

Health, Hygiene and Nutrition Approaches
and Systems: a thematic study

Prepared for

SHOUHARDO, CARE, Bangladesh

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by

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List of Acronyms

ANC	Ante Natal Care
BCC	Behavior Change and Communication
CAP	Community Action Plan
CBHQ	Care Bangladesh Head Quarters
CCM	Community Case management
CHV	Community Health Volunteer
C-IMCI	Community-based Integrated Management of childhood illness
CLTS	Community-Led Total Sanitation
COG	Core Occupational Group
ECCD	Early Child Care for Development
EDU	Economic Development Unit
EKATA	Empowerment, Knowledge and Transformative Action
EPI	Expanded Program of Immunization
FFP	Food For Peace
FFW	Food For Work
GMP	Growth Monitoring and Promotion
HH	Household
HHN	Health Hygiene and Nutrition
IFE	Infant Feeding in Emergency
IGA	Income Generating Activities
LOA	Life of Activity
MCHN	Maternal and Child Health and Nutrition
M&E	Monitoring and Evaluation
MISP	Minimum Initial Service Package
MTR	Mid Term Recommendation
MUAC	Mid Upper Arm Circumference
NCHS	National Center for Health Service
NNPC	Nari Nirjaton Protirodh Committee
PD	Positive deviant mothers
PNC	Post Natal Care
PNGO	Partner NGO
PPVA	Post Partum Vitamin A Capsule
SDC	Slum Development Committee
SHOUHARDO	Strengthening Household Ability to Respond to Development Opportunities
TOTS	Training of Trainers
UP	Union Parishad
USAID	United States Agency for International Development
VDC	Village Development Committee
WHO	World Health Organization

Executive Summary

A. BACKGROUND

1. SHOUHARDO has four strategic objectives SO1: improved availability/economic access to food through strengthening livelihoods, entitlements and enhancing accountability of service providers, SO2: sustainable improvement in the health and nutrition of project participants, SO3: enhanced empowerment of 400,000 women and girls from targeted vulnerable HHs, and SO4: targeted communities and institutions are better able to prepare for, mitigate and respond to natural disasters.

B. OBJECTIVES OF THE THEMATIC STUDY

2. This report (a) assesses the effectiveness of the approaches in contributing to positive change in health, hygiene and nutrition (HHN), and the sustainability of these changes. It attempts to ‘prioritise’ the different approaches being employed in relation to successfully achieving this Thematic area, identifying which approaches are bringing most benefit, and identifying other approaches which are not being as effective. The reasons behind why each of the approaches are being effective, or not effective, are discussed (b) examines other approaches, if any, being used by other projects in CARE Bangladesh to achieve the same end point (this will be to a limited scale) and (c) provides recommendations on how the approaches can be improved for future programming, especially in relation to the ‘Impact Statement’ and ‘Impact Groups’ CARE has committed to. This will be based on the knowledge derived from this study, as well as knowledge acquired from other studies.

C. FINDINGS

3. This report examined the effectiveness of the different approaches in benefiting health, hygiene and nutrition taking into account that HHN program interventions were employed in the field from March 2007. There are clear linkages between all four strategic objectives and so different approaches employed in the SHOUHARDO programme can have direct or indirect benefits to HHN.
4. The success of the HHN package is dependent upon linked approaches:
 - a) targeting socially, economically politically, most marginalised and vulnerable group of people (poor and extreme poor) for the SHOUHARDO program which is harmonious with the impact statement of CARE, Bangladesh
 - b) growing importance of program interventions through VDC/SDC in rural and urban areas
 - c) improved access to health and nutritional services

- d) improvement in community infrastructure through provision of hygienic latrines and access to safe water throughout the year
- e) increased quantity and quality of food intake from the monthly food rations (comprising 12.5 kg of wheat, 1.5 kg of oil and 0.5 kg of pulses) to pregnant and lactating women from the 4th month of pregnancy until the child is 2 years of age, as well as vegetables from homestead gardening
- f) improved hygiene practices, health and nutrition education through the BCC strategy laid out in the HHN programme, which are achieved primarily through the actions of the CHV, but also through ECCD and EKATA volunteers
- g) for Nutrition, food ration (SO2) and homestead gardening (SO1) provide food directly to the mother and child, while BCC on food counseling, caring practices and care seeking practices (SO2) and any food purchased through additional income from COG (SO1) can be considered as indirectly benefiting nutritional status. Nutritional status will be affected by hygiene which should itself be directly improved through the health and hygiene education given by the CHV (SO2) as well as the ECCD volunteer (SO2), and indirectly through provision of water and sanitation (SO2 and SO4). Improved health will lessen disease risk and will also benefit nutrition; health status will be directly benefited by health services (SO2), water and sanitation (SO2 and SO4), and indirectly from BCC through the CHV, ECCD volunteer (SO2) and EKATA (SO3). So health, hygiene and nutrition are highly inter-related
- h) The Program Advisory Coordination Committee is a positive step forward in liaison and advocacy issues related with HHN programme interventions

5. Information was gathered from three main sources (a) the baseline report and the subsequent 6-monthly and annual reports, other thematic reviews and from interviews and discussions with key CBHQ staff (b) M&E annual data provided by CBHQ and from the Haor regional office and (c) two five day field visits to Tangail and Kishoreganj involving both villages and slums and meetings with regional office staff as well as group discussions with VDCs, SDCs, COGs, graduated beneficiaries, EKATA members, NNPC members, ECCD mothers, Disaster volunteers, individual meetings with CHVs, ECCD volunteers, MCHN household visits, HA, and FWC and observation of EDU initiatives. The group discussions and individual meetings were based on structured questionnaires.
6. It is important to note that the 4 villages and 3 slums visited were selected by SHOUHARDO and the first hand impressions gained there might not be replicated in other areas where SHOUHARDO is working.
7. There is good evidence that VDCs and SDCs are providing strong impetus to improve their infrastructures which will indirectly improve HHN and health services as well as promoting 100% clean faecal free courtyard /HH. The subsets of VDC/SDCs are responsible for moving collectively to negotiate on CLTS and safe water.
8. CHVs play the most critical role in HHN because sustainable success has to come about through long-term behavioral changes. CHVs are actively promoting health service uptake by the program participants and linkages to

health services. Appointing CHVs from their own village/slum is very sensible because they know their own community well and travel time is minimized. The CHVs interviewed were knowledgeable about their duties, provided a good link with health service providers, enjoyed their work and appeared highly motivated. The influence of the CHVs could be seen as latrines were generally clean, although very few were water sealed, and all mothers had access to safe water. However several CHVs had received no formal training because they were recruited after the project had completed their initial basic training and they either learnt from a neighbouring CHV or through reading the training manual. CHVs have better linkages with health service providers (MOH&FW and NGOs) at village/union level.

9. CHVs do not appear to be able to counsel on the appropriate complimentary feeding practices to mothers. All mothers reported difficulty in deciding on the quantity and quality of food to give their child, the time needed to adequately feed their child, and were ignorant about the increasing amount of complimentary food required by their growing child.
10. Supportive supervision of CHVs day-to-day work needs more attention. Currently, CHVs are somewhat deficient in receiving on-the-job support which relates to their quality of work.
11. Food rations were generally appreciated, although some requested greater amounts, as the ration lasted less than 30 days. A number of mothers felt that the ration should include rice, sugar and more pulses. The direct impact of the monthly food ration (which provides about 1900 kcal/day, with a good balance of macronutrients and micronutrients) cannot be quantified, but mothers reported using the wheat, pulses and oil to make rotis/chapras for themselves during pregnancy and lactation, as well as sharing some with their children as a complimentary food. The increased food intake should improve pregnancy weight gain and reduce the prevalence of low birth weight but data on these two indicators has only been collected recently and there are insufficient data to analyse. Most mothers reported having three meals a day with greater quality and food diversity; there was good vaccination coverage of both mothers and children and the area around the home was clean and no stool samples were evident. All mothers reported exclusively breast feeding for the first 6 months and it was clear from examination of the growth charts that the babies tended to gain weight during this period. However growth faltering started to occur around 4 to 6 months of age, at the time when complimentary foods were introduced.
12. The annual changes in 12 key health, hygiene and nutrition indicators provided by M&E at CBHQ indicate considerable improvement between the baseline study carried out in 2006 and June 2009 as a result of the SHOUHARDO program interventions.
13. Eight of the twelve indicators show year-on-year improvements (number of months of adequate food provisioning, different food groups consumed per day, food expenditure, percentage of lactating mothers taking Vitamin A capsules, percentage of children under 1 year fully immunized, prevalence of

underweight, percentage of households using household or community hygienic latrines and percentage of households who have access to arsenic free safe drinking water). The other four indicators (percentage of mothers taking at least 2 TT vaccines, percentage of mothers completing 3 ANC visits, percentage exclusively breast feeding and percentage of children 6-24 months with diarrhoea in the last 2 weeks) showed inconsistent annual trends but all four indicators improved between the baseline study and June 2009. Diarrhoeal data needs to take into account seasonal variation rather than on semi/annual reporting.

