

MQSUN REPORT

June 2016



Impact evaluation of the DFID Programme to accelerate improved nutrition for the extreme poor in Bangladesh: Final Report

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ABOUT MQSUN

MQSUN aims to provide the Department for International Development (DFID) with technical services to improve the quality of nutrition-specific and nutrition-sensitive programmes. The project is resourced by a consortium of six leading non-state organisations working on nutrition. The consortium is led by PATH.

The group is committed to:

- ✓ expanding the evidence base on the causes of undernutrition
- ✓ enhancing skills and capacity to support scaling up of nutrition-specific and nutrition-sensitive programmes
- ✓ providing the best guidance available to support programme design, implementation, monitoring and evaluation
- ✓ increasing innovation in nutrition programmes
- ✓ knowledge-sharing to ensure lessons are learnt across DFID and beyond.

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COVER IMAGE

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ACKNOWLEDGEMENTS

The authors of this report gratefully acknowledge the support of DFID Bangladesh and DFID UK, especially that of Chris Penrose-Buckley, Fran Martin, Melkamnesh Alemu, Laurie Thomson and Aminur Rahman. We are grateful to the Chars Livelihoods Programme (CLP), the Economic Empowerment of the Poorest Programme (EEP also known as *Shiree*) and the Urban Partnerships for Poverty Reduction Programme (UPPR) for their cooperation and support at all stages of the evaluation process. We are also grateful to the programmes' implementing partners for their input and support, in particular to Concern World Wide (CWW). We also acknowledge all the beneficiaries within these programmes and other community stakeholders who agreed to participate in the evaluation.

We are also grateful to the MQSUN team at PATH for their ongoing support and comments, in particular to Monica Kothari and Amanda Coile. Contributions from key individuals, including Alastair McGregor, Julian Barr and Lawrence Haddad, during the early feasibility stage of the evaluation should also be recognised. Firdousi Naher also played a significant role from that early stage and throughout the life of the evaluation. Our sincere thanks also go to the DATA survey team led by Zahidul Hassan, the team at the Center for Natural Resource Studies (CNRS) led by Anisul Islam, and the BIGD research team led by Ferdous Jahan and Omar Faruque Siddiki for their important contributions to the data collection processes. We are indebted to Philippa Haden, Ethel Sibanda and Alex Cornelius from ITAD for their input into and support for the cost-effectiveness and process evaluation work. We also gratefully acknowledge Linda Waldman from IDS and Virginia Morrow from Oxford University who peer-reviewed the mixed methods report for this evaluation.

Within the consortium partnership we are grateful to Layla Ismail for helpful editorial support, to Wahid Quabili for outstanding research assistance and to Jay Willis for editorial assistance. We are particularly grateful to Dr Akhter Ahmed and the entire IFPRI Dhaka office for valuable logistical support to the evaluation team, and to Su Mitchell, Veronica Moore, Leah Plati and Debs Shenton at IDS for further logistical, budget and project support at various stages of the evaluation. In addition, we would like to acknowledge the support of the CGIAR Research Programme on Policies, Institutions and Markets.

This document was produced through support provided by UK aid from DFID, including via the Transform Nutrition Research Programme Consortium. The opinions herein are those of the authors and do not necessarily reflect the views of DFID.

LIST OF ABBREVIATIONS

ADG	adolescent girl
BDT	Bangladesh taka
BCC	behaviour change communication
BMI	body mass index
BIGD	BRAC Institute of Governance and Development
CDC	Community Development Committee
CBO	community-based organisation
CLP	Chars Livelihoods programme
CNRS	Center for Natural Resource Studies
CNW	community nutrition worker
CPD	cluster process diary
CPK	<i>char pushti karmi</i>
CSO	civil society organisation
DALY	disability-adjusted life year
DFID	Department for International Development
EEP	Economic Empowerment of the Poorest Programme (also known as <i>Shiree</i>)
ESEP	Economic and Social Empowerment of Extreme Poor
HAZ	height-for-age z-score
HH	household
HNV	health and nutrition volunteer
IDS	Institute of Development Studies
IFA	iron and folic acid
IFPRI	International Food Policy Research Institute
IYCF	infant and young child feeding
MLGRDC	Ministry of Local Government, Rural Development and Cooperatives
MNP	multiple micronutrient powder
MQSUN	Maximising the Quality of Scaling up Nutrition
NGO	non-governmental organisation
OLS	ordinary least squares
PE	process evaluation
PLW	pregnant and lactating women
PSU	primary sampling unit
SEQAS	Specialist Evaluation and Quality Assurance Service
TMRI	Transfer Modality Research Initiative
UPPR	Urban Partnership for Poverty Reduction
VfM	value for money
WASH	water, sanitation and hygiene
WAZ	weight-for-age z-score
WHO	World Health Organization
WHZ	weight-for-height z-score

EXECUTIVE SUMMARY

ES.1 Background (see section 1)

Child and maternal undernutrition and the associated health and economic issues to which they contribute are highly significant problems in Bangladesh. Although child undernutrition in Bangladesh has fallen over the last two decades, its prevalence remains high, at about one-third of all under-twos. Sub-optimal infant and young child feeding (IYCF) practices have been identified as a key driver of undernutrition. The highest burden of undernutrition and micronutrient deficiencies in Bangladesh is experienced by extremely poor households, which are concentrated in remote and climate-vulnerable parts of the country including flood-prone river islands (*chars*) and basins (*haors*), cyclone-prone coastal regions, areas affected by seasonal hunger (*monga*) and the Chittagong Hill Tracts, as well as urban slums.

The UK's Department for International Development (DFID) aims to improve nutrition outcomes for young children, pregnant and lactating women, and adolescent girls via the integration of nutrition-specific interventions in three existing programmes that provide livelihood support to extremely poor households. These are the Chars Livelihood Programme (CLP), the Economic Empowerment of the Poorest Programme (*Shiree* or EEP) and the Urban Partnership for Poverty Reduction (UPPR) Programme.

Although there exists considerable evidence on the effectiveness of various livelihoods interventions and other social protection programmes, as well as some evidence on the effectiveness of various nutrition-specific interventions, little research directly assesses how an integrated livelihoods and nutrition programme might compare with livelihoods support alone. As such, there is a gap in global knowledge on the appropriate integration of nutrition-specific and nutrition-sensitive measures, but a strong recognition that undernutrition needs to be tackled on both fronts in order to be addressed most effectively. There are several reasons why the combination of nutrition and livelihoods support may have nutritional benefits over and above livelihoods support only. First, a key barrier to improved nutritional status may be insufficient knowledge of appropriate IYCF practices (for example, the appropriate duration of exclusive breastfeeding, the appropriate frequency and diversity of child feeding thereafter, etc.). If this is the case, then improving income alone will not necessarily lead to improved feeding practices. Second, there may be synergies between the two types of support. For example, even if a mother's knowledge of IYCF practices improves, she may still need access to sufficient resources for undertaking those practices (such as income to purchase the recommended types of food), which can be facilitated through a livelihoods intervention. Third, other dynamics may be shifted through a nutrition-specific intervention that mediate how the livelihoods intervention affects nutritional status. For example, if a nutrition-specific intervention targeting women improves women's bargaining power within the household, and if women tend to prefer devoting resources to young children's nutrition, the result may also be larger impacts on children's nutritional status than through livelihoods support alone. In order to assess the impacts of the integration of the nutrition-specific interventions into the livelihoods programmes, DFID commissioned this mixed-method impact evaluation, entitled 'Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh'. The evaluation team consisted of the Institute of Development Studies (IDS, the lead organisation), the International Food Policy Research Institute (IFPRI), ITAD, the Center for Natural Resource Studies (CNRS), and the BRAC Institute of Governance and Development (BIGD). It was carried out under the umbrella of the MQSUN framework consortium led by PATH in Washington, DC. The evaluation employed mixed quantitative and qualitative methods within a strong theory-based design to assess the impact of the integrated programmes on nutritional status.

This report is structured into eight sections: (1) Background, (2) Evaluation objectives, design and methods, (3) Implementation realities and adaptations to design, (4) Outcomes, (5) Impacts on child nutritional status, (6) Impact of the livelihood interventions, (7) Cost-effectiveness analysis, and (8) Conclusions and recommendations.

ES.2 Programmatic context (see section 1)

CLP aims to improve the livelihoods and food security of extremely poor and vulnerable *char* dwellers, with the main activities including livelihood support such as infrastructure improvement, transfer of productive assets (cows and goats) and short-term social protection (cash stipends). Between 2010 and 2016, the CLP delivered assets to approximately 312,000 people. CLP aimed to increase awareness and knowledge about a range of social development issues, including health, disaster-preparedness, women's empowerment and rights and basic loan and financial management skills.

EEP Concern supports 1 million people in rural and urban areas, covering areas such as the *chars* and *hoars, monga-* and cyclone-affected areas, the Chittagong Hill Tracts and urban slums. EEP worked via two challenge funds: the Scale Fund provided non-governmental organisations (NGOs) with opportunities to lift large numbers of people out of poverty, while the Innovation Fund challenged NGOs to implement innovative approaches. Modalities towards these objectives included (1) input support and technology transfer for livelihoods (including guidance on new cropping and cropping patterns, training and assets for livestock, fishing, bamboo working, small businesses and tailoring); (2) capacity building (including setting up self-help groups; facilitating community-based organisations (CBOs) and links with local government); and (3) support to beneficiaries for innovation and linkage to markets and/or value chains. The evaluation focused on the EEP Concern project, which aimed to move 112,500 people out of poverty by increasing income and assets through livelihood support.

The UPPR programme aimed to improve the livelihoods of 3 million extremely poor people living in urban areas. It employed a community-centred approach to urban poverty reduction and adopted a community contract modality via the creation of Community Development Committees (CDCs), which then proposed their choices for livelihood support to the UPPR from a package of different livelihood interventions. The main interventions included the following: supporting habitat and settlement improvement (including sanitation); providing resources to improve incomes and assets, and support for urban food production (household/community-based vegetable production, and poultry and dairy cow rearing) and small business management; encouraging inclusion in education, for example through grants for vulnerable children to prevent school drop-out; facilitating community banking; and enhancing social development and protection, including by helping beneficiaries achieve security of tenure.

All three programmes introduced a set of complementary nutrition-specific interventions in 2013, with implementation planned for two years, targeting all pregnant and lactating mothers, adolescent girls and children under five years of age. The components were behaviour change communication (BCC) and micronutrient supplementation delivered via community nutrition workers (CNWs). The overall package of nutrition activities included household-level counselling on topics including good practices for breastfeeding, complementary feeding and hygiene promotion; micronutrient supplementation, including iron and folic acid tablets and deworming drugs; and community-level discussions focused on the needs of adolescent girls.

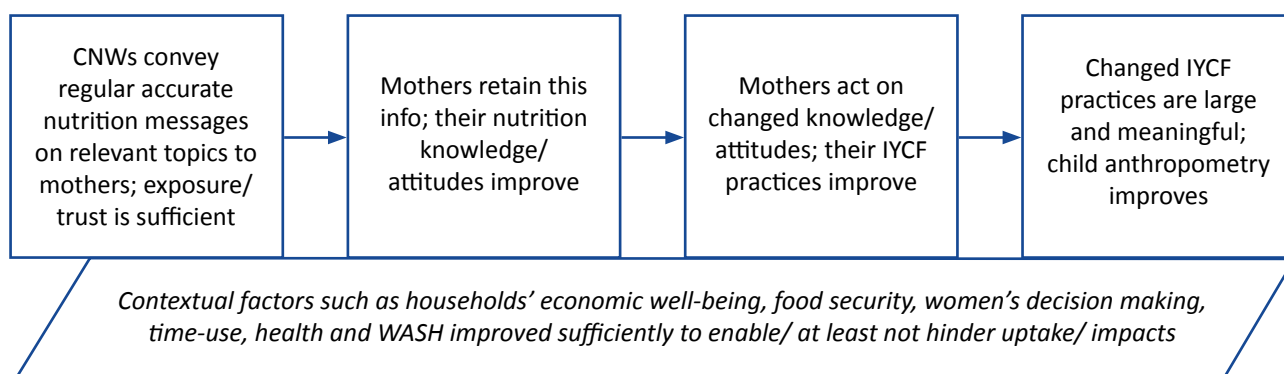
ES.3 Evaluation objectives, design and methods (see section 2)

The evaluation addressed three objectives:

1. To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions;
2. To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes;
3. To assess the costs-effectiveness (benefit received for cost incurred) of integrating nutrition-specific components into the livelihoods interventions of the three existing programmes.

A mixed-method impact evaluation model was chosen to address these objectives in an integrated manner. At inception, the evaluation was designed to assess the impact of the different components: livelihood only ('L only'); livelihood intervention combined with a nutrition-specific intervention ('L+N'), and no livelihood or nutrition-specific intervention (control). The nutrition-specific intervention is designated 'N'. The evaluation applied a theory-based design, using a core results chain, shown in Figure 0.1.

Figure ES.1 Primary pathway for nutrition impacts explored via mixed methods



There were three methodological components:

First, a quantitative impact component was designed to address Objective 1, to provide estimates of outcomes and impacts of the direct nutrition intervention over a two-year period,¹ as well as assessment of the relationship between programme outcomes and impacts. Second, an exploratory/explanatory component was designed to address Objective 2, exploring causal processes and conducting a contextual analysis to describe how and why the combination of livelihoods and nutrition-specific interventions may have had an impact on child nutrition outcomes. There were two complementary sub-components: a process evaluation and a qualitative evaluation. Third, there was a cost-effectiveness component, which addresses Objective 3, assessing how the three programmes performed in relation to accountability and performance. This was based on DFID's value for money framework of economy, efficiency, effectiveness and equity.

ES.4 Implementation realities and adaptations to design (see section 3)

The three programmes follow different approaches for their livelihood activities. The analysis of each programme was carried out on the basis of what was planned and deviations on the basis of uptake. Although the sample size of the process evaluation was small, across all three programmes deviations were found, mainly with the inclusion of ineligible beneficiaries and exclusion of eligible beneficiaries, reported to be most prevalent in the UPPR programme. Recruitment and training of the main community-level worker assisting with L intervention implementation was implemented effectively.

Within CLP, asset transfer (in the form of livestock) and membership of community-based groups were almost universal. Implementation of infrastructure was good. Encouragement to start a homestead garden was widespread with assistance also provided for poultry rearing. Most households quickly sold their assets, which may reflect a rational development in livelihood support. The infrastructural and health components were reported in the qualitative evaluation to have been in operation.

The asset transfer and self-help activities of EEP Concern have been widely implemented, with nearly all beneficiaries joining savings and credit groups and receiving an asset. Beneficiaries were more likely to retain their livestock assets, with pluses and minuses in terms of the extra costs in sustaining the animal, and how well it fitted into the household economy. There have also been infrastructural improvements.

Household level evidence of implementation was harder to detect in UPPR (partly given the nature of that programme) but beneficiaries reported how via the UPPR's CDCs, clean water and sanitation facilities had been provided (with funds from the Settlement Improvement Fund), with apprenticeships and block grants for women starting a business, and education grants for vulnerable children appearing in beneficiary reporting.

The programmes reported beginning the implementation of their N interventions immediately after the baseline survey, but there were significant delays in the procurement and distribution of micronutrients. The process evaluation found that implementation of most N interventions largely occurred across all sites but with notable early teething problems, especially with household counselling. There was a tendency to just

¹ Robust estimates of the relative impact of L+N over L were achieved via the cluster-based randomisation of the N interventions before baseline commencement. Estimates of the absolute impacts on nutritional status of the L and L+N interventions, as compared to a suitably matched comparison population, are reported here for UPPR only. As discussed in Annex D it was not possible to quantitatively measure the absolute impact of the individual L or combined L+N interventions in two of the three programmes, largely because the saturation and geography of these programmes made finding a suitably matched non-beneficiary extremely poor population impossible (confirmed in surveys of surrounding communities and the matching process attempted at baseline).

deliver 'hard' inputs (the supplements) instead of the 'soft' activities of counselling and promotion. Often, the L and N interventions were run as separate programmes at a community level, with little interaction between staff.

The nutrition-specific intervention used individual counselling by CNWs as the main delivery channel for the behaviour change messages. By programme close, recruitment was largely satisfactory. Evaluation findings showed a lower than optimal frequency of visits, insufficient time spent with mothers, and CNWs with a high caseload (well over the expected ratios of 1 to 50, as stated in the planned recruitment for programmes), so reducing the intensity of the behaviour change messaging. This varied between programmes: for example, nearly all of the women in CLP areas reported receiving at least one visit from a CNW in the last 12 months, with comparable figures for EEP Concern being just over three-quarters and two-thirds for the UPPR programme. Limited topics were addressed and less time was spent on complementary feeding practices than on breastfeeding. Time spent travelling to clients ranged between 2 and 2.6 hours, which is surprising as it was expected that CNWs would work within one village; however, travel and logistical issues may have been more demanding than originally expected. The process evaluation also raised doubts as to the effectiveness of overall monitoring and whether there was sufficient integration in management structures for the L and N programmes.

ES.5 Outcomes with regard to mothers' knowledge and attitudes and IYCF (see section 4)

The evaluation assessed whether mothers retained messages regarding IYCF, as reflected by their knowledge and attitudes. Findings show that the impact of the N-intervention on caregivers' IYCF knowledge and attitude was limited, except for their awareness of the value of iron. Survey results reveal relatively high levels of maternal knowledge of appropriate breastfeeding practices in both households receiving the nutrition intervention and in comparison, to households not receiving it. While general knowledge of optimal IYCF behaviours was high, the qualitative evaluation revealed that there was a lack of awareness of the importance of following optimal IYCF practices and appropriate practices in special circumstances.

There is very limited evidence of behaviour change resulting from the nutrition-specific intervention. However, behaviour with regard to intake of iron had changed significantly, although the qualitative evaluation suggests that without the provision of iron supplements free of charge this would have been less likely and that households were unlikely to purchase iron once the intervention had stopped. There was also a significant change with regard to the timely introduction of drinks/food other than breastmilk, although the proportion of infants that received supplementary feeding before six months of age remained high. Where positive changes occurred, qualitative evidence points to a number of factors which enabled change, including a positive experience of the behaviour change among peers (i.e. intake of iron and folic acid (IFA) and its effects on overall well-being) and provision of products needed for the behaviour change (micronutrient supplements, deworming tablets).

In addition to the problems associated with the delivery of the nutrition intervention described above, the evaluation found several barriers that may also explain the absence of behaviour change. These barriers included a reported lack of financial resources; prioritising other uses for available resources; a shortage of time to prepare the recommended food given other pressing household tasks; fear of food wastage; the household's taste and wider social food preferences; limited influence of mothers on decision-making with regard to child care and food purchases; and deeply rooted context-specific beliefs around IYCF.

That relatively little CNW time was devoted to discussing complementary feeding and little effect was seen on mothers' knowledge is apparent in the lack of impact on child diets. There were no significant impacts from any of the programmes on the dietary diversity of the child nor on meal frequency, nor, notably, on consuming food from animal sources, nor on the number of animal-source food categories the child consumed. Across the CLP and UPPR programmes there were statistically significant increases in the consumption of iron-rich/iron fortified foods.

There were also mixed results in terms of how much mothers trusted health workers; a slight majority of L-only groups did trust health workers (compared to advice given by close family and friends) but adding the N interventions did not have any significant impact on the responses. Trust has often been cited as a major determinant of the adoption of BCC messages. In focus group discussions, young mothers explained that they would always consult their mothers-in-law for all pregnancy and childcare-related questions. There was great pressure on the younger mothers to do so.

Overall, results suggest that investing more in the CNWs does have the potential to achieve greater improvements in certain individual behaviours, in that CNWs can help households to address specific barriers to improved practices (for example, to address time shortage as a barrier to optimal complementary feeding, CNWs could suggest simple and quick options for enriching family food to make it more suitable as complementary food for children). However, notably, these practices only changed where there was no requirement for significant investment of new time or resources by mothers and other caregivers. In some dimensions, households may be fundamentally constrained from taking on desired practices and therefore future modifications to the overall L+N model might be desirable. These are discussed, in the recommendations section, below.

The evaluation did not find significant quantitative changes in wider determinants of nutritional status, except for antenatal care and participation in feeding programmes. This is positive, because as well as ensuring an adequate diet for a pregnant mother, and supporting her health, adequate antenatal care can also lay the foundation for postnatal support and care of children. However, in the qualitative evaluation, mothers in CLP and EEP Concern (and to a lesser extent the UPPR programme) highlight that access to antenatal care (as well as delivery in hospital or at another health facility) was often impossible during the rainy season because of poor infrastructure and flooding.

There were no significant changes detected in water, sanitation and hygiene (WASH) outcomes, nor women's empowerment or women's nutritional status, and no significant impacts on the prevalence of child illness, which may be explained by a lack of meaningful impacts earlier in the results pathway towards reduced child morbidity. WASH indicators assessed included access to water, access to a safe source of drinking water or access to a sanitary latrine. As regards women's empowerment, the nutrition programmes may have had an impact on women's status above and beyond that of the livelihoods programme since they were supposed to involve both additional group gatherings and a well-respected person visiting the index child's mother regularly and imparting knowledge. But the programmes had no impact on decision making, control over resources or decisions to move outside the compound.

ES.6 Impacts on child nutritional status (see section 5)

The core measure of child nutritional status used was height-for-age. Affecting height-for-age requires intensive intervention early in life, during the first thousand days from conception. In the context of the N intervention, large changes in IYCF practices over a prolonged period or in a mother's diet during pregnancy could have potentially affected height-for-age, but, notably, this was always an ambitious goal for an untested programmatic model to achieve from scratch over a two-year time period. It might also have been predicted that meaningful impacts on height-for-age would not be likely to occur, as there was evidence for the causal chain breaking down prior to this stage in the theory of change (via limited contact with the N interventions and with CNWs, consequent limited improvement in IYCF knowledge and attitudes, and resulting lack of behaviour change in terms of improved IYCF practices, particularly complementary feeding).

The endline survey included children aged 6–24 months. All would have been exposed to the N interventions throughout the critical first thousand days until their age at endline, and for nearly all children, exposure to the N intervention included at least some time prenatally. There was no significant impact from any of the programmes on the repeated cross-section sample's height-for-age z-score, weight-for-height score, stunting prevalence or wasting prevalence. Results are similar when disaggregated by gender. The lack of impact is consistent with earlier findings that the N interventions provided infrequent contact with CNWs and very little time during visits to discuss important nutrition messages, particularly for complementary feeding. Given the improvement of mothers' knowledge and reported use of iron supplements, the iron status of young children may have improved, but iron status was not collected as part of the evaluation surveys.

Qualitative evaluation findings suggest that the awareness of undernutrition has improved among the beneficiaries in the L+N programmes, with people being more conscious of the signs and ill effects of undernutrition. Nevertheless, undernutrition was still perceived as 'normal' as most children in the communities showed signs of undernutrition (e.g. being short, suffering repeated illness). Preventing and addressing undernutrition has not become a priority for poor households (as meeting their basic needs and ensuring food security remained the priority).

Overall it is concluded that there were no significant added impacts on anthropometry as a result of the L+N component over and above the L component. This finding is consistent with findings in previous sections, following the primary pathway proposed for nutrition impact encapsulated in the theory of change. The N intervention provided infrequent contact with CNWs and very little time within visits to discuss important nutrition issues, particularly those related to complementary feeding. As a result, mothers' knowledge and attitudes regarding IYCF, and complementary feeding in particular, did not meaningfully improve. Furthermore, the qualitative evaluation identified multiple context-specific barriers to the translation of new knowledge into practice. Consequently, practices related to IYCF, particularly complementary feeding, did not meaningfully improve either. Given recent evidence on the importance of complementary feeding – and in particular the inclusion of animal-source foods in the diet – for linear growth, it is not surprising that there were no significant impacts on anthropometry via this pathway. There was also limited evidence for alternative potential pathways for anthropometry impacts via, for example, reductions in open defecation due to the intervention.

ES.7 Impact of the livelihood interventions (see section 6)

Quantitative and qualitative findings (presented separately) on the impact of the livelihood programmes (without the additional N intervention) were compared to receiving no intervention.

Because of a lack of appropriate comparison groups in the quantitative survey, only qualitative data were available for both CLP and EEP Concern on these 'absolute' impacts. In these two programmes, the overall benefits of participating in the programme were perceived as substantial by beneficiaries. However, the direct economic benefits from the livelihood asset transfer programmes were perceived as relatively small in some cases, although the small profits generated by selling livelihood assets were in most cases managed by women. Additional income was used to improve overall living standards and pay off debts. In one of the UPPR sites the economic situation improved visibly because of an economic upturn leading to more employment opportunities.

In general, it was more difficult in the UPPR programme (compared to CLP and EEP Concern) to attribute changes in a household's wellbeing to the programme via the qualitative evaluation. There were two main reasons: (1) the benefits the households received from the programme varied greatly and ranged from provision of livestock, to sewing machines, to educational and training grants; and (2) multiple NGOs and local organisations worked in the same area and also provided support, credit or other services to the beneficiaries. Some beneficiary households described how they used their own initiative to use the support the UPPR programme provided to transform their assets, diversify their income and improve their overall economic wellbeing. Others used grants provided by the programme to start a business or to renovate their house but did not report experiencing any long-term economic improvements.

The quantitative evidence relates only to the UPPR programme and examines how the livelihoods interventions may have had an impact on child nutrition, through improvements in overall household wellbeing, hygiene and sanitation, women's status or antenatal care.

It was found that there were no significant impacts on either household dietary diversity or mothers' BMI from either L or L+N. There were also no meaningful impacts on practices related to breastfeeding or the introduction of other liquids and solids, and the L components alone had no impact on complementary feeding. On access to sanitary latrines, there were no statistically significant impacts either from L or from L+N. There were no significant impacts on mothers' reporting that they now controlled funds needed to purchase items themselves. However, there was a small but statistically significant increase in women having a voice in decisions regarding where they could go alone. Finally, there were no significant impacts on anthropometric outcomes from either the L-only intervention or the combined L+N intervention.

The results suggest that – within the analysis sample – the UPPR livelihoods intervention did not itself meaningfully improve child nutritional status, and also may not have provided sufficient resources for households to make use of the nutrition component; in other words, L+N households could not readily act on the advice they had been given by CNWs, because they did not have the funds or resources to do so.

ES.8 Cost-effectiveness analysis (see section 7)

In terms of cost-effectiveness, EEP, the CLP and the UPPR programme are based on relatively low-cost models in comparison with one recent and successful intervention based in Bangladesh. In terms of cost per household, the CLP and EEP are on a par and are more costly than the UPPR programme. Both the CLP and EEP incurred higher costs because of their difficult geographic context.

The evaluation findings on outcomes (and therefore effectiveness) are shown to be limited in terms of IYCF practices and insignificant in terms of child anthropometry. Equity has largely been achieved in terms of reaching significantly poor and under-nourished householders. The following cost-driven variables were identified as the key weaknesses in the programmes: (1) ratio of CNWs to targeted households, (2) ratio of supervisors to CNWs, (3) magnitude of the CNWs' honorarium, (4) intensity of training for CNWs, (5) frequency of household visits by CNWs and (6) programme duration.

Notably, however, both cost drivers and non-cost drivers are important to consider when redesigning a programme to realise greater value for money. While the three programmes are based on relatively low-cost models, the intensity and quality of the interventions have not been sufficient to deliver real change. Whilst this can be addressed by investing in the cost drivers, and a cost model is presented which invests greater resources in those cost drivers, there are also several significant non-cost-related elements of programme design requiring modification. These are summarised in the recommendations below.

