.5
87.0	9.6	10.4	11.2	12.2	13.2	14.4	15.7
87.5	9.7	10.5	11.3	12.3	13.3	14.5	15.8
88.0	9.8	10.6	11.5	12.4	13.5	14.7	16.0
88.5	9.9	10.7	11.6	12.5	13.6	14.8	16.1
89.0	10.0	10.8	11.7	12.6	13.7	14.9	16.3
89.5	10.1	10.9	11.8	12.8	13.9	15.1	16.4
90.0	10.2	11.0	11.9	12.9	14.0	15.2	16.6
90.5	10.3	11.1	12.0	13.0	14.1	15.3	16.7
91.0	10.4	11.2	12.1	13.1	14.2	15.5	16.9
91.5	10.5	11.3	12.2	13.2	14.4	15.6	17.0
92.0	10.6	11.4	12.3	13.4	14.5	15.8	17.2
92.5	10.7	11.5	12.4	13.5	14.6	15.9	17.3
93.0	10.8	11.6	12.6	13.6	14.7	16.0	17.5
93.5	10.9	11.7	12.7	13.7	14.9	16.2	17.6
94.0	11.0	11.8	12.8	13.8	15.0	16.3	17.8
94.5	11.1	11.9	12.9	13.9	15.1	16.5	17.9
95.0	11.1	12.0	13.0	14.1	15.3	16.6	18.1

Weight-for-height BOYS
2 to 5 years (z-scores)



**World Health
Organization**

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
95.5	11.2	12.1	13.1	14.2	15.4	16.7	18.3
96.0	11.3	12.2	13.2	14.3	15.5	16.9	18.4
96.5	11.4	12.3	13.3	14.4	15.7	17.0	18.6
97.0	11.5	12.4	13.4	14.6	15.8	17.2	18.8
97.5	11.6	12.5	13.6	14.7	15.9	17.4	18.9
98.0	11.7	12.6	13.7	14.8	16.1	17.5	19.1
98.5	11.8	12.8	13.8	14.9	16.2	17.7	19.3
99.0	11.9	12.9	13.9	15.1	16.4	17.9	19.5
99.5	12.0	13.0	14.0	15.2	16.5	18.0	19.7
100.0	12.1	13.1	14.2	15.4	16.7	18.2	19.9
100.5	12.2	13.2	14.3	15.5	16.9	18.4	20.1
101.0	12.3	13.3	14.4	15.6	17.0	18.5	20.3
101.5	12.4	13.4	14.5	15.8	17.2	18.7	20.5
102.0	12.5	13.6	14.7	15.9	17.3	18.9	20.7
102.5	12.6	13.7	14.8	16.1	17.5	19.1	20.9
103.0	12.6	13.8	14.9	16.2	17.7	19.3	21.1
103.5	12.9	13.9	15.1	16.4	17.8	19.5	21.3
104.0	13.0	14.0	15.2	16.5	18.0	19.7	21.6
104.5	13.1	14.2	15.4	16.7	18.2	19.9	21.8
105.0	13.2	14.3	15.5	16.8	18.4	20.1	22.0
105.5	13.3	14.4	15.6	17.0	18.5	20.3	22.2
106.0	13.4	14.5	15.8	17.2	18.7	20.5	22.5
106.5	13.5	14.7	15.9	17.3	18.9	20.7	22.7
107.0	13.7	14.8	16.1	17.5	19.1	20.9	22.9
107.5	13.8	14.9	16.2	17.7	19.3	21.1	23.2
108.0	13.9	15.1	16.4	17.8	19.5	21.3	23.4
108.5	14.0	15.2	16.5	18.0	19.7	21.5	23.7
109.0	14.1	15.3	16.7	18.2	19.8	21.8	23.9
109.5	14.3	15.5	16.8	18.3	20.0	22.0	24.2
110.0	14.4	15.6	17.0	18.5	20.2	22.2	24.4
110.5	14.5	15.8	17.1	18.7	20.4	22.4	24.7

• WEIGHT-FOR-HEIGHT:

It reflects body weight in proportion to attained growth in length or height. This indicator is especially useful in situations where children's age are unknown. Weight-for-length/height charts help identify children with low weight-for-height who may be wasted or severely wasted. Wasting is usually caused by a recent illness or food shortage that causes acute & severe weight loss, although chronic undernutrition or illness can also cause this condition. These charts also help identify children with weight-for-length/height who may be at risk of becoming overweight or obese.

Weight - For - Height (Boys)

SI NO	Name	Gender	Wt(kg)	Ht(cm)	Interpretation	Result
1.	A	M	11	95	< -3SD	Severe Wasting
2.	B	M	12	98	< M - 2SD to < M - 3SD	Moderate Wasting
3.	C	M	12.5	100	< M - 2SD to < M - 3SD	Moderate wasting
4.	D	M	14	102	< M - 2SD	Normal
5.	E	M	13.5	103	< M - 2SD to < M - 3SD	Moderate Wasting

**Weight-for-height GIRLS
2 to 5 years (z-scores)**



**World Health
Organization**

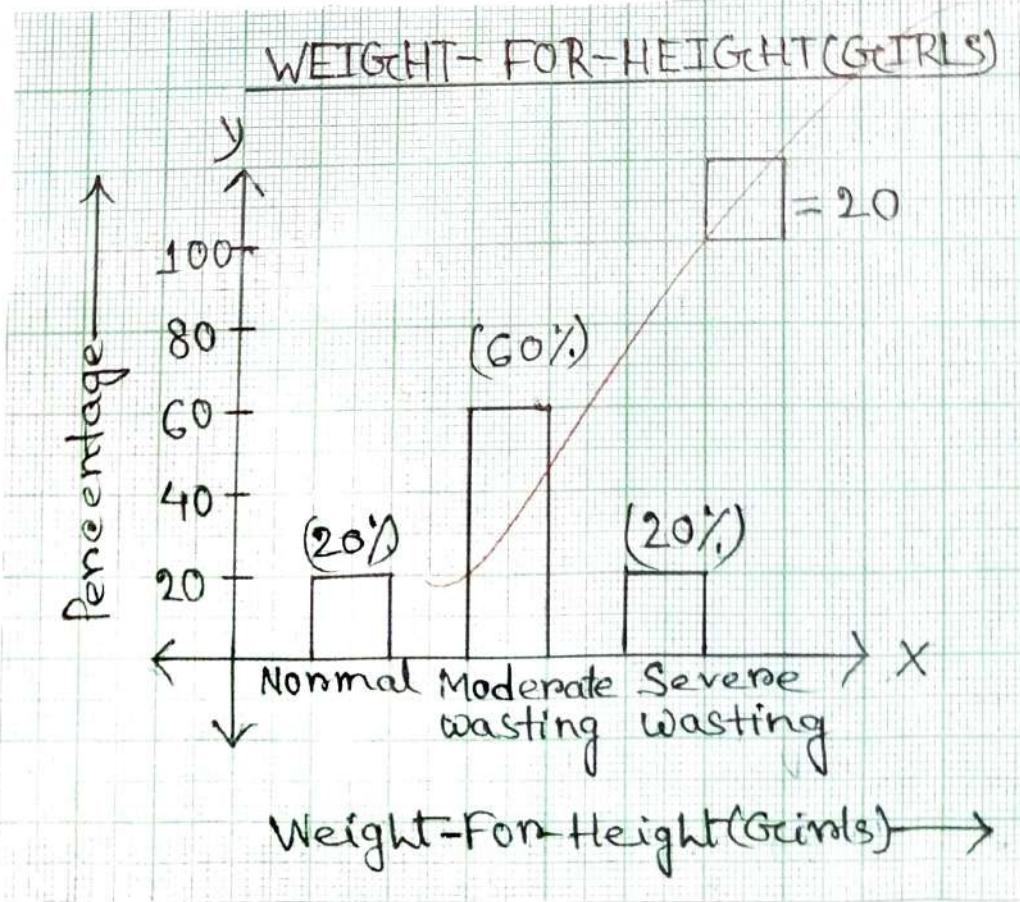
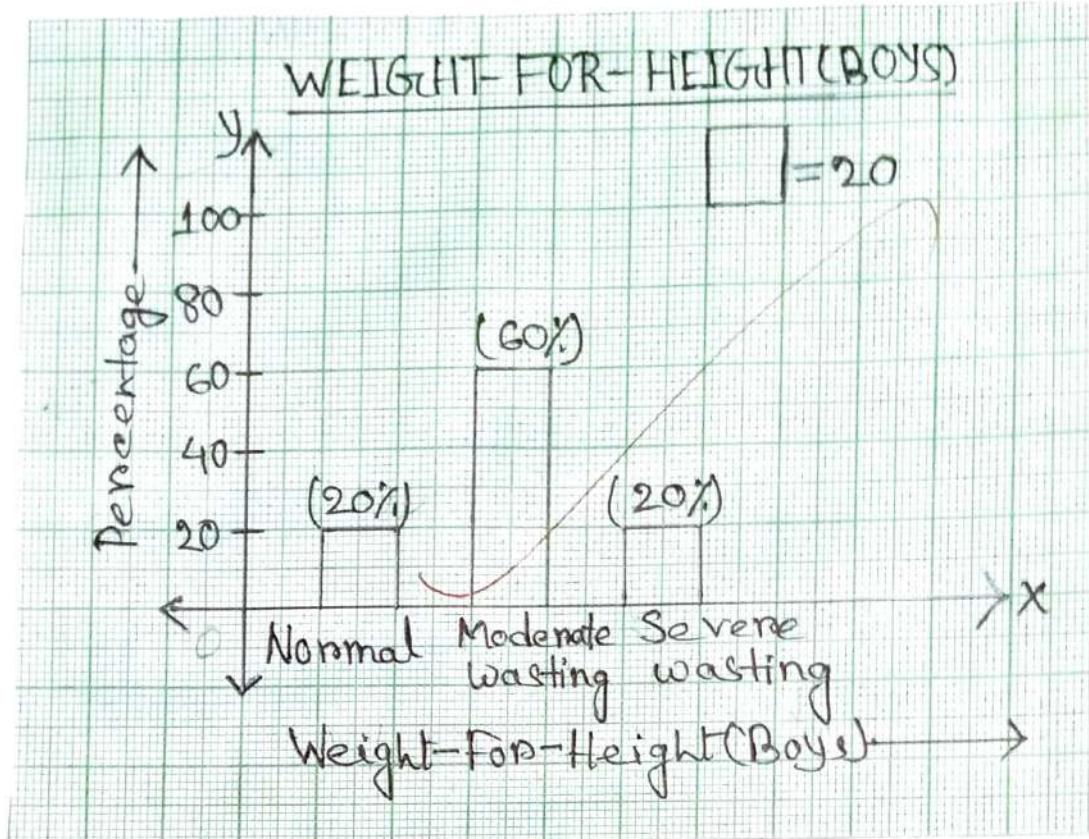
cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
80.0	7.9	8.6	9.4	10.2	11.2	12.3	13.5
80.5	8.0	8.7	9.5	10.3	11.3	12.4	13.7
81.0	8.1	8.8	9.6	10.4	11.4	12.6	13.9
81.5	8.2	8.9	9.7	10.6	11.6	12.7	14.0
82.0	8.3	9.0	9.8	10.7	11.7	12.8	14.1
82.5	8.4	9.1	9.9	10.8	11.8	13.0	14.3
83.0	8.5	9.2	10.0	10.9	11.9	13.1	14.5
83.5	8.5	9.3	10.1	11.0	12.1	13.3	14.6
84.0	8.6	9.4	10.2	11.1	12.2	13.4	14.8
84.5	8.7	9.5	10.3	11.3	12.3	13.5	14.9
85.0	8.8	9.6	10.4	11.4	12.5	13.7	15.1
85.5	8.9	9.7	10.6	11.5	12.6	13.8	15.3
86.0	9.0	9.8	10.7	11.6	12.7	14.0	15.4
86.5	9.1	9.9	10.8	11.8	12.9	14.2	15.6
87.0	9.2	10.0	10.9	11.9	13.0	14.3	15.8
87.5	9.3	10.1	11.0	12.0	13.2	14.5	15.9
88.0	9.4	10.2	11.1	12.1	13.3	14.6	16.1
88.5	9.5	10.3	11.2	12.3	13.4	14.8	16.3
89.0	9.6	10.4	11.4	12.4	13.6	14.9	16.4
89.5	9.7	10.5	11.5	12.5	13.7	15.1	16.6
90.0	9.8	10.6	11.6	12.6	13.8	15.2	16.8
90.5	9.9	10.7	11.7	12.8	14.0	15.4	16.9
91.0	10.0	10.9	11.8	12.9	14.1	15.5	17.1
91.5	10.1	11.0	11.9	13.0	14.3	15.7	17.3
92.0	10.2	11.1	12.0	13.1	14.4	15.8	17.4
92.5	10.3	11.2	12.1	13.3	14.5	16.0	17.6
93.0	10.4	11.3	12.3	13.4	14.7	16.1	17.8
93.5	10.5	11.4	12.4	13.5	14.8	16.3	17.9
94.0	10.6	11.5	12.5	13.6	14.9	16.4	18.1
94.5	10.7	11.6	12.6	13.8	15.1	16.6	18.3
95.0	10.8	11.7	12.7	13.9	15.2	16.7	18.5

Weight - For - Height (Girls)

SI No.	Name	Gender	Wt(kg)	Ht(cm)	Interpretation	Result
1.	F	F	11.5	95	$\text{CM} - 2\text{SD}$ to $\text{CM} - 3\text{SD}$	Moderate wasting
2.	G	F	10	90	$\text{CM} - 2\text{SD}$ to $\text{CM} - 3\text{SD}$	Moderate wasting
3.	H	F	12	102	$\text{CM} - 3\text{SD}$	Severe wasting
4.	I	F	15	100	$\text{CM} - 2\text{SD}$	Normal
5.	J	F	14.5	110	$\text{CM} - 2\text{SD}$ to $\text{CM} - 3\text{SD}$	Moderate wasting

■ INTERPRETATION FOR BOYS & GIRLS:

Indicator	Interpretation
Normal	$\text{CM} - 2\text{SD}$
Moderate wasting	$\text{CM} - 2\text{SD}$ to $\text{CM} - 3\text{SD}$
Severe wasting	$\text{CM} - 3\text{SD}$



■ INTERPRETATION FOR BOYS:

Indicator	Frequency	Percentage
Normal	01	20%
Moderate Wasting	03	60%
Severe Wasting	01 N=05	20% 100%

■ INTERPRETATION FOR GIRLS:

Indicator	Frequency	Percentage
Normal	01	20%
Moderate wasting	03	60%
Severe wasting	01 N=05	20% 100%

■ CONCLUSION:

Thus, from the above table (Weight-For-Height) 20% boys are normal and 60% boys are moderate wasting and 20% boys are severe wasting, which is expressed through the Bar-diagram.

Thus, from the above table (Weight-For-Height) 20% girls are normal and 60% girls are moderate wasting and 20% girls are severe wasting, which is expressed through the Bar-diagram.

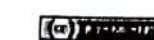
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Detection and Referral of Children with Acute Malnutrition

MUAC Resources - Sources for MUAC straps

Interpretation of Mid-Upper Arm Circumference MUAC indicators

- MUAC less than 110mm (11.0cm), RED COLOUR, indicates Severe Acute Malnutrition (SAM). The child should be immediately referred for treatment.
- MUAC of between 110mm (11.0cm) and 125mm (12.5cm), RED COLOUR (3-colour Tape) or ORANGE COLOUR (4-colour Tape), indicates Moderate Acute Malnutrition (MAM). The child should be immediately referred for supplementation.
- MUAC of between 125mm (12.5cm) and 135mm (13.5cm), YELLOW COLOUR, indicates that the child is at risk for acute malnutrition and should be counselled and followed-up for Growth Promotion and Monitoring (GPM).
- MUAC over 135mm (13.5cm), GREEN COLOUR, indicates that the child is well nourished.

■ INTERPRETATION OF MID-UPPER ARM CIRCUMFERENCE MUAC INDICATORS:

- MUAC less than 110mm (11.0 cm), RED COLOUR, indicates Severe Acute Malnutrition (SAM). The child should be immediately referred for treatment.
- MUAC of between 110mm (11.0 cm) & 125 mm (12.5 cm), RED COLOUR (3-colour Tape) or ORANGE COLOR (4-colour Tape), indicates Moderate Acute Malnutrition (MAM). The child should be immediately referred for supplementation.
- MUAC of between 125mm (12.5 cm) & 135(13.5 cm) YELLOW COLOUR indicates that the child is at risk for acute malnutrition & should be counselled and followed up for Growth Promotion & Monitoring (GPM).
- MUAC over 135mm (13.5 cm), GREEN COLOUR, indicates that the child is well nourished.

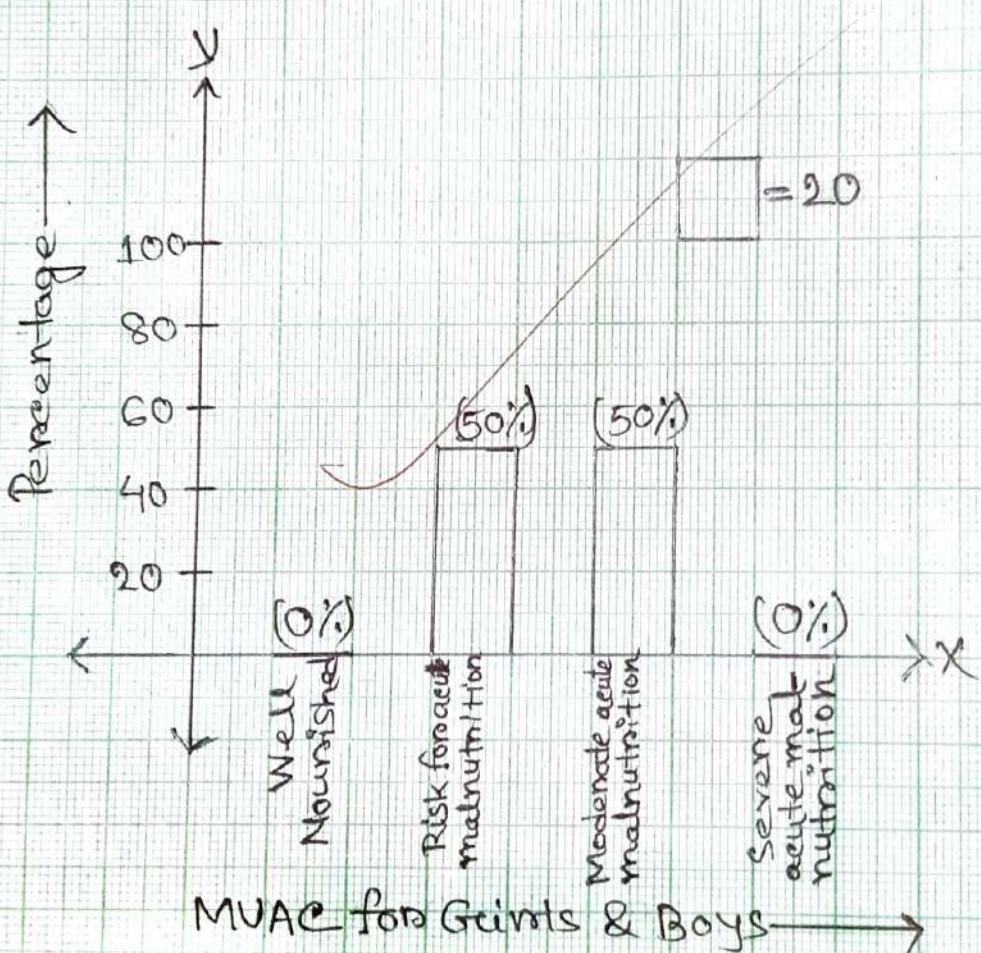
• MUAC For Boys

SI No	Name	Gender	MUAC (cm)	Interpretation	Result
1	A	M	11	11.0cm-12.5cm (orange)	Moderate Acute Malnutrition
2	B	M	11.2	11.0cm-12.5cm (orange)	Moderate Acute Malnutrition
3	C	M	12.3	11.0cm-12.5cm (orange)	Moderate Acute Malnutrition
4	D	M	12	11.0cm-12.5cm (orange)	Moderate Acute Malnutrition
5	E	M	12.3	11.0cm-12.5cm (orange)	Moderate Acute Malnutrition

• MUAC For Girls

SI No	Name	Gender	MUAC (cm)	Interpretation	Result
1.	F	F	12.7	12.5cm-13.5cm (Yellow)	Risk for Acute Malnutrition
2.	G	F	13.1	12.5cm-13.5cm (Yellow)	Risk for Acute Malnutrition
3	H	F	12.8	12.5cm-13.5cm (Yellow)	Risk for Acute malnutrition
4.	I	F	13.2	12.5cm-13.5cm (Yellow)	Risk for Acute Malnutrition
5	J	F	13.5	12.5cm-13.5cm (Yellow)	Risk for Acute Malnutrition

MUAC FOR BOYS & GIRLS



INTERPRETATION FOR BOYS & GIRLS:

Indicator	Colour	Interpretation
Well nourished	Green	13.5 cm
Risk for Acute malnutrition	Yellow	12.5 cm - 13.5 cm
Moderate Acute malnutrition (MAM)	Orange	11.0 cm - 12.5 cm
Severe Acute malnutrition (SAM)	Red	< 11.0 cm

INTERPRETATION FOR BOYS & GIRLS:

Indicator	Frequency	Percentage
Well nourished	00	00%
Risk for Acute Malnutrition	05	50%
Moderate Acute Malnutrition	05	50%
Severe Total Acute Malnutrition	00	00%
Total	N=10	100%



Measurement of MUAC

CONCLUSION:

Thus, from the above table (MUAC) none are wellnourished, 50% are Risk for acute malnutrition, 50% are Moderate acute malnutrition & 0% are Severe acute malnutrition, which is expressed through the Bar diagram



67
67

ASSESSMENT OF BMI OF AN ADULT

• Measurement of the body weight:

Body weight is the most widely used & the sensitive & simplest reproducible anthropometric measurement for the evaluation of nutritional status of young children. BMI is proportional to body weight. A BMI of 18.50-24.9 may indicate optimal weight. BMI indicate optimal weight. BMI lower than 18.50 suggests the person is underweight while a number above 25 may indicate the person is over weight. A person may have BMI below 18.50 due to disease or a number above 30 suggest the person is obese. The weight excess or deficiency may impact be accounted for by body fat (adipose tissue) although other factors such as muscularities affect BMI significantly.

• Measurement of height:

The height of an individual is influenced both by genetic & environmental factors. Height is affected only by long term nutritional deprivation. It is considered an index of chronic or long duration malnutrition.

BMI is inversely proportional to the square of height. Pandermal index is based on this natural scaling of weight the third power of the height.

• Calculation of BMI:

The body BMI is also called Quellet index is a heuristic proxy for human body fat based on an individual's weight & height. It does not actually measure the percentage of body fat. BMI is defined as the individual's body weight divided by the square of his/her height. The index does not require any standard table.

$$\text{BMI} = \frac{\text{Body Weight (kg)}}{\text{Height (m)}^2}$$

■ ADVANTAGES OF BMI:

- It is very useful indicator for the assessment of health status of adults. BMI has a good correlation with fatness.
- It may be used as an indicators of health risk. It may be widely used for individual diagnosis despite its inappropriateness.

- A frequent use of BMI is to assess how much an individual's body weight departs from what is normal or desirable for a person of his/her weight. The BMI is used by general mass & can serve as vague means of estimating adiposity.
 - It has been used by the WHO as the standard for recording obesity statistics.
 - It is also used as a measure of underweight owing to advocacy on health behalf of those suffering with eating disorders such as anorexia, nervosa, bulimia nervosa.
- LIMITATION:

BMI is disadvantageous as this does not distinguish between overweight due to obesity & muscular hypertrophy as it happens in athletics.

		BMI(Kg/m ²)
Classification	Principle cut-off Points	Additional cut-off Points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	18.50 - 24.99	18.50 - 22.99 23.00 - 24.99
Overweight	> 25.00	> 25.00
Pre-obese	25.00 - 29.99	25.00 - 27.49 27.50 - 29.99
Obese	≥ 30.00	≥ 30.00
Obese class I	30.00 - 34.99	30.00 - 32.49 32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49 37.50 - 39.99
Obese class III	≥ 40.00	≥ 40.00

~~Source:~~ Adapted from WHO, 1995, WHO 2000 & WHO 2004

ASSESSMENT OF BMI OF ADULTS :

SI NO	Name	Gender	Age (Yrs)	Ht (cm)	Wt (Kg)	BMI (Kg/m ²)	Interpretation
1.	Ashik Iqbal Molla	M	19	167.6	58.5	20.24	Normal
2.	Anisha Khatun	F	18	149.9	42	18.91	Normal
3.	Barsha Khamansu	F	19	152.4	47	20.23	Normal
4.	Rupsa Ghosh	F	19	152.4	45	19.48	Normal
5.	Trisita Mondal	F	19	165.1	59	21.67	Normal
6.	Monija Mollick	F	19	149.8	40	18.01	Underweight
7.	Priya Mondal	F	19	157.4	62	25.2	Pre-obese
8.	Rinita Pramanick	F	19	157.4	62	25.2	Pre- obese Normal
9.	Piyasa Ghosh	F	18	154.9	50	21.0	Underweight
10.	Nishat Sekh	F	19	154.9	40	16.87	Underweight
11.	Srijita Das	F	19	157.48	54	21.90	Normal
12.	Sreemoyee Sengupta	F	18	149.86	44.5	20.04	Normal
13.	Mahesh Shaw	F	18	160.02	58	22.55	Normal
14.	Saptadipa Hazra	F	19	151	49	21.49	Normal
15.	Sheha Ghose	F	19	164.86	41	15.24	Severethinness
16.	Sahina	F	18	167.6	49	17.57	Mild thinness

Interpretation of BMI (kg/m^2)	Frequency	Percentage
1. Underweight	4	25%
2. Normal	10	62.5%
3. Overweight	0	00%
4. Pre-obese	2	12.5%
Total	Total - 16	100%

■ Conclusion:

concluded

Thus it can be seen that 25% person are underweight, 62.5% person are Normal, No one person are overweight & 12.5% are pre obese, which is expressed through the Bar-Diagram

for 95

WAIST & HIP RATIO OF ADULTS:

To calculate muscle circumference on area lay a between the appropriate value for arm circumference & muscle are for the middleline waist-hip ratio gives distribution of fat in human body. A waist-hip ratio greater than 0.95 in men 0.8 in women is indicative of android obesity & increases the risk of atherosclerosis.

The predominant distribution of fat in obese person whether in the upper part or the lower part of the body may determine the disease pattern.

The normal ratio = $\frac{\text{Waist}}{\text{Hip}} = 0.7$

But upper body obesity the ratio is 0.85 in women & greater than 0.95 in men.

Abdominal obesity do not always go hand with over weight or obesity.

■ Measurement of waist circumference:

It was measured using measuring tape. The tape was passed mid way between the lower rib margin & iliac crest.

■ Measurement of hip circumference:

It was measured with passing over maximum protuberance on buttocks.



Measurement of Waist-Hip Ratio

ASSESSMENT OF WAIST & HIP RATIO OF ADULTS:

Sl No	Name	Gender	Age	Waist circum- ference (cm)	Hip circum- ference (cm)	Waist/Hip Ratio	Interpre- tation
1.	Anisha Khatun	F	18	62	73.5	0.84	Normal
2.	Barsha Khamaru	F	19	69	82	0.84	Normal
3.	Rupsa Ghosh	F	19	69	83	0.83	Normal
4.	Troisita Mondal	F	19	74.5	90	0.82	Normal
5.	Monija Mollick	F	19	62	69	0.89	Obesity
6.	Priya Mondal	F	19	94	100	0.94	Obesity
7.	Rimita Poamaniick	F	19	94	105	0.89	Obesity
8.	Piyasa Ghosh	F	18	79	86	0.91	Obesity
9.	Nishat Sekh	F	19	62	63.5	0.97	Obesity
10.	Srijita Das	F	19	76	85	0.89	Obesity
11.	Sreemoyee Sen Gupta	F	18	70	76	0.92	Obesity
12.	Mahek Shaw	F	18	82	90	0.91	Obesity
13.	Saptadipa Hazra	F	19	78	84	0.92	Obesity
14.	Sneha Ghose	F	19	69	77	0.89	Obesity
15.	Sahina	F	18	68	79	0.86	Obesity

ASSESSMENT OF WAIST & HIP RATIO OF AN ADULTS:

SI NO	Name	Gender	Age (yrs)	Waist circum- ference (cm)	Hip circum- ference (cm)	Waist-Hip ratio	Interpretation
1.	ASHIK IKBAL Molla	M	73	80	0.91		Obesity Normal

WHR For Female:-

Interpretation of WHR (Females)	Frequency	Percentage (%)
1. Normal	04	26.66%
2. Substantially increased (obesity)	11	73.33%
	N = 15	

WHR For Male:-

Interpretation of WHR (Males)	Frequency	Percentage (%)
1. Normal	01	100%
2. Substantially increased (obesity)	0	0
	N = 1	

CONCLUSION: Thus it can be concluded that females were having normal WHR whereas as 73.33% were having higher WHR which is expressed through the Bar-Diagram

Thus, it can be concluded that 100% males were having normal WHR whereas no one having higher WHR which is expressed through Bar-Diagram

GROWTH CHART:

Growth chart is also called Pond to health chart. The central purpose of the growth chart with its reference curves, is to provide a visual representation of the growth of individual children. It cannot be emphasized too strongly that the growth curve is of vital importance, both as a diagnostic tool & as an educational tool for mothers, in promoting appropriate growth & stimulating & guiding preventive & corrective actions.

~~It must again be stressed that the direction of growth is of prime importance. The growth curve can take three directions, as follows:~~

(1) Upwards: If a child's growth curve is climbing upwards in the same direction as the reference curves this is good. The child is growing adequately.

(2) Horizontal: If the growth curve is horizontal, this means the child is not putting on weight. He has stopped growing. Because all healthy children put on weight as they grow, this is a warning sign.

(3) Downwards:

If the growth curve is moving downwards, the child is losing weight. This is very dangerous. The child needs immediate help. The direction of the curve should also help in evaluating the effectiveness of corrective measures.

A growth curve is formed by joining the plotted points on a growth chart. Direction of growth curve indicates whether the child is growing or not & is more important than the actual weight of the child at a given point of weighing. On each growth chart, there are 3 printed growth curves. These are called Reference Lines or Z Score Lines & are used to compare & interpret the growth pattern of the child & assess her/his nutritional status. The 1st top curve line on the growth chart i.e. upper border of green band is the median which is generally speaking the average. Second line is the junction of green & yellow bands & 3rd line is the junction of yellow & orange bands. Weight of all normal & healthy children, when plotted on the growth chart, fall above 2nd curve (green band); weight of moderately underweight children fall below the 2nd curve to 3rd curve.