- 14.** Nine of the 12 indicators have exceeded their LOA Target but for the other three indicators (number of months of adequate food provisioning, different food groups consumed per day and expenditure on food) it is not possible to determine the percentage of households who have reached the LOA Target since only mean values are provided.
- 15.** The current M&E data stored at CBHQ appears to focus on overall programme trends. There is a composite indicator system which has been introduced in SHOUHARDO M&E system to assess overall improvement based on certain indicators which collectively contribute to the overall ratings. Regional comparative analyses are being discussed in different forums of SHOUHARDO, starting from the hub office, regional office and CBHQs, the large senior management team (LSMT) meetings and at small senior management team (SSMT) meetings of SHOUHARDO. The available M&E system is not sufficiently detailed to show which approach provides most HHN benefit, nor does it seem possible to monitor individual PNGO performance or to examine inter-relationships between indicators across PNGOs and determine which SO is most beneficial
- 16.** Regional level M&E units should set a benchmark over the program implementation period to evaluate NGO performance and consistently look for outliers; both of these checks are currently missing from the M&E system. One PNGO reported that over 80% of 6-24 months old children were underweight in the period from April to June 2009. This is a very high level of undernutrition at any time, but particularly so after over 3 years of SHOUHARDO intervention, and is one which should have caused immediate concern at the Regional Office. Re-weighing 25% of the children showed that the prevalence of underweight was much lower and the CHVs had correctly measured and transcribed the data. More care and checks need to be introduced between primary data and Regional office.
- 17.** Women involved in COGs spent their additional income on a variety of activities including food, health, education and buying livestock but there was little evidence the money was being spent on better nutrients (e.g. increased animal protein) and only 25% used it for health services.
- 18.** There is no direct link between HHN and EKATA but clearly delaying marriage at an early age will have a positive impact in reducing the incidence of low birth weight and maternal morbidity and mortality. Increased maternal education is

associated with better child feeding, caring and careseeking practices and nutritional status as well as overall health and wellbeing.

19. Children between 2 and 6 years of age attending the ECCDs receive regular hygiene messages from the volunteer running the classes. However little or no growth promotion is practiced and no CHV could measure height correctly. Where there is no ECCD health, hygiene and nutrition issues for children between 2-6 years of age are completely lacking.
20. Ignorance still persists - colostrum was not given by all mothers, and full knowledge on hygienic practices is lacking, except for nail trimming. Children with diarrhoea are given less fluid and food.

D. RECOMMENDATIONS

21. There is a need for involvement of VDC/SDCs in the HHN programme through supporting the activities of the CHVs. EKATA volunteers and ECCD volunteers together could also address HHN issues and challenges.
22. The role of the CHV needs to be rethought with specific key messages related to the mother's status - (a) pregnant (b) exclusively breastfeeding or (c) complimentary feeding. Courtyard discussions should involve homogeneous groups of mothers. In addition there is a need for practical demonstrations at HH/Courtyard sessions. on feeding practices and making an enabling environment for the mothers..
23. There are no men's groups - they need to be set up so that men are educated too about the demands of pregnancy, delivery, and child feeding and caring practices.
24. Growth Monitoring and Promotion (GMP) is providing a direct entry point to the HHN interventions and should continue. GMP should be extended up to 5 years of age using weight only, not height.
25. The growth charts used in Health and Nutrition Cards should be replaced with the 2006 WHO growth standards.
26. The GMP session and EPI should be organised on the same day each month for the younger children to maximize service uptake coverage. GMP for 2 - 5 year olds should be carried out at the ECCD, so ECCDs should be expanded to all areas. The ECCD would also provide a very useful platform for getting across simple health and hygiene messages to the children by the ECCD volunteer.
27. Gut parasites and anaemia are major problems in Bangladesh. Regular deworming and provision of micronutrient supplementation should be automatically included in SHOUHARDO package.
28. The M&E needs to be rethought so that information on each NGO is readily available across a wider range of indicators including pregnancy weight gain and birth weight and IYCF indicators so as to allow testing between indicators, for example, the relationship between food expenditure and reduction in underweight.
29. Annual panel nutritional surveys (involving measurement of weight, height, MUAC and haemoglobin) on a 1000 children drawn randomly from all PNGOs,

with a new cohort of 200 infants added each year would provide valuable information on both the extent of stunting and wasting, measures of chronic and acute malnutrition respectively, whereas weight-for-age is a mixture of both acute and chronic malnutrition.

- 30.** In remote areas like haors and remote islands, use locally trained personnel (either CHVs or local medical practioners) to treat common child ailments such as pneumonia and diarrhoea and bloody dysentery.
- 31.** EKATA should be expanded to all areas as it is already having an impact in preventing early marriage, dowry payments, violence against women, increasing literacy among its members and providing general empowerment to women.
- 32.** Inclusion of Infant Feeding in emergencies (IFE) and minimum initial service package (MISP) for women are potentially important to include in the BCC strategy of SO2 and SO4 in order to reduce child morbidity and maternal mortality and morbidity along with IYCF practices.
- 33.** Increased linkages with Health Service Providers is needed.
- 34.** Homestead gardening should be promoted as this is a very easy way to provide green leafy vegetables which contain many essential minerals and some vitamins.

1. Introduction

1.1 Background

The SHOUHARDO Program is funded through USAID Food for Peace (FFP) Title II, operating from October 2004 to May 2010. The overall goal of the Program is to ‘Sustainably reduce chronic and transitory food insecurity of 400,000 households (HHs) in 18 districts of Bangladesh’. The Program specifically targets the poorest and most disenfranchised populations of Bangladesh.

To reach the Goal, SHOUHARDO has 4 Strategic Objectives (SOs).

SO1: Improved availability/economic access to food through strengthening livelihoods, entitlements and enhancing accountability of service providers.

SO2: Sustainable improvement in the health and nutrition of project participants.

SO3: Enhanced empowerment of 400,000 women and girls from targeted vulnerable HHs.

SO4: Targeted communities and institutions are better able to prepare for, mitigate and respond to natural disasters.

This thematic study is about health, hygiene and nutrition. HHN are highly inter-related. Undernutrition decreases the body’s immune function (impairment of the body’s defence system) thereby increasing susceptibility to disease, while diseases either indirectly or directly increase the risk of undernutrition. For example, diarrhoea especially when accompanied by fever, compromises energy balance by reducing dietary intake, increases food loss due to malabsorption, and decreases intestinal transit time. Worm infestation (geohelminths) leads to reduced appetite, gut damage and impaired intestinal nutrient absorption. In Bangladesh children with a modest worm infection weighed 2.0 kg less and were 0.42 cm shorter than children free of infection over an 18 month study period. Extrapolation to the whole of childhood would result in a child free of gut parasites being 3 to 4 cm taller and weighing 14 kg more. Lack of access to safe water and sanitation , together with poor hygiene practices, increases the risk of infection. In addition, poor feeding practices at the time of introduction of complimentary foods, with or without poor hygienic practices, is associated with growth faltering and poor nutritional status.

2. Objectives of the thematic study

The specific objectives of this study are:-

(a) assess how effectively the approaches are contributing to positive change, and how sustainable these changes are. ‘Prioritise’ the different approaches being employed in relation to successfully achieving this Thematic area, clearly identifying which approaches are bringing most benefit, and identifying other approaches which are not being as effective. The consultant needs to explain the reasons behind why each of the approaches are being effective, or not effective, as the case may be.

(b) examine other approaches, if any, being used by other projects in CARE Bangladesh to achieve the same end point. This will be to a limited scale.

(c) provide recommendations on how the approaches can be improved for future programming, especially in relation to the 'Impact Statement' and 'Impact Groups' CARE has committed to. This will be based on the knowledge derived from this study, as well as knowledge acquired from other studies.