ES.9 Conclusions and recommendations (see section 8)

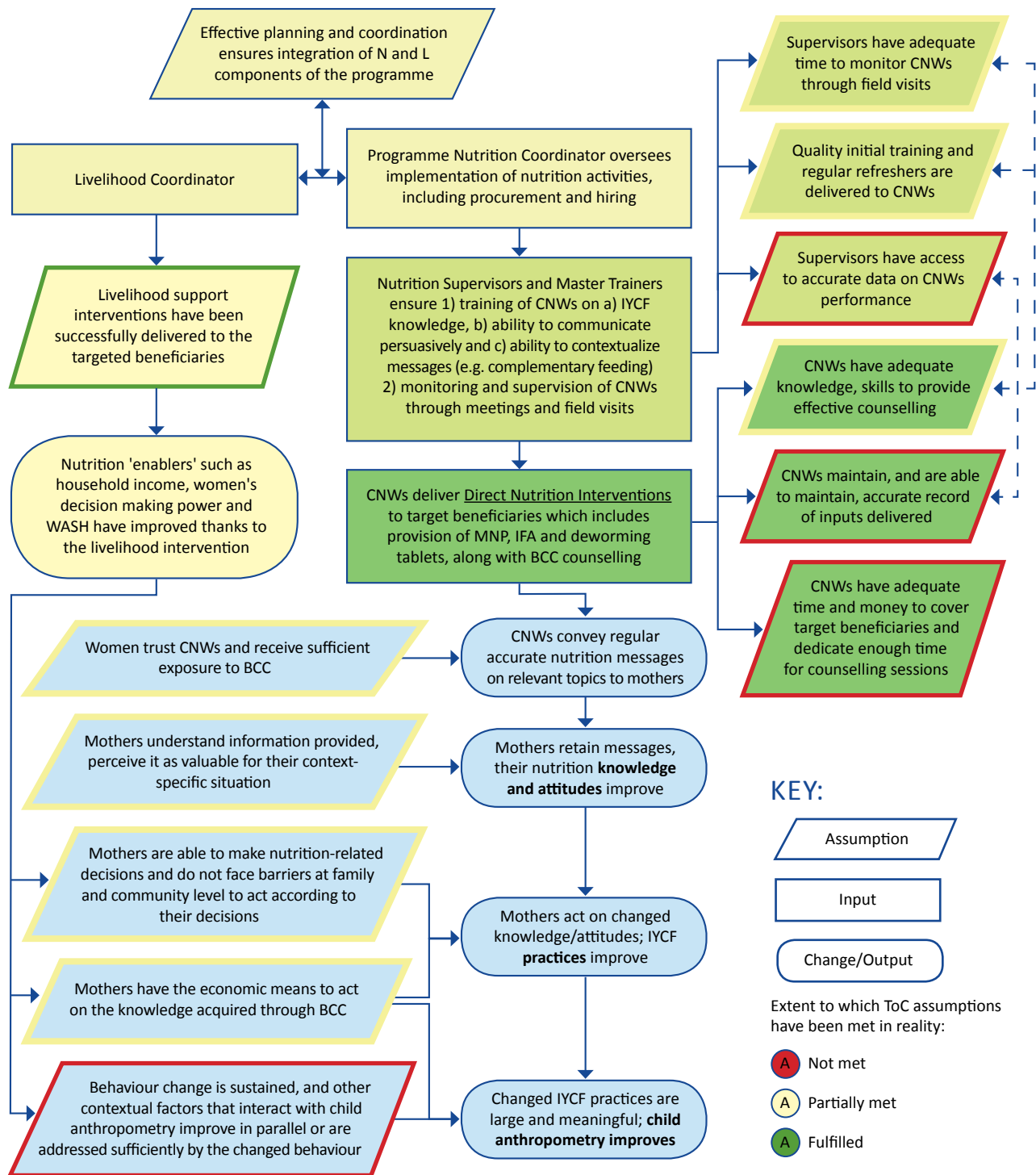
The results of this evaluation are both sobering and salutary: sobering because of the lack of improvement in child anthropometry and because the additional improvements witnessed in IYCF knowledge and practices as a result of the N programme are sparse; but they may be helpful to future design and implementation because a clear picture has emerged of the barriers and enablers to successful progress along the impact pathway. These factors are summarised in a revised theory of change (Figure 0.2, below). Two primary considerations for future design emerge from the evaluation. The first draws on wider evidence on effective BCC to emphasise greater intensity and adaptability of CNW practice (including a focus on context-appropriate problem-solving) combined with multiple channels of communication (which might include, for example, wider mobilisation of the community around behaviour change aims). The second is based on the evidence from this and other evaluations, which suggests that to ensure the most beneficial IYCF practices are adopted would require a revised L+N intervention which simultaneously delivers this improved BCC, alongside measures to ensure the empowerment of mothers (including greater control over their time and practices and changes in wider community norms and beliefs with regard to IYCF and mothers' control). Under this model, prioritising child diet would require careful thought about the type and size of resource transfers, as well as due consideration of the pros and cons of various types of transfer – including productive assets, cash and food – to be gleaned from this and other evaluations.

Taking these considerations and the evaluation findings together, there is *strong* evidence to recommend the following: (1) improving the frequency and duration of counselling sessions; (2) reducing and refocusing the types of messaging provided in counselling sessions, particularly in the areas of IYCF, which are both weak and which did not appear to have been a strong focus of the programmes; (3) ensuring that such messaging is both adapted to context *and* practicable; (4) drawing from best practice to include interventions that tackle economic, social and gender barriers that prevent knowledge from being translated into practice (e.g. social mobilisation and group components of other similar interventions), and (5) integrating more effective monitoring systems to be able to track impact on outcomes much earlier and also create the right incentives for CNWs.

There is also some evidence to recommend the following: (1) ensuring CNWs spend more time with each client, e.g. by lowering the ratio of beneficiaries to CNWs and/or allocating caseloads so that travel times are minimised; (2) improving supervision and training on client-focused problem-solving; (3) increasing the CNW honorarium; (4) considering whether other models of social transfer (including direct cash) are likely to have a greater impact when combined with an effective BCC model; and (5) better integration of L+N programming.

Figure ES.2 Revised theory of change for nutrition impacts

IMPACT PATHWAY OF CLP, SHIRREE/EEP AND UPPR



1 BACKGROUND

1.1 Project and evaluation background

By integrating nutrition-specific interventions into three programmes that provided livelihood support to extremely poor households in Bangladesh, the Department for International Development (DFID) Bangladesh aimed to accelerate improvements in nutrition outcomes for young children, pregnant and lactating mothers, and adolescent girls. The project was entitled ‘The DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh’. It aimed to build upon the work of three existing livelihood programmes: the Chars Livelihoods Programme (CLP), the *Shiree* Economic Empowerment of the Poorest Programme (*Shiree* or EEP) and the Urban Partnership for Poverty Reduction (UPPR) Programme. These programmes are described below in section 1.3.

In order to assess the impacts of the integration of nutrition-specific interventions into the livelihoods programmes, DFID commissioned this mixed-method impact evaluation, entitled ‘Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh’ through the Maximising the Quality of Scaling up Nutrition (MQSUN) programme framework. The evaluation team consisted of the Institute of Development Studies (IDS, the lead organisation), the International Food Policy Research Institute (IFPRI), ITAD, the Center for Natural Resource Studies (CNRS), and the BRAC Institute of Governance and Development (BIGD). In line with the original terms of reference,² the evaluation employed mixed quantitative and qualitative methods within a strong theory-based design to assess the impacts of the integrated programmes on nutritional status.

The evaluation specifically addresses the following three objectives:

1. To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions;
2. To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes;
3. To assess the cost-effectiveness (benefit received for cost incurred) of integrating nutrition-specific components into the livelihoods interventions of the three existing programmes.

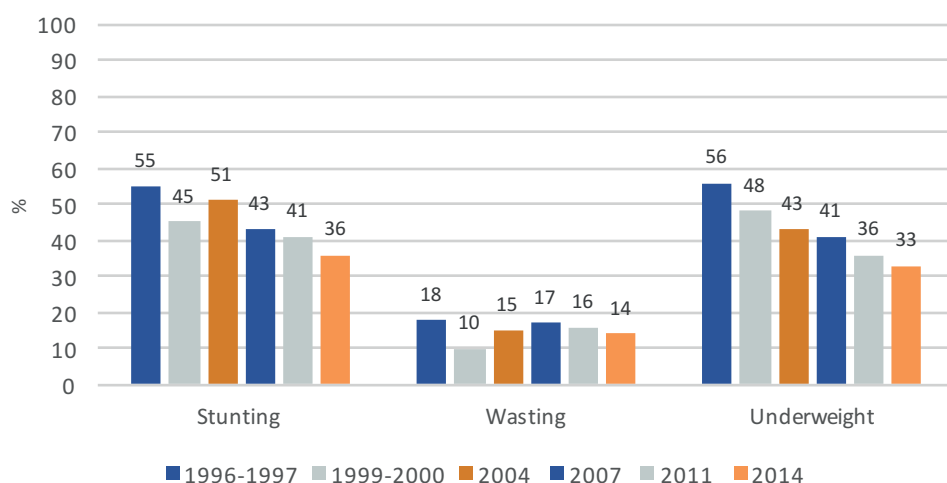
1.2 Background context of the evaluation

Undernutrition is central to many health and development issues in Bangladesh. Globally, undernutrition is estimated to contribute to 45 per cent of all deaths of children under five and a significant proportion of maternal deaths (Black, Victora, Walker, Bhutta, Christian, de Onis and Ezzati 2013) and similar or higher mortality rates in Bangladesh (Faruque, A. Ahmed, T. Ahmed, Islam, Hossain, Roy, Alam, Kabir and Sack 2008). From an economic perspective, undernutrition has been estimated to cost Bangladesh more than US\$1 billion annually as a result of the costs of health care and reduced productivity (Howlader, Sethuraman, Begum, Dipika, Sommerfelt and Kovach 2012).

Over the past two decades, child undernutrition in Bangladesh has steadily decreased (see Figure 1.1). Between 1997 and 2014, child underweight declined by 1.4 percentage points per year and child stunting declined by 1.1. percentage points per year, one of the most sustained reductions in child undernutrition in the world (Davis, Nisbett, Akhtar and Yosef 2016).

² These can be found in Annex A.

Figure 1.1: Trends in nutritional status of children under five in Bangladesh, 1997–2014 (%)



Source: Authors' compilation. The 1996–7 data are from NIPORT *et al.* (1997); the 1999–2000 data are from NIPORT *et al.* (2001); and the 2004, 2007, 2011, and 2014 data are from NIPORT *et al.* (2015).

However, despite improvements over time, the prevalence of underweight, stunting and wasting remain high, at 36, 33 and 14 per cent respectively (NIPORT, Mitra and Associates and ICT International 2015). Sub-optimal infant and young child feeding (IYCF) practices – one of the key drivers of undernutrition – are also widespread; only 55 per cent of children under six months of age are exclusively breastfed and only 23 per cent of children aged 6–23 months are fed a minimum acceptable diet (NIPORT *et al.* 2015).³ In 2011–12, 33 per cent of school-aged children and 26 per cent of non-pregnant, non-lactating women of reproductive age suffered from anaemia (ICDDR,B, UNICEF Bangladesh, GAIN and Institute of Public Health and Nutrition 2013), less than 50 per cent of mothers consumed a diverse diet (HKI and JPGSPH 2011) and more than two in five women suffered from short stature, putting them at an increased risk of difficulties during childbirth (HKI and JPGSPH 2014). Similarly, approximately one in five babies in Bangladesh had a low birthweight (UNICEF 2013).

Recent data confirm that extremely poor households in Bangladesh experience the highest burden of malnutrition among the country's population (NIPORT *et al.* 2015). Extreme poverty is concentrated in remote and climate-vulnerable parts of the country, including flood-prone river islands (*chars*) and basins (*haors*), cyclone-prone coastal regions, areas affected by seasonal hunger (*monga*) and the Chittagong Hill Tracts, as well as urban slums.

Evidence from south Asia has shown that high rates of economic growth and a reduction in poverty have not led to similarly large reductions in undernutrition (e.g. Smith, Ramakrishnan, Ndiaye, Haddad and Martorell 2002; Ramalingaswami, Jonsson and Rohde 1996; Deaton and Drèze 2009) and that improvements in income alone may not be sufficient to improve nutritional status. However, an analysis of Demographic and Health Survey data from 1997 to 2011 (Heady, Hoddinott, Ali, Tesfaye and Dereje 2014) attributed the aforementioned decline in undernutrition recorded in Bangladesh to pro-poor economic growth coupled with rapid agricultural growth, the expansion of subsidised secondary school education, improvements in sanitation in urban areas and improvements in community health-care services, including antenatal, neonatal and family planning services.

Extensive research has also shown that the critical window for nutritional interventions is during the 'first thousand days' of life (e.g. Bhutta, Das, Rizvi, Gaffey, Walker, Horton, Webb, Lartey and Black 2013; Hoddinott, Behrman, Maluccio, Melgar, Quisumbing, Ramirez-Zea, Stein, Yount and Martorell 2013), from the time when a child is *in utero* until about two years of age. Based on this accumulated evidence, growing emphasis has been placed on introducing nutrition interventions that target children's 'first thousand days' alongside household poverty reduction programmes. In particular, there has been growing emphasis on nutrition interventions that aim to improve IYCF practices – through increasing the nutritional knowledge of women who are pregnant, lactating or likely to be pregnant in the future – as well as through improving the nutritional status of these women themselves.

³ Minimum acceptable diet (MAD) is an IYCF indicator defined by the World Health Organization (WHO) as a child aged 6–23 months meeting both the minimum requirements of feeding frequency and dietary diversity (WHO 2008).

Although there exists considerable evidence on the effectiveness of various livelihoods interventions and other social protection programmes, as well as some evidence on the effectiveness of various nutrition-specific interventions, little research directly assesses how an integrated livelihoods and nutrition programme might compare with livelihoods support alone. As such, there is a gap in global knowledge on the appropriate integration of nutrition-specific and nutrition-sensitive measures, but a strong recognition that undernutrition needs to be tackled on both fronts in order to be addressed most effectively.⁴

There are several reasons why the combination of nutrition and livelihoods support may have nutritional benefits over and above livelihoods support only. First, a key barrier to improved nutritional status may be insufficient knowledge of appropriate IYCF practices (for example, the appropriate duration of exclusive breastfeeding, the appropriate frequency and diversity of child feeding thereafter, etc.). If this is the case, then improving income alone will not necessarily lead to improved feeding practices. Second, there may be synergies between the two types of support. For example, even if a mother's knowledge of IYCF practices improves, she may still need access to sufficient resources for undertaking those practices (such as income to purchase the recommended types of food), which can be facilitated through a livelihoods intervention. Third, other dynamics may be shifted through a nutrition-specific intervention that mediate how the livelihoods intervention affects nutritional status. For example, if a nutrition-specific intervention targeting women improves women's bargaining power within the household, and if women tend to prefer devoting resources to young children's nutrition (e.g. Quisumbing and Maluccio 2003), the result may also be larger impacts on children's nutritional status than through livelihoods support alone.

1.3 Characteristics of the programmes selected for evaluation

1.3.1 Descriptions of the three livelihood programmes

The three existing livelihood programmes selected for the project are described in brief below.

The **CLP** aimed to improve the livelihoods and food security of extremely poor and vulnerable *char* dwellers, covering the remote *chars* of the north-western districts of Bangladesh (see map in Annex B). Phase II of the CLP began in 2010 and was completed in early 2016 (Phase I ran from 2004 to 2010).⁵ The main activities of the CLP included these: the construction of homestead plinths to protect assets from known risks of flooding; the provision of sanitary latrines and access to clean drinking water; the one-time transfer of productive assets (cows and goats); and cash stipends for 18 months to prevent people from slipping even deeper into poverty. These activities included, for example, employment creation during seasonal hunger (*monga*) periods and emergency grants to withstand the sudden shocks caused by river erosion, tornadoes and domestic fires. The CLP aimed to increase awareness and knowledge about a range of social development issues, including health and the environment, disaster-preparedness, women's empowerment and rights and basic loan and financial management skills. The programme also promoted entrepreneurship and strengthened market networks in livestock and other areas. The CLP was managed by Maxwell Stamp under the auspices of a DFID programme in collaboration with Bangladesh's Ministry of Local Government, Rural Development and Cooperatives (MLGRDC).

The CLP was implemented in six separate cohorts, each lasting approximately 18 to 21 months. Between 2010 and 2016, the CLP delivered assets to a total of 78,026 beneficiary households (approximately 312,000 people). Cohort details can be found in Table 1.1.

⁴ For the terminology employed here and current evidence on interventions, see Black *et al.* (2013), Bhutta *et al.* (2013) and Ruel and Alderman (2013). Bhutta *et al.* (2013) estimate that nutrition-specific interventions have the potential to prevent around 15 per cent of child deaths and reduce the number of stunted children under five years of age by 20 per cent. This implies that a substantial contribution (yet to be quantified) is needed from a number of wider 'indirect' programmes and interventions that relate to the food, health and care determinants of nutrition, which may be addressed in particular through nutrition-sensitive agriculture, poverty alleviation, wider health systems, water and sanitation and women's empowerment (Ruel and Alderman 2013).

⁵ The acronym CLP, used throughout this report, refers only to Phase II of the CLP, as this was the phase included in the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh and subsequently the evaluation sampling frame.

Cohort No.	Start date	End date	Cohort length (months)	Core participant HHs (N.)
2.1	May 2010	Dec 2011	20	5,004
2.2	Sep 2010	Jun 2012	21	12,109
2.3	Sep 2011	Jun 2013	21	17,435
2.4	Sep 2012	Jun 2014	21	16,309
2.5	Sep 2013	Jun 2015	21	13,579
2.6	Sep 2014	Feb 2016	18	13,590
				78,026

Source: CLP (2015)

The Economic Empowerment of the Poorest Programme (**EEP**, also known as *Shiree*) aimed to support 1 million people in rural and urban areas to lift themselves out of extreme poverty. It covered a diverse range of geographical areas where extreme poverty is concentrated, including *chars* and *haors*, cyclone-prone coastal regions, *monga*-affected areas the Chittagong Hill Tracts and urban slums. The *modus operandi* in the most recent phase, which ran until March 2016, was via the two challenge funds: the Scale Fund provided NGOs with opportunities to lift large numbers of people out of extreme poverty using tried and tested approaches, while the Innovation Fund challenged NGOs to take more innovative approaches to the reduction of extreme poverty in urban and rural areas. The main activities included supporting the livelihoods of the extremely poor; targeting the very poorest and most socially excluded groups, including *adivasis*; and a proactive programme of lesson-learning and research to enhance the understanding of both extreme poverty and the effectiveness of alternative interventions. The programme was managed by Harewelle International and PMTC Bangladesh Ltd, and led by the Rural Development and Cooperatives Division of the MLGRDC.

With DFID's agreement, the evaluation focused on one of the Scale Fund projects – the Economic and Social Empowerment of Extreme Poor (ESEP) Project, implemented by Concern Worldwide in three districts: Sunamgonj, Habiganj (Slyhet Division) and Kishoregon (Dhaka Division) (see map in Annex B).⁶ The EEP Concern⁷ project aimed to move 112,500 people from 22,500 extremely poor households out of poverty primarily by increasing their income and assets. Modalities towards these objectives included (1) input support and technology transfer for livelihoods (including guidance on new cropping and cropping patterns, livestock, fishing, bamboo working, small businesses and tailoring); (2) capacity building (including setting up self-help groups; facilitating CBOs and capacity building with local government); and (3) support to beneficiaries for innovation and linkage to markets and/or value chains.

The Urban Partnership for Poverty Reduction (**UPPR**) Programme aimed to improve the livelihoods of 3 million poor and extremely poor people living in urban areas. The project, which ran between 2008 and 2015, was implemented in poor settlements in 23 towns across the country (UPPR 2014; see map in Annex B). The UPPR programme followed an earlier urban programme, the Local Partnerships for Urban Poverty Alleviation Project, which ran from 2000 to 2007, and was implemented in coordination with the Local Government Engineering Department of the Government of Bangladesh. The UPPR worked jointly with the Municipality or City Corporation. The United Nations Development Programme managed the implementation of the project, and the United Nations Human Settlement Programme (known as UN-Habitat) supported the components that focused on improving living conditions (UPPR 2014).

⁶ For largely practical reasons, the Concern project was purposively sampled for inclusion in this evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh. Findings taken from this Concern project are not intended to be representative of the entire EEP. Internal monitoring data from the EEP's monthly household-level monitoring system suggest that, out of all the regions in which the EEP is being implemented, the communities covered under this project may be among the poorest and suffering from the worst health.

⁷ As this evaluation focused on the Concern Scale Fund of the wider EEP programme, this report will refer to the evaluated programme as EEP Concern for the remainder of this report.

The UPPR programme employed a community-centred approach to urban poverty reduction and adopted a community contract modality with Community Development Committees (CDCs)/clusters/federations, which were able to select their priorities from a package of various interventions proposed by the UPPR. The main interventions included the following: supporting habitat and settlement improvement (including sanitation); providing resources to improve incomes and assets in the form of funds to help set up businesses and offer training options such as apprenticeships (e.g. in mobile phone repair, car maintenance and footwear industry work), urban food production (household/community-based vegetable production, and poultry and dairy cow rearing) and small business management; encouraging inclusion in education, for example through grants for vulnerable children to prevent school drop-out; facilitating community banking; and enhancing social development and protection, including by helping beneficiaries achieve security of tenure.

Table 1.2, below, summarises the beneficiary selection criteria and core livelihood interventions for each programme.

Table 1.2: Livelihood interventions		
Programme	Beneficiary households and selection criteria	Intervention and mode of delivery
CLP	78,000 extremely poor households and their communities. To be selected, households (HHs) must have: <ul style="list-style-type: none"> • been living on an island <i>char</i> for at least six months • had no ownership of or access to land • had productive assets worth not more than BDT 5,000 • not owned more than two goats/sheep or ten fowl or one shared cow • not been receiving cash/ asset grants from another programme • had no regular source of income • been willing to attend weekly group meetings for 18 months 	<ul style="list-style-type: none"> • Asset transfer programme • Access to livestock service providers • Livelihood training • Market development activities • Infrastructure development: plinth raising, flood pillars, access to safe water and sanitation • Social development, promotion of appropriate hygiene and sanitation, social protection, access to health services • Village savings and loans
EEP Concern	22,500 extremely poor HHs and their communities. To be selected, HHs must have had: <ul style="list-style-type: none"> • <i>per capita</i> income of <BDT 21/day • no access to microfinance • homestead land: 3 decimal or less, no cultivable land. <p>Supp. criteria include destitution; food insecurity (≤ 2 meals/day); HH headed by widowed/divorced/abandoned/ disabled; ethnic minorities; vulnerability to flood/waves.</p>	<ul style="list-style-type: none"> • Input support for livelihoods: cropping, livestock, fishing, bamboo working, small businesses, tailoring, etc. • Capacity building: set up self-help groups, facilitate CBOs, skills transfer • Innovation support; market linkage and access to value chains
UPPR programme	800,000 poor and extremely poor households in urban slums/informal settlements. Poor and extremely poor households were selected through the Participatory Identification of the Poor process, which uses community-identified criteria to assess poverty.	<ul style="list-style-type: none"> • Settlement improvement • Livelihood intervention (apprenticeships, block grants/business start-up help, training) • Community banking (savings and credit schemes) • Educational grants • Housing and security of tenure

1.3.2 Nutritional status of children in the three programme areas at baseline

Anthropometric measures are considered the best indicators of young children’s nutritional status and were the key outcomes measured as part of the quantitative impact component of this evaluation. Children’s nutritional status is strongly determined by their nutritional environment in the first thousand days of life, starting with conception. The evaluation’s Baseline Report (Roy, Barnett, Baxter, Gordon, Hoddinott, Karachiwalla, Naher and Tranchant 2015) looked in detail at several indicators of nutritional status for children under five, which were measured as part of the quantitative baseline survey conducted between September and November 2014 across the three programme areas. Table 1.3, below, presents a summary of key anthropometric measures in order to provide an indication of the nutritional status of the children in the sample before the nutrition intervention was introduced.

Table 1.3: Baseline means of anthropometric indicators for children aged 0–5 years from L, L+N and C samples, by programme			
	CLP	EEP Concern	UPPR programme
Height-for-age (HAZ) z-score	-1.33 to -1.30	-1.74 to -1.65	-0.97 to -1.08
Proportion of children stunted (HAZ<-2 sd)	0.32 to 0.35	0.45	0.25 to 0.28
Weight-for-height (WHZ) z-score	-0.91 to -0.92	-1.00 to -0.97	-0.75 to -0.73
Proportion of children wasted (WHZ <-2 sd)	0.15	0.16 to 0.18	0.13 to 0.15

Overall, the baseline anthropometric indicators reflected that rates of child undernutrition were high but differed slightly across the three programmes, with the highest rates seen in the EEP Concern areas, moderately high rates in the CLP areas, and lower rates seen in UPPR areas. These indicators suggest that there were considerable deficiencies in children’s nutritional environment in the first thousand days of life, given that a large proportion of children were observed as stunted. They also suggest that the nutrition intervention may have had the potential to impact on nutrition outcomes, given that its components were targeted at children in the first thousand days of life (assuming the intervention was appropriately designed and implemented to bring about these impacts within a relatively short timeframe – see section 2.5 on overall limitations of the quantitative design).

1.3.3 Description of nutrition-specific interventions

In accordance with guidance received from DFID on the implementation of nutrition-specific interventions, all three programmes introduced a set of complementary nutrition-specific interventions in 2013, with planned implementation for two years – until the end of 2015 or early 2016 (depending on the programme). The nutrition-specific interventions targeted all beneficiary households in the CLP and EEP Concern, and a sub-set of extremely poor beneficiary households in the UPPR programme, containing pregnant or lactating mothers, adolescent girls aged 10 to 16 and children under five years of age.

The principal components of the nutrition-specific interventions were behavioural change counselling (BCC) and micronutrient supplementation via community nutrition workers (CNWs), called *char pushti karmis* (CPKs) in the CLP and EEP Concern, and health and nutrition volunteers (HNVs) in the UPPR programme. The structures for the management of the nutrition staff employed by each programme can be found in Annex C.

The overall package of nutrition activities included:

- **Household-level counselling:** Counselling was conducted by CNWs during monthly household visits on six topics: initiation of breastfeeding within one hour of birth, colostrum feeding, exclusive breastfeeding, continuous breastfeeding, complementary feeding and hygiene promotion. This counselling included demonstrations and assistance for breastfeeding mothers on positioning and attachment.

- **Micronutrient supplements:** Micronutrient supplements were delivered to beneficiaries, along with advice on their use, during CNW households visits.
 - *Five-component micronutrients*, also called multiple micronutrient powder (MNP) (consisting of iron, folic acid, zinc, vitamin A, vitamin C), were given to children aged between 7 and 23 months. Dosage was 120 sachets per year, with intake to be ensured through home visits by CNWs.
 - *Iron and folic acid (IFA) tablets* were given to pregnant women (after their first trimester), breastfeeding women and adolescent girls; 180 tablets were given to pregnant and breastfeeding women and 104 were given to adolescent girls per year. Intake was ensured through home visits by CNWs.
 - *Deworming drugs* (Albendazol) were given to children aged 12–60 months (one to five years) and adolescent girls every six months (twice per year). Other household family members received deworming drugs once per year.
- **Community-level discussions:** Beneficiary group discussions were held on issues related to both livelihoods and health, sometimes including topics related to nutrition, hygiene and sanitation; specific groups were also set up for adolescent girls to discuss nutrition-related topics.

Other, non-regular interventions featuring in some of the programmes included:

- identification and referral of acute malnutrition
- support of government campaigns
- training of village doctors
- management of community clinics and facilitation of support groups
- organisation of social mobilisation events.

Following the first rounds of evaluation data collection (the various evaluation components and their timing are discussed in detail in section 2 below), DFID hosted a meeting in October 2014 between the evaluation team and representatives from the CLP, and the EEP Concern and UPPR programmes to discuss early findings on their implementation of nutrition-specific interventions and to consider ways for the three programmes to strengthen their nutrition services over the remainder of their lifecycles. As a result of findings, the programmes adjusted some of their nutrition-specific interventions to improve performance. However, some of these changes were not implemented until mid-to-late 2015 (well into the second year of implementation and shortly before the end of the evaluation period) and changes were not uniform across programmes. These changes included:

- improving CNW supervision (by hiring additional supervisors to ensure adequate supervision ratios)
- introducing CNW and supervisor incentives (namely an increase in CNW honorariums to reduce drop-out and increase motivation)
- improving CNW training (by increasing the length and improving the content of refresher courses)
- amending monitoring processes (by simplifying reporting systems for CNWs)
- enhancing direct nutrition activities (by introducing new pictorial flip charts to be used during counselling sessions; and giving all household members deworming tablets twice per year instead of once).