(Yellow band); & weight of severely underweight children fall below the 3rd curve (Orange band)

Plotting the child's weight, taken every month or quarter, on the growth chart & joining these weight points with a line to form the growth curve, makes the growth of the child visible. The growth curve is a useful tool in many ways & enables to:

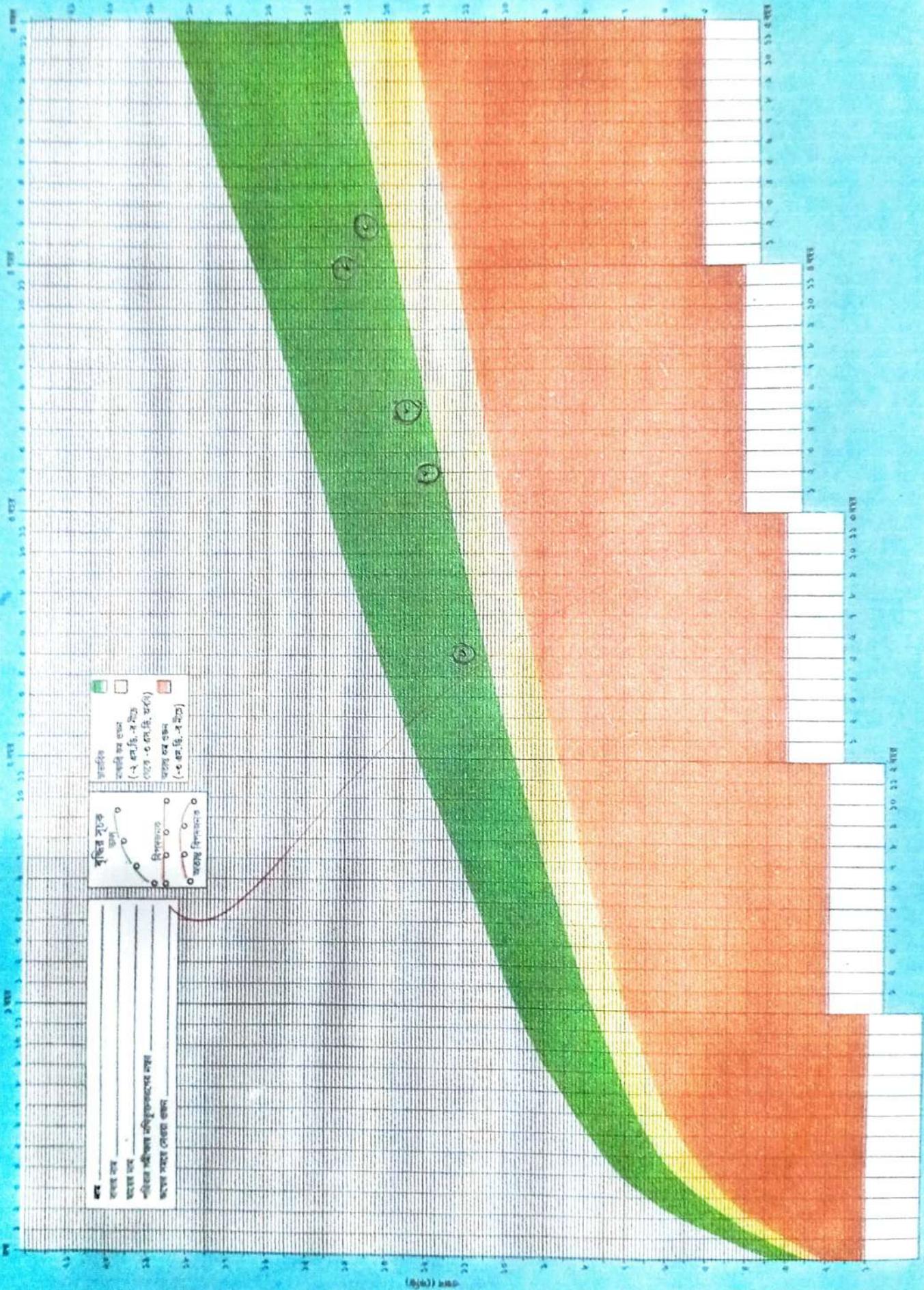
- Detect early growth faltering & prevent underweight.
- Identify underweight children who need special care & feeding at home; in addition to supplementary nutrition received at the AWC.
- Identify severely underweight children who need special care & feeding at home & to provide referral advice, in addition to micronutrient-fortified food/Energy-dense food supplementation at the AWC.
- Identify causes of weight loss or lack of growth i.e. illness such as fever, diarrhoea & acute respiratory infections; inadequate or

insufficient diet; mother's illness etc, to take corrective & timely actions to

- Educate, counsel & support mothers & families for optimal nutrition, health care & development of their children.



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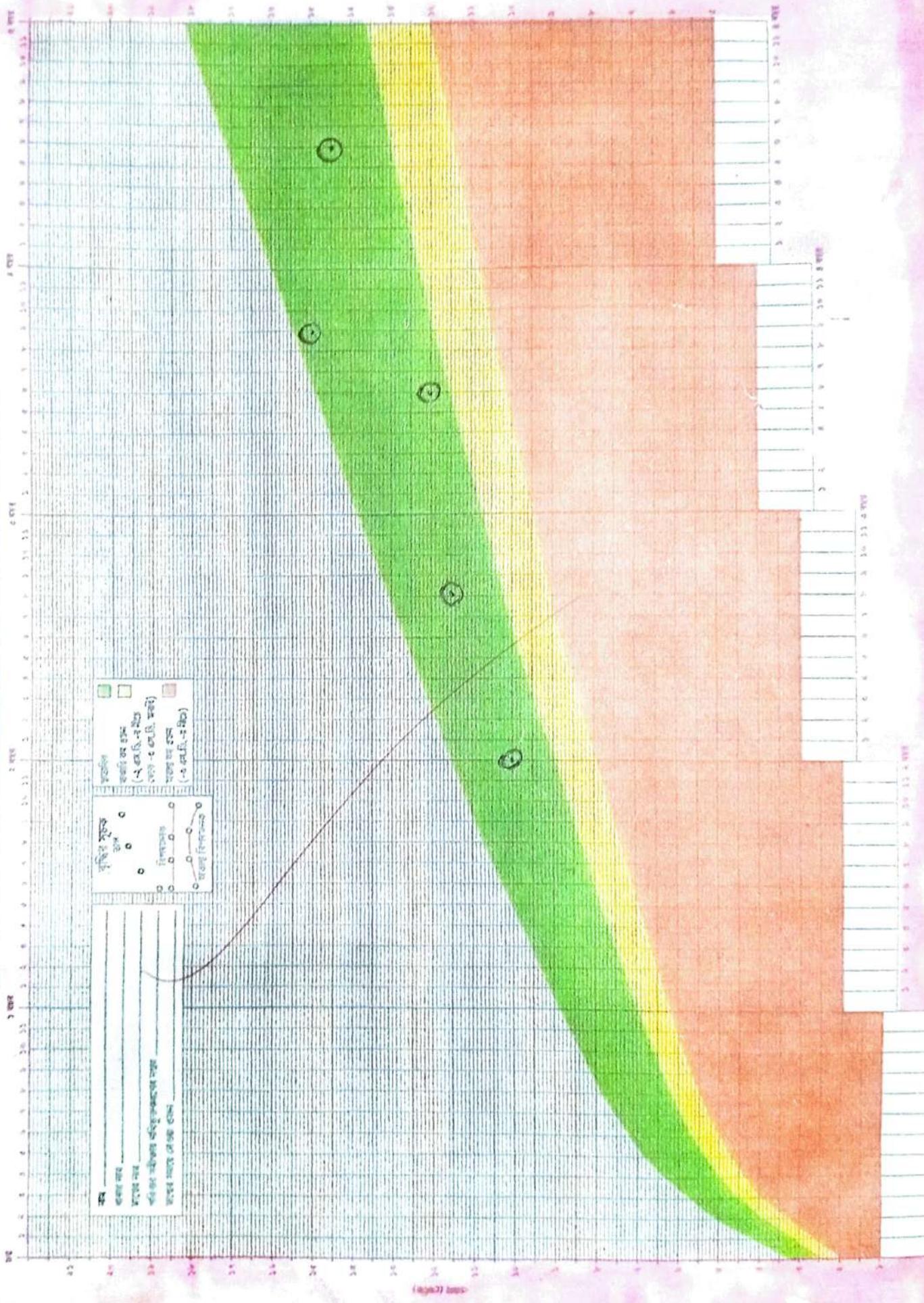


• Interpretation of growth Chart for boys:-

SI NO	Name	Gender	Age (Yrs)	wt(kg)	Interpretation	Result
1.	A	M	2.5	11	Green	Normal
2.	B	M	3.2	12	Green	Normal
3.	C	M	3.5	12.5	Green	Normal
4.	D	M	4	14	Green	Normal
5.	E	M	4.2	13.5	Green	Normal



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• Interpretation of 'growth chart for girls':—

SI NO	Name	Gender	Age(Yrs)	Wt(kg)	Interpretation	Result
1.	F	F	2.8	11.5	Green	Normal
2.	G	F	2	10	Green	Normal
3.	H	F	3.6	12	Green	Normal
4.	I	F	3.9	15	Green	Normal
5.	J	F	4.6	14.5	Green	Normal

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■ CLINICAL ASSESSMENT:

The WHO classification helps to identify particular nutritional deficiency when the Survey is limited & aimed at rapid clinical screening of the community. In clinical assessment the physical signs should be recorded as precisely & practically by well trained personnel & the interpretation of results(signs) should be based on standardized definition of a particular sign.

■ ADVANTAGES OF CLINICAL ASSESSMENT:

- (i) Clinical examination is relatively inexpensive method as neither elaborate field equipment nor a costly laboratory is needed.
- (ii) With very careful training & continuing supervision even junior personnel can be taught to recognize certain crucial signs.
- (iii) It is the simplest and most practical method when two or more signs characteristics of a deficiency disease are present simultaneously.
- (iv) Clinical assessment gives valuable if approximate objective information to public health workers.

CLASSIFIED LIST OF SIGNS USED IN NUTRITIONAL ASSESSMENT

	Group I Signs known to be of value in nutritional assessment	Group II Signs that need further investigation	Group III Some signs not related to nutrition
Hair	Lack of lustre, Thinness and Sparseness, Straightness, Dyspigmentation, Flag sign Easy pluckability		Alopecia, Artificial discolouration
Face	Diffuse depigmentation Nasolabial dyssebacea, Moon-face	Molar and supra pigmentation	Acne vulgaris, Acne rosacea, Chloasma
Eyes	Pale conjunctiva, Bitot's spots, Conjunctival xerosis Keratomalacia, Angular palpebritis	Conjunctival infection, Conjunctival and Scleral pigmentation corneal vascularization. Circumcorneal Infection, corneal Opacities and scars.	Follicular-conjunctivitis Blepharitis Pingueculae pterygium pannus
Lips	Angular stomatitis, Angular Scar Cheilosis	Chronic depigmentation of lower lip	Chapping from exposure to harsh climates
Tongue	Oedema, Scarlet and raw Tongue, Megenta tongue Atrophic papillae	Hyperaemic and hypertrophic papillae, Fissures, Geographical tongue, Pigmented tongue	Aphous ulcer, Leukoplakia
Teeth	Mottled enamel	Caries, Attrition, Enamel hypoplasia, Enamel erosion	Malocclusion
Gums	Spongy, bleeding Gums	Recession of gum	Pyorrhoea
Glands	Thyroid Enlargement, parotid enlargement	Gynaecomastia	
Skin	Xerosis, Follicular Hyperkeratosis (type I & II) petechiae, pellagrous dermatosis, Flaky-paint dermatosis, scrotal or vulval dermatosis	Mosaic dermatosis Thickening and pigmentation of pressure points, Intetiginous lesions	Icthyosis, Acneiform eruption, Miliaria Epidermophytoses sunburn, onchocercal dermatosis
Nails	Koilonychias	Brittle, ridged nails	-
Subcutaneous tissue	Oedema, Amount of subcutaneous fat	-	-

(B) Clinical Features [Tick the appropriate sign]

- I. General Appearance 0 Good
 1 Fair
 2 Poor
 3 Very poor

II. Eyes

(a) Conjunctiva

- Xerosis

0	Absent glistening and moist	<input checked="" type="checkbox"/>
1	Slightly dry on exposure for a minute, lack of lustre	<input type="checkbox"/>
2	Conjunctiva dry and wrinkled	<input type="checkbox"/>
3	Conjunctiva very dry and Bitot's spots present	<input type="checkbox"/>
- Pigmentation

0	Normal color	<input checked="" type="checkbox"/>
1	Slight discolouration	<input type="checkbox"/>
2	Moderate brownish patches	<input type="checkbox"/>
3	Severely earthy discolouration	<input type="checkbox"/>
- Discharge

0	Absent	<input checked="" type="checkbox"/>
1	Watery, excessive lachrymation	<input type="checkbox"/>
2	Muco purulent	<input type="checkbox"/>
3	Purulent	<input type="checkbox"/>

(b) Cornea

- Xerosis

0	Absent	<input checked="" type="checkbox"/>
1	Slight dryness and diminished sensitivity	<input type="checkbox"/>
2	Haze and diminished transparency	<input type="checkbox"/>
3	Ulceration	<input type="checkbox"/>
- Vascularization

0	Absent	<input checked="" type="checkbox"/>
1	Circumcorneal infection	<input type="checkbox"/>
2	Vascularization of cornea	<input type="checkbox"/>

(c) Lids

- Excoriation

0	Absent	<input checked="" type="checkbox"/>
1	Slight excoriation	<input type="checkbox"/>
2	Blepharitis	<input type="checkbox"/>

(d) Functional

- Night blindness

0	Absent	<input checked="" type="checkbox"/>
1	Present	<input type="checkbox"/>

III. Mouth

- (a) Lips condition

0	Normal	<input checked="" type="checkbox"/>
1	Angular stomatitis (mild)	<input type="checkbox"/>
2	Angular stomatitis (severe)	<input type="checkbox"/>

(b) Tongue

- Colour

0	Normal	<input checked="" type="checkbox"/>
1	Pale	<input type="checkbox"/>
2	Red	<input type="checkbox"/>
3	Red and raw	<input type="checkbox"/>

• Surface	0 Normal	<input checked="" type="checkbox"/>
	1 Fissured	<input type="checkbox"/>
	2 Ulcerated	<input type="checkbox"/>
	3 Glazed & atrophic	<input type="checkbox"/>
(c) Gum		
• Condition	0 Normal	<input checked="" type="checkbox"/>
	1 Bleeding and / or gingivitis	<input type="checkbox"/>
	2 Pyorrhoea	<input type="checkbox"/>
	3 Retracted	<input type="checkbox"/>
(d) Teeth		
• Fluorosis	0 Absent	<input checked="" type="checkbox"/>
	1 Chalky teeth	<input type="checkbox"/>
	2 Pitting of teeth	<input type="checkbox"/>
	3 Mottled & discoloured teeth	<input type="checkbox"/>
• Carries	0 Absent	<input checked="" type="checkbox"/>
	1 Slight	<input type="checkbox"/>
	2 Marked	<input type="checkbox"/>
IV. Hair		
• Condition	0 Normal	<input checked="" type="checkbox"/>
	1 Loss of lusture	<input type="checkbox"/>
	2 Discoloured and dry	<input type="checkbox"/>
	3 Sporse and brittle	<input type="checkbox"/>
V. Skin		
• General appearance	0 Normal	<input checked="" type="checkbox"/>
	1 Less lusture	<input type="checkbox"/>
	2 Dry and rough or crazy	<input type="checkbox"/>
	3 Hyperkaratosis/Phrynoderma	<input type="checkbox"/>
• Elasticity	0 Normal	<input checked="" type="checkbox"/>
	1 Diminished	<input type="checkbox"/>
	2 Wrinkled skin	<input type="checkbox"/>
VI. Oedema		
• Distribution	0 Absent	<input checked="" type="checkbox"/>
	1 Oedema on dependent parts	<input type="checkbox"/>
	2 Oedema on face & down parts	<input type="checkbox"/>
	3 General (whole body)	<input type="checkbox"/>
VII. Bones		
• Condition	0 Normal	<input checked="" type="checkbox"/>
	1 Stigma of past	<input type="checkbox"/>
VIII. Anaemia		
• Anaemia	0 Absent	<input checked="" type="checkbox"/>
	1 Present	<input type="checkbox"/>
IX. Alimentary system		
• Stools	0 Normal evacuation	<input checked="" type="checkbox"/>
	1 Diarrhoea	<input type="checkbox"/>
X. Nervous system		
• Calf tenderness	0 Absent	<input checked="" type="checkbox"/>
	1 Present	<input type="checkbox"/>

10/11/22

DIET SURVEY

Diet is a vital part in determining the health & nutritional status. A diet Survey provides a record of a person's eating habits & food intake, & can thus help to identify possible nutritional imbalance in a community. It indicates relative dietary inadequacy or excess, which is helpful in planning health education programme activities, & changes needed in agriculture & food production industries.

• Scope & Purpose:

(i) Diet Survey is a systematic enquiry into the food supplies & food consumption of individuals & population groups is made through this nutritional assessment.

(ii) Diet survey is an important part of nutritional assessment, but, it cannot be used alone to make a diagnosis nutritional health.

(iii) It is an aid in the interpretation of anthropometric, clinical & laboratory

findings & provides a foundation for dietary counseling. However, obtaining accurate data have been problem for many years.

(iv) Rapid cost effective screening may be conducted by trained para-professional to identify person's at-risk in a community. A comprehensive assessment requires much more time, is more expensive & in a clinic/hospital setting is reserved for those patients are 'at-risk' & who require intensive nutritional rehabilitation.

(v) Diet assessment is also an important aspect of survey of nutritional status of population group.

(vi) The methods used in their instance must be appropriate for the purpose intended

• Methods of diet Survey:

The diet Survey methods include

- (i) Weighment method.
- (ii) 24 hours recall method (oral questionnaire method)
- (iii) Diet history method.
- (iv) Food Intake record / food diary
- (v) Expenditure pattern method / written questionnaire.
- (vi) Food Inventory Method
- (vii) Food frequency check list.
- (viii) chemical analysis / duplicate sample method.
- (ix) Dietary Score

SCHEDULE FOR DIET SURVEY
FORM NO. 2

Cluster _____ District _____ Block _____
 Village in City / Ward _____ Household No. _____
 Name of the Respondent _____
 Type of the Family _____

INTAKE OF FOOD

(By weightment of Raw foods to be consumed by the family on the day of survey)

Name of Food Stuffs & Serial No.	Intake of Food			Total	Average
	1 st Day	2 nd Day	3 rd Day		
A. CEREALS					
Rice (Parboiled) Milled (10)	60 gm	60 gm	$60+60 = 120$ gm	240	80
Rice (Raw) Milled (12)					
Wheat Flour (Whole) (21)	50 gm	50 gm	50 gm	150	50
Maida (22)					
Puffed Rice (15)	30 gm	—	—	30	10
Flaked Rice (14)					
Suji (24)					
Others (specify) - Biscuits	15 gm	15 gm	15 gm	45	15
Bread	80 gm	80 gm	—	160	53.3
				725	241.63
B. PULSES & LEGUMES					
Lentil (38)	20 gm	20 gm	—	40	13.33
Black Gram (31)					
Green Gram (35)	—	—	15 gm	15	5
Bengal Gram (26)	15 gm	—	—	15	5
Others (specify) -				70	23.33

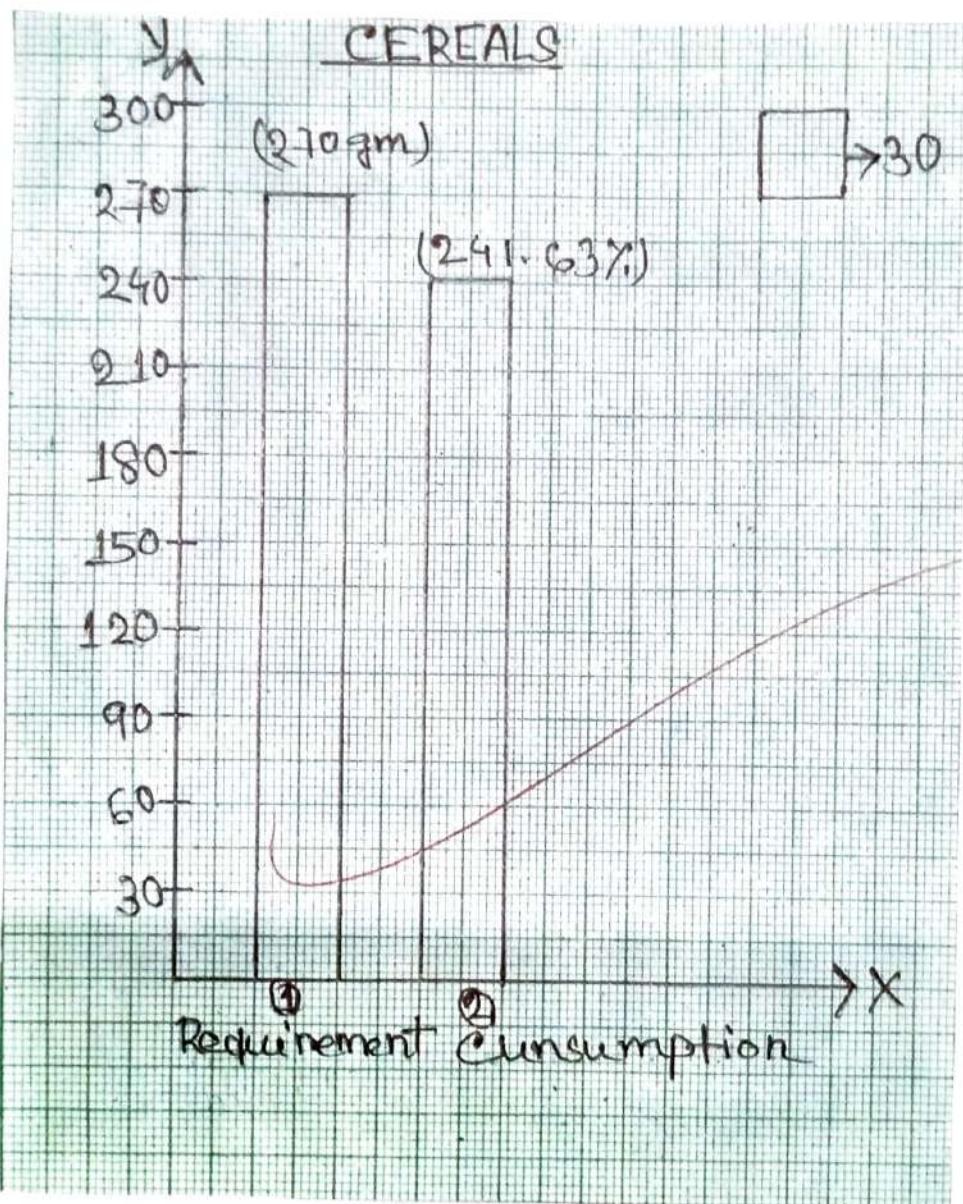
Name of Food Stuffs & Serial No.	Intake of Food			Total	Average
	1 st Day	2 nd Day	3 rd Day		
C. ROOT VEGETABLES					
Potato (125)	50+30 = 80 gm	50+30 = 80 gm	30+50+50 = 130 gm	290	96.6
Radish (129)					
Colocasia / Yam (199 134)					
Omen (122)	50+25 = 75 gm	50+50 = 100 gm	20+50+50 = 120 gm	295	98.3
Carrot (113)	—	—	20+10 = 30 gm	30	10
Others (specify) -				615	204.9
D. LEAFY VEGETABLES					
Cabbage (66)					
Spinach (14)					
Amaranth (49)					
Kale (86)	—	—	100 gm	100	33.33
Pumpkin Leaves (102)					
Colocasia Leaves (72)					
Others (specify)				100	33.33
E. OTHER VEGETABLES					
Bottle gourd (141)					
Cacliflower (144)	—	—	10 gm	10	3.33
Drum Stick (151)					
Ladies Finger (166)					
Plantain Green (176)					
Papaya Green (172)					
Beans (156)	—	—	10 gm	10	3.33
Pumpkin (178)					
Bitter Gourd (139)					
Bottle Gourd (141)					
Patol (parwari) (173)	50 gm	—	—	50	16.6
Others (specify) -				70	23.26

Name of Food Stuffs & Serial No.	Intake of Food			Total	Average
	1 st Day	2 nd Day	3 rd Day		
F. FATS & OILS					
Mustard Oil (438)	5+5+5=15	5+5+5=15	5+5+5+10 = 30	60	20
Ground Nut Oil (438)					
Others (specify) -				60	20
G. MILK & MILK PRODUCTS					
Cow / Buffalo Milk (420 / 419)	200	100+100 = 200	200	600	200
Standard Milk					
Skimmed Milk Powder (432)					
Any Other (specify) -				600	200
H. FLESH FOODS					
Egg (Duck / Hen) (401 / 402)	50 gm	50 gm	-	100	33.3
Fish (specify)	-	-	50 gm	50	16.6
Meat (specify)	-	50 gm	-	50	16.6
Others (specify)				200	66.5
I. SUGAR & JAGGERY					
Sugar (439)	5 gm	5+3 gm	5 gm	18	6
Jaggery (specify)	-	5 gm	5 gm	10	3.33
Others (specify)				28	9.33
J. FRUITS & NUTS					
Guava (261)					
Ripe Papaya (287)					
Ripe Banana (245)	-	-	80 gm	80	20.0
Ripe Mango (278)					
Orange (283)					
Groundnut (202)					
Any Other (specify)	100 gm	100 gm	-	200	66.66
				280	93.33
K. COMMON SALT (By Test)					
i. Iodised, <15ppm, >15ppm	10 gm	10 gm	10 gm	30	10
ii. Non - Iodised					

RESULTS

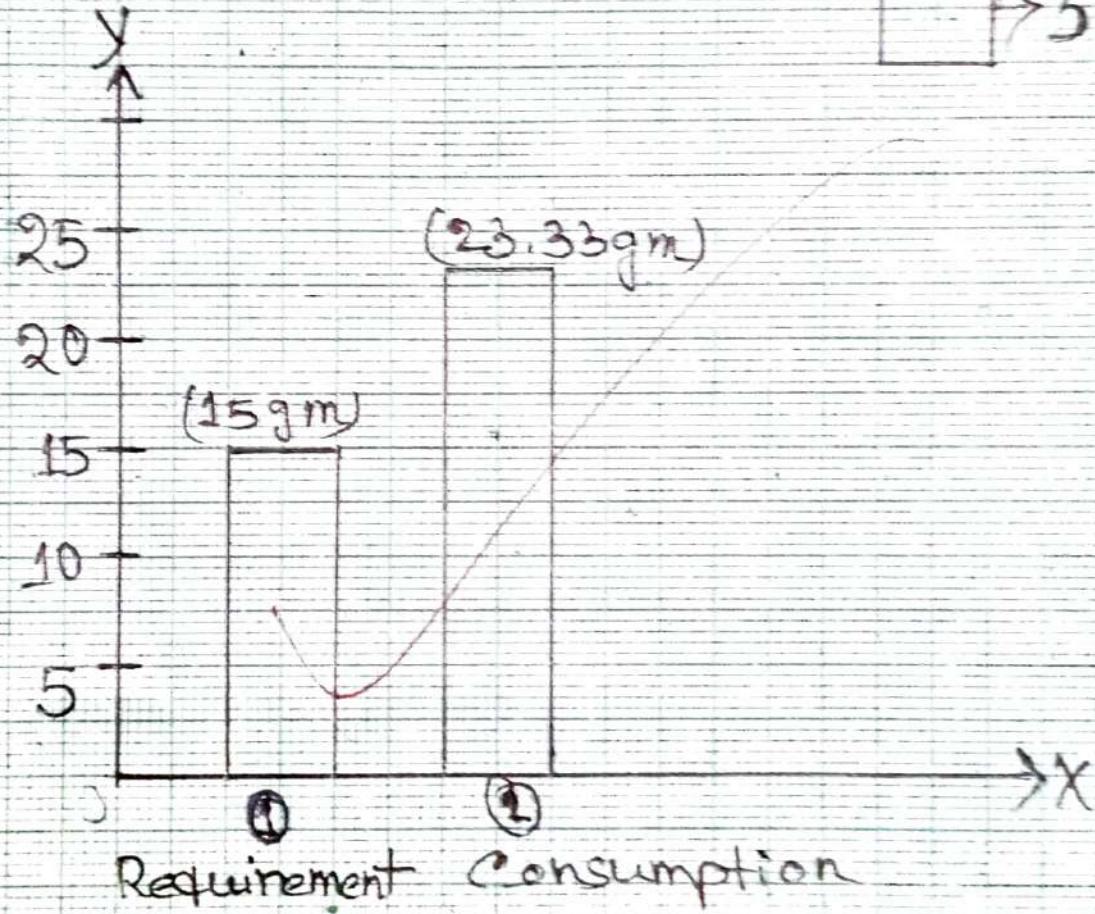
(VITAMIN / BUDGET METHOD)
(Food Group Wise)

	Cereals (gm)	Pulses (gm)	Roots & Tubers (gm)	Leafy Veg. (gm)	Other Veg. (gm)	Fat & oil (gm)	Milk & Milk Product (gm)	Flesh Food (gm)	Sugar & Jaggery (gm)	Fruits & Nuts (gm)	Egg (gm)
Requirement											
Total	270	15	200	100	100	20	300	25	20	100	50
Consumption:											
Total	244.63	23.33	204.9	33.33	23.26	20	200	33.2	9.33	93.26	33.3
Deficiency											
Total	28.37	—	—	66.67	74.74	—	100	—	10.07	6.74	16.7
Percentage	10.51%	—	—	66.67%	74.74%	—	66.66%	—	53.35%	6.74%	33.4
Excess											
Total	—	8.33	4.9	—	—	—	—	8.32	—	—	—
Percentage	—	55.55%	2.45%	—	—	—	—	33.28%	—	—	—



