

# EEP/Shiree

## Change Monitoring System - CMS3 -

**Monitoring the changes in Socio-Economic &  
Nutritional status of extreme poor households  
March 2014; results from Cohorts 4-6**

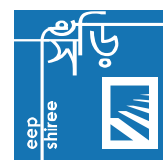
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## Executive Summary

- 1. Background:** This report presents information on Scale Fund Round1 Phase Two (cohort 4), Scale Up Innovation Fund (cohort 5) and Scale Out Scale Fund Rounds I and II (cohort 6). In March 2014 64 households from each of the nineteen NGOs were randomly selected for follow-up in 2015 and 2016. This report provides baseline information on socio-economic and nutritional status for cohorts 5 and 6, while for cohort 4 it reflects the conditions one year after IGA commenced.
- 2. Sample:** Complete information was available from 367 households in cohort 4, 320 households in cohort 5 and 448 households in cohort 6. Information was collected on 4322 individuals of whom 2545 were adults 1201 children aged 5 to 15 years and 576 children less than 5 years of age.
- 3. Male and female headed households and family size:** Overall 22.9% of households were female headed (FHH) but there was considerable variation between NGOs (9.4% to 50.0%). Female heads were, on average, 6 years older than male heads (MHH, 47 years versus 41 years, respectively and this age gap was in 18 of the 19 NGOs. Nearly all male heads were married while the majority of female heads were either widowed or divorced. MHH had on average 1.5 more family members (4.2 versus 1.5) and this difference was consistent across the three cohorts.
- 4. Schooling:** About a third of household heads had attended school more so in MHH (34.5%) than FHH (20.8%) and there were no significant differences between cohorts. Of all adults 39% had attended school and there was no gender difference in adult attendance. Just over 90% of school-aged children attended school and there was no difference between MHH and FHH or by gender of the child.
- 5. Disability, chronic illness and mental illness:** Between 1.6% and 1.8% of household members in the three cohorts were disabled, between 0.3% and 0.8% suffering from chronic illness and between 0 and 0.12% suffered from mental illness in the three cohorts.
- 6. Morbidity status:** Among all household members fever was the most prevalent over the previous 30 days in all three cohorts followed by and diarrhoea and cough. In cohorts 5 and 6 passing of worms and skin infection were also found and eye infection was least common in all three cohorts.
- 7. Employment:** In MHH the main occupations in cohort 4 was petty trade, followed by agricultural day labourer, other day labourer and owning a rickshaw/van. In cohort 5 over half were agricultural day labourers and a quarter other day labourers. In cohort 6 a third were agricultural day labourers, a quarter other day labours and a fifth rented rickshaws/vans. In FHH households in cohort 4, housework was the most common occupation followed by agricultural day labourer, petty trade, domestic maid and other day labouring. In cohort 5 over a third were engaged as agricultural day labourers and one in five in housework, followed by domestic maid and other day labourer. In cohort 6 agricultural day labour, domestic maid and other day labourer each accounted for about a fifth, followed by housework and petty trading. Begging (5.6%) was most common in cohort 5. There was considerable variation between cohorts in self-employment by heads of

households. Self-employment was most common in cohort 4 and least common in cohort 5. There was no difference in self-employment rate between MHH and FHH except in cohort 5 where twice as many FHH were self-employed compared with MHH. FHH tended to work more days than MHH, but MHH worked more hours per day.

8. **Land ownership:** MHH were more likely to have access to land, particularly share cropped and free use than FHH and some of these differences were significant. Land ownership was only significantly different in cohort 4 where MHH were much more likely to own  $\geq 5.0$  decimals of land.
9. **Household ownership, size and structure:** The profiles of home ownership were very similar in cohorts 4 and 6 with about a third of households owning their home on their land and a further 40% having their own house but on either khas land or someone else's land. In contrast in cohort 5 nearly 90% owned their own homes on their own land. Materials used to construct houses varied considerably between the three cohorts. In cohort 4 the walls were mainly made of tin sheet and mud, roof of tin sheet and floor of mud; cohort 5 walls of bamboo or grass, roof of cement and floor of tiles and cohort 6 walls of bamboo, mud or tin sheet, roof of tin sheet or grass and floor of mud. MHH had significantly larger houses than FHH in cohorts 4 and 6 and cohort 5 had by far the largest homes. . In cohort 4 the walls were mainly made of tin sheet and mud, roof of tin sheet and floor of mud; cohort 5 walls of bamboo or grass, roof of cement and floor of tiles and cohort 6 walls of bamboo, mud or tin sheet, roof of tin sheet or grass and floor of mud. Of the households in cohort 4 87.5% reported that they were above the flood level and the percentages for cohorts 5 and 6 were 97.8% and 82.1%, respectively. There were no significant differences in percentages based on gender of household head.
10. **Electricity, water supply and defecation practices:** Only 5% of cohort 5 households were connected to mains electricity compared with 21% and 3% in cohorts 6 and 4, respectively. Very few households had connection from another house and use of solar panels was also uncommon or non-existent. There were no significant differences in electrical supply between male and female headed households. Over 90% of male and female headed households in cohorts 4 and 6 and females in cohort 5 had a water source meeting the MDG. However only three quarters of MHH in cohort 5 had a water source meeting the MDG and the difference was significant. Cohort 4 had the highest percentage reaching the sanitation MDG of 74.9%, followed by cohort 6 (42.2%) and cohort 5 (9.7%). Nearly 1 in 5 households in cohort 6 practised open defecation compared with only 1 in 50 cohort 4 households; no households from cohort 5 practised open defecation. There were no significant differences between male and female headed households in defecation practices. Availability of soap/ash near to a water point or latrine was present in 94.9% of cohort 4 households, 0% of cohort 5 and 65.8% of cohort 6 households. Nearly all cohort 4 household members wore shoes (99.7%) followed by 90.3% in cohort 5 and 84.8% in cohort 4.
11. **Loans and savings:** No households in cohort 5 had a loan. The mean loans were much higher in cohort 4 than in cohort 6 although cohort 6 had a slightly higher number of loans. Interest informal loans had the highest mean in cohort 4 and microfinance in cohort 6. Nearly all Cohort 4 households had cash savings (98.6%) compared with only 27.9% in cohort 6 and no

households in cohort 5 had any cash savings. There were no significant differences in mean cash savings between MHH and FHH in cohorts 4 and 6.

- 12. Number and value of assets:** The main animal ownership in cohorts 5 and 6 was poultry and this is reflected in the value of animals, of only about 300 Taka compared with nearly 10,000 Taka in cohort 4 households. There was no significant difference in mean value of animals between MHH and FHH. Agricultural equipment was owned by MHH and FHH in all three cohorts significantly more so in MHH than FHH in cohorts 5 and 6. The mean value was also significantly higher in MHH than FHH but was very low in cohorts 5 and 6. In cohort 4 ownership of nets, rickshaw and sewing machine was also significantly greater in MHH than FHH. The low or lack of ownership of specific household belongings was very apparent in cohorts 5 and 6 and mean ownership was only 2.8 and 3.9, respectively, compared with over 6 in cohort 4. In cohort 4 ownership was significantly higher in MHH than FHH with means of 6.7 and 4.8, respectively. The mean value of household belongings was least in cohort 5 (1272 Taka) followed by cohort 6 (2575 Taka) while cohort 4 had a mean of 8312 Taka. The total amount spent on all assets was least in cohort 5 (1845 Taka), slightly more in cohort 6 (3711 Taka, including shop) and was 24,775 Taka in cohort 4.
- 13. Income:** Cash and in-kind income was considerably higher in cohort 4 (71 Taka pppd) than either cohorts 5 (5 Taka pppd) and 6 (15 Taka pppd). Male and Female headed households had similar mean per capita cash income but in-kind income was significantly higher in FHH than MHH. Total income was higher in FHH only in cohort 6. The percentage that in-kind income contributed to total income was significantly higher in FHH than MHH in all three cohorts.
- 14. Expenditure:** Mean Expenditure was higher in cohort 4 (43 Taka pppd) and least in cohort 5 (19 Taka pppd) and intermediate in cohort 6 (24 Taka pppd). There were no significant differences in mean expenditures between MHH and FHH except for work-related which was higher in MHH in cohort 4 and household expenditure which was higher in FHH in cohort 6. Nearly 90% of expenditure was on food in cohort 5 falling to about 75% in cohort 6 and just under 70% in cohort 4.
- 15. Difference between income and expenditure:** Cohorts 4 and 6 were, on average in credit by 29 Taka pppd and 2 Taka pppd, respectively while cohort 5 was in debt (-2 Taka pppd). In cohort 4, 14.4% of households were in debt rising to 28.6% in cohort 6 and 59.4% in cohort 5.
- 16. Household food intake and diversity:** Rice was eaten by nearly all households in the three cohorts. There was a general lack of animal protein consumption in cohorts 5 and 6 compared with cohort 4. Overall the mean number of foods eaten was about 6 (maximum 13) in cohorts 5 and 6, rising to nearly 10 in cohort 4. Food diversity was also higher in cohort 4 (6.1) compared with 4.3 and 4.7 for cohorts 5 and 6, respectively.
- 17. Household food coping strategies:** There was clear evidence that households in cohort 5 in particular had to use food coping strategies. For example 90% of cohort 5 households ate food of less quality compared with 56% of cohort 6 and less than 0.5% of cohort 4 households. 65% of cohort 5 households eat less than three meals a day compared with 33% of cohort 6 households and less than 0.5% of cohort 4 households. The mean food

coping strategy in cohort 5 was highest (worse) at 3.6, followed by 2.5 in cohort 6 and only 0.02 in cohort 4.

- 18. Social empowerment:** Males tended to have the main or major say in all decisions. In all three cohorts there were highly significant differences with FHH having more influence on decision making than females in MHH. Male heads were more confident about the future, had more information about government programmes, felt comfortable speaking in community groups or addressing senior administrators than FHH. Female heads said that there were people outside their family who could be relied on for help, they were more likely to belong to a community group and they would face disapproval if they moved outside the village alone than a MHH. There were no differences in feeling frightened about moving alone outside the village or marrying off one's daughter.
- 19. Adult nutritional status:** There was no significant difference in mean BMI between male and female heads. Mean haemoglobin concentration was significantly higher in MHH (136-140 g/l) than FHH (117-121 g/l). Chronic Energy Deficiency (CED, BMI <18.5) was significantly higher in FHH in cohort 5, while anaemia was significantly higher in FHH (44%-63%) than MHH (24%-33%) in all three cohorts. There were highly significant negative associations between female weight, BMI and haemoglobin concentration and age; for each one year increase in age, weight fell by, on average, 0.14kg, BMI by 0.04kgm<sup>-2</sup> and haemoglobin by 0.21 g/l. Female non-heads were, on average, heavier and had a higher BMI and haemoglobin concentration than female heads, significantly so in cohort 5 and these differences remained significant after age correction in cohort 5 for weight and BMI. Prevalences of CED and anaemia did not differ between female heads and non-heads in any cohort after age correction.
- 20. Child nutritional status:** There were no significant differences in mean height-for-age, weight-for-age or weight-for-height or in prevalences of stunting, underweight or wasting between boys and girls. Cohort 5 had the lowest prevalences of stunting (36% versus 41% in the other cohorts) and underweight (42% versus 43% and 48%) while cohort 6 had the lowest prevalence of wasting (23% versus 24% and 28%). Anaemia was over 50% in both cohorts 5 and 6 and 33% in cohort 4.
- 21. Graduation:** No households in cohort 5 graduated compared with 12.5% in cohort 6 and 92.1% in cohort 4. In cohorts 4 and 6 there was no significant difference in graduation rates of MHH and FHH.
- 22. Poverty Gap Index and Squared Poverty Gap Index:** There were no significant differences in mean PGI and SPGI between MHH and FHH. Cohort 4 had the lowest mean PGI and SPGI (16.4 and 8.6, respectively) and Cohort 5 the worst (72.3 and 53.9, respectively).