3. Process of how the thematic study was conducted

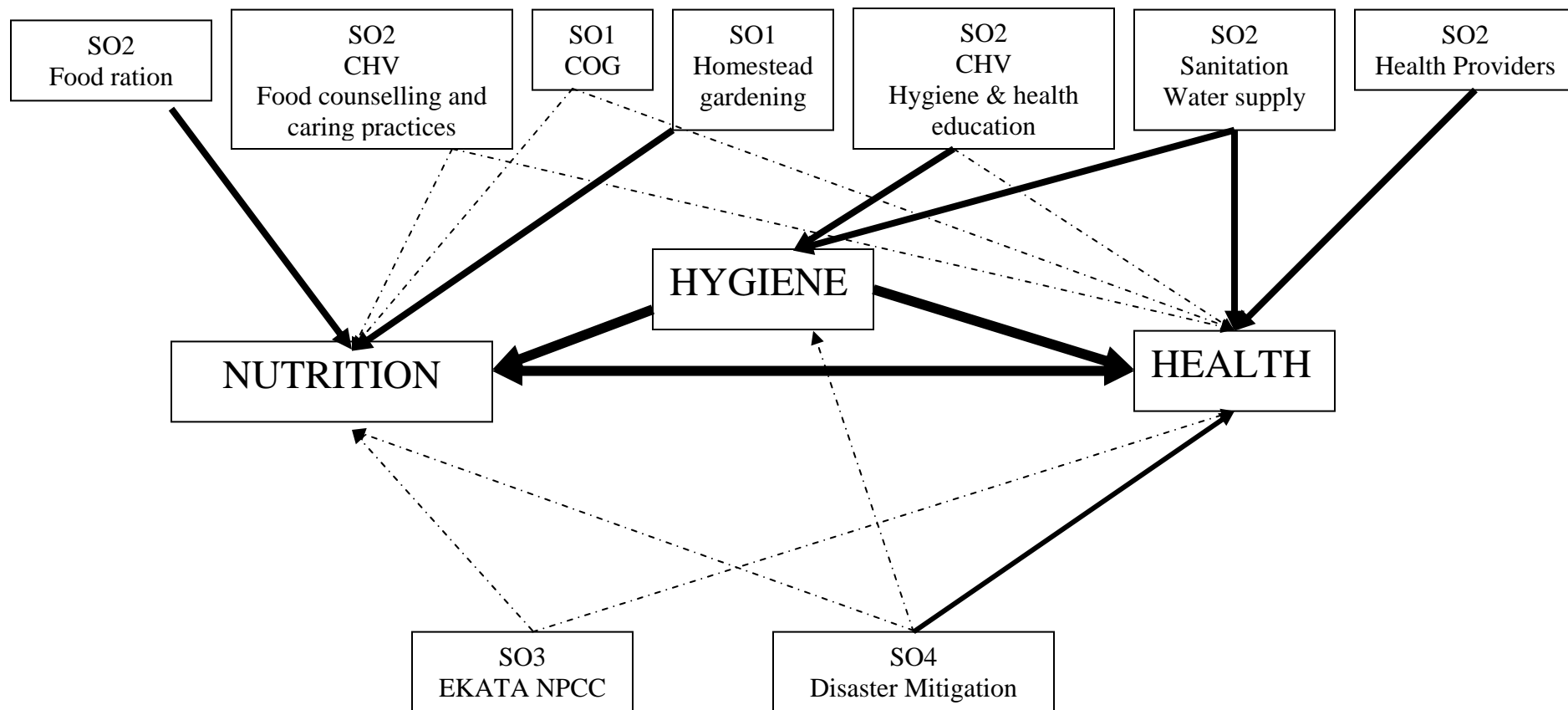
3.1 Background

The initial approach was to understand the direct and indirect ways in which SO1 to So4 impact on HHN. Figure 1 provides an overview of the linkages between SO1 to SO4 and nutrition, health and hygiene. The solid lines refer to direct pathways and the dotted lines to indirect pathways.

The important points to note are:-

1. Nutritional status is directly related to food intake from (a) the monthly distribution of food rations (SO2) and (b) consumption of vegetables from homestead gardening (SO1). The indirect way in which nutritional status is improved arises from income spent on food generated through the COG (SO1), EKATA (SO3) activities who promote later age at marriage and Disaster Mitigation (So4) which provides access to safe water and food during the floods.
2. Hygiene is directly impacted through messages from the CHV (SO2) and from improved sanitation (SO2) and access to potable safe water (SO4).
3. Health is improved as a direct result of access to health services (SO2) with increased access to EPI, PPVA, ANC, utilization of safe delivery kit and PNC as well as through access to safe water (SO2 and SO4 in flood situations) and indirectly through improved hygiene practices (CHV, SO2), and better sanitation (SO2).
4. Behavioral change and communication (BCC) is a central tool to bringing about improvements in all aspects of nutrition, health and hygiene.

Figure 1 Linkages between SO1 to SO4 and Nutrition, Hygiene and Health



- - - - Dotted line: Indirect pathway

← Solid line: Direct pathway

3.2 Data Collection

Three main data sources were used in generating this report.

3.2.1 All the previous thematic study reports, together with the six monthly reports, annual results reports and Baseline Survey Reports, Mid Term Recommendation (MTR) reports, Mid Term Strategy Documents, HHN operational guideline were made available, and read by the consultants. Meetings were held with CBHQ staffs covering ECCD activities, organization of the M&E system at HQ and regional offices and EDU activities.

3.2.2 Using the CBHQ M&E database to analyze the trends of 12 key health, hygiene and nutrition indicators using the biannual reports from 2007 to 2009 and where additional data (primarily regional) data existed to test for inter-relationships between indicators.

3.2.3 Two five day field visits to Tangail and Kishoreganj involving both village and slum visits (see Appendix 1 for details) and meetings with regional office staff as well as group discussions with VDCs, SDCs, COGs, graduated beneficiaries, EKATA members, NNPC members, ECCD mothers, Disaster volunteers, individual meetings with CHVs, ECCD volunteers, MCHN household visits, HA, AHI, UH&FPO of Karimganj Upazila and FWC and observation of EDU initiatives. The group discussions and individual meetings were based on structured questionnaires (see Appendix 2 for copies of the questionnaires used).

4. Findings of the Study

4.1 M&E database

Two sources of M&E data were analyzed, one was based on data made available through CBHQ, and the other through the regional offices at Tangail and Kishoreganj.

4.1.1 Changes in 12 key health hygiene and nutrition indicators between baseline and 2009

Table 1 presents information on the 12 key health, hygiene and nutrition indicators from the semi-annual reports. There was steady year-on-year improvements in (a) mean adequate food provisioning (b) mean different types of food consumed per day (c) average expenditure on food (d) percentage of childhood underweight in the age range 6-24 months (e) percentage of lactating mothers taking Vitamin A capsules and (f) percentage of children under 1 year fully immunized (g) percentage of households using household or community latrines and (h) percentage of households with access to arsenic free safe drinking water. Improvement in the percentage of mothers taking at least 2 TT vaccines, percentage of mothers completing 3 ANC visits, percentage of mothers exclusively breast feeding and prevalence of diarrhoea was inconsistent over the surveys but there was overall progress between baseline and 2009. Diarrhoeal episodes vary by

season and the low prevalence in 2009 is probably because the report only covers the first half of the year.

Nine of the 12 indicators have clearly reached their LOA target. For the other three indicators (adequate food provisioning, different food groups consumed per day and food expenditure) the results are presented as mean values and it is not known what percentage of households have achieved the LOA Target. The expenditure on food data need to be corrected for inflation. Furthermore the overall project means do not reveal the extent of within and between regional variability which is likely to be considerable (see next section).

Table 1 Annual changes in 12 key health, hygiene and nutrition indicators between the baseline survey (2006) and 2009

Indicator	Baseline	2007	2008	2009*	LOA Target	Better (+) or worse (-) than Target (%)
Average number of months of adequate food provisioning	5.20	-	6.17	6.81	8.00	-1.19 (-14.9%)
Types of different food groups consumed per day	5.10	5.40	5.6	6.26	6.00	+0.26 (+4.3%)
Average expenditure on food	1608	1660	1739	2242	1930	+312 (+16.2%)
Average income per month	2133	2388	2380	3708	2560	+1148 (+44.8%)
% of income spent on food	75.4	69.5	73.1	60.5	75.4	+14.9 (+19.8%)
% children 6-24 months underweight	56.8	40.90	40.77	32.17	53.40	+21.23 (+39.8%)
% of children 6-24 months with diarrhoea in last 2 weeks	22.50	8.00	14.34	4.46	18.00	+13.54 (+75.2%)
% of Mothers taken at least 2 TT vaccines	37.10	80.50	45.76	74.30	53.80	+20.5 (+38.1%)
% of Pregnant Mothers have completed 3 ANC visits	16.10	57.90	31.52	63.00	18.50	+44.5 (+240.4%)
% Exclusive breast feeding	42.00	43.50	33.80	53.00	35.00	+18.0 (+51.4%)
% Lactating mothers taking Vitamin A capsules	9.70	-	32.21	84.30	50.00	+34.3 (+68.6%)
% of children < 12 months fully immunized	61.0	61.20	70.05	84.00	60.00	+24.0 (+40.0%)
% of HHs using hygienic HH or community latrines	17.2	71.0	86.06	100.4	77.21	+23.19 (30.0%)
% HHs who have access to arsenic free safe drinking water	16.7	60.03	94.7	108.6	50.00	+58.6 (+117.2%)

* 6 months only

4.1.2 Relationship between food expenditure, diarrhea and underweight

An attempt was made to test whether there was any association between the percentage of underweight children aged between 6 and 24 months of age and average household food expenditure and % of children with diarrhoea in the previous 2 weeks. The analyses used the Haor regional data (Table 2) to test for these associations using data from the 16 individual NGOs collected between April and June 2009.