PULSES

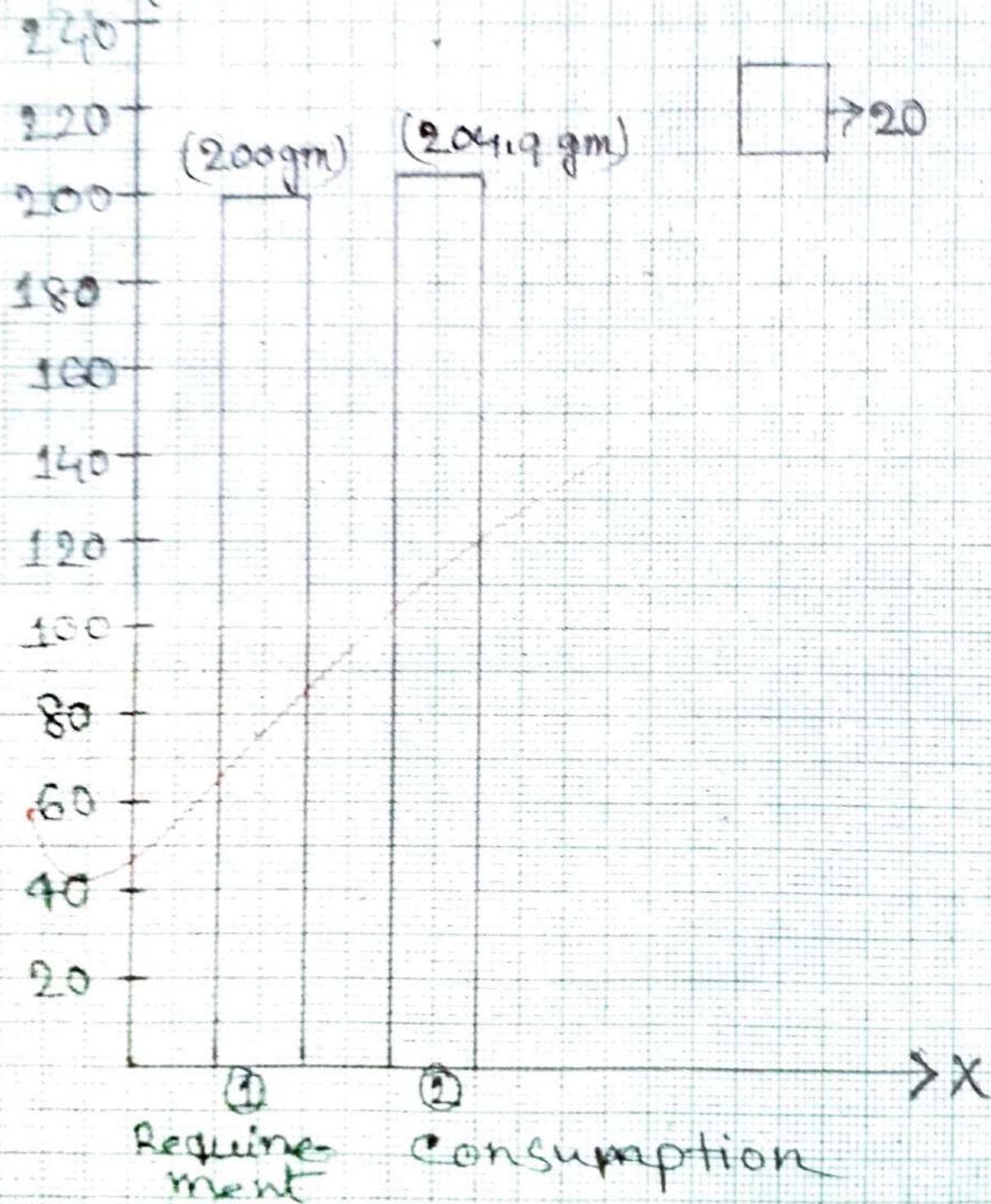
$\square \rightarrow 5$



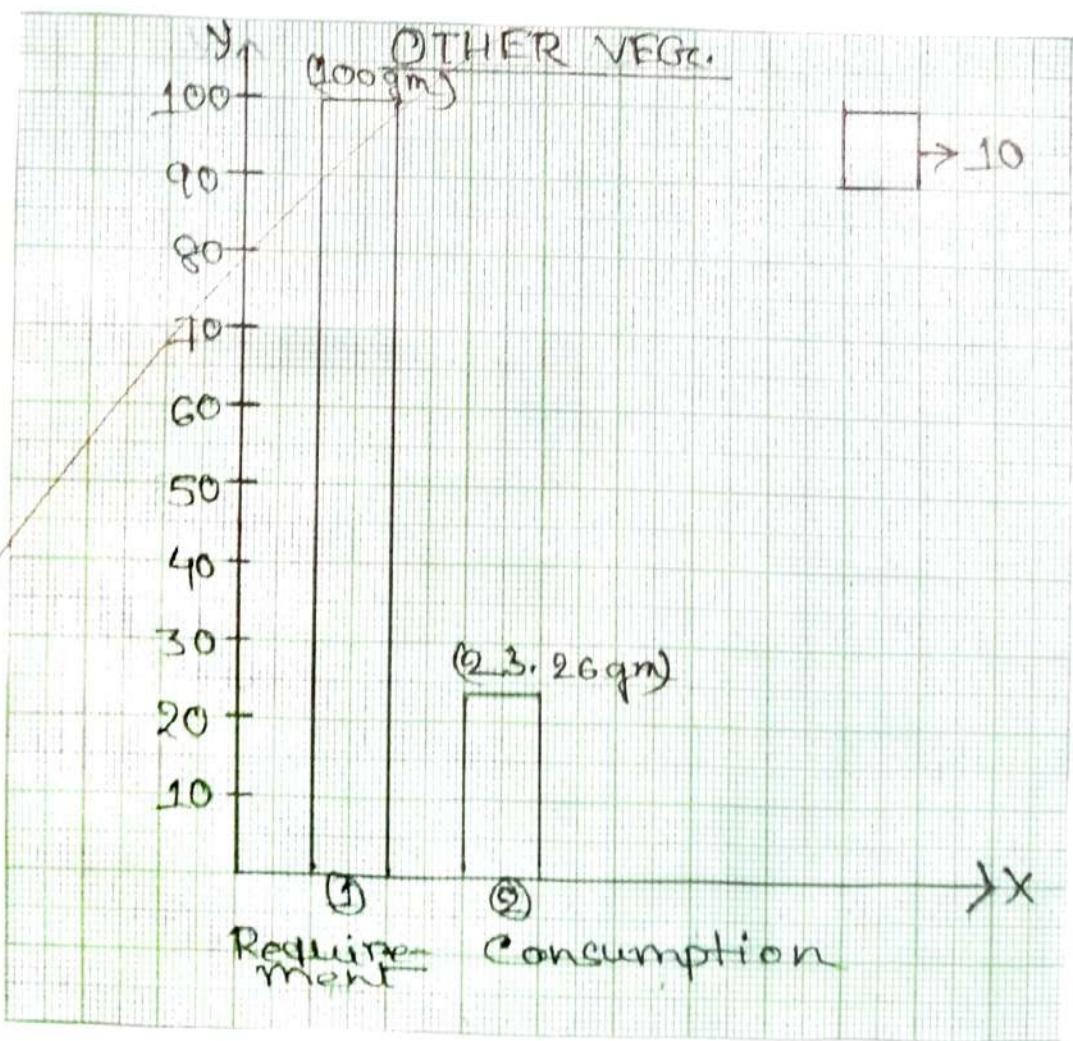
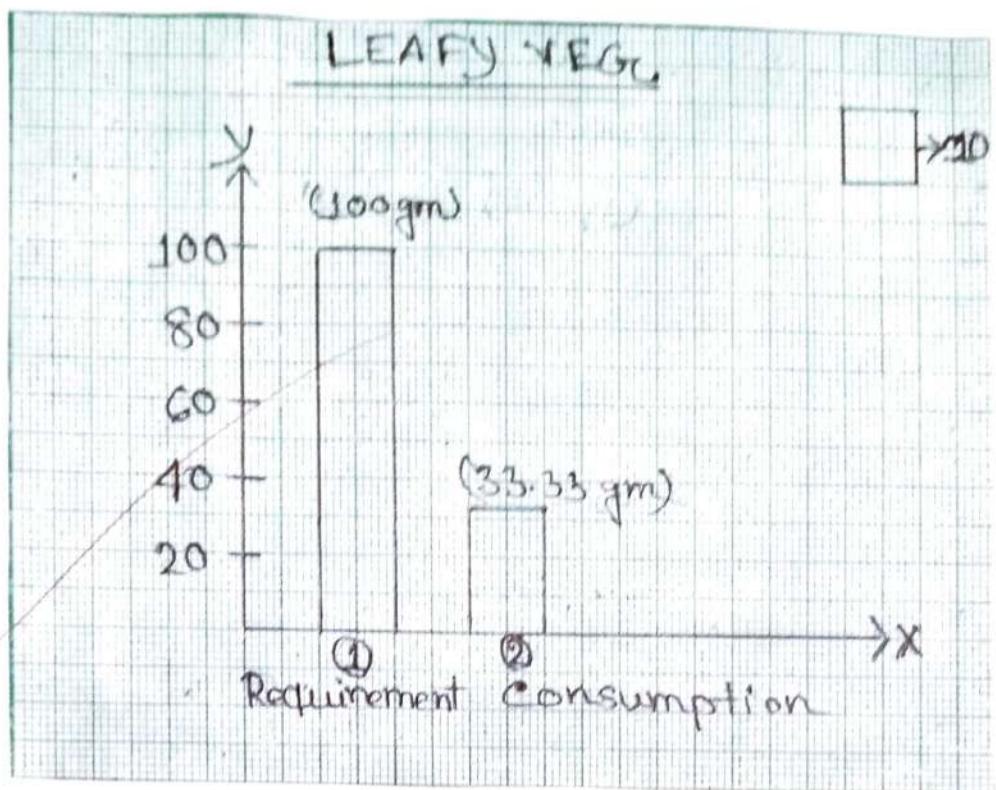
Whole Menu Of First Day

Time	Food Items	Amount
• Early-morning	① Tea with sugar ② Biscuit	150 ml + 5 gm sugar 2 pieces = 15 gm
• Breakfast	① Brown bread ② Egg ③ Milk	4 slices = 80 gm 1 piece = 50 gm 200 gm
• Mid-morning	① Apple	100 gm
• Lunch	① Roti ② Potato Parwal curry → Potato → Parwal → Onion → Oil ③ Ch	2 pieces = 50 gm 50 gm 50 gm 50 gm 5 gm

X ROOTS & TUBERS

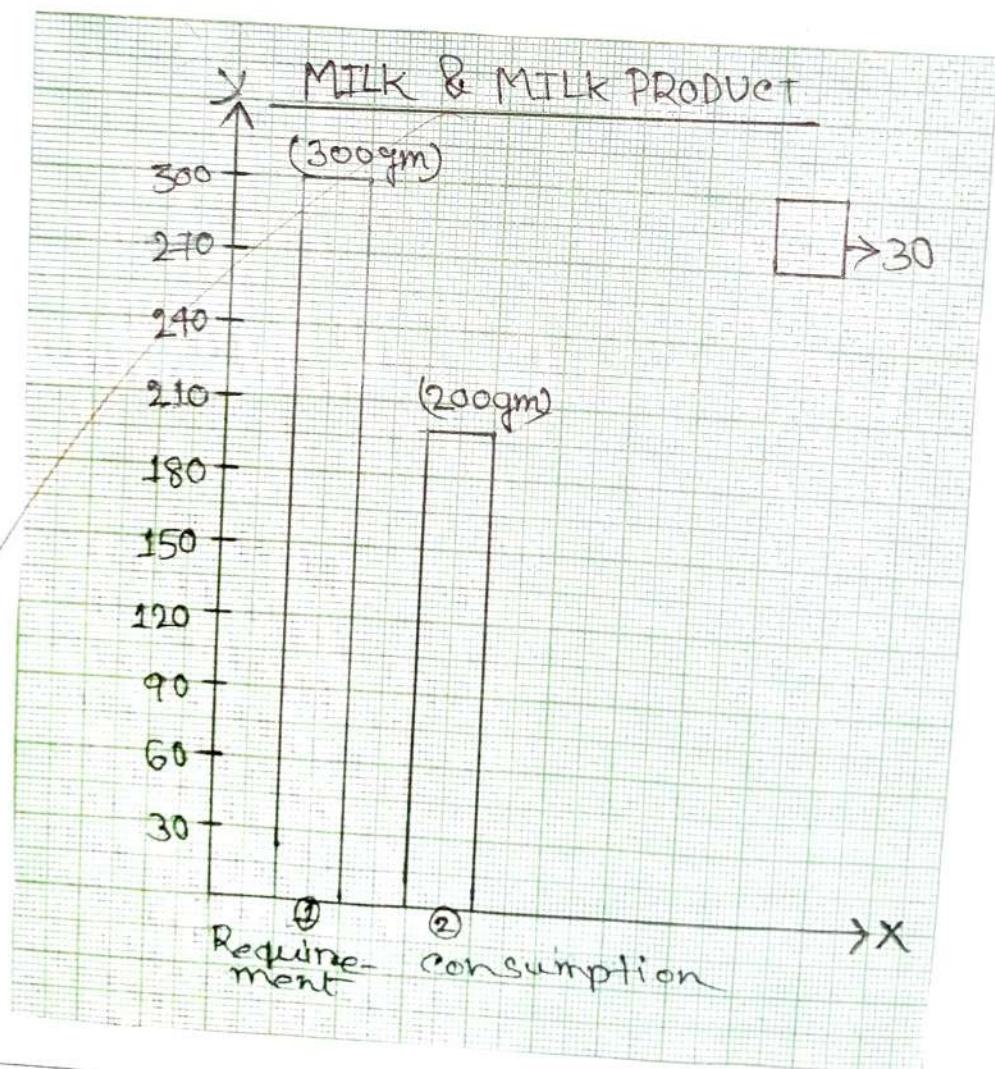
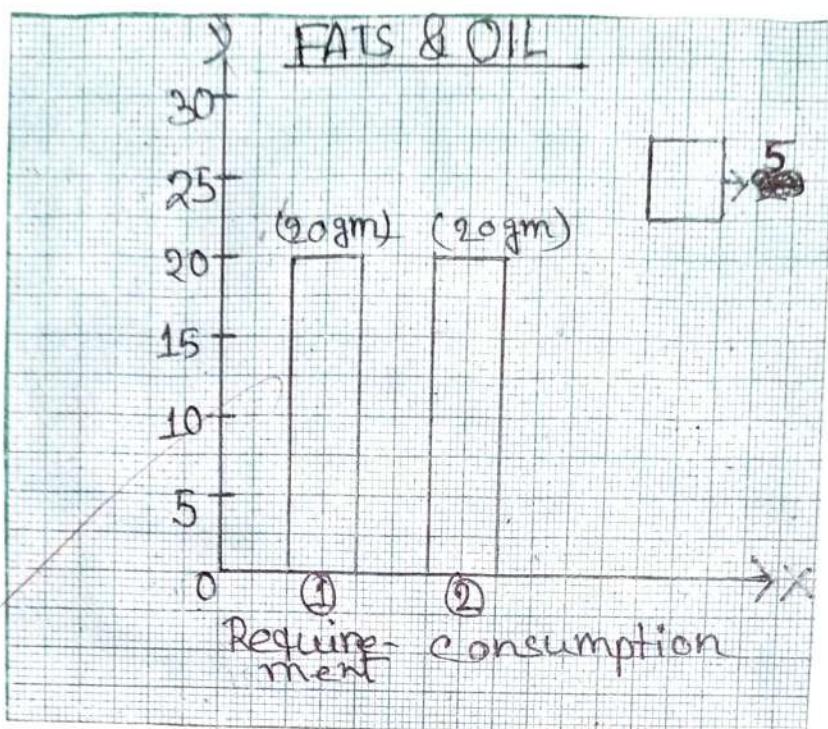


Time	Food Items	Amount
	① Puffed rice	30 gm
	② Sprouted pulse → Bengal Gram	15 gm
	③ Ground nut	20 gm
Dinner	① Rice	60 gm
	② Veg. dal → Lentil	20 gm
	→ Oil	5 gm
	③ Soyabean curry → Potato	30 gm
	→ Soyabean chunk	20 gm
	→ Onion	25 gm
	→ oil	5 gm

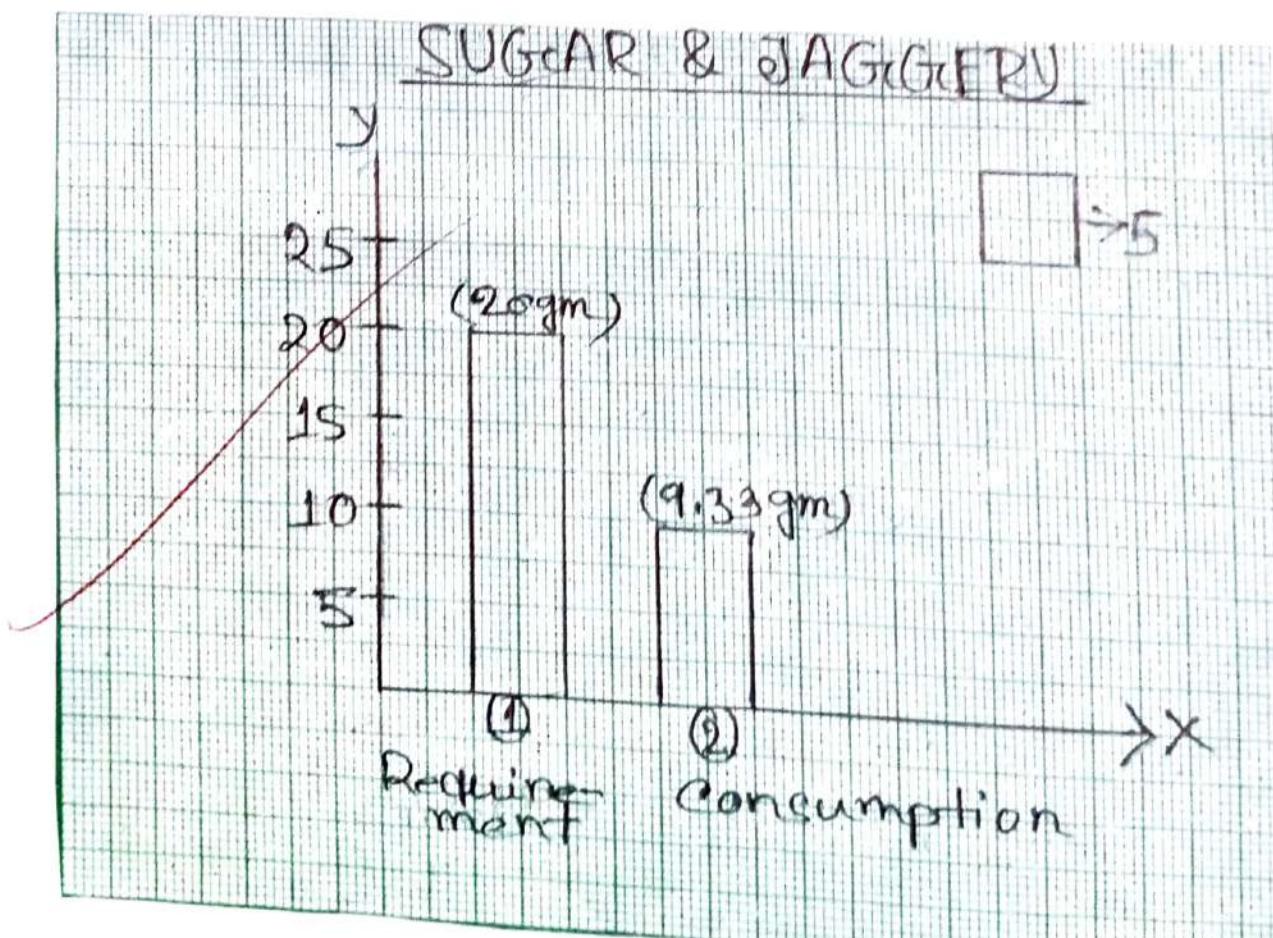
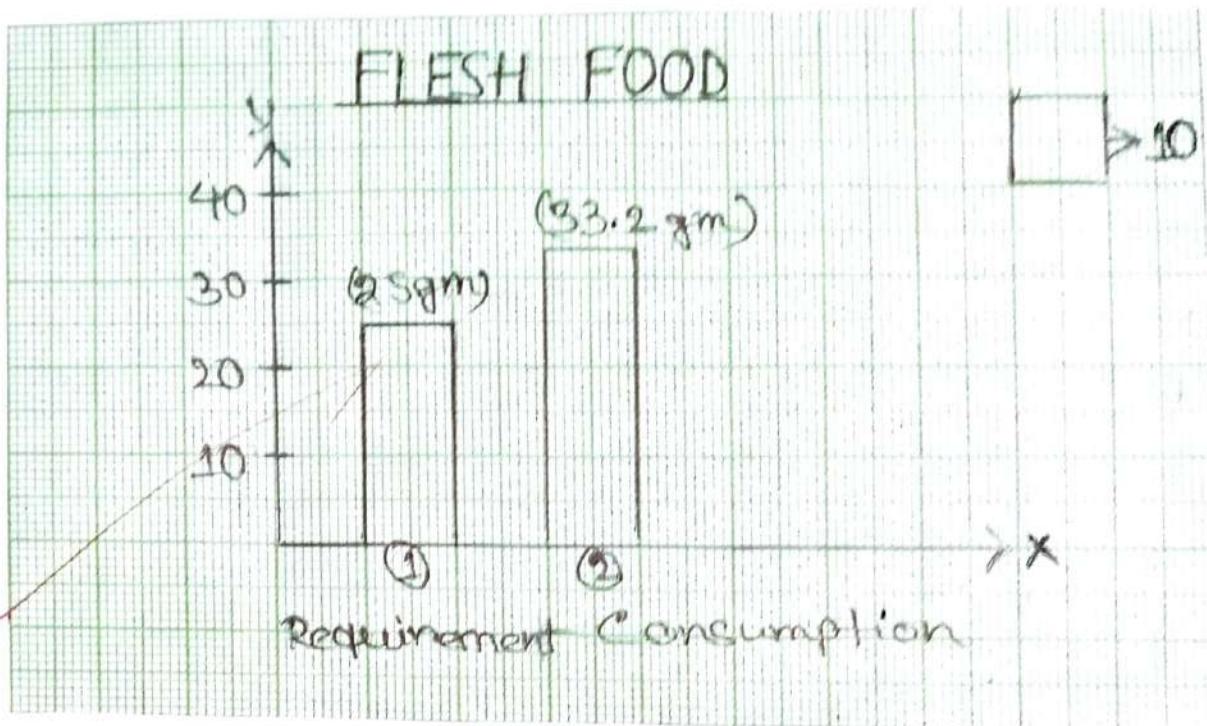


Whole Menu Of Second Day

Time	Food Items	Amount
• Early-morning	① Tea with sugar ② Biscuit	150ml + 5 gm Sugar 2 Pieces = 15 gm
• Breakfast	① Brown bread ② Milk ③ Sugar	4 Slice = 80 gm 100 gm 3 gm
• Mid-morning	① Apple	100 gm
• Lunch	① Roti ② Vegetable Curry → Potato → Pumpkin → Onion → oil	2 Pieces = 50 gm 50 gm 30 gm 50 gm 5 gm
	① Flacked rice ② Milk ③ Jaggery	50 gm 100 gm 5 gm



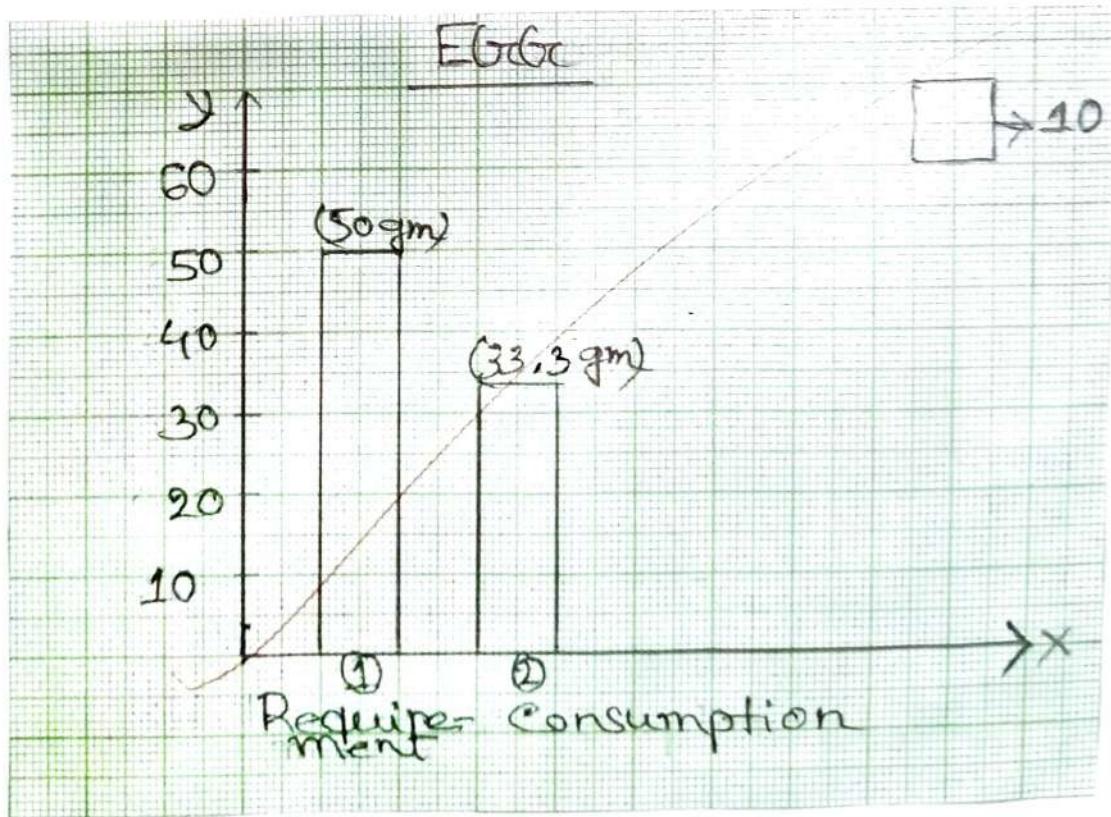
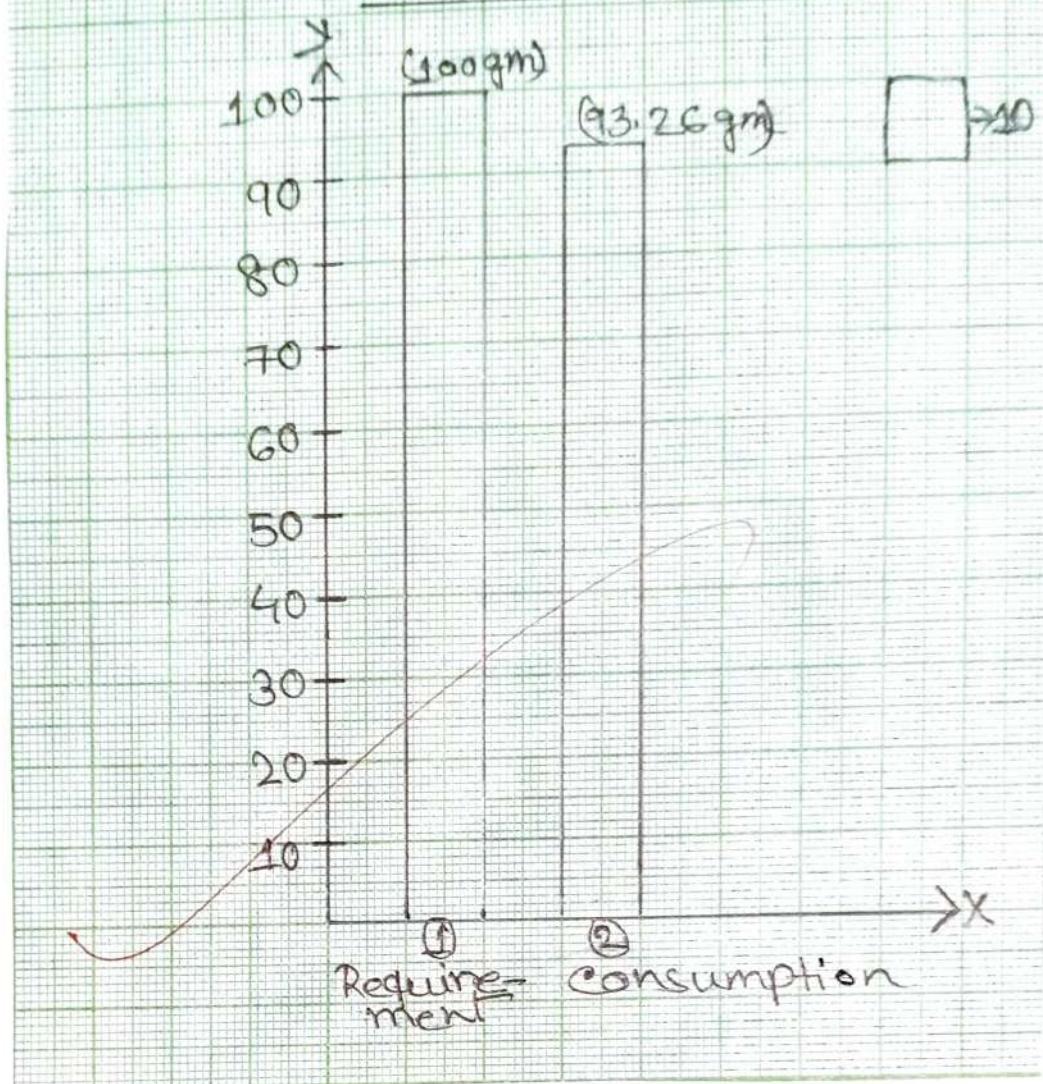
Time	Food Items	Amount
• Dinner	① Rice	60 gm
	② veg dal → Dal (Lentil)	20 gm
	→ Oil	5 gm
	③ Egg curry → Potato	50 gm
	→ Onion	50 gm
	→ egg	50 gm
	→ Oil	5 gm



Whole Menu Of Third Day

Time	Food Items	Amount
• Early-morning	① Tea with Sugar ② Biscuit	150 ml + 5 gm Sugar 2 Pieces - 15 gm
• Breakfast	① Roti ② vegetable curry → Potato → Onion → Carrot → Oil Oil	50 gm 30 gm 20 gm 20 gm 5 gm
• Mid-morning	① Banana	80 gm
• Lunch	① Rice ② Fried Kalmi → Oil ③ veg dal → Green Gram → Beans → Cauliflower	60 gm 100 gm 5 gm 15 gm 10 gm 10 gm

FRUITS & NUT



Time	Food Items	Amount
→ Canned	10 gm	
→ Oil	5 gm	
① Chicken curry		
→ Potato	50 gm	
→ Onion	50 gm	
→ Chicken	50 gm	
→ Ginger	10 gm	
→ Garlic	10 gm	
→ Oil	10 gm	
① Flaked rice.	50 gm	
② Milk	200 gm	
③ Jaggery	5 gm	

• Dinner

① Rice.	60 gm
② Fish curry	
→ Fish	50 gm
→ Potato	50 gm
→ Onion	50 gm
→ Oil	10 gm

Chaitanya

Chaitanya
6/21/14



ICDS (INTEGRATED CHILD DEVELOPMENT SERVICES SCHEME) VISIT :-

Date Of Visit : 21/11/2022

Teacher Accompanied : Dr. Shruti Agrawal

Address : ICDS Centre,
Budge Budge
South 24 Parganas 700137

INTEGRATED CHILD DEVELOPMENT SERVICES SCHEME (ICDS)

The Integrated Child Development Services (ICDS) Scheme is the country's most comprehensive and multi-dimensional programme.

The ICDS Scheme (one of the world's largest and most unique programme for early child development) was launched on 2nd October 1975 under the 5th five year plan and in pursuance of the National policy for children in 33 experimental blocks.

The ICDS is the foremost symbol of India's commitment to her children; India's response to the challenge of providing pre school education on one hand and breaking the vicious cycle of malnutrition, morbidity reduced learning capacity and mortality on the other.

Objectives of ICDS:- The objectives of ICDS Scheme are—

- To improve the nutritional and health status of in the age group of 0 to 6 years.
- To lay the foundations for proper psychological, physical and social development of the child.
- To reduce the incidence of mortality, morbidity malnutrition and school dropout.
- To achieve effective co-ordination of policy and implementation amongst the various departments to promote child development and
- To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education

Beneficiaries:-

- Children below six years
 - Expectant and Nursing mothers
 - Adolescent girls.
 - Women in the age group 15 to 45 years.

ICDS SUPPLEMENTARY FOODS RECOMMENDATION

Beneficiaries	Nutritional contribution	
	Energy(kcal)	Protein (gri)
children (0 to 3 years) (3 to 6 years)	500 -	12 to 15
Severely malnourished children (6 months to 72 months)	800	20 to 25
Pregnant women and nursing mothers/ado- lescent Girls(under KSY)	600	18 to 20

ICDS MEAL COST ALLOCATED TO BENEFICIARIES

Beneficiaries	Cost of supplementary meal
Child (0 to 72 months)	Rs. 8.00 per child per day
Child (6 to 72 months) Severely malnourished	Rs. 12.00 per child per day.
Pregnant and nursing woman	Rs. 9.50 per benefici- ary per day.

Programme Components :-

The package of services provided by ICDS Scheme includes:

- **Supplementary nutrition:** The Supplementary nutrition is given to children below 6 years of age, old pregnant and nursing mothers from low income families. The provision of supplementary nutrition includes supplementary feeding and distribution of nutrient supplements.

Age	Dose of vitamin-A
Children (6 to 11 month)	One dose of 100,000 I.U of vitamin-A orally (measles immunization is a good to give a routine dose)
Children (1 to 5 years)	One dose of 2,00,000 I.U of vitamin-A orally every six months.

Beneficiaries	Dose	Quantity
Pregnant woman	1 Big tablet (each tablet containing 100 mg of elemental iron and 0.5 mg (500 µg) folic acid.)	1 tablet/day for 100 days (in 3rd trimester of pregnancy)
Children (1 to 5 years)	1 Small tablet (each tablet containing 20 mg elemental iron and 0.1 mg (100 µg) folic acid.)	1 tablet/day for 100 days every year.

Vitamin-A Supplementation: At the AWC

Children are administered vitamin-A at periodic intervals according to their age to prevent vitamin-A deficiency.

Iron and folic acid supplementation:

All pregnant women and children are given Iron and Folic Acid (IFA) tablets to prevent anaemia as per the following recommended dose irrespective of their haemoglobin status.

Growth monitoring.

Health check-up.

Referral Services.

Immunization

Early childhood care and non-formal pre-school education

Health and nutrition education.

Supportive services.

Adolescent girls' scheme.