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## 1. Background

Cohorts 4, 5 and 6 refer to Scale Fund Round 1 Phase Two, Scale up Innovation Fund and Scale out Scale Fund Rounds 1 and 2, respectively (Table 1). The survey conducted in March and April 2014 was a baseline survey for cohorts 5 and 6, while IGA had commenced in cohort 4 in 2013.

**Table 1 Location of NGOs and number of households**

Cohorts	Title	NGOs	Location	Number of Households
4	Scale Fund Round I Phase Two	CARE	Gaibandha, Nilphamari, Rangpur, Lalmonirhat	20,000
		PAB	Gaibandha, Nilphamari, Rangpur, Lalmonirhat, Kurigram	15,000
		SCI	Khulna, Bagerhat	22,465
		UTTARAN	Jessore, Satkhira, Khulna	15,184
		DSK	Dhaka Slums	15,000
		NETZ	Naogaon, Rajshahi, Dinajpur	9,000
5	Scale Up Innovation Fund	MJSKS	Kurigram	2,000
		Green Hill	Bandarban, Rangamati	2,500
		HKI	Khagrachhari	2,500
		Helvetas	Sunamganj	2,500
		Shushilan	Barguna, Jessore, Satkhira	2,500
6	Scale Out Scale Fund Rounds I and II	CARE	Gaibandha, Nilphamari, Rangpur, Lalmonirhat	5,000
		NETZ	Naogaon, Rajshahi, Dinajpur	3,300
		UTTARAN	Jessore, Satkhira, Khulna	6,000
		SCI	Khulna, Bagerhat,	5,000
		DSK	Dhaka slums	5,000
		Oxfam	Pirouzzpur, Potoakhali, Barguna	5,000
		Caritas	Bandarban	2,500
		Helvetas	Sunamganj	5,000
		GreenHill	Bandarban, Rangamati	5,000
Shushilan	Barguna, Jessore, Satkhira	7,000		

## 2. Survey Results

### 2.1 Basic socio-demographic characteristics of Cohorts 4, 5 and 6

Nearly all male heads were married (98%) and only 1.4% were widowed or divorced (0.5%) whereas the majority of females heads were either widowed (57%) or divorced (24%) and only 19% were married. The pattern was homogeneous across the 3 cohorts. In cohort 4 there was no significant variation between NGOs in the percentage of FHH and just over a quarter of heads were female (26.7%). However in cohorts 5 and 6 there was a large variation between NGOs in the percentage of female headed households (FHH) ranging between 9.4% and 50.0%. For all three cohorts combined just over 1 in 5 households were FHH (Table 2).

The mean age of FHH was higher than MHH in all cohort 4 NGOs, 4 out of 5 cohort 5 NGOs and 6 out of 7 cohort 6 NGOs and the mean age difference was about 6 years overall.

MHH, had on average 1.5 more family members (4.2 versus 1.5) for all three cohorts combined and a similar trend was found in each cohort. However mean family size varied significantly between NGOs in each cohort and overall after correcting for gender of family head.

**Table 2 Number of households participating and percentage of female headed households (FHH) by NGO within each cohort**

Cohort	Phase	NGO	Number of households	% FHH	p	Mean Age		p	Mean Family Size		p
						Male	Female		Male	Female	
4	Scale Fund Round 1 Phase two	CARE	62	30.6	ns	42.6	52.3	<0.001	4.5	2.8	<0.001
		DSK	59	25.4		39.4	43.5		4.3	3.6	
		NETZ	64	31.3		41.9	50.6		3.9	1.7	
		PAB	61	23.0		39.8	52.1		4.0	2.9	
		SCI	60	28.3		44.5	48.2		4.4	2.1	
		UTTARAN	61	21.3		43.9	45.9		4.4	2.5	
		TOTAL	367	26.7		42.0	49.0		4.2	2.5	
5	Scale Up Innovation Fund	MJSKS	64	50.0	<0.001	43.4	52.5	<0.001	3.4	1.9	<0.001
		Green Hill	64	9.4		38.9	43.0		4.0	4.5	
		HKI	64	9.4		37.5	40.8		4.2	4.3	
		HIS-1	64	23.4		45.8	47.7		5.0	3.7	
		Shushilan	64	20.3		41.7	40.9		3.6	2.2	
		TOTAL	320	22.5		41.1	47.6		4.1	2.8	
6	Scale out Scale Fund Phases I and II	CARE	64	18.8	0.041	40.8	54.9	0.002	3.9	2.3	<0.001
		DSK	64	32.8		36.2	45.3		4.0	2.9	
		NETZ	64	15.6		41.6	43.7		3.7	2.9	
		SCI	64	23.4		39.8	45.5		4.0	2.2	
		UTTARAN	64	23.4		43.2	42.1		3.8	2.5	
		CARITAS	64	17.2		40.7	41.6		4.9	3.4	
		OXFAM	64	9.4		43.7	45.0		4.5	3.5	
		TOTAL	448	20.1		41.0	45.4		4.1	2.7	
	COMBINED	GRAND TOTAL	1135	22.9	<0.001	41.3	47.4	<0.001	4.2	2.7	<0.001

## 2.2 Schooling

Nearly a third of household heads had attended school more so in MHH (34.5%) than FHH (20.8%,  $p < 0.001$ ) and there were no significant differences between cohorts. Of all adults 39% had attended school and there was no difference in the school attendance rate between male and female adults (40.2% versus 37.8%, respectively) or between cohorts.

Just over 90% of school-aged children attended school and there was no significant difference between MHH and FHH (91.2% and 90.6%, respectively) in school attendance and boys and girls were equally likely to attend school (90.6% and 91.6%, respectively) and these findings were consistent across cohorts.

## 2.3 Disability, Chronic illness and Mental Illness within the household

About 1 in 40 individuals in cohort 4 suffered from either disability, chronic illness or mental illness and the equivalent figures for cohorts 5 and 6 were 1 in 58 and 1 in 48, respectively (Table 3). Disability was much more prevalent in all three cohorts and mental illness the rarest. There were no significant differences between cohorts nor were there any gender differences.

**Table 3 Prevalence (%) of disability, chronic illness and mental illness in cohorts 4, 5 and 6**

Cohort	Household member	Disabled	Chronic illness	Both	Mental illness	Total
4	Head	1.9	1.4	0	0	3.3
	All adults	2.5	1.0	0.1	0	3.6
	Children 5-15	1.1	0	0	0	1.1
	Children <5	0.5	0	0	0	2.9
	Total	1.8	0.6	0.07	0	2.4
5	Head	2.2	0	0	0	2.2
	All adults	2.3	0.1	0	0.1	2.6
	Children 5-15	0.3	0	0	0	0.3
	Children <5	0.6	0	0	0	0.6
	Total	1.6	0.08	0	0.08	1.7
6	Head	1.6	0.7		0	2.2
	All adults	1.8	0.6	0	0.2	2.6
	Children 5-15	1.4	0.2	0	0	1.6
	Children <5	1.5	0	0	0	1.5
	Total	1.6	0.3	0	0.12	2.1

## 2.4 Morbidity status

The morbidity status of the head of household is presented in Table 4 on the day of the survey, previous 7 days and previous 30 days by cohort. There was variation between cohorts with greater morbidity in cohorts 5 and 6. In the previous 30 days fever was most prevalent in all three cohorts.

**Table 4 Morbidity status (%) of head of household on the day of survey, previous 7 days and previous 30 days in cohorts 4, 5 and 6**

Condition	Cohort		
	4	5	6
<b>Day of survey</b>			
Diarrhoea	0	0.3	0.7
Fever	1.9	1.9	2.0
Cough	1.1	1.9	0.9
Skin infection	0.3	4.7	3.1
Eye infection	0.5	0	0.2
Passed worms	0.8	1.3	1.1
<b>Previous 7 days</b>			
Diarrhoea	1.1	1.6	2.2
Fever	6.3	3.4	5.1
Cough	1.6	2.5	1.1
Skin infection	0.3	4.7	3.1
Eye infection	0.5	0	0.4
Passed worms	0.2	3.1	2.6
<b>Previous 30 days</b>			
Diarrhoea	1.9	5.3	3.6
Fever	10.1	10.6	14.5
Cough	3.3	3.8	2.2
Skin infection	0.3	5.0	3.3
Eye infection	0.8	0.3	0.4
Passed worms	0.2	4.7	5.4

For all adults (Table 5) fever followed by diarrhoea were the most common conditions.

**Table 5 Morbidity status (%) of all adults on the day of survey, previous 7 days and previous 30 days in cohorts 4, 5 and 6**

Condition	Cohort		
	4	5	6
<b>Day of survey</b>			
Diarrhoea	0.4	0.7	0.7
Fever	1.1	1.2	1.7
Cough	0.5	1.1	1.0
Skin infection	0.6	2.7	2.0
Eye infection	0.3	0	0.1
Passed worms	0.6	0.9	0.8
<b>Previous 7 days</b>			
Diarrhoea	1.4	2.7	2.1
Fever	4.5	6.5	5.4
Cough	1.0	1.9	1.2
Skin infection	0.6	2.7	2.3
Eye infection	0.3	0	0.2
Passed worms	1.4	2.2	2.0
<b>Previous 30 days</b>			
Diarrhoea	2.6	3.1	4.2
Fever	7.7	10.5	12.5
Cough	1.9	3.0	2.1
Skin infection	0.6	2.8	2.5
Eye infection	0.4	0.1	0.3
Passed worms	1.7	3.1	3.3

Among children 5 to 15 years of age fever was most common both in the previous 7 and 30 days (Table 6).

**Table 6 Morbidity status (%) of all 5 to 15 year old children on the day of survey, previous 7 days and previous 30 days in cohorts 4, 5 and 6**

Condition	Cohort		
	4	5	6
<b>Day of survey</b>			
Diarrhoea	0	0	0.4
Fever	0.5	1.9	1.4
Cough	0.5	0.6	0.4
Skin infection	0.3	2.6	1.6
Eye infection	0	0.3	0
Passed worms	0	0.9	0.4
<b>Previous 7 days</b>			
Diarrhoea	1.1	1.3	1.0
Fever	2.9	4.5	4.9
Cough	1.6	0.6	1.8
Skin infection	0.3	2.9	1.6
Eye infection	0	0.3	0
Passed worms	0.3	3.2	1.6
<b>Previous 30 days</b>			
Diarrhoea	2.7	1.9	3.9
Fever	7.4	9.0	8.6
Cough	2.1	2.6	2.5
Skin infection	0.3	3.2	1.7
Eye infection	0	0.3	0
Passed worms	0.3	3.5	2.5

A similar pattern was seen among children under 5 years of age with fever being the most common in all three cohorts especially in cohorts 5 and 6. Passing of worms was quite common in cohorts 5 and 6 (Table 7).



**Table 7 Morbidity status (%) of all under 5 year old children on the day of survey, previous 7 days and previous 30 days in cohorts 4, 5 and 6**

Condition	Cohort		
	4	5	6
<b>Day of survey</b>			
Diarrhoea	0.5	0.6	1.4
Fever	1.0	1.2	2.9
Cough	2.9	6.0	4.4
Skin infection	1.0	1.2	2.0
Eye infection	0.5	1.2	0.4
Passed worms	0	2.4	1.0
<b>Previous 7 days</b>			
Diarrhoea	1.0	4.2	6.4
Fever	4.9	13.2	16.6
Cough	2.9	9.0	10.3
Skin infection	1.0	2.4	2.9
Eye infection	0.5	1.2	0.4
Passed worms	1.5	6.0	2.9
<b>Previous 30 days</b>			
Diarrhoea	0.4	8.4	11.3
Fever	11.7	27.1	32.3
Cough	3.9	12.7	12.7
Skin infection	1.0	2.4	3.9
Eye infection	0.5	1.2	0.4
Passed worms	2.4	9.0	6.4

Among all household members fever was the most prevalent over the previous 30 days in all three cohorts followed by and diarrhoea and cough. In cohorts 5 and 6 passing of worms and skin infection were also found and eye infection was least common in all three cohorts (Table 8).