2 EVALUATION OBJECTIVES, DESIGN AND METHODS

2.1 Purpose, scope and objectives

In order to independently and rigorously evaluate and draw lessons from the new programmes combining livelihood and nutrition-specific intervention, DFID designed the terms of reference in 2012 (see Annex A) for a mixed-method impact evaluation to investigate the impact of this combination on child nutrition outcomes. The evaluation would cover all three programmes: the CLP, EEP Concern and the UPPR programme.

Following extensive discussions between DFID and evaluation partners on the feasibility of different design options during the programmes' Inception Phase in 2012/13, the scope and objectives of the evaluation were modified substantially from the original terms of reference. Details of this are reflected in the evaluation's Inception Report (IDS, IFPRI, BRAC, CNRS and ITAD 2014).

At the point of its inception, the evaluation was designed to investigate the impact on child nutritional status of various combinations of programme components: a livelihood intervention only (referred to throughout this report as 'L' or 'L-only'), a livelihood intervention combined with a nutrition-specific intervention (nutrition-specific interventions are referred to as 'N' throughout this report), and a combination (referred to as 'L+N') as well as no livelihood or nutrition-specific interventions (referred to as 'C' or the control/counterfactual). The overarching objectives agreed upon in the Inception Phase are listed in section 1.1 and their related secondary objectives are detailed in Table 2.1 (and are referred to in the Inception Report; IDS *et al.* 2014).

The rest of this section outlines the final methodological approaches used to answer these questions, while Annexes D, E, and F reflect in detail on design, analysis and any adjustments and modifications made to evaluation components and objectives since the Inception Phase.⁸

2.2 Overview of theory-based approach

In order to fulfil the objectives described in Table 2.1, the evaluation applied an overarching, synthetic, theory-based design and mixed-method approach. This resulted in a range of qualitative and quantitative methods and modes of analysis being integrated across several evaluation components. The theory of change used in the evaluation is adopted from the three programmes' own generic results chain, provided by DFID to serve two purposes: (1) as a model to describe and map how the programmes intended to deliver their desired results through a 'causal chain', tracing from programme inputs and outputs through to outcomes and longer-term impacts, and (2) to indicate the evaluation's intention to use a wide range of different data collection tools and techniques to measure, document and verify programme activities and links along various stages of the programmes' causal chains. Overall, this approach allows for data collection to focus on the testing of implicit assumptions, intended or unintended programme consequences and other external factors which may affect household- and community-level outcomes and impacts. This report presents and synthesises findings from across the different evaluation components at key stages along the programmes' causal chains and attempts to provide plausible explanations for the overall 'story', describing whether or not and how and why impacts may have occurred.

The combined programme and evaluation theory of change is represented graphically in Figure 2.1 in a logic model format of inputs, outputs, outcomes and impacts.

The primary evaluation components correspond closely to this theory of change and were designed to address the evaluation's overarching objectives. These components consist of:

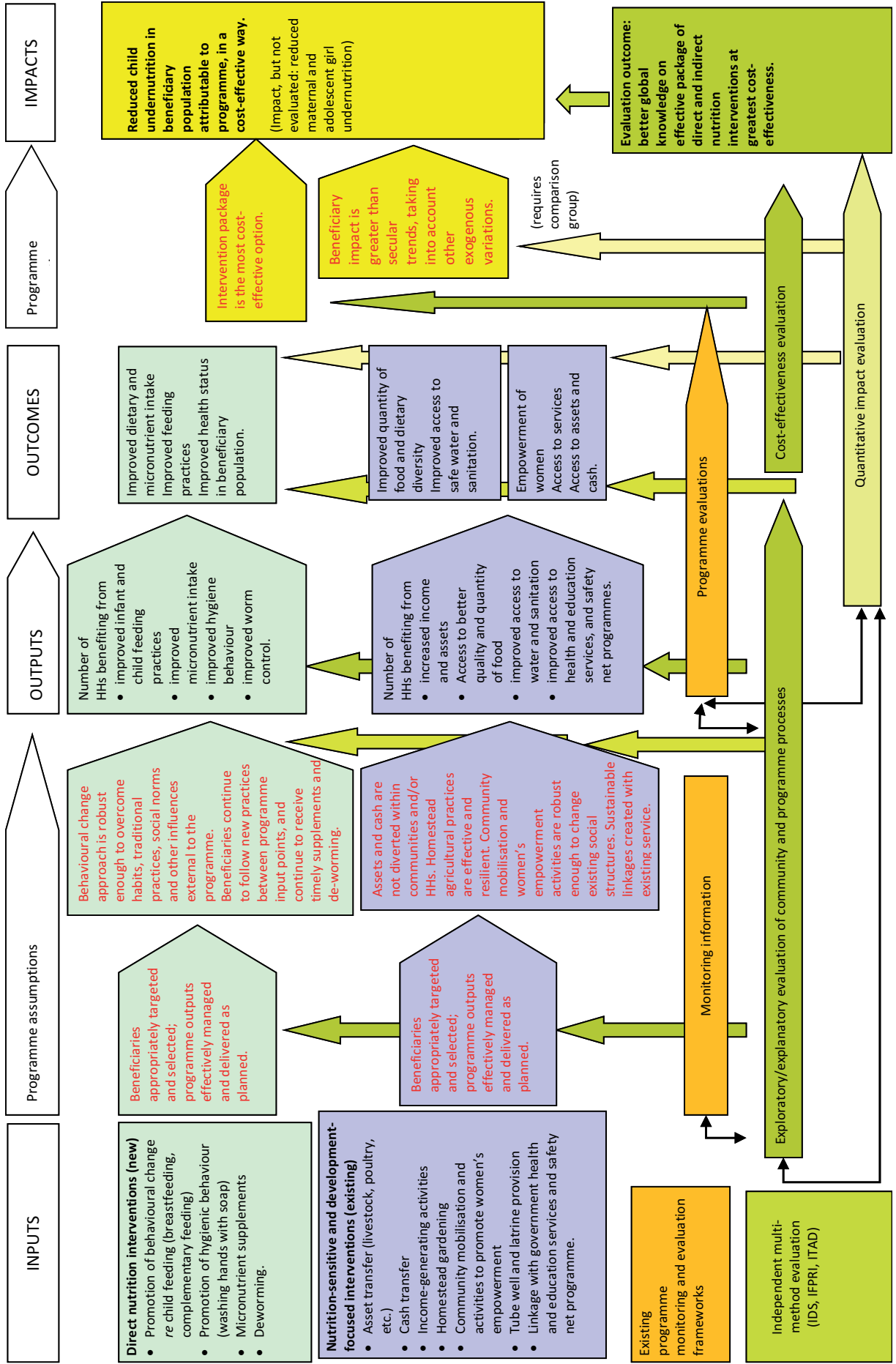
1. **a quantitative impact component**, designed to address Objective 1 and which provides quantitative estimates of the outcomes and impacts of the nutrition-specific interventions, supporting hypothesis testing in the presence of a counterfactual scenario, as well as assessment of the relationship between programme outcomes and impacts;

⁸ Several such modifications have been required, to take into account ongoing programme developments, findings from ongoing data collection and analysis of the various evaluation components. Any modifications considered necessary were reviewed and approved by DFID prior to implementation (including consultation with the DFID internal Management Committee, as required), given their implications for the evaluation and its recommendations. In addition, the evaluation team communicated regularly with the management teams and technical advisers of each programme on issues such as fieldwork/survey periods, and to communicate results.

2. **an exploratory/explanatory component**, which addresses Objective 2, explores underlying causal processes and mechanisms and provides detailed contextual analysis to help explain how and why the combination of livelihoods and nutrition-specific interventions may have had an impact on child nutrition outcomes within the three programmes. Beneficiary selection and programme targeting, management and delivery are also addressed. This component is divided into two complementary sub-components, a 'process evaluation' and a 'qualitative evaluation';
3. **a cost-effectiveness component**, which addresses Objective 3, provides an assessment of how the three programmes performed in relation to the value for money (VfM) framework of economy, efficiency, effectiveness and equity. It also looks at cost-driven variables and other wider factors affecting changes in nutritional behaviour and outcomes, in order to inform future policy decisions about the most cost-effective design and means of delivering programmes that bring about nutrition-related behaviour change at scale.

Table 2.1: Original evaluation objectives	
Objective	Secondary objective
(1) To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions	<p>(1.1) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions (denoting this scenario 'L+N'), relative to receiving a livelihoods intervention only (denoting this scenario 'L only')?</p> <p>(1.2) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions ('L+N'), relative to receiving no intervention (denoting this scenario 'C' for comparison)?</p> <p>(1.3) What is the impact on nutrition outcomes of receiving a livelihoods intervention only ('L only'), relative to receiving no intervention ('C')?</p>
(2) To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes	<p>(2.1) What are the critical processes and mechanisms in the implementation of the programme strategy? Were the processes implemented as planned and to what extent has this affected the achievement of outputs?</p> <p>(2.2) How does the quality of programme delivery relate to the more proximate outcomes identified in the quantitative survey (care, feeding, livelihoods, etc.) and how does this explain the impacts detected (or not detected)?</p> <p>(2.3) What wider interactions between societal, community, family and programme structures might influence intervention uptake and behavioural change?</p> <p>(2.4) What are the contextual factors that can enhance or hinder the programme uptake?</p>
(3) To assess the cost-effectiveness (benefit received for cost incurred) of integrating nutrition-specific components into the livelihoods interventions of the three existing programmes	<p>(3.1) What is the unit cost of changes to child stunting for each of the three programmes, for both L only and L+N? Which nutrition intervention is the most cost-effective, and why?</p> <p>(3.2) How cost-effective are these programmes compared with similar programmes in other countries and contexts? What are the main cost categories, and how do they compare to external benchmarks? If it is possible to assess this, what are the main cost drivers that justify relatively high costs?</p> <p>(3.3) What are the total costs incurred by society and the opportunity costs incurred to participate in the programme?</p> <p>(3.4) What are the unquantified benefits, direct and indirect, of the nutrition interventions?</p>

Figure 2.1: Programme and evaluation theory of change



2.3 Methods and data collection

2.3.1 Mixed-method approach

Each evaluation component’s methodological approach makes a unique contribution to the causal inference analysis of this evaluation. The sequencing, management and oversight of the evaluation were designed to ensure an integrated approach to the development of tools and methods, avoiding unnecessary duplication of effort and where possible reducing research fatigue and burden on the three implementing programme teams as well as the communities participating in the evaluation.

The timing of core evaluation component activities is shown in Table 2.2.

Evaluation activity	2013				2014				2015				2016																
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Quantitative baseline																													
Qualitative – first round																													
Process evaluation																													
Qualitative follow-ups																													
Qualitative – final round																													
Quantitative endline																													
Cost-effectiveness																													

Sub-sections 2.3.2–2.3.4 provide a basic overview of the individual components that form the basis of this mixed-method approach. Annexes D, E and F provide further detail of methods, analysis and the methodological decisions summarised here, and Annex G provides further details of the mixed-method approach.

2.3.2 Quantitative impact component

Secondary Objective 1.1 – estimating the impacts of providing L+N vs L – is addressed for all three programmes (CLP, EEP Concern and UPPR programme) via the quantitative evaluation component. In order to estimate quantitative impacts rigorously, households benefiting from the livelihoods intervention in each of the three programmes were randomly assigned after the baseline survey to either continue receiving only livelihoods support or to receive the nutrition interventions as well. Owing to the randomisation, differences between the L+N and L groups over time in each programme can then be interpreted as caused by the added nutrition intervention. Double-difference estimation is used for this analysis.

Secondary objectives 1.2 and 1.3 – estimating the impacts of receiving L+N or L vs C – can be addressed only for the UPPR programme, as described in Annex D. Because the livelihoods interventions had already been non-randomly assigned and implemented prior to the start of this evaluation, the control group for the UPPR programme was non-randomly selected to be as similar as possible to livelihoods beneficiary households before those households had received the livelihoods intervention.

Single-difference estimation along with quasi-experimental methods are used for this analysis; in particular, samples in the L, L+N, and C groups are ‘trimmed’ to include only the most similar sub-set and propensity score weighting methods are applied for further comparability across the groups.

All analyses draw on a panel sample and a repeated cross-section sample. The panel sample is composed of households with a child aged 0–23 months at baseline, followed up again in the endline survey when the child was 24–39 months. Estimation of the impact on this sample is based on changes in the same households over time across groups, which improves statistical power, but uses an L+N sample that was not exposed to the N intervention throughout the first thousand days (for example, no children were exposed to it *in utero*). The repeated cross-section sample is composed of households with a child aged 0–23 months at baseline and a new sample of households with a child aged 0–23 months at endline. Estimation of the impact on this sample relies on different households over time but uses an L+N sample that by and large was exposed to the N intervention from the start of the first thousand days.

Estimates presented have been checked for robustness to sample attrition (relevant only to the panel sample and confirmed to be low and uncorrelated with treatment), as well as inclusion of additional covariates in estimation. The statistical significance of all impact estimates has been adjusted for multiple testing.

Further details on the quantitative design, methods, data collection and analysis are presented in Annex D.

Table 2.3: Quantitative component objectives mapped to methods			
Objective	Secondary objective	Metrics/type of data or explanation available	Method and source of data
(1) To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions	(1.1) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions (denoting this scenario 'L+N'), relative to receiving a livelihoods intervention only (denoting this scenario 'L-only') in all programmes?	Quantitative estimates of the causal impacts of nutrition programmes on beneficiary outcomes, as compared with livelihoods-only programmes	Baseline and endline surveys of HHs as repeated cross-section and partial panel. HHs randomised to receive nutrition component; outcomes analysed via double-difference approach
	(1.2) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions ('L+N'), relative to receiving no intervention (denoting this scenario 'C' for comparison) in UPPR only?	Quantitative estimates of the causal impacts of UPPR's nutrition programmes on beneficiary outcomes compared with the effect on households receiving no intervention	Comparison HHs selected via propensity score weighting with trimming of sample for common support. Outcomes analysed via single-difference approach and quasi-experimental methods
	(1.3) What is the impact on nutrition outcomes of receiving a livelihoods intervention only ('L only'), relative to receiving no intervention ('C') in UPPR only?	Quantitative estimates of the causal impacts of UPPR's nutrition programmes on beneficiary outcomes compared with effect on households receiving no intervention	Comparison HHs selected via propensity score weighting with trimming of sample for common support. Outcomes analysed via single-difference approach and quasi-experimental methods

2.3.3 Exploratory/explanatory component

In order to fulfil the second overall objective of the evaluation, outlined in Table 2.4, the exploratory/explanatory component was designed to complement both the purely quantitative component and the cost-effectiveness component analysis by investigating the processes of change and the underlying causal processes and mechanisms, as well as the societal and community contexts that might explain how, why and under what conditions the combination of livelihood and nutrition-specific interventions may have had an impact on child nutrition outcomes.

This component comprised two sub-components, which represent two distinct but purposively overlapping routes of enquiry: (1) the *process evaluation*, which addressed Secondary Objectives 2.1 and 2.2 in Table 2.4 below and focused primarily on programme-level processes and implementation and (2) the *qualitative evaluation*, which addressed secondary objectives 2.3 and 2.4 and focused on community-level context, behaviour and perceptions of the programme. Details of the design, methods, tools, data collection and analysis for these two sub-components are presented in Annex E.

Table 2.4: Exploratory/explanatory component objectives mapped to methods			
Objective	Secondary objective	Metrics/ type of data or explanation available	Method and source of data
(2) To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes	(2.1) What are the critical processes and mechanisms in the implementation of the programme strategy? Were the processes implemented as planned and to what extent has this affected the achievement of outputs?	Qualitative and descriptive quantitative data	Focus group discussions; semi-structured interviews and key informant interviews with a range of key actors and beneficiaries
	(2.2) How does the quality of programme delivery relate to the more proximate outcomes identified in the quantitative survey (care, feeding, livelihoods, etc.) and how does this explain the impacts detected (or not detected)?		Baseline and endline surveys
	(2.3) What wider interactions between societal, community, family and programme structures might influence intervention uptake and behavioural change?		
	(2.4) What are the contextual factors that can enhance or hinder the programme uptake?		

2.3.4 Cost-effectiveness component

The original methodology of the cost-effectiveness component was heavily weighted to and dependent on the final quantitative findings. Given that the results of the quantitative impact component detected no statistically significant impact of the N interventions on anthropometric outcomes, it was no longer possible for the cost-effectiveness component to assess the cost-effectiveness of changes in child stunting (height-for-age z-scores). External comparisons with the wider literature were also difficult because the original intention was to convert the findings into disability-adjusted life years (DALY) and to use this for external comparison purposes.

However, the central research questions could still be answered usefully via an adapted approach, which was adopted and agreed with DFID. The approach is broken down into two sets of evaluation questions (as detailed in Table 2.5 below): those focused around VfM accountability and performance and those focused around the learning and policy lessons from VfM evaluation findings. The latter is more useful in understanding what can be applied in new programming, with similar contexts and mechanisms at play, in order to achieve better outcomes cost-effectively and at scale.

Further details on the original cost-effectiveness design as well as data collection and analysis can be found in Annex F.

Table 2.5: Cost-effectiveness component objectives mapped to research questions and methods			
Objective	Secondary objective	Metrics/type of data or explanation available	Method and source of data
(3) To assess the cost-effectiveness (benefit received for cost incurred) of integrating direct nutrition-specific components into the livelihoods interventions of the three existing programmes	<i>Cost-effectiveness accountability and performance (using the VfM framework)</i>		
	(3.1) How did the CLP, EEP Concern and the UPPR programme perform on economy and efficiency?	Economy and efficiency: Budget and expenditure data in GBPs, disaggregated by key cost categories and years of operation. Accompanying narrative provided by programmes. Data on beneficiary numbers (HHs) reached cumulatively	Economy and efficiency: Budget, expenditure and beneficiary data collected from three programmes. Analysis of budgets and expenditure, verified by DFID, and explanatory narrative from programmes to explain observations and provide clarification. Interviews by Skype and followed up by email.
	(a) Economy as measured by the relative sizes of the cost categories, key cost drivers, key unit cost ratios and quality of inputs	Input quality and efficiency drawing on process evaluation data and quantitative endline findings	Efficiency analysis synthesising data and drawing conclusions from process and qualitative evaluation and endline quantitative evaluation alongside budget and expenditure data
	b) Efficiency as measured by management arrangements, monitoring and reporting efficacy, 'on time, on budget analysis', efficiency of key design features of the model, procurement arrangements, recruitment and integration of N within L		
	(3.2) What were the main quantitative and qualitative findings for effectiveness and equity for all the nutrition programmes from the wider evaluation?	Summary of endline quantitative and qualitative findings	
	<i>Cost-effectiveness learning and policy lessons going forward</i>		
	(3.3) What are the key cost-driven variables that are acting as constraints on achieving intended outcomes in the three programmes?	Observations from the programmes' budget data, beneficiary numbers and findings from the endline quantitative evaluation and qualitative evaluation, to determine what worked at which costs, and why	Summaries from other parts of the evaluation

	<p>(3.4) How does empirical evidence from similar contexts and mechanisms compare in terms of outcomes and cost-effectiveness? How do these inform our policy decisions going forward?</p> <p>(3.5) What can we learn from the evaluation findings combined with empirical evidence regarding the most cost-effective way to deliver changes in nutrition behaviour at scale in this particular context?</p>	<p>Findings on costs and benefits from wider literature – the Alive & Thrive evaluation report (Saha, Khaled, Chowdhury, Kennedy, Tyagi, Nguyen, Rawat and Menon 2015) and Transfer Modality Research Initiative (TMRI) endline evaluation report (Ahmed, Hoddinott, Roy, Sraboni, Quabili, and Margolies 2016). Specifically costs of different programming elements, e.g. nutrition worker costs. Benefits in terms of similar contexts and mechanisms to this evaluation</p> <p>Building a cost model using all the data from above, and bringing it together with the evaluation’s effectiveness findings and TMRI and Alive & Thrive outcomes</p>	<p>TMRI and Alive & Thrive endline evaluation reports.</p>
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2.4 Data analysis

The overall approach for data analysis for this evaluation was to follow a theory-based approach, using the programmes’ planned theory of change (Figure 2.1) tracing from programme inputs to outputs, to outcomes and finally impacts. In the process, assumptions within the causal chain that may have affected the programme outcomes and detected impacts were verified or modified. Multiple lines of enquiry from different methodological approaches were triangulated as findings from the different sources of data emerged, and data were analysed, compared and brought together. Individual and mixed-method strategies for analysis are described in more detail in Annexes D–G.

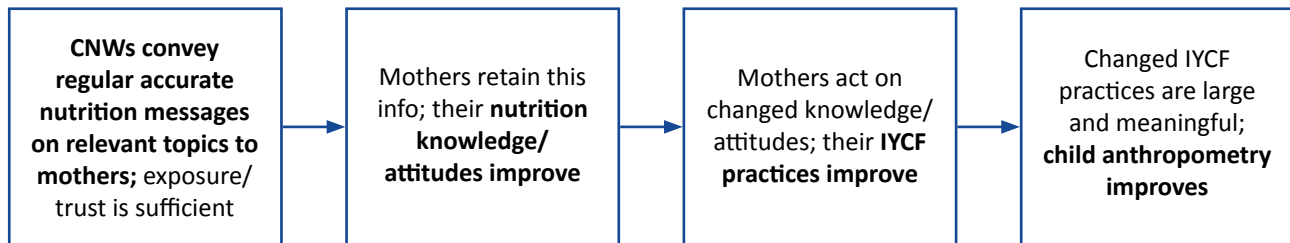
Ongoing communication and collaboration between members of the evaluation team located in different partner organisations facilitated the prompt combination of emerging findings at critical stages. For example, quantitative survey data were extracted and complemented the qualitative case study analyses, which allowed for a more comprehensive understanding of contextual factors in the chosen communities. The nature of the qualitative investigations in the exploratory/explanatory component also offered new avenues for the analysis of the final endline quantitative survey data and suggested additional strategies for the stratification and disaggregation of the final datasets. The quantitative component and qualitative and process sub-components of the exploratory/explanatory evaluation were initially conducted separately to emphasise interpretations and findings from different methods. They were then brought together at key stages for triangulation. This included a mixed-method workshop held in June 2014, which produced an interim report (Barnett, Ferdous, Sidikki, Roy, Naher, Islam, Ahmed, Nisbett, Cornelius, Longhurst and Gordon 2015) as well as the final integrative synthesis stage in early 2016, where data from across the components were systematically reviewed and compiled in a workshop attended by evaluation partners responsible for different components.

As well as unravelling relevant nutrition- and livelihood-specific issues relevant to the implementation and longer-term sustainability of the programmes, the evaluation was also able to assess cross-cutting issues such as gender, poverty, environment and local power relations as part of its overall analysis.

Sections 3–5 of this report present the main findings from across the multiple sources of data collected during the evaluation. Following the general theory and mixed-method approach, all evidence gathered is integrated and presented along the theory of change, as represented by the table in Annex G. This allows for consideration of all available plausible explanations for how design and inputs actually translate

into outputs and outcomes on the ground, on the basis of the data available through the evaluation.⁹ In addition, a simplified chain of assumptions which form the core of the analysis on how nutrition behaviours may have changed as a result of the N interventions is provided in Figure 2.2. below. For section 6, which focuses on impacts of the livelihood programmes compared to households receiving no intervention, findings are presented separately for the quantitative and qualitative data.

Figure 2.2: Primary pathway for nutrition impacts explored via mixed methods



2.5 Internal and external validity and overall limitations

A primary aim of this evaluation is to share findings and lessons with DFID about the effectiveness of the combined package of livelihood and nutrition-specific interventions they introduced as part of the CLP, EEP Concern and UPPR programmes in Bangladesh. The internal validity of these findings is strong (i.e. the estimated intervention impacts can with confidence be interpreted as true causal effects of the interventions within the samples studied). Comparison of L+N with L in all three programmes relies on a randomised design, the gold standard for assuring internal validity. Because introduction of the N intervention was randomised within L sites, differences over time between L and L+N households can be interpreted as truly caused by (rather than simply correlated with) the addition of the N intervention. Although the UPPR comparison of L+N or L with C relies on a non-randomised quasi-experimental design, the methods used to achieve comparability across the groups in a pre-intervention period (purposive sampling of control households similar to beneficiary households prior to intervention, followed by propensity score weighting with trimming) achieve balance in pre-intervention observable characteristics. This too suggests that differences over time in the weighted trimmed groups can be interpreted as being due to the interventions (and not, for example, to pre-existing differences).

Difference strategies were employed to ensure trustworthiness and thus internal validity and reliability of the qualitative evaluation. These strategies include:

- **Triangulation** to strengthen accuracy and completeness of the qualitative data and confirm qualitative findings and interpretations. Triangulation included the use of multiple qualitative data sources and methods (e.g. beneficiaries and elderly community members; life histories and focus group discussions), data collection in several sites for each programme and intervention, repeated data collection (including several follow-up field visits), and field teams consisting of several (male and female) researchers who might have noticed different things during the data collection.
- **Peer review of findings and interpretations** by external researchers in Bangladesh (as part of the workshops) and analysis of qualitative data by both the Bangladesh and the IDS team to bolster validity and credibility, provide different perspectives and explore avenues for the interpretations of the qualitative findings.
- **Validation of the qualitative findings and interpretations** with the participants in the study sites during the follow-up visits.

A broader aim of this evaluation is to also contribute to the wider global knowledge base on the most effective and cost-effective means of delivering improvements in nutrition outcomes for vulnerable households. In order to fulfil this aim, the evaluation requires external validity (i.e. it must assess the extent to which findings are representative of the general population from which the samples are drawn and to what extent they apply to other populations/ locations). In this regard, a number of points are worth noting. Findings cannot be generalised to all 'livelihoods' or 'nutrition' interventions but are specific to the

⁹ It is important to note the difference in the types and methodological orientations of the data presented, which are drawn from components of the evaluation that included both small-N and large-N studies as well as from secondary document reviews. Throughout, it is clear where plausible (though 'unproved') explanations via qualitative and quantitative description are made as opposed to more rigorous assessments of relative (all programmes) and absolute (UPPR) outcomes and impact.

interventions implemented in this study context (in terms of features, intensity, duration, targeting, etc.). Results also apply to the study samples (drawn from livelihood programme beneficiaries with a child aged 0–23 months for each programme) but may not be applicable to a very different population (within Bangladesh or outside). Economic, social and other contextual factors described in this evaluation that shape the results found may not be applicable to other populations or other locations. These points are common to most impact evaluations.

However, broader insights from this evaluation may be generalisable. These include the conceptualisation of the theory of change, as well as recommendations for implementation to successfully proceed through the causal chain, based on evidence from this study. The fact that a consistent story emerges from all three programmes, which, while all in Bangladesh, reflect considerably different contexts, gives some assurance that the narrative emerging from this evaluation is not narrowly limited to one particular context.

With regard to overall limitations of the selected methods, the range of methodological approaches and tools incorporated as part of the evaluation's mixed-method design has to some extent minimised the limitations and risk of bias associated with the adoption of any one specific methodology and approach (e.g. conducting a purely quantitative randomised controlled trial that focuses solely on measurable outcomes and fails to take into account contextual or social factors, which may ultimately help explain results or lack thereof). Having said that, some limitations are intrinsic to the evaluation. For example, owing to project timelines, the evaluation could cover a maximum of two years' exposure to the N interventions; longer exposure might have given greater potential to improve nutritional status, particularly on a cumulative outcome like height. In addition, the evaluation was launched after the L interventions were already ongoing; this not only prevented randomisation of the L interventions for a cleaner evaluation design, but also meant that the evaluation was not capturing the period over which L exposure for beneficiaries was probably most intensive. Moreover, each of the evaluation components brought with it its own limitations and risk of potential biases (described below), although these were mitigated at all stages of data collection planning, implementation and analysis.

