

PD-AAR-212

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Functional Implications of
Malnutrition
Phase I

Progress Report
November 1982- January 1983

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As stated in the preliminary report of Sept.-Oct., 1982, the main activities in Phase I would include:

1. Preliminary ethnographic study of the village community selected.
2. Establishing the magnitude of inter and intraindividual variation in usual intake of energy.
3. Describing the distribution of nutritional status in the community primarily using anthropometric data.
4. Describing mortality, fertility and morbidity characteristics of the village community selected.
5. Pilot testing of methodology projected for use in Phase II including testing of feasibility and practicability of all methods.

Prephase I included activities listed from no. 1 to 3. Up to the end of October 1982, 245 families were studied for socio demographic data and anthropometric measurements (Wt/ Ht, MUAC). A subsample of 40 families were studied for food intake, all families studied were those having the 4 target individuals viz. Lead male, lead female in the reproductive period schooler 8-10 Y. nearest to 8 Y. and preschooler < 2Y nearest to 2 Y. Details of objectives, methodology, procedure and results were discussed in preliminary report of Sept.-October 1982.

During November, December and first 2 weeks of January, the following activities were accomplished :

A. Continuation of Studies Started at Pre-Phase I :

1. Screening of the rest of the village for families with the four

targets. As a result, 105 more families were studied for socio-demographic data, anthropometric measurements and eligibility criteria. .

2. Analysis of data of weight and height of schoolers and preschoolers less than 12 years of the 105 families using the same parameters and same classification used for the 245 families.
3. Screening of the 350 families with the four targets to define eligible families at April first 1983 for Phase II studies.

B- Census of the Village:

1. Detailed map of the village
2. Design of forms.
3. Formulation and training of teams.
4. Plan of action for collection of data and quality control before computerisation.

C- Pilot Studies and Testing of Methodology in Certain Areas of Functions:

1. Work Performance.
2. Immuno competence and morbidity.
3. Cognitive development and function

A- Continuation of Studies Started At Pre-Phase I :

During November 1982, the teams assigned for anthropometric measurements and socio demographic data collection continued screening the village for families with the four target individuals. The 245 families studied during October 1982 were completed up to 350 families. Forms of socio-demographic data were revised and kept to be computerised. Forms of Eligibility and anthropometric measurements were also revised for computerisation, however some preliminary analysis of data were carried out. The aim was to define families eligible for studies of Phase II. Thus screening of the 350 families was done on 3 stages:

V

1. Screening by age : families not having a preschooler less than 2 years and a schooler 7-10 years at April 1st. 1983, were excluded. Age of the schooler and preschooler was decided at the SCE meeting in October 1982.
2. Screening by nutritional status : families having more than one child whether schooler or preschooler suffering from severe malnutrition were excluded. At April 1st families having one child of severe malnutrition will be excluded. However at this stage it was thought feasible not to exclude these families because by April 1st 1983, this single child may improve to the mild-moderate malnutrition "MMM" or may die. Malnutrition was considered severe if weight for height/length or height/length for age was 3 S.D. or more below standard (NCHS standards).
3. Screening by eligibility criteria : families with any of the targets with severe physical or psychiatric handicap or severe dietary restriction due to chronic disease or lead male planning to migrate during next two months, were excluded.

As a result of this screening, out of 350 families only 170 families will be eligible for study at April 1st. 1983, unless some other changes would occur. Most families excluded were due to age criteria(150 families).

The following are some data which might be of interest regarding nutritional status of preschoolers, schoolers and families studied during October and November 1982:

Table 1 shows percentage distribution of schoolers and preschoolers by nutritional status using weight for height criteria. Standards of National Center for Health Statistics in U.S.A. (NCHS) were used. If weight for height was 1 S.D. or less below standard, this was considered normal. If 3 S.D. or more below standard, this was considered severe malnutrition. Grading inbetween i.e. $> 1 - < 3$ S.D. below standard was considered of mild-moderate malnutrition " MMM ". Data obtained during October from 245 families are compared with data obtained from the whole sample studied viz. 350 families to detect effect of sample size if any.