**Table 8 Morbidity status (%) of all household members on the day of survey, previous 7 days and previous 30 days in cohorts 4, 5 and 6**

Condition	Cohort		
	4	5	6
<b>Day of survey</b>			
Diarrhoea	0.3	0.5	0.7
Fever	0.9	1.4	1.7
Cough	0.9	1.6	1.2
Skin infection	0.6	2.5	1.9
Eye infection	0.2	0.2	0.1
Passed worms	0.4	0.9	0.7
<b>Previous 7 days</b>			
Diarrhoea	1.2	2.6	2.3
Fever	4.2	6.9	6.6
Cough	1.4	2.6	2.4
Skin infection	0.6	2.7	2.2
Eye infection	0.2	0.2	0.2
Passed worms	1.2	3.0	2.0
<b>Previous 30 days</b>			
Diarrhoea	2.8	3.5	4.9
Fever	8.2	12.4	13.7
Cough	2.2	4.2	3.5
Skin infection	0.6	2.9	2.4
Eye infection	0.3	0.3	0.2
Passed worms	1.4	4.0	3.4

## 2.5 Employment

Tables 9 and 10 present the main occupations of MHH and FHH in the three cohorts. In MHH the main occupations in cohort 4 was petty trade, followed by agricultural day labourer, other day labourer and owning a rickshaw/van. In cohort 5 over half were agricultural day labourers and a quarter other day labourers. In cohort 6 a third were agricultural day labourers, a quarter other day labours and a fifth rented a rickshaws/vans.

In FHH households in cohort 4, housework was the most common occupation followed by agricultural day labourer, petty trade, domestic maid and other day labouring. In cohort 5 over a third were engaged as agricultural day labourers and one in five in housework, followed by domestic maid and other day labourer. In cohort 6 agricultural day labour, domestic maid and other day labourer each accounted for about a fifth, followed by housework and petty trading. Begging (5.6%) was most common in cohort 5.

**Table 9 Main occupation (%) of MHH in cohorts 4, 5 and 6**

Occupation	Cohorts		
	4	5	6
Unemployment	0.7	2.4	1.4
Agricultural day labourer	16.0	56.5	32.1
Other day labourer	12.6	24.2	25.4
Domestic maid	0		
Rickshaw/van puller	0		
Skilled labour	3.3	3.6	2.5
Own agriculture			
Fishing/aquaculture	4.5	2.8	4.7
Livestock	0.7	0.4	
Petty trade	26.0	1.6	6.4
Cottage/garment	1.5		1.1
Other business			
Service	2.2		0.8
Transport worker	0.7		
Begging	0.4		
Rag picker/scavenger	0		0.3
Housework	0		
Rural maintenance programme	0		
Purchased firewood seller	0.4		0.3
Rented rickshaw/van	4.8	6.0	20.1
Owned rickshaw/van	13.0		1.7
Farmer on leased land or water body	0.4		
Farmer on temporary lease of khas land or water body	0.7		
Grocery shop	3.0	0.4	0.3
Other shop	2.2	0.4	0.6
Other	1.9	1.6	2.3

**Table 10 Main occupation (%) of FHH in cohorts 4, 5 and 6**

Occupation	Cohorts		
	4	5	6
Unemployment	1.0	0	0
Agricultural day labourer	18.4	34.7	22.2
Other day labourer	10.2	13.9	20.0
Domestic maid	12.2	16.7	22.2
Rickshaw/van puller	0		
Skilled labour	2.0	1.4	2.2
Own agriculture			
Fishing/aquaculture			
Livestock	4.1	4.2	
Petty trade	17.3	1.4	10.0
Cottage/garment	4.1	1.4	3.3
Other business			
Service	1.0		1.1
Transport worker			
Begging	3.1	5.6	1.1
Rag picker/scavenger			1.1
Housework	22.4	20.8	15.6
Rural maintenance programme	1.0		
Purchased firewood seller			
Rented rickshaw/van	1.0		
Owned rickshaw/van			
Farmer on leased land or water body	1.0		
Farmer on temporary lease of khas land or water body			
Grocery shop			
Other shop			
Other	1.0		1.1

There was considerable variation between cohorts in self-employment by heads of households. Self-employment was most common in cohort 4 (Table 11) and least common in cohort 5. There was no difference in self-employment rate between MHH and FHH except in cohort 5 where twice as many FHH were self-employed compared with MHH.

**Table 11 Self-employed heads of households (%) in cohorts 4, 5 and 6**

Cohort	Male	Female	p	Total
4	64.4	57.7	ns	62.6
5	16.9	34.7	0.001	20.9
6	38.8	31.1	ns	37.3

FHH tended to work more days than MHH (Table 12) but MHH worked more hours per day.

**Table 12 Mean number of days and hours worked by head of household in cohorts 4, 5 and 6**

Number of days worked in	Cohort											
	4				5				6			
	MHH	FHH	p	Total	MHH	FHH	p	Total	MHH	FHH	p	Total
Last 7 days	4.7	5.1	ns	4.8	3.5	4.6	<0.001	3.7	3.5	4.0	ns	3.6
Last 14 days	9.4	10.6	0.010	9.7	7.4	9.4	<0.001	7.8	7.3	8.2	ns	7.5
Last 30 days	20.5	23.0	0.012	21.2	14.8	19.1	<0.001	15.3	14.6	17.0	0.033	15.1
Hours worked in the last 7 days	7.0	5.1	<0.001	6.5	7.0	5.3	<0.001	6.6	7.1	5.6	<0.001	6.8

## 2.6 Access to Land

Table 13 presents information on the percentage of households who own land, cultivate, share crop, have free use or temporary lease land as well as the total access to land by head of household for each cohort. MHH were more likely to have access to land, particularly share cropped and free use than FHH and some of these differences were significant. Land ownership was only significantly different in cohort 4 where MHH were much more likely to own  $\geq 5.0$  decimals of land.

**Table 13 Land ownership and access (%) by head of household in cohorts 4, 5 and 6**

Land	Cohort 4			Cohort 5			Cohort 6		
	MHH	FHH	p	MHH	FHH	p	MHH	FHH	p
Land owned			0.014			ns			ns
0	56.9	60.2		80.6	70.8		66.8	71.1	
0.1-2.49	10.8	19.4		8.9	13.9		15.1	17.8	
2.50-4.99	13.4	13.3		7.3	9.7		12.3	4.4	
$\geq 5.0$	19.0	7.1		3.2	5.6		5.9	6.7	
Cultivated	3.3	5.1	ns	-	-	-	-	-	-
Share cropped	32.7	11.3	0.002	-	-	-	-	-	-
Free use	11.5	5.1	ns	34.3	6.9	<0.001	7.8	3.3	ns
Temporary lease	9.3	6.1	ns	-	-	-	0.6	-	ns
Access to land	66.5	56.1	ns	53.6	36.1	0.009	41.1	32.3	ns

## 2.7 Housing, water access, sanitation and electricity

### 2.7.1 Home ownership

The profiles of home ownership (Table 14) were very similar in cohorts 4 and 6 with about a third of households owning their home on their land and a further 40% having their own house but on either khas land or someone else's land. In contrast in cohort 5 nearly 90% owned their own homes on their own land.

**Table 14 Home ownership (%) in cohorts 4, 5 and 6**

Home ownership	Cohort		
	4	5	6
Own	38.7	88.8	32.6
Rent	14.4	1.3	13.4
Live with parent or son/daughter	2.5	4.1	2.7
Live with parent-in-law	0.3	1.6	0.9
Rent free with family	1.4	3.4	3.1
Rent free nonfamily	0.3	0.9	0.2
Own house on khas land or someone else's land	42.5	-	47.1

## 2.7.2 Size of house

Each household specified the length and width of their house in hath (0.46m) and from this the total area of the house was determined in square metres (sqm). Table 15 present the mean house size by head of household in each cohort. MHH had significantly larger houses than FHH in cohorts 4 and 6 and cohort 5 had by far the largest homes.

**Table 15 Size of house in square metres in cohorts 4, 5 and 6**

Cohort	MHH	FHH	Total	p
4	18.2	16.3	17.7	0.040
5	31.6	30.4	31.3	ns
6	15.4	12.5	14.9	<0.001

## 2.7.3 Materials used in house construction

Materials used to construct houses varied considerably between the three cohorts. In cohort 4 the walls were mainly made of tin sheet and mud, roof of tin sheet and floor of mud; cohort 5 walls of bamboo or grass, roof of cement and floor of tiles and cohort 6 walls of bamboo, mud or tin sheet, roof of tin sheet or grass and floor of mud (Table 16).

**Table 16 Materials used in house construction in cohorts 4, 5 and 6**

House construction	Cohort	Grass etc.	Bamboo	Mud	Tiles	Tin Sheet	Cement brick	Other	None
Wall	4	12.0	11.7	21.5	-	42.5	6.5	5.7	-
	5	23.1	38.8	0.3	17.2	-	14.7	5.9	-
	6	15.0	30.1	23.9	-	23.7	3.1	4.2	-
Roof	4	10.1	0.8	-	4.6	83.1	1.4	-	-
	5	16.3	0.6	-	0.3	9.1	71.3	-	2.5
	6	22.8	0.1	-	2.9	70.8	2.2	0.2	-
Floor	4	-	0.3	86.1	-	-	12.8	0.8	-
	5	-	11.3	-	87.8	-	0.3	0.6	-
	6	-	5.6	82.4	0.2	0.2	9.8	1.8	-

## 2.7.4 Households living above the flood level

Of the households in cohort 4 87.5% reported that they were above the flood level and the percentages for cohorts 5 and 6 were 97.8% and 82.1%, respectively. There were no significant differences in percentages based on gender of household head.

## 2.7.5 Source of drinking water

Over 90% of male and female headed households in cohorts 4 and 6 and females in cohort 5 had a water source meeting the MDG. However only three quarters of MHH in cohort 5 had a water source meeting the MDG and the difference was significant (Table 17).

**Table 17 Source of drinking water in cohorts 4, 5 and 6**

Cohort	MHH	FHH	p
4	91.8	90.8	ns
5	76.6	93.1	0.002
6	90.2	94.4	ns

### 2.7.6 Electricity supply

Only 5% of cohort 5 households were connected to mains electricity compared with 21% and 3% in cohorts 6 and 4, respectively (Table 18). Very few households had connection from another house and use of solar panels was also uncommon or non-existent. There were no significant differences between male and female headed households.

**Table 18 Electricity supply in cohorts 4, 5 and 6**

Electrical supply	Cohort		
	4	5	6
None	62.1	90.6	77.7
Mains	32.7	5.0	21.2
Connection from another house	0.3	-	0.2
Generator	4.6	2.5	0.9
Solar panel	0.3	1.9	-

### 2.7.7 Defecation practices

There was considerable variation in defecation practices between cohorts (Table 19). Cohort 4 had the highest percentage reaching the sanitation MDG of 74.9%, followed by cohort 6 (42.2%) and cohort 5 (9.7%). Nearly 1 in 5 households in cohort 6 practised open defecation compared with only 1 in 50 cohort 4 households; no households from cohort 5 practised open defecation. No difference between male and female headed households.

**Table 19 Defecation practice in cohorts 4, 5 and 6**

Defecation practice	Cohort		
	4	5	6
Open	1.9	-	19.9
Hanging latrine	1.9	53.4	4.2
Pit latrine	21.0	36.6	33.5
Ring slab latrine	64.6	6.9	34.8
Concrete sanitary latrine	10.4	2.8	7.4
Other	0.3	0.3	0.2



## 2.7.8 Hygiene practices

Availability of soap/ash near to a water point or latrine was present in 94.9% of cohort 4 households, 0% of cohort 5 and 65.8% of cohort 6 households. Nearly all cohort 4 household members wore shoes (99.7%) followed by 90.3% in cohort 5 and 84.8% in cohort 4.