As can be seen from Table 2 there is considerable variation between NGOs for all three variables; underweight varied from 20.30% to 57.63% (mean 33.29 SD 11.42), percentage of children with diarrhoea from 0% to 19.15% (mean 4.00 SD 4.1) and average food expenditure from 686 to 3500 Taka per month (mean 2211 SD 650).

Figures 2 and 3 reveal that there was a negative ($r=-0.24$), but insignificant ($p=0.36$) correlation between the percentage underweight and food expenditure, which is in the expected direction as was the positive but insignificant association between diarrhoea and underweight ($r=+0.21$, $p=0.43$). In all statistical tests a p value of <0.05 is used to signify a 'significant' result. In these analyses there is very large variation from the best fitting

line so it is not surprising that the tests were not significant. In addition these sample sizes are quite small, only 13 NGOs and 16 data points, but they give an indication of the types of analyses that could be done if data from more indicators were available from all individual NGOs. It would also be possible to test for differences between regions and trends over time.

It is worth noting that four of the NGOs reported percentages of underweight child of over 40% which are high and it raises the question of whether there should be closer monitoring of NGOs who exceed a certain percentage and checking that the information received by the regional office is correct. The same could be said for diarrhoeal levels in which 3 NGOs report levels of close to 9% and above.

During the visit to Tangail it became apparent that one PNGO had reported underweight in the last quarter at well over 80%. No attempt appeared to have been made to verify the data until the study team requested a site visit to check if the CHVs were measuring and recording weight correctly or making errors when forwarding the data. On the site visit 24 out of the total sample of 92 children in the area were re-measured and no anomalies were found in the growth charts or in the CHVs records. The overall underweight prevalence in these children was under 12% so even if all the remaining children were underweight the overall prevalence could not reach 80%. A visit to the local PNGO office failed to uncover the error but it did reveal that data collected at the field passes through 3 levels before reaching the regional office. Data arriving at Regional Office needs much closer scrutiny and there needs to be a much stringent system of data verification at PNGOs than appears to be at present. Although there is an in-house system to conduct re-sampling of the monthly/ quarterly captured data and 5-10% of the captured data are cross-checked at the field by Hub M&E(CARE) and PNGOs M&E staff, this rather obvious error escaped the in-house checking system.

Table 2 Haor regional variation in underweight, percentage diarrhoea and average food expenditure by NGO between April and June 2009

Indicator	SUS_N	SARA	CDA	SBSKS	ORA	POPI_A	POPI_B	SAD_BD	IDEA	USS	SUS_S	CNRS	ASD_R	ASD_U	CARE_U	CARE_R
Underweight (%)	23.77	33.68	20.30	22.84	52.33	31.58	35.46	22.76	33.41	57.63	47.70	33.91	27.27	24.73	42.55	22.70
Diarrhoea (%) 6-24 months	1.52	3.16	9.40	0.00	2.46	1.05	1.23	2.07	0.99	1.24	8.98	5.50	4.01	1.65	19.15	1.46
Average food expenditure	2022	686	2609	3500	2170	1949	2357	2532	1450	2146	1818	2057	2067	2067	2975	2975

Correlations, underweight and food expenditure ($r = -0.24$, $p = 0.36$), underweight and diarrhoea ($r = +0.21$, $p = 0.43$)

Figure 2 Relationship between % underweight and average food expenditure

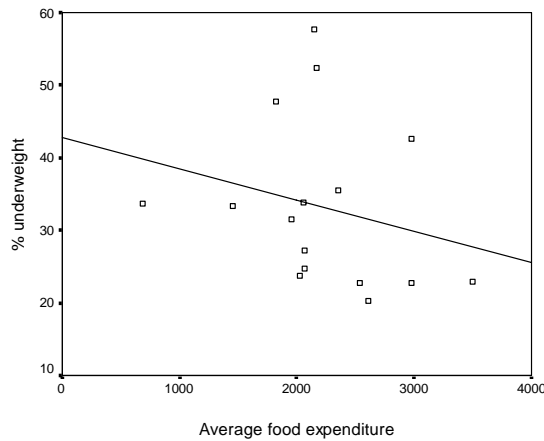
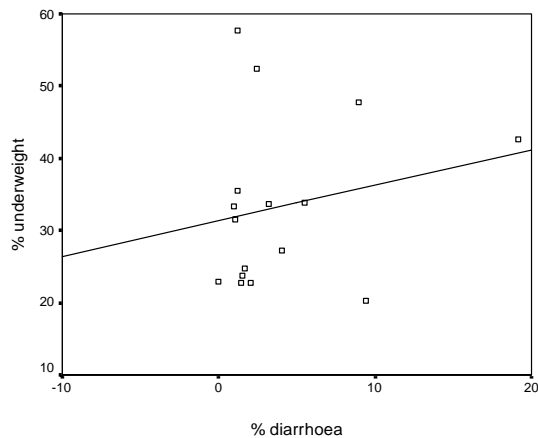


Figure 3 Relationship between % underweight and % diarrhoea



4.2 Findings of the community surveys

Two field trips each of five days duration were conducted, initially in Tangail and then Kishoreganj. In Tangail 2 villages and 1 slum area were visited while in Kishoreganj, 2 villages and 2 slums were visited.

1. VDCs and SDCs

The VDCs and SDCs were set up between 2005 and 2007 and all have a similar structure comprising a President, Vice-President, Secretary, Treasurer and a variable number of executive members (between 7 and 11). Most of the presidents were male and the vice-president was quite often female. All the VDCs and SDCs were made up of poor and extreme poor members except for one village where the President and Secretary were from the middle class. The committees usually met monthly and reviewed progress on the

various activities as set out in the annual Community Action Plan (CAP) unless there were some specific emergencies. The Health, Nutrition and Sanitation subcommittee were found to be active in communicating about health service providers (for immunization and pregnancy related services, ANC, PNC and referrals for emergency obstetric care. This community driven approach is effective in making health service providers available in the villages and slums as well as negotiating with providers (for example, Smile Sun Franchise Program-PSTC in Bhairab) about the low price of health services. For the disadvantaged/poor communities free annual health cards have been issued which ensures access to health services.

The Sanitation sub committees in the VDC/SDCs were aware of the successes of the community-led approach and the committees were working hard with the Union Parishad and DPHE to allocate more latrines to the poor program participants. But there is a shortage of supplies and the natural calamities (yearly floods and erosion in the Haor areas) make it difficult to repair the latrines.

Apparently an evolving leadership platform appears to have developed in the SHOUHARDO program areas where further promise and hope are being enabled through improving overall humanitarian condition of the targeted poor and extreme poor of the community.

Community Action Plan (CAP):

All the VDCs and SDCs have developed CAPs with participation from villagers beyond VDCs/SDCs – so the CAP reflects a community view of the current important activities needed to be done. Each year from the inception of SHOUHARDO, VDCs/SDCs have prepared CAPs with active participation from most of the villagers/slum dwellers. CAPs are developed for a yearly target and with few exceptions the same activities continue in the subsequent year. As this is the final year of the SHOUHARDO program, all the CAPs are running up to 2010. There are about 7 to 14 activities in the CAPs where the key activities are increased access to sanitation with repair of existing latrines, improved vegetable production, road construction, access to safe water, increased opportunity for economic development, empowerment of the women and education for children. There are some unique activities which vary because of geographical location, for instance protective walls for the school and graveyard in the Haor areas, and plinth raising and flood shelter construction in low lying areas in the mid char areas.

The committees recognized their successes but were very aware that there was still much more to do; being mobilized with their needs and demands was the first step in obtaining the resources to fulfil these requirements. The committees felt that their voice was being heard, they were making progress in improving the livelihoods of the poor they represented, and they had much stronger links at the UP level and with other stakeholders in order to obtain the best support from different service providers in the village, union and upazila. There is a strong linkage with health and family welfare services at the union level with Ministry of Health and Family Welfare (MOH&FW) and other working

NGOs (e.g. Grameen Kallyan, Swanirvor) which is providing health services. Moreover, sanitation support came from the Union Parishad intermittently although some issues remain challenging such as water seals in the sanitary latrines although every household appeared to have access to a latrine.

Negotiation skills appear to be much improved among the SHOUHARDO program participants working through, and focused on, the CAP activities.