It is noted that difference in figures obtained from the 2 sample sizes are negligible. Also differences between nutritional status of boys and girls are minimal.

The table shows that nutritional status of schoolers is somewhat better than preschoolers; 86.2% of schoolers while 80.1% of preschoolers are normal. Severe cases of malnutrition range from 0.4 to 1.5% for boys and girls, schoolers and preschoolers of both sample sizes. Figures for mild-moderate malnutrition range from 13.1% to 21.5% for the same groups

It is noted that by using the parameter of weight for height alone without correlating to age (Wt/Ht/Age) or without correlating to height for age as the case with Waterloo index, the nutritional status is overestimated. This is expected as both weight and height are retarded in a malnourished child particularly if malnutrition is of longstanding. This view is supported by the data presented in table 2 using the parameter height or length for age. By this parameter normal cases do not exceed 35.2% for any of the specified groups.

Mild-moderate cases of malnutrition range from 52.4 to 61.2%. These results agree with results of the national survey of nutritional status of ARE (1978). Severe cases range from 5.5 - 7.2 % for schoolers and 15.8-17.3% for preschoolers.

Regarding comparison between figures of both sample sizes, boys and girls, schoolers and preschoolers, the same trend is observed as in table 1.

It was thought of interest to classify families examined during Oct. and Nov. 1982 according to nutritional status of schoolers/ and preschoolers in these families.

Table 3 shows classes of families according to weight for height criteria of schoolers and preschoolers. Data of sample of 245 families and that of 350 are presented separately. It is noted that difference due to sample size are negligible.

The table shows that families with all schoolers and preschoolers normal are around 50% by this parameter. Families with schoolers and preschoolers of different nutritional status are around 33%. Families with one child severe malnutrition constitute 2.3% of 350 families while only one family have more than one child with severe malnutrition.

When using height for age criteria for assessment of nutritional status , the classes of families are completely changed as shown in table 4. Families with all children normal constitute only 4.6% of the 350 families while those with all children of mild-moderate malnutrition "MMM" constitute 12.6%.

(Wt/Age NCHS Standards are not yet available to N.I.).

To assess nutritional status of the family as a unit, the lowest score of the two parameters (Wt/Ht & Ht/Age) was taken for the child with lowest nutritional status.

Table 5 shows percentage distribution of families according to their nutritional status. By these estimates only 11 families out of 350 (3.1%) were considered normal families. Those with MMM were 60.9%. Families of severe malnutrition constituted 36% of families.

Table 6 and 7 show classes of Eligible families at April 1st 1983 according to Wt/Ht and Ht/Age criteria respectively. They show the same trend as tables 3& 4 except that families with more than one child severe malnutrition were excluded.

Table 8 shows nutritional status of the families eligible for study at April 1st 1983. Normal families are only 3 (1.8%) . Families of mild-moderate malnutrition constitute 68.2% of total.

It should be pointed out that the great reduction in number of families from 350 to 170 was mostly due to age criteria and particularly due to the age of the preschooler. During October 1982, it was settled that age of the target preschooler should not exceed 2.5 years at April 1st 1983 and thus the upper limit during October was only 2 years. However after SCB meeting , it was settled that upper limit of age of preschooler will still be 2 years in April 1983.

B - Census of the Village :

A detailed map of the village was prepared by specialists. (App. 1). The village was divided into 12 blocks and houses in each block were numbered serially.

The census form was presented by Prof. M. Hussein responsible for data management & statistical analysis. Senior scientists of Nutrition Institute together with Prof. Hussein finished the form with its coding and prepared the key for the code with instructions for the data collectors (app. 2 & 3).

During December before the final census form was available, a preliminary form was designed (app. 4) to facilitate work for the census. The aim was to define household members in all the village block for birth certificates and birth records in the Health Center for age determination in order to save time during the census.

Twenty six/^{data} collectors including supervisors were trained on the job.

Before end of December they were able to survey almost all the village.

Another training for data collectors, supervisors and quality controllers was conducted at Nutrition Institute before starting the proper census.