## 2.8 Cash loans and savings

### 2.8.1 Cash loans

Five sources of cash loan were identified; (i) free informal, (ii) informal loans with interest, (iii) interest loans from samity, (iv) interest loans from microfinance institutions and (v) interest loans from a bank or the Government of Bangladesh. As some households had more than one loan Table 20 presents both the number of loans and the mean of each loan as well as the number of households with a loan and the household mean loan. No households in cohort 5 had a loan. For example, in cohort 4, the number of free informal loans was 72 and the mean loan was 4694 Taka. These loans were from a total of 52 households and the mean household loan was 6500 Taka.

The mean loans were much higher in cohort 4 than in cohort 6 although cohort 6 had a slightly higher number of loans. Interest informal loans had the highest mean in cohort 4 and microfinance in cohort 6.

**Table 20 Number of loans, average amount of loan in cohorts 4 and 6**

Loan	Cohort 4				Cohort 6			
	Number		Per household		Number		Per household	
	N	Mean	N	Mean	N	Mean	N	Mean
Free informal	72	4694	52	6500	115	1830	84	2506
Interest informal	15	12047	12	15058	29	3870	21	5345
Samity	9	8981	9	8981	3	2367	3	2367
Microfinance	41	5871	31	7765	3	7767	3	7767
Bank	1	3000	1	3000	0	0	0	0
Total	138	6110	105	8031	150	2355	111	3182

Households were also asked the reason for taking out the loan and they are summarised in Table 21. In cohort 4 IGA and treatment accounted for over 60% of the reasons while in cohort 6 consumption and treatment were the main reasons for taking out a loan.

**Table 21 Reason for taking out the loan in cohorts 4 and 6**

Reason for loan	Cohort 4	Cohort 6
Consumption	5.7	40.5
IGA	33.3	13.5
Treatment	28.6	28.8
Dowry	1.9	4.5
Repayment of loan	7.6	3.6
Other	22.9	9.0

## 2.8.2 Cash savings

Nearly all Cohort 4 households had cash savings (98.6%) compared with only 27.9% in cohort 6 (Table 22) and no households in cohort 5 had any cash savings. There were no significant differences in mean cash savings between MHH and FHH in cohorts 4 and 6.

**Table 22 Cash savings in cohorts 4, 5 and 6**

Cohort	% with cash savings	Mean (all households)	Mean (just those with savings)
4	98.6	5652	5730
5	-	-	-
6	27.9	147	525

## 2.9 Households assets

### 2.9.1 Animals

As noted earlier cohort 4 started IGA in 2013 a year before this survey so it is not surprising to see considerably more animal ownership in that cohort compared with cohorts 5 and 6 for whom this is a baseline survey. The main animal ownership in cohorts 5 and 6 was poultry and this is reflected in the value of animals, of only about 300 Taka compared with nearly 10,000 Taka in cohort 4 households (Table 23). There was no significant difference in mean value of animals between MHH and FHH.

**Table 23 Ownership (%) of specific animals in cohorts 4, 5 and 6**

Cohort	Animal ownership	MHH	FHH	p	Total
4	Cattle	37.9	35.7	ns	37.3
	Calf	10.0	13.3	ns	10.9
	Goat	43.1	44.9	ns	43.6
	Poultry	61.7	56.1	ns	60.2
	Pig	0.4	0	ns	0.3
	Total	76.6	74.5	ns	76.0
	Mean Value	9955	9394	ns	9806
5	Cattle	0.4	0	ns	0.3
	Calf	0.8	0	ns	0.6
	Goat	6.5	4.2	ns	5.9
	Poultry	43.1	43.1	ns	43.1
	Pig	0.4	1.4	ns	0.6
	Total	46.6	45.8	ns	45.9
	Mean value	341	235	ns	317
6	Cattle	0	0	ns	0
	Calf	0.6	0	ns	0.4
	Goat	2.5	1.1	ns	2.2
	Poultry	36.3	25.6	ns	34.2
	Pig	0.6	0	ns	0.4
	Total	37.4	26.7	ns	35.3
	Mean value	278	186	ns	259

### 2.9.2 Working Equipment

Agricultural equipment was owned by MHH and FHH in all three cohorts significantly more so in MHH than FHH in cohorts 5 and 6 (Table 24). The mean value was also significantly higher in male than female headed households but was very low in cohorts 5 and 6. In cohort 4 ownership of nets, rickshaw and sewing machine was also significantly greater in MHH than FHH.

**Table 24 Ownership (%) of working equipment by head of household in cohorts 4, 5 and 6**

Cohort	Working equipment ownership	MHH	FHH	p	Total
4	Net	21.6	11.2	0.024	18.8
	Rickshaw	21.6	7.1	<0.001	17.7
	Boat	2.6	0	ns	1.9
	Sewing machine	7.4	1.0	0.019	5.7
	Cottage industry	4.8	3.1	ns	4.4
	Agricultural equipment			ns	
	0	17.1	22.4		18.5
	1	5.6	6.1		5.7
	2	15.2	22.4		17.2
	≥3	62.1	49.0		58.6
	Total	92.6	83.7	0.011	90.2
Mean Value (Taka)	2804	930	<0.001	2304	
5	Net	2.8	0	ns	2.2
	Rickshaw	0.4	0	ns	0.3
	Boat	0	0	ns	0
	Sewing machine	0	0	ns	0
	Cottage industry	9.3	1.4	ns	7.5
	Agricultural equipment			<0.001	
	0	7.7	22.2		10.9
	1	10.1	23.6		13.1
	2	22.2	19.4		21.6
	≥3	60.1	34.7		54.4
	Total	92.7	77.8	<0.001	89.4
Mean Value (Taka)	290	138	<0.001	256	
6	Net	6.7	3.3	ns	6.0
	Rickshaw	2.2	0	ns	1.8
	Boat	1.1	0	ns	0.9
	Sewing machine	0.3	1.1	ns	0.4
	Cottage industry	0.8	0	ns	0.7
	Agricultural equipment			0.003	
	0	17.9	32.2		20.8
	1	13.1	15.6		13.6
	2	25.4	27.8		25.9
	≥3	43.6	24.4		39.7
	Total	82.4	67.8	0.002	79.5
Mean Value (Taka)	298	115	0.001	261	

### 2.9.3 Household belongings

The low or lack of ownership of specific household belongings was very apparent in cohorts 5 and 6 and mean ownership was only 2.8 and 3.9, respectively, compared with over 6 in cohort 4. In cohort 4 ownership was significantly higher in MHH than FHH with means of 6.7 and 4.8, respectively. The mean value of household belongings was least in cohort 5 (1272 Taka) followed by cohort 5 (2575 Taka) while cohort 4 had a mean of 8312 Taka.

#### **2.9.4 Total household assets**

The total amount spent on all assets (Table 26) was least in cohort 5 (1845 Taka), slightly more in cohort 6 (3711 Taka, including shop) and was 24,775 Taka in cohort 4.

**Table 25 Ownership (%) of specific household belongings by head of household in cohorts 4, 5 and 6**

Household belongings	Cohort											
	4				5				6			
	Head		p	Total	Head		p	Total	Head		p	Total
	Male	Female			Male	Female			Male	Female		
Television	14.9	5.1	0.012	<b>12.3</b>	0	0	-	<b>0</b>	1.1	1.1	ns	<b>1.1</b>
Radio	3.0	1.0	ns	<b>2.5</b>	0	0	-	<b>0</b>	0.6	0	ns	<b>0.4</b>
Mobile phone	64.7	40.8	<0.001	<b>58.3</b>	14.5	0	<0.001	<b>11.3</b>	40.2	23.3	0.003	<b>36.8</b>
Bicycle	23.8	7.1	<0.001	<b>19.3</b>	4.8	1.4	ns	<b>4.1</b>	8.4	5.6	ns	<b>7.8</b>
Fan	26.4	14.3	0.015	<b>23.2</b>	2.0	2.8	ns	<b>2.2</b>	9.8	16.7	ns	<b>11.2</b>
Jewellery	87.4	44.9	<0.001	<b>76.0</b>	19.8	15.3	ns	<b>18.8</b>	69.8	41.1	<0.001	<b>64.1</b>
Wooden box	69.1	55.1	0.012	<b>65.4</b>	30.2	44.4	0.025	<b>33.4</b>	35.8	38.9	ns	<b>36.4</b>
Blanket	99.6	100	ns	<b>99.7</b>	70.2	40.3	<0.001	<b>63.4</b>	98.6	100	ns	<b>98.9</b>
Table	53.9	35.7	0.002	<b>49.0</b>	12.5	12.5	ns	<b>12.5</b>	26.5	25.6	ns	<b>26.3</b>
Wardrobe	30.9	14.3	0.001	<b>26.4</b>	2.4	2.8	ns	<b>2.5</b>	7.5	7.8	ns	<b>7.6</b>
Chair	58.7	41.8	0.004	<b>54.2</b>	18.5	13.9	ns	<b>17.5</b>	19.0	10.0	0.043	<b>17.2</b>
Mattress	45.0	31.6	0.022	<b>41.4</b>	64.9	25.0	<0.001	<b>55.9</b>	10.6	14.4	ns	<b>11.4</b>
Bed	93.7	88.8	ns	<b>92.4</b>	50.4	75.0	<0.001	<b>55.9</b>	73.5	68.9	ns	<b>72.5</b>
Mean	6.7	4.8	<0.001	<b>6.2</b>	2.9	2.3	0.008	<b>2.8</b>	4.0	3.5	0.019	<b>3.9</b>
Mean Value	9372	5405	<0.001	<b>8312</b>	1340	1038	0.014	<b>1272</b>	2708	2044	0.001	<b>2575</b>

**Table 26 Average amount spent (Taka) spent on assets by head of household in cohorts 4, 5 and 6**

Household belongings	Cohort											
	4				5				6			
	Head		p	Total	Head		p	Total	Head		p	Total
	Male	Female			Male	Female			Male	Female		
Animals	9955	9394	ns	9806	341	235	ns	<b>317</b>	278	186	ns	<b>259</b>
Equipment	2804	930	<0.001	2304	290	138	<0.001	<b>256</b>	298	115	0.001	<b>261</b>
Household belongings	9372	5405	<0.001	<b>8312</b>	1340	1038	0.014	<b>1272</b>	2708	2044	0.001	<b>2575</b>
Household belongings + shop	14436	7806	<0.001	<b>12666</b>	-	-	-	-	3369	2480	<0.001	<b>3190</b>
Total assets	22131	15730	<0.001	<b>20422</b>	1971	1411	0.007	<b>1845</b>	3284	2345	<0.001	<b>3095</b>
Total assets + shop	27196	18130	<0.001	<b>24775</b>	-	-	-	-	3945	2781	<0.001	<b>3711</b>

## **2.10 Household Income**

Table 27 presents the mean per capita cash, in-kind and total income in the three cohorts. Cash and in-kind income was considerably higher in cohort 4 than either cohorts 5 and 6. Male and Female headed households had similar mean per capita cash income but in-kind income was significantly higher in FHH than MHH. Total income was higher in FHH only in cohort 6. The percentage that in-kind income contributed to total income was significantly higher in FHH than MHH in all three cohorts.



**Table 27 Mean cash, in-kind and total income in cohorts 4, 5 and 6**

Income	Cohort											
	4				5				6			
	Head		p	Total	Head		p	Total	Head		p	Total
	Male	Female			Male	Female			Male	Female		
Cash	59.1	66.7	ns	61.1	16.1	16.4	ns	16.1	21.8	22.6	ns	22.0
In-kind	8.1	15.1	<0.001	10.0	0.5	1.5	0.016	0.7	3.4	6.6	<0.001	4.1
Total	67.2	81.8	ns	71.1	16.6	17.9	ns	16.8	25.2	29.2	0.010	22.6
% income in-kind	13.9	24.4	<0.001	16.7	2.7	11.2	0.004	4.6	13.5	21.8	<0.001	15.2

## 2.11 Household expenditure and net income

Total expenditure has been captured under three headings of food, household and work-related. Expenditure used HIES criteria and omitted irregular expenditures such as wedding expenses. Mean Expenditure was higher in cohort 4 for all three headings, least in cohort 5 and intermediate in cohort 6 (Table 28). There were no significant differences in mean expenditures between MHH and FHH except for work-related which was higher in MHH in cohort 4 and household expenditure which was higher in FHH in cohort 6.