2. Core Occupational Group

The COGs were engaged in a variety of activities. In the urban areas the work was primarily income generating through basket making, shoe repair and renovation, and floor brush making whereas in the rural areas a combination of activities was undertaken which might be direct income generation (e.g. Batik printing for table cloths, preparing food for the NNP programme, selling ready-made clothes, sewing, clothes making), or indirect through rearing livestock (mainly cows, goats and poultry rearing). The Batik workers received a monthly wage of 500 Taka/month and most of the other direct activities generated income of this order. It was interesting to note that the Batik workers, unlike other COGs did not spend any of their income on food. All COGs reported spending their money on health services, improving their houses, buying animals (e.g. goats). The women were encouraged to make regular savings in the Deposit Pension Scheme (DPS) with deposits ranging from 200 to 300 Taka/month for a period of 5 to 10 years and another group of women involved in depositing in micro credit savings groups with weekly deposition of 5-10 Taka. From the discussion with COG members in the village Patita para, Nikrail Union, they mentioned that their spare time is being utilised in more profitable ways nowadays rather than engaged in gossiping, which did not have any financial outcome at the end of the week/month. One mother was saving for her daughter's dowry even though there was an EKATA group in that village which was actively trying to stop dowry payments. Income generated also acts as a crisis support fund if a family member falls ill. It seems clear that the amount seed money/other inputs provided is insufficient to get a business started and the participants are then entrapped in taking out microcredit loans in order to pay for their additional requirements.

In the urban area there was evidence of women graduating from extreme poor to poor through their income generating activities (for example, selling clothes, running a tea stall, preparing baskets, brooms and repairing shoes). Most of the COG members are saving money for future investment (for example a new tin roof), spending money on children's education and a few are availing their family members of health services.

3. EKATA

The EKATA groups were set up in 2008 and usually have about 30 members, with a President, Vice-President, Treasurer and Secretary. The groups had attended a 3 day TOT course regionally. TOT members trained the other EKATA members locally. Meetings are conducted weekly. The main focuses of their activities are:-

1. Preventing early marriage
2. Stopping violence against women
3. Preventing dowry payment
4. Increasing literacy among members
5. Increasing women's income
6. Increasing girl's attendance at school thereby increasing literacy and female educational level
7. Raising awareness against unsocial activities

EKATA is not present in all SHOUHARDO villages but there is a subcommittee (NNPC) in the VDCs/SDCs. Where EKATA is not present, this special committee undertakes most of the listed activities with support from VDCs/SDCs. Through discussion with EKATA and NNPC members, it was found that the groups are being successful in preventing early marriage, dowry payments and stopping violence against women. It is very encouraging to see that strong women's leadership has evolved within these poor populations where deprivation and indignity are higher than any other segment of population. Through encouragement from SHOUHARDO these women have come together with specific activities, and they can further build upon their strengths with confidence. There is still potential to strengthen reproductive health rights, decision making on health and nutritional aspects of their own lives and children and their community. There was not much difference between urban and rural EKATA interventions so far. The women reported that although there was initial apprehension, they had not faced any difficulties or challenges in being an EKATA member.

4. CHVs

In depth semi-structured individual interviews were conducted using a specially prepared questionnaire with 8 CHVs (6 rural and 2 urban) at which only Professor Mascie-Taylor and Dr. Shahed were present.

Community Health Volunteers are selected from the same village where they are engaged to work with MCHN mothers. Their educational status is, on average, 8th grade with a few CHVs having higher qualifications. CHVs are primarily responsible for working with the MCHN mothers to carry out the desired practices on health hygiene and nutrition.

The main findings of these interviews were as follows:-

1. There is inconsistency in the training of CHVs. Only 6 of them had attended the 4 days long training course and the other two had received on the job training from the neighbouring CHV; one of the two stated she had also learnt about the main activities by reading the training manual.
2. All CHVs felt that their workload was about right.
3. All responded well on why growth monitoring and promotion is important and they knew what to do if a child was underweight or a pregnant women was gaining very little or no weight.

4. The CHVs, are mainly engaged with counseling of mothers on feeding practices, but none of them helped the mothers with underweight children through demonstration of feeding practices at home. Most CHVs perceived the cause of being underweight (WAZ -2/-3SD) as only related to disease condition of the child and not dietary insufficiency. Two CHVs mentioned about monthly demonstrative feeding sessions with MCHN mothers to promote hodge podge (Khichuri) for the children (6-24 months of age) as complimentary feeding. But this practice is not replicated among mothers in the remaining days of the month which was revealed during individual discussions with the mothers. In the courtyard sessions (Uthan Baithak), CHVs are discussing 20 core messages with mothers. Mothers are attending the sessions twice a month. A mother enrolling in the SHOUHARDO program at the end of her 3rd month of pregnancy and continuing in the program up to when her child is 2 years of age, could attend 58-60 sessions. So, the key BCC messages on exclusive breastfeeding for the first 6 months and complimentary feeding are getting lost amongst all the other messages and there is no attempt to prioritise. Nor are there any pictures or handouts which inform about complimentary feeding and no attempt is made to show mothers how to prepare complimentary foods and the optimal portion size. Courtyard sessions should deal with homogenous groups (e.g. breastfeeding only) and focus on specific issues relevant to them which would make them much more effective in reaching out to mothers and the CHV could make maximum use of their time talking to mothers and explaining best practices.

There is a need to devise a BCC strategy which prioritises which areas to focus on with mothers. It might also be useful to include other women's group (EKATA) or forming a mothers' support group to help mothers through demonstration and understanding of the core issues.

5. Although not included as part of the 20 core messages, nearly all CHVs discussed with mothers the dangers of gut parasites but they mainly focused on deworming of children rather than the whole family. All the CHVs incorrectly thought that deworming should not be done during pregnancy whereas deworming should be encouraged from the second trimester.
6. Increased links between SHOUHARDO and the health service providers have been observed through discussions with MCHN mothers and MOH&FW health service providers in the villages. Moreover CHVs are attending the monthly EPI session, referring mothers and children to FWCs and to other NGOs service outlets near to the villages. This improved relationship increases the service uptake by the program participants.
7. All CHVs reported discussing the food ration with adult family members other than the mother but they noted that those present were mainly the female (mother, mother-in-law) members and only in a few instances did they talk to the husbands.
8. Not all villages had a ECCD programme and growth promotion services are supposed to form part of the SHOUHARDO activities. The CHV only attended

1/month, so most health messages to the children were left to the ECCD volunteer (see ECCD section for details). At the monthly visit the CHV discussed hygiene practices as well as the weight gain or loss of the child with the parents. In the villages where there was no ECCD, children between 2 and 5 years of age received no formal nutrition education or hygiene messages.

5. ECCD

The ECCD volunteers who had 10th grade schooling received 7 days training. The children were split into a younger group (3-4 year olds) who attended from 8.30 to 9.30 am, and an older group (4-6 year olds) who attended from 9.30-12.00 am. The volunteer kept a record of attendance. The volunteers gave health messages to the children about 3 times a week focusing on personal hygiene - use of latrine, washing hands after defecation, nail trimming, wearing clean clothes etc.. They regularly checked to make sure that the child's nails were trimmed. They also held a monthly afternoon meeting with parents at which further hygiene messages were delivered.

6. Disaster Risk Management Group

The Disaster Volunteers were selected and they received 2 days of training in 2008. The study team had discussions with them Tangail and Kishorganj. Their main duties are to draw up a risk and resource map, identifying vulnerable people, plan for responsive action to emergencies and disasters primarily due to floods and river erosion and in the slum area from floods and fires. These volunteers have a close collaboration with UP and the upazila in relation to planning of activities and supplies. The training made the volunteers more aware about their responsibilities and tasks.

After the training received from SHOUHARDO, no disasters have occurred in their areas but the volunteers felt much more confident to be able to cope with disasters after the training. Infant feeding in emergencies was not highlighted during training nor was support to pregnant women about to deliver during a disaster. One of the volunteers shared his experience on the delivery of a child in a flood shelter in 2007 and how the mother was provided with private space in the shelter and received an immediate PNC check up by the medical team. But feeding of the child at that time was a challenging issue for the mother and the baby was fed other liquids rather than breast milk.

The disaster volunteers are aware of the possibility of post-flood disease outbreaks. They have also learnt how to raise the tube well height during flooding and some key issues on bleaching the affected tubewells. They have adopted a signalling system using different colours (Haor areas) and disseminating information about floods/storms using the amplification systems in mosques as well as by hand microphones.

After the initial training no refresher courses have taken place. They have run a disaster simulation in their area which helped the villagers to understand about disaster

preparedness and response activities. The number of trained disaster volunteers is small and more are needed with communities of these sizes.