At time of writing this report work is going on ; data collectors fill the forms which are checked up by supervisors in the field then revised again by quality controllers at Nutrition Institute to be ready for computerisation.

C- Pilot Studies And Testing of Methodologies In Certain Areas of Function:

During December 1982. and January 1983, some activities were conducted in certain areas of function.

In the area of work performance, senior scientists from U.S. (Prof. Ismail), together with Egyptian senior scientists and consultants were able to set up the apparatus for measuring resting metabolic rate at the Health Center. Lot of preparations for upgrading the center were carried out before. The apparatus was borrowed from the National

Center for Physical Education. Investigators from Nutrition Institute were trained on-the-job. As a result 32 measurements for resting metabolic rate could be conducted on 32 individuals of different ages from 6 to over 50 years.

Investigators of N.I. were also trained on time allocation of activities and preliminary testing is being done in the field ; 72 cases have been investigated.

In the area of morbidity and immunocompetence prof. Wattson was able to meet with senior scientists of N.I. together with consultants from Cairo University, AUC and NAMRU-III. Fruitful discussions regarding equipments needed, laboratory facilities, collection and transportation of samples ..etc were conducted. Also morbidity forms were discussed.

In the area of cognitive development and function prof. Wachs from U.S. and prof. Bishry from Egypt started pilot work in the field. Discussions with P.I. & senior scientists of N.I. for recruitment and training of field workers, coordination with other areas .. etc were made.

For cognitive testing and parent-child interaction, cognitive test kits were ordered and three of the necessary kits were hard carried to Cairo by Prof. Wachs. Prof. Bishry and Prof. Wachs have constructed a fourth test but out of local materials. Pilot testing has been commenced in the village to determine the degree to which procedure modifications in cognitive tests will be necessary. A preliminary observation manual has been written and pilot observations will commence soon to test the utility of observational categories under field settings. Discussions have been instituted with Prof. Bishry and Dr. Faisal on hiring and training research workers for that section

During December and January several meetings were conducted between the P.I. and senior scientists from U.S. and Egypt, also with the executive committee . Two of the executive committee meetings were enlarged to include all senior scientists and consultants from Egypt together with Prof. Ismail and Prof. Wattson from U.S.

An overview of all activities and achievements in the period from Sept.-January was discussed. Also fruitful discussions about organization and co-ordination between the different areas of the project were tackled (App. 5).

Table 1 : Percentage Distribution of Schoolers & Preschoolers by Nutritional Status * (Weight for Height)

Category	Sex	Sample size	Total	Normal		Mild Mod. Malnutrition		Severe malnutrition	
				No	%	No	%	No	%
PRESCHOOLERS	Boys	245	260	202	77.7	56	21.5	2	0.8
		350	373	299	80.2	71	19.0	3	0.8
	Girls	245	272	212	77.9	56	20.6	4	1.5
		350	401	321	80.0	76	19.0	4	1.0
	Both sexes	245	532	414	77.8	112	21.1	6	1.1
		350	774	620	80.1	147	19.0	7	0.9
SCHOOLERS	Boys	245	211	176	84.0	32	15.0	3	1.0
		350	295	253	85.8	39	13.2	3	1.0
	Girls	245	179	154	86.0	24	13.0	1	1.0
		350	248	215	86.7	32	12.9	1	0.4
	Both sexes	245	390	330	84.6	56	14.4	4	1.0
		350	543	468	86.2	71	13.1	4	0.7
TOTAL	Both sexes	245	922	744	80.7	168	18.2	10	1.1
		350	1317	1088	82.6	218	16.6	11	0.8

* Nutritional Status :

Normal : 1 S.D or less below standard

Mild Mod. Malnutrition "MMM"
from 1 - 3 S.D. below standard

Severe Malnutrition : 3 S.D. or more below standard.