Nearly 90% of expenditure was on food in cohort 5 falling to about 75% in cohort 6 and just under 70% in cohort 4.

The difference between household income and expenditure based on HIES criteria of income minus expenditure (positive sign indicates credit and negative sign debit) was calculated. Cohorts 4 and 6 were, on average, in credit while cohort 5 was in debt. In cohort 4, 14.4% of households were in debt rising to 28.6% in cohort 6 and 59.4% in cohort 5.

**Table 28 Household expenditure and net income in cohorts 4, 5 and 6**

Expenditure	Cohort											
	4				5				6			
	Head		p	Total	Head		p	Total	Head		p	Total
	Male	Female			Male	Female			Male	Female		
Food	26.3	26.6	ns	26.4	16.0	16.6	ns	16.1	17.3	19.0	ns	17.6
Household	12.9	13.9	ns	13.1	2.5	2.0	ns	2.4	5.5	8.0	0.014	6.0
Work related	3.5	1.4	0.008	2.9	0.1	0.1	ns	0.1	0.3	0.3	ns	0.3
Total	42.7	41.9	ns	42.5	18.6	18.6	ns	18.6	23.3	27.3	ns	24.0
% spent on food	67.7	70.2	ns	68.4	87.4	88.7	ns	87.7	77.4	71.4	0.013	76.2
Net income	24.5	39.9	<0.005	28.6	-2.0	-0.6	ns	-1.7	2.1	1.9	ns	2.0

## **2.12 Household food intake**

The households were asked how often family members had eaten 13 food items in the 7 days prior to the study (Table 29). Rice was eaten by nearly all households in the three cohorts. There was a general lack of animal protein consumption in cohorts 5 and 6 compared with cohort 4.

The extent of household food diversity was determined in two ways (a) based on the mean of the number of foods eaten (maximum 13) and (b) based on the 7 food groups (grains, roots and tubers, legumes and nuts, dairy products, flesh foods, eggs, vitamin A rich fruits and vegetables and other fruit and vegetables) as defined by WHO and UNICEF. Consumption of any amount of food from each food group is sufficient to 'count'.

Overall the mean number of foods eaten was about 6 in cohorts 5 and 6, rising to nearly 10 in cohort 4. Food diversity was also higher in cohort 4 (6.1) compared with 4.3 and 4.7 for cohorts 5 and 6, respectively.

**Table 29 Number of days (%) in the last week that household members consumed foodstuffs in cohorts 4, 5 and 6**

Number of days food consumed	Cohorts		
	4	5	6
Rice			
0	0	0	0.4
1	0	0	0
2	0	0	0
3+	100	100	99.6
Flour			
0	45.8	97.8	77.7
1	21.5	0.9	8.5
2	19.6	0.9	6.7
3+	13.1	0.3	7.1
Pulse			
0	9.5	54.1	44.2
1	20.4	23.5	28.1
2	37.1	15.0	16.7
3+	33.0	3.4	10.9
Potato			
0	0.3	7.8	2.2
1	0.3	12.8	1.1
2	0.5	27.8	5.6
3+	98.9	51.6	91.1
Green vegetables			
0	1.1	1.6	3.8
1	7.6	7.2	19.2
2	32.5	22.8	35.5
3+	57.8	68.4	41.5
Other vegetables			
0	0.5	17.2	3.6
1	1.1	13.4	9.4
2	7.9	26.6	22.5
3+	90.5	42.8	64.5
Fruits			
0	20.4	95.0	77.5
1	41.7	2.5	11.8
2	23.7	1.3	6.5
3+	14.2	1.3	4.2
Milk			
0	63.8	98.8	96.7
1	10.6	0.9	1.1
2	10.1	0	0.7
3+	15.5	0.3	1.6
Eggs			
0	14.7	81.9	62.5
1	21.8	15.3	27.0
2	30.5	2.8	8.3
3+	33.0	0	2.2
Fresh fish			
0	1.1	49.7	28.1
1	14.4	37.5	47.1
2	32.4	9.4	18.8
3+	52.0	3.4	6.0
Dried fish			
0	62.7	41.9	69.9
1	15.3	12.5	13.6
2	10.1	17.8	6.9
3+	12.0	27.8	9.6
Poultry			
0	47.7	98.4	94.2
1	41.7	1.6	5.4
2	7.9	0	0.4
3+	2.7	0	0
Meat			
0	57.2	85.6	96.7
1	34.3	8.1	2.9
2	5.7	4.7	0.4
3+	2.7	1.6	0
Mean foods eaten	9.8	5.7	6.5
Mean food diversity	6.1	4.3	4.7

## **2.13 Household food security**

There was clear evidence that households in cohort 5 in particular had to use food coping strategies. For example 90% of cohort 5 households ate food of less quality compared with 56% of cohort 6 and less than 0.5% of cohort 4 households. 65% of cohort 5 households eat less than three meals a day compared with 33% of cohort 6 households and less than 0.5% of cohort 4 households.

The mean food coping strategy in cohort 5 was highest (worse) at 3.6, followed by 2.5 in cohort 6 and only 0.02 in cohort 4.

**Table 30 Household food coping strategies in cohorts 4, 5 and 6**

Food strategy	Cohort		
	4	5	6
Eat smaller portion			
0 days	99.2	5.3	24.1
1 day	0.5	13.4	10.3
2 days	0.3	22.2	30.1
3+ days	0	59.1	35.5
Eat < 3 times a day			
0 days	99.7	35.0	66.7
1 day	0.3	16.9	12.5
2 days	0	14.1	13.6
3+ days	0	34.1	7.1
Eat food of less quality			
0 days	99.7	9.4	43.3
1 day	0	15.9	19.0
2 days	0.3	17.5	24.3
3+ days	0	57.2	13.4
Eat gathered food			
0 days	99.7	60.6	83.5
1 day	0	15.0	8.0
2 days	0	11.6	5.1
3+ days	0.3	12.8	3.3
Eat no food in 24 hours adult			
0 days	100	97.2	98.4
1 day	0	2.5	1.6
2 days	0	0.3	0
3+ days	0	0	0
Eat no food in 24 hours child			
0 days	100	99.1	100
1 day	0	0.6	0
2 days	0	0	0
3+ days	0	0.3	0
Borrow money to buy food			
0 days	99.7	92.5	93.5
1 day	0.3	4.7	3.6
2 days	0	2.2	1.8
3+ days	0	0.6	1.1
Bought food on credit			
0 days	99.5	64.7	86.6
1 day	0.3	12.2	5.6
2 days	0.3	17.8	6.3
3+ days	0	5.3	1.6
Send family member elsewhere for food			
0 days	100	92.8	94.4
1 day	0	2.8	1.6
2 days	0	2.2	3.1
3+ days	0	2.2	0.9
Give more food to earning household members			
0 days	100	81.3	60.9
1 day	0	1.3	9.4
2 days	0	3.8	14.3
3+ days	0	13.8	15.4
Mean food coping	0.02	3.6	2.5

## 2.14 Social Empowerment

Influence on decision making was categorised as main, major small and no influence. Males tended to have the main or major say in all decisions (Table 31). Female replies were divided into females in MHH and FHH (Tables 32 to 34). In all three cohorts there were highly significant differences with FHH having more influence on decision making than females in MHH.

**Table 31 Influence of decision making (male replies) in cohorts 4, 5 and 6**

Decision	Cohort	Main	Major	Small	No
Children's education	4	7.4	86.9	4.0	1.7
	5	30.7	65.8	2.6	0.9
	6	32.5	63.5	2.8	1.2
Purchase or sale of land	4	13.3	85.1	1.1	0.6
	5	38.6	60.6	0.8	-
	6	45.1	54.0	0.6	0.3
Buying or selling large assets	4	12.2	86.7	0.6	0.6
	5	32.9	67.1	-	-
	6	43.9	54.9	1.2	-
Taking or repaying loan	4	11.0	87.8	0.6	0.6
	5	38.4	60.8	0.8	-
	6	43.8	55.0	0.9	0.3
Everyday expenditure	4	17.7	76.8	3.9	1.7
	5	36.7	61.2	2.1	-
	6	46.5	51.4	1.8	0.3
Important family matters	4	8.8	89.5	1.1	0.6
	5	19.4	80.6	-	-
	6	26.0	73.7	0.3	-
When to have children	4	4.2	93.4	0.6	1.8
	5	12.0	88.0	-	-
	6	13.7	85.0	1.0	0.3
How to use your time for work	4	69.6	30.4	-	-
	5	89.5	10.5	-	-
	6	84.1	15.0	0.9	-



**Table 32 Influence on decisions in your household (female replies) cohort 4**

Decision	Head of household	Main	Major	Small	No	p
Children's education	Male	9.3	87.9	2.0	0.8	<0.001
	Female	86.2	13.8	-	-	
	Total	29.3	68.7	1.5	0.6	
Purchase or sale of land	Male	1.6	84.6	12.3	1.6	<0.001
	Female	86.5	11.5	2.1	-	
	Total	24.9	64.5	9.5	1.1	
Buying or selling large assets	Male	2.0	85.8	11.1	1.2	<0.001
	Female	86.5	11.5	2.1	-	
	Total	25.2	65.3	8.6	0.9	
Taking or repaying loan	Male	1.6	86.2	11.5	0.8	<0.001
	Female	83.3	12.5	4.2	-	
	Total	24.1	65.9	9.5	0.6	
Everyday expenditure	Male	9.1	79.1	11.5	0.4	<0.001
	Female	88.5	8.3	3.1	-	
	Total	30.9	59.6	9.2	0.3	
Important family matters	Male	1.2	95.3	3.2	0.4	<0.001
	Female	81.3	17.7	1.0	-	
	Total	23.2	73.9	2.6	0.3	
When to have children	Male	2.5	95.4	0.4	1.7	0.005
	Female	20.0	80.0	-	-	
	Total	3.5	94.5	0.4	1.6	
How to use your time for work	Male	58.1	35.6	4.7	1.6	<0.001
	Female	92.7	6.3	1.0	-	
	Total	67.6	27.5	3.7	1.1	

**Table 33 Influence on decisions in your household (female replies) cohort 5**

Decision	Head of household	Main	Major	Small	No	p
Children's education	Male	5.1	81.2	11.5	2.1	<0.001
	Female	82.0	16.4	-	1.6	
	Total	21.0	67.8	9.2	2.0	
Purchase or sale of land	Male	0.8	68.9	28.2	2.1	<0.001
	Female	84.7	8.3	5.6	1.4	
	Total	20.3	54.8	22.9	1.9	
Buying or selling large assets	Male	1.3	75.0	22.0	1.7	<0.001
	Female	84.7	9.7	4.2	1.4	
	Total	20.8	59.7	17.9	1.6	
Taking or repaying loan	Male	2.5	67.8	26.8	2.9	<0.001
	Female	86.1	8.3	4.2	1.4	
	Total	21.9	54.0	21.5	2.6	
Everyday expenditure	Male	4.6	73.2	19.7	2.5	<0.001
	Female	86.1	11.1	1.4	1.4	
	Total	23.5	58.8	15.4	2.3	
Important family matters	Male	0.9	89.7	6.8	2.6	<0.001
	Female	83.6	13.4	1.5	1.5	
	Total	19.3	72.8	5.6	2.3	
When to have children	Male	0.4	91.5	5.8	1.8	<0.001
	Female	25.0	66.7	-	8.3	
	Total	1.7	90.3	5.5	2.1	
How to use your time for work	Male	53.1	34.7	10.5	1.7	<0.001
	Female	88.4	7.2	2.9	1.4	
	Total	61.0	28.6	8.8	1.6	

**Table 34 Influence on decisions in your household (female replies) cohort 6**

Decision	Head of household	Main	Major	Small	No	p
Children's education	Male	8.3	72.5	18.6	0.6	<0.001
	Female	90.1	9.9	-	-	
	Total	24.1	60.4	15.0	0.5	
Purchase or sale of land	Male	2.7	56.3	37.2	3.8	<0.001
	Female	87.4	10.3	2.3	-	
	Total	20.0	46.9	30.0	3.1	
Buying or selling large assets	Male	2.9	58.2	34.8	4.1	<0.001
	Female	89.7	9.2	1.1	-	
	Total	20.5	48.3	28.0	3.3	
Taking or repaying loan	Male	2.6	60.3	32.5	4.6	<0.001
	Female	90.0	8.9	1.1	-	
	Total	20.5	49.8	26.0	3.7	
Everyday expenditure	Male	4.3	64.8	26.9	4.0	<0.001
	Female	99.3	4.4	2.2	-	
	Total	22.6	52.4	21.9	3.2	
Important family matters	Male	1.7	77.4	18.8	2.0	<0.001
	Female	84.3	14.5	1.2	-	
	Total	17.8	65.2	15.4	1.6	
When to have children	Male	0.9	92.9	5.2	0.9	<0.001
	Female	27.8	66.7	5.6	-	
	Total	2.3	91.6	5.2	0.9	
How to use your time for work	Male	52.4	31.2	15.2	1.1	<0.001
	Female	96.6	3.4	-	-	
	Total	61.3	25.6	12.1	0.9	

For cohort 4 only households were asked how decision making had changed before and after joining the programme. Male replies are summarised in Table 35 and there were significant changes for children's education, important family matters and how to use your time for work. The trend was for a reduction in the control of decision making. The results for females are presented in Table 36. There were significant differences between females in MHH and FHH both before and after but for females living in MHH there was, in general, an improvement in decision after being involved with the EEP/Shiree programme.