B.A. / B.Sc. Geography Honours



UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

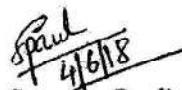
It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

<u>Sl. No.</u>	<u>Subject</u>	<u>Sl. No.</u>	<u>Subject</u>
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General / LCC2 / AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1))	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General / LCC2 / AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
✓ 19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTVM (Major)
21	Hindi (Honours / General / LCC2 / AECC1)	49	Advertising Sales Promotion and Sales Management – ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018


 4/6/18
 (Dr. Santanu Paul)
 Deputy Registrar



CBCS Syllabus for Undergraduate Courses in Geography

TO BE EFFECTIVE FROM THE ACADEMIC SESSION 2018-19



University of Calcutta
May, 2018

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2.23	GEO-A-CC-5-12-TH – Remote Sensing, GIS and GNSS	35
2.24	GEO-A-CC-5-12-P – Remote Sensing, GIS and GNSS Lab	36
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3.6	GEO-A-DSE-A-6-03-P – Environmental Issues in Geography Lab	47
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3.8	GEO-A-DSE-A-6-04-P – Resource Geography Lab	49
3.9	GEO-A-DSE-B-5-05-TH – Cultural and Settlement Geography	50
3.10	GEO-A-DSE-B-5-05-P – Cultural and Settlement Geography Lab	51
3.11	GEO-A-DSE-B-5-06-TH – Social Geography	52
3.12	GEO-A-DSE-B-5-06-P – Social Geography Lab	53
3.13	GEO-A-DSE-B-6-07-TH – Urban Geography	54
3.14	GEO-A-DSE-B-6-07-P – Urban Geography Lab	55
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7.3	GEO-G-SEC-B-5/6-03-TH – Rural Development	80
7.4	GEO-G-SEC-B-5/6-04-TH – Sustainable Development	81

1.4 Honours Course: Core Subjects

- GEO-A-CC-1-01-TH/P – Geotectonics and Geomorphology
- GEO-A-CC-1-02-TH/P – Cartographic Techniques
- GEO-A-CC-2-03-TH/P – Human Geography
- GEO-A-CC-2-04-TH/P – Cartograms, Thematic Mapping and Surveying
- GEO-A-CC-3-05-TH/P – Climatology
- GEO-A-CC-3-06-TH/P – Hydrology and Oceanography
- GEO-A-CC-3-07-TH/P – Statistical Methods in Geography
- GEO-A-CC-4-08-TH/P – Economic Geography
- GEO-A-CC-4-09-TH/P – Regional Planning and Development
- GEO-A-CC-4-10-TH/P – Soil and Biogeography
- GEO-A-CC-5-11-TH/P – Research Methodology and Fieldwork
- GEO-A-CC-5-12-TH/P – Remote Sensing, GIS and GNSS
- GEO-A-CC-6-13-TH/P – Evolution of Geographical Thought
- GEO-A-CC-6-14-TH/P – Disaster Management

1.5 Honours Course: Choices for Four Discipline Specific Electives ¹

- GEO-A-DSE-A-5-01-TH/P – Fluvial Geomorphology
- GEO-A-DSE-A-5-02-TH/P – Climate Change: Vulnerability and Adaptations
- GEO-A-DSE-B-5-05-TH/P – Cultural and Settlement Geography
- GEO-A-DSE-B-5-06-TH/P – Social Geography
- GEO-A-DSE-A-6-03-TH/P – Environmental Issues in Geography
- GEO-A-DSE-A-6-04-TH/P – Resource Geography
- GEO-A-DSE-B-6-07-TH/P – Urban Geography
- GEO-B-DSE-B-6-08-TH/P – Geography of India

1.6 Honours Course: Choices for Two Skill Enhancement Courses

- GEO-A-SEC-A-3-01-TH – Coastal Management
- GEO-A-SEC-A-3-02-TH – Tourism Management
- GEO-A-SEC-B-4-03-TH – Rural Development
- GEO-A-SEC-B-4-04-TH – Sustainable Development

1.7 General Course: Core Subjects

- GEO-G-CC-1-01-TH/P – Physical Geography
- GEO-G-CC-2-02-TH/P – Environmental Geography
- GEO-G-CC-3-03-TH/P – Human Geography
- GEO-G-CC-4-04-TH/P – Cartography

¹ Any two electives, one each from DSE-A and DSE-B, are to be chosen in each of Semesters-V and VI

C U R R I C U L U M S C H E M E

Semester	Course Type	Paper ID and Name	Credits	Marks Distribution *						Marks per Qn Type	
				FULL MARKS	ATTENDANCE	INTERNAL ASSESSMENT	THEORETICAL EXAM	PRACTICAL EXAM		MCQ	LONG-ANSWER TYPE
				WRITTEN	PROJECT	VIVA					
IV Marks: 500 Credits: 26	Core Course - VIII	GEO-A-CC-4-08-TH – Economic Geography	4	70	10	10	50	—	—	20	30
		GEO-A-CC-4-08-P – Economic Geography Lab	2	30	—	—	—	25	5	—	25
	Core Course - IX	GEO-A-CC-4-09-TH – Regional Planning and Development	4	70	10	10	50	—	—	20	30
		GEO-A-CC-4-09-P – Regional Planning and Development Lab	2	30	—	—	—	25	5	—	25
	Core Course - X	GEO-A-CC-4-10-TH – Soil and Biogeography	4	70	10	10	50	—	—	20	30
		GEO-A-CC-4-10-P – Soil and Biogeography Lab	2	30	—	—	—	25	5	—	25
	Skill Enhancement Course - II	GEO-A-SEC-B-4-03-TH – Rural Development / GEO-A-SEC-B-4-04-TH – Sustainable Development	2	100	10	10	80	—	—		
	Generic Elective - IV	TBD-TH	4/5	70/85							
		TBD-P/TU	2/1	30/15							
V Marks: 400 Credits: 24	Core Course - XI	GEO-A-CC-5-11-TH – Research Methodology and Fieldwork	4	70	10	10	50	—	—	20	30
		GEO-A-CC-5-11-P – Research Methodology and Fieldwork Lab	2	30	—	—	—	—	20+10	—	—
	Core Course - XII	GEO-A-CC-5-12-TH – Remote Sensing, GIS and GNSS	4	70	10	10	50	—	—	20	30
		GEO-A-CC-5-12-P – Remote Sensing, GIS and GNSS Lab	2	30	—	—	—	25	5	—	25
	Discipline Specific Elective - I	GEO-A-DSE-A-5-01/02-TH	4	70	10	10	50	—	—	20	30
		GEO-A-DSE-A-5-01/02-P	2	30	—	—	—	25	5	—	25
	Discipline Specific Elective - II	GEO-A-DSE-B-5-05/06-TH	4	70	10	10	50	—	—	20	30
		GEO-A-DSE-B-5-05/06-P	2	30	—	—	—	25	5	—	25
VI Marks: 400 Credits: 24	Core Course - XIII	GEO-A-CC-6-13-TH – Evolution of Geographical Thought	4	70	10	10	50	—	—	20	30
		GEO-A-CC-6-13-P – Evolution of Geographical Thought Lab	2	30	—	—	—	—	20+10	—	15
	Core Course - XIV	GEO-A-CC-6-14-TH – Disaster Management	4	70	10	10	50	—	—	20	30
		GEO-A-CC-6-14-P – Disaster Management Lab	2	30	—	—	—	—	20+10	—	—
	Discipline Specific Elective - III	GEO-A-DSE-A-6-03/04-TH	4	70	10	10	50	—	—	20	30
		GEO-A-DSE-A-6-03/04-P	2	30	—	—	—	25	5	—	25
	Discipline Specific Elective - IV	GEO-A-DSE-B-6-07/08-TH	4	70	10	10	50	—	—	20	30
		GEO-A-DSE-B-6-07/08-P	2	30	—	—	—	25	5	—	25

*Tutorials of 1 Credit will be conducted in case there is no practical component

2.22 GEO-A-CC-5-11-P – Research Methodology and Fieldwork Lab ◊ 30 Marks / 2 Credits

Every student needs to participate in fieldwork and prepare a field report according to the following guideline, failing which he/she will not be evaluated for GEO-A-CC-5-11-P.

1. Each student will prepare a report based on primary data collected from field survey and secondary data collected from different sources.
2. Students will select either one rural area (*mouza*) or an urban area (municipal ward) for the study, with the primary objective of evaluating the relation between physical and cultural landscape.
3. A specific problem or a special feature should be identified based on which, the study area will be selected.
4. The report should be handwritten in English on A4 size paper in candidate's own words within 5,000 words (Introductory Chapter: 1000 words; Physical Aspects: 1500 words; Socio-economic Aspects: 1500 words; Concluding Chapter: 500 words, approximately) excluding tables, photographs, maps, diagrams, references and appendices.
5. Photographs, maps and diagrams should not exceed 15 pages.
6. A copy of the bound report, duly signed by the concerned teacher, will be submitted during examination.
7. The field work and post-field work will include:
 - a. Collection of primary data on physical aspects (relief and soil) of the study area. Students should use survey instruments like prismatic compass, dumpy level, Abney level or clinometer wherever necessary.
 - b. Collection of soil samples from different land cover land use regions of the study area for determining pH and NPK values with help of a soil kit.
 - c. Collection of socio economic data, at the household level (with the help of a questionnaire) in the selected study area.
 - d. Plot to plot land use survey for preparation of a land use map, covering whole or part of the selected area.
 - e. Visit to different organisations and departments for collection of secondary data.
 - f. Any other survey relevant to the objective of the study.
8. The Field Report should contain the following sections (a–e).
 - a. Introduction: Study area extent and space relations, reasons for selection of the study area on the basis of a specific problem or special feature, objectives, methods of data collection, analyses and presentation, sources of information, etc.
 - b. Physical aspects: Lithology and geological structure, relief, slope, drainage, climate, soil, vegetation, environmental issues, proneness to natural hazards, etc.
 - c. Socio-economic aspects:
 - i. Population attributes: Number, sex ratio, literacy, occupational structure, ethnic and religious composition, language, per capita income, etc.
 - ii. Settlement characteristics: Number of houses, building materials, number and size of rooms, amenities, etc.
 - iii. Agriculture: General land use, crop-combination, use of fertiliser and irrigational facilities, production and marketing etc.
 - iv. Other economic activities: Fishing, horticulture, brick-making, household and other industries, etc.

- d. Conclusions: Relation between physical and cultural landscape. Evaluation of problems and prospects. General recommendations.
- e. Bibliography.
- 9. The students will prepare (i) a chorochromatic land use land cover map on the basis of plot to plot survey; (ii) a profile of suitable length, surveyed and plotted, with different land use land cover superimposed on it.
- 10. All sections of the report should contain relevant maps, diagrams and photographs using primary and secondary data, clearly citing sources.
- 11. All surveys should pertain to the objective of the study. Surveys not relevant for establishing the relation between physical and cultural landscape should be avoided.
- 12. Marks division: 20 on report + 10 on viva-voce = 30

2.26 GEO-A-CC-6-13-P – Evolution of Geographical Thought Lab ✦ 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of topics 1 and 2, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Changing perception of maps of the world (Ptolemy, Ibn Batuta, Mercator)
2. Mapping voyages; Columbus, Vasco da Gama, Magellan, Thomas Cook
3. Group Presentation of five to ten students on any selected school of geographical thought (20 marks)
4. Viva-voce based on laboratory notebook on topics 1 and 2 (10 Marks)

References

- Black, J. 2003. *Visions of the World: A History of Maps*, Mitchell Beazley.
- Couper, P. 2015. *A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies*, Sage.
- Holt-Jensen, A. 2011. *Geography: History and Concepts: A Student's Guide*, Sage.
- Whitfield, P. 2017. *Charting the Oceans*, British Library.

2.28 GEO-A-CC-6-14-P – Hazard Management Lab ✎ 30 Marks / 2 Credits

A Group Project Report is to be prepared and submitted based on any one case study among the following hazards from West Bengal, incorporating a preparedness plan, preferably in the vicinity of the candidates' institution / district:

- 1. Earthquake**
- 2. Landslide**
- 3. Land subsidence**
- 4. Thunderstorm**
- 5. Flood**
- 6. Riverbank / Coastal erosion**
- 7. Fire**
- 8. Industrial accident**
- 9. Road / Railway accident**
- 10. Structural collapse**
- 11. Environmental pollution**
- 12. Biohazard**

One case study will be done by a group of five to ten students. Different groups may choose different case studies from any one or different types of disasters. The report should be prepared on secondary data and handwritten on A4 page in candidates' own words not exceeding 2,000 words excluding references. The report should contain a proper title. The report should incorporate relevant tables, maps, diagrams, and references, not exceeding ten pages. Photographs are optional and should not exceed three. A copy of the stapled / spiral-bound report in a transparent cover, duly signed by the concerned teacher, is to be submitted during examination. Without the report the candidates will not be evaluated for GEO-A-CC-6-14-P.

Marks division: 20 on report + 10 on viva-voce = 30

BUDGE BUDGE COLLEGE
Academic Session: 2022-2023
Department of Geography

1.3.2 Percentage of students undertaking project work/field work/ internships (Data for the latest completed academic year)

List of students undertaking field / project work follows:

I. B.A. / B.Sc. Geography Honours Semester-V
Research Methodology and Fieldwork (GEO-A-CC-5-11-P)

Serial No.	Registration Number	Roll Number	Name	Project Title	Supervisors
1	561-1211-0164-20	202561-11-0085	Anindita Das	Project Report on 'Development & Access to Infrastructural Facilities in Village Chorinda: Focus on Hydrology and Access to Water'	Dr. Swati Sachdev & Mr. Sajid Qamar & Ms. Sumana Das
2	561-1211-0165-20	202561-11-0086	Anwesha Mondal		
3	561-1211-0167-20	202561-11-0087	Arpita Kajali		
4	561-1211-0170-20	202561-11-0088	Gargi Dutta		
5	561-1211-0173-20	202561-11-0089	Nashima Khatun		
6	561-1211-0174-20	202561-11-0090	Nishat Saba		
7	561-1211-0177-20	202561-11-0092	Poly Malick		
8	561-1211-0178-20	202561-11-0093	Rachana Bairagi		
9	561-1211-0179-20	202561-11-0094	Rimi Jetty		
10	561-1211-0180-20	202561-11-0095	Rimpa Khan		
11	561-1211-0185-20	202561-11-0096	Smritilekha Das		
12	561-1211-0190-20	202561-11-0097	Zasmin Parvin		
13	561-1211-0345-20	202561-11-0179	Mousumi Bag		
14	561-1212-0168-20	202561-11-0224	Barsha Naskar		
15	561-1212-0172-20	202561-11-0225	Keya Sardar		
16	561-1212-0175-20	202561-11-0226	Parna Mondal		
17	561-1212-0186-20	202561-11-0229	Sneha Mondal		
18	561-1212-0187-20	202561-11-0230	Sudipta Dhara		
19	561-1212-0189-20	202561-11-0231	Triasha Dalui		
20	561-1215-0182-20	202561-11-0286	Rubina Khatun		
21	561-1215-1286-20	202561-11-0311	Sohena Parvin		
22	561-1112-0169-20	202561-21-0039	Debraj Mondal		
23	561-1112-0188-20	202561-21-0040	Sujan Sardar		
24	561-1114-1252-20	202561-21-0054	Sandeep Parui		
25	561-1211-0379-20	203561-11-0015	Agamoni Manna		
26	561-1211-0382-20	203561-11-0016	Deboleena Malik		
27	561-1211-0383-20	203561-11-0017	Debopriya Chakraborty		
28	561-1211-0384-20	203561-11-0018	Diya Dey		
29	561-1211-0385-20	203561-11-0019	Isika Das		
30	561-1211-0387-20	203561-11-0020	Koyel Bhowmick		
31	561-1211-0388-20	203561-11-0021	Oindrila Das		
32	561-1211-0390-20	203561-11-0022	Priya Bag		
33	561-1211-0393-20	203561-11-0023	Riya Ghosh Roy		
34	561-1211-0394-20	203561-11-0024	Sangita Mallick		
35	561-1211-0395-20	203561-11-0025	Shraboni Majhi		
36	561-1212-0391-20	203561-11-0047	Priyanka Mondal		
37	561-1214-0389-20	203561-11-0052	Priti Sardar		
38	561-1214-0397-20	203561-11-0053	Susmita Das		
39	561-1111-0380-20	203561-21-0003	Ajay Ray		
40	561-1112-0381-20	203561-21-0011	Amar Biswas		
41	561-1112-0386-20	203561-21-0012	Jagannath Naskar		
42	561-1112-0392-20	203561-21-0013	Ritam Hazra		
43	561-1112-0396-20	203561-21-0014	Sudipto Naskar		

II. B.A. / B.Sc. Geography Honours Semester-VI
Evolution of Geographical Thought (GEO-A-CC-6-13-P)

Serial No.	Registration Number	Roll Number	Name	Project Title	Supervisor
1	561-1211-0164-20	202561-11-0085	Anindita Das	Positivism and Positivist Geography	Dr. Swati Sachdev
2	561-1211-0165-20	202561-11-0086	Anwesha Mondal		
3	561-1211-0167-20	202561-11-0087	Arpita Kajali		
4	561-1211-0170-20	202561-11-0088	Gargi Dutta		
5	561-1211-0173-20	202561-11-0089	Nashima Khatun		
6	561-1211-0174-20	202561-11-0090	Nishat Saba		
7	561-1211-0177-20	202561-11-0092	Poly Malick		
8	561-1211-0178-20	202561-11-0093	Rachana Bairagi		
9	561-1211-0179-20	202561-11-0094	Rimi Jetty		
10	561-1211-0180-20	202561-11-0095	Rimpa Khan	Deterministic School of Geographical Thought	Ms. Sumana Das
11	561-1211-0185-20	202561-11-0096	Smritilekha Das		
12	561-1211-0190-20	202561-11-0097	Zasmin Parvin		
13	561-1211-0345-20	202561-11-0179	Mousumi Bag		
14	561-1212-0168-20	202561-11-0224	Barsha Naskar		
15	561-1212-0172-20	202561-11-0225	Keya Sardar		
16	561-1212-0175-20	202561-11-0226	Parna Mondal		
17	561-1212-0186-20	202561-11-0229	Sneha Mondal		
18	561-1212-0187-20	202561-11-0230	Sudipta Dhara		
19	561-1212-0189-20	202561-11-0231	Triasha Dalui	Humanistic School of Geographical Thought	Mr. Sajid Qamar
20	561-1215-0182-20	202561-11-0286	Rubina Khatun		
21	561-1215-1286-20	202561-11-0311	Sohena Parvin		
22	561-1112-0169-20	202561-21-0039	Debraj Mondal		
23	561-1112-0188-20	202561-21-0040	Sujan Sardar		
24	561-1114-1252-20	202561-21-0054	Sandeep Parui		
25	561-1211-0379-20	203561-11-0015	Agamoni Manna		
26	561-1211-0382-20	203561-11-0016	Deboleena Malik		
27	561-1211-0383-20	203561-11-0017	Debopriya Chakraborty		
28	561-1211-0384-20	203561-11-0018	Diya Dey	Behavioural Geography	Dr. Swati Sachdev
29	561-1211-0385-20	203561-11-0019	Isika Das		
30	561-1211-0387-20	203561-11-0020	Koyel Bhowmick		
31	561-1211-0388-20	203561-11-0021	Oindrila Das		
32	561-1211-0390-20	203561-11-0022	Priya Bag		
33	561-1211-0393-20	203561-11-0023	Riya Ghosh Roy		
34	561-1211-0394-20	203561-11-0024	Sangita Mallick		
35	561-1211-0395-20	203561-11-0025	Shraboni Majhi		
36	561-1212-0391-20	203561-11-0047	Priyanka Mondal	Possibilistic School of Geographical Thought	Mr. Sajid Qamar
37	561-1214-0389-20	203561-11-0052	Priti Sardar		
38	561-1214-0397-20	203561-11-0053	Susmita Das		
39	561-1111-0380-20	203561-21-0003	Ajay Ray		
40	561-1112-0381-20	203561-21-0011	Amar Biswas		
41	561-1112-0386-20	203561-21-0012	Jagannath Naskar		
42	561-1112-0392-20	203561-21-0013	Ritam Hazra		
43	561-1112-0396-20	203561-21-0014	Sudipto Naskar		

III. B.A. / B.Sc. Geography Honours Semester-VI
Hazard Management (GEO-A-CC-6-14-P)

Serial No.	Registration Number	Roll Number	Name	Project Title	Supervisor
1	561-1211-0164-20	202561-11-0085	Anindita Das	Air Pollution: A Case Study of Durgapur	Dr. Swati Sachdev
2	561-1211-0165-20	202561-11-0086	Anwesha Mondal		
3	561-1211-0167-20	202561-11-0087	Arpita Kajali		
4	561-1211-0170-20	202561-11-0088	Gargi Dutta		
5	561-1211-0173-20	202561-11-0089	Nashima Khatun		
6	561-1211-0174-20	202561-11-0090	Nishat Saba		
7	561-1211-0177-20	202561-11-0092	Poly Malick		
8	561-1211-0178-20	202561-11-0093	Rachana Bairagi		
9	561-1211-0179-20	202561-11-0094	Rimi Jetty		
10	561-1211-0180-20	202561-11-0095	Rimpa Khan	The Impact of Landslide and Management of Landslide in Kurseong, Darjeeling: A Case Study of Limbagaon Landslide	Mr. Sajid Qamar
11	561-1211-0185-20	202561-11-0096	Smritilekha Das		
12	561-1211-0190-20	202561-11-0097	Zasmin Parvin		
13	561-1211-0345-20	202561-11-0179	Mousumi Bag		
14	561-1212-0168-20	202561-11-0224	Barsha Naskar		
15	561-1212-0172-20	202561-11-0225	Keya Sardar		
16	561-1212-0175-20	202561-11-0226	Parna Mondal		
17	561-1212-0186-20	202561-11-0229	Sneha Mondal		
18	561-1212-0187-20	202561-11-0230	Sudipta Dhara		
19	561-1212-0189-20	202561-11-0231	Triasha Dalui	Socio-economic Impact of Arsenic Contamination in Different Blocks of Maldah, West Bengal	Ms. Sumana Das
20	561-1215-0182-20	202561-11-0286	Rubina Khatun		
21	561-1215-1286-20	202561-11-0311	Sohena Parvin		
22	561-1112-0169-20	202561-21-0039	Debraj Mondal		
23	561-1112-0188-20	202561-21-0040	Sujan Sardar		
24	561-1114-1252-20	202561-21-0054	Sandeep Parui		
25	561-1211-0379-20	203561-11-0015	Agamoni Manna		
26	561-1211-0382-20	203561-11-0016	Deboleena Malik		
27	561-1211-0383-20	203561-11-0017	Debopriya Chakraborty		
28	561-1211-0384-20	203561-11-0018	Diya Dey	An Analysis of Road Accident, A Case Study of Midnapore Kharagpur Development Authority Planning Area	Mr. Sajid Qamar
29	561-1211-0385-20	203561-11-0019	Isika Das		
30	561-1211-0387-20	203561-11-0020	Koyel Bhowmick		
31	561-1211-0388-20	203561-11-0021	Oindrila Das		
32	561-1211-0390-20	203561-11-0022	Priya Bag		
33	561-1211-0393-20	203561-11-0023	Riya Ghosh Roy		
34	561-1211-0394-20	203561-11-0024	Sangita Mallick		
35	561-1211-0395-20	203561-11-0025	Shraboni Majhi		
36	561-1212-0391-20	203561-11-0047	Priyanka Mondal		
37	561-1214-0389-20	203561-11-0052	Priti Sardar	The Impact of Cyclone Aila on Indian Sundarban	Ms. Sumana Das
38	561-1214-0397-20	203561-11-0053	Susmita Das		
39	561-1111-0380-20	203561-21-0003	Ajay Ray		
40	561-1112-0381-20	203561-21-0011	Amar Biswas		
41	561-1112-0386-20	203561-21-0012	Jagannath Naskar		
42	561-1112-0392-20	203561-21-0013	Ritam Hazra		
43	561-1112-0396-20	203561-21-0014	Sudipto Naskar		

To
The Principal
Budge Budge College
Kolkata – 700137

Q
16/6/2022

Subject: Field Trip for Geography Honours Students

Respected Madam,

This is to inform you that in accordance with the curriculum/ syllabus of B.A./ B.Sc. Geography (Honours), Calcutta University, a field report has to be prepared by the students on a village/ town. Accordingly, a field trip has been planned and is being arranged to Ghatsila-Tatanagar, Jharkhand and surrounding areas by the Department of Geography through ‘Dear Travels’ in the first week of August 2022 (tentatively) for 4th Semester B.A. / B.Sc. Geography (Honours) students. The approximate cost per person as per the details provided by the travel agent is Rs. 4900/- (Rupees Four Thousand Nine Hundred Only).

We shall be grateful if permission is granted for the above field trip and we can begin the process of undertaking the ticketing and making other final arrangements for the above field trip.

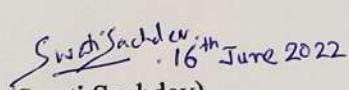
Three teachers from the Department of Geography Ms. Swati Sachdev, Mr. Sajid Qamar and Ms. Sumana Das, will accompany the students and conduct the field study. In addition, Shri Subrato Karmakar, attendant of the Department will be accompanying the students. I request you to please provide permission and ‘on duty’ for the teachers and staff concerned for the above duration.

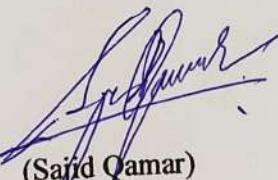
I also request for the sanction of a grant of Rs. 23000/- (Rupees Twenty Three Thousand Only) to the Department to meet the expenses of the three teachers, staff and for other necessary related miscellaneous expenses.

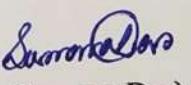
I shall be obliged if you kindly sanction the above.

Thanking you,

regards,


Swati Sachdev . 16th June 2022
(Swati Sachdev)


(Sajid Qamar)


(Sumana Das)



Budge Budge College

Estd. 1971

NAAC Accredited B+ & UGC 12B, 2(f)

Affiliated to the University of Calcutta

Ref. No.....

Date 16/08/2022

To
The Inspector in Charge
Budge Budge Police Station
24 Parganas (South)

Subject: Field trip for B.A. / B.Sc. Geography (Honours) students, Budge Budge College,
24 Parganas (South), Kolkata, West Bengal, 2022

Respected Sir/ Madam,

This is to inform you that in accordance with the curriculum/ syllabus of B.A./ B.Sc. Geography (Honours), Calcutta University, a field report has to be prepared by the students on a village/ town. Accordingly, a field trip has been arranged to Ghatsila, Jharkhand and surrounding areas by Budge Budge College for B.A. / B.Sc. Geography (Honours) Semester V students from 24th August 2022 to 28th August 2022. The contact number and details of traveling students, staff and teachers is being enclosed for ready reference.

I shall be grateful if you can provide appropriate and adequate security, cooperation and assistance in case the circumstances so demand or any problematic situation arises and forward necessary details to concerned officials in Ghatsila, Jharkhand to extend their kind cooperation, assistance and adequate security.

With regards,

Yours faithfully
Debjani Datta
(Dr. Debjani Datta)
Principal

DR. DEBJANI DATTA
Principal
Budge Budge College





Budge Budge College

Estd. 1971

NAAC Accredited B+ & UGC 12B, 2(f)

Affiliated to the University of Calcutta

Ref. No.....

Date 16/08/2022

TO WHOM IT MAY CONCERN

The following are the list and details of B.A./ B.Sc. Geography (Honours) Semester V students, staff and teachers of **Budge Budge College** going for the field trip to Ghatsila, Jharkhand and surrounding areas from 24th August 2022 to 28th August 2022. The total number of students, staff and teachers are 47.

Sl. No.	Name	Age	Sex	Father's/Guardian/ Husband's Name	Permanent Address	Phone
I. LIST OF STUDENTS						
1	Agamoni Manna	19	Female	Ram Chandra Manna	Budge Budge, Shayampur, Chanditala. 24 Parganas (S) 700137. West Bengal.	9836753077
2	Anindita Das	20	Female	Mukul Das	Vill+P.O Mayapur, P.S Nodakhali. 24 Parganas (S) 743318. West Bengal.	8240905617
3	Anwesha Mondal	21	Female	Basudeb Mondal	Vill: Mayapur (Das & Chakraborty Para), P.O. Mayapor, P.S. Nodakhali. 24 Parganas (S) 743318. West Bengal.	9874528479
4	Arpita Kajali	19	Female	Shankar Kajali	Vill: Pujali, P. S.: Pujali, P. O.: Pujali. 24 Parganas (S) 700138. West Bengal.	9903549937
5	Barsha Naskar	20	Female	Prashanta Naskar	Rampur Shitlatala Main Road. 24 Parganas (S) 700141. West Bengal.	8013954185
6	Deboleena Malik	20	Female	Bidyut Kumar Malik	Parbangla Near Nungi More (Beside Rajlakshmi Apartment) Post Parbangla Via Batanagar . 24 Parganas (S) 700140. West Bengal.	9239321973
7	Debopriya Chakraborty	18	Female	Debanta Chakerabarty.	Vill/P.O: Purba Nischintapur. P.S: Budge Budge. 24 Parganas (S) 700138. West Bengal.	9748452055
8	Diya Dey	19	Female	Pradip Dey	Pujali Rajib Ghat Road, Bana Para, Budge Budge. 24 Parganas (S) 700138. West Bengal.	9933080525
9	Gargi Dutta	19	Female	Santu Dutta	28/1 A.M Ghosh Road, Budge Budge. 24 Parganas (S) 700137. West Bengal.	9836999646
10	Isika Das	19	Female	Gopal Das	Vill: Kalinagar, P.O.: Bawali, P.S.: Nodakhali. 24 Parganas (S) 700137. West Bengal.	9674184833
11	Keya Sardar	20	Female	Kalyan Sardar	Vill+P.O.: Buita, P.S.: Budge Budge. 24 Parganas (S) 700137. West Bengal.	6291748851
12	Koyel Bhowmick	19	Female	Asit Bhowmick	1 No Doulatpur, Mahatshav Tala. 24 Parganas (S) 700139. West Bengal.	9836949270
13	Mousumi Bag	18	Female	Ranajit Bag	Vill - Jagatballabpur, P.O: Mayapur, P.S: Budge Budge. 24 Parganas (S) 743318. West Bengal.	9674608957
14	Nashima Khatun	19	Female	Sk Korban Ali	34 K.P.Mondal Road, Budge Budge. 24 Parganas (S) 700137. West Bengal.	7890044187
15	Nishat Saba	21	Female	Sk. Ahammad Ali	32/1A R. L. Ghosh Road Budge Budge. 24 Parganas (S) 700137. West Bengal.	9674609864
16	Oindrila Das	20	Female	Dipankar Das	Vill: Bawali Boropole, Bawali, P.S: Nodakhali, P. O: Bawali. 24 Parganas (S) 700137. West Bengal.	9836233050
17	Parna Mondal	19	Female	Suvra Mondal	Vill: Balrampur, P. O.: Maheshtala, PS: Budge Budge. 24 Parganas (S) 700141. West Bengal.	9903386299
18	Poly Malick	19	Female	Krishna Malick	Vill: Sonapur, P.O +P.S.: Nodakhali. 24 Parganas (S) 743318. West Bengal.	9007917091



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Ref. No.....

Date 16.08.2022

Sl. No.	Name	Age	Sex	Father's/Guardian/ Husband's Name	Permanent Address	Phone
40	Ritam Hazra	20	Male	Sukumar Hazra	Poali Patrapara, Poali Hazrapara. 24 Parganas (S) 743318. West Bengal.	9143874841
41	Sandeep Parui	19	Male	Sukhen Parui	Vill+P.O: Dhamisa P.S.: Panchla. Howrah 711322. West Bengal.	7044819174
42	Sudipto Naskar	19	Male	Aloke Naskar	Neogipara, Shibtala, Maheshtala(M), 24 Parganas (S) 700141. West Bengal.	9674949276
43	Sujan Sardar	19	Male	Gobinda Sardar	Vill.: Dhancheberia. P.S.: Nodakhali. P.O.: Dongaria. 24 Parganas (S) 743318. West Bengal.	9051929594

II. LIST OF TEACHERS AND STAFF

Sl. No.	Name	Age	Sex	Father's/Guardian/ Husband's Name	Permanent Address	Phone
1	Swati Sachdev	41	F	Savita Sachdev	4RB, 4/3 Purbachal Phase 2, Sector 3, Block G.A. Salt Lake. Kolkata – 700097. West Bengal.	9831043744
2	Sajid Qamar	31	M	Rabina Khatoon	43/1 K.B.M Road Chanpdani Po. Baidyabaty. Ps. Bhadreshwar. District Hoogly. Pin-712222. West Bengal.	8240009726
3	Sumana Das	29	F	Dulal Chandra Das	Hatpukur, Ramrajatala. P.O.: G.I.P. Colony. P.S.: Jagacha. Howrah. 711112. West Bengal.	9038787034
4	Subrata Karmakar	49	M	Prathama Chakraborty	65 Dharmatala Road, Budge Budge, 24 Parganas (S). Pin-7000137. West Bengal.	9331971584

With regards,

Debjani Datta
 (Dr. Debjani Datta)
 Principal
DR. DEBJANI DATTA
 Principal
 Budge Budge College

BUDGE BUDGE COLLEGE
Department of Geography

1.3.2 Percentage of students undertaking project work/field work/ internships (Data for the latest completed academic year)

B.A. / B.Sc. Geography Honours Semester-V: Research Methodology and Fieldwork (GEO-A-CC-5-11-P)

Topic of Fieldwork / Field Report (Academic Session: 2022-2023): ‘Development & Access to Infrastructural Facilities in Village Chorinda: Focus on Hydrology and Access to Water’ (24th August 2022 to 28th August 2022)

Objectives and Outcome

Objective

A socio-economic household survey was conducted by the semester 5 Geography honours students at village Chorinda, in Ghatshila to ascertain the developmental levels. Ghatshila is a developmental block in East Singhbhum district of Jharkhand. It comprises a population of 129905 and nearly 69 percent of its population is rural. It is located at an average elevation of 103 meters and on the outskirts of Chhota Nagpur plateau. This influences the climate, soil, density of forests, access to water resources, livelihood and developmental level of the people of the region. The main objectives of this fieldwork were:

- to study the relationship between physical and cultural factors and their impact on development levels in the region
- to examine the socio-economic characteristics and developmental levels of villagers at village Chorinda
- identify the problems related to infrastructural facilities mainly water related problems faced by the inhabitants of the village and ascertain its relationship to physical environment.