Table 2 : Percentage Distribution of Schoolers & Preschoolers
by Nutritional Status* (High for Age)

Category	Sex	Sample size	Total	Normal		Mild Mod. Malnutrition		Severe malnutrition	
				No	%	No	%	No	%
PRESCHOOLERS	Boys	245	267	75	28.1	148	55.4	44	16.5
		350	382	116	30.3	200	52.4	66	17.3
	Girls	245	271	82	30.3	145	53.5	44	16.2
		350	399	115	28.8	221	55.4	63	15.8
	Both sexes	245	538	157	29.2	293	54.4	88	16.4
		350	781	231	29.6	421	53.9	129	16.5
SCHOOLERS	Boys	245	208	67	32.2	126	60.6	15	7.2
		350	289	96	33.2	177	61.3	16	5.5
	Girls	245	183	58	31.7	112	61.2	13	7.1
		350	253	89	35.2	148	58.9	16	6.3
	Both sexes	245	391	125	32.0	238	60.9	28	7.1
		350	542	185	34.1	325	60.0	32	5.9
TOTAL	Both	245	929	282	30.4	531	57.1	116	12.5
	sexes	350	1323	416	31.4	746	56.4	161	12.2

* Nutritional status : explained in table 1 and the text.

Table 3 : Classes of families studied during Oct. - Nov. 1982
according to Wt/Ht. Criteria of Schoolers and
Preschoolers.

	Classes of Families	No		%	
		SS* 350	SS* 245	SS 350	SS 245
1	Families with all children schoolers & Preschool Preschoolers Normal	183	122	52.3	49.8
2	Families with all schoolers Normal & all Preschoolers MMM.	11	9	3.1	3.7
3	Families with all Preschoolers Normal & all Schoolers MMM.	11	9	3.1	3.7
4	Families with all Schoolers & All Preschoolers MMM.	4	3	1.1	1.2
5	Families with one child severe M.	8	7	2.3	2.8
6	Families with more than one child severe M.	1	1	0.3	0.4
7	Families with all children Schoolers & Preschoolers severe M.	..	..	..	..
8	Families with Schoolers of different Nutritional Status.	109	81	31.2	22.1
9	Families with incomplete data **	23	13	6.6	5.3
	T o t a l	350	245	100.0	100.0

* SS : Sample size

** Some individuals of the family were not available.

Table 4 : Classes of families studied during Oct.-Nov.1982 according to Ht./Age Criteria of Schoolers and Preschoolers.

Classes of Families	No		%	
	SS 350	SS 245	SS 350	SS 245
1. Families with all children Schoolers and Preschoolers Normal	16	9	4.6	3.7
2. Families with all schoolers Normal & all Preschoolers MMM.	28	18	8.0	7.3
3. Families with all preschoolers Normal & all Schoolers MMM.	14	11	4.0	4.5
4. Families with all schoolers & all Preschoolers MMM.	44	33	12.6	13.5
5. Families with one child severe M.	91	61	20.0	24.9
6. Families with more than one child severe M.	31	24	8.9	9.8
7. Families with all children & Preschoolers severe M.	..	..	..	..
8. Families with Schoolers & Preschoolers of different nutritional status.	109	78	31.1	31.8
9. Families with incomplete data	17	11	4.8	4.5
Total	350	245	100.0	100.0

Table 5 : Nutritional Status of Families Examined
During Oct. and Nov. 1982.

Nutritional Status of the Family *	No		%	
	SS ** 245	SS 350	SS 245	SS 350
Normal	6	11	2.4	3.1
Mild Moderate Malnutrition " M M M "	153	213	62.5	60.9
M M M with one child of severe malnutrition	61	93	24.9	26.6
Severe malnutrition	25	33	10.2	9.4
T o t a l	245	350	100.0	100.0

* Nutritional status of the family was estimated according to the least score of the two parameters (HT/Age & Wt/Ht) for the child with lowest nutritional states.

** SS : Sample size.

Table 6 ? Classes of Eligible Families at April 1st., 1983 according to Weight/ Height Criteria of Schoolers and Preschoolers.