For the *quantitative impact component*, some outcomes (such as IYCF practices) are self-reported and asked about after they have happened, therefore subject to respondent bias; however, this issue is unavoidable (short of direct observation by enumerators, clearly unfeasible for behaviours that span 23 months) and common to most evaluations focusing on outcomes of this type. Moreover, these outcomes form a consistent story with outcomes that can be directly assessed (e.g., knowledge, anthropometric outcomes), thereby minimising concerns that reporting bias might drive the results. In addition, although the quasi-experimental methods used here do achieve comparability in observables between the UPPR trimmed control group and the UPPR trimmed beneficiary groups (see Annex D and section 6 for further detail), it cannot be guaranteed that they are comparable on unobservables; again this issue is common to all quasi-experimental studies, since similarity on unobservables can obviously not be directly assessed. Also, the trimming required for the comparison of UPPR beneficiary and control groups means that the trimmed estimation sample over which absolute impacts are estimated is different from the full untrimmed estimation sample over which L+N to L impacts are estimated; however, this too is unavoidable, as the livelihoods interventions were not randomly assigned and, for some livelihoods beneficiary households, no comparable non-beneficiary household could be found, necessitating the trimming.

The aim of the *exploratory/explanatory component* was to gain in-depth contextual insights into the implementation, mechanisms and outcomes of the intervention (i.e., identifying how, for whom and under what conditions outcomes are observed – or 'getting inside the black box') based on a small number of intensive 'typical' case studies. This facilitates so-called *petite generalisation*. Such an understanding is important to inform projections on whether and how the combination of N and L interventions is likely to work when implemented elsewhere. It was not the aim of this component to produce generalisable findings in the traditional quantitative sense but to gain understanding of complexity and context using carefully selected case studies.

For the *cost-effectiveness component*, the limitations of this approach were that the cost assumptions were from only a limited number of sources. Cost modelling generally is limited, it can only provide changes in key cost drivers, and there are many factors unrelated to cost which impact on outcomes. The model was only able to model costs, not benefits. So, without design modifications, it was not possible to estimate the quantitative impact on benefits that scale up.

2.6 Stakeholder engagement

Regular dialogue between DFID, PATH and the evaluation partners ensured effective planning and implementation of evaluation activities according to the agreed specifications and expectations and made sure that any modifications to the evaluation design or approach still produced the required quality and rigour of results and did not affect the overall validity of anticipated results. All project written outputs were reviewed by lead members of the relevant partner teams, the IDS project co-directors and PATH before being passed to DFID for final comment, review and approval. All major report outputs (Inception Report, Baseline Report, Final Evaluation Report) were also reviewed by DFID's external quality assurance review process – 'Specialist Evaluation and Quality Assurance Service' (SEQAS).

Coordinated via IDS the evaluation teams also communicated and shared information regularly with the three implementing programmes as well as with other local and international external stakeholders (as deemed appropriate) during the design, implementation and write up/ results phases of the evaluation. A list of key individuals consulted as part of the project is included as Annex I of this report. Close consultation with the implementing programme teams enabled appropriate consideration of practical and ethical factors important for effective planning and design of data collection activities, as well as providing transparency of information and opportunities for programme staff to give feedback at various stages on evaluation findings as they emerged, including on any major interim and final report outputs. Care was taken to ensure that information was shared constructively with partners and that confidentiality was respected.

Specific stakeholder activities include:

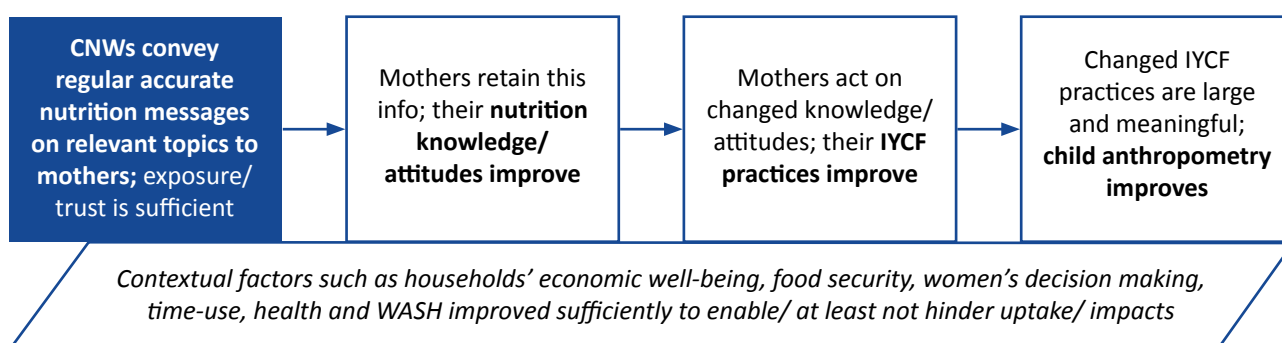
1. Inception phase workshop (Dhaka, April 2013): workshop with DFID, evaluation partners (IDS, IFPRI, BIGD, DATA and CNRS), programme representatives from UPPR, EEP Concern and the CLP, plus other external stakeholders working on nutrition (IPHN, ICDDR,B and Alive & Thrive) to review and discuss the design of the evaluation and finalise the approach later captured in the evaluation's Inception Report
2. Mid-term review workshop (Dhaka, October 2014): workshop with DFID, evaluation partners (IDS, IFPRI and BIGD) and programme representatives from UPPR, EEP Concern and the CLP to discuss the evaluation's quantitative baseline results and the first phase of findings from the exploratory/ explanatory component's qualitative data collection, as well as discussing plans for remaining data collection including process evaluation and cost-effectiveness components
3. Information-sharing via DFID on any major issues related to programme implementation picked up on as part of data collection, which fed into wider programme monitoring and feedback mechanisms to ensure quality and consistency of programme delivery – this included informing DFID's decision to invest additional resources in strengthening the delivery of the nutrition component in late 2014
4. Sharing of draft (and final) versions of all major evaluation reports with the programme teams, to invite feedback prior to their being finalised, in order to ensure accuracy, legitimacy and balance of the information reported. The reports also provided a useful source of information to feed into ongoing programme planning and implementation
5. Final results workshops (from August 2016 onwards): workshops between DFID, evaluation and programme partners, as well as external stakeholders from government, NGOs and national research institutions working on nutrition, to review evaluation findings and recommendations within the context of broader evidence and policy on nutrition in Bangladesh. Plans and timings to be confirmed following recent national security concerns and restrictions.

In line with the evaluation's dissemination strategy developed and shared with DFID, planning is underway for a number of dissemination events from August 2016 onwards, where results from the evaluation are expected to be shared with key local, national and international stakeholders within the broader context of nutrition-focused policy and evidence in Bangladesh. A range of publications drawing on findings from the evaluation are also anticipated, including policy briefs, evidence papers and peer-reviewed journal articles. These events and publications, combined with effective use of appropriate knowledge and communication platforms, are expected to promote understanding and application of the knowledge generated from the evaluation to inform future programme design and influence nutrition-oriented policy in Bangladesh and (if relevant) elsewhere. For more details on the communications strategy for the evaluation results, including communication objectives, target stakeholders, planned outputs and channels for communication identified, see Annex H.

3 IMPLEMENTATION REALITIES AND ADAPTATIONS TO DESIGN (DESIGN, INPUTS, OUTPUTS)

Key assumptions in both the overall theory of change (Figure 2.1) and the simplified version reproduced here (Figure 3.1) are that the L and N interventions were delivered as planned and that there was a clear relationship to the original programme design. Determining deviations or planned modifications here is important in understanding later impacts in the results chain. In terms of the behavioural change pathway, section 3.2 therefore deals with the first step in the results chain, highlighted here, whilst 3.1 deals with preliminary assumptions about the implementation of the livelihoods intervention. Annex H reports further relevant analysis to confirm that external economic, climatic and political shocks did not disproportionately impact on L or L+N households relative to each other in a way which would bias the results here.

Figure 3.1: Results chain



3.1 Key features of livelihoods programmes implementation

To investigate the implementation of livelihood interventions in both the L-only and L+N arms, quantitative endline data, qualitative evaluation and process evaluation findings are used to (1) identify deviations from planned L intervention implementation, (2) describe the exposure to the L interventions by households, (3) wherever applicable, characterise the extent of take-up of these interventions by households and (4) systematically ascertain whether the implementation and take-up of L interventions was similar in L-only and L+N groups.

3.1.1 Targeting and selection of L-only beneficiaries

As discussed in Annex E the process evaluation data were gathered between September and December 2014, well after the initial implementation of L-only activities in the three programme areas (which for most programmes and relevant programme cohorts began before or during 2013). However, the process evaluation team was able to gather data on the implementation of 'planned' targeting of L beneficiaries. Across all three programmes, deviations were found from the plan, mainly with inclusion of ineligible beneficiaries and exclusion of eligible beneficiaries. However, the problem of inclusion and exclusion was reported to be most prevalent in the UPPR programme, where several households which met the criteria for inclusion in UPPR sites were excluded from the programme.

3.1.2 Recruitment for L intervention

The process evaluation found that the recruitment and training of field facilitators, the main community-level workers assisting with the implementation of L intervention proceeded as planned across all three programmes.

3.1.3 Receipt of, or participation in, L interventions

The findings in this section use quantitative endline data to show the proportion of beneficiaries that reported participation in, or receipt of, L interventions. Each table of findings distinguishes between the L and L+N households. Since the nutrition-specific component (N) was randomly assigned to beneficiaries across all three programmes, we would not expect to see statistically significant and meaningful differences in exposure to livelihood activities between the two groups (differences noted by p-values) as such differences would signal a failure in the random implementation of the N interventions.

Results are reported separately here for the three programmes, given the variation in L intervention packages makes comparison more difficult than in subsequent sections of the report (which focus comparatively on the common n intervention implementation and results).

Table 3.1 presents the findings from the CLP on the exposure to livelihood activities from the panel and cross-section datasets.

Table 3.1: Endline means of exposure to livelihood activities by intervention arm – CLP						
Indicator	Panel			Cross-section		
	Mean		P-value of differences	Mean		P-value of differences
	L+N	L-only		L+N	L-only	
Group membership/social capital						
Have you ever been a member of a social development group?	1.00	1.00	0.89	1.00	1.00	
Are you currently a member of a social development group?	0.22	0.36	0.01***	0.23	0.39	0.00***
Asset transfer						
Did you receive <i>bokna basur/</i> dairy cow?	0.69	0.71	0.83	0.67	0.68	0.81
Did you receive beef cattle for producing meat?	0.27	0.28	0.98	0.31	0.32	0.98
Did you receive other livestock?	0.13	0.16	0.45	0.15	0.17	0.39
Did you receive other kinds of assets? (except cow/goat, duck/hen)	0.45	0.40	0.56	0.43	0.36	0.38
Home production						
Have you ever started a homestead garden with assistance from the CLP?	0.96	0.95	0.72	0.97	0.96	0.53
Has the CLP ever assisted you with poultry (chickens, ducks) rearing?	0.40	0.40	0.99	0.38	0.34	0.34
Microfinance/insurance						
Have you ever belonged to a CLP/ <i>baksho shamity</i> savings and credit group?	0.96	0.96	0.90	0.97	0.99	0.20
Are you currently a member of a CLP/ <i>baksho shamity</i> savings and credit group?	0.39	0.43	0.28	0.40	0.41	0.75
Have you ever received a cash transfer from CLP?	1.00	1.00	0.16	0.99	0.99	0.78
Have you ever received a CLP emergency grant?	0.20	0.13	0.22	0.20	0.14	0.21
Housing/WASH						
Has the CLP assisted you with the construction of a plinth for your home?	0.66	0.62	0.41	0.69	0.64	0.26
Has the CLP provided you with a subsidy to build a latrine?	0.84	0.81	0.44	0.81	0.79	0.56
Did the CLP build a tube well in your community?	0.30	0.29	0.89	0.28	0.29	0.83
Business support						
Do you participate in a CLP milk business group?	0.03	0.03	0.85	0.03	0.03	0.74
Do you participate in a CLP livestock business (beef fattening and selling) group?	0.03	0.02	0.22	0.03	0.04	0.69
Do you participate in a CLP fodder business group?	0.02	0.01	0.38	0.01	0.03	0.16

Source: Quantitative endline household survey. ***p<0.10; ** p<0.05; * p<0.1

Results from the CLP panel datasets show that asset transfer (in the form of a cow) was almost universal among CLP beneficiaries: approximately 70 per cent of beneficiaries reported receipt of a dairy cow and 28 per cent receipt of beef cattle (for a total of 98 per cent when both are combined). In addition, 14.5 per cent of beneficiaries reported receipt of another type of livestock, 42.5 per cent another type of asset and 100 per cent reported receipt of a cash transfer (which in the CLP was tied to the transfer of an income-generating asset).¹⁰ The exposure to all forms of asset transfers was not statistically significant between the L-only and the L+N groups. Finally, about 16 per cent of respondents reported receipt of an emergency grant (a proportion that is statistically the same in both groups).

Membership of community-based groups was also nearly universal amongst the panel sample: 100 per cent of beneficiaries reported ever belonging to a social development group (SDC) and 86 per cent to a savings and loan group. Membership rates at the time of data collection were lower: 29 per cent of respondents belonged to an SDC and 41 per cent to a savings and loan group. The rate of membership in an SDC at the endline survey was significantly (at the 1 per cent level) higher among L households (36 per cent) than among L+N households (22 per cent). This is not driven by a differentiated timing of entry into the livelihood programme.

¹⁰ The mean number of assets received is 1 for cow and beef cattle; 2.3 for other livestock and 1.3 for other assets.

In fact, L+N households were slightly (but statistically significantly) more likely to report receipt of benefits from the CLP programme in 2012 and later than L-only households; and thus should be more likely to still be part of SDCs at the time of the endline survey. Since the temporal distribution of exits from the SDCs is not significantly different across groups, it follows that the difference in endline membership rates across L-only and L+N households cannot simply be explained by the staggered implementation of the N component.

Reported exposure to encouragement to start a homestead garden, via livelihood training and support interventions, was widespread (96 per cent) and assistance for poultry rearing was received by 40 per cent of respondents. Both distributions are similar across L-only and L+N groups.

Exposure to infrastructure and WASH interventions varied, with 64 per cent of respondents reporting having had their house plinth-raised; 82 per cent help with hygienic latrines and 30 per cent reporting that a tube well had been built in their community. All of these interventions appear to have been rolled out in a similar fashion in L-only and L+N areas. It should be noted that the rate of coverage for plinths is lower than expected for the CLP to have achieved a goal of raising all beneficiary households in the *chars*. The discrepancy comes from the fact that a large proportion of all households within CLP villages have been raised. However, all CLP villages have been covered by the plinth activity.

Exposure to market development activities was extremely low in the sample, with virtually no-one having reported being part of the milk and meat business (this is an expected result as these activities are based on a market system approach that was not expected to have directly targeted CLP beneficiary households in the areas of the study).

The discrepancy between L-only and L+N households in terms of current membership in SDCs remains large and statistically significant in the cross-section sample as well.

Similar results for exposure to livelihood activities were found for the **EEP Concern** programme, with results presented in Table 3.2.

Table 3.2: Endline means of exposure to livelihood activities by intervention arm – EEP Concern						
Indicator	Panel			Cross-section		
	Mean		P-value of differences	Mean		P-value of differences
	L+N	L-only	L+N	L+N	L-only	L+N
Group membership/social capital						
Currently are you a member of EEP Concern 's beneficiary team?	0.98	0.99	0.17	0.99	0.99	0.99
Asset transfer						
Did EEP Concern provide you with an asset?	0.97	0.96	0.37	0.97	0.97	0.66
Did you receive <i>bokna basur/</i> dairy cow?	0.10	0.10	0.95	0.08	0.09	0.61
Did you receive sheep?	0.17	0.18	0.77	0.21	0.17	0.33
Did you receive goats?	0.08	0.09	0.77	0.11	0.12	0.73
Did you receive hens?	0.27	0.31	0.40	0.30	0.35	0.18
Did you receive ducks?	0.37	0.35	0.64	0.49	0.45	0.40
Did you receive swans?	0.18	0.17	0.79	0.23	0.22	0.72
Did you receive a fishing boat?	0.09	0.09	0.99	0.09	0.10	0.66
Did you receive a fishing net?	0.06	0.06	0.99	0.06	0.05	0.74
Did you receive another asset?	0.59	0.55	0.50	0.70	0.72	0.77
Land acquisition						
Did EEP Concern assist your household in obtaining access to land?	0.24	0.23	0.87	0.26	0.22	0.23
How much land did you lease with EEP Concern assistance?	13.87	14.41	0.82	16.84	15.47	0.55
Home production						
Have you ever started a homestead garden with assistance from EEP Concern?	0.11	0.08	0.26	0.09	0.09	0.78
Microfinance/insurance						
Have you ever belonged to a lottery group/ savings and credit group connected with EEP Concern?	0.96	0.98	0.15	0.97	0.96	0.80
Currently are you been a member of a lottery group/ savings and credit group connected with EEP Concern?	0.98	0.96	0.26	0.96	0.97	0.88

Source: Quantitative endline household survey. ***p<0.10; ** p<0.05; * p<0.1

The EEP Concern panel data show that nearly all intended beneficiaries reported being a member of a EEP Concern ‘beneficiary team’ (98–9 per cent), being a member of a savings and credit group connected to EEP Concern (96–7 per cent) and having received at least one asset (97 per cent). The most commonly reported assets transferred to EEP Concern beneficiaries were ducks (36 per cent), hens (29 per cent), sheep and swans (17.5 per cent), dairy cows (10 per cent), fishing boats (9 per cent) and goats (8.5 per cent). While the majority of EEP Concern beneficiaries reported receipt of an asset, in the process evaluation beneficiaries reported rarely being given the chance to select the asset of their choosing – a deviation from the original L intervention design – which resulted in dissatisfaction with the asset received. Ducks and geese were reported to be difficult to tend to and many beneficiaries reported selling off their ducks and geese shortly after they received them. This issue with assets was not reported to the CLP.

Just below a quarter of respondents reported having received help to lease land, and about 10 per cent said they had received help to start a homestead garden. None of these items are significantly different across L-only and L+N groups. For repeated cross-section data the picture is very similar to that of the panel (though the proportion of households reporting having received ducks and another asset is quite higher); and once again, no significant differences across the L-only and L+N groups are found.

Results for the UPPR panel and cross-section data are presented in Table 3.3 below.

Table 3.3: Endline means of exposure to livelihood activities by intervention arm – UPPR programme						
Indicator	Panel			Cross-section		
	Mean		P-value of differences	Mean		P-value of differences
	L+N	L-only	L+N	L+N	L-only	L+N
Group membership/social capital						
Is your household a beneficiary household of the UPPR programme directly or Indirectly?	0.91	0.94	0.16	0.83	0.87	0.23
Have you ever been a member of a UPPR community development committee (CDC)?	0.64	0.63	0.89	0.51	0.52	0.87
Microfinance/grants						
Have you ever belonged to a UPPR savings and credit group?	0.80	0.75	0.28	0.64	0.63	0.94
Have you ever borrowed money from this UPPR savings and credit group?	0.34	0.27	0.17	0.33	0.23	0.01***
Have any children in this household received a primary school education grant?	0.05	0.05	0.97	0.04	0.03	0.18
Has any boy or girl in your household received any educational assistance for studying?	0.05	0.06	0.91	0.04	0.03	0.12
Has anyone in this household received an apprenticeship grant from UPPR?	0.08	0.07	0.63	0.07	0.05	0.09
Has anyone in this household received a block grant from UPPR?	0.10	0.08	0.56	0.09	0.07	0.58
Has anyone in this household ever received a small grant from UPPR?	0.16	0.17	0.86	0.12	0.12	0.94
Has any member of your household received business grant from UPPR?	0.19	0.18	0.69	0.10	0.11	0.47
WASH						
Has UPPR provided you with a subsidy to build a latrine?	0.23	0.25	0.61	0.23	0.22	0.78

Source: Quantitative endline household survey. ***p<0.10; ** p<0.05; * p<0.1

The panel data reveal that a very large proportion of respondents reported having been beneficiaries of the UPPR programme (92 per cent). The proportion of households who had ever been part of a CDC or of a savings and credit group was also high (64 per cent and 83 per cent, respectively). The use of the savings groups was quite modest as 30 per cent of households had borrowed from such a group. There are no significant differences between L-only and L+N households on all these items. Beneficiary feedback within the qualitative and process evaluations indicated that all activities were implemented smoothly, although not all of the livelihood components were felt to have succeeded in terms of significant household welfare improvements.

Exposure to the other planned L interventions in the UPPR programme appear to be quite limited. Only 24 per cent of respondents reported they had received a subsidy to build latrines, 19 per cent had received a business grant, 17 per cent a small grant, 9 per cent a block grant and 8 per cent an apprenticeship grant. Educational grants had reached about 5 per cent of households. Other interventions were virtually never reported as received in the sample. There are no significant differences between L-only and L+N households.

Notably, the community nature of the UPPR model does not lend itself very well to being measured through a quantitative household survey. By nature, household surveys easily capture the (admittedly very important) direct exposure to the L interventions (e.g. the grants) but struggle to capture the exposure to community-wide, intangible effects of mobilisation. The qualitative evaluation findings suggest that while the infrastructural development was good for the UPPR programme, livelihood supports have facilitated overall health and nutrition indirectly: but infrastructure alone did not improve the health and nutrition of mothers and children.

From the UPPR repeated cross-section dataset the overall picture is similar but the proportion of households that declared themselves beneficiaries of UPPR was lower (85 per cent against 92 per cent), as were the membership rates in CDCs and savings and credit groups (lower by 10 and 13 percentage points, respectively). The other difference is that L+N households were significantly more likely to borrow money from the savings and credit group (33 per cent) than L-only households (23 per cent). The difference is significant at the 1 per cent level.

In sum, due to their community nature, UPPR activities are not as well captured by the household survey as the corresponding activities for other programmes. Nevertheless, an overwhelming majority of respondents declare themselves to be beneficiaries of the UPPR programme and members of CDCs and savings and credit groups, the two flagships instruments of UPPR. The coverage of other activities such as latrines and various grants range between 10 and 25 per cent of the population. There does not seem to be a significant difference in implementation of UPPR L interventions across the L+N and L-only households, but the former appear to make more use of the savings and credit groups than the latter, although the difference is statistically significant only with the repeated cross-section design.

There are no further results for the UPPR programme in the next sub-section, which covers take-up of livelihood activities for EEP Concern and the CLP as this could only be measured for one area of activity (i.e. loans). For the sake of brevity, rather than having a separate table for take-up of loans, this result is included in Tables 3.4 and 3.6 below.

3.1.4 *Take-up of livelihood activities*

It is important to ascertain whether key L interventions were widely used or not and subsequently made a difference in beneficiaries' lives. Unlike the data on exposure to L interventions, it is not clear that any statistically significant difference in take-up of these interventions would signal a failure of the random assignment. It may be that the additional N interventions modify (negatively or positively) the perceived value of the L interventions and/or the capacity by households to sustain the use of these activities.

Table 3.4 presents the findings from **CLP** on take-up, based on the panel and cross-section datasets.

From the panel data, Table 3.4 reveals that most households quickly sell their dairy cows; at the time of the endline survey only about 27 per cent of households still had their cows (35 per cent of households who received the cow in 2013/14 still had it against 20 per cent of those who received it before 2013). The most recent end-of-project impact assessment of the CLP (February–March 2016) also found evidence that cows had been sold immediately after the CLP cycle ended. The households sold for them in order to invest the money in better income-generating activities including leasing land, buying bulls and boats, etc. Only a few households had to sell the cows to deal with shocks such as illness or dowries.

About two-thirds of CLP beneficiaries chose a dairy cow over beef cattle. CLP households which received a cow as a transfer but sold it were just as likely to own a cow at the time of the endline survey (21 per cent) as CLP households which received beef cattle (21 per cent). This suggests that the transfer did not affect livelihood choice in the medium term and households did not revert to cow rearing after having sold the cow once. This can be seen further in Table 3.5 below. At the time of the endline survey, heads of household who opted for the beef cattle were significantly less involved in agricultural day labour (30 per cent versus 39 per cent) than heads of households who chose dairy cows. Conversely they tended to be slightly more likely to raise poultry, practise homestead farming, and engage in fishing and in petty trading.

Table 3.4: Endline means of take-up of livelihood activities by intervention arm – CLP						
Indicator	Panel			Cross-section		
	Mean		P-value of differences	Mean		P-value of differences
	L+N	L-only	L+N	L+N	L-only	L+N
Do you still have this <i>bokna basur/</i> dairy cow?	0.28	0.26	0.72	0.27	0.28	0.86
Has this animal produced milk in the last 3 months?	0.36	0.46	0.19	0.39	0.40	0.94
If you were to sell this cow today, how much would you receive?	25,156.86	25,947.06	0.68	26,867.57	25,515.15	0.40
Do you still have this beef cattle?	0.10	0.06	0.39	0.08	0.10	0.66
If you were to sell this beef cattle today, how much would you receive?	25,714.29	25,500.00	0.95	29,703.70	30,187.50	0.87
Do you still have this other livestock?	0.24	0.36	0.19	0.25	0.31	0.32
If you were to sell these other livestock today, how much would you receive?	1,711.76	1,344.23	0.27	1,291.89	1,532.55	0.26
Do you still have these other assets?	0.92	0.97	0.03***	0.95	0.97	0.20
If you were to sell these assets today, how much would you receive?	412.61	483.32	0.78	257.31	98.25	0.08*
In the last year, did you produce food in homestead garden?	0.14	0.16	0.41	0.03	0.04	0.53
Food produced (kg)	31.78	27.89	0.42	34.75	29.53	0.23
Did you sell any of these crops?	0.27	0.19	0.23	0.22	0.24	0.66
What percentage of your production did you sell?	10.91	6.73	0.17	10.31	10.40	0.97
Have you ever borrowed money from this <i>Baksho Shamity</i> group?	0.77	0.75	0.65	0.71	0.74	0.46

Source: Quantitative endline household survey. ***p<0.10; ** p<0.05; * p<0.1

These differences, however, are very close in absolute value to those observed at baseline; even if some activities became more or less common over the period of study. In other words, livelihoods over the period of study appear to have evolved in a parallel fashion between households who chose dairy cows and those who chose beef cattle.

Table 3.5: Distribution of selected transfers by heads of household, by livelihood group in CLP areas				
Livelihood	Baseline		Endline	
	Dairy cow	Beef cattle	Dairy cow	Beef cattle
Agricultural labour	32.4	25	39.1	30
Small trader	2.6	3.7	2.1	4.1
Working own farm	1.8	0.7	6	6
Homestead farming	1.7	3	8.9	8.9
Fishing	4	5.4	1.3	2.6
Raising poultry	3.4	4.5	1.2	2.7
Raising livestock	35.2	39.3	4	4.7

The rate of asset retention was even lower for households who chose the beef cattle instead: only 8 per cent of respondents still had it at the time of the survey. However, such a behaviour is not unexpected in the case of the beef cattle transfers as beef cattle were meant to be fattened during the six months after the transfer before being sold on the market. The retention rate for other livestock (typically ducks, hens or goats) is comparable to that of dairy cows (30 per cent) while the one for other assets is very high (95 per cent). Despite the training in animal husbandry and the stipend, households did not seem keen on keeping the dairy cows or beef cattle. A relatively low proportion of households thus benefited from the milk produced by the transferred cow (41 per cent of the 27 per cent of households who still had their cows reported that the cow had produced milk in the last three months; i.e. 11 per cent of households who had received a dairy cow). The most common reason why the household did not keep the dairy cow/beef cattle was that it was sold to buy another asset (32 per cent). Selling the cow to cover household expenses was also frequently reported (16 per cent). The monetary value of the dairy cow/beef cattle was indeed quite high, at about BDT 25,000. There was no difference in the likelihood of keeping the livestock across L-only and L+N households. This was confirmed by the qualitative studies.

In some cases, the labour demands to service the livestock proved to be too great and in other instances, participants preferred to spend the proceeds on land leases or on other income-earning assets (such as rickshaws).

Although almost all households reported starting a homestead garden with the help of the CLP in Table 3.1, only 15 per cent of them produced food in this garden over the last year (Table 3.4). This is a much lower than anticipated figure, which hints at issues with the sustainability of the gardens. For those households who produced food, most of it was used for their own consumption (only 24 per cent of households sold part of the food to the market). The qualitative studies provided a more positive view of the vegetable gardens, indicating that they may have encouraged vegetable consumption.

Finally, membership in the savings and loan groups translates into a high likelihood of borrowing from the group (76 per cent). For all these items, there is no statistically significant differences between L-only and L+N households.