**Table 35 Decision making (%) before and after joining the EEP/Shiree programme (male replies) in cohort 4 only**

Cohort	Decision	Before				After				p
		Main	Major	Small	No	Main	Major	Small	No	
4	Children's education	75.0	-	-	25.0	3.6	92.9	3.6	-	<0.001
	Purchase or sale of land	100.0	-	-	-	11.6	87.5	0.9	-	ns
	Buying or selling large assets	85.7	8.9	5.4	-	10.7	89.3	-	-	ns
	Taking or repaying loan	78.6	16.1	4.5	0.9	7.1	92.9	-	-	ns
	Everyday expenditure	25.0	75.0	-	-	12.5	85.9	3.6	-	ns
	Important family matters	38.4	59.8	1.8	-	6.3	93.8	-	-	0.029
	When to have children	17.8	82.2	-	-	2.8	96.3	0.9	-	ns
	How to use your time for work	93.8	6.3	-	-	65.2	34.8	-	-	0.036

**Table 36 Decision making (%) before and after joining the EEP/Shiree programme (female replies) in cohort 4 only**

Cohort	Decision making	Head	Before				p	After				P	p before vs after
			Main	Major	Small	No		Main	Major	Small	No		
4	Children's education	Male	4.1	40.7	49.5	5.7	<0.001	7.7	89.7	2.6	-	<0.001	<0.001
		Female	14.8	55.6	25.9	3.7		63.0	37.0	-	-		ns
		Total	5.4	42.5	46.6	5.4		14.5	83.3	2.3	-		<0.001
	Purchase or sale of land	Male	1.0	13.9	63.4	21.6	<0.001	1.0	85.1	13.4	0.5	<0.001	ns
		Female	6.5	29.0	54.8	9.7		61.3	32.3	6.5	-		ns
		Total	1.8	16.0	62.2	20.0		9.3	77.8	12.4	0.4		0.022
	Buying or selling large assets	Male	1.5	11.3	66.5	21.6	<0.001	1.5	86.6	11.9	-	<0.001	ns
		Female	6.5	29.0	45.2	19.4		61.3	32.3	6.5	-		<0.001
		Total	2.2	13.8	62.7	21.3		9.8	79.1	11.1	-		<0.001
	Taking or repaying loan	Male	1.0	20.1	57.2	21.6	<0.001	1.0	87.6	11.3	-	<0.001	ns
		Female	12.9	22.6	48.4	16.1		54.8	32.3	12.9	-		ns
		Total	2.7	20.4	56.0	20.9		8.4	80.0	11.6	-		ns
	Everyday expenditure	Male	2.1	35.1	47.9	14.9	<0.001	6.2	80.9	12.4	0.5	<0.001	ns
		Female	16.1	32.3	51.6	-		67.7	22.6	9.7	-		0.002
		Total	4.0	34.7	48.4	12.9		14.7	72.9	12.0	0.4		<0.001
	Important family matters	Male	1.5	56.2	34.5	7.7	<0.001	0.5	97.4	2.1	-	<0.001	ns
		Female	12.9	41.9	32.3	12.9		54.8	41.9	3.2	-		0.046
		Total	3.1	54.2	34.2	8.4		8.0	29.8	2.2	-		0.006
	When to have children	Male	2.7	76.6	16.0	4.8	<0.001	1.1	97.5	0.5	1.1	<0.001	ns
		Female	18.2	63.6	18.2	-		18.2	81.8	-	-		<0.001
		Total	3.5	75.9	16.1	4.5		2.0	96.5	0.5	1.0		<0.001
	How to use your time for work	Male	33.0	25.3	32.0	9.8	<0.001	53.1	40.2	6.2	0.5	<0.001	ns
		Female	41.9	22.6	29.0	6.5		77.4	19.4	3.2	-		<0.001
		Total	34.2	24.9	31.6	9.3		56.4	37.3	5.8	0.4		<0.001

Males and females heads of households in all three cohorts were asked 10 questions about social empowerment (Table 37). There were significant differences between male and female heads for the majority of responses. Male heads were more confident about the future, had more information about government programmes, felt comfortable speaking in community groups or addressing senior administrators than FHH. Female heads said that there were people outside their family who could be relied on for help, they were more likely to belong to a community group and they would face disapproval if they moved outside the village alone than a MHH. There were no differences in feeling frightened about moving alone outside the village or marrying off one's daughter.

The same questions were asked of females in MHH and the results are presented in Table 38. There were few significant differences and none which were consistent across all three cohorts. The main difference in cohorts 4 and 5 was that a higher percentage of females in MHH felt that adult men did some of the domestic work compared with FHH.

**Table 37 Social empowerment of male and female heads (all yes answers except where indicated)**

Question	Cohort											
	4				5				6			
	MHH	FHH	Total	p	MHH	FHH	Total	p	MHH	FHH	Total	p
I feel confident that I can face whatever the future brings/holds	90.6	81.0	83.6	0.002	68.4	51.0	58.5	<0.001	65.1	50.0	56.4	<0.001
I feel I have enough information about the government programmes designed to help the poor	92.8	86.3	88.5	0.025	71.3	60.9	65.4	0.011	60.2	54.2	56.8	ns
There are people outside my family I can rely on for help	2.2	18.4	9.2	<0.001	1.3	25.0	14.8	<0.001	1.2	27.4	16.2	<0.001
I feel frightened of moving alone outside my village (no)	79.9	78.6	78.3	ns	41.8	40.5	41.1	ns	44.3	46.7	45.7	ns
I feel comfortable speaking and participating in community groups	92.3	84.6	87.2	0.012	76.4	67.3	71.2	0.020	70.2	57.1	62.7	<0.001
I feel comfortable addressing UP Chairmen/Members/Ward Commissioner	93.9	81.4	85.7	<0.001	81.9	64.1	71.8	<0.001	74.4	52.5	61.9	<0.001
Adult men in my household do some of the domestic work	81.7	67.7	72.8	0.001	75.9	69.6	72.5	ns	58.7	59.3	59.1	ns
If I face income constraints I would marry off my daughter at an early age to save dowry money	7.9	7.4	7.6	ns	10.6	12.5	11.7	ns	10.6	12.7	11.8	ns
I feel I may face disapproval if I move alone outside my village	-	13.7	-	-	0.8	19.9	11.6	<0.001	0.6	26.3	15.3	<0.001
Are you a member of any social or community group? (e.g. CBO)	26.5	52.9	43.9	<0.001	19.4	51.9	37.9	<0.001	6.0	13.4	10.2	<0.001

**Table 38 Social empowerment (% female replies) in male and female headed households (all yes answers except where indicated)**

Question	Cohort											
	4				5				6			
	MHH	FHH	Total	p	MHH	FHH	Total	p	MHH	FHH	Total	p
I feel confident that I can face whatever the future brings/holds	87.0	84.4	86.3	ns	60.0	63.9	60.9	ns	53.3	57.8	54.2	ns
I feel I have enough information about the government programmes designed to help the poor	80.7	78.1	80.0	ns	51.7	48.6	51.0	ns	48.6	55.6	50.0	ns
There are people outside my family I can rely on for help	78.7	78.1	78.6	ns	38.9	45.8	40.5	ns	45.6	51.1	46.7	ns
I feel frightened of moving alone outside my village (no)	14.2	9.4	12.9	ns	26.2	20.8	25.0	ns	30.5	15.6	17.4	0.005
I feel comfortable speaking and participating in community groups	82.3	90.6	84.6	ns	65.8	72.2	67.3	ns	56.1	61.1	57.1	ns
I feel comfortable addressing UP Chairmen/Members/Ward Commissioner	79.5	86.5	81.4	ns	61.7	72.2	64.1	ns	50.1	61.8	52.5	0.049
Adult men in my household do some of the domestic work	73.4	45.3	67.7	<0.001	74.6	47.2	69.6	<0.001	60.7	50.9	59.3	ns
If I face income constraints I would marry off my daughter at an early age to save dowry money	6.3	10.6	7.4	ns	11.7	15.3	12.5	ns	12.0	15.6	12.7	ns
I feel I may face disapproval if I move alone outside my village	16.5	6.3	13.7	0.013	22.1	12.5	19.9	ns	29.1	15.6	26.3	0.009
Are you a member of any social or community group? (eg CBO)	50.8	58.3	52.9	ns	51.2	54.2	51.9	ns	12.8	15.6	13.4	ns

Males and females were asked separately about the desired number of children for a family to stay well. There were no significant differences in male and female responses in each cohort and two children was the preferred number in all three cohorts (Table 39).

**Table 39 Desired number of children for a family to stay well**

Cohort	Number of children	Male response (%)	Female response (%)	p
4	1	6.0	3.0	ns
	2	87.4	91.6	
	3	6.6	5.4	
5	1	4.8	3.5	ns
	2	82.1	83.0	
	3	10.5	9.2	
	4	1.7	3.5	
	5	-	0.9	
	6	0.9	-	
6	1	5.5	6.1	ns
	2	82.8	81.6	
	3	10.7	10.1	
	4	0.9	1.8	
	5		0.3	

Males and females were also asked separately “If both you and your spouse fall sick, who do you think is the most important person to buy treatment for?”. There were significant differences in male and female responses in all three cohorts with my spouse being the favoured answer for females while for males the answers were more evenly spread (Table 40).

**Table 40 Most important person to buy treatment**

Cohort	Person to buy treatment	Male response (%)	Female response (%)	p
4	Me	33.5	3.6	<0.001
	My spouse	33.1	83.2	
	Equally	35.3	13.2	
5	Me	39.3	6.6	<0.001
	My spouse	39.3	76.0	
	Equally	21.4	17.5	
6	Me	50.6	2.3	<0.001
	My spouse	27.9	92.3	
	Equally	21.6	5.5	



## 2.15 Nutritional status

### 2.15.1 Head of household

Body Mass Index (BMI, weight (kg)/height (m)<sup>2</sup>) was calculated and adults were placed into one of two categories, either suffering from Chronic Energy Deficiency (BMI < 18.5) or normal (BMI ≥ 18.5). Haemoglobin (Hb) level was obtained from a finger prick of blood using a portable haemoglobin analyser (HemoCue, HemoCue Ltd., Sweden). Haemoglobin levels were categorised as severe anaemia <70 (g/l), anaemia 70 - 129.9 in males and 70 - 119.9 in females and normal as ≥130 in males and ≥120 in females.