7. SHOUHARDO mothers receiving rations

In depth interviews were conducted with 12 village and 4 urban mothers using a specially designed questionnaire. The questionnaire covered 7 areas, food security, food rations, child feeding practices, child condition, hygiene practices, water and sanitation and usefulness of the CHV. All interviews were conducted with only Professor Mascie-Taylor and Dr Shahed present. Of the 16 women, 4 had children < 6 months of age with the remainder aged between 6-24 months of age.

1. Food security – 14 mothers reported that they were having 3 meals/day with better quality meals and greater food diversity. Two mothers reported having only two meals 2/3 times a week with no improvement in quality or diversity. Food stores varied from 0-40 days and were generally longer in the village than the urban area.
2. Food rations – Five mothers felt that the ration was inadequate in amount or content and most would prefer to have other foods in the ration (mainly rice, and sugar). Most used the ration for 1 meal/day but the ration lasted anywhere between 15 and 30 days. All reported that their mother-in-law and other adult family members understood why they had been given the food rations. Nine mothers reported taking extra food during pregnancy and two reported taking less food. It is evident from the discussions with mothers that food rations are being consumed by the mothers and they are taking additional food during pregnancy and lactation. The main recipes prepared from the food ration are chapatti and chapras are they are mainly consumed by the mothers and they introduce chapatti to their children when the child is about 1 year old. This food ration obviously supports the program beneficiaries' to reduce their transitory food insecurity.
3. Infant and Young Child Feeding – Thirteen of the sixteen mothers reported giving colostrum – the other three gave either honey or cow's milk. All mothers said that they are, or did, exclusively breast feed for 6 months. All mothers found the transition from breast feeding to introduction of complimentary foods to be very difficult and confusing – there was uncertainty about what to give, how long feeding would take, and frequency of feeding according to the growth of the children . Although they all reported support from the CHV this did not seem to be of much practical benefit in relation to feeding.
4. Health and Nutrition card - the study team analyzed approximately 90 Health and Nutrition cards of the beneficiaries. All MCHN beneficiaries have a Health and Nutrition card which includes all information about the pregnant mother and children <2 years of age. There was clear evidence of underweight when compared with the NCHS reference value.

Children 0-6 months: All H&N cards in this age group were carefully analyzed, and the majority of the children started growth faltering from the age 4 months onwards. While interviewing individual mothers, it was clear that mothers gave additional food along with breast milk at this time and children had frequent episodes of illness. The reason mothers gave additional food was because they thought that their children were not getting sufficient breast milk.

Children 6-24 months: Nearly all the H&N cards of this age group revealed children who were becoming underweight (WAZ<-2SD) especially from 7-8 months onwards and they had frequent episodes of illness including diarrhoea, fever, cough and a few had skin diseases. Children are referred by the CHVs to health facilities but they did not show any improvement in underweight. Most of the children's growth curves showed very minimal weight gain averaging 100-200 gms/month which is insufficient to graduate from underweight. And the overall trend is very unsatisfactory in terms of future progression. CHVs are disseminating messages to mothers after identification that they are underweight at the GMP session and paying HH visits, but most of the children are not improving. The study team found that all HH visits are limited to messaging only on complimentary feeding of kichuri and there are no visual aids or practical demonstrations at the HH level. Mothers are lacking practical knowledge on the type, amount and frequency of food for her child and how it changes with age. CHVs are not helping mothers through proper demonstration and counseling along with other family members. Mothers are unaware of the increased nutrient needs of the children. So the study team found that the potential of the CHVs could be improved with a much more structured BCC strategy and tools on complimentary feeding. In addition adult males in the HHs are unaware of the child's condition.

5. **Pregnancy Outcome** - Most of the births were attended by a TBA/Dais from the same village. There was no history of illness and all TBAs/Dais used some form of safe delivery kit (using blades, threads, after boiling, which is a good practice). Two of the mothers were admitted to hospital because of pregnancy-related complications and they received EmOC services. There were no history of illness maternal death in these 3 villages and 3 slums due to pregnancy related complications. EKATA members and VDC/SDCs are sometimes being proactive to help pregnant mothers obtain access to hospitals for EmOC services. Mothers are aware of the newborn care. CHVs are successful in promoting messages about using sterilized/boiled kits, informing mothers about EmOC services and mothers are able to communicate with TBAs/Dais before their delivery with prior arrangements for a blade, thread etc..
6. All the children were regularly weighed at the GMP session and received advice from the CHV if the child was underweight. Over half the mothers could not interpret the growth chart correctly. In addition no fathers were

acquainted with the growth chart or the health and nutrition card. All five children with diarrhoea in the last 14 days, were given less fluids and food and all village children were treated at the Family Welfare Center (FWC) and Grameen Kallyan, a NGO. In the urban area the two children were given ORS. It was noticeable that during the diarrhoeal episode the child received only breast milk. All children were either fully vaccinated or were up to date.

7. Hygiene Practices – there was a wide range of knowledge about when to wash hands; only 3 mothers knew all the correct answers while 8 mothers correctly answered only 3 or 4 times. Nobody washed their hands with water and most village mothers washed with ash and a few times with soap whereas in the urban areas only soap was used. There were no fecal samples in the courtyard and generally the village and slum was free of litter. All mothers had trimmed nails but four mothers had dirty nails. Most mothers reported taking a deworming tablet before they became pregnant but not during pregnancy or since. So antihelminthic treatment was not regularly undertaken. Children from 1-2 years are taking antihelminthic as prescribed by health service providers even though the national deworming program does not aim to treat children below 2 years.
8. Water and sanitation – all mothers reported using tube well water for drinking and cooking with the majority purchasing their own. Nearly all mothers reported that the water had been tested for arsenic. About half the tube well platforms were pucca. Most latrines were of the ring slab type and there were very few in the village which were water sealed. In general the area surrounding the latrine was clean.
9. Usefulness of the CHV – Mothers reported meeting with the CHV 2-3 times/month at the GMP, courtyard discussions and home visits. All mothers reported that they felt that the CHV was performing a useful function in their community but clearly as described here there is a need to rethink the role of the CHV and the key messages she imparts.

4.3 Effectiveness of the SOs

As noted in Figure 1 all 4 SOs impact directly or indirectly on HHN. From a nutritional viewpoint, undernutrition is directly caused by only two factors, poor diet (insufficient quality and quantity of food) and disease. SHOUHARDO is tackling the lack of food to pregnant and lactating mothers and children under 2 years of age directly through provision of the food ration. Food coming into the HH through homestead gardening provides additional food diversity and green leafy vegetables is a good source of many essential minerals and vitamins. Nutritional status can also be modified by food being bought from income generated the COGs but this does not appear to be happening at present and counseling of COGs is needed so that they spend some of their income on animal protein (e.g. fish). Mothers also receive messages about feeding themselves and their babies from the CHV. The BCC strategy needs to be reorganized and in so doing recognize that there are 3 types of mothers – (a) pregnant, (b) lactating with infant below

6 months of age and (c) when the infant is above 6 months of age. The messages given to these three groups will not be the same in terms of feeding practices. So this is an area which is currently not as effective as it should be and there is a need to provide practical demonstrations to mothers especially in relation to complimentary feeding. EKATA does not act directly on nutritional status but delaying age at marriage and childbirth is beneficial to both mother and child. Disaster management which provides food in times of crisis is also beneficial.

Mothers and children become ill primarily because of poor health and hygiene practices. SHOUHARDO is providing safe water and latrines and trying to bring in a culture of CLTS. CHVs and ECCD volunteers are delivering health and hygiene messages and although nails are trimmed there is still considerable ignorance about the importance of washing hands etc. So more targeted messages with practical demonstrations are required.

So in conclusion HHN is directly or indirectly affected by all 4 SOs but the main area in which improvements should be made is in BCC messages through the CHVs.

5. Recommendations

Here are a number of recommendations arising from the overall findings and analysis of SHOUHARDO HHN approaches and systems.

A. VDC/SDCs:

1. There is a need for involvement of VDC/SDCs in the HHN programme. VDC/SDCs should be including key HHN strategic interventions in CAP and include specific key HHN output indicators such as WAZ, CLTS, maternal health issues such as pregnancy related services (ANC, PNC), supplies (Fe/Folate, TT), and seasonal disease incidences in their communities and hygienic practices. Currently, VDCs/SDCs commitment towards HHN outputs are minimal except for CLTS. But, the CLTS approach needs more support in repairing damaged latrines (structural damage and absence of water seal) throughout the year. Representation to UP standing committees from VDCs requires building up negotiating skills which takes time to mature so VDCs/SDCs require support in building up these skills.
2. VDCs/SDCs collective effort in supporting the CHVs activities and engaging in participatory monitoring and evaluation quarterly would facilitate the activities of the CHVs enormously. EKATA volunteers and ECCD volunteers together could also address HHN issues and challenges.