For the cross-section sample for CLP, insights are very similar to those of the panel. The monetary value of cows/beef cattle appeared to be slightly higher, and the proportion of households using the garden was even lower (at 4 per cent) in the cross-section dataset. The only notable difference in terms of p-value of differences is that the reported monetary value of other assets is higher among L-only than L+N households by about BDT 60, a difference significant at 8 per cent. The very low absolute value of the difference (and relatively high p-value) does not suggest that this is a very meaningful result, however. The qualitative evaluation findings also showed that each animal 'type' – livestock, ducks, goats, hens – had various pluses and minuses for the participants; for example, labour needs and additional costs were important for livestock (costs such as grass collection and feeding); predators were significant for poultry; resale value was important for all types of animals; and for ducks, how far they stayed within reach of the homestead was significant.

In sum, the planned L interventions of the CLP appear to have been widely implemented: asset transfers, homestead gardening and membership in social savings groups appear to be almost universally reported in the sample. Approximately 80 per cent reported that latrines had been built. A large, though lower than expected, proportion of respondents had had their homes raised by plinths (62 per cent) and about 40–45 per cent of respondents had benefited from poultry-rearing assistance. Tube wells seem to have been more scarcely installed (about 30 per cent of respondents benefited). The market development activities appeared to be non-existent in the sample. Although the use of savings groups for borrowing purposes were widespread, gardening was rarely used to produce food in the last year, and the proportion of households who reported that their cows had produced milk in the last three months was only 11 per cent of those who had received a cow. Instead, asset transfers seem to have mostly been used as a source of capital for buying other assets, or as a form of consumption-smoothing in the face of shocks (this finding was strongly supported by the qualitative and process evaluations). Notably such asset transfers cannot therefore be seen as a misplaced decision on the part of the programme or the household but may somewhat complicate any more direct pathways to nutritional outcomes if any were assumed, for example via domestic milk consumption. Crucially, both the implementation and the take-up of livelihood activities are comparable between L-only and L+N households.

Table 3.6 shows panel and cross-section data for **EEP Concern**.

The panel data in Table 3.6 indicate that 63 per cent of respondents who received a dairy cow still had it at the time of the quantitative endline survey. The corresponding rate for sheep was 24 per cent for L+N households and 8 per cent for L-only households; the difference is significant at the 5 per cent level. Given that the odds of receiving sheep are the same across groups, this large difference is likely to reflect a change in the perceived value of having sheep for households who received the additional N component, perhaps because CNWs emphasised the importance of milk for children. Yet, sheep milk appears not to have been common at all in Bangladesh, so caution must be exercised. Approximately 35 per cent of respondents still had all the other types of asset; with no difference across groups. As in CLP there were some problems with livestock. Beneficiaries wanted cows or a share in one but they had problems finding funds to pay for cattle feed. They could not make a profit from small livestock, because of extensive waterlogging in the programme location for 6–7 months in a year. Everyone was engaged in more than one income-generating activity, in addition to farming.

Table 3.6: Endline means of take-up of livelihood activities by intervention arm – EEP Concern						
Indicator	Panel			Cross-section		
	Mean		P-value of differences	Mean		P-value of differences
	L+N	L-only	L+N	L+N	L-only	L+N
Do you still have this dairy cow?	0.68	0.58	0.43	0.52	0.69	0.04
How much money will you get, if you sell this dairy cow now?	17,328.00	15,894.74	0.53	17,111.11	18,452.73	0.38
Do you still have these sheep?	0.24	0.08	0.03	0.15	0.18	0.57
If you were to sell these sheep today, how much would you receive?	3,000.59	4,400.00	0.38	4,500.00	4,432.18	0.91
Do you still have these other assets?	0.34	0.36	0.65	0.31	0.36	0.10
If you were to sell these other assets today, how much would you receive?	4,081.95	2,967.60	0.18	3,402.32	3,097.12	0.57
Did you produce food in your homestead garden over the last year?	0.91	0.94	0.21	0.91	0.91	0.78
Food produced (kg)	21.50	43.00	0.05	37.21	37.92	0.97
Did you sell those crops?	0.55	0.64	0.58	0.45	0.48	0.83
What percentage of your production did you sell?	74.55	47.71	0.04	62.94	60.14	0.69
Have you ever borrowed money from this lottery group/ savings and credit group?	0.02	0.05	0.04	0.02	0.03	0.33

Source: Quantitative endline household survey

An overwhelming majority of respondents reported having produced food in their garden over the last year (92 per cent), with no difference across groups. More than half (59 per cent) of households sold (part of) this food on the market for extra income. Finally, only about 3.5 per cent of respondents took a loan from the savings and credit group. This may be due to a confusion introduced by the use of the word ‘loan’ in the question: respondents probably did not see the types of grants obtained through these rotating savings groups (via a lottery system) as a ‘loan’.

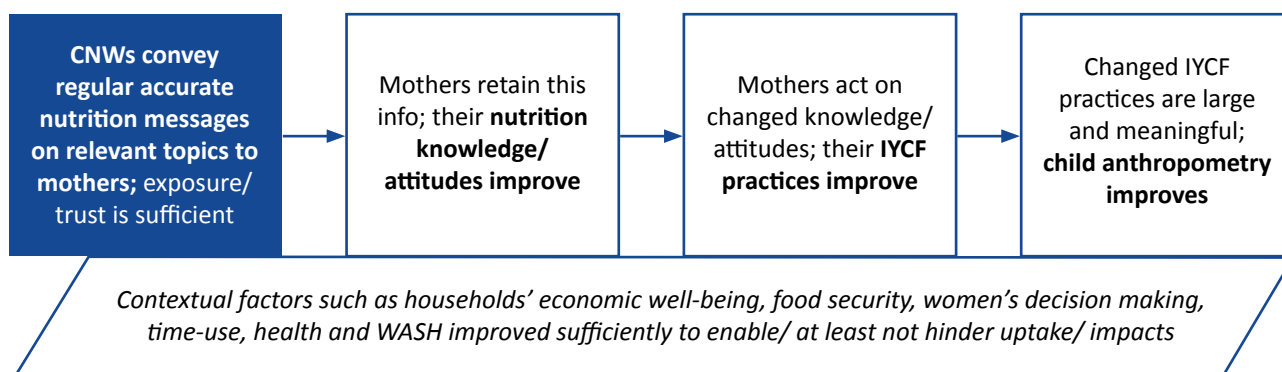
In the repeated cross-section data, the major (and only) change is that there is no longer a significant difference in the proportion of households keeping their sheep (16.5 per cent) when the cross-section is used. The idea that the N interventions may have induced households to keep sheep for the milk should therefore be taken with extra caution.

In sum, the asset transfer and self-help group activities of EEP Concern have been widely implemented.

Almost all EEP Concern beneficiaries were members of a savings and credit group and received an asset. The assets transferred were highly diverse (ducks, hens, cows, swans, etc.). About a quarter of respondents also reported having received assistance to lease land, and about 10 per cent to start a homestead garden. A small majority of respondents who had received a dairy cow still had it at the time of the endline survey; about a third kept their other assets, and 16 per cent their sheep. Homestead gardens were widely used: 90 per cent of households who had received assistance produced food over the last year. Finally, the survey instrument was not adapted to capture the use of loans from the savings and credit groups: grants were delivered through a lottery system and thus not perceived as ‘loans’ by respondents. There were no significant differences found in either the implementation or the take-up of livelihood activities across L-only and L+N households. One notable exception is for the retention rate of sheep, which is much higher for the latter than for the former when the panel data are used. The result is not robust, however, to the use of the repeated cross-section dataset.

3.2 Key features of nutrition intervention implementation

Figure 3.2: Results chain, N implementation



3.2.1 Successes and challenges of integrating N interventions as part of livelihood programmes

As explained in section 1.3.2, the nutrition-specific interventions in the three programmes evaluated were incorporated in 2013, well after the commencement of the wider livelihoods support activities. This timing varied by programme and, in the CLP, affected different cohorts differently (with some beneficiaries being enrolled into the livelihoods programme a year or two earlier and others receiving the two interventions simultaneously). Discussions with programme staff, field staff and beneficiaries carried out as part of the process evaluation and the qualitative evaluation suggest that this later commencement of the nutrition component presented both advantages for and challenges to successful implementation. The advantages included the fact that, as longer-running programme, the CLP had built up a reputation for delivering real benefits to individuals and communities, making it more likely that mothers and other target groups of the N interventions would trust the workers delivering the newer activities. Savings and loans groups across all three programmes, already targeted at women, were also reported to have been used to deliver some of the social and health messaging which formed part of the wider L intervention. The process evaluation noted how the original L interventions also benefited from having generally higher-level (university-educated) 'field facilitators'.

However, whilst in some cases the field facilitators were supposed to have a supervisory relationship with the CNWs, this did not come out strongly in the process evaluation sites. In many cases it appeared that the L and N interventions were run as separate interventions, with little interaction between L and N field-level frontline and supervisory staff and with co-ordination only happening at higher levels of programme management. Where there was interaction of CNWs with L intervention structures (as in the cases cited of the savings/loans groups) this could also act as a barrier to effective intervention as, in one case cited, a CNW in one of the programmes was said to have simply been leaving supplements (IFA, deworming tablets and MNPs) with a savings group leader for further distribution *en masse* (and without the necessary counselling).

3.2.2 N beneficiary targeting and selection

The process evaluation considered beneficiary selection for both the L and N interventions. This is important for the N interventions, as N beneficiaries were a sub-set of the wider pool of L beneficiaries. As reported in section 3.1.1, L beneficiary selection included both inclusion and exclusion errors, which would have affected eventual N targeting.

It is worth noting that whatever the exclusion errors, both baseline and endline anthropometric indicators of nutritional status (see Roy *et al.* 2015 and section 5 of this report) reveal substantial deficiencies within the eventual beneficiary populations – i.e. even if there were inclusion errors in terms of overall L targeting, it cannot be argued that those included were unlikely to benefit or be strongly in need of the nutrition intervention as planned.

3.2.3 Success of randomisation of N interventions

Another critical part of beneficiary selection which was a requirement of the evaluation design was successful randomisation of clusters receiving N interventions. This can be confirmed by checking the

reported receipt of visits from a CNW in endline results in the endline data for both the cross-section and the panel samples for L-only communities. A high percentage here would indicate problematic implementation of the randomisation of the N interventions. The percentage and number of households with a child aged 0–24 months that reported receipt of at least one CNW visit are reported in Table 3.7, by programme and sample. The results confirm minimal contamination of the L-only and C clusters (C available in the UPPR programme only) with households receiving any form of N intervention. Note also that some of the reported visits could be referring to interventions delivered via other projects, which was rare, but was also reported in the process and qualitative work, including that delivered via BRAC.

	CLP L-only	EEP Concern L-only	UPPR programme L-only	UPPR programme C
Cross-section sample	2.3 (23 HH)	7.5 (79 HH)	2.6 (29 HH)	0.8 (9 HH)
Panel sample	0.8 (12 HH)	2.6 (40 HH)	1.6 (20 HH)	0.1 (2 HH)

3.2.4 *Inputs received at household and community level*

Sources to help determine whether the inputs were delivered and received as planned at the household and community level include the process evaluation and specific modules in the endline quantitative household surveys which asked mothers to recall recent household visits and the activities which took place.

3.2.4.1 Commencement of N interventions

Programmes reported having begun their implementation of the N interventions immediately after the baseline survey, in November or December 2013. As an earlier start of the N interventions had been anticipated but was delayed following procurement issues, the three programmes reported having already recruited and trained CNWs several months prior to the quantitative baseline survey. This can conceivably be linked to both advantages and disadvantages in terms of implementation. The advantages include that implementation should have been fast following the baseline completion, with CNWs already recruited and trained. Disadvantages reported by the three programmes and the process evaluation included, however, lowered motivation amongst CNWs awaiting clearance to begin their work – a situation that arose because recruitment had already taken place in some cases across all L intervention communities, without awareness of the implication of the randomisation for targeting recruitment. This was reported to have led to CNWs being reassigned in some cases to communities other than their own – weakening one of the programme assumptions that workers would be recruited from beneficiary communities in order to build trust and rapport and to keep travel time to a minimum (endline CNW questionnaires did not address this directly but there is some evidence in the number of communities reported served by each CNW in Table 3.21 below, which suggests that few CNWs were located in only one community, except in the CLP).

In addition to these issues there was a further central delay in the procurement of the MNPs destined to be distributed to mothers of children under two. This led to a later integration of MNP distribution and promotion into the N intervention than the other elements (group and individual IYCF counselling, IFA and deworming distribution and promotion). Table 3.8, below, provides details of the implementation of supplement distribution according to the three programmes.

	EEP Concern	CLP	UPPR programme
MNP	June 2014	June 2014 (Cohorts 2.1–2.5) November 2014 (2.6)	May 2014
IFA	January 2014	July 2013 (2.1–2.4) November 2013 (2.5)	November 2013
Deworming	January 2014	December 2013 (2.1–2.5) December 2014 (2.6)	November 2013

3.2.4.2 Frequency and duration of CNW household visits

As discussed in Annex E, process evaluation data on the delivery of inputs were initially gathered between September and December 2014. At that stage of the lifecycle of the three programmes (i.e. nine months to just over a year of implementation of most N interventions), implementation was largely occurring across all sites, but with notable early teething problems or deviations, particularly with regard to household counselling (Table 3.9). It was reported that counselling was not always being delivered one to one (i.e. between the CNW and beneficiary) and that there was a tendency to just deliver the ‘hard’ inputs (the supplements) in preference to the ‘soft’ activities of counselling and promotion that were meant to accompany them. As a result, the delivery of the supplement was reported as being more successful, with a rough estimate provided based on the process evaluation communities that only 10 per cent were not receiving any ‘hard’ inputs. The process evaluation also noted a specific and ‘universal’ issue with convening groups of adolescent girls, who were seen as a difficult audience to reach.

Programme	L+N	
	Planned	Reality
CLP	<ul style="list-style-type: none"> One-to-one counselling takes place with targeted participants on IYCF every month. Each pregnant women receives 180 IFA tablets, each lactating woman receives 180 IFA tablets per year and each adolescent girl (ADG) should receive 104 IFA tablets a year (via adolescent girls group meetings). 	<ul style="list-style-type: none"> IFA tablets often not delivered directly to ADGs, and instead often given to mothers or family members Irregular ADG group meeting made it difficult for CNWs to reach ADGs to provide counselling IFA tablets for pregnant and lactating women (PLW) usually distributed as planned MNP usually distributed as planned Deworming drugs usually distributed as planned
EEP Concern	<ul style="list-style-type: none"> MNPs are given to children under two (aged between 7 and 23 months). Doses will be 120 sachets a year. Deworming drugs are given every six months to children aged 12–60 months and ADGs every six months and other family members once a year. 	<ul style="list-style-type: none"> IFA tablets often not delivered directly to ADGs, and instead given to mothers or other family members Irregular counselling and ADG group meetings IFA tablets for PLW usually distributed as planned MNP usually distributed as planned Deworming drugs usually distributed as planned
UPPR		<ul style="list-style-type: none"> Very irregular counselling and ADG group meetings IFA tablets for ADGs and PLWs; Deworming: in most instances, inputs were delivered to primary group leader (community level) and the group leader then distributed them to the beneficiaries (either in group meetings or to the beneficiary HH/ neighbours)

ADG: adolescent girl; PLW: pregnant and lactating women.

There is remarkable consistency and agreement between the majority of these process evaluation findings from the earlier stages of the N implementation and the quantitative endline household survey results carried out at the end of the implementation. The rest of this sub-section focuses on analysing these data in depth.

Interrogating these data can begin with a simple question: ‘Did beneficiary L+N households receive visits from CNWs associated with CLP, EEP Concern or UPPR?’ Answering this and related questions entails focusing on information provided by mothers in the cross-section sample only. Mothers included in this sample all have children of less than 24 months of age (the target population for CNW household visits). (By contrast, the panel sample consists of index children aged 0–12 months at baseline and 24–39 months at endline; by the endline survey these children may have become too old to be included in the target population for CNW and other N interventions). Information on this is found in the endline quantitative survey,

where mothers were asked if they had received a visit from a CNW in the previous 12 months. It is then possible to ascertain whether this visit was made by a CNW associated with CLP, EEP Concern or UPPR (as opposed to a CNW with another NGO such as BRAC).

	CLP	EEP Concern	UPPR programme
Percentage of mothers who reported at least one household visit	93.5	79.4	67.3

Source: Endline quantitative household survey, cross-section sample.

Table 3.10 indicates that nearly all women (93 per cent) in CLP areas reported receiving at least one visit from a CNW in the last 12 months. The comparable figure for EEP Concern is lower, at 79 per cent, while it is lowest for the UPPR programme, at 67 per cent. Table 3.11 provides information on the number of mothers who reported visits, including mothers who reported no visits (Table 3.11); Table 3.12 gives results for the sample when restricted to mothers reporting at least one visit.

Number of visits	CLP	EEP Concern	UPPR programme
0	6.50	20.60	32.67
1–4	11.05	12.81	20.61
5–8	9.33	9.24	14.76
9–11	13.52	11.80	7.38
12	29.81	18.60	12.69
13–24	18.38	21.83	6.57
25 or more	7.33	2.45	1.98
Could not remember	4.00	2.67	3.33

Source: Endline quantitative household survey, cross-section sample.

Number of visits	CLP	EEP Concern	UPPR programme
1–4	11.81	16.13	30.61
5–8	9.98	11.64	21.93
9–11	14.46	14.87	10.96
12	31.87	23.42	18.85
13–24	19.65	27.49	9.76
25 or more	7.84	3.09	2.94
Could not remember	4.38	3.37	4.95

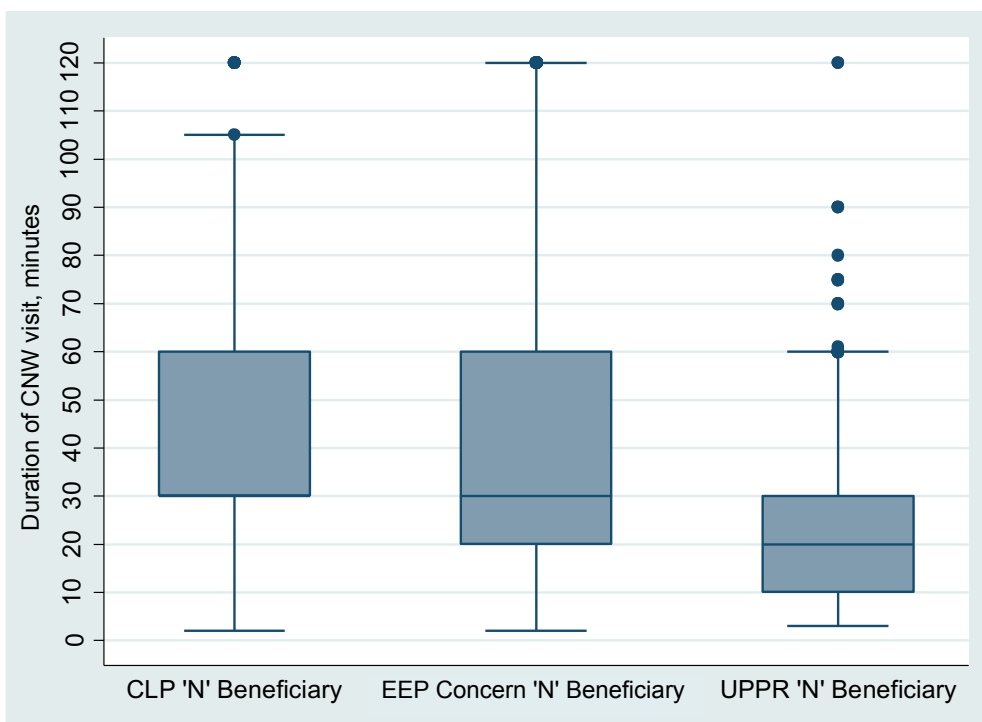
Source: Endline quantitative household survey, cross-section sample.

Both Tables 3.11 and 3.12 show that there was considerable variation in the number of household visits reported by mothers. Significant numbers reported receiving few visits (four or less) while others reported receiving more than one visit per month. The median number of household visits per year was 12 for CLP and EEP Concern and eight for UPPR. One way of looking at the data in Tables 3.11 and 3.12 is in terms of the percentage of mothers receiving a minimum number of visits. If the minimum number of visits is set at nine or more, Table 3.11 shows that in the full sample, 27 per cent of mothers in the CLP did not receive this minimum. The figure is higher for EEP Concern, at 42 per cent, and highest of all for the UPPR programme, at 68 per cent. These percentages fall if mothers who reported receiving no visits are excluded (Table 3.12), but even in this restricted sample, more than half of mothers in the UPPR programme received fewer than nine visits.

Next, it is possible to consider the duration of these visits. Respondents were asked to estimate the duration of their last CNW household visit. We show these changes through the use of a Box and Whiskers plot. To read the information in the plot, begin with the box for EEP Concern N beneficiaries. First notice that

there is a horizontal line running through the middle of the box. This horizontal line is the median value for this outcome and programme. Looking at the vertical axis, we see that this median equals 30, telling us that the median duration of the last visit by EEP Concern’s CNWs was 30 minutes. The bottom of the box is the 25th percentile. It equals 20. This means that if we were to order the duration of the most recent visits from shortest to longest, 25 per cent of visits were 20 minutes or less while 75 per cent were longer. The top of the box is the 75th percentile. This equals 60. This means that 75 per cent of the most recent visits by EEP Concern CNWs were 60 minutes or less and 25 per cent were longer. The bottom ‘whisker’ is the 5th percentile while the top ‘whisker’ is the 95th percentile; the dots are values above the 95th percentile. A short box and short whiskers indicate that there is relatively little variation in the outcome being considered; conversely, a long box and long whiskers indicate that there is considerable variation in the outcome. With this in mind, results, in Figure 3.3., show that the median duration of the last visit was 30 minutes in the CLP and EEP Concern and 20 minutes for the UPPR programme. (Note that both the 25th and 50th percentiles for the CLP equal 30 minutes, so the median value for the CLP is hard to see in the figure). There was more dispersion in the duration of EEP Concern household visits. Figure 3.3 shows that 50 per cent of all CLP visits lasted between 30 and 60 minutes (this is shown by the length of the shaded box) while 50 per cent of all EEP Concern visits lasted between 20 and 60 minutes. But there are also another 25 per cent of EEP Concern households reporting visits that lasted from 60 to 120 minutes. By contrast, visits by UPPR CNWs were reported to be short, with 25 per cent of them reported to have been less than 10 minutes and only 5 per cent more than 60 minutes.

Figure 3.3: Box-and-whiskers plot of duration of household visit (in minutes) per day, by programme



Source: Endline quantitative household survey, cross-section sample.

If it is assumed that the last household visit reported received was ‘typical’, it is possible to combine information on duration and frequency of visits to generate a rough estimate of the total amount of contact time between beneficiaries and CNWs. If median data are used, the ‘typical’ CLP and EEP Concern beneficiary received 12 visits, each lasting 30 minutes, resulting in six household visit contact hours with a CNW in the 12 months preceding the endline quantitative household survey. The ‘typical’ UPPR beneficiary received eight visits, each lasting 20 minutes, resulting in 160 minutes (two hours, four minutes) of household visit contact hours with a CNW over the 12-month period.

Respondents overwhelmingly reported that these visits were positive experiences. Across all three programmes, more than 90 per cent of mothers perceived the CNW as knowledgeable (96 per cent), friendly (97 per cent) and respectful (97 per cent) and 93 per cent agreed with the statement that the CNW was someone ‘I felt that I could talk to about my worries about the health and nutrition of my child’.

3.2.4.3 Content of CNW household visits

One core N intervention was the provision of IFA supplements. Respondents were asked if, during the most recent household visit, the CNW checked to see that the IFA tablets were being consumed. Tables 3.13, 3.14 and 3.15 summarise their responses.

Table 3.13: CNW monitoring of IFA consumption by mothers during <i>most recent</i> household visits, by programme			
	CLP	EEP Concern	UPPR programme
Did the CNW check to see if the mother was taking the IFA supplement?			
Yes	68.0	61.5	59.0
No	15.1	20.0	28.8
No b/c households not given supplement	16.8	18.3	12.0

Source: Quantitative endline household survey, cross-section sample.

Table 3.14: CNW monitoring of MNP consumption by children during <i>most recent</i> household visits, by programme			
	CLP	EEP Concern	UPPR programme
Did the CNW check to see if the children were consuming MNPs?			
Yes	64.9	60.7	52.2
No	16.0	17.9	26.7
No b/c households not given supplement	18.9	21.3	20.9

Source: Quantitative endline household survey, cross-section sample.

Table 3.15: CNW monitoring of IFA consumption by adolescent girls during <i>most recent</i> household visits, by programme			
	CLP	EEP Concern	UPPR programme
Did the CNW check to see if the adolescent girls were taking the IFA supplement?			
Yes	71.2	65.4	60.8
No	21.7	20.0	31.5
No b/c households not given supplement	6.9	14.6	7.5

Source: Quantitative endline household survey, cross-section sample. Sample restricted to households with adolescent girl present.

Across Tables 3.13, 3.14 and 3.15 the following patterns are observed. CLP CNWs were most likely to check on supplement consumption by mothers (Table 3.13), children (Table 3.14) and adolescent girls (Table 3.15), with these percentages ranging from 64 to 71 per cent. Among mothers who reported that these checks did not occur, responses were equally split between cases where the CNW did not check and cases where the household reported that it had not been given the supplement to begin with. Reported CNW monitoring of supplements was lower for EEP Concern (60 to 65 per cent) and lowest for the UPPR programme (52 to 60 per cent).

Mothers were also asked to recall what topics were covered during their last household visit. Results are reported in Table 3.16. There do not appear to be large differences in topics discussed across programmes. More discussion is given over to breastfeeding and less to aspects of complementary feeding. This is reinforced by the results presented in Table 3.17, which aggregates six topics (putting baby to breast immediately after birth; giving only colostrum; no pre- or post-lacteals; feed only breastmilk up to six months; positioning and attachment; and attachment) into 'any aspect of breastfeeding' and three topics (feeding mashed family food after six months; feeding animal-source foods; and cooking with/ adding oil) into 'any aspect of complementary feeding'. Table 3.17 shows that in around 80 per cent of last visits, at least one aspect of breastfeeding was discussed while aspects of complementary feeding were less frequently discussed (during only 49–62 per cent of visits). To contextualise these numbers, approximately 80 per cent of children in the cross-section sample are older than six months. So while conveying this information might be useful in a general sense, it is not clear that much of it will help the mother improve the nutritional status of her current children.

Topic	CLP	EEP Concern	UPPR programme
Putting baby to breast immediately after birth	62.2	61.2	57.2
Giving only colostrum	47.9	46.6	45.6
No pre- or post-lacteals	25.1	16.7	24.9
Feed only breastmilk up to 6 months	53.9	46.1	53.2
Positioning & attachment	22.5	16.3	22.6
Attachment	25.4	17.3	21.8
Feeding mashed family food after 6 months	42.6	30.4	38.5
Feeding animal-source foods	38.3	26.2	36.4
Cooking with/ adding oil	20.6	7.2	11.8
Adding micronutrient sprinkles	30.7	28.3	26.9
Washing hands with water and soap before prep/feeding child	34.3	28.5	23.5
Feeding during illness/extra after illness	13.4	12.8	12.8

Source: Quantitative endline household survey, cross-section sample.