Table 41 presents the mean weight, BMI and haemoglobin concentration for MHH and FHH in cohorts 4, 5 and 6 as well as the percentage with BMI <18.5 and the prevalence of anaemia. As expected, MHH were, on average, heavier than FHH in all three cohorts but there was no significant difference in mean BMI. Mean haemoglobin concentration was significantly higher in MHH than FHH. Chronic Energy Deficiency (CED, BMI <18.5) was significantly higher in FHH in cohort 5, while anaemia was significantly higher in FHH than MHH in all three cohorts.

**Table 41 Nutritional status of head of household in cohorts 4, 5 and 6**

Variable	Cohort				
<b>Mean values</b>		MHH	FHH	p	Total
Weight (kg)	4	50.9	43.1	<0.001	48.1
	5	49.7	41.5	<0.001	47.8
	6	50.8	44.9	<0.001	49.6
BMI (kgm-2)	4	19.5	19.5	ns	19.5
	5	19.1	18.6	ns	19.0
	6	19.4	20.3	ns	19.7
Haemoglobin concentration (g/l)	4	136.4	117.2	<0.001	129.5
	5	138.1	118.5	<0.001	133.5
	6	140.0	120.9	<0.001	135.8
<b>Categories (%)</b>					
BMI <18.5	4	39.4	42.3	ns	40.4
	5	38.1	54.3	0.016	41.9
	6	39.6	35.2	ns	38.6
Anaemia	4	33.3	62.5	<0.001	43.8
	5	29.0	55.7	<0.001	35.2
	6	23.6	44.3	<0.001	28.0

### 2.15.2 Comparison of the nutritional status of FHH and adult females living in MHH (female non-heads)

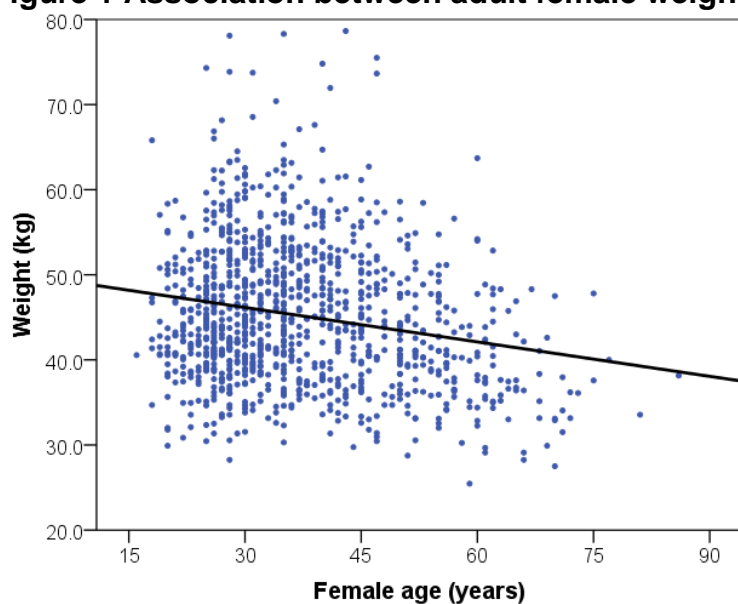
There were 255 FHH and 836 female non-heads in the three cohorts and similar differences in mean ages were found with FHH being, on average, about 11 to 13 years older than female non-heads (Table 42).

**Table 42 Mean age of FHH and non-female head in cohorts 4, 5 and 6**

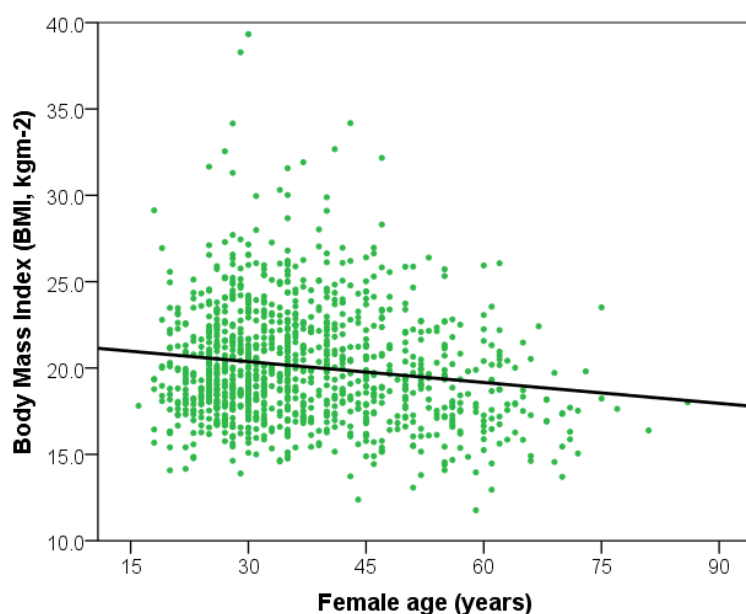
Cohort	FHH	Female non-head	p
4	49.0	34.6	<0.001
5	47.6	34.5	<0.001
6	45.4	33.8	<0.001

There were highly significant negative associations between female weight, BMI and haemoglobin concentration and age; for each one year increase in age, weight fell by, on average, 0.14kg, BMI by 0.04kgm<sup>-2</sup> and haemoglobin by 0.21 g/l (Figures 1 to 3).

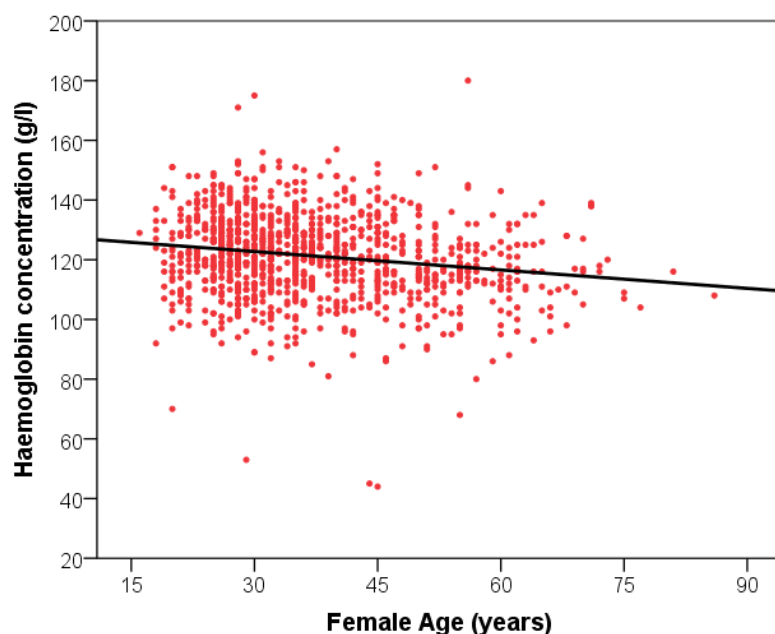
**Figure 1 Association between adult female weight and age**



**Figure 2 Association between adult female Body Mass Index and age**



**Figure 3 Association between adult haemoglobin concentration and age**



The mean weight, BMI and haemoglobin concentration for FHH and adult females living in MHH (female non-heads) in cohorts 4, 5 and 6 are presented in Table 43 before and after correction for age. Female non-heads were, on average, heavier, had a higher BMI and haemoglobin concentration, significantly so in cohort 5 and these differences remained significant after age correction in cohort 5 for weight and BMI.

**Table 43 Mean weight, Body Mass Index and haemoglobin concentration before and after age correction in cohorts 4, 5 and 6**

Cohort	Before age correction					After age correction		
		FHH	Female non-head	p	Total	FHH	Female non-head	p
4	Weight	43.1	45.3	0.027	44.7	+0.28	0	ns
5		41.5	45.8	<0.001	44.8	-3.02	0	0.011
6		44.9	46.1	ns	45.9	-0.32	0	ns
4	BMI	19.5	20.1	ns	19.9	+0.08	0	ns
5		18.6	20.0	<0.001	19.7	-1.06	0	0.021
6		20.3	20.5	ns	20.5	+0.11	0	ns
4	Haemoglobin concentration	117.2	120.0	ns	119.2	-0.67	0	ns
5		118.5	123.5	0.009	122.4	-1.71	0	ns
6		120.9	122.4	ns	122.1	+0.54	0	ns

The analyses were repeated using prevalences of CED and anaemia (Table 44) and there were no significant differences in any cohort after age correction (female non-heads set to zero).

**Table 44 Prevalence of CED and anaemia before and after age correction in cohorts 4, 5 and 6**

Cohort	Before age correction				After age correction			
	BMI < 18.5	FHH	Female non-head	p	Total	FHH	Female non-head	p
4	BMI < 18.5	42.3	38.9	ns	40.2	-0.19	0	ns
5		54.3	38.1	0.017	42.0	0.53	0	ns
6		35.2	39.1	ns	38.3	0.27	0	ns
	Anaemia							
4	Anaemia	62.5	33.3	<0.001	43.9	0.38	0	ns
5		55.7	29.6	<0.001	35.8	0.36	0	ns
6		44.3	23.3	<0.001	27.8	-0.01	0	ns

### 2.15.3 Under 5 year old children

Table 45 presents the mean height-for-age, weight-for-age and weight-for-height z-scores as well as the prevalence of stunting, underweight and wasting in boys and girls in each cohort separately. There were no significant differences in either means or prevalences between boys and girls. Cohort 5 had the lowest prevalences of stunting and underweight, while cohort 6 had the lowest prevalence of wasting. Anaemia was over 50% in both cohorts 5 and 6.

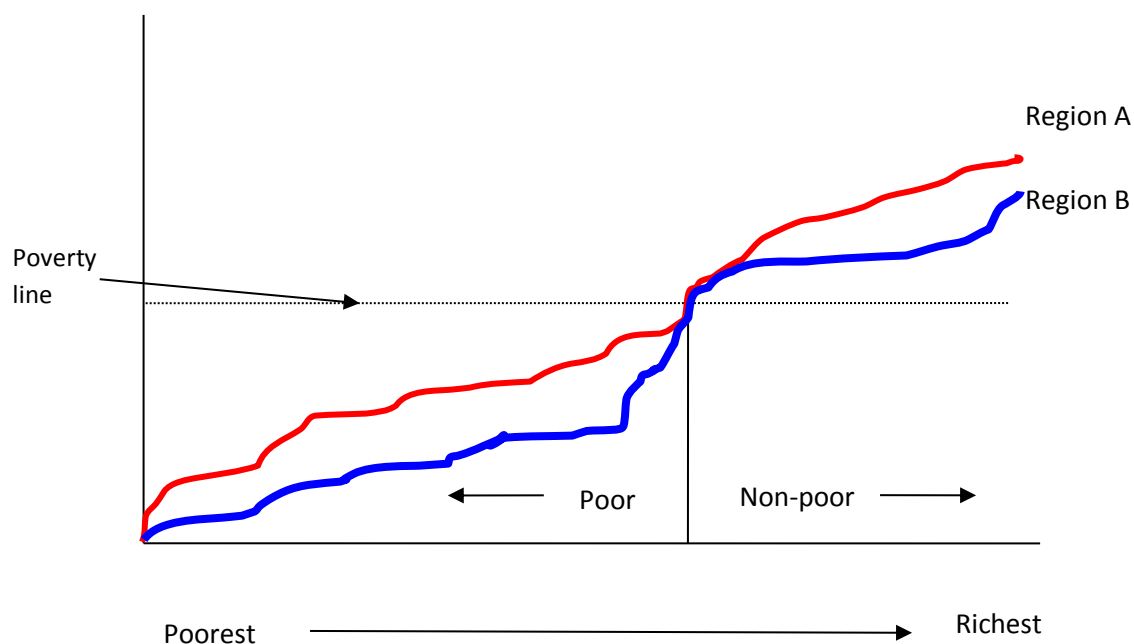
**Table 45 Nutritional status of under 5 year old children in cohorts 4, 5 and 6**

Cohorts	Mean	Male	Female	p	Total	Prevalence	Male	Female	p	Total
4	Height-for-age	-1.70	-1.75	ns	-1.72	Stunting	45.2	36.5	ns	41.1
5		-1.45	-1.55	ns	-1.49		34.7	38.3	ns	36.3
6		-1.69	-1.63	ns	-1.66		45.5	36.6	ns	41.2
4	Weight-for-age	-1.99	-2.06	ns	-2.02	Underweight	50.6	43.8	ns	47.5
5		-1.86	-1.88	ns	-1.87		36.0	50.0	ns	42.2
6		-1.86	-1.86	ns	-1.86		42.2	44.6	ns	43.4
4	Weight-for-height	-1.48	-1.36	ns	-1.42	Wasting	29.1	26.0	ns	27.7
5		-1.31	-1.28	ns	-1.30		23.3	24.6	ns	23.9
6		-1.14	-1.21	ns	-1.17		21.1	24.4	ns	22.7
4	Haemoglobin	112.9	114.0	ns	113.4	Anaemia	33.7	32.4	ns	33.1
5		107.5	108.4	ns	107.9		49.3	54.1	ns	51.5
6		107.4	107.3	ns	107.4		51.6	48.2	ns	50.0

## 2.16 Absolute poverty and the poverty line

The most commonly used measure of poverty is the Headcount Index (World Bank, 2009). The Headcount Index is the proportion of the population for whom income or expenditure (or other measures of standard of living) is less than the poverty line. Figure 4 shows two regions which have the same percentage of individuals who fall below the poverty line.