The research problem thus was to examine the above issues of development and accessibility and indicate suitable measures for enhancing access to infrastructural amenities and facilities in the region that might promote sustainable development of inhabitants of the region.

Outcome

A number of surveys were conducted by the students to analyze the developmental level and infrastructural aspects. Besides socio-economic rural household survey, a land use survey of the village coupled with analysis of the soil quality was undertaken to assess nature of agrarian economy and pattern of land use and standard of living. In addition, market survey, market morphology and nature of problems faced by inhabitants and perception regarding living conditions was also assessed.

Analysis revealed that there is a good correlation between the physical and cultural landscape in the region. The region being a plain region has an agrarian economy as the soil is conducive for agriculture. However, cultivation is restricted to rice and monocrop as there is scarcity of water. The village has both social and economic disparity as on one hand women workforce participation rates are much lower than men and on the other hand, still a significant share don't have access to basic safe drinking water and sanitation within their premises and also own a BPL card. Social infrastructure like health and education are only available at a basic level and people also report transport to be a serious problem as the main market is far and there is dearth of public transport services and they primarily rely on cycles. Besides the problem of access to water for irrigation, there is a problem of access to safe drinking water and physical and social infrastructure. Thus, while on one hand climate and soil i.e. the environment has resulted in moderate standard of living in the region with disparities being present; on the other hand, rampant deforestation for expansion of agricultural tracts and over utilization of groundwater and soil is also endangering the environment. Thus, the need of the hour is to focus on having a more balanced development by focusing on agricultural support services as well as other avenues of employment and at the same time conserve the environment to ensure sustainable development.

I. Department of Geography: Fieldwork
'Development & Access to Infrastructural Facilities in Village Chorinda: Focus on Hydrology and Access to Water' (Ghatsila, Jharkhand - 24th August 2022 to 28th August 2022)





UNIVERSITY OF CALCUTTA

B.Sc SEMESTER V GEOGRAPHY HONOURS PRACTICAL
EXAMINATION 2022

GEOGRAPHY PRACTICAL NOTEBOOK

STREAM: HONOURS

PAPER: GEO-A-CC-5-11-P - RESEARCH METHODOLOGY
AND FIELD WORK LAB

UNIVERSITY REG NO: 5G1-1211-0395-20

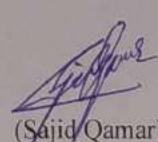
UNIVERSITY ROLL NO: 2035G1-11-0025

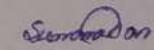


This is to certify that Roll No. 203561-11-0025 , an examinee of the B.A. / B.Sc. Semester V Honours Examination (CBCS), 2022 of the University of Calcutta has visited the field area of study **VILLAGE CHORINDA, GHATSHILA BLOCK and its Surrounding Areas** in the month of **AUGUST 2022**. She/ He has completed the field report within the assigned time, under the guidance of Dr. Swati Sachdev, Mr. Sajid Qamar and Ms. Sumana Das, who accompanied the Semester V Geography Honours students of Budge Budge College.

The field report partly completes Paper GEO-A-CC-5-11-P of the Three-Year-Six-Semester Geography Honours Course.


(Swati Sachdev)


(Sajid Qamar)


(Sumana Das)





DEVELOPMENT & ACCESS TO INFRASTRUCTURAL FACILITIES IN VILLAGE CHORINDA

FOCUS ON HYDROLOGY AND ACCESS TO WATER



ACKNOWLEDGEMENT

I am greatful to the principal of Our College DR.Debjani Datta for providing me the opportunity and Support to undertake the field Study and prepare the field report. I am also thankful to the College authonitics for assisting in preparing the field report. I am thankful to Budge Budge College Geography Department H.O.D Swati Sachdev along with Sajid Qamah , Sumana Das, and Staff members Subnota kanmakan for their guidance.

We thankful for the Cooporation of different offices and officials in kolkata and Ghatshila and village chorinda who helped us and provided us with relevant data and information e.g main block office Ghatshila, Panchayat office chorinda, Ayskman Bhawan health Centre chorinda etc.

I am grateful to my fellow classmates for their help and assistance in field report preparation.

Date
31/1/23

Shraboni Majhi

PREFACE

Village Choninda is located in Ghatshila Block in East Singhbhum District in Jharkhand. It is located on the bank of the Subarnarekha River, and it is situated in a forested area and the average height of the region is 103 metres. The nearest railway station is at Ghatshila, at a distance of approximately 10 kilometres. The panoramic location among rivers, forest, hilly rugged tracts and valley influences both the demographic profile and livelihood of the people of the region.

A field Survey was conducted by Geography Honours Students of Semester 5 in village Choninda and adjacent areas to study the nature of relationship between physical and cultural factors and their influence on the developmental levels in the region. In addition focus was there on exploring the access to infrastructural facilities especially water. A number of surveys were conducted by the students to analyse the developmental level in general and the access to infrastructural facilities like water of the people in that region and assess the problems faced by them. The objective was to indicate suitable measures for enhancing access to infrastructural amenities and facilities in the region that might promote sustainable development of inhabitants of the region.

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Questionnaires

Title

Q1

Household Survey

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LOCATION OF STUDY AREA CHORINDA AND SURROUNDING PART

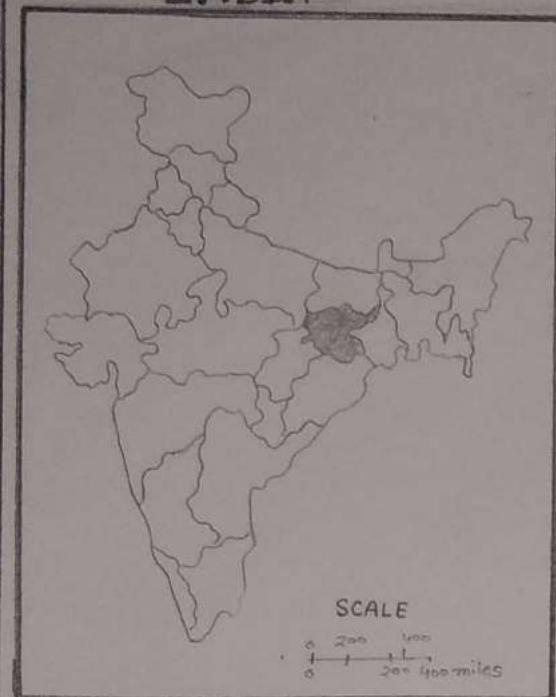
Date: 25/8/2022
Time: 3:00 - 5:00 P.M.

Surveyed By: Semester 5 Geography Honours Students

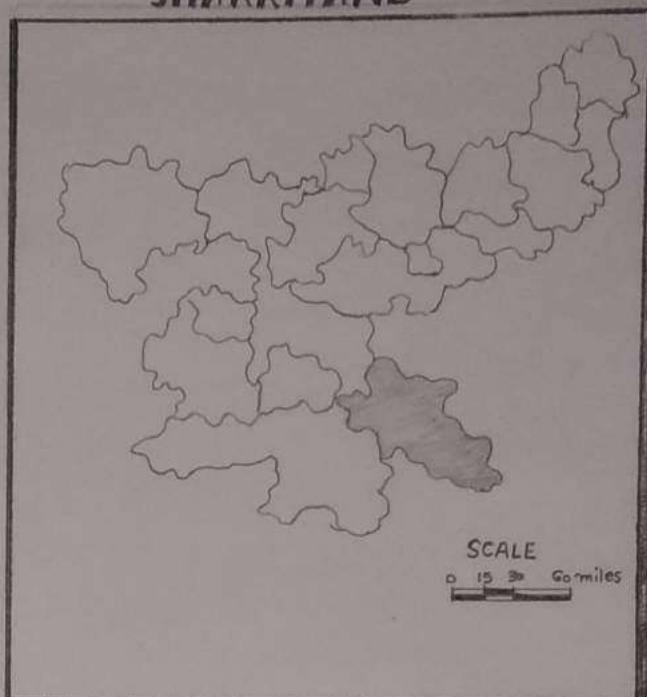
Place: Ghatshila

INDIA

JHARKHAND



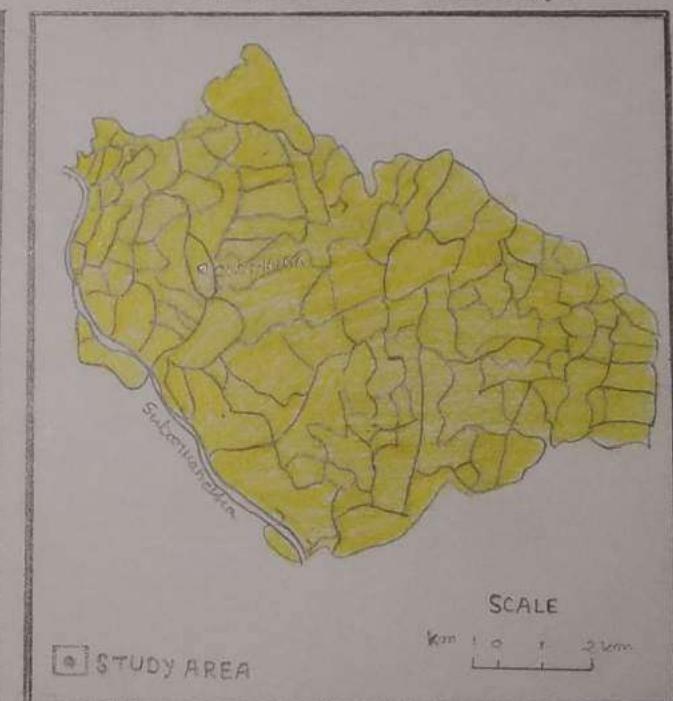
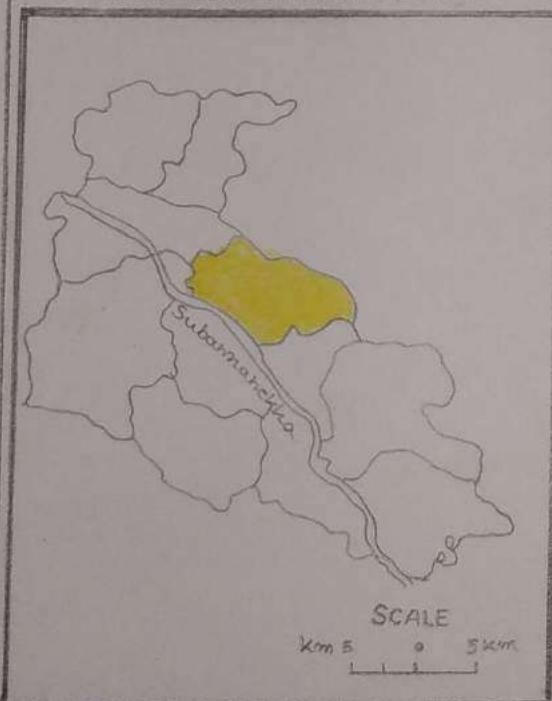
SOURCE: NATMO



SOURCE: NATMO

PURBI SINGHBHUM

GHATSHILA C.D. BLOCK



SOURCE: Directorate of Census operations,
Census of India, 2011

Surajit Deka
02-07-23

INTRODUCTION

Ghatshila is a developmental block in East Singhbhum district of Jharkhand. It is located on the bank of the Subarnarekha River, and it is situated in a forested area and the average height of the region is 103 meters. The panoramic location among river, forest, rugged upland tract and valley influences both the developmental level of the people of the region and their access to infrastructural facilities.

Ghatshila Comprises of a population of 129905 and nearly 69 per cent of its population is rural. Hence, the study area village Choninda was selected in East Singhbhum District in Jharkhand at a distance of 10 km from the block headquarters at Ghatshila. It is located at an average elevation of 103 metres and on the outskirts of Chotanagpur plateau. This influences the climate, soil density of forests, access to water resources, livelihood and developmental level of the people of the region.

As mentioned 69 per cent of the population of the block is rural. Hence a village was selected for the purpose of conducting a Socio economic Survey. Accordingly, a rural Socio economic household Survey was conducted by the Semester 5 Geography Honours Students at village Choninda to ascertain the development levels and the problems in access to infrastructural facilities mainly water faced by the inhabitants of the village and ascertain its relationship to physical environment.

✓
Sudipta
29/2/2022

OBJECTIVE AND RESEARCH PROBLEM

The objective was to study the nature of relationship between physical and cultural factors and their influence on the development levels in the region. In addition, focus was there on exploring the access to infrastructural facilities especially water.

The research problem thus was to examine the above issues of development and accessibility and indicate suitable measures for enhancing access to infrastructural amenities and facilities in the region that might promote sustainable development of inhabitants of the region. A number of surveys were conducted by the students to analyse the developmental level in general and the access to infrastructural facilities like water of the people in the region and access the problems faced by them.

A landuse Survey of the village was also undertaken to access the assemblage of landuse. In addition, to get an approximate idea of the relative slope into the village a long profile was done along the cart-track approaching of soil characteristics and availability of macro nutrients (NPK) was attempted for which soil sample was collected from areas of different land use in the region.

These were combined with a market Survey from where the population of the village full-filled their needs. The Survey sought to examine the various goods sold at the market and their problems. A landuse Survey of the market (market morphology) was also undertaken to determine the diversity of goods sold and the grouping of shops.

Thus, fieldwork was conducted in the Choninda village on the above-mentioned aspects bearing in mind the agrarian economy of the region. An attempt was made to examine the linkages of the physiography and ecology with Socio-economic life and its impact of livelihood developmental levels and accessibility to infrastructure.

Sudarshan
20/12/2022

LITERATURE REVIEW

East Singhbhum district is situated at the extreme Southeast of Jharkhand. It has an area of 3533 Sq. km and a population of 2293919 persons (Census of India) 2011). The district Comprises two Subdivisions (Dhalbhum and Ghatsila) and nine development blocks. The study area is located in the Ghatsila block of the district with an area of 349.12 Sq km and population of 129905 persons.

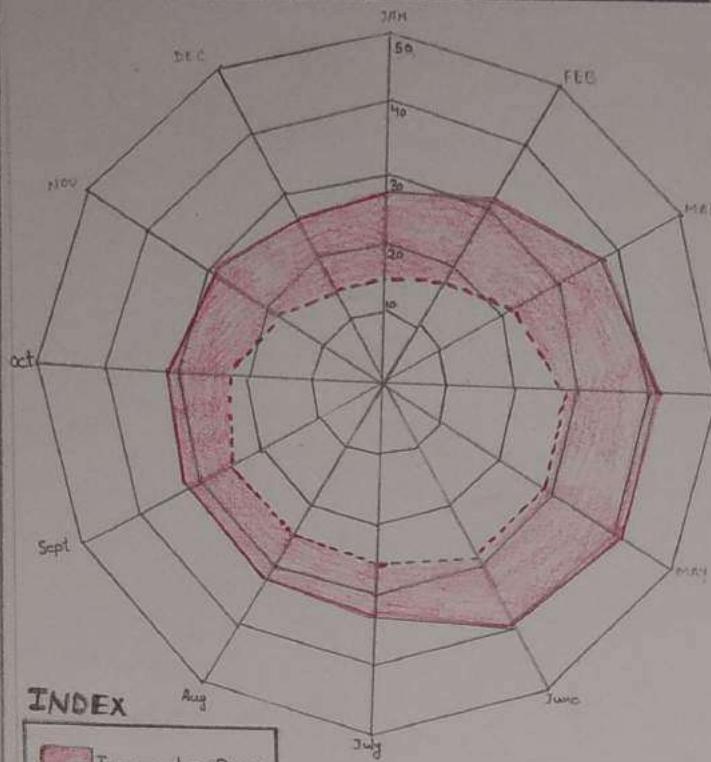
It is surrounded by forested hills, undulating ranges and valleys dotted with villages. It has great importance from industrial and mining Standpoint. The rich Cultural heritage of the block steeped in history has also resulted in high potential for tourism. The physical and Cultural Landscape and its location at the banks of Subarnarekha River influences the climate and mode of living of people of the area.

Geology

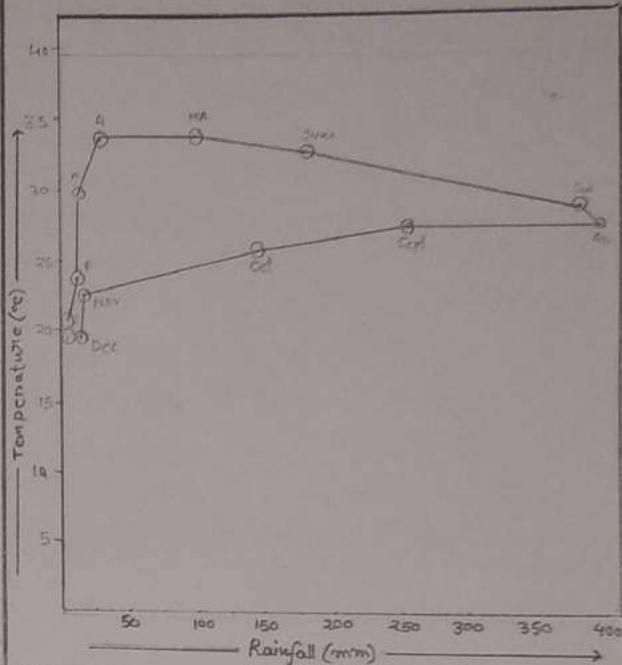
The district has large variation in slope and has remarkably unique geological history. From Behanagona in the South East up to East of Jamshedpur a major thrust Zone is present which further extends into Sahaikela Kharsawan district. This Shear Zone Spans two PreCambrian provinces of the Indian Shield: an older province in the South which stabilized after the Iron One orogenic Cycle closed about 2900 million years ago and a younger province in the north that underwent the Singhbhum orogenic Cycle closing at about 850 million years ago (Government of India 2013). The area is Comprised of gneisses, gneiss and Schist Formations of igneous, Sedimentary, and metamorphic rocks of the Dharwarian period are found in places.

CLIMATIC SCENARIO AROUND GHATSILA 2021

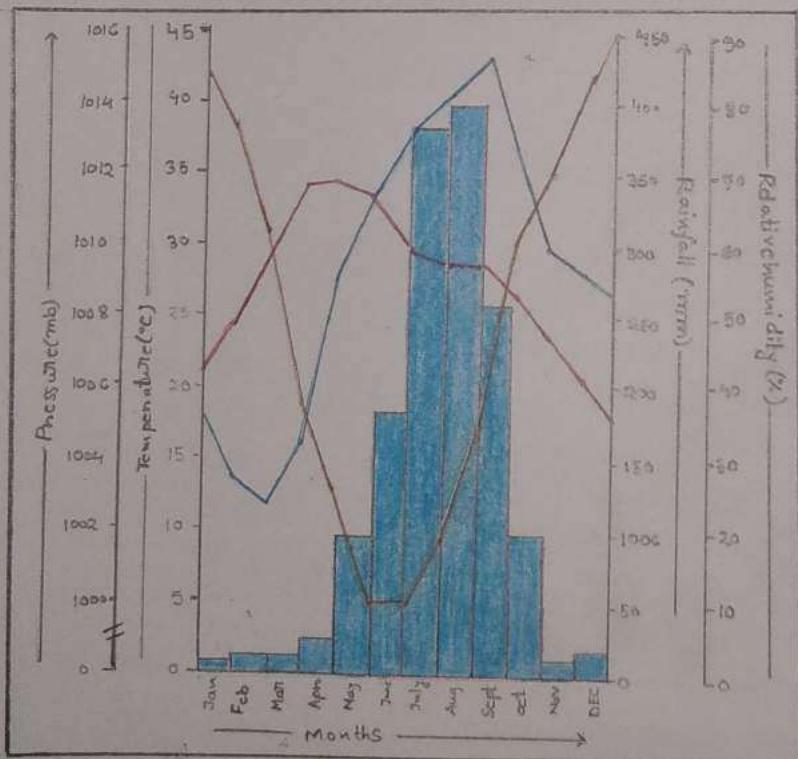
MAXIMUM MINIMUM TEMPERATURE



HYTHROGRAPH



CLIMATIC CHART SHOWING RELATIONSHIP BETWEEN WEATHER ELEMENTS



SCALE			
Average Temperature	$1\text{cm} \equiv 5^\circ\text{C}$	Temperature	$1\text{cm} \equiv 5^\circ\text{C}$
Pressure	$1\text{cm} \equiv 2\text{mb}$	Pressure	$1\text{cm} \equiv 2\text{mb}$
Relative humidity	$1\text{cm} \equiv 10\%$	Relative humidity	$1\text{cm} \equiv 10\%$
Rainfall	$1\text{cm} \equiv 50\text{mm}$	Rainfall	$1\text{cm} \equiv 50\text{mm}$

INDEX			
Average Temperature	Red Line	Temperature	$1\text{cm} \equiv 5^\circ\text{C}$
Pressure	Blue Line	Pressure	$1\text{cm} \equiv 2\text{mb}$
Relative Humidity	Green Line	Relative Humidity	$1\text{cm} \equiv 10\%$
Rainfall	Blue Bars	Rainfall	$1\text{cm} \equiv 50\text{mm}$

SOURCE: <https://www.worldweatheronline.com/ghatsila-weather/Jharkhand/in.aspx>

✓ Ghatsila
24/09/2021

Physiography



The district has varied landforms like high hill ranges, eroded valleys, and undulating land. The Dalma and Dhalbhum are the main hill ranges and are covered by dense forests. The lower area that lies between hill ranges is known as the Dhalbhum plain and is mainly covered by river Subarnarekha.

and its tributaries. About 53 per cent of the total area of the district is covered by residential mountains and hills. The belief is high in the Southern and north-western portions of the district. Generally, the height of the district is 213 m to 945 m above Sea level. East Singhbhum district has large variation in slope. The study area Ghatshila has a slope range of 80 to 150 m/km (Government of India 2013).

Climate

Ghatshila has three distinct seasons - Summer, monsoons and winter. Summers are topical and hot. Monsoons are very moderate and generally start from June and continue till September. The average annual rainfall of the area about 839 mm. winters are quite chilly with temperature 10 to 15 degrees Celsius during this period.

An analysis of the climate of the region through a Thermograph (for 2021) reveals that at Ghatshila the maximum temperature ranges from 36°C in May to 17°C in December. Minimum temperature ranges from 28°C in May to 13°C in December. The average annual temperatures in a year indicate that the summer months range from March-May. There is a sharp dip in temperatures indicating the onset of winter season post September. The air pressure is very high in December-January.

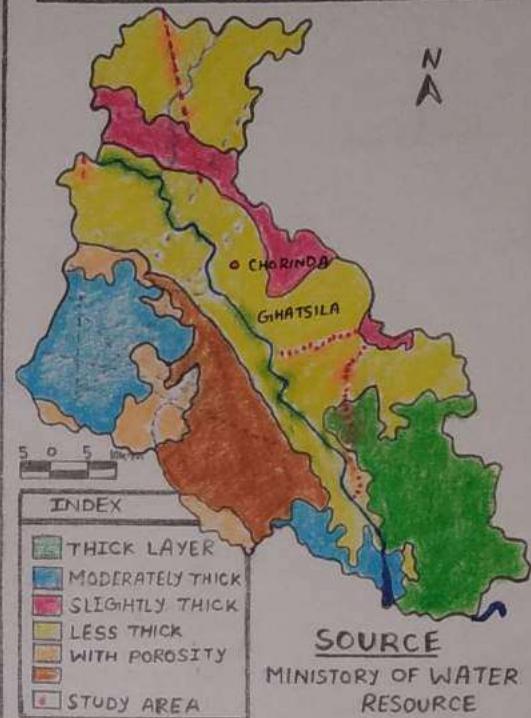
Rainfall however is variable and occurs from June to

HYDROGEOLOGICAL FEATURES

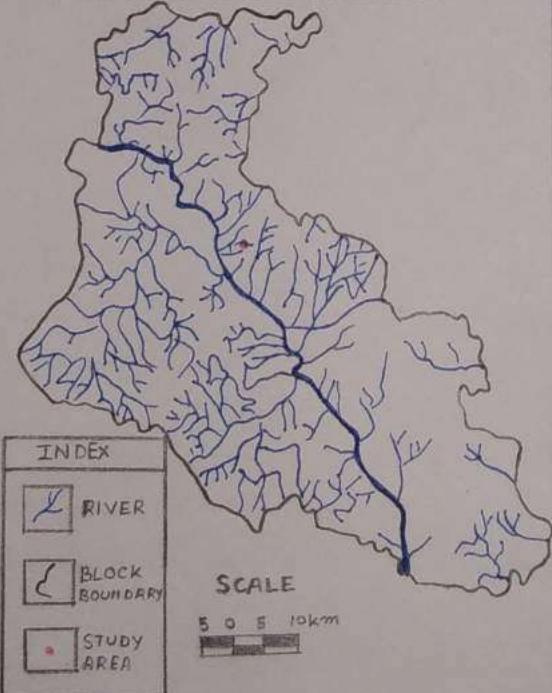
TOPOGRAPHICAL MAP



HYDROLOGICAL MAP

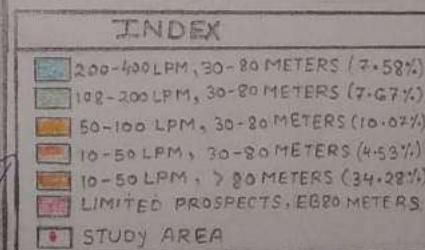
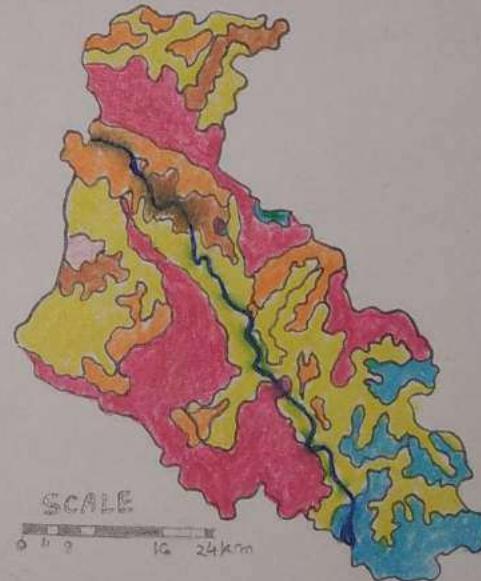


DRAINAGE MAP



SOURCE: MINISTRY OF WATER RESOURCE

GROUND WATER PROSPECT MAP



SOURCE:
GROUND
WATER
BOOKLET

September with a peak in August in 2021. Thus the monsoon season begins in June and extends well into September. The temperature rainfall graph reveals that the relative humidity also very high in these months. The region has very low relative humidity only in February and March else humidity is comparatively.

Hythengraph reveals the moderately high temperatures and thus evaporation and high rainfall prevails. The study region thus basically falls under hot humid climate with varying monthly rainfall.

Drainage



The major rivers in the district are Subarnarekha and khankai. The Subarnarekha River flows from west to Southeast direction. All the tributaries of this area meet with the river. The drainage pattern is dendritic in nature. Drainage of palamda blocks do not meet in Subarnarekha.

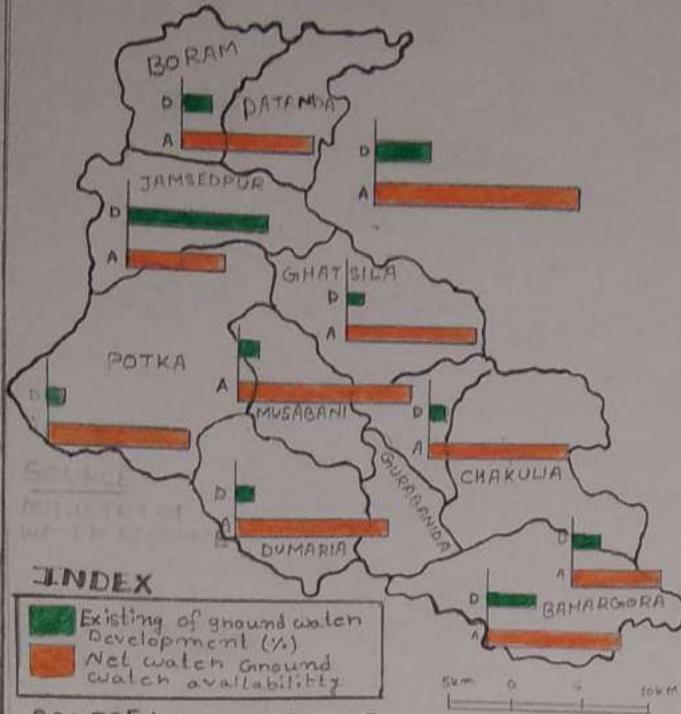
River khankai River meets the river at Sonani near Jamsedpur. Major tributaries which meet the river from west to east are Saphanadi, Garhanadi, Dudhnadi, Chakdahanaadi (Government of India 2013).

Hydrogeology

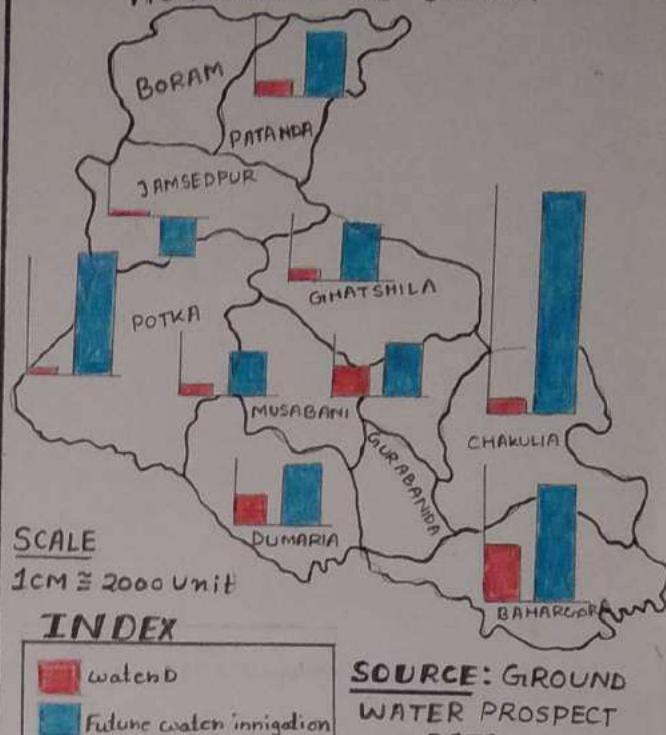
The groundwater occurrence and movement are controlled by the prevailing morphology and intensity of structural discontinuities over the area. Rainfall is the main source of ground water moves slowly and finds its way through the fractures and open joints. The area is underlain by unconsolidated to semi-consolidated sediments of the Tertiary age which are made up of coarse sand, gravel fine to medium sand, and clay. In hard rock areas ground water occurs within the weathered mantle portion.

GROUND WATER QUALITY

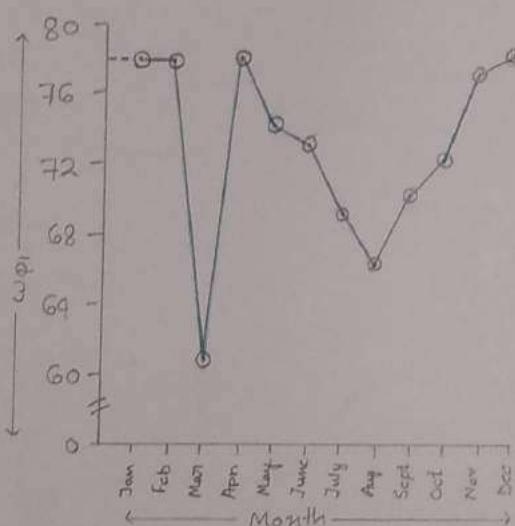
STAGES OF GROUND WATER DEVELOPMENT



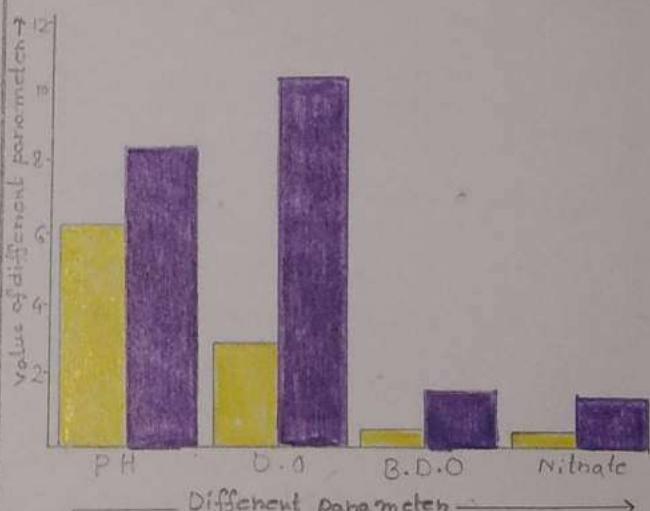
STAGES OF GROUND WATER AGRICULTURAL SECTOR



MONTHLY VARIATION OF WATER QUALITY



WATER QUALITY PARAMETER



SOURCE: CENTRAL POPULATION CONTROL BOARD

Scale: 1 CM ≈ 2 unit

weathered zone (1025 m thickness) and in the underlying fractures/Joints. The groundwater occurs both under unconfined conditions and semi-confined to confined conditions. The unconfined condition exists in the weathered mantle portion of the rocks. The depth of weathered mantle varies from 1534 m in general (Government of India 2013).