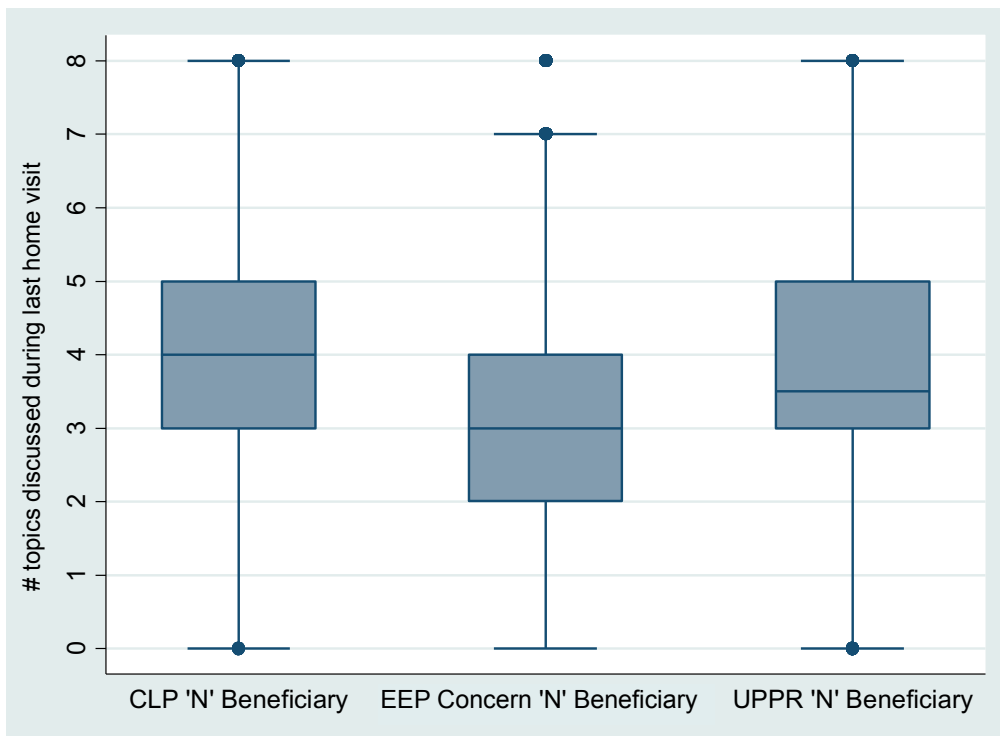
Topic	CLP	EEP Concern	UPPR programme
		Percentage	
Any aspect of breastfeeding	81.4	81.4	78.6
Any aspect of complementary feeding	62.0	49.4	57.5
		Mean	
Breastfeeding topics discussed	2.4	2.0	2.2
Complementary feeding topics discussed	1.0	0.6	0.9

Source: Quantitative endline household survey, cross-section sample.

A related issue is whether CNWs were covering a few topics in depth or whether they were reviewing a larger number of topics quickly. Figure 3.4 shows the distribution of the number of topics discussed. The median number is four for both the CLP and the UPPR programme and three for EEP Concern. The distributions look similar across all three programmes, with 50 per cent of CLP and UPPR beneficiaries reporting that the household visit covered three, four or five topics while in EEP Concern, 50 per cent reported that they covered two, three or four.

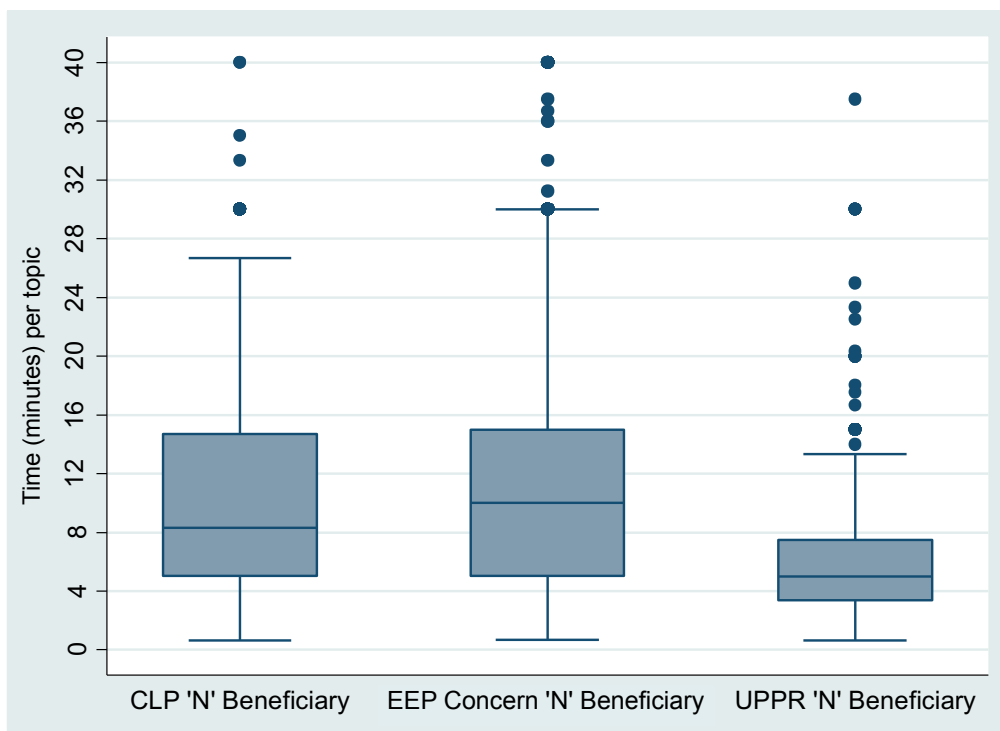
Collating the collected data on the duration of the last household visit with the number of topics discussed allows for a rough estimation of how much time is devoted to each topic. This is likely to be an upper estimate because it can be assumed that all the time during the household visit is devoted to these topics and we know that not to be true (for example, some time is spent ensuring that the IFA and MNP supplements are being consumed; see Tables 3.13, 3.14 and 3.15). With that caveat, Figure 3.5 shows the distribution of time spent per topic for each of the three programmes.

Figure 3.4: Box-and-whiskers plot of number of topics covered during household visit, by programme



Source: Quantitative endline household survey, cross-section sample.

Figure 3.5: Box-and-whiskers plot of time spent per topic during the last household visit, by programme



Source: Quantitative endline household survey, cross-section sample.

Figure 3.5 contains a key result. It shows that the median amount of time spent discussing any one topic during the last household visit was low: eight minutes for the CLP, 10 minutes for EEP Concern and five minutes for the UPPR programme. From Table 3.17, it is known that on average, between 0.6 and 1.0 complementary feeding topics were discussed. Putting these numbers together with Figure 3.4, during the last visit received, CNWs spent the following amounts of time discussing complementary feeding (likely to be upper bound estimates as based on CNW recall): CLP, eight minutes; EEP Concern, six minutes and UPPR programme, four and a half minutes.

3.2.4.4 Group meetings

In addition to individual meetings, all programmes operate group meetings where nutrition and health issues are discussed. Again using data from mothers of children less than two years in the cross-section sample, it is possible to assess the prevalence of these meetings. Table 3.18 shows the percentage of mothers who attended these meetings in the 12 months prior to the survey.

	CLP	EEP Concern	UPPR programme
Percentage of mothers attending a meeting	38.9	55.2	24.7

Source: Endline quantitative household survey, cross-section sample.

Table 3.18 shows that while meetings take place, most women have not attended these.

Mothers were also asked about the topics covered during the last group meeting they attended. On average, they reported that three topics were discussed, with no meaningful variation across programmes. Table 3.19 lists the percentage of mothers reporting which topics were discussed during the last meeting they attended. Breastfeeding, water and sanitation and family planning were the three most frequently reported topics.

	CLP	EEP Concern	UPPR programme
Family planning	38.6	40.9	45.6
Water and sanitation	52.1	47.2	39.4
Maternal nutrition	32.3	22.0	28.8
Breastfeeding	53.1	46.8	52.6
IYCF	33.0	48.8	54.4
Micronutrient sprinkles	22.0	24.8	31.0

Source: Endline quantitative household survey, cross-section sample.

3.2.4.5 Summary of N intervention inputs received, as reported by beneficiaries

Taking these findings together, there appears to have been some improvement from the material gathered during the process evaluation and the quantitative endline survey. Most mothers reported receiving both supplements and household visits and the household visits covered a number of relevant topics. But issues highlighted at endline related not so much to the non-delivery of counselling highlighted earlier (though this was still reported in a number of cases – notably nearly 21 per cent of EEP Concern and 33 per cent of UPPR beneficiaries reported not receiving a visit in the last 12 months); but to the duration and content of the sessions, which are short and cover many topics, with very little time available to spend on any one topic, particularly the issue of complementary feeding as compared to breastfeeding. Similar findings prevail for the group sessions, with a smaller than expected number of mothers reporting having attended group sessions in the last 12 months.

3.2.5 CNW characteristics

3.2.5.1 CNW demographics and education

Data on the CNWs themselves, including their background, their knowledge and capacity to fulfil their role, their workload and their reported activities were collected in the quantitative endline survey and to a lesser extent in the earlier process evaluation and phases of the qualitative evaluation.

The quantitative endline survey provided data on 413 CNWs distributed as follows: 162 (CLP); 80 (EEP Concern); and 171 (UPPR programme). Table 3.20 shows their age, gender and schooling by programme.

There was little variation in mean age (27 years) across programmes. Nearly all CNWs (about 90 per cent) were female in the CLP and EEP Concern; this percentage was somewhat lower (67 per cent) in the UPPR programme. In the UPPR programme, the vast majority of CNWs had a secondary school certificate or some post-secondary education. Most (75 per cent) CNWs in EEP Concern had a secondary school diploma. Schooling levels of CLP CNWs were slightly lower, with approximately 50 per cent not having a

secondary school diploma. Across all three programmes, 89 per cent of CNWs were Muslim, 10.5 per cent were Hindu and 0.5 per cent were Christian. Virtually all (about 99 per cent) were Banglee. It is surprising that a significant fraction of the UPPR CNWs were male; it is worth re-iterating that the list of CNWs to be interviewed was provided by the programmes, including UPPR, themselves.

	CLP	EEP Concern	UPPR programme
Demographics			
Age (years, mean)	27.3	26.7	27.3
Gender (% female)	90.1	88.8	67.1
Schooling achieved (%)			
Class VII or less	5.6	0.0	1.8
Passed Class VIII or IX	45.1	20.0	0.0
Secondary school diploma (SSC, HSC)	46.3	75.0	72.2
Post-secondary schooling	3.1	5.0	26.0

Source: Quantitative endline CNW survey.

3.2.5.2 Recruitment and employment of CNWs with programmes

The process evaluation noted the difficulties the three programmes were experiencing at the recruiting stage and in retaining staff according to their initial selection criteria (Table 3.21).

	Planned	Reality
CLP	<ul style="list-style-type: none"> Female and a local resident Relevant skills preferred Minimum Class VIII passed Must be fluent in reading Bangla and have writing skill Age 20–49 and married Mentally and physically capable Consent from husband or guardian Valid Area Resident Certificate 	<ul style="list-style-type: none"> CPKs (CNWs) were recruited from L-only and L+N villages Minimum academic qualification ‘SSC pass (but flexible)’ is not followed in all cases 1 CPK per village, but the average coverage is closer to 40 households per CPK
EEP Concern	<ul style="list-style-type: none"> Female and a local resident Minimum academic qualification ‘SSC pass (but flexible)’ Married females are preferred 	<ul style="list-style-type: none"> Recruited from both L only and L+N villages Minimum academic qualification ‘SSC pass (but flexible)’ is not followed in all cases
UPPR programme	<ul style="list-style-type: none"> Must be female Minimum academic qualification ‘SSC pass’ Local resident preferred Minimum experience and local association preferred Mentally and physically capable 1 HNV (CNW) for about 250 extremely poor HHs under a CDC, which should average to 100 households per CPK 	<ul style="list-style-type: none"> Recruited from both L only and L+N clusters and villages Minimum academic qualification ‘SSC pass’ is followed Influence of local elected board members in recruitment process

Source: Process evaluation.

The earlier round of process evaluation fieldwork attributed difficulties in the recruitment of CNWs to the paucity of suitable candidates in the area, particularly with reference to fulfilling both the ‘local resident’ and ‘minimum education’ prerequisites, which inevitably led to the appointment of many CNWs with lower qualifications/capacity. Reflecting on both these data and Table 3.21, above, it seems that the programmes had largely overcome problems in recruiting suitably qualified staff,¹¹ but perhaps as a result of deliberately overriding the female-only selection criterion. This is likely to have had a detrimental effect on building the

¹¹ Twenty per cent did not meet EEP Concern’s criteria of ‘SSC pass’ but this reflects the fact that the programme had already decided to be flexible about this against a background of lower rural qualifications. Had the ‘Class XIII’ criteria used in CLP have been applied to EEP Concern, 100 per cent would have met it.

trust and rapport necessary, particularly to discuss sensitive issues, such as breastfeeding, with pregnant and lactating mothers.

Further issues were raised in the process evaluation about the difficulties in retaining staff, which were linked both to the qualification criteria mentioned here and to the level of honorarium provided, which was not judged by some of those interviewed as commensurate with local expectations.

Table 3.22 provides descriptive information on CNWs' employment with their programmes, which sheds some further light on length of employment.

Table 3.22: Duration of employment (months) and programme contact, by programme			
	CLP	EEP Concern	UPPR programme
Mean number of months working as CNW	29.6	24.1	28.1
Percentage working as CNW for 12 months or fewer	9.9	23.7	10.3
Mean number of training courses received in last 12 months	2.2	2.5	2.4
Percentage reporting no training in last 12 months	0.0	3.8	16.6
Mean number of meetings per month with supervisor	1.7	2.0	8.7

Source: Quantitative endline CNW survey.

The average CNW had worked with their programme for two years or more. The vast majority had worked for more than 12 months, with only 10 per cent of CNWs in the CLP and UPPR programme having been with their programme for less than 12 months (the figure is higher for EEP Concern, at 23 per cent). Again, this suggests turnover problems were not excessive across the programmes, though there is evidence that turnover around the time of the quantitative endline survey was high for EEP Concern.

3.2.5.3 Training and supervision

Training and supervision are other important issues to consider when looking at the capacity of CNWs. Across all programmes, CNWs reported receiving just over two training courses (presumably the planned refresher training lasting a few days) in the year preceding the quantitative endline survey (note this is unlikely to capture initial training sessions attended by all CNWs after recruitment, though some of the newer CNWs may have been reporting this). In the rural CLP and EEP Concern programmes, CNWs met with their supervisors about twice a month; in the UPPR programme, meetings with supervisors were more frequent.

CNWs and their supervisors were also interviewed as part of the process evaluation, to determine the levels of supervision and monitoring being employed in the field. Supervision visits were reported to have been rare at that stage, as opposed to the more frequent meetings reported in Table 3.22.

As with the household visits, the way in which these supervision sessions were used is just as important as their frequency. There was no further data recorded on the supervision meetings at endline, but earlier, the process evaluation team spent time in every community examining the record-keeping of CNWs on beneficiary registration and outputs/ tasks delivered. Records were reported to have been excessively based on logging activities delivered – often logged at 100 per cent delivery. Process-tracking based on the log books showed in several cases that the 100 per cent delivery patterns could be substantiated in very few cases, in a sub-sample of 217 logs examined by the process evaluation team.¹² Table 3.23, below, provides further details on the planned activities for monitoring and supervision, alongside the assessment reached by the process evaluation.

¹² PE team members collected copies of the CPK/HNV registers and cross-checked them with the respective L+N beneficiaries using field observation and HH interviews. A total of 217 L+N beneficiary members under three programmes were cross-checked. There were many discrepancies between the facts and the information recorded in the register book as well as the manipulation of dates. These discrepancies have been found in the cases of IFA input consumption, counselling, HH visits and group meetings. It reveals that roughly 90 per cent of records and reports that were checked by the PE team were manipulated to some extent. For example all of the L+N reports under the three programmes seen by the PE team report 100 per cent success in; consumption of inputs, counselling and HH visits.

Table 3.23: Process evaluation reported deviations from planned monitoring, by programme		
PROGRAMME	L+N	
	Planned	Reality
CLP	<ul style="list-style-type: none"> • Input monitoring: CLP's Finance Division monitors expenditure against budget. Monthly financial reports disaggregated by implementing organisation and district for key direct nutrition activities • Output and outcome monitoring: CPKs are responsible for collecting information on a set of key indicators. The CPKs' supervisors, in the implementing organisations, are responsible for ensuring this information is being correctly and accurately collected • CPKs document their activities in a Register Book, which is checked and signed by the Nutrition Supervisor and Nutrition Officer 	<ul style="list-style-type: none"> • Some evidence of supervision, but only 40 per cent of the records had signatures • CPKs' record books were found to be inaccurate
EEP Concern	<ul style="list-style-type: none"> • Output and outcome monitoring: CPKs are responsible for collecting information on a set of key indicators. The CPKs' supervisors, in the implementing organisations, are responsible for ensuring this information is being correctly and accurately collected in a monthly meeting where progress is reported and work planned. Field facilitators are required to supervise the CPKs and ensure the reporting is accurate 	<ul style="list-style-type: none"> • CPKs' record books were found to be inaccurate • Field facilitators very rarely checked the veracity of the records, owing to time constraints
UPPR programme	<ul style="list-style-type: none"> • Output and outcome monitoring: HNVs are responsible for collecting information on a set of key indicators. The Nutrition Expert is supposed to visit the HNVs on a monthly basis. The HNV record books include a column for the nutrition expert's signature 	<ul style="list-style-type: none"> • HNVs' record books were found to be inaccurate • Nutrition expert was found to very rarely visit the HNVs • Very few signatures were found in the record books

Source: Process evaluation.

3.2.5.4 CNW caseload

The quantitative endline CNW survey asked about the CNWs' caseload of beneficiaries. Table 3.24 reports the number of villages (for UPPR, urban settlements) that each CNW reported serving. CLP CNWs reported usually being responsible for one village, with EEP Concern and UPPR CNWs responsible for more.

Table 3.24: Distribution (percentage) of villages or urban settlements that CNWs served, by programme			
Number of villages or settlements	CLP	EEP Concern	UPPR programme
1	80.9	19.7	17.9
2	14.3	18.2	31.5
3–4	4.8	33.3	11.7
5 or more	0.0	28.8	38.9

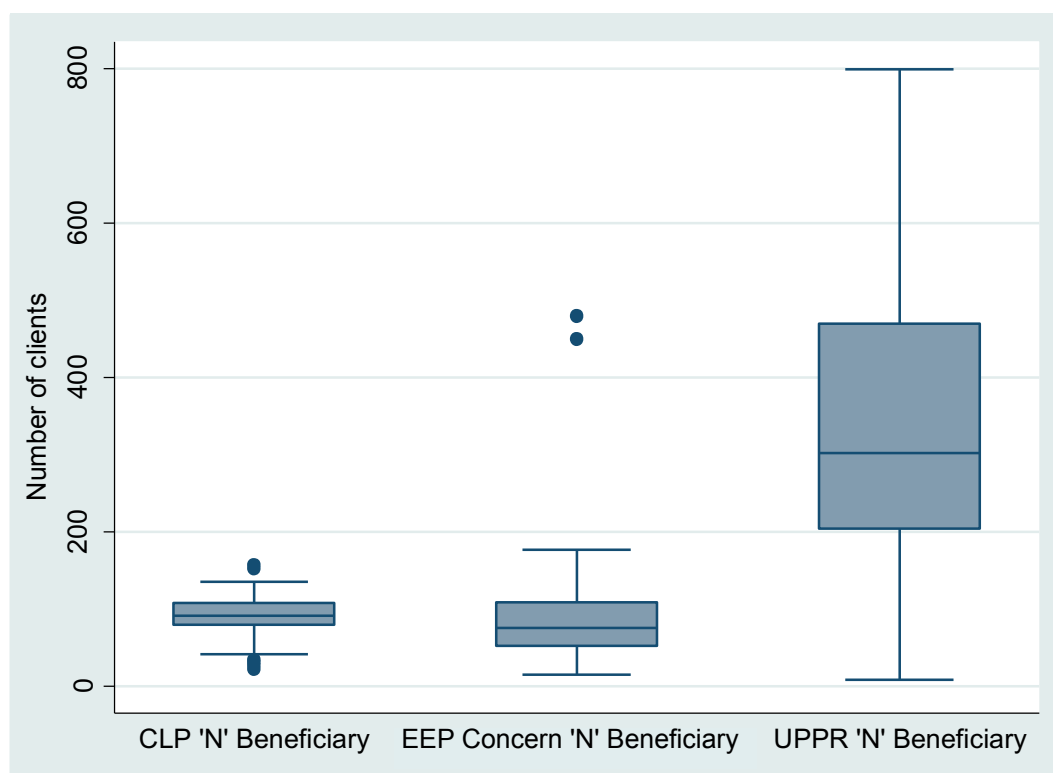
Source: Quantitative endline CNW survey.

	CLP	EEP Concern	UPPR programme
Mean number of beneficiaries	91	91	400
Median number of beneficiaries	92	76	308

Source: Quantitative endline CNW survey.

Table 3.25 gives the number of clients (defined for the purposes of subsequent sections as pregnant women or women with children two years old or younger) each CNW was responsible for within their catchment villages/urban settlements. There is a significant difference between the mean number of clients that CNWs in the CLP and EEP Concern were responsible for compared to those in the UPPR programme. In the CLP and EEP Concern, the mean caseload was 91 clients. This is significantly higher than the expected ratios (1:50, as stated in the 'planned' recruitment for programmes), which the process evaluation had earlier reported were being broadly adhered to. In the UPPR programme, the mean caseload was four times higher, at 400 clients per CNW. It is possible that the mean UPPR caseload was high because of the presence of outliers in our data but this is not substantiated by further analysis. Table 3.25 shows that the median caseload for the UPPR programme was 308 clients. Figure 3.6 shows a box-and-whiskers plot for caseloads by programme. For the CLP, there was little variation in caseload. For EEP Concern, while the median caseload was slightly lower than for the CLP, there was a slightly wider dispersion of caseload. By contrast, there was considerable dispersion in the high UPPR caseloads.

Figure 3.6: Box-and-whiskers plot of CNW caseload by programme



Source: Quantitative endline CNW survey.

3.2.5.5 CNW knowledge

Concerns were raised earlier as part of both the process evaluation and earlier phases of the qualitative community survey about whether CNWs were sufficiently knowledgeable about the behaviours they were advocating. As part of the quantitative endline questionnaire, CNWs took a test on their knowledge of nutrition, covering topics relating to breastfeeding, complementary feeding, micronutrients, IFA and WASH. Across all topics, the maximum score was 27. Mean scores by programme were 23.5 (CLP), 23.0 (EEP Concern) and 23.9 (UPPR), indicating (1) generally high levels of knowledge of topics that were to be discussed with beneficiaries, and (2) little variation in CNW knowledge across programmes. Scores were highest for questions on breastfeeding and IFA and were weakest for questions on complementary feeding.

Table 3.26: CNW test scores on nutrition knowledge, by topic and programme				
Topic	Mean score			
	Maximum correct score	CLP	EEP Concern	UPPR programme
Breastfeeding	11	10.6	10.5	10.6
Complementary feeding	6	4.1	3.8	4.4
Micronutrients	5	4.3	4.2	4.3
Iron folic acid	3	2.9	2.9	3.0
Water, sanitation and hygiene	2	1.6	1.6	1.6
Total score	27	23.5	23.0	23.9

Source: Quantitative endline CNW survey.

Table 3.27 examines whether CNW knowledge differed by gender, schooling and other characteristics. It reveals no difference by gender. Scores in the nutrition test rose with schooling, but by marginal amounts. A CNW with post-secondary schooling scored 1.2 marks higher on the test than a CNW with Class VII or less, with this difference arising from poorer scores by less well educated CNWs on complementary feeding and micronutrients. However, CNWs with the lowest levels of education still scored, on average, 23 out of 27 in the nutrition test. It was also possible to consider whether these scores differed by the amount of recent training CNWs had received, the frequency of their contact with supervisors and the length of time the CNW had worked with the programme. Longer employment was associated with better scores but the magnitude of this association was not large. Similarly, recent training and supervisor contact did not have strong associations with nutrition test scores.

Table 3.27: Mean CNW test scores on nutrition knowledge, by topic, gender and schooling						
	Total	Breastfeeding	Complementary feeding	Micronutrients	Iron and folic acid	Water, sanitation and hygiene
By gender						
Female	23.5	10.6	4.2	4.2	2.9	1.6
Male	23.7	10.4	4.3	4.4	3.0	1.6
By schooling						
Class VII or less	23.0	10.5	4.1	3.9	3.0	1.5
Passed Class VIII or IX	23.4	10.6	4.1	4.2	2.9	1.6
Secondary school diploma	23.5	10.6	4.1	4.3	2.9	1.6
Post-secondary schooling	24.2	10.5	4.6	4.4	3.0	1.6
Total	23.6	10.6	4.2	4.3	2.9	1.6

Source: Quantitative endline CNW survey.

3.2.5.6 CNW time allocation

As part of the quantitative endline CNW questionnaire, CNWs were asked to describe the amount of time spent on three activities in the previous five days (asked as 'yesterday', 'the day before yesterday', 'three days ago', etc.). These activities were household visits (number of visits actually undertaken each day; average time per visit); group sessions (number of group session undertaken each day; average duration of each session); and travel time. This does not cover all activities undertaken by CNWs. It excludes time spent meeting with supervisors and other programme managers, and time spent filling in forms and other paperwork. That said, it does give a good idea of the amount of contact time staff spent with clients. The five-day recall allows us to average out the variability that exists in these contacts from one day to the next. Results are shown in Table 3.28.

Table 3.28 shows that CLP CNWs spent 3.7 hours per day in contact with clients: 3.3 hours doing individual household visits; and 0.4 hours conducting group sessions. The total number of hours EEP Concern CNWs spent with clients was similar, at 3.6 hours per day, but this comprised slightly less time doing household

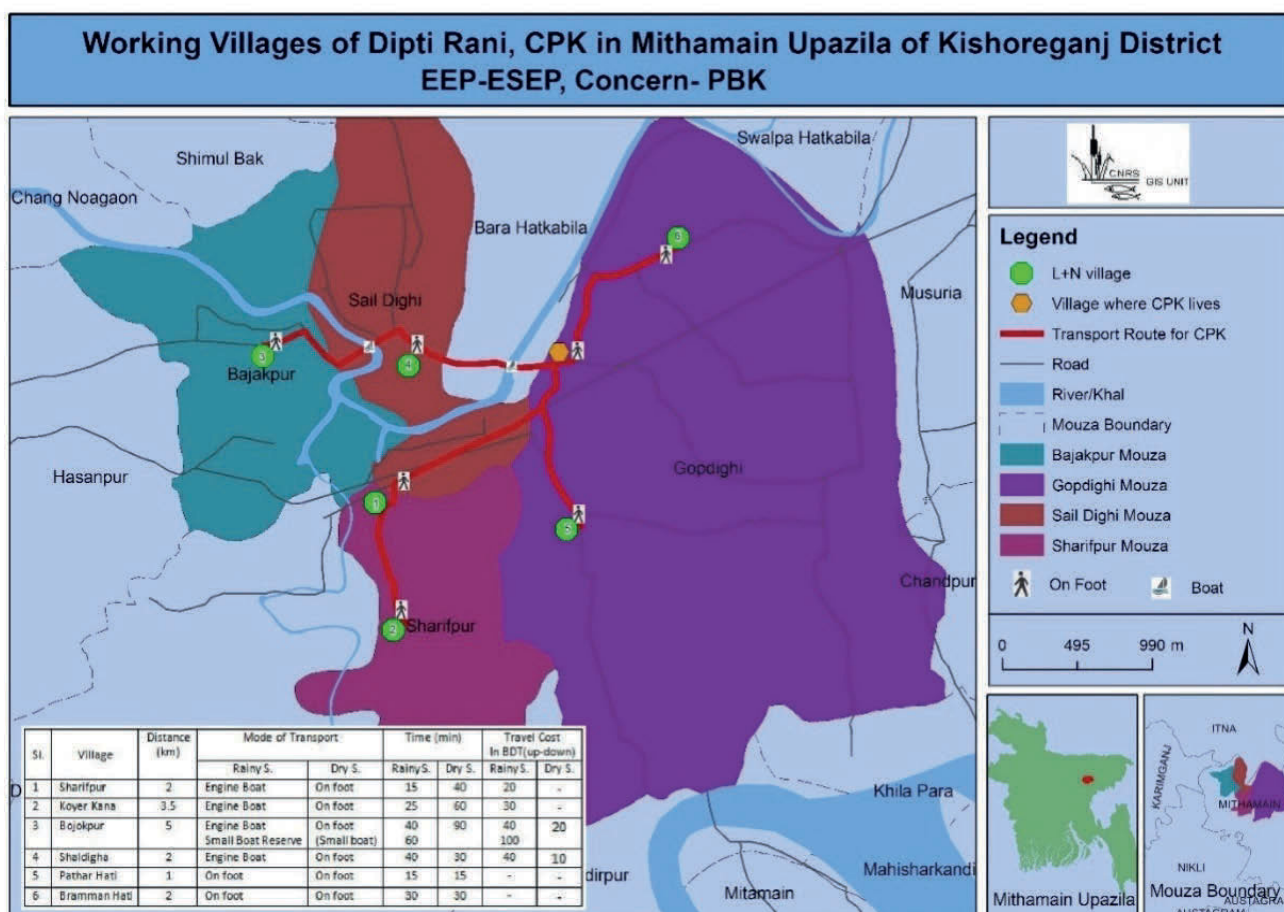
visits (2.8 hours per day) and slightly more time doing group sessions (0.8 hours per day). In the UPPR programme CNWs spent somewhat less time with clients and in particular less time doing household visits (2.5 hours per day).