**Figure 4 Illustration of the poverty line in two regions**



The Bangladesh Household Income and Expenditure (HIES) survey of 2010 provides information on the mean and standard deviation of both income and expenditure of a random sample of households living in both urban and rural areas. The report also provides lower poverty lines for urban and rural areas which in 2010 equated to 46.9 Taka pppd and 42.6 Taka per person per day (pppd), respectively. Inflation adjusted poverty lines were generated for 2011, 2012, 2013 and 2014 using Bank of Bangladesh official inflation rates and the rural poverty line was 59.2 Taka pppd in 2014.

Table 46 presents information on the percentage of households above the poverty line in 2014. As noted earlier cohort 4 started receiving IGA in 2013 so 2014 reflects one year post intervention. For cohorts 5 and 6 2014 was a baseline survey. Very few households in cohorts 5 and 6 had reached the poverty line threshold whereas over 50% of those in cohort 4 had reached the target.

**Table 46 Headcount index (%) by MHH and FHH in cohorts 4, 5 and 6**

Cohort	MHH	FHH	p	Total
4	54.3	56.1	ns	54.8
5	0.4	1.6	ns	0.6
6	0.3	2.2	ns	0.7

## **2.17 EEP/Shiree Multidimensional Poverty Index (ESMPI)**

The EEP/Shiree multidimensional poverty index (ESMPI) recognises that there is no consensus on what dimensions to include and how they should or should not be weighted in creating a Mashup poverty index in the context of the extreme poor in Bangladesh. In developing the ESMPI gender empowerment was one of the indicators used as were health and nutrition. Only the health of the adult head of household and the nutritional status of the adult head of household or another adult member were used. The EEP/Shiree index does not include education for two reasons (a) if the adult head of household is illiterate, it is most unlikely that there will be any change in literacy status through involvement in a EEP/Shiree programme and (b) school attendance by other family members will depend on whether there are school-aged children. The EEP/Shiree index does include three standard of living criteria in rural areas (Table 47).

One essential criterion, food coping, was identified in both urban and rural areas. In urban areas a further nine supplementary criteria were identified while in rural areas three further criteria were added (access to safe drinking water meeting the MDG defined standard, sanitation meeting the MDG and cultivable land). Given the criticism of weighting of dimensions/indicators all criteria were given equal weighting. In order to 'graduate' out of poverty a rural household had to be above the food coping threshold as well as above the threshold for six of the supplementary criteria. Table 3 48 shows that no households in cohort 5 had graduated compared with 9.8% in cohort 6 and 91.0% in cohort 4. In cohorts 4 and 6 there was no significant difference in graduation rates of MHH and FHH.

**Table 47 EEP/Shiree multidimensional poverty index (ESMPI); essential and supplementary criteria**

Essential Criterion	Rural	Urban
<b>Food coping strategies of household</b> - eating smaller portions, eating less than 3 meals per day, eating food of lower than normal quality, eating gathered food, eating no food in 24 hours, borrowing money for food, buying food on credit, sending family member elsewhere to eat, giving more food to earning household member, letting female household members eat last or not at all	≥2 strategies = 0 <2 strategies = 1	≥2 strategies = 0 <2 strategies = 1
<b>Supplementary Criteria</b>		
<b>Poverty line</b> - using the mean income and standard deviation in the HIES 2010 report for urban and rural areas, the poverty line corresponding to the lowest 10% was calculated separately for urban and rural areas as Taka per person per day. Government of Bangladesh inflation rates were used to generate new poverty lines for 2011, 2012 and 2013. Income included both cash and in-kind sources	2010 <42.6 = 0, ≥42.6 = 1 2011 <45.9 = 0, ≥45.9 = 1 2012 <50.9 = 0, ≥50.9 = 1 2013 <55.1 = 0, ≥55.1 = 1 2014 <59.2 = 0, ≥59.2 = 1	2010 <46.9 = 0, ≥46.9 = 1 2011 <50.6 = 0, ≥50.6 = 1 2012 <56.1 = 0, ≥56.1 = 1 2013 <60.7 = 0, ≥60.7 = 1 2014 <65.2 = 0, ≥65.2 = 1
<b>Number of sources of income</b> – number of income sources (earned income or social protection transfers) of all household members	<2 income sources in household = 0 ≥2 income sources in household = 1	<2 income sources in household = 0 ≥2 income sources in household = 1
<b>Cash savings</b> – amount of reported cash savings in Taka/household	<1000 Taka/household = 0 ≥ 1000Taka/household = 1	<1000 Taka/household = 0 ≥ 1000Taka/household = 1
<b>Value of productive assets</b> – defined as value of cattle, calves, goats, poultry, pigs, fishing nets, rickshaw, boat, sewing machine, cottage industry, agricultural equipment, mobile phone, bicycle, permanent shop, temporary shop, other permanent asset and other temporary shop asset	<10,000 Taka/household = 0 ≥10,000 Taka/household = 1	<7000 Taka/household = 0 ≥7000 Taka/household = 1
<b>Number of non-productive assets of household</b> – defined as owning a television, radio, fan, jewellery, wooden box, blanket, table, wardrobe, chair, mattress and bed	<4 assets = 0 ≥ 4 assets = 1	<4 assets = 0 ≥ 4 assets = 1
<b>Food diversity of household</b> - rice, flour, pulse, potato, green leafy and other vegetables, fruit, milk, eggs, fresh/dried fish, poultry and meat	<6 foods = 0 ≥6 foods = 1	<6 foods = 0 ≥6 foods = 1
<b>Nutrition</b> - adult BMI OR anaemia of head of household or if unavailable of another adult member	BMI <18.5 OR anaemia = 0 BMI ≥18.5 and not anaemic = 1	BMI <18.5 OR anaemia = 0 BMI ≥18.5 and not anaemic = 1
<b>Health</b> - prevalence of fever OR diarrhoea over the last 30 days of head of household	Fever OR diarrhoea = 0 No fever and no diarrhoea = 1	Fever OR diarrhoea = 0 No fever and no diarrhoea = 1
<b>Gender Empowerment</b> - of female adult member of household based on decision making and views	<75% answering positively = 0 ≥75% answering positively = 1	<75% answering positively = 0 ≥75% answering positively = 1
<b>Access to safe drinking water of household</b> - defined as meeting the MDG guidelines	No = 0 Yes = 1	Not Applicable
<b>Access to hygienic sanitation of household</b> - defined as meeting the MDG guidelines	No = 0 Yes = 1	Not Applicable
<b>Access to cultivable land of household</b> - all land comprising homestead, cultivable, temporary lease, sharecrop and use free of charge	No = 0 Yes = 1	Not Applicable
<b>Maximum score</b>	13	10
<b>Graduation threshold</b>	Essential + 6 Supplementary	Essential + 4 Supplementary



**Table 48 Graduation criteria and overall graduation rates (%) in cohorts 4, 5 and 6**

Criteria	Cohort											
	4				5				6			
	MHH	FHH	p	Total	MHH	FHH	p	Total	MHH	FHH	p	Total
Food coping	99.6	98.0	ns	99.2	0.4	1.4	ns	0.6	19.8	33.3	0.006	22.5
Poverty line	54.3	56.1	ns	54.8	0.4	1.4	ns	0.6	0.3	2.2	ns	0.7
Income sources	95.5	81.6	<0.001	91.8	85.1	72.2	0.012	82.2	66.2	50.0	0.004	62.9
Cash savings	79.9	74.5	ns	78.5	-	-	-	-	5.6	1.1	ns	4.7
Productive assets	61.7	57.1	ns	60.5	0.4	-	ns	0.3	0.8	-	ns	0.7
Non-productive assets	88.1	64.3	<0.001	81.7	20.6	19.4	ns	20.3	44.7	44.3	ns	44.6
Food diversity	98.9	98.0	ns	98.6	74.6	74.4	ns	74.6	78.7	75.8	ns	78.1
Nutrition	41.4	23.7	0.002	36.7	48.6	23.9	<0.001	43.1	47.3	38.2	ns	45.5
Health	91.8	79.6	0.001	88.6	87.1	77.8	ns	85.0	84.6	76.7	ns	83.0
Empowerment	78.7	95.8	<0.001	83.4	41.8	88.9	<0.001	52.7	37.0	91.1	<0.001	48.1
Safe drinking water	91.8	90.8	ns	91.6	76.6	93.1	0.002	80.3	90.2	94.4	ns	91.1
Sanitation	76.2	71.4	ns	74.9	9.7	11.1	ns	10.0	40.5	48.9	ns	42.2
Land access	66.5	56.1	ns	63.8	53.6	36.1	0.009	49.7	41.1	32.2	ns	39.3
Overall Graduation	91.8	92.9	ns	92.1	-	-	-	-	12.3	13.3	ns	12.5

## 2.18 Poverty Gap Index (PGI) and Squared Poverty Gap Index (SPGI)

The Poverty Gap (PG) is the average, over all people, of the gaps between poor people’s living standards and the poverty line so in Figure 21 Region B has a greater poverty gap than Region A but both regions have the same percentage who are poor (i.e. Headcount index). The Poverty Gap indicates the average extent to which individuals fall below the poverty line (if they do). The Poverty Gap Index (PGI) expresses the poverty gap as a percentage of the poverty line. The PG or the PGI can be interpreted as the average shortfall of poor people. They show how much would have to be transferred to the poor to bring their expenditure up to the poverty line, and present it as an average (PG) or in terms of the poverty line (PGI).

The PG and PGI do not capture differences in the severity of poverty amongst the poor and ignore “inequality among the poor”. The Squared Poverty Gap Index (SPGI) is a weighted sum of the poverty gaps (as a proportion of the poverty line), where the weights are the proportionate poverty gaps themselves (like the PG, but with weights given to each observation). The SPGI takes inequality among the poor into account.

Table 49 presents the mean PGI and SPGI by male and female heads of households in each phase. There were no significant differences in mean PGI and SPGI between MHH and FHH. Cohort 4 had the lowest mean PGI and SPGI (16.4 and 8.6, respectively) and Cohort 5 the worst (72.3 and 53.9, respectively).

**Table 49 Mean PGI and SPGI by head of household in cohorts 4, 5 and 6**

Cohort	PGI				SPGI			
	MHH	FHH	p	Total	MHH	FHH	p	Total
4	16.8	15.4	ns	16.4	8.7	8.4	ns	8.6
5	72.1	73.0	ns	72.3	53.5	55.4	ns	53.9
6	57.3	50.9	ns	56.0	35.3	30.8	ns	34.3