The hydrological map represents the groundwater condition and depth of an aquifer in Ghatshila and its surrounding parts. The area is divided into six categories based on the nature of aquifer. Most of the part of this district lies in a less thick aquifer zone, Chhindwa is also situated in this zone. The Southern and Southwestern parts of this district have moderately thick aquifers with high to medium porosity.

Ground Water

Central Groundwater Board has a network of observation wells and ground water management study and field data collected have examined the behaviour, quantity and quality of ground water level in the district periodically.

Groundwater Development and prospect:

Dug wells and shallow to medium depth (up to 50m) bore wells are the main groundwater extraction structures in the area to meet the increasing demand for domestic water supply. The overall groundwater development stage of the district is 20.74 per cent only. Thus, there is scope for further development of groundwater. The groundwater development varies in different places depending on the availability of favourable location (local and regional hydrological condition) Assessment of block wise groundwater resource indicated the following:

Gross groundwater draft (all uses)

5033 ha

Net annual groundwater availability (all uses)

27155 ha

Net annual groundwater availability (irrigation development)

19843.85 ha

Ghatshila the Study area has 'Safe' level of groundwater exploitation and the Stage of groundwater exploitation and the Stage of ground water development in the block varies from 6.84 per cent to 131.39 per cent (1997).

The block still has immense potential for developing and tapping groundwater for utilisation.

Many wells have been dug in East Singhbhum district under Rajiv Gandhi National Drinking water mission project. The depth range of the well varies from 10 to 80 meters. In most parts of this district, the depth of the well is 30 to 80 meters. The flow rates of water in different categories of well are 50 to 200 l/min. In Chotinda depth of groundwater is less than 30 meters with a flow rate of 10 to 50 l/min.

Water Quality parameters: water quality depends on different parameters i.e dissolved oxygen, pH, Biological Oxygen Demand (BOD) and nitrate. pH range of ground water in the region is 6 to 8, which represents natural water. The range of BOD and Nitrate is between 1 to 2. Range of Dissolved Oxygen is 3 to 10. Monthly variation of water quality Index or WQI of the region depicts the aggregate water quality scenario and reveals that the water quality is bad in the Month of March and is good for most of the rest of the months throughout the year.

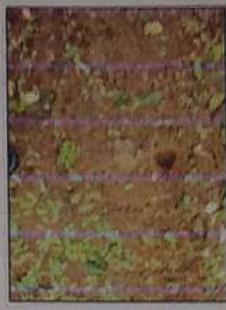
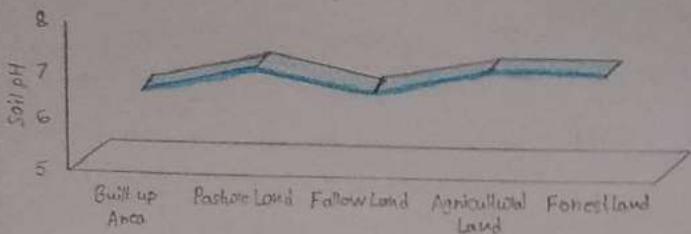
Groundwater Management Strategy: Thrust on development of ground water resources to meet increasing demand, implies focussing on water conservation and artificial recharge to augment the depleting ground water resources and to improve ground water quality by dilution. As nearly 58.33 per cent of cent of the wells show declining trend for pre monsoon and the same share for post monsoon period and about 41.67 percent wells show declining trend for entire period, hence all the blocks required for artificial recharge through check dam, percolation tank, nala bandhara, contour

SOIL CHARACTERISTICS AND ITS VARIATION ACROSS LANDUSE IN VILLAGE CHORINDA

Surveyed On: 25/8/22

Surveyed by: Semester 5 Geography Honours student.

VARIATION IN SOIL PH ACROSS DIFFERENT LANDUSE



Pasture Land

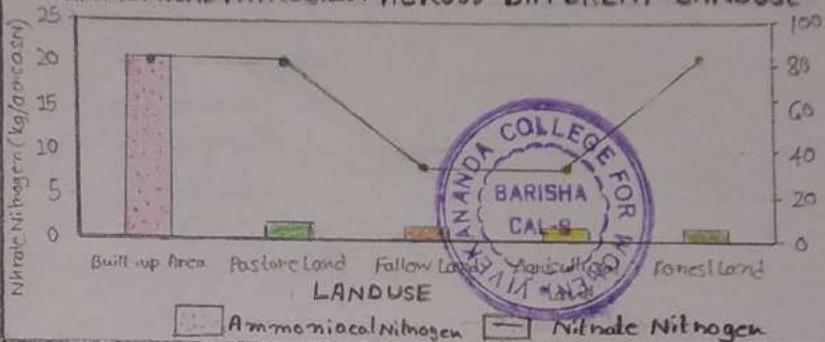


Built up Area



Fallow Land

VARIATION IN NUTRATE NITROGEN AND AMMONICAL NITROGEN ACROSS DIFFERENT LANDUSE



VARIATION IN SOIL PHOSPHATE AND ACROSS DIFFERENT LANDUSE



Agricultural Land

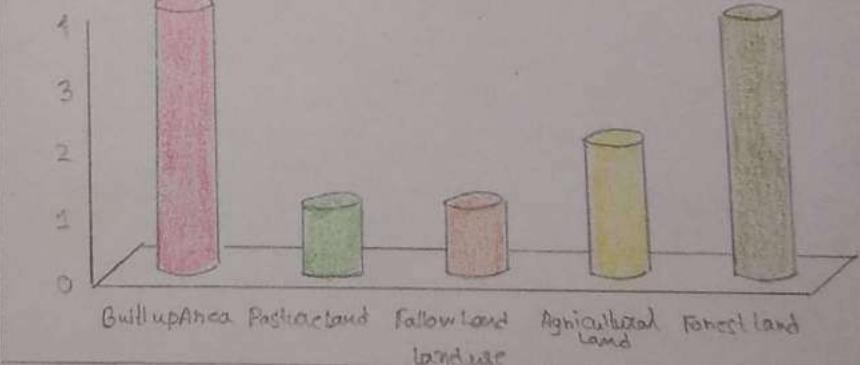


$$\text{Index: } 1 = 0.2 - 0.07 \cdot 3 - 0.07 \cdot 0.22 \cdot 0.4 = 22.58 \pm 0.20 \cdot 4.2 \cdot 5 = 72.48 \pm 0.20 \text{ kg/tonne}$$

Forest land



Variation in Soil Potassium across different Landuse



$$\text{Index: } 1 = < 45.32 \text{ kg/ha/each}; 2 = 45.32 \text{ to } 113.40 \text{ kg/ha/each}; 3 = 113.40 \text{ to } 152.70 \text{ kg/ha/each}$$

Source Note: Based on Sample Collected in the village on 25-08-2022 and Tested in Laboratory Seltiugan Bhude Budge, Kolkata on 14th, 19th, 20th and 22nd December 2022

✓ Shafiq
01/12/2023

bunding and trenching.

Ground Water Related problems: The Study area experiences

varied levels of ground water development. In the north eastern part of the area the ground water resources are over utilized whereas in western and sections of central region ground water resource is underutilized. Ground water related issues and problems have not been the focus of scientific research to the same extent as surface water in the region. However, they need urgent attention e.g Compulsory rainwater harvesting laws, separate pricing policy for bulk consumers of ground water to mention a few so that the rural agrarian population may also have access to their share of ground water for agricultural and domestic use.

Soil

The major Soil of the district are Alfisols (71 per cent) which comprise of both mixed red and black soil and red gravelly and sandy soils. These soils have light to medium texture and are moderately acidic. Besides these the district also has Entisols and Inceptisols. There in all five Soil types in the district: red gravelly, red Sandy, red loamy, red and yellow and lateritic Soils (Government of Jharkhand undated).

In order to examine the soil characteristics and its variation across landuse types in the study area of village Choninda, soil samples were collected from the five major landuse of the region - Cultivated area, fallow land, forested land, pasture land and built up area. The soil samples were dried in hot air oven and processed and analysed. Analysis reveals that the soil in the region is slightly acidic and there is no variation in the pH of soil in the region. The slight acidic nature of soil is conducive to growth of several crops.

However, an examination was also made into the availability of micro nutrients for plant and agriculture growth, namely NPK (Soil Testing kit 2018). The availability of nitrogen varies from high in built up area with 80 kg/hae of ammoniacal nitrogen to very low in other areas. However, nitrate nitrogen

is high in built up area pasture land and forest area at 20 kg/acre. The share of ammoniacal and nitrate nitrogen in built up area may be due to the presence of poultry and livestock. The high share of nitrogen in the pasture land may be attributed to similar causes. The high share of nitrate nitrogen in the forest area however may be due to the accumulation of humus. The other important nutrient phosphorous is also high in pasture and forest land with more than 22.08 kg/acre of phosphate in soluble form. This may be on account of presence of livestock excreta and humans. The other regions also have moderate amount of phosphorous. As regards potassium, it is very high in forest area probably due to the same reasons as phosphate. However, its high share in built-up area may be due to presence of poultry and its waste.

The agricultural land has low ammoniacal and nitrate nitrogen but low phosphorous and moderate potassium. The low nitrogen in the soil is probably due to overuse and in its current stage is not conducive for growth of cereal crops but requires application of nitrogen fertilizer/manure on crop rotation before continuing growth of cereal crops. The low soluble phosphate implies that cereal crops cannot be grown well. Excessive growing of crops in fields result in depletion of phosphorous which needs regular replenishment. The growth of rice crops over years have probably resulted in the low share of phosphate and there is a need to add phosphate fertilizer/manure regularly to improve productivity of cereal crops. The moderate potassium amount in the cultivated area is conducive to the growth of crops especially in these slightly acidic soils. In order to cultivate terms of agriculture, the soil in the region has adequate potassium, but it needs replenishment of nitrogen and phosphorous as it probably has been depleted through overuse. Crop rotation is also probably required in the region and growth of leguminous plants must be encouraged as well.

Flora



Due to varied landscapes, the forest cover is found in different proportions in different areas. plains associated with the Subarnarekha basin record considerable deforestation but Dalmia and Dhanjoni highland areas are undeniably forest cover. Sal trees are dominant in this area. Other trees are Mango, Jamun, Jackfruit, Kanauj, Palas etc.

The region has witnessed deforestation due to need to expand agricultural land and most forests like in study area are hence open Mixed forests.

Population and Economy

East Singhbhum district Comprises of 2 sub-divisions Dhalbhum and ghatshila . Ghatshila has 8 development blocks out of which in ghatshila CD Block. The Total population of East Singhbhum district was 2293919 with a population density of 651 persons per Sq km and a rural population of 44 percent in 2011. Ghatshila block had a population density of 129905 and density of population of 372 persons per Sq km. and rural population of 69 percent (Government of Jharkhand undated). Hence a village Choninda adjacent to Ghatshila was undertaken for field work. The Total population of village Choninda was 1035 over an area of 242 hectares. The forested area in the village is facing deforestation due to extension of agriculture and pasture land to accommodate the expanding population.

The level of literacy in the district was 60 per cent and in the block 62 per cent and in the village 75 per cent. As expected the male female discrepancy is significant at district , block and village level, though it is more conspicuous at village level.

The per cent of workers in Ghatshila was 61 per cent and in village choninda only 40 per cent. However, male and female discrepancies prevail while male workforce participation rate is around 60 per cent ; for females

It is barely 20 percent in the village. The distribution across industry categories reveals that higher percent are employed in non-agricultural activities in the district and as cultivators in the village. This indicates the reliance of the villagers on agriculture for their sustenance.

The infrastructure facilities of the region are not upto the mark. The physical infrastructure, namely transport is not well developed and there are two approach roads into the village from the main metalled road. The rest of the village has only cant-brakes or pack-tracks. Economic infrastructure facilities like bank are absent from the village and nearest bank is at a distance of approximately 5-10 kms from the village. Social infrastructure is only marginally better and the village has a primary and middle school; though the nearest secondary and senior secondary school is only at Ghatshila and Chalukhi respectively. Health infrastructure too is dismal and the village didn't have any PHC or Sub Centre as per Census 2011.

Despite of relying on agriculture, the village has only well, hand pumps, tube wells and one lone tap to supply water. There are no canals for irrigation though local tanks or ponds are present and these are the limited sources of irrigation.

Thus, the above discussion and review of literature provides an insight into the Ghatshila region of Purbi Singhbhum district, the focus of field work. Based on this a Snowball Sample Survey was undertaken of households in village Chorinda to assess the developmental level and access to infrastructural facilities mainly water resources as agriculture is the mainstay of their livelihood even in contemporary times.

[Signature]
24.01.23

METHODOLOGY

The Students of Semester 5 Geography Honours of the College Conducted their field work in Ghatshila block in East Singhbhum district Jharkhand. The Survey analysed the developmental and Socio-economic levels of living of people of the area and focused on examining the hydrology and access to water of people in the study area. The entire field work can be Categorised into - pre-field work, work during Field Trip and post field work.

Pre - field Work

After deciding to go to Ghatshila, the initial task was to Collect information pertaining to various geographical aspects of the area, for which purpose, a number of books, government documents and website were consulted on the history, geology, hydrology, population, economy, etc of the region. In addition, Census data pertaining of various villages in ghatshila block were examined to Select the village for the purpose of Survey. Finally, after deciding on the village Choninda, the location map was prepared using the Census District primary Census Abstract and Village and Town Directory and Census Atlas 2011. Several online articles and websites were referred to analyse the physiography, drainage, geohydrology and climate of the region with data obtained from the RMC Alipore, Kolkata. In addition, more detailed data regarding the population, occupational Structure and village profile was Collected on the Selected block and village.

During Field Work

In Course of the field work, Stress was laid on collecting primary data by conducting a number of Surveys. A rural household Survey was Conducted in the village Choninda to obtain a picture of the Socio economic developmental Scenario (demographic, literacy, occupation

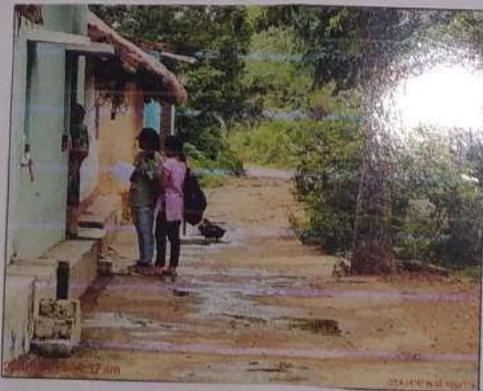
Standard of living) and access to amenities like water of population in the region.

A land use Survey was also Conducted in the region to ascertain the amalgam of landuse. Examination of Soil of the Study area was also Conducted in the village as it is the main source of livelihood. A detailed assessment of hydrology of the region, the various water sources, quality, access and problems of water resources in the region were examined.

A longitudinal profile Survey Coupled with changing landuse along the approach road to the village which connects it to Ghatshila was undertaken to ascertain the variations in micro-relief.

A market Survey was also conducted to determine the type of goods sold, characteristics of shops and shopkeepers and problems. A landuse Survey of the market morphology was also undertaken to find out the prominence of various types of shops.

In addition a hotel Survey was also conducted around Ghatshila to examine the nexus of tourist economy of the region with the agrarian economy



Besides, Secondary data and maps were obtained from the Land records office, block office and PHC, regarding the various programs undertaken for the development of the region.

Post Field Work

After returning from the field based on the primary and secondary data and maps, the field report was prepared. In order to obtain a proper visualization of the data obtained from field work, several maps, Cartograms, graphs etc were prepared. The various techniques used for this purpose and to analyse the field data are discussed as follows.

The map depicting the location was prepared using Census Administrative Atlas. Articles and research papers were used for studying the Geography of the region.

The climatic data was prepared by plotting histograms for rainfall and line graphs for temperature, pressure and relative humidity. Similarly the variation of maximum and minimum temperature was depicted using Star/hadro diagrams. The overall climate of the region was examined using hythengraph.

Soil testing kit was used to analyse the Soil Samples Collected from the field. The objective was to assess the varying nature of Soil physical and chemical characteristics under different Land use types and to assess the Suitability of Crops of different Soil in the region.

The landuse map was prepared after conducting a primary Survey and with the help of locals. The data provided by the Land and Land reforms office assisted the process. A long profile was prepared from the data Collected by observing heights through dumpy level and bearings through plismatic compass in the field.

Using the primary data that was Collected through household Survey in Village chorinda, an analysis of the demographic and developmental scenario and access to infrastructural amenities and facilities was undertaken and represented

through age Sex pyramids and different chart and graphs like bar graphs, pie graphs and star diagrams.

In addition, both Secondary and primary data sources and research articles were referred to in order to analyse the nature of hydrogeology, drainage and water quality of the region. The problem of access to water was also examined using primary data. Maps and graphs have been prepared from selected data regarding these dimensions.

Data obtained through market Survey was used to represent type of goods sold, nature and characteristics of shops and shop keepers and their problems through bar graph, pie graphs, etc. Using pacing method landuse of market areas was assessed and represented through a landuse map/market morphology map.

Thus, various Statistical and Cartographic methods were used to diagrammatically represent the primary and secondary data obtained through the field work on varied aspect of the region, which have enhanced the visualisation and assisted in drawing conclusions regarding the correlation between physical and cultural attributes of the region and the development scenario in general and access to water resources in particular.

S. S. S.
20/2/2012

RESULTS AND DISCUSSIONS

The main purpose of the field trip was to examine the development level of the people of the study area and to assess their access to infrastructure mainly water resources. In order to understand these and the correlation between physical and cultural factors, a number of primary surveys were conducted. In addition, analysis was undertaken from data obtained from various secondary sources. On the basis of the analysis of primary and secondary data, the following result emerged.

Landuse

The landuse of any region is dependent both on the physical and cultural attributes of a place. The region is part of the southern fringe of the Chhotanagpur plateau and is a rugged upland tract near river Subarnarekha. The landuse needs to be carefully managed in such area to maintain the quality of environment.

Village Chorinda which was the focus of the fieldwork is essentially an agrarian economy nestled in the midst of forested upland tract. This village was selected for survey purposes as the objective was to examine the access to infrastructure especially water in an agrarian economy and examine their developmental level.

The village has an area of 242 hectares. Out of this 36 percent is net sown area. The land use map reveals that there is limited diversity of land use in the region. The prominent land use in the village is agricultural land use, fallow land and forested area. Mainly paddy cultivation is carried out, especially towards the southern, central and north eastern part of the region from south to north. The paddy fields are interspersed by settlements especially along roads or water bodies or edges of fields. Open mixed forests also are present adjoining the road in the west and in the north and south west extremities as well as in the patch within the village centre. pasture land is evident in patches scattered

LANDUSE MAP OF CHORINDA VILLAGE

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INDEX

Yellow	CULTIVATED
Orange	WASTELAND
Pink	FALLOW LAND
Light Green	BAMBOO GROVE
Dark Green	FOREST
Light Blue	PASTURE
Dark Blue	HOME GARDEN
Medium Blue	RIVER
Light Orange	POND
Purple	Settlement
Red	Road/Path
Maroon	SCHOOL
Orange	TEMPLE
Brown	MUDGY/CLAY BANK
Grey	SHED/SHOP

Subhadeep
17/1/2021

near the fallow land in the South east, South west and a small tract in the centre of the village.

The village is bordered on the east by a 'Nala' of Subarmanekha River and in the west by a metalled road. Three prominent unmetalled roads (Cart tracks) branch off into the village and another pack track is visible towards the centre traversing from north west to South east of the village. There are some small water bodies scattered throughout the village. Yet because of the absence of canals the irrigated area is minimal only 1.21 hectares. There is an almost continuous belt of uncultivable wasteland bordering the 'Nala' in the west as it is not clear water and is sandy.

There is a presence of a temple at the entrance to the village towards the left of the approach road. The primary school is also present near the main approach road to the village, slightly offshoot to the east sheltered by open mixed forests.

Thus, the region depicts a typically dispersed settlement pattern on account of the forested upland terrain wherein the forests have been cut down and transformed into cultivated tracts. Thus it is clear from the Mauza and landuse map that most of the region is under agricultural land use - cultivation of rice being the mainstay of most people. In addition, the settlement of the region is influenced by the physical feature of the region as there is prominence of fallow land and forests.

Thus, developmental planning must take into account (i) the high share of agriculture in the village and provide for more irrigation facilities and building of more canals, etc. (ii) managing the common property resources like the waste and fallow land where there is livestock grazing.

Land use monitoring and management is needed to enable best utilisation of available land and reduce harmful environmental effects and increase access to irrigation facilities in the village.

✓ Sudesh
27/10/2010

FIELD BOOK: DUMPY LEVEL SURVEY - LONG PROFILE

Instrument Number:
Dumpy Level &
Polaris Surveyor PC-2
Surveyed by Mr. Suresh Anand Singh

Place: Bhupur Road to Chaudhuri village
Date: 25/8/22
Start time: 12:05 PM
End time: 12:55 PM



FIELD BOOK: DUMPY LEVEL SURVEY - LONG PROFILE

Instrument Number:

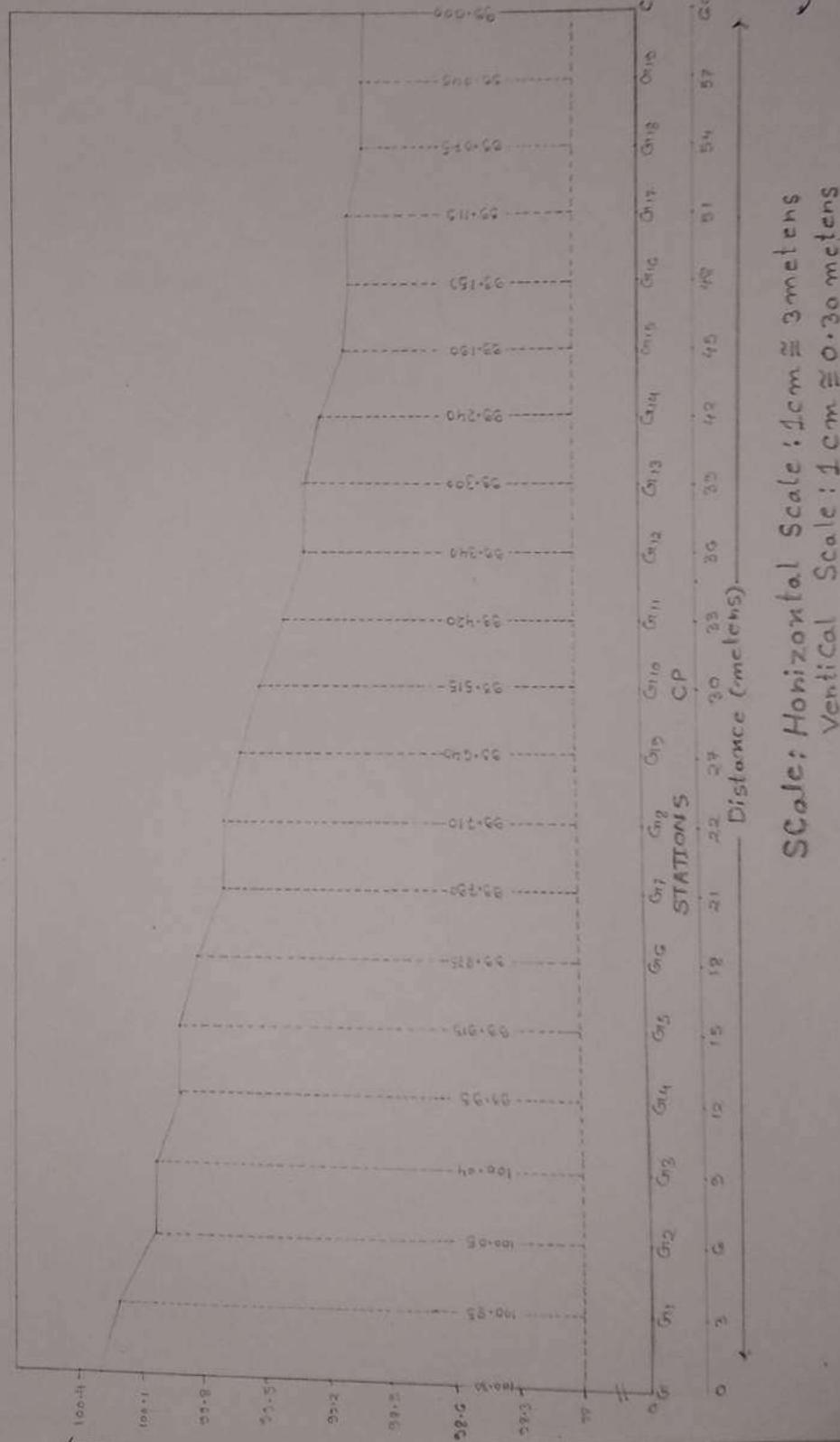
Dumpy level: DL 4

Prismatic compass: PCA

Surveyed by 5th Semester GIBCA Students

Place: Approach Road to Chaudhara Village
 Date 25/8/22
 Start time: 12:05 PM
 End time: 12:55 PM

GROUND PLAN



LONGITUDINAL PROFILE ALONG Approach Road to village

A long profile Survey and prismatic Survey was undertaken along the Cart track/unmetalled road approaching the village in Order to assess the nature of profile and Curvature of the path and examine the changing land use along the path.

The ground Slope decreases from the main road as one moves inwards towards the village. This clearly indicates that most of the Cultivated and residential area have developed in the relatively lower and less steep the existence of undulating upland terrain very distinctly. The average elevation of the region is 100.30 metres.

There is changing pattern of land use along the approach road to the village. There is a presence of a temple at the entrance to the village towards the left of the approach road. Either Side of the approach road is bounded mainly by fallow land and forested tract. The gentle slope into the village encourages growth of pasture land over the common property resources and upspring of Settlements.

Thus, the longitudinal profile reveals that the approach road into the village is downward sloping and that lower relatively level land promotes livelihood options and growth of Settlements.

✓ Subicute
4/1/22

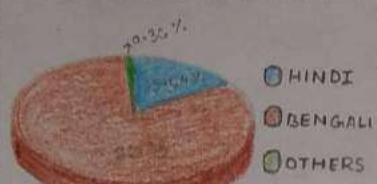
HOUSEHOLD SURVEY

DEMOGRAPHIC AND SOCIAL CHARACTERISTICS

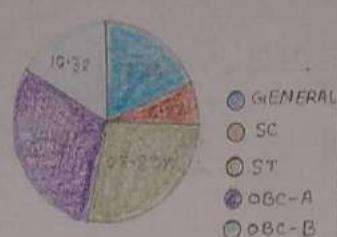
Place: Chorinda
Time : 10:00 AM - 12:00 PM

Surveyed on: 25/8/2022
Surveyed by: Semester 5 Geography honours Student

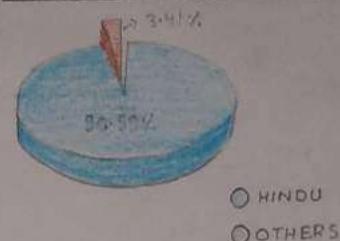
LINGUISTIC COMPOSITION



SOCIAL GROUP



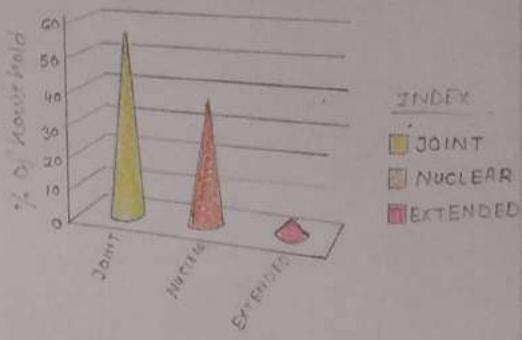
RELIGIOUS COMPOSITION



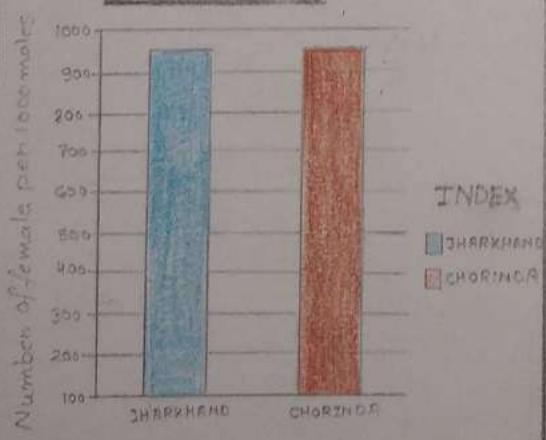
HEAD OF FAMILY



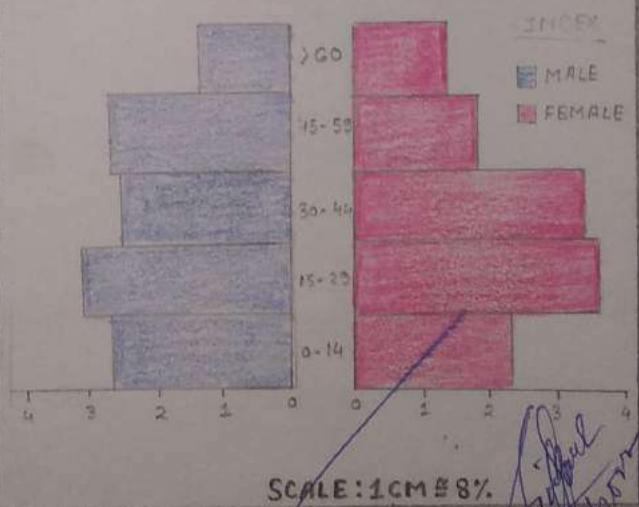
NATURE OF FAMILY



SEX RATIO



AGE SEX PYRAMID



SOURCE: Primary Survey

HOUSEHOLD SURVEY OF CHORINDA VILLAGE IN GHATSHILA: DEMOGRAPHIC AND SOCIO-ECONOMIC SURVEY

Introduction

A field Survey - household - demographic and Socio- economic Survey was conducted by the 5th Semester Geography (Hons) Students of the College at Chorinda village in Ghatshila Subdivision of Purbi Singhbhum district in Jharkhand, in Aug 2022, to analyze the level of development of people.

Demographic and Social Composition of population

Religion, Social Group and Language: A Social Composition of the population.

147 household Surveyed reveal that Hindus (96.59%) Comprise of the majority of the population , other share is 3.4%.

However, the Share of SC,ST,OBC and General population depict predominance of OBC-A 30.61%, ST (27.89%) and OBC-B 16.32%. This is because Jharkhand is home to a large number of tribal population. General population also comprises of a large share of the population i.e 18.3% indicating diversity in the Social profile of the population. Most the people have Bengali as their mother tongue. thus the Social Composition of the region is on hand diverse Comprising of people of various Social groups but with a predominance on reflection of Bengali ancestry of people of the region. Thus in terms of Social Composition there is heterogeneity within homogeneity

In Spite of the high Share of STs in the population only 17.68% of households are female headed households, which Shows predominance of patriarchal Society prevalent in the Study area. There is a tendency towards Joint family nearly 50.46% of the households are Joint household. A large Share of household are of Nuclear family (38.09%), whereas extended Family Constitute 5.44%.