Mean hours per day	CLP	EEP Concern	UPPR programme
Doing household visits	3.3	2.8	2.5
Conducting group sessions with pregnant women or women with children under two	0.4	0.8	0.5
Total contact time with clients	3.7	3.6	3.0
Travel time to meet clients	2.0	2.6	2.4
Total time spent travelling and meeting clients	5.7	6.3	5.4

Source: CNW survey.

Across all three programmes, the range of 2 to 2.6 hours reported spent travelling to meet clients is consistent with concerns raised in the process evaluation on travel time. Two hours spent travelling to meet beneficiaries in the CLP is somewhat surprising when taken alongside the earlier endline finding that the majority (81 per cent) of CNWs were working in one village – but the earlier process evaluation finding that CNWs were not always recruited, as planned, from their *own* village, may explain this. The greater travel time in EEP Concern accords strongly with the process evaluation findings that the *haor* areas provided particular logistical and travel issues for the CNWs. This is well illustrated by Figure 3.7, which provides one illustration¹³ of the wet and dry season travel times and costs faced in a case study of a CNW in the EEP Concern programme.

Figure 3.7: Map of travel time for a CNW from EEP



¹³ This case was selected as illustrative rather than typical. However, data from Table 3.24 reveal that the large number of settlements served here was not unusual for the EEP Concern programme, where 29 per cent of CNWs reported working in five or more.

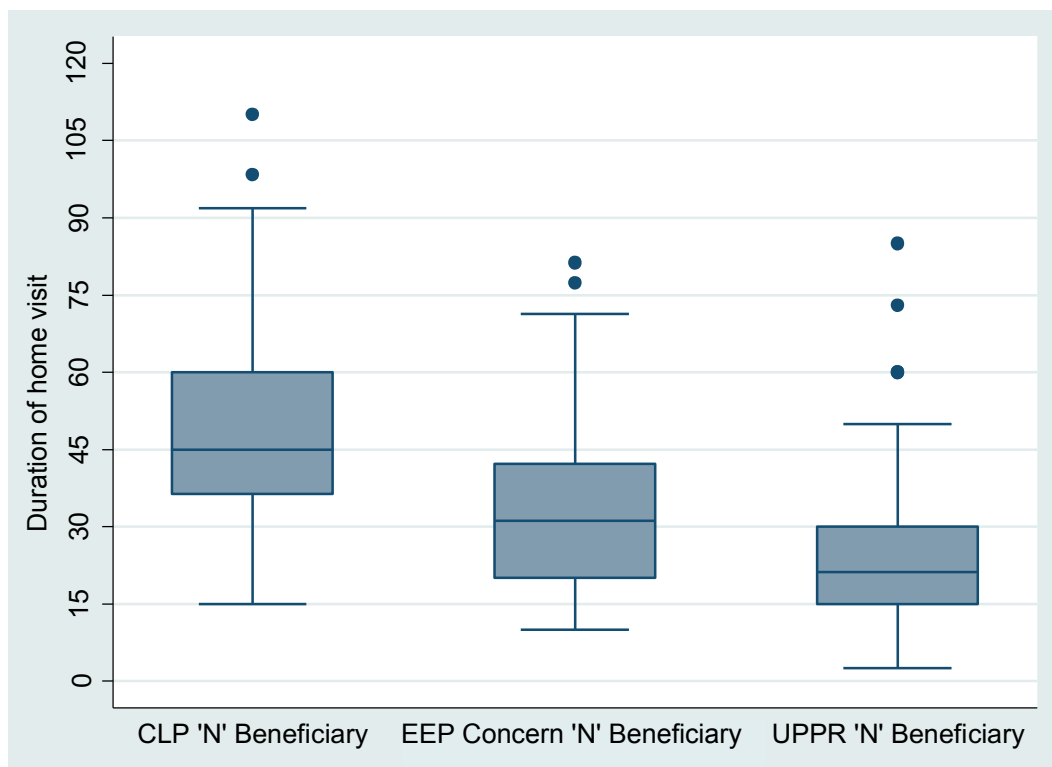
Table 3.29 provides additional details on household visits. Over the last five days (recall period), CNWs working for the CLP averaged 4.4 household visits per day, with each visit averaging 0.8 hours or 48 minutes.¹⁴ CNWs working for EEP Concern did slightly more household visits per day (5.7) but each visit was slightly shorter than those undertaken by CLP CNWs (at 36 minutes). The CNWs working for the UPPR did the largest number of household visits per day (7.8) but these visits were short, averaging 24 minutes per visit.

	CLP	EEP Concern	UPPR programme
Mean number of household visits per day	4.4	5.7	7.8
Average duration of household visit (hours)	0.8	0.6	0.4
Average duration of household visit (minutes)	48	36	24

Source: CNW survey.

Figure 3.8 again uses a box-and-whiskers plot, this time to show the distribution of the average time a CNW states that (s)he spent on a household visit. The pattern of distributions is consistent with the means reported in Table 3.28, with median time for household visits highest for CLP, followed by EEP Concern and then UPPR. The upper whisker for UPPR shows that only 25 per cent of their household visits were 30 minutes or longer while the lower whisker shows that 25 per cent of household visits were less than 15 minutes.

Figure 3.8: Box-and-whiskers plot of duration of household visit (in minutes) per day, by programme



Source: CNW survey.

It is possible that the shorter duration of household visits by the UPPR CNWs reflected higher caseloads. However, Table 3.30 suggests that this is not the case. Table 3.30 reports the mean time (in minutes) spent with clients by the number of clients that the CNW was responsible for. There is no obvious pattern in these data, suggesting that shorter visits are *not* because of higher caseload.

¹⁴ Time spent on home visits is the product of the number of home visits per day and the average time spent during each visit.

Number of beneficiaries	Mean time (minutes) with each beneficiary	Number of observations
<100	13	8
100–199	22	28
200–299	24	40
300–399	22	27
400–499	23	18
500+	22	42

Source: CNW survey.

Lastly, it is possible to perform a series of calculations using the data gathered on client caseloads and the duration of household visits.¹⁵ This is illustrative and based on a combination of the data collected and assumptions shown, but it demonstrates that according to these calculations, EEP Concern CNWs required 15 days to visit everyone on their client list, while CLP CNWs needed slightly more time, 21 days. However, although CNWs from UPPR visited more households per day than CNWs from other programmes did (Table 3.31, Row 2), their much higher caseload (Table 3.31, Row 1) means that it took them much longer – 51 working days – to meet all their clients once.

Row	Description	CLP	EEP Concern	UPPR programme
(1) – from Table 4	Mean number of client households	91	91	400
(2) – from Table 8	Mean number of household visits per day	4.4	5.7	7.8
(3) = Row(1) / Row(2)	How many working days would it take for a CNW to visit everyone on their client list?	21	16	51
(4) = 200 × Row(2) / Row(1)	Assuming 200 working days, how many visits will a client receive per year?	9.7	12.5	3.9
(5) – from Table 8	Average duration of household visit (hours)	0.8	0.6	0.4
(6) = Row(4) × Row(5)	Assuming 200 working days, how much time does a CNW spend with each client per year (hours)?	7.7	7.6	1.5

Source: CNW survey.

These calculations can be extended in several ways to provide further illustrations of time allocation. Suppose that there are 200 working days per year when a CNW can undertake household visits. How often will clients be visited? This can be calculated by multiplying 200 by the mean number of household visits per day (Row 2) and then dividing the product by the mean number of clients that a CNW is responsible for (Table 3.31, Row 1). As Row (4) of Table 3.31 shows, over the course of a year, these calculations predict that a CLP household will be visited 9.7 times, a EEP Concern beneficiary 12.5 times but a UPPR household only 3.9 times. But note that this calculation neglects the fact that the duration of household visits differs by programme. Again assuming 200 working days per year, the total amount of time a CNW spends with each

¹⁵ Table 3.31 begins by re-reporting caseloads and the mean number of home visits per day. Recalling that the latter is calculated as an average over the previous five days, and assuming that those previous five days are a 'typical' work week, how long would it take for a CNW to meet each of their beneficiaries? This is calculated as the mean number of client households (Row 1) divided by the mean number of home visits per day (Row 2) and is shown in Row 3.

mother (in hours) equals the number of visits per year (Row 4) multiplied by the average duration of each visit (Row 5). Results of these calculations are shown in Row 6. This shows that the total calculated contact time was nearly identical for CLP and EEP Concern clients: 7.7 hours (CLP); and 7.6 hours (EEP Concern). CLP households received somewhat fewer visits than EEP Concern clients but because each visit was longer, the total contact hours were about the same for these two programmes. By contrast, not only were there fewer visits by UPPR CNWs, but because the duration of these visits was shorter (0.4 hours – see Row 5), total contact hours per year were low, at 1.5 hours.

It is possible that UPPR CNWs may have compensated for lower contact hours during household visits by holding more and/or longer group sessions with pregnant women and mothers of children of less than two years but this does not appear to be the case. Table 3.32 shows that UPPR CNWs held, on average, 0.43 group sessions per day – the same number as CLP CNWs and less than the number held by EEP Concern CNWs (0.83). The average duration of these sessions was 72 minutes for CLP and UPPR CNWs and slightly higher, at 90 minutes, for EEP Concern CNWs. Only 40 per cent of UPPR CNWs held more than one group session per week.

Table 3.32: Group sessions by programme			
	CLP	EEP Concern	UPPR programme
Mean number of group sessions per day	0.41	0.83	0.43
Average duration of group session (hours)	1.2	1.5	1.2
Average duration of group session (minutes)	72	90	72

Source: CNW survey.

Table 3.33: Distribution of group sessions, by programme (%)			
Number of group sessions per week	CLP	EEP Concern	UPPR programme
0	53.7	21.2	35.1
1	15.4	13.8	25.2
2	6.2	20.0	15.2
3–5	13.6	28.8	20.5
>5	11.1	16.2	4.1

Source: CNW survey.

3.2.5.7 Summary of CNW characteristics, capacity, caseloads, monitoring and supervision

Summarising the data on CNWs, it appears that, by endline, the three programmes seem to have largely overcome any recruitment problems reported at the beginning of the programme – they had generally met their own recruitment criteria for qualifications (though with some surprising reliance on male staff) and were not experiencing excessive problems with turnover. CNW knowledge of appropriate IYCF behaviours was assessed as high at endline.

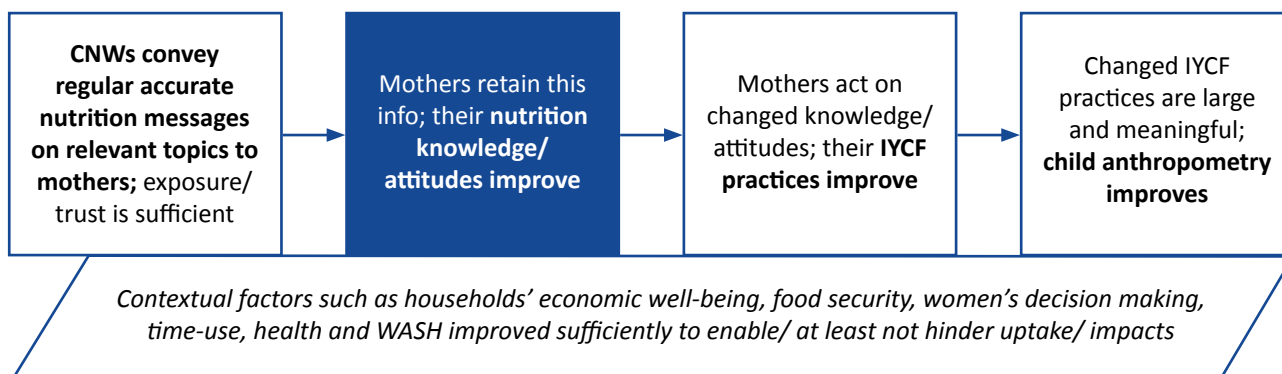
Calculations based on the data provided by CNWs indicate that over a 12-month period, they spent relatively little time with each pregnant woman or mother of a child under two: (7.7, 7.6 and 1.5 hours for CLP, EEP Concern and the UPPR programme, respectively). This relatively low level of contact is not complemented by extensive use of group meetings. A lower caseload per CNW would have allowed longer and more frequent visits which would have increased the intensity of the behavioural messaging overall. Findings also point to the need for monitoring and supervision arrangements that are both more smartly accountable and more supportive – whilst CNWs reported a reasonable number of supervision visits per month; process data suggest that such monitoring was overly based on logging outputs with little active verification by supervisors.

4 OUTCOMES

4.1 Mothers' knowledge of and attitudes towards nutrition

In section 3.2, the implementation of the N interventions were explored in terms of contact between CNWs and mothers of young children. In this section, we look at the next step in the simplified results chain: whether mothers retained messages regarding IYCF, as reflected by their knowledge and attitudes, is assessed by drawing on both quantitative and qualitative evaluation data.

Figure 4.1: Results chain, knowledge and attitude outcomes



Throughout this section, reported quantitative data focus on impacts among the repeated cross-section sample. Because the key IYCF messages pertain to practices concerning children aged 0–23 months and the repeated cross-section is based on children aged 0–23 months at endline, this is the sample of mothers for whom questions on IYCF knowledge/attitudes at endline are most relevant. As part of both the baseline and endline quantitative surveys, mothers were asked a number of questions about their knowledge of or attitude towards IYCF, based on topics that were in the curriculum of the N component. Most of these questions were originally written to evaluate the IYCF knowledge acquired through the Alive & Thrive programme in Bangladesh, on which this programme's messaging was based; answers considered 'correct' were also based on the rubric used for the Alive & Thrive evaluation. A small number of these questions are omitted from the analysis because it was apparent from the data that respondents did not correctly interpret the question (for example, a question asking when a baby should be fed, for which the correct answer was 'whenever the baby wants' rather than 'when the baby is hungry'). Moreover, some additional questions were added to the modules on nutrition knowledge/attitudes at endline as a result of earlier qualitative evaluation findings regarding common misperceptions, beliefs and knowledge gaps specific to the three study contexts in this evaluation (for example, questions regarding whether baby boys should be fed solids at an earlier age than baby girls; whether physically intensive work should be continued during pregnancy to avoid the baby 'sticking to the belly', etc.).¹⁶

4.1.1 Knowledge of appropriate breastfeeding practices

The quantitative analysis focusing on knowledge of appropriate breastfeeding practices (Table 4.1) showed that there were no statistically significant impacts on any of the aspects of knowledge at conventional levels, although there was a slightly significant increase in knowledge among mothers in the CLP regarding what to do if a baby was not getting enough breastmilk.

However, it should be noted that, for all questions on breastfeeding, rates of correct answers were high even in the L-only group. In all three programmes, more than 90 per cent of mothers knew when a baby should start getting breastmilk, more than 80 per cent knew what a mother should do with colostrum, and about 60–80 per cent knew what a mother should do if the baby was not getting enough breastmilk. As such, there was only modest scope for finding improvement in knowledge of these particular topics.

The qualitative evaluation findings corroborated the quantitative findings and suggest that the following were frequent sources of knowledge about breastfeeding: health workers (especially midwives and doctors), television (UPPR programme), BRAC health workers (the CLP, UPPR programme), NGO campaigns

¹⁶ See Barnett *et al.* (2015).

and family members. While there was generally a high awareness of the benefits of breastfeeding, the qualitative evaluation findings suggested that there was a lack of awareness of the dangers of not following the recommended practices. In fact, many elderly female household members (and some mothers) said that the CNW (or health worker) had ‘forbidden’ pre-lacteal feeding and highlighted the importance of early initiation into breastfeeding but the reasons for this were seen as unclear or not perceived as convincing. There was also a lack of knowledge about best breastfeeding practices in special circumstances, such as after a Caesarean section when new mothers were weak (or even unconscious) and mothers-in-law usually had to make decisions regarding the newborn’s feeding. This is a gap in knowledge that has been highlighted previously in the context of Bangladesh (Haider, Rasheed, Sanghvi, Hassan, Pachon, Islam and Jalal 2010).

Table 4.1: Double-difference impacts on correct responses to questions put to mothers of children aged 0–23 months regarding knowledge of breastfeeding – repeated cross-section sample, all programmes

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
When should a baby start getting breastmilk?	0.93	0.02 (0.02)	0.92	0.01 (0.03)	0.95	0.00 (0.01)
What should a mother do with colostrum?	0.87	0.01 (0.03)	0.83	-0.01 (0.03)	0.88	-0.05 (0.03)
If a baby is not getting enough breastmilk, what should the mother do?	0.79	0.08* (0.04)	0.64	0.07 (0.05)	0.80	0.01 (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at primary sampling unit (PSU) level (see Annex D) are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

4.1.2 Knowledge of timely introduction of other liquids and solids

Table 4.2: Double-difference impacts on correct responses to questions put to mothers of children aged 0–23 months regarding timely Introduction of water, other liquids, and solids – repeated cross-section sample, all programmes

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Should a baby be given water during hot weather?	0.52	0.08 (0.04)	0.36	0.02 (0.04)	0.45	0.05 (0.04)
At what age should babies be given water or other liquids?	0.83	0.01 (0.03)	0.64	0.03 (0.04)	0.82	0.04 (0.03)
At what age should babies should be given other foods?	0.81	-0.01 (0.04)	0.60	0.06 (0.04)	0.76	-0.01 (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Regarding impacts on knowledge of the timely introduction of water, other liquids and solids, the results in Table 4.2 show that there are no statistically significant impacts on any of this knowledge.

Within the ‘L-only’ groups, knowledge regarding the introduction of water was in fact fairly low for all three programmes and lowest in EEP Concern. The qualitative evaluation findings suggest that water was generally

perceived as separate from food and that there was a strong tradition of providing water to infants aged three months and older, especially during the hot season. The quantitative data show that knowledge regarding the introduction of other liquids and solids was higher, though still lowest in the ‘L-only’ group of EEP Concern. Although point estimates are positive on many of the estimated impacts for these questions, none are statistically significant. The qualitative evaluation findings suggest that there are some gender-specific differences with regard to the introduction of solids, with male infants being fed solid foods earlier (at around six months of age) and female infants receiving solid foods later (at around seven months). This practice was explained by beliefs around gender-specific characteristics (‘boys have less patience’) and desired behaviours (‘girls need to learn to be patient’).

4.1.3 Knowledge of complementary feeding, child health and hygiene and micronutrients

Table 4.3: Double-difference impacts on correct responses to questions put to mothers of children aged 0–23 months regarding knowledge of complementary feeding, child health and hygiene and micronutrients – repeated cross-section sample, all programmes

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
What foods does a child under 24 months need to develop its brain?	0.98	0.01 (0.01)	0.95	0.01 (0.02)	0.98	0.00 (0.01)
What can we do to encourage young children to eat?	0.85	0.00 (0.03)	0.80	0.00 (0.03)	0.87	0.02 (0.03)
For how many days do children need extra food after having been sick?	0.09	0.03 (0.02)	0.06	0.01 (0.02)	0.12	-0.02 (0.02)
What should you do when your child has diarrhoea?	0.40	-0.01 (0.04)	0.46	0.04 (0.05)	0.46	-0.03 (0.05)
When should you wash your hands?	0.99	-0.01 (0.01)	0.97	-0.01 (0.02)	0.99	-0.00 (0.01)
Name one thing that can happen to a child if it does not get enough iron	0.81	0.05 (0.04)	0.75	0.01 (0.04)	0.79	0.00 (0.04)
What seasoning is fortified with iodine?	0.64	0.07 (0.04)	0.41	0.04 (0.05)	0.68	0.06 (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

To investigate knowledge regarding complementary feeding, child health and hygiene and micronutrients (results shown in Table 4.3), questions that were asked both at baseline and at endline are used. There are no statistically significant additional impacts of L+N on any of these topics, in any of the three programmes.

For some topics, the share of correct answers in the L-only groups is already very high. This includes questions on what foods children under 24 months need to develop their brain and when hands should be washed; in part, these high shares reflect the fact that nearly all respondents could give at least one response that was appropriate, if not an exhaustive list.

However, on other topics, the share of correct answers is somewhat lower, and although the topic is relevant to the N intervention messaging intended to be provided by the CNW, there is no meaningful impact. These topics include knowing how to encourage young children to eat or knowing what to do when a child has diarrhoea.

In qualitative interviews mothers explained that they were aware of good complementary feeding practices and highlighted *khichuri*, or hopscotch (soft mixture of rice with pulse and vegetables), as the ideal complementary food for young children. *Khichuri* is the traditionally used weaning food for children in Bangladesh, and its acceptability and mothers' awareness are therefore already high. Mothers perceived the dish as good for their children's health and said that they would like to cook it more often for their children. However, they complained that they frequently did not have the time to prepare this dish for their children as it meant cooking another dish (in addition to the family meal). Some CNWs therefore suggested less time-intensive options to improve the nutritional value of the usual family food (such as mixing pulses into the family meal to provide a meal richer in protein). According to the qualitative evaluation findings, mothers in the L+N areas were also more aware of the nutritional benefits of leafy greens and eggs as part of a complementary diet as these foods had been specifically highlighted by the CNW – a finding that mirrors the results of a recent evaluation of the same Alive & Thrive nutrition module in Bangladesh (Zongrone 2015).

Additional questions on knowledge regarding complementary feeding and micronutrients were also asked at *endline only*, as a result of findings of the qualitative sub-component. Results on these impacts are presented in Table 4.4.¹⁷

There is no statistically significant impact at conventional levels on answers to a question regarding complementary feeding – specifically, on methods to prepare family foods to feed children aged 6–23 months (although there are borderline significant estimates with small magnitude going in opposite directions across programmes). On this aspect, knowledge is already high in all three programmes; more than 90 per cent of mothers in the L-only groups know of these methods, leaving limited scope for improvement.

Nevertheless, the qualitative evaluation findings suggest that beneficiaries especially valued 'practical' advice provided by CNWs on how to make family food more child-friendly. Before the intervention many mothers described how they 'washed the family food with water' to make it less spicy for small children. This practice risked contaminating the food if unsafe water was used. If possible mothers would now take small amounts from the family food before adding salt and spices or they added lentils or similar to small portions of the family food to make it more nutritious and less spicy for children.

Increases in knowledge were large and highly statistically significant across the three programmes on the questions regarding iron. These included being able to identify which foods out of a list contained iron (about 8–9 percentage point increases in the CLP and EEP Concern), knowing what 'IFA' stands for (14–30 percentage point increases across the three programmes, with the biggest increase in EEP Concern and smallest in the UPPR programme), and knowing what the main purposes of IFA were (12–28 percentage point increases across the three programmes, again with the biggest increase in EEP Concern and smallest in the UPPR programme).

The qualitative interviews in the L+N areas of all three programmes found that mothers' knowledge and perceptions of iron and IFA had changed during the period of the interventions. Initially IFA was rejected by many beneficiaries and even discarded because it was believed that it would make babies too big (which would cause difficulties during delivery and increase the risk of a Caesarean section) or too dark-skinned and/or would increase nausea in the mother. However, attitudes towards iron had changed by the end of the evaluation and this was thought to be mainly triggered by the experiences and positive feedback of women in the community who had taken IFA regularly (e.g. overall improved physical well-being, reduced fatigue and less pain during delivery). Beneficiaries now praised iron as 'good for blood' and perceived it as important for replacing blood lost in child birth or through menstruation and to maintain the good health of

¹⁷ Interpretation of estimates does not differ for single-difference and double-difference impact estimates. Double-difference estimation controls for any small differences between groups at baseline to further improve the precision of estimates, but because groups are statistically balanced at baseline, both single-difference and double-difference provide unbiased estimates of causal impact.

a woman. One mother stated: ‘Giving birth to a child means shedding a jar of blood. Seven children seven jars of blood – can there be anything worse than this?’ Thanks to its perceived positive benefits for female health, many mothers-in-law and elderly women had started to request IFA from the CNW too.

Table 4.4: Single-difference impacts on correct responses to questions put to mothers of children 0–23 months regarding knowledge of complementary feeding and micronutrients – endline cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
What are methods to prepare family foods to feed children 6–23 months?	0.92	0.03* (0.02)	0.93	-0.03* (0.02)	0.95	0.02* (0.01)
Which of this list of foods contains vitamin A?	0.87	0.01 (0.02)	0.76	0.04* (0.03)	0.86	-0.01 (0.02)
Which of this list of foods contains iron?	0.69	0.08*** (0.03)	0.68	0.07** (0.03)	0.72	0.02 (0.03)
What does ‘IFA’ stand for?	0.46	0.23*** (0.04)	0.28	0.31*** (0.03)	0.56	0.14*** (0.04)
What are the main purposes of IFA?	0.46	0.22*** (0.04)	0.27	0.28*** (0.04)	0.53	0.12*** (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

4.1.4 Mothers’ attitudes towards and perceptions of nutrition

Table 4.5: Single-difference impacts on attitudes toward nutrition of mothers of children aged 0–23 months – endline cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
A woman should eat animal-source foods during pregnancy	0.85	0.03 (0.02)	0.77	0.05 (0.03)	0.91	0.01 (0.02)
A woman should limit physically demanding work during pregnancy	0.77	0.03 (0.02)	0.68	0.04 (0.03)	0.73	-0.01 (0.03)
A mother should not feed a new-born baby some honey/sugar water	0.77	0.03 (0.03)	0.73	0.00 (0.02)	0.80	-0.01 (0.03)
A mother should introduce complementary foods at same age for boys and girls	0.81	-0.02 (0.03)	0.83	-0.01 (0.03)	0.87	-0.00 (0.02)
First complementary foods need not be starches	0.72	-0.03 (0.03)	0.70	0.02 (0.03)	0.81	-0.02 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Next, impacts on attitudes towards nutrition, asked about only at endline (Table 4.5), are assessed. All the statements presented to mothers as stimuli were based on the perceptions and attitudes identified in the qualitative evaluation – for example, perceptions about food taboos in pregnancy, pre-lacteal feeding practices and gender-specific timing of the introduction of complementary food (see also Barnett *et al.* 2015). A small share of mothers agreed with these statements in the L-only groups, but adding the N interventions did not have any significant impact on the responses. A potential explanation for the low impact comes from the qualitative evaluation findings, which suggest that perceptions and beliefs with regard to behaviour and diet during pregnancy and early child feeding were very context-specific and deeply embedded in traditions and varied greatly between communities. As a consequence, these specific behaviours might not have been sufficiently targeted during more generic nutrition counselling sessions.

Estimates of impacts on attitudes toward health workers were also assessed, again only at endline, based on findings in the qualitative exploratory component (Table 4.6).¹⁸ These statements checked (1) if mothers would trust advice on pregnancy/breastfeeding/childcare at least as much if given by a health worker as if given by close family, friends or community midwives, and (2) if they would be at least as likely to take free supplements from a health worker as supplements purchased and given to them by close family, friends or community midwives. A slight majority of mothers in the L-only groups were found to agree with these statements, but many did not. Adding the N interventions did not have any significant impact on the responses, suggesting that the N interventions did not meaningfully increase trust in health workers. Given findings that contact with the CNW in the N interventions were infrequent and often very short (see section 3.2), it is not surprising that trust did not increase. The qualitative evaluation findings further highlight the importance of and trust in advice from family members (in particular mothers-in-laws) and elderly community members. In the focus group discussions, young mothers explained that they would always consult their mothers-in-laws for all pregnancy- and childcare-related questions. Listening to and following the recommendations of their mothers-in-law helped young mothers to ensure that they were not blamed by their husbands' households if something went wrong during the birth or with the child. 'It is the family we have faith, hope and trust in,' explained one young mother.