B. BCC strategy and role of the CHV:

1. BCC strategy for HHN: There is an immense need to develop a structured and innovative BCC strategy for HHN interventions and CHVs need much more supervision. The core messages will vary depending on whether the mother is pregnant, breastfeeding her baby during the first 6 months or introducing complimentary feeding. The courtyard discussions should involve a homogeneous group of mothers when BCC messages can be focused. In addition mothers need practical demonstrations on exclusive breast feeding and complimentary food preparation, the appropriate feeding amounts and frequencies. Practical demonstrations could be either through a mothers support group, or PD mothers group, and in conjunction with EKATA, or through an additional trained volunteer working with the CHV. BCC tools should be developed so as to make CHVs facilitation easier and understandable to mothers according to the age of their child.
2. Men's group – equally important to address is this potential group in the community. They need education too about the demands of pregnancy, delivery, and child feeding and caring practices.

C. Growth Monitoring and Promotion (GMP):

1. GMP is providing an obvious entry point to the HHN interventions and should continue. Indeed, GMP should be extended up to 5 years of age using weight only, not height. Currently there is a half-hearted attempt to measure weight and height in ECCD schools. Height is being measured incorrectly, and the stadiometers are very poorly constructed and increase the likelihood of

measurement error. Height measurement also requires two well trained assistants.

2. The growth charts used in Health and Nutrition Cards should be changed from the obsolete 1977/8 NCHS references to the 2006 WHO growth standards. This is a very important change since references are only descriptive whereas standards are normative. Children, born in any region of the world and given an optimum start in life, all have the potential to grow and develop to within the same range of height and weight for their age.
3. It would be sensible to organize the GMP session and EPI on the same day each month for the younger children to maximize service uptake coverage.
4. GMP for 2 - 5 year olds should be carried out at the ECCD, so ECCDs should be expanded to all areas. The ECCD would also provide a very useful platform for getting across simple health and hygiene messages to the children.

D. Deworming and micronutrient supplementation:

1. Currently deworming and provision of micronutrient supplementation is not part of the HHN package. It is very obvious just from observing children that many of them have very swollen stomachs which is indicative of worm infestation. Most children and adults are not wearing shoes or flip-flops which increases the risk of hookworm (the larvae burrow through the sole of the foot) which is one of the major causes of iron deficiency anaemia. Anaemia is very common in Bangladesh (64% of children 6-24 months with anaemia) and anaemia has a detrimental effect on neural and cognitive development.
2. As geohelminths are very common in Bangladesh deworming at 6 monthly intervals should be introduced to all adults. Children between 1 and 2 years of age should be given 200mg albendazole syrup at 6 monthly intervals. All children between 2-5 years of age and school age children should participate in the government programme.
3. In order to reduce anaemia, channeling/ providing monimix (which contains 3 Vitamins, A, C and Folate, and 2 minerals iron and zinc) or multi-micronutrient powder (the above plus Vitamins D, E B1, B2, B6, B12 and Niacin and copper, iodine and selenium) either daily or 60 sachets/120 days for children from 6 months of age; adults should take 2 sachets/day over the same time period.
4. So the minimum HHN package for food security would consist of the food ration as currently given, together with 6 monthly deworming, daily micronutrients for at least 3 months for all individuals over 6 months of age, together with key messages provided by the CHV.

E. M&E:

1. M&E needs to be expanded to (a) provide information on each NGO so that their performance can be monitored and evaluated (b) include more indicators such as pregnancy weight gain and birth weight and (c) allow testing between indicators, for example, does food expenditure correlate with reduction in underweight?

2. Consideration should also be given to conducting annual panel nutritional surveys (involving measurement of weight, height, MUAC and haemoglobin) on a 1000 children drawn randomly from all PNGOs, with a new cohort of 200 infants added each year (the over 5 year old children would drop out). Hemoglobin level of a mother and child can easily be obtained from a finger prick of blood and measured using a portable, hand held HemoCue. So measurement of haemoglobin level should be included as a key nutritional indicator and measured annually among pregnant women and children 0-5 years. These data will provide valuable information on both the extent of stunting and wasting, measures of chronic and acute malnutrition respectively, whereas weight-for-age is a mixture of both acute and chronic malnutrition. This would require a specially trained team, but there are Government staff from IEDCR and IPHN who are already conducting such surveys.
- F.** In remote areas immediate access to health services is costly because of transportation and distance so a potential approach to treating diarrhoea and pneumonia in under 2 year olds and improving nutritional status would be to use local trained personnel to treat these ailments. One possibility would be through community IMCI/CCM, CHVs or local medical practitioners.
 - G.** EKATA should be expanded to all areas as it is already having an impact in preventing early marriage, dowry payments, violence against women, increasing literacy among its members and providing general empowerment to women. Extending EKATA to HHN tasks would be very beneficial.
 - H.** Inclusion of Infant Feeding in emergencies and Minimum Initial Service Package for reproductive health in BCC strategies and SO4 are necessary to improve IYCF practices and maternal morbidity/mortality.
 - I.** Linkages with Health Service Providers GoB/NGOs: As SHOUAHRDO is working in the most remote areas and with the most disadvantaged groups, there is potential to build linkages with existing service providers exclusively while acknowledging that communication is harder during the rainy season and at other challenging times in the year. There might be more referral linkage meetings where VDCs representation will be ensured and these meetings would be held at Upazila level where probable Upazila PACC members will participate and act as co-facilitators. As SHOUHARDO is working closely with PACC and MOH&FW, there might be an option to exploit their capacity to support program beneficiaries.
 - J.** Homestead gardening should be promoted as this is a very easy way to provide green leafy vegetables which contain many essential minerals and some vitamins.

6. Conclusions

The four strategic approaches adopted by SHOUHARDO are having very positive impact on HHN: (a) infrastructure has improved considerably, for example, provision of hygienic latrines and arsenic free tube wells are 30.0% and 117.2% respectively above LOA Target, (b) health service uptake has increased substantially, 84% of < 12 month old

children are immunized against a target of 60%, mothers taking at least two TT vaccines is 38.1% above LOA Target and pregnant mothers who have completed three ANC visits are 240.4% above the LOA Target, (c) food rations are viewed positively and most mothers reported consuming ruti during pregnancy and lactation, as well as feeding some to their children > 12 months of age; nutrition status has improved substantially and just over 32% of 6-24 month old children are underweight compared with a target of 53.4% and the expenditure on food is 16.2% above the LOA Target (d) although EKATA does not directly impinge on HHN, delaying age at marriage reduces the risk of maternal morbidity and mortality and of low birth weight babies. Unfortunately it is not possible to prioritise these approaches in benefiting HHN as the M&E system does not appear to be sufficiently detailed and more information is needed to test the impact of the different approaches and thereby better guide the programme,

The sustainable success of the SHOUHARDO programme is very much linked to BCC provided by the CHVs and the site visits revealed a number of positive aspects, for example nails were trimmed and usually clean, court yards were free of faecal samples. But there are also areas of concern about CHV messages and activities, particularly (a) very few mothers are fully aware of all hygienic practices that should be followed after defecation and before food preparation and so CHVs messages are not fully understood (b) only 54% of mothers in the SHOUHARDO programme are exclusively breast feeding, so nearly half of mothers are ignoring a core CHV message and (c) nearly all mothers reported difficulties in introducing complimentary foods and simple counselling by the CHV is insufficient to meet the mother's needs.

Appendix 1 Details of the Tangail and Kishoreganj field visits

SHOUHARDO PROGRAM
Thematic Studies on Health Hygiene and Nutrition
International Consultant: Prof. Nicholas Mascie-Taylor (UK)
Dr. Sheikh Shahed Rahman, Technical Coordinator- Health Hygiene and Nutrition
Tangail Region (July 11-15, 2009)

Name of the Person	Day	Date	Visiting Place	Planned activities	Accompanied staff	Transport	Night Halt
Prof Nick Mascie-Taylor, Dr. Shahed	Day -1 Saturday	11 July,2009	Tangail Regional office.			Office vehicle	At Tangail
	Day -2 Sunday	12 July, 2009	TRO Start for field trip by 09:30 am Village: Patita para Upazila: Bhuapur	Meeting with Regional Office Staff (RC, RPM, RTAM, TMs ,RM&EM, RCLM) by 08:00 am <ul style="list-style-type: none"> • VDC meeting, • CHV Individual interview (3) • MCHN HH visit • Meeting with AHI • Individual discussion with ECCD volunteer, 	IO and concerned FF, TM-SO2	Office vehicle	At Elenga resort
	Day -3 Monday	13, July ,2009	Village: Patita para (DD)	<ul style="list-style-type: none"> • MCHN HH visit • COG meeting • Meeting with EKATA volunteers 	IO and concerned FF, TM-SO2	Office vehicle	At Elenga resort
	Day -4 Tuesday	14 July, 2009	Slum: Kolgoyla (NDP) under Sirajganj Pourashava	<ul style="list-style-type: none"> • SDC meeting • MCHN HH visit • COG meeting • Meeting with NNPC members • Group discussion with graduated beneficiaries from PEP • Emergency Volunteers meeting 	IO and concerned FF	Office vehicle	At Elenga resort
	Day -5 Wednesday	15 July 2009		<ul style="list-style-type: none"> • Visited GMP site, • Group meeting with CHVs South Pechakola, Upz: Bera, Dist: Pabna • Debrief at TRO • Start for Dhaka by 04:30 pm 	IO and concerned FF	Office vehicle	At Elenga resort