HOUSEHOLD SURVEY EDUCATION AND ECONOMIC CHARACTERISTICS

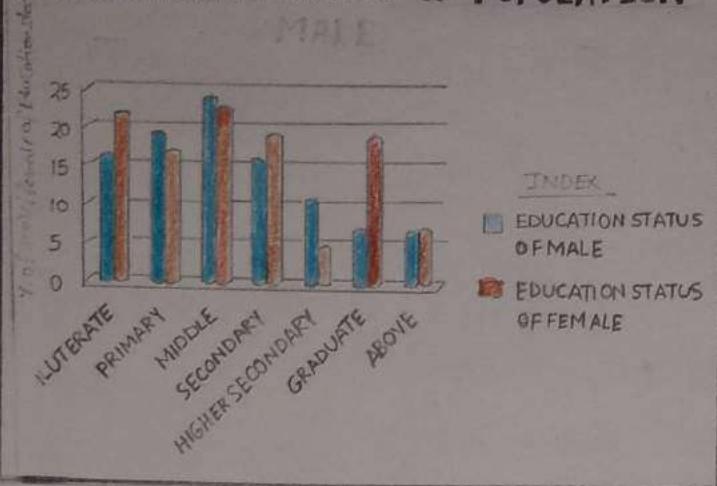
Place: chorinda

Time: 10: A.M - 12:00 PM

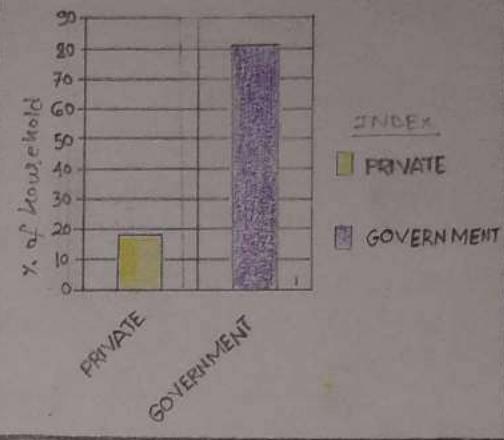
Surveyed On: 25/8/2022

Surveyed by: Semester 5 Geography
Honours Student

EDUCATIONAL STATUS OF POPULATION

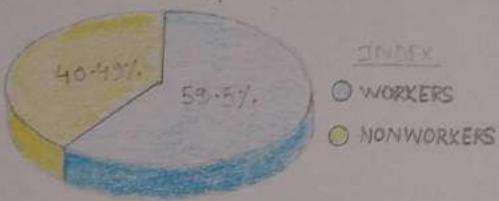


CHILDREN GOING TO SCHOOL



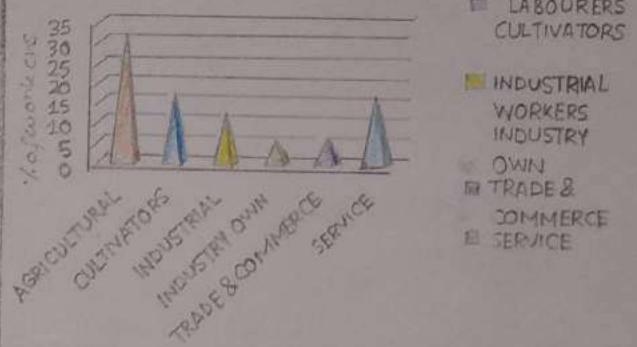
EMPLOYMENT STATUS

MALE



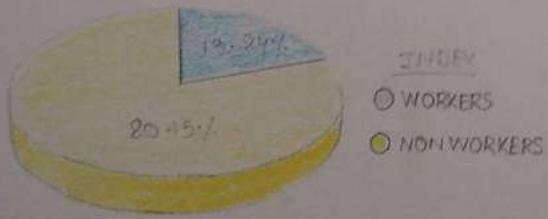
OCCUPATIONAL STRUCTURE

MALE



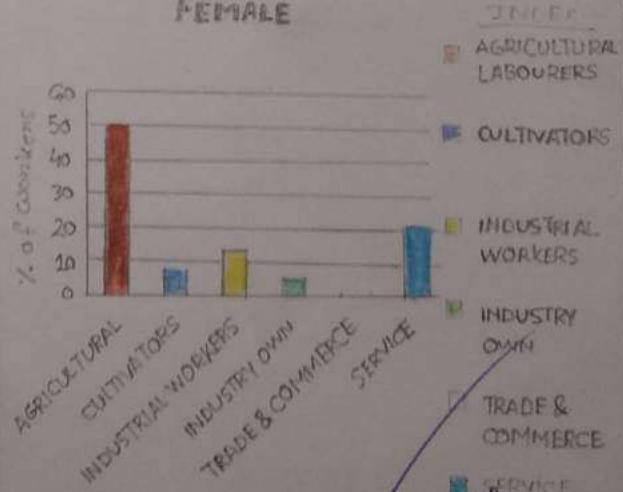
EMPLOYMENT STATUS

FEMALE



OCCUPATIONAL STRUCTURE

FEMALE



[Handwritten signature]

Demography

The demographic profile of the people is examined through the Age Sex pyramid household type. The age-Sex pyramid reveals a tapering apex and a broad middle section and a moderate yet narrow base; hinting toward a gradually controlled population structure as the children have a slightly lower share as compared to Middle section. However the very low share of old age persons both among men and women are probably indicative of low life expectancy and poor access to health infrastructure or higher morbidity.

The Sex ratio of Jharkhand is 953 female per 1000 males which is more than the Sex Ratio of Jharkhand i.e 948. It is more than an indicator of gender equality though this may indicate male out migration for employment purpose as employment prospects in the region are limited.

Education

Around 80% children go to Government Schools. Due to low level of earnings majority of household are unable to send their child to a private educational institution. More than 75% of male and females are literate in the study area. The level of literacy is nearly same for both men and women, indicating that there is general equality in Society. Thus the educational attainment levels in the region are moderate with share of female population having graduation degree is greater than their male counterpart, indicating lack of gender discrimination and higher status of women in the Society. In the Higher education Male population is left behind their female counterpart due to which the job opportunities are limited.

Economy

Workers and occupation among men and women are strikingly different there is a marked discrepancy in the

Share of workers between men and women while 59.5% of men are workers, only about 19.84% of women are workers thus women rarely go out to work as they are expected to do household chores.

The Occupational pattern reveals that the share of men and women both are highest in Agriculture Sector followed by Service and allied activities for both men and women although the concentration of women in Service Sector is marginally higher than men, in trade the women participation is negligible. This indicates the reliance of the region on agriculture. Industry is not an important source of employment only 14.53% of male and 13.88% women are employed as industrial laborers.

This reflects the gender bias that does prevail even in this society as women are confined more to agriculture hence is higher share of men in trade and as industrial laborers. Thus the occupational structure indicates the dominance of Agriculture and Service Sector.

House Type

The standard of living of most of the people is up to the mark. Thus majority of households (99.3%) own their houses, which reflect the relatively better scenario of the household in spite of a substantial segment owning a BPL Card.

In addition majority of household have floor made of cemented sand (37.41%) Earth (34.68%) and Rammed earth (14.28%), Majority of Roofs are made of tiles (49.65%) yet substantial portion of households have roof of asbestos (17%) concrete (15.44%) or tin (7.48%). Most of the household have wall made of mud and poles (38.09%), Burnt established brick (25.17%) and Cement blocks (20.4%).

The village mostly depends on wood as major source

ECONOMY AND INFRASTRUCTURE



OTHER OCCUPATION



LIVESTOCK FARMING



AGRICULTURE



SCHOOL

HEALTH CENTRE

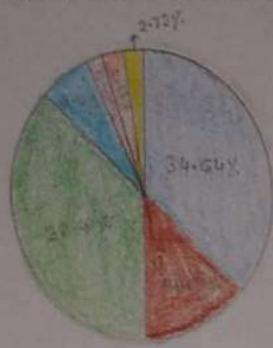
PACK TRACK

HOUSE HOLD SURVEY HOUSING AND FACILITIES

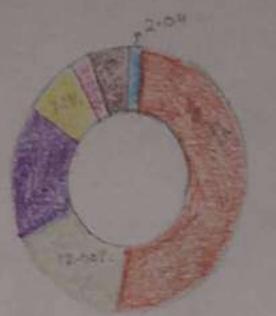
Place: Choninda
Time: 10:00 AM - 12:00 P.M.

Surveyed on: 25/8/2022
Surveyed by: Semester 5 Geography
Kamla Singh Student

NATURE OF FLOOR OF HOUSE



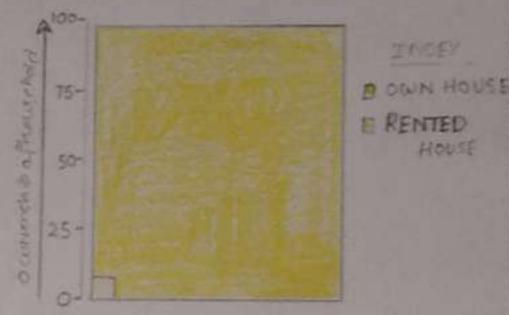
MATERIAL USED IN CONSTRUCTION ROOF



MATERIAL USED FOR CONSTRUCTION OF WALL

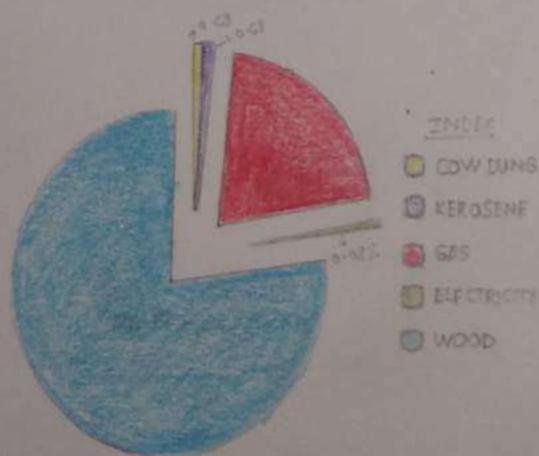


OWNERSHIP OF HOUSES

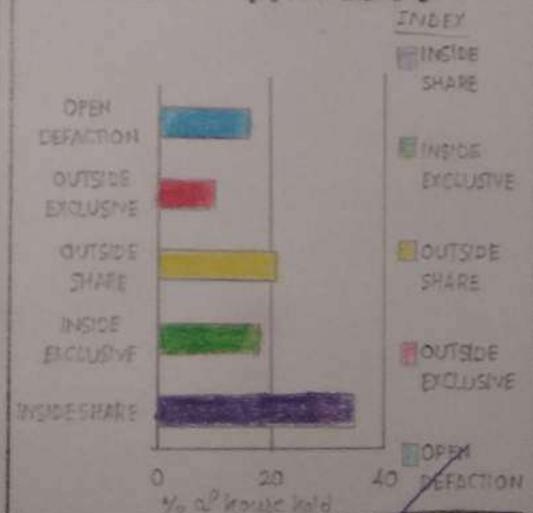


Scale: 1cm = 25%.

TYPES OF FUEL USED BY HOUSEHOLD



TOILET FACILITY



SOURCE: Primary Survey

*R. Singh
25/8/2022*

of fuel for cooking, nearly 76.87% of the household was using wood as means of cooking and around 21.08% uses Gas as a source of fuel, which can create serious health issues among women and pollute the environment.

Facilities

The access to facilities is well up to the mark as regards to public facilities like electricity and drinking water.

All the residents have electricity and majority of household use tap as the source of drinking of drinking water.

In terms of toilet 84% of households have access to toilet and only 16% of house practice open defecation. 18% have their inside exclusive toilets within their premises which they do not need to share with other household but a considerable share still do not have their own toilets, 35% have inside share, 21% have outside share while outside exclusive constitute only 10%.

Amenities

Access and ownership of amenities is an indication of the standard of living, the Survey reveals that majority of households have at least electricity and one set of basic furniture like bed, chair and tables even with respect to electronic gadgets like TV or mobile. Only 40.13% have TV and 78.91% of household have access to mobiles but only 15.64% have fridge and only 5.44% household possess a computer. It is interesting to note the penetration of mobiles into the lives of these household today.

Around 70% of household have cycle as the means of commutation whereas, Access to two wheelers is around 42.18%. Electricity is the main source of lightening in the majority of households, while a minute proportion of household uses Biogas, kerosene and Solar energy.

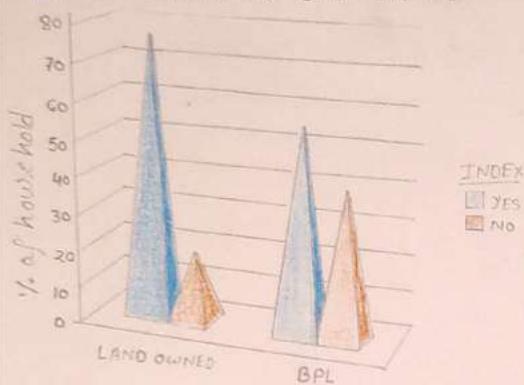
HOUSEHOLD SURVEY AMINITIES AND PERCEPTION

Place: Chotinda

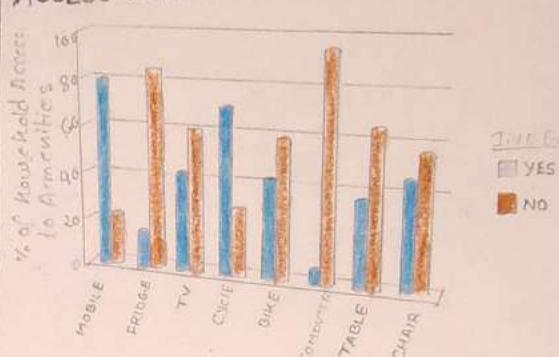
Time: 10:00 AM - 12:00 Noon

ACCESS TO AMINITIES

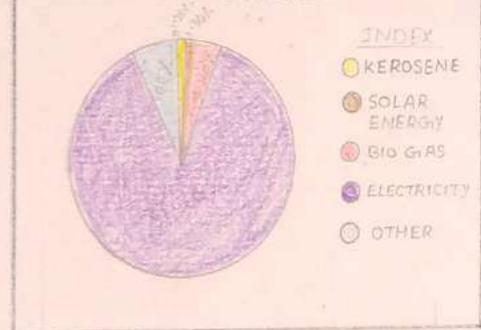
LAND OWNERSHIP BPL STATUS



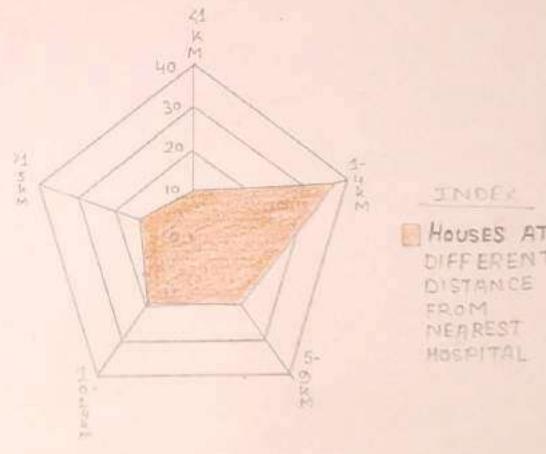
ACCESS TO AMINITIES TO HOUSEHOLD



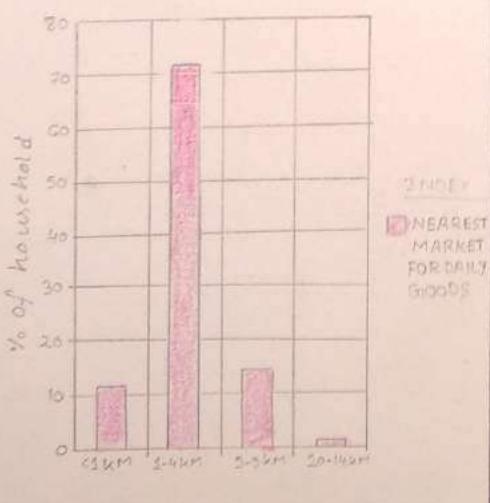
SOURCE OF LIGHTENING IN THE HOUSE



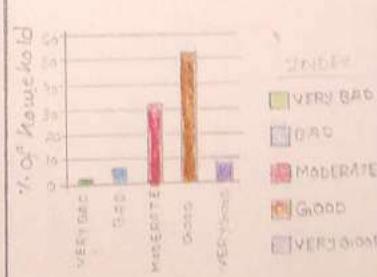
HOUSES AT DIFFERENT DISTANCE FROM NEAREST HOSPITAL



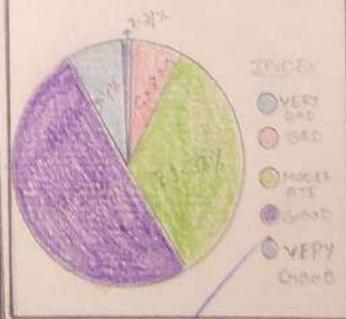
NEAREST MARKET FOR DAILY GOODS



PERCEPTION ABOUT LIVING CONDITION



PERCEPTION ABOUT TRANSPORT INFRASTRUCTURE



SOURCE: Primary Survey

*Rajesh
Sathish*

Majority of the household have basic amenities like bed chair and own house and access to electricity and even advance electronic gadgets however a significant population lack access to own vehicles although the house structure of half of the houses are stable yet some of them have mud floors and has need to be the focus of developmental programmes such as PM Awas Yojana (Grameen), in terms of access to facilities although access to safe drinking water is not so much a concern but there is a dearth of adequate sanitation facility.

It is evident that the standard of living of majority of households is far from satisfactory level as nearly 58.5% of the household have BPL card, the share of such people is being so high it indicates lack of percolation of the benefits of economic development to the people of surrounding areas however the redeeming factor is that more than 79.55% of household have their own land and hence have a better livelihood prospects as a large segment of population not directly linked with industries and depends upon agriculture.

Around 36% of households have a hospital within a distance of 1-4 kilometers, while majority of household have to cover more than 5 kilometers to reach the nearest hospital. In times of emergency health situation it might become a matter of great concern.

Market

- Majority of household have access to nearest market within a distance of 4 kilometers. Local markets enable small farmers and their families to increase their income by enabling them to sell their produce more effectively, thereby reducing their dependence

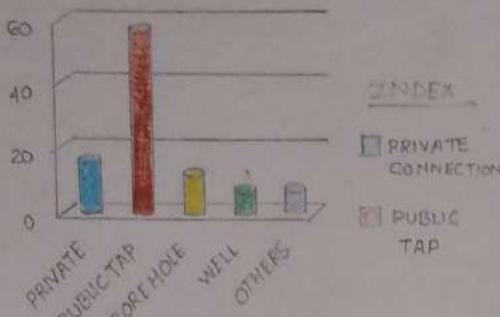
HOUSEHOLD SURVEY PROBLEM RELATED TO WATER

Place: Chokhinda

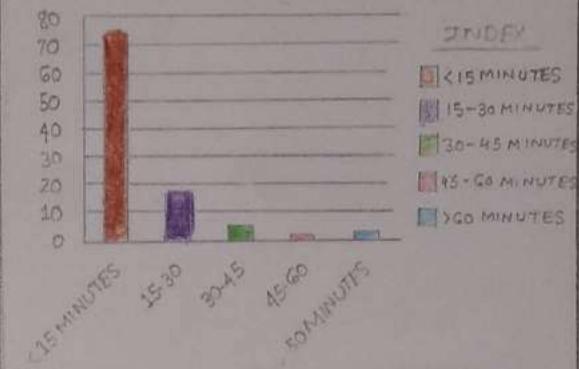
Time: 10:00 AM - 12:00 PM

Surveyed On: 25/8/2022
Surveyed by: Semester 5 Geography
Honours Student

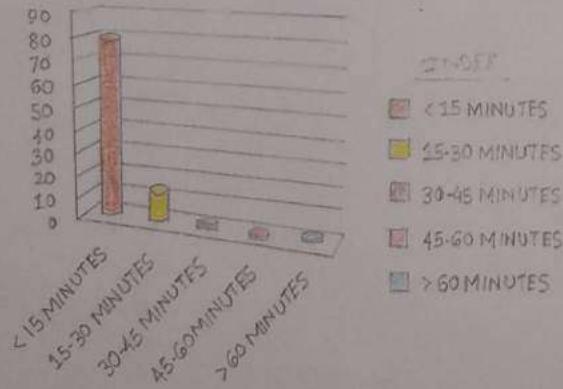
DRINKING WATER



TIME TAKEN TO REACH THE WATER SOURCES

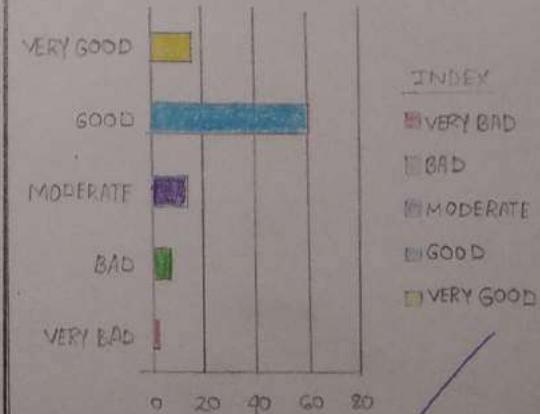


TIME TAKEN IN QUEUE TO FETCH WATER



SOURCE: Primary Survey

PERCEPTION ABOUT QUALITY OF DRINKING WATER



[Handwritten signature]
Jyoti Patel
25/8/2022

on Social Transfers and Subsidies. Local markets generate local markets generate local jobs and the potential for new employment opportunities. Market Mobilises professionally local residents encouraging them to opportunities. Market Mobilises professionally local residents, encouraging them to undertake innovative Economic and Social initiatives locally in the field of production, processing and distribution of locally produced food.

Perception: The living condition of the study area is quite satisfactory more than 80% of the population rated the living condition between moderate to good. Perception about the transport infrastructure is quite satisfactory, majority of population are happy with the available transport facilities.

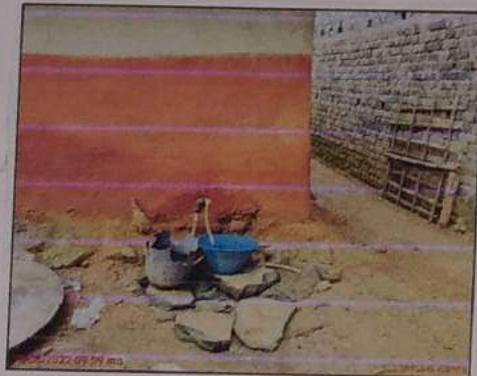
Problem related to water

Only 16.32% of the household in the region have private connection of drinking water while 57.82% households are dependent upon public tap. The other source of drinking water includes bore hole (12.24%) well (6.87%) and others (6.8%).

Majority of household don't have access to personal connection of drinking water due to which they are forced to stand in queue for at least 15-20 minutes. As most of the public drinking water sources are situated at some distance from their home, so it takes them around 15 minutes to bring it to their home. On a day to day basis it is a very tedious job to do so it becomes one of the primary matter of concern which needs to be addressed on an urgent basis.

Majority of household have perception about quality of drinking water ranging between moderate to good.

ACCESS TO WATER



Planning the Future

The basic needs of the household needs to be tackled at first, there is a need to create awareness about various government Schemes for the rural areas like Pradhan Mantri Gramin Awasi Yojana, Pradhan Mantri Gramin Sadak Yojana

There is need to work more for improving Sanitation in the locality, health and education must be given adequate focus. Dosh Step water Connection is one of the most important concern. The developmental works must happen without hampering the environment.

MARKET SURVEY

Place : Choninda

Time : 10:00 AM - 12:00 PM

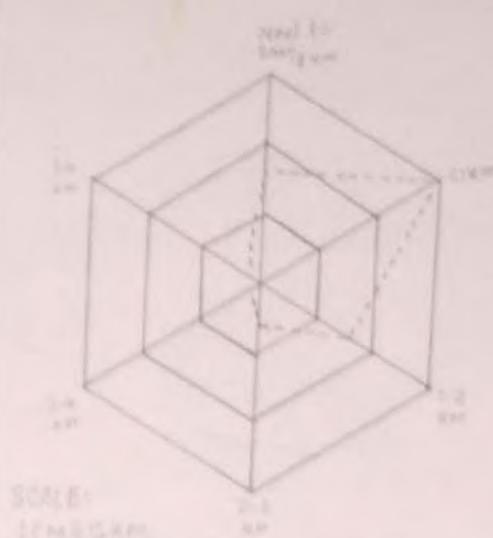
Surveyed on : 26/8/2022

Surveyed by : SNS-SOM ODEA Student

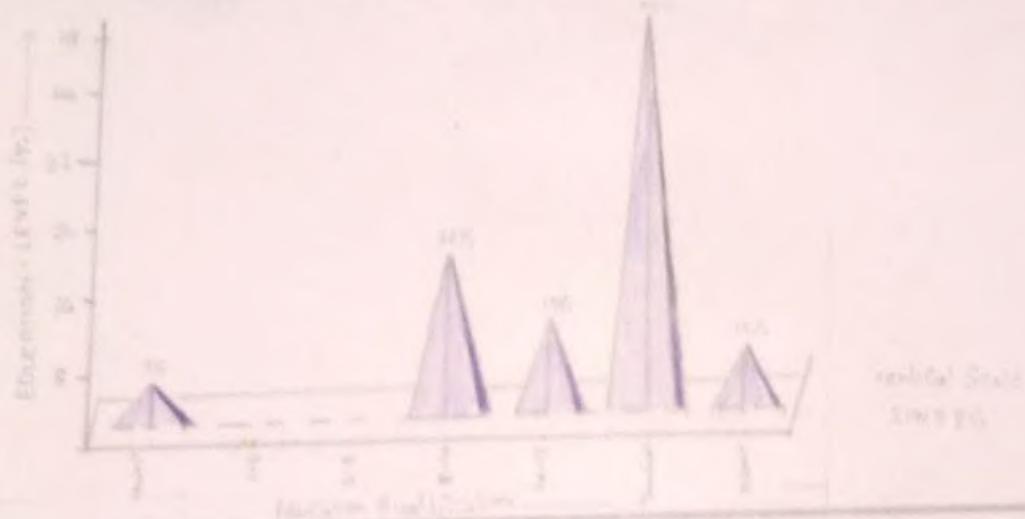
DENSITY OF SHOP



DISTANCE OF SHOP FROM HOME



EDUCATION LEVEL OF SHOPKEEPER



INCOME AND EXPENDITURE OF SHOPKEEPER



SOURCE: PRIMARY SURVEY

Market Survey

A Survey was Conducted at Ghatshila market, which is the prime Source area for articles of daily use for the villagers in Surrounding villages. The objectives of this Survey are to analyze the various types of goods Sold, Source area of different goods, education level, income and expenditure level of Shopkeepers, and their problems. Most of the customers of this market,

Profile of Shops -

In this market, there is a diversity of product Sold. Among the various types of goods, Some Categories were vegetables, fruits, grocery, garments, watch, shoes, medicine, ladies Cosmetics, mobile and electronic gadget, etc. Among the Shop, about 25 to 30% are Clothes Shops, and another 8 to 10% each are grocery, medicine, tiles and marbles, electronics and Cosmetics. About 10 to 15% are food shops, including fruit and vegetable Shops.

The Second diagram Shows the distance between the Shop and the house of the Shopkeepers. Around 20% of the Shops are adjacent to the house (within 1 km). Almost 10 to 12% of shops are located near the door of Shopkeepers. Less than 2% of Shops are located between 3-4km distance from the house of Shopkeepers.

Profile of Shopkeepers -

Almost 90 percent of Shopkeepers are male whereas only 5-10 Percent are female.

There is a variation among the Shopkeepers based on their educational qualifications. Around 40 percent of Shopkeepers are graduates, nearly 5 percent are higher educated, and very few are illiterate (less than 5%). Thus the educational level of Shopkeepers is diverse, which means people from all kind of backgrounds come here to sell their goods.

An analysis of the income level of Shopkeepers indicates the variation in the income of Shopkeepers. Around 30 to 40% of

Shopkeepers have an income between 10 to 20,000 rupees per month. Another 30 percent of shopkeepers have an income of more than 20,000 rupees per month. Most of the shopkeepers' income ranges are between 7 and 10,000 per month. There is also variation in the case of expenditure of shopkeepers have expenditures of nearly 10,000 per month. Shopkeepers with low income face loss as their expenditures are higher than income.



Different Problems

Most of the shopkeepers have reported that the main problems are waterlogging in the rainy season, power cut problems, and poor infrastructure.



04.01.23

MARKET MORPHOLOGY GHATSHILA STATION ROAD

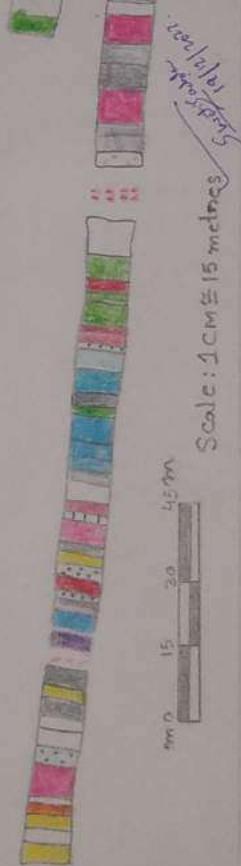
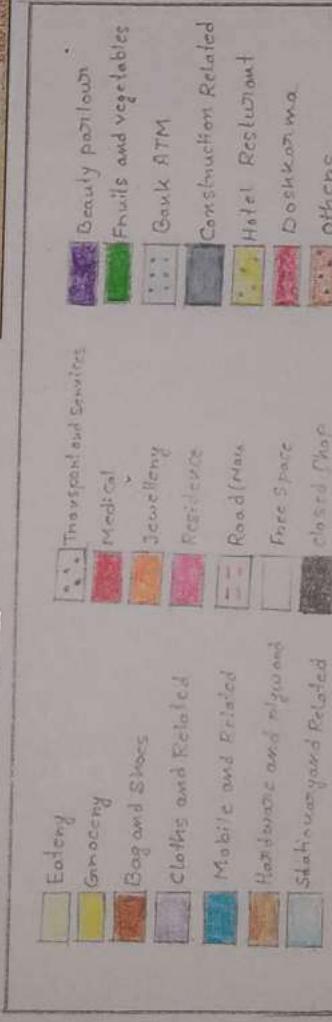
Place: Ghatshila

Time: 11:00 - 12:00 Noon

Surveyed on: 26/8/22
Surveyed by: Sem 5 Geography Honours Student



PIE DIAGRAM
SHOWING
DIVERSITY OF SHOP TYPE (%)



Land Use Along Market (Market Morphology) - Ghatshila Station Road

A land use Survey was undertaken of the main market in front of the Station, where residents of all neighbouring village come for marketing and where the local village Commuters shop as they go to and from work. The Survey was undertaken on both sides of the road by pacing method to assess the pattern of distribution of various shop within a market and the diversity of goods available in the market.

Land use of this market reveals that there is a clustering of similar goods being sold in adjacent to each other e.g grocery shops, eateries, medical shop, clothes shop. In addition, the segment of road nearest to the Station are primarily Eateries of different kinds from biscuit shop, snake shop to tea shop and restaurants. This is because these spots are most lucrative as Commuters need these feel that Scale is very posh in the inner most Sections as most customers don't reach so far because of other shops near the entrance selling the same produce.

Among the shops the most prominent are those pertaining to clothes/garments, eatables and groceries fruits and vegetables and mobile and recharge shop - i.e. goods of daily necessities. In addition, there are several shop pertaining to shoes, bags, medical and diagnostic centres. There is a great diversity of shops in the market as the Commuters from neighbouring towns and villages often purchase the goods for their various needs to and from their workplace to residence. This indicates that the changing lifestyle reflected in the diversity of shops in the Market.

There is an aggregation of the same type of shop adjacent to each other, probably in order to attract maximum customers and to cater to different portions of the market. The Land use reflects that there is clustering of same type of shops and there is diversity of shops selling different goods.