Classes of Families	No	%
1. Families with all children Schoolers and Preschoolers Normal .	87	51.2
2. Families with all Schoolers Normal and Preschoolers MMM.	6	3.5
3. Families with all Preschoolers Normal and all Schoolers MMM.	7	4.1
4. Families with all Schoolers and Preschoolers MMM.	2	1.2
5. Families with one child severe M.	4	2.4
6. Families with Schoolers and Preschoolers of different nutritional status	57	33.5
7. Families with incomplete data	7	4.1
Total	170	100.0

Table 7 : Classes of Eligible Families at April 1st. 1983
 according to Ht./Age Criteria of Schoolers &
 Preschoolers.

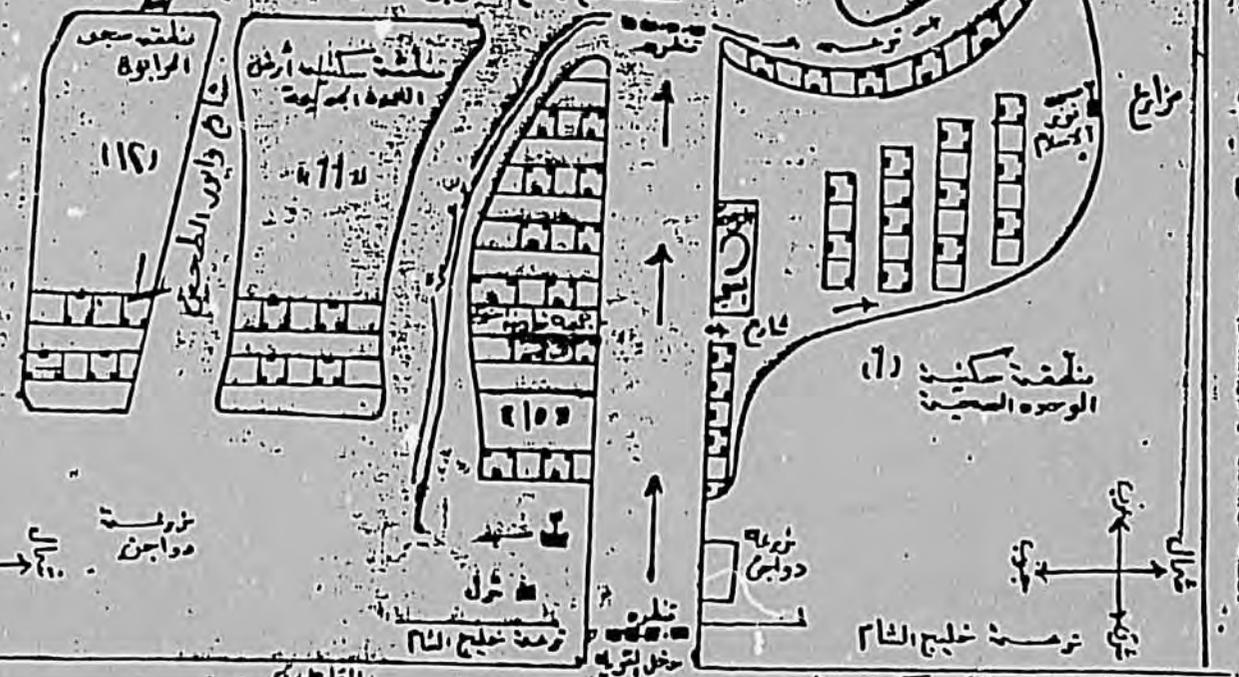
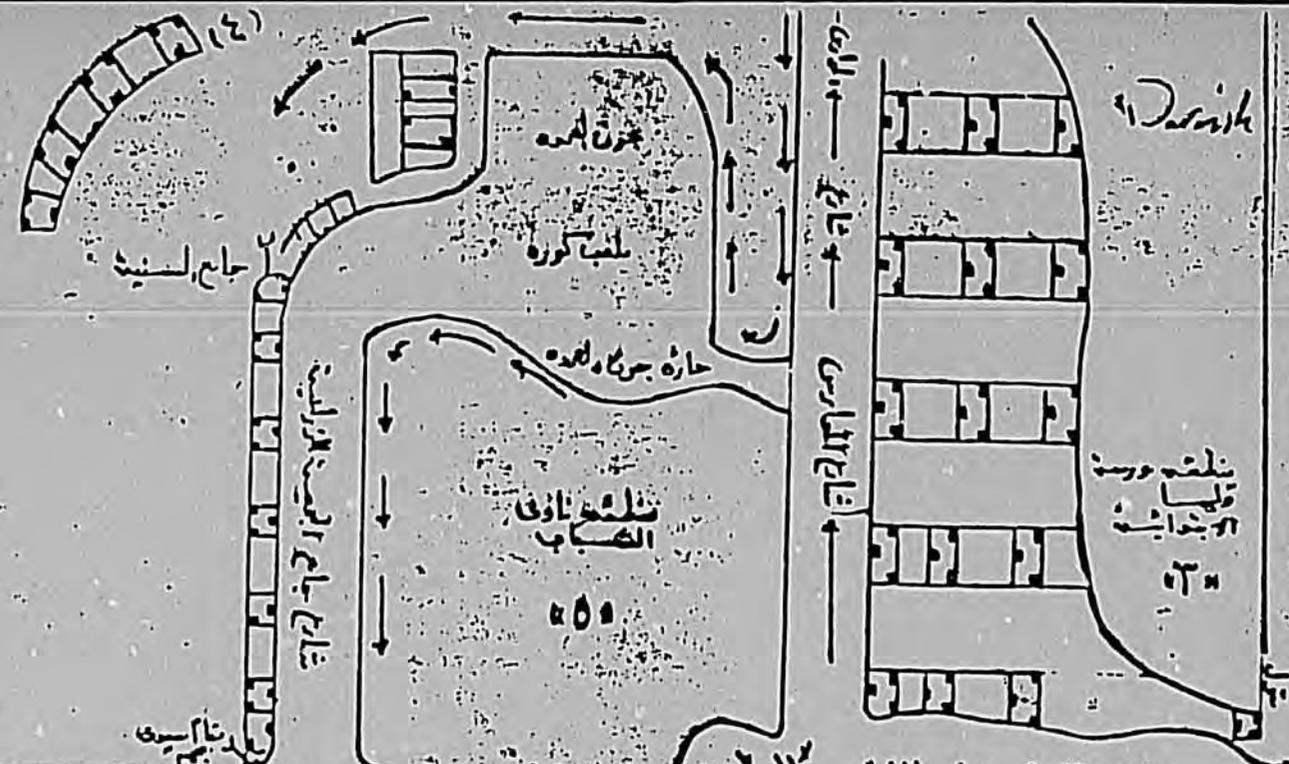
Classes of Families	No.	%
1. Families with all children schoolers and Preschoolers Normal	9	5.3
2. Families with all schoolers Normal and all preschoolers MMM	13	7.6
3. Families with all preschoolers Normal and all Schoolers MMM	8	4.7
4. Families with all schoolers and preschoolers MMM.	18	10.6
5. Families with one child severe	46	27.1
6. Families with schoolers and preschoolers of different nutritional status	69	40.6
7. Families with incomplete data	7	4.1
Total	170	100.0