Kishoreganj Region July 18-22, 2009

Name of the Persons	Day	Date	Visiting Place	Planned activities	Accompanied staff	Transport	Night Halt
Prof. Nick Mascie-Taylor, Dr. Shahed	Day -1 Saturday	18 July,2009	Travel from Dhaka to Kishoreganj by 03:00 pm from Dhaka	<ul style="list-style-type: none"> • Arrival at Kishoreganj 	N/A	CBHQ Office vehicle	Hotel Castle Salam, Kishoreganj
	Day -2 Sunday	19 July, 2009	KRO Start for field trip by 10:00 am Village: Tearkona, Union: Boraibari Upazila: Itna Travel time: 2 hr	<ul style="list-style-type: none"> • Meeting with Regional Office Staff (RC, RPM, RTAM, TMs , RM&EM, RCLM) • VDC meeting, • Meeting with EKATA • MCHN HH visit 	Concerned PO/FC-PNGO,	Regional Office vehicle	Hotel Castle Salam, Kishoreganj
	Day -3 Monday	20 July 2009	Start to field at 08:00 am Village: Tearkona, Union: Boraibari Upazila: Itna	<ul style="list-style-type: none"> • Meeting with ECCD mothers whose children r in ECCD and COG • Meeting with HA,FWA • MCHN HH visit • CHV individual discussion 	Concerned PO/FC-PNGO,	Regional Office vehicle	Hotel Castle Salam, Kishoreganj
	Day-4 Tuesday	21, July ,2009	Start: 08:00 am Village: Maguri Union: Damiha Upz: Tarail	<ul style="list-style-type: none"> • Meeting with VDC • IUCN project site visit and meeting with beneficiaries' • COG meeting (7-9) • Meeting with Disaster volunteers • MCHN beneficiaries who has been graduated from PEP (2-3) 	Concerned PO/FC-PNGO,	Regional Office vehicle	Hotel Castle Salam, Kishoreganj
	Day -5 Wednesday	22, July 2009	Start: 08:00 am Slum: Muskilar Hati and Rishipatti, Bhairab	<ul style="list-style-type: none"> • SDC meeting at Mushkilarhati and Rishipatti • MCHN HH visit at Mushkilarhati • Individual discussion with CHV, ECCD volunteer • Observation EDU initiatives at Rishipatti • Group discussion with graduated beneficiaries' from PEP • Debrief at KRO • Start for Dhaka by 04:30 pm 	Concerned PO/FC-PNGO,	Regional Office vehicle	Hotel Castle Salam, Kishoreganj

Appendix 2 Copies of Questionnaires

Questionnaire for Mothers Name Husband occupation and location..... Name of child.....Age.....

A. Food Security

1. Since you joined the Shouhardo program are you able to have (a) 3 main meals/day No/Yes, (b) Better quality food? No/Yes, Greater diversity of food types? No/Yes. Do you have stored food? No/Yes If yes for how many days will it last?.....

B. Food Ration

1. Is the food ration an adequate amount? No/Yes, If No why not?.....How many days does ration usually last each month?days

2. Did you take additional meal or food during pregnancy or lactation. No/Yes if child > 6 months do you give you child additional food/meal.

No/Yes

If Yes what foodstuffs for Mother Child.....

3. Does your mother-in-law or other adult family members understand why you have been given the food ration? None/Some/All

4. Would you prefer to have other foods in the ration, No/Yes, if yes, what foods?

C. Feeding How old is your child?

Feeding 0-6 months

1. What are you feeding him/her?.....

2. Did you give colostrum to your child ? No/Yes

3. Are you feeding him/her any liquid or solid food with breast feeding? No/Yes

4. Why does a mother exclusively breast feed for the first 6 months?.....

Feeding 6-24 months

5. Did you give colostrum to your child ? No/Yes 6. Who usually feeds your child?.....

7. At what age did you introduce food along with breast milk months, and what foods did you give him/her?.....

8. What is your experience in introducing complimentary feeds to your child?If problems, how do you tackle them?..... What support did you get from CHV?.....and other family members?.....

D. Child Condition

1. Who attended the child's birth.....Did they use the safe delivery kit? No/Yes 2. Is your child regularly weighed at the GMP session?

No/Yes 3. Can we see growth chart? No/Yes What is your impression of your child's monthly weight changes?.....

.....

4. If child has been underweight, how frequently did you get support/advice from the CHV If yes, what advice did she give you?.....

5. Has the child had diarrhoea in the last 14 days? Yes/No 6. If yes, did you give your child the same amount to (a) drink as before the diarrhoea, or more, or less? same/more/less And food same/more/less 7. Did you treat his/her diarrhoea? If yes, from where by

whom..... 8. Can we see vaccination card ? Full/partial

E. Hygiene Practices

1. What are hygienic practices do you follow.....Who told you about them?.....

2. What do you use to wash your hands with? Water only/Soap/Ash. If water only why do you not use soap or ash?.....

3. Is the courtyard free of fecal samples No/Yes. If No why has the mother not cleared away fecal samples?.....

4. Are the mothers nails trimmed? No/Yes. Are child's nails trimmed No/Yes 7. Do you deworm your family members No/Yes. If yes how oftenand with what?.....

F. Water and Sanitation

1. What is main water source for (a) drinking(b) cooking?2. Who provided you with tubewell? Has tubewell been arsenic tested? No/Yes 3. Who provided you with your latrine self/Shouhardo/UP/other.....3. Is tubewell platform pucca? No/Yes. 4. Can we see your water container covered No/Yes Can we see your latrine? Type, cleanliness, water seal, surrounding area.....

G Usefulness of CHV

1. How oftenand where do you see the CHV?.....2. How is role of CHV useful? No/Yes

Questionnaire for CHVs

- 1. Have you attended the 4 day training programme? No/Yes. If No, what training did you receive?.....
- 2. Do you feel that you are being asked to undertake too many/too few/ just about right number of activities? Too many/too few/about right
- 3. Why is growth monitoring and promotion important?.....
- 4. If you find that a child is underweight what do you do about it?.....
- 5. If you find that a pregnant women has gained very little or no weight in 1 month what do you do about it?.....
- 6. Do you discuss with mothers about the dangers of worms? No/Yes. Do you suggest they use deworming tablets? No/Yes and if so how often?.....
- 7. Do you think that the link between Shouhardo and health service providers has increased/decreased/remained the same over the life of the program? increased/decreased/same
- 8. Should discussions on food ration include other family members than just the mother No/yes and if so why?.....
- 9. Do you feel that Shouhardo should undertake any other health, hygiene and nutrition approaches/activities? No/Yes. If yes, what approaches/activities?.....

In context of the CHV's work at ECCD

- 10. What do you understand by growth promotion services?.....
- 11. How do you teach growth promotion in the ECDC centre?.....
- 12. How is growth promotion monitored?.....
- 13. Do you give any hygiene messages to the children No/Yes. If Yes what messages?.....Do you check if the children are following your messages?and if so how often?.....
- 14. Do you provide hygiene messages to the mother No/Yes. If so when.....and how often.....
- 15. Is there a link between early childhood mental development, nutrition and health?.....

Questionnaire for COGs

1. Has your involvement in a COG changed your lifestyle? No/Yes. If Yes explain how.....
2. Has your involvement in a COG changed your expenditure on food? No/Yes. If No why not.....If yes explain in what ways.....
3. Has your involvement in a COG changed the hygiene practices of your HH? No/Yes. If No why not.....If yes explain in what ways.....
4. Has your involvement in a COG changed the health and well-being of your HH? No/Yes. If No why not.....If yes explain in what ways.....
5. Has your involvement in a COG changed health service access? No/Yes. If No why not.....If yes explain in what ways.....

Questionnaire for EKATA

1. How was the EKATA group formed in your village?..... How often do you meet together.....
2. How does your group draw up the list of targeted activities?.....
3. Please give examples (1 or 2) of your EKATA successes.....
4. What difficulties have you faced (1 or 2 examples) as an EKATA member?.....What challenges have you encountered achieving your targets.....
5. Does your work in any way contribute to the health, hygiene and nutrition of (a) pregnant mothers.....(b) lactating mothers.....and (c) children.....
6. What is your recommendation for future EKATA program activities?.....