✓
27/9/22

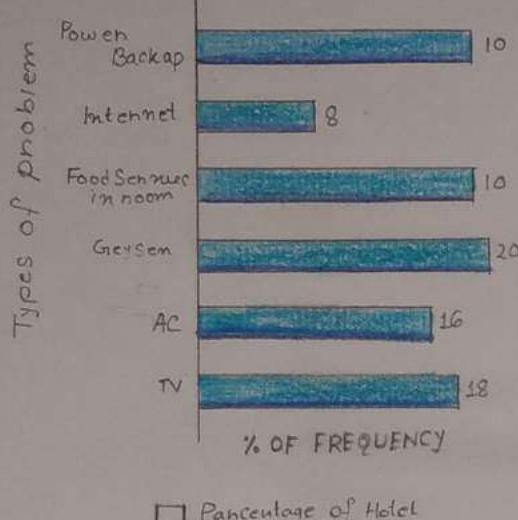
HOTEL SURVEY

DATE : 25.08.2022

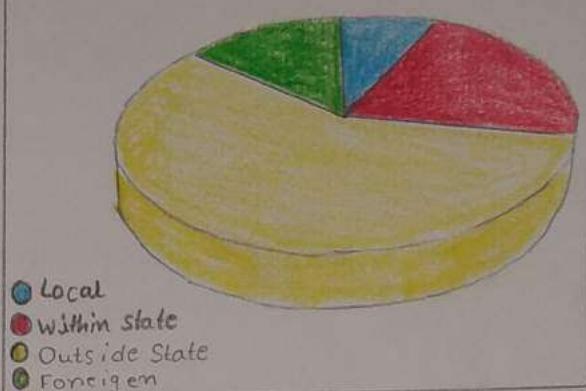
TIME : 3:00 - 5:00pm

SURVEYED BY - Semester 5
Geography Honors
Students
PIACE - GHATSHILA

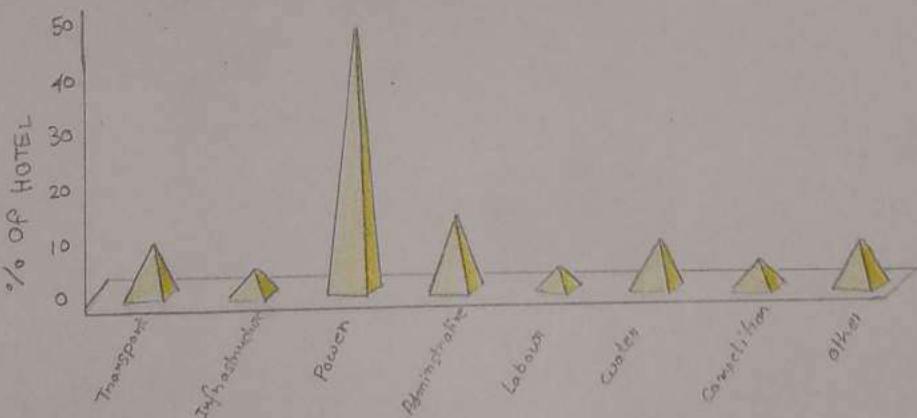
FACILITIES AVAILABLE



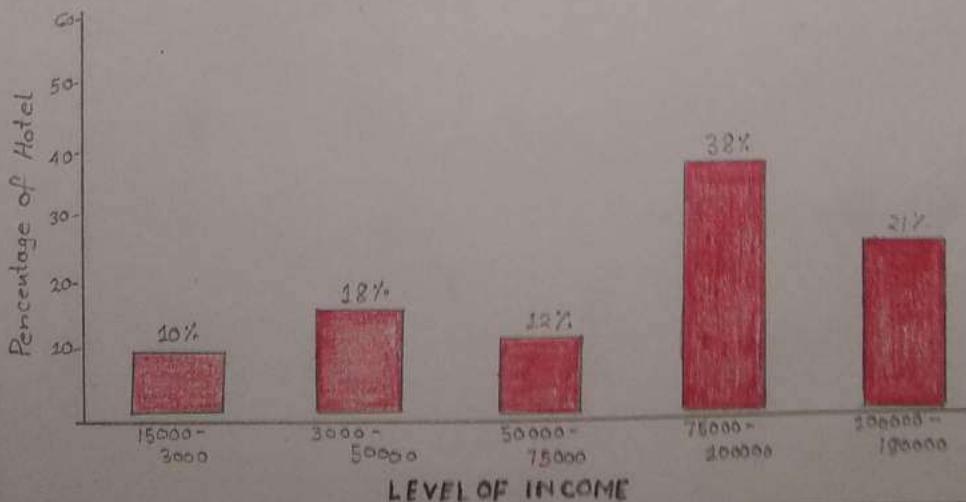
DETAILS OF TOURIST



PROBLEMS OF HOTEL



LEVEL OF INCOME



Source: Primary Survey

Bhartiwaran
02.01.23

Hotel Survey

Ghatshila is a well known tourist spot in Jharkhand. Surrounded by the lush greenery of thick forests, Ghatshila is one of Jharkhand's most beautiful places. This site is relatively popular among tourists from eastern India people from West Bengal, Bihar and Jharkhand adore the spot and often visit Ghatshila during the weekends. The town's climate and scenic view attract many people.

One of the most famous Bengali authors Bibhutibhusan Bandopadhyay was from Ghatshila. He was the author of the coveted novel "Pather pachali". Bengali's often visit Ghatshila to see the author's residence. This city is located in the East Singhbhum district of the state and is situated by the gorgeous Suwanekha River bank. Throughout the town you will see many waterfalls and checks. As hills surround the city, the scenic view is quite breathtakingly beautiful.

The prominent destination for tourists is Phuldungri Hill, Bankini Kali temple, Buhudih dam, Dhanagini Waterfalls, and Ralmohona.

Various resorts and hotels are present all around the region. A survey was conducted of the hotels to assess their characteristics and the linkage of the tourism economy with the surrounding villages.

The survey indicates that most of the hotel owners are well educated and reside adjacent to their hotel.

Most of the tourists (near about 60%) are from outside of the state, mainly they come from West Bengal, Odisha and Bihar. Around 20% of tourist come from within the state and only 10% come from outside of the country.

These tourists have access to a different facility. These hotels have adequate facilities of AC, geyser, room service for food, TV and generalon. Among different hotels, only less than 30 percent holds provide internet facilities, where most of the hotels have power backup facilities, food service in the room, geysers, and TV most of the hotels are small having up to 10 rooms nearly 70 percent of the hotels have double bed-rooms, only 30 percent of hotels having a single room.

There is a large variation among the hotel owners based on income level. Most of the hotels have a medium range of income of 50,000 to 75,000 rupees per month.

Most of the hotel owners reported that they have faced many problems i.e. transport problems, lack of infrastructure power cut problems, competition, and administrative problems. About 50 percent of hotels reported that they suffered due to power cut problems and 30 percent of hotel owners said that due to lack of infrastructure they faced many problems.

*Sumantha
04.01.23*



CONCLUSION

The village has majority of Hindus. Main Social group of the area consist of OBC and ST. Most of the people live in Joint household. Majority of population are literate, in higher education the share of women is greater than men, indicating lack of gender discrimination and higher status of women in the Society. majority of the population is engaged in agriculture. Male workers are more in share than female workers and occupational structure among men and women are strikingly different there is a marked discrepancy in the share of workers between men and women, women are mostly engaged in agricultural Sector. women hardly go out work as they are expected to do household chores.

Majority of household possess own house and land At the same time large number of household possesses a BPL card which means the living condition is not so satisfactory. Majority of house have roof made of Tiles, wall made of Mud and poles and Burnt established Brick and floors made of Cemented Sand. Majority of household have cycle as the means of communication whereas, Access to two wheelers is also available to a substantial share of population. Electricity is the main source of lighting in the majority of household while a minute proportion of the household uses Biogas, kerosene and Solar energy.

Access to basic facilities furniture and modern means of communication like mobiles is present

with most of the household yet some household still
resort to wood for cooking and use tap water
as the source of drinking water. The share of house
with toilet facility and use tap water as the source
of drinking water and health infrastructure is a
serious concern for considerable segment of
household of the village as they have to commute
to access these facilities. This needs to be solved
in order to raise the standard of living of the
people and reduce inequality, although the Gram
Panchayat has taken steps to meet these problems
yet a lot needs to be done to address their problems
and improve their living condition.

APPENDIX

CLIMATIC SCENARIO AROUND GHATSILA, 2021

Month	Mean Monthly Temperature (°C)		Average Temperature	Rainfall (MM)	Pressure (mb)	Humidity (%)
	Maximum	Minimum				
January	27	15	21	5.6	1015.4	37
February	31	18	24.5	12.4	1013.5	28
March	37	23	30	11.6	1010.3	24
April	41	27	34	25.7	1006.6	32
May	41	28	34.5	93.9	1003.3	55
June	35	28	33.5	178.2	1000.4	67
July	33	26	29.5	378.4	1000.4	76
August	32	25	28.5	334.8	1002.1	81
September	32	25	28.5	255	1005.3	86
October	31	22	26.5	144.6	1010.1	73
November	29	18	23.5	12.9	1013.5	59
December	26	15	20.5	14.3	1016.1	56

Source: <https://www.worldweatheronline.com/ghatsila-weather/jharkhand/in.aspx>

✓ *Santosh Kumar*
 24/09/2022

Table No. 1. Variation in Soil pH in Village Chorinda across different Landuse

Sample No	Latitude	Longitude	Landscape	Date	Time	Value	pH
Sample No 1	22.6739°N	86.1296°E	Built up Area	25.08.2022	10:00 am	6.5	Independed Acidic
Sample No 2	22.674337°N	86.43009°E	Pasture Land	25.08.2022	10:15 am	7.0	Slightly Acidic
Sample No 3	22.6716°N	86.43034°E	Fallow Land	25.08.2022	10:21 am	6.5	Neutral
Sample No 4	22.6818°N	86.43334°E	Agricultural Land	25.08.2022	10:34 am	7.0	Very Slightly Acidic
Sample No 5	22.68181°N	86.43344°E	Forest Land	25.08.2022	10:51 am	7.0	Neutral

Table No: Variation in Soil phosphate and potassium in village chorinda across different land use

Sample No	Latitude	Longitude	Landscape	Date	Time	Phosphate Lbs/acre as P2O5	Potassium Kg/ha as K2O	value	Interpretation
Sample No 1	22.61381°N	86.42966°E	Built up Area	25.08.2022	10:10 am	20-50 Medium	9.07 to 22.8	Above 3.50 lbs/acre (as K) or 15.87 kg/acre	Very High
Sample No 2	22.6143°N	86.43069°E	Pastureland	25.08.2022	10:18 am	50-C High	20.08 to 29.48	Below 100 lbs/acre (as K) or 45.32 kg/acre	Low
Sample No 3	22.61416°N	86.43034°E	Fallow Land	25.08.2022	10:21 am	20-50 Medium	9.07 to 22.68	Below 100 lbs/acre (as K) or 45.32 kg/acre	Low
Sample No 4	22.6181°N	86.43334°E	Agricultural Land	25.08.2022	10:34 am	20-50 Medium	9.07 to 22.68	100 to 250 lbs/acre (as K) or 45.36 to 113.40 kg/acre	Medium
Sample No 5	22.6181°N	86.43344°E	Forest Land	25.08.2022	10:57 am	> 65 Very High	Above 28.48	Above 35.00 lbs/acre (as K) or 158.76 kg/acre	Very High

Table No: Variation in Nitrate Nitrogen and Ammoniacal Nitrogen in village chominda across different landuse

Sample No	Latitude	Longitude	Landscape	Date	Time	Nitrate Leaching kg/ha/24h	Nitrate Leaching kg/ha/24h	Ammoniacal Nitrogen kg/ha/24h
Sample No 1	22.67387°N	8C.42900°E	Built - up Area	25/09/2022	10:00am	45 High	20.41	180
Sample No 2	22.67437°N	8C.4309°E	Pasture Land	25/ 8 /2022	10:18 am	45 High	20.41	13
Sample No 3	22.67410°N	8C.4330°E	Fallow Land	25/ 8 /2022	10:21 am	18 Medium	8.16	13
Sample No 4	22.68181°N	8C.4334°E	Agricultural Land	25/09/2022	10:34 am	18 Medium	8.16	13
Sample No 5	22.68181°N	8C.4334°E	Forest Land	25/ 8 /2022	10:57 am	45 High	20.41	12

Source Note: Based on Sample Collected in the village on 25/8/22 and Tested in Laboratory Setting in Police Bridge Kolkata on 16th, 19th, 20th and 22nd December, 2022.

2011-07-25

FIELD BOOK: DUMPY LEVEL SURVEY - LONG PROFILE

Instrument Number:

Dumpy level: DL 4

Prismatic Compass: PC1

Hilsmann et al.: HCl

Surveyed by 5th Semester GECOA Students

Place: Approach Road to Choluwimanda village

Date: 25/8/22

دیکر / ۱۹ دلار

Start time: 12:05 PM

End time: 12:55 PM

Line	Magnetic Bearing	Stations	Distance	Reduced Distance	Staff Reading (m)			Collimation Level (m)	Reduced Level (m)	Remarks	
					Bs	IS	FS				
$G_1 - G_{10}$	157°	G_1	0	0	1.195			101.495	100.30	BM at G_6 100.30 (m)	
		G_1	3	1		1.290			100.250		
		G_2	6	2		1.410			100.085		
		G_3	9	3		1.455			100.040		
		G_4	12	4		1.545			99.950		
		G_5	15	5		1.580			99.915		
		G_6	18	6		1.620			99.875		
		G_7	21	7		1.705			99.790		
		G_8	24	8		1.780			99.710		
		G_9	27	9		1.855			99.640		
		G_{10}	30	10	1.795		1.980		99.515	change point	
		G_{11}	33	11		1.890		101.310	99.420		
		G_{12}	36	12		1.950			99.340		
		G_{13}	39	13		2.010			99.300		
		G_{14}	42	14		2.070			99.240		
		G_{15}	45	15		2.120			99.190		
$G_{15} - C$	$147^\circ 30'$	G_{16}	48	16		2.160			99.150		
		G_{17}	51	17		2.195			99.115		
		G_{18}	54	18		2.235			99.075		
		G_{19}	57	19		2.278			99.040		
		C	60	20				2.310	99.000		

Arithmetical Checking:

$$BS - FS = RL \text{ of last point} - RL \text{ of first point}$$

$$(1.195 + 1.795) - (1.980 + 2.310) = (399.0000 - 100.3000)$$

$$\begin{array}{rcl} 2.990 - 4.290 & = & -1.3000 \\ -1.3000 & = & -1.3000 \text{ (Proved)} \end{array}$$

2200/60/60
2200/2200

Household Survey Demographic and Social Characteristics

Linguistic Composition (%)		Social Group (%)				Religious Comp.			Head of family (%)		Nature of family (%)		Sex Ratio		Age Sex Pyramid (%)					
Hindi	Bengali	General SC	ST	SC-A	Others	Hindu	Others	Male	Female	Joint	Nucleo-	Exte-	Then	Clean-	0-14	15-19	30-44	45-59	>60	
15.4	82.99	1.36	18.36	6.8	24.89	30.41	16.32	95.59	3.4	82.31	17.68	56.40	34.8	94.3	M	21.20	25.31	20.25	22.62	11.13

Household Survey Education and Economic Characteristics

Educational Status of population (%)		Children Going to School (%)		Employment Status Male (%)		Occupational Structure Male (%)		Occupational Structure Female (%)		Employment Status Female (%)								
Primary	Secondary	Primary	Secondary	Private	Government	Non workers	Workers	Non workers	Workers	Non workers	Workers							
19.39	23.03	16.45	6.36	18.02	81.37	40.49	59.5	33.49	19.51	14.30	C-L9							
F	16.95	22.05	19.16	4.09	8.51	7.11				17.76	19.84	80.15	50	8.33	13.88	5.55	0	22.22

Household Survey Housing and Facilities

Nature of floor of House (%)		Material use in Construction of Roof		Material used for Construction of wall (%)		Ownership of house(s) By Household		Types of fuel used		Toilet facility (%)										
Floor	Roof	Material	Roof	Material	Wall	Own	Rented	Wood	Gas	Electric	Outside	Inside	Outside	Inside	Gas	Wood	Electric	Outside	Inside	
Earth	Earth	Bricks	Bricks	Bricks	Bricks	Own	Rented	Gas	Gas	Electric	Outside	Inside	Outside	Inside	Gas	Wood	Electric	Outside	Inside	
Plaster	Plaster	Bricks	Bricks	Bricks	Bricks	Own	Rented	Gas	Gas	Electric	Outside	Inside	Outside	Inside	Gas	Wood	Electric	Outside	Inside	
34.00	37.41	C-12	2.04	2.72	2.72	2.04	4.91	17.00	15.44	2.42	5.44	16.98	20.40	25.17	2.42	1.36	38.09	0.49	99.31	0.48

Chittagong

Household Survey
Amenities and perception

Land members Ship Status (%)	Access to Ammonium to Household (%)	Source of Lighting In the House(x)				Perception About Living Condition (%)				Perception About Transport Infrastructure				Nearest market for Daily Goods(%)			
		Electric power	Gas LPG	Oil kerosene	Other fuels	Very Bad	Bad	Good	Very Good	Bad	Good	Very Bad	Bad	Good	Very Good	km	km
No	Yes	Fridges	T.V	Cycle	Bike	Table	Chair	Chairs	Others	Big	Small	Very Bad	Bad	Good	Very Good	1-4 km	0-14 km
41.49	58.50	72.91	15.04	40.13	70.05	42.17	5.44	30.05	44.30	4.76	1.30	0.80	1.30	3.40	8.70	1.30	5.9

Houses at Different Distance from Nearest Hospital (%)

Houses at Different Distance from Ncales				
< 1km	1-4km	5-9km	10-14km	> 15km
10.20	36.73	24.48	19.54	13.60

Household Survey Problem Related Watch

Drinking water					Time taken to reach the water sources					Time taken in Queue to Fetch water					Perception about Quality of drinking water				
Private (%)	Public Tap (%)	Bore hole (%)	Well (%)	Others (%)	<15 Minutes (%)		15-30 Minutes (%)		30-45 Minutes (%)		>45-60 Minutes (%)		>60 minutes (%)		Very Bad (%)	Bad (%)	Mod erate (%)	Good (%)	Very good (%)
					Minutes	(%)	Minutes	(%)	Minutes	(%)	Minutes	(%)	Minutes	(%)	Minutes	(%)	Minutes	(%)	
16.32	54.82	12.24	6.80	0	74.14	10.32	5.44	1.36	2.72	80.27	14.96	2.04	0.04	2.04	1.30	0.80	14.28	11.22	10.32

Market Survey

Table - Density of Shop

Types of Shop	Grocery	Clothes	Marble and Tiles	Cosmetics	Food	Mobile	Watch	Shoes	Medicin	Gift
Percentage	6	20	7	7	15	7	8	9	10	11

Source - Primary Survey

Table - Distance of Shop from House

Distance	Next to Door	<1 KM	1 to 2 KM	2 to 3 KM	3 to 4 KM	>4 KM
% of shops	28	30	17	9	8	8

Source - Primary Survey

Table - Educational level of Shop keepers

Educational Level	Illiterate	Primary	Upper primary	Secondary	Higher Secondary	Graduate	Higher Level
% of shop keepers	8			27	12	45	8

Source - Primary Survey

Table - Income Level of Shopkeepers

Income Level	<2000	2000-2500	2500-5000	5000-7000	7000-10,000	10-20,000	>20,000
% of Shops	5	5	10	10	16	30	24

Source: Primary Survey

Table - Expenditure Level of Shopkeepers

Expenditure Level	<2000	2000-2500	2500-5000	5000-7000	7000-10,000	10-20,000	>20,000
% of Shops	15	5	10	32	24	6	8

Submitted
24/01/23

Table: Market Morphology Analysis along the Ghatshila Station Road (Right Pavement), On 26th August 2022 (11.00 a.m to 12.00 Noon)

Start pace	End pace	End pace according to Scale	Shop type
0	16	0.25	Grocery
16	29	0.45	Closed Shop
29	45	0.70	Grocery
45	53	0.83	Jewellery
53	59	0.92	Closed shop
59	88	1.38	Residence
88	102	1.60	Automobile Accessories
102	121	1.89	Closed Shop
121	133	2.08	Closed Shop
133	146	2.29	Groceries
146	164	2.57	Grocery
164	177	2.77	Textiles
177	194	3.04	Unmetalled Road
194	210	3.29	Beauty parlor
210	229	3.59	Electronic Goods
229	240	3.76	Garment
240	247	3.87	Restaurant
247	261	4.09	Medical
261	271	4.24	Graphic Designing
271	282	4.42	Cyber Cafe
282	293	4.58	Cyber Cafe
293	301	4.71	Vegetables
301	312	4.89	paint
312	319	5.00	Mobile Recharge
319	330	5.17	Stationery
330	347	5.43	ATM
347	360	5.64	Doctor's chamber
360	365	5.72	Shoes
365	380	5.95	Fruits
380	403	6.31	Vegetables
403	415	6.50	Shoes
415	429	6.72	Fruits
429	448	7.02	Closed Shop
448	465	7.28	Metalled Road
465	470	7.36	Bank

Start pace	End pace	End pace According to scale	Shop Type
470	480	7.52	Shoes
480	487	7.63	Fruits
487	511	8.00	Vegetables
511	525	8.22	Shoes
525	535	8.38	Fruits
535	554	8.68	Closed shop
554	589	9.22	Metallic Road
589	G38	9.99	Bank
G38	G51	10.20	Cement
G51	G65	10.41	Construction Related
G65	G75	10.57	Residence
G75	704	11.03	Tiles
704	733	11.48	Sarees
733	748	11.71	Residence
748	773	12.11	Closed Shop
773	787	12.33	Garments
787	797	12.48	Garments
797	810	12.69	Closed Shop
810	827	12.95	Newspaper
827	844	13.22	Graphic Designing
844	863	13.52	Medical
863	883	13.80	Medical
883	896	14.03	Jewellery
896	915	14.33	Hardware
915	930	14.57	Hardware
930	940	14.72	Residence
940	963	15.8	Hotel
963	975	15.27	Books
975	988	15.47	Plastic Goods
988	998	15.63	Stationary
998	1003	15.71	Dashakarma
1003	1017	15.93	Bulding Material
1017	1043	16.34	Bulding Material
1043	1055	16.52	Electronic Goods
1055	1068	16.73	Closed shop
1068	1081	16.93	Dashakarma
1081	1097	17.18	Vegetables
1097	1114	17.45	Residence

Start pace	End pace	End pace According to Scale	Shop type
1114	1126	17.04	Mobile Recharge
1126	1142	17.89	Sweets Eatery
1142	1180	18.48	Garments
1180	1197	18.75	Jewellery
1197	1234	19.32	Sarees
1234	1244	19.48	Bag
1244	1252	19.61	Sarees
0 - 47		0.74	Distance between Two sides of Road
0	11	0.17	Stationary
11	20	0.31	Jewellery
20	35	0.55	Bag
35	53	0.83	Garments
53	70	1.10	Shoes
70	95	1.49	Hotel
95	106	1.66	Grocery
106	111	1.74	Cobbler
111	121	1.89	Closed shop
121	131	2.05	Clock and watch
131	142	2.22	Mobile
142	152	2.38	Closed shop
152	160	2.51	Clock and watch
160	172	2.69	unmetalled Road
172	180	2.91	Closed shop
180	190	3.07	Saloon
190	217	3.40	Grocery
217	230	3.60	Grocery
230	240	3.76	Empty Space
240	250	3.91	Pan
250	259	4.06	Empty Space
259	267	4.18	Biscuits
267	280	4.38	Eatery
280	308	4.82	Tea Shop
308	330	5.17	Tea Shop
330	339	5.31	Pan shop

Start pace	End pace	End pace According to Scale	Shop Type
339	358	5.61	Tea shop
358	370	5.75	Empty Space
370	380	6.04	Tea Shop
380	397	6.22	Empty Space
397	406	6.36	Pan

Source: Primary Survey By Semester 5 Geography Honours Students, 2022

Table: Market Morphology Analysis along the ghatshila Station Road
 (Left Pavement), on 26th August 2022 (11:00 am to 12:00 Noon)

Start Pace	End pace	End Pace according to Scale	Shop type
0	4	0.00	Fruits
4	17	0.27	Empty Space
17	35	0.61	Bag
35	110	1.82	Closed Shop
110	140	2.19	Clothes
140	153	2.40	Mobile Recharge
153	162	2.54	Mobile
162	181	2.83	photo Copy
181	193	3.02	Clothes
193	204	3.19	Bag
204	214	3.35	Clothes
214	223	3.45	Fruit
223	235	3.68	Fruit
235	246	3.85	Juice
246	257	4.02	handloom
257	264	4.13	Empty Space
264	284	4.45	Hardware
284	300	4.79	Clothes
300	318	4.98	Hardware
318	329	5.15	plywood
329	341	5.34	Clothes
341	362	5.67	Clothes
362	388	6.08	Closed Shop
388	394	6.17	Clothes
394	416	6.51	Clothes
416	438	6.83	Empty Space
438	448	7.02	Clothes
448	459	7.19	Utensils
459	490	7.67	Mobile
490	532	8.33	Grocery
532	552	8.64	Cycle
552	571	8.94	Grocery
571	586	9.18	Medical
586	595	9.32	Sweet Eatery
595	605	9.48	SAvoury Eatery
605	624	9.77	Shoes
624	631	9.88	Closed Shop
631	700	10.90	diagnostic

Source: primary Survey by Semester 5 Geography honours Students, 2022

Survey
Report

HOTEL SURVEY

Table - Facilities Available

Facilities	Power Backup	Internet	Food Service in room	Geyser	A.C	T.V
% of Hotels	19	8	19	20	16	18

Source - Primary Survey

Table - Details of Tourist

Tourist Type	Local	Within State	Outside State	Foreign
Percentage	8	21	58	13

Source - Primary Survey

Table - Problems of Hotels

Different problems	Transport	Infrastructure	Power	Administrative	Labour	Water	Competition	Others
% of Hotels	10	5	50	15	5	10	5	10

Source - Primary Survey

Table - Level of Income

Level of Income	15-30,000	30-50,000	50-70,000	70,000-1,00,000	Above 1,00,000
% of Hotel	10	18	12	38	22

Source - Primary Survey

Submitted by
Suman Singh
B.T. 23

Household Survey

1. Date:
2. Household Id.:
3. Sex of the Respondent: Male () Female ()
4. Sex of head of Household: Male () Female ()
5. Religion: Hindu () Muslim () Christian () Buddhist () Others(Specify):
6. Social Group: General () OBC A () OBC B () SC () ST ()
7. Language: Hindi () Bengali () English () Tribal Language () Others(Specify):
8. How many members are there in the house: Male: _____ Female: _____
9. Age Sex Structure

Age Group	0-14	15-29	30-44	45-59	>=60
Female					
Male					

10. Marital Status

Gender	Married	Unmarried	Widow
Female			
Male			

11. Family Type: Joint () Nuclear () Extended ()

12. Does your House has BPL Card: Yes () No ()

13. Educational Status of Family Member:

Gender	Illiterate	Primary	Middle	Secondary	Higher Secondary	Graduation	Above
Male							
Female							

14. Number of Children going to School: Private () Govt. ()

15. Number of Drop Out Candidates

Gender	Primary	Middle	Secondary	H. Secondary
Female				
Male				

16. Cause of School Dropout:

Financial Problem	Marriage	Health issues	Others(Specify)
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17. Distance of the local educational facility

Primary	Middle	Secondary	H. Secondary	College

18. How many members in your household earn for living?

Adult Men	Adult women	Boy Child	Girl Child

19. Occupational Structure:

Gender	Agricultural labourers	Cultivator	Industrial Worker	Industry Own	Trade & Commerce	Service
Male						
Female						

20. Nature of Employment

Gender	Self-employment	Regular Wage Employment	Casual Labour	No. of Months with Work
Male				
Female				

21. Monthly Income and Expenditure of Household:

Income	<1000	1000-2000	2000-3000	3000-4000	4000-5000	6000-7000	7000-10000	10000-15000	>15000
Expenditure	<1000	1000-2000	2000-3000	3000-4000	4000-5000	6000-7000	7000-10000	10000-15000	>15000

22. Do you have your own land? Yes () No () Amount:

23. What are the main crops grown?

24. Do you have your own house or it is Rented? Own () Rented () Rented (Mention Rent Amount)

25. Nature of House

No. of Rooms	Kutcha House	Semi-Pucca	Pucca House
--------------	--------------	------------	-------------

26. What type of material is mainly used for the Construction of floor?

Iron sheets	Tiles	Asbestos	Concrete	Tin	Thatch	Other(Specify)

27. What type of material is mainly used for construction of the roof?

Concrete/Stones	Cement blocks	Burnt stabilised bricks	Unburnt bricks	Wood	Mud and poles	Tin/Iron sheets	Other(Specify)

29. How many livestock does your family own?

None	Cattle for farming	Cow	Goat	Poultry	Buffalo	Others(Specify)
------	--------------------	-----	------	---------	---------	-----------------

30. Do you have any of these Amenities?

Mobile	Fridge	TV	Cycle	Bike	Computer	Table	Chair	Others (Specify)
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31. What is the main source of lighting in your house?

Kerosene	Firewood	Solar energy	Bio gas	Electricity	Others(Specify)
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32. What type of fuel do you use for cooking?

Cow Dung	Kerosene	Gas	Electricity	Wood	Charcoal	Others (Specify)
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33. Toilet Facility: Yes () No () (if Yes - select any one option from the following)

Inside shared	Inside exclusive	Outside shared	Outside exclusive	Open Defecation
---------------	------------------	----------------	-------------------	-----------------

34. What is the main source of water for drinking?

Private connection	Public Tap	Bore- hole	Well	River	Pond	Lake	Others(Specify)
--------------------	------------	------------	------	-------	------	------	-----------------

35. How long do you have to stand in the queue to fetch water?

< 15 minutes	15-30 minutes	30-45 minutes	45-60 minutes	>60 minutes
--------------	---------------	---------------	---------------	-------------

35. Any govt. Programme/Scheme for Development purpose: Yes () No () (If Yes Mention:)

36. What was the impact of Covid-19 Pandemic on your Financial Status?

Very bad	Bad	Moderate	No effect at all
----------	-----	----------	------------------

37. Did you receive any assistance during Pandemic? Yes () No () (If Yes Mention:)

38. Do you have any health insurance facility/scheme? Yes () No () (If Yes Mention: Govt. / Private)

39. How far is the PHC and hospital?

Distance	<1 km	1-4 km	5-9 km	10-14 km	>=15 km
PHC					
Hospital					

40. How long does it take to reach main water source from your house?

Less than 15 minutes	15-30 minutes	30-45 minutes	45-60 minutes	>60 minutes
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41. How far is the nearest market for daily goods?

Distance	<1 km	1-4 km	5-9 km	10-14 km	>=15 km
----------	-------	--------	--------	----------	---------

42. How do you dispose your household garbage?

Burry in the yard	Burn	Collection point in village	Throw into the River	Others (Specify)
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43. What is your Perception about Quality of Drinking Water?

Very Bad	Bad	Moderate	Good	Very Good
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44. What is your Perception about Air Quality in your area?

Very Bad	Bad	Moderate	Good	Very Good
----------	-----	----------	------	-----------

45. What is your Perception about Transport Infrastructure in your area?

Very Bad	Bad	Moderate	Good	Very Good
----------	-----	----------	------	-----------

46. What is your Perception about the Living condition in your area?

Very Bad	Bad	Moderate	Good	Very Good
----------	-----	----------	------	-----------

47. What kind of Problem do you face in your locality?

Power supply	Water	Health	Transport	Banking Facility	Recreational Facilities	Education	Agriculture (Specify)	Other (Specify)
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48. What are common diseases that affect People in the area? (Mention)

49. Do you have any Suggestion for improving your existing living condition.

Q3: Market Survey

1. Date

2. Id No.

3. What is the name of the shop?

4. What is the gender of Shop Owner?

Male Female

5. What is your educational level?

Illiterate	1-5	6-8	9-10	11-12	Graduation	Above
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6. What is the distance of your house from the shop?

Next Door	<1	1-2	2-3	3-4	4-5	5	10	>10
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7. How old is your shop?

8. Do you own the shop or is it rented?

Own Rent

9. If it a temporary or permanent shop?

Temporary Permanent

10. What is the nature of structure of the shop?

Kutchha Semi-Kuchha Pucca

11. What type of goods do you sell in your shop?

12. Where do you purchase your goods from?

13. What is the main mode of transportation of goods?

Cycle	Bike / Scooter	Van	Truck	Bus	Jeep	Other- What?
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14. What number of customers come to your shop daily?

15. What type of Customers comes to your shop?

Local	Nearby Villages/ Mandals	Outside State	Foreign
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16. Do you hire any labour?

Yes No

17. What are the number of hired labourers?

18. What is your monthly Income and expenditure and daily sale?

Income	<1000	2000 - 2500	2500 - 5000	5000 - 7500	7500 - 10000	> 10000	7500-100000
Expenditure	<1000	2000 - 2500	2500 - 5000	5000 - 7500	7500 - 10000	> 10000	7500-100000
Daily Sale	<100	100-200	200-300	300-400	400-500	500-1000	> 1000

19. Do you face any problems in your daily selling and trading?

Yes No

20. What are the problems faced by you in market?

Credit	Purchase	Sale	Transport	Labour	Infrastructure	Other- What?
--------	----------	------	-----------	--------	----------------	-----------------

21. Do you have to pay for the market land or anything else?

22. Have you received any help from anyone?

Yes No

23. If yes, what kind of help do you get?

24. Do you have any suggestions for improving your trade?