Table 8 : Nutritional Status of Families Eligible for study at April 1st. 1983

Nutritional Status of the Family	No	%
Normal	3	1.8
Mild Moderate Malnutrition "M.M.M."	116	68.2
M.M.M. with one child of severe malnutrition	51	30.0
Severe Malnutrition *	..	..
Total	179	100.0

* Families with more than one child of severe malnutrition were excluded.

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App 1

NUTRITION INSTITUTE

EGYPT NUTR. CRSP.

app. 2

Block No. H.H.No. H.H. Type H.H.Size Core family

Name of H.H.-head:..... Religion Date

No	Individual	N a m e			Sex	Date of Birth			Age		Verified by	Place of Birth	Read & Write	Year of School	Main Occupation	Relation L.R.	Marital Status
		First	Middle	Last		D	M	Y	Y	M							
1	L.M.																
2	L.F.																
3	Teenager																
4	Schooler																
5	Preschooler																
	Other Teenager																
	Other Sch.																
	Other preschool																
	Other F.																
	Other H.H.M.																

11

Codes and Notes

1 - No; of individual;

Schooler = From 7 - 10 years

Preschooler Less than 2 years close to 2 years.

Teen ager= From 15 - 17 years close to 15 years.

Note ; . No. from eldest to youngest in all.

2 - Name;

For example :

Shaheen : last

Abmed : Middle

Farouk : First

Heba Farouk :

Heba 1st

Farouk Middle

Shaheen Last

Shaheen.

3 - Sex:

1 = Male

2 = Femle

4 - Birth date:

Y M D

When it is 15 days

_____ appoximate to the next month

I.E add a moth.

Less than 15 days

_____ neglect thrée days.

More than 15 days

_____ add a month.

5 - Ages :

estimate at 1.4.1983.

6 - Age Verification:

- 1 = Birth certificate
- 2 = I. D Card
- 3 = Calendar of events
- 4 = Declaration
- 5 = Age estimation.
- 6 = Others.

7 - Place of Birth :

- 1 = Born in Kalama
- 2 = Born outside Kalama.

8 - Read or Write;

- 1 = Donot read or write.
- 2 = Read only.
- 3 = Read and Write.
- 4 = Under age .. Less than 6 years.

9 - Years of School :

	1	13	
	2	14	University
Primary	3	15	
	4	16	
	5		
	6	17	Diploma or Master
	7	18	Dr. degree
Preparatory	8		
	9		
	10		
Secondary	11		
	12		

10 = Marital Status:

- 1 = Single
- 2 = Married one wife only.
- 3 = Divorced.
- 4 = Widdow.
- 5 = Under age.

Less than 16 if Female

Less than 18 if Male.

- 6 = Polygamy .i.e. more than one wife.

11 = Relation to L.M:

- 1 = L.M.
- 2 = L.F.
- 3 = Son or daughter.
- 4 = Father or mother.
- 5 = Brother or sister.
- 6 = Grand father or grand mother.
- 7 = Grandson or grand-daughter
- 8 = Others I.e cousin & anyone else. e.g. servant.

12 - H.H. type:

- 1 - Single or nuclear.
- 2 - Extended family.

13 - Religion :

- 1 - Moslem.
- 2 - Christian.

14 - Core Family:

- 1 - Core family i.e. 5 targets in it.
- 2 - Non target families.

15 - L.M.
L.F.
Teenager, schooler
Pre Schooler:

Then the teenagers of the same core family i.e. those who are sons and daughters of L.M. & L.F.

Then write Schoolers, then the preschoolers.

16 - Other Female :

means if the L.M. has another wife then, write her own children from the eldest to the youngest.

17 - Other H.H.M:

i.e. any one else can be written starting from the eldest to the youngest.

CODE OF OCCUPATION CATEGORIES

- 01 High level administrative, technical or professional positions.
- 02 Above moderate level administrative, technical or professional positions.
- 03 Moderate level .. administrative, technical or professional positions.
- 04 Secretarial & clerical jobs.
- 05 Large merchants & business men.
- 06 Small merchants & shopkeepers .
- 07 Street vendors (with no shops) .
- 08 Skilled laborers & craftsmen (own small or moderate workshops).
- 09 Skilled laborers & craftsmen (with no workshops)
- 10 Unskilled workers (not agricultural)
- 11 Farm cultivator (less than 1 Feddan)
- 12 Farm cultivator (1 - less than 3 Feddans)
- 13 " " (3 - less than 5 ")
- 14 " " (5 - less than 10 ")
- 15 " " (more than 10 Feddans)
- 16 Landless agricultural labourers or share cropper.
- 17 Housewife
- 18 Helper in house work
- 19 Helper in field work
- 20 Engaged in home income-generating activities
- 21 Less than 12 years old (legal working age)
- 22 Student
- 23 Recently graduated & not yet employed (2 years after graduation from University & 3 years for Moderate education).
- 24 Retired (on pension or older than 60 years)
- 25 Unemployed (less than 60 years & capable to do work).
- 26 Other occupations.