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Whether trust advice on pregnancy/breastfeeding given by a health worker	0.66	0.02 (0.03)	0.56	0.00 (0.03)	0.68	0.02 (0.03)
Likely to use free supplements given by a health worker	0.61	0.07 (0.03)	0.52	0.06 (0.04)	0.65	0.04 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

The qualitative evaluation sub-component also explored mothers' attitudes towards their ability to purchase nutritious foods on a very tight budget. This avenue of enquiry was pursued as the first round of qualitative findings highlighted that a lack of financial resources was often perceived by mothers as the main barrier to a diverse diet during pregnancy for them and their children. Data from focus group discussions with mothers suggest that attitudes have only marginally changed despite increases in income (thanks to the livelihood intervention or other income-generating opportunities) and despite advice from the CNW on choosing more affordable nutritious food. Higher food prices, more family members and difficult access to markets were often mentioned as reasons for why diets had not changed.

18 Quantitative questions were asked about a health worker rather than about the CNW specifically because questions on CNWs would not be applicable to the 'L only' households and therefore responses could not be compared. The questions aimed to capture trust toward formal health service providers more generally.

4.1.5 Summary – knowledge and attitudes

Overall, findings show very little additional impact of L+N on knowledge and attitudes regarding nutrition, except regarding knowledge of iron and IFA. The increases caused by L+N in knowledge about iron and IFA are highly statistically significant across all three programmes. For all other dimensions, there are no statistically significant impacts at conventional levels. On topics such as breastfeeding, knowledge was already high in the L-only group, suggesting little potential for N interventions to further improve it. On topics such as complementary feeding and attitudes towards health workers, there are some apparent gaps in knowledge and attitudes in the L-only groups, but the addition of the N intervention appears not to meaningfully change these.

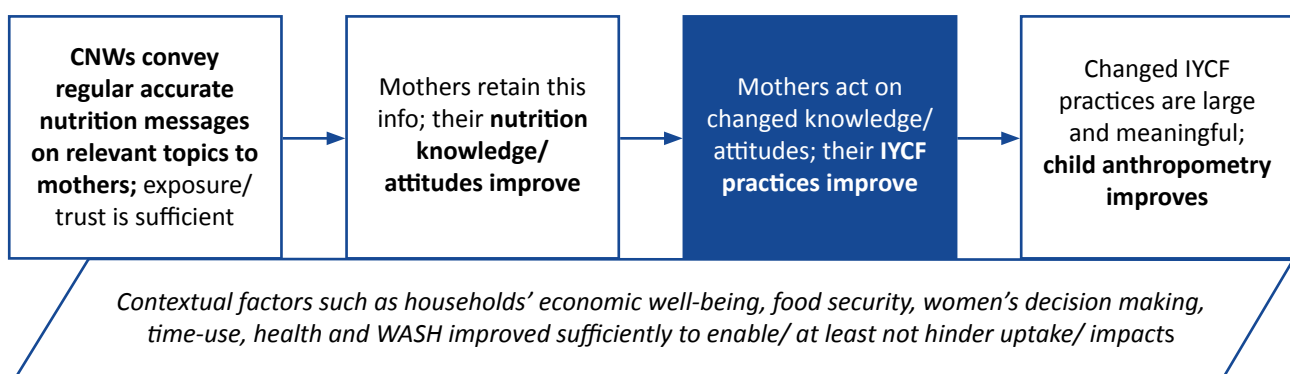
These results are consistent with findings on contact between mothers and CNWs in the N interventions (section 3.2). Given relatively little contact in total, little time devoted to each topic within sessions, and particularly little time devoted to complementary feeding and (as qualitative data suggest) a relatively limited scope of counselling on it, it is unsurprising that the N interventions did not significantly increase mothers' knowledge of complementary feeding issues (although the qualitative evaluation findings suggested some small improvements with regard to eggs and leafy vegetables). Meanwhile, although knowledge regarding breastfeeding was already quite high even in the L-only group, considerable attention was given to breastfeeding. CNWs' focus on checking on consumption of the IFA supplements and encouraging peer-sharing of the positive effects of iron helped to change misconceptions and may explain the highly significant increases in mothers' knowledge about iron; in the L-only groups, knowledge of iron was considerably lower. This suggests the possibility that when CNWs are able to give sufficient time to topics that are not well known by mothers, or when they directly distribute health products with observable benefits, such that mothers can learn from the experiences of their peers, there is potential to see improvements in knowledge and attitudes regarding those topics.

Taken together, findings suggest that not only increasing contact time between mothers and CNWs, but also strengthening and contextualising the content of the messages towards complementary feeding and other important nutrition topics that are not already well known by mothers, could improve already existing knowledge and could support mothers in understanding the learned knowledge and adapting it to their specific situations.

4.2 IYCF practices

In the next stage of the simplified results chain, it is posited that if effective contact with CNWs leads to improved IYCF knowledge and attitudes among mothers, mothers may then act on these and engage in better IYCF practices. Previous sections find limited contact with CNWs and little change in IYCF knowledge, except as related to iron intake. This section looks at how these translate into impacts on practices.

Figure 4.2: Results chain, IYCF practice outcomes



To assess IYCF practices quantitatively, reports from mothers in the repeated cross-section sample were used, since their children (aged 0–23 months) were in the relevant age range for these practices. The focus was on breastfeeding, the introduction of other liquids and solids, complementary feeding, and the use of micronutrient supplements. A caveat to all the quantitative findings below is that the information on

practices is self-reported by mothers (as is standard for these types of data collection) and therefore subject to reporting bias; in particular, it is possible that adherence to recommended practices is overestimated.¹⁹

4.2.1 Breastfeeding practices

The impacts of adding the N interventions on the core summary indicators regarding breastfeeding recommended by the WHO (2010) – exclusive breastfeeding and predominant breastfeeding for infants younger than six months – were assessed and are shown in Table 4.7.²⁰ There are no meaningful impacts in any of the three programmes; in UPPR, there are borderline significant effects on exclusive breastfeeding and predominant breastfeeding, but these are not statistically significant at conventional levels.

Impacts on related breastfeeding practices – avoiding pre-lacteal feeding, providing colostrum and continuing breastfeeding – were also analysed and are shown in Table 4.8. Again there are no meaningful impacts. Consistent with mothers’ already high knowledge of the importance of colostrum and breastfeeding, seen in the previous section, high reports of providing colostrum and continuing breastfeeding throughout a child’s first 12 months are seen here, leaving limited potential for the N interventions to have meaningful impacts in these dimensions. However, sizeable proportions of mothers across all programmes (particularly in EEP Concern) do give something other than breastmilk to babies within their first three days and the N interventions did not improve this practice. This is consistent with the previous section’s finding that a substantial share of mothers across all programmes (particularly in EEP Concern) believed it was all right to feed newborn babies honey or sugar water. The N interventions did not modify this belief.

The qualitative data echo these findings and suggest that breastfeeding was universal among the interviewed mothers in both the L-only and the L+N areas. While pre-lacteal feeding was less common and most newborns were given colostrum straight after birth, several mothers revealed that sugary water or honey had been given to the child after the colostrum (instead of before the colostrum, as was the practice before).

Mothers who delivered their babies in hospital, at a clinic or at home with a medically trained midwife explained that they did not practise any pre-lacteal feeding at all. This was often not their preferred choice (or that of their families), but the health worker did not permit any other practices and made sure that mothers complied.

Table 4.7: Double-difference impacts on WHO IYCF indicators for breastfeeding practices – repeated cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Exclusive breastfeeding (0–5m)	0.72	0.10 (0.07)	0.60	0.09 (0.06)	0.63	0.13* (0.06)
Predominant breastfeeding (0–5m)	0.81	0.08 (0.06)	0.79	0.06 (0.05)	0.77	0.09* (0.05)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

¹⁹ However, reported adherence to recommended practices is far below 100 per cent in most instances, suggesting that reporting bias does not dominate the information collected.

²⁰ ‘Predominant’ breastfeeding differs from ‘exclusive’ breastfeeding, in that it allows oral rehydration salts, vitamin and/or mineral supplements, ritual fluids, water and water-based drinks, and fruit juice. Other liquids, including non-human milks and food-based fluids, are not allowed, and no semi-solid or solid foods are allowed. The WHO-recommended indicator on early initiation of breastfeeding is not analysed because information was not collected in the surveys on the exact timing of breastfeeding initiation.

Table 4.8: Double-difference impacts on other indicators related to breastfeeding practices of mothers of children aged 0–23 months – repeated cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Only breastmilk given to the baby in the first three days after birth	0.79	0.04 (0.03)	0.63	0.06 (0.04)	0.75	0.05 (0.03)
Colostrum was given to the baby	0.98	0.01 (0.01)	0.97	0.01 (0.01)	0.97	0.00 (0.01)
Breastfed the child until aged at least four months	0.99	0.01 (0.00)	1.00	-0.00 (0.00)	0.97	0.01 (0.01)
Breastfed the child until aged at least six months	0.99	0.01 (0.01)	0.99	0.00 (0.00)	0.97	0.01 (0.01)
Breastfed the child until aged at least 12 months	0.99	0.01 (0.01)	0.99	0.00 (0.01)	0.94	0.02 (0.02)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

4.2.2 Practices relating to the timely introduction of other liquids and solids

Table 4.9: Double-difference impacts on WHO IYCF indicators for the introduction of solid/semi-solid/soft foods – repeated cross-section sample

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Introduction of solid/semi-solid/soft foods (6–8 months)	0.86	0.04 (0.03)	0.72	0.03 (0.04)	0.85	0.03 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Next, impacts on practices related to the timely introduction of other liquids and solids are assessed. The impact of N interventions on the core summary indicator regarding the introduction of solid/semi-solid/soft food recommended by WHO (2010) – whether infants older than six months and under nine months receive these foods – was estimated and is shown in Table 4.9. No significant impacts are seen in any of the three programmes.

Impacts were also estimated on inappropriately early introduction of substances – whether water, other non-breastmilk liquids, or solids were introduced before the age of six months – and are shown in Table 4.10. In EEP Concern, where the introduction of water and other liquids before the age of six months was most common, adding the N interventions caused a statistically significant reduction in these practices. While 61 per cent of mothers in the L-only group reported giving water to a child of less than six months and 39 per cent reported giving another liquid, adding the N interventions reduced these by 11 percentage points and 12 percentage points respectively. Other impacts are not statistically significant at conventional levels, although there are borderline significant reductions in giving other liquids in the CLP and giving water in the UPPR programme. These findings are consistent with the results shown in the previous section and although the impacts of N interventions on knowledge about the timely introduction of other liquids and solids were not statistically significant in any programme, knowledge of these topics was lowest in EEP Concern's L-only group, giving the most potential for impact.

The qualitative evaluation findings suggested that the fear of having insufficient amounts of breastmilk was common among mothers in all three study areas. Maternal undernutrition was perceived as an underlying reason for the perceived lack of breastmilk. Diluted cows' milk, powdered milk and, for infants above three months, fruit juice were common additional feeds. In the UPPR programme maternal absence because of work in the garment industry was another reason for why infants received other liquids and food before the age of six months.

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Gave water before the child was 6 months old	0.39	-0.07 (0.04)	0.61	-0.11** (0.05)	0.44	-0.09* (0.04)
Gave other liquid before the child was 6 months old	0.27	-0.08* (0.04)	0.39	-0.12** (0.04)	0.26	-0.04 (0.03)
Gave solid food before the child was 6 months old	0.02	-0.01 (0.01)	0.01	-0.01 (0.01)	0.01	0.00 (0.01)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

4.2.3 Impact on child diets/ complementary feeding practices

Next, impacts of adding the N interventions on the diet of children aged 6–23 months old are investigated; this is the age range for which diverse foods other than breastmilk should have been introduced (Table 4.10). Impacts are assessed on the core summary indicators regarding complementary feeding recommended by WHO (2010) – dietary diversity, meal frequency, and consumption of iron-rich foods (including supplements) in children older than six months and under 24 months.²¹ For further insight, impacts are also analysed on the components of these indicators – the seven food groups constituting dietary diversity, the number of meals consumed and the use of iron supplements. Estimates are shown in Table 4.11.

There are no significant impacts in any of the programmes on minimum dietary diversity or minimum meal frequency; however, the UPPR programme shows a small significant increase of about 8 percentage points in children consuming a minimum acceptable diet (i.e., achieving both minimum dietary diversity and minimum meal frequency). Across both the CLP and the UPPR programme, there are statistically significant increases in the consumption of iron-rich/iron-fortified foods (13 percentage points and 12 percentage points, respectively); there is a borderline significant increase of 12 percentage points in EEP Concern as well, but this is not considered significant at conventional levels.

Across all three programmes, the N intervention had no significant impact on the child's consumption of food in any of the seven food groups contributing to the dietary diversity score on the previous day. Notably, there are no impacts on the consumption of animal-source food groups, of particular relevance given a growing literature showing the importance of animal-source foods for linear growth (Iannotti, Lutter, Bunn and Stewart 2014; Semba, Shardell, Sakr Ashour, Moaddel, Trehand, Maleta, Ordiz, Kraemer, Khadeer, Ferrucci and Manary 2016). However, across all three programmes, there are highly significant increases in the child's consumption of tablets, syrup or sprinkles containing iron on the previous day – 19 percentage points in the CLP, 21 percentage points in EEP Concern, and 15 percentage points in the UPPR programme.

²¹ Dietary diversity is taken as a proxy by the WHO for adequate micronutrient density of foods. Based on dietary data from children in ten developing countries, the WHO finds that consumption of at least four out of seven specified food groups on the previous day suggests the child had a high likelihood of consuming at least one animal-source food and at least one fruit or vegetable, in addition to a staple food, defining this as 'minimum dietary diversity'. 'Minimum meal frequency' is defined as being fed solid/semi-solid/soft foods twice if 6–8 months old and three times if 9–23 months old for breastfed children, and four times for all non-breastfed children aged 6–23 months. 'Minimum acceptable diet' is defined as achieving minimum dietary diversity and minimum meal frequency.

Table 4.11: Double-difference impacts of WHO IYCF indicators and component indicators for complementary feeding – repeated cross-section sample

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Minimum dietary diversity (6–23 months)	0.12	0.02 (0.03)	0.14	0.04 (0.03)	0.22	0.06 (0.03)
Minimum meal frequency (6–23 months)	0.55	0.05 (0.04)	0.51	-0.04 (0.05)	0.51	0.05 (0.05)
Minimum acceptable diet (6–23m)	0.11	0.03 (0.03)	0.13	0.01 (0.03)	0.18	0.08** (0.03)
Consumption of iron-rich/iron-fortified foods (6–23m)	0.46	0.13** (0.04)	0.55	0.12* (0.05)	0.61	0.12** (0.04)
Grain, roots or tubers	0.75	-0.04 (0.03)	0.72	0.03 (0.03)	0.71	-0.04 (0.03)
Beans, legumes or nuts	0.15	0.02 (0.03)	0.19	0.01 (0.03)	0.27	-0.02 (0.03)
Dairy	0.10	-0.01 (0.03)	0.06	0.01 (0.01)	0.21	-0.01 (0.03)
Meat, offal, fish	0.26	0.00 (0.03)	0.35	0.05 (0.04)	0.34	0.06 (0.03)
Eggs	0.14	0.03 (0.02)	0.12	0.03 (0.02)	0.22	0.03 (0.03)
Fruits or vegetables rich in vitamin A	0.46	-0.02 (0.04)	0.38	0.03 (0.04)	0.31	-0.01 (0.03)
Other fruits or vegetables	0.04	0.01 (0.02)	0.06	0.05 (0.02)	0.10	0.05 (0.02)
Number of meals	2.99	0.21 (0.16)	2.80	-0.03 (0.18)	3.33	0.13 (0.19)
Any tablets syrup or sprinkles containing iron	0.03	0.19*** (0.02)	0.02	0.21*** (0.02)	0.01	0.15*** (0.02)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Disaggregating these impact estimates by gender shows the same patterns for boys and girls (tables not shown, for brevity). In both cases, there are no statistically significant impacts on food groups, but there are highly statistically significant increases in taking iron. Magnitudes are also very similar across boys and girls, in terms of the proportions of the L-only group consuming various food groups and iron as well as in terms of increased iron supplement use. With or without the N interventions, there does not appear to be evidence of son preference in these dimensions in any of the three programmes.

The qualitative evaluation findings can provide possible explanations for why there was no improvement in dietary diversity despite nutrition counselling. The most commonly mentioned reasons for all three programmes were:

1. **Limited budget and other priorities:** Beneficiaries highlighted a lack of economic means to purchase better and/or more diverse food items (in particular animal-source food) and to cook additional meals for children (hopscotch, *khichuri*). Some CNWs recommended mixing pulses into the family meal to achieve a more nutritious meal for young children. However, increased prices for pulses had made them unaffordable for many households. The additional income generated by the livelihood asset (or by selling the asset and re-investing the proceeds in other income-generating activities) was directed towards improving the household's overall living conditions, ensuring food security (in terms of quantity), paying off debts, saving to improve household coping abilities, and re-investing in longer-term income-generating activities.

2. **Limited time:** Lack of time to prepare additional dishes for young children, to attempt to feed children who refuse to eat or to go to the market to purchase fresh products with a short shelf life was mentioned by many beneficiaries.
3. **Taste preferences** of the entire household were perceived as more important in guiding food choices than nutritional value.
4. **Social value of food:** Food choices were not based on nutritional value but on perceived social values (e.g. 'high-status' foods, greens for women, grapes and oranges as a treat for children).
5. **Decision-making during food shopping:** Especially in the UPPR programme, food was purchased at the market mainly by the mothers-in-law or husbands. Even if mothers gained new knowledge on foods beneficial for their children's and their own health, this may or may not have been taken into consideration by the person doing the shopping.

Beneficiaries (in both L-only and L+N areas) also said that they often used some of the additional income generated by the livelihood asset to buy biscuits for their children. Children liked the biscuits and the colourful wrapping they were sold in. Biscuits were sold in small quantities, were relatively cheap, could be easily stored, did not need any preparation or cooking (no cooking fuel) and were usually eaten by children without much wastage or help from their busy mothers, thus making them a perfect snack and meal replacement (albeit of low nutritional value). However, the quantitative data suggest that across all three programmes, there were highly statistically significant increases in the share of mothers reporting that their children aged 6–23 months took an iron supplement the previous day. The shares in the L groups for all three programmes were very low, fewer than 5 per cent; adding the N interventions led to very large increases, of 20–26 percentage points.

In the qualitative interviews caregivers said that micronutrients were good for children's development and attributed improvements in children's health and appetite to the supplements. Some mothers had been aware of supplements and their properties before the programme, but had only occasionally purchased supplements in the past (e.g. in case of illness to strengthen the child's health). While mothers praised the benefits of the supplements for their children's health, most said they would not buy them once the programme had finished as they could not afford them. Some mothers were also suspicious of shop-bought supplements and had doubts about their effectiveness. This suggests that easy availability (the CNW brought supplements to the household) and free-of-charge access to supplements might have been a (even the) key facilitator for use – a finding that is supported by several recent studies (Galloway, Dusch, Elder, Achadi, Grajeda, Hurtado, Favin, Kanani, Marsaban, Meda, Moore, Morison, Raina, Rajaratnam, Rodriguez and Stephen 2002; de Barros and Cardoso 2016).

According to the qualitative evaluation findings, the acceptability of the supplements to children was sometimes diminished by changes in the colour and taste of the food they were mixed with (it became black because of the iron and tasted bitter). Some mothers also discontinued their use because of the side-effects their children experienced (e.g. diarrhoea).

4.2.4 *Summary – IYCF practices and child diets*

Taken together, these results suggest a few points related to the impacts of the N intervention on mothers' practices. On the one hand, in order to enact behaviour change and affect IYCF practices, it is critical to first ensure appropriate IYCF knowledge and attitudes; achieving this was a key part of the CNWs' responsibilities. On the other hand, it may be difficult or even impossible for beneficiaries to translate knowledge and attitudes into better IYCF practices, owing to a multitude of economic, social and other contextual constraints and barriers highlighted by the qualitative findings. CNWs' success in shaping knowledge and attitudes may be necessary but not sufficient for achieving behaviour change. CNW activities may play an important role in mothers' IYCF practices, but their reach may be limited in the presence of other binding constraints on mothers regarding IYCF.

In the preceding sections, the clearest impacts found on IYCF practices relate to children's use of the iron supplements. Consistent with the theory of change, the evaluation findings show that the CNWs did devote substantial time to discussing the iron tablets, and mothers' knowledge of iron (which was lacking in the absence of the N interventions) did significantly improve their knowledge and attitudes in all three programmes, thus laying the groundwork for practices regarding children's iron intake to improve. It is important to note, however, that iron supplements were provided by the N interventions directly;

any constraint on purchasing them (such as resource scarcity, time scarcity, limited/no access to iron or intra-household dynamics) that may have prevented beneficiaries acting on the improved knowledge/attitudes were averted. It can be concluded that the CNW activities were largely successful in improving knowledge/attitudes around iron, such that mothers were willing to use the supplements given to them. It is important to note, however, that it cannot be said with certainty that a similar uptake in the use of iron supplements would be seen in the absence of direct provision of the supplements. In fact, there is some evidence from the qualitative evaluation to suggest that mothers are unlikely to purchase iron once the intervention has stopped.

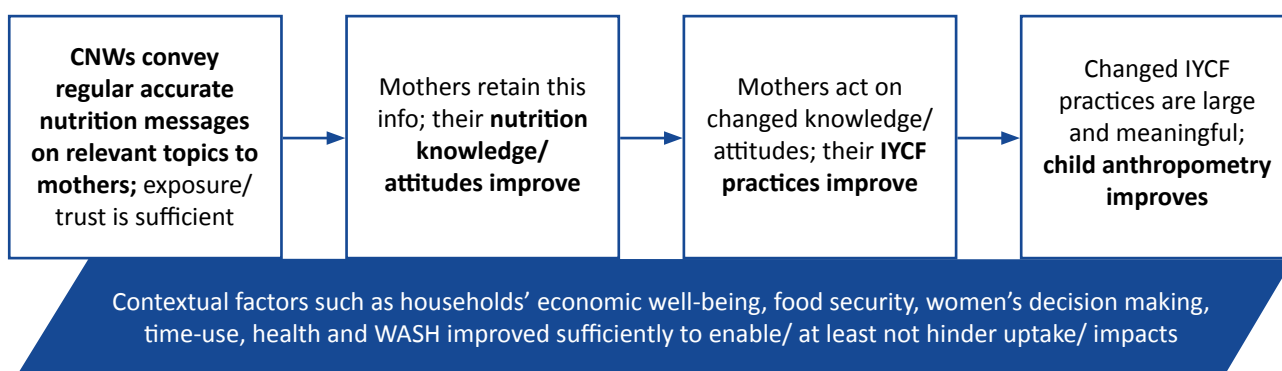
A similar dynamic applies to findings that the N interventions reduced the inappropriately early introduction of water and other liquids in EEP Concern. Evaluation findings suggest that CNW activities provided the knowledge necessary (and previously lacking) for behaviour change in this dimension to occur; moreover, large outlays of resources were not required for mothers to act on this knowledge. Both this finding and the finding regarding iron are encouraging, in that they imply that knowledge can translate into practices, in the absence of other binding constraints; in these instances, CNWs were able to play a valuable role in improving practices if they could give enough time to the discussion of a particular topic.

Conversely, the previous sections show consistently little impact on knowledge and practices related to complementary feeding. The evaluation findings also show that CNWs spent little time discussing complementary feeding. Consistent with the theory of change, results strongly suggest that CNW activities related to complementary feeding were not intensive or focused enough to achieve the improvements in knowledge/attitudes necessary for behaviour change in this dimension to take place. That said, it cannot be concluded with certainty that intensifying CNW activities would have been sufficient to achieve better IYCF practices. The qualitative evaluation identified a large number of context-specific barriers to the translation of knowledge on better complementary feeding into practice. These barriers included lack of financial resources and other priorities for available resources (e.g. achieving food security in terms of quantity of food); shortage of time (e.g. to prepare additional complementary dishes recommended by CNWs, go to the market to purchase fresh vegetables or practise responsive feeding of young children); fear of food wastage (e.g. through children throwing food on the ground); the household's taste preferences and perceptions of the social value of food; whether beneficiaries were ready to change or acknowledged the need to do it (e.g. breastfeeding and biscuits were quick, easy and not messy and therefore preferred feeding options); limited influence of mothers on decision-making with regard to childcare and food purchases; and deeply rooted context-specific belief systems around IYCF. These context-specific factors need to be addressed by CNWs (if possible) to trigger and maintain effective behaviour change.

Overall, results suggest that investing more in the CNWs does have the potential to achieve greater improvements in certain individual behaviours, in that CNWs can help households to address specific barriers to improved practices (for example, to address time shortage as a barrier to optimal complementary feeding CNWs could suggest simple and quick options for enriching family food to make it more suitable as complementary food for children). However, in some dimensions, households may be fundamentally constrained from taking on desired practices; in these cases, considerable additional resources might be required to make the interventions more broadly effective in improving IYCF practices.

4.3 Evidence regarding other mediating/moderating factors

Figure 4.3: Results chain, mediating factors



Although the above factors comprise the most plausible pathway for the N interventions to affect anthropometry – via improved IYCF knowledge/attitudes of mothers translating into improved IYCF practices – it is also important to consider other possible mediating or moderating factors. These include improvements in overall household wellbeing (for example, if the N interventions in some way improved households' overall income or access to food, these could translate into more resources being devoted to the child); improvements in pregnant women's exposure to antenatal care (if the N interventions succeeded in encouraging women to receive antenatal care, this could translate into better birth outcomes and postnatal outcomes); improvements in women's status (if the N interventions increased women's social capital or bargaining position within the household, they may be able to negotiate for more resources to be allocated to their children); hygiene and sanitation (if the N interventions improved WASH practices, these could translate into improvements in child nutritional status); and child illness (if the N interventions improved child nutritional status, this could translate into greater resilience against illness). In this sub-section, evidence for each of these is assessed in turn. Given the very limited evidence found for the knowledge and practices primary pathway in previous sections, the extent to which evidence is found for impacts here shapes the scope for impacts on anthropometry.

4.3.1 *Improvements in overall HH wellbeing*

One of the main ways the programmes aim to improve household wellbeing is by influencing the quality of the diet consumed by the household. Guidelines drawn up by FANTA (Food and Nutrition Technical Assistance) were used to construct twelve food groups by which to measure a household's dietary diversity score (Swindale and Bilinsky 2006). These groups are:

1. Cereals
2. White tubers, roots, and other starchy food
3. All vegetables
4. All fruits
5. Meat
6. Eggs
7. Fish
8. Legumes and nuts
9. Dairy (milk, yogurt and cheese)
10. Fats and oils
11. Sugar and sweets
12. Spices, condiments and beverages.

First, measures are constructed to indicate whether the household has consumed foods belonging to each of the twelve categories in the past seven days. The household dietary diversity score is then constructed by summing the number of groups of foods that the household has consumed in the past seven days. A more diverse diet (a higher number of food groups) is considered healthier and is a proxy measure for household food access.

Table 4.12 below reports the difference-in-differences estimates of the additional impact of the nutrition intervention over the livelihoods intervention only, for each programme. Results are reported for the proportion of households who have consumed food from each of the twelve groups in the past seven days, followed by the average dietary diversity score of households. Results from the repeated cross-section sample are reported as the results are almost identical for the panel sample.

The three nutrition programmes have no additional impact on the consumption of foods, nor on the overall household dietary diversity score.

While quantitative data analysis could not detect any significant change in households' dietary diversity, qualitative evaluation findings suggest that the nutrition counselling had some effect (albeit small) on food choices. Especially during periods when the household could not afford lots of food, they now attempted to choose the most nutritious foods (while taking the taste preferences of the household in consideration).

Table 4.12: Double-difference impacts of household dietary diversity indicators – repeated cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Proportion of households which, in the past seven days, consumed...						
Cereals	1.00	0.00	1.00	0.00	1.00	0.00
White tubers, roots, other starchy food	0.81	0.09 (0.05)	0.79	-0.01 (0.04)	0.96	0.01 (0.03)
All vegetables	1.00	0.00	1.00	-0.00	1.00	0.00
All fruits	0.38	0.05 (0.09)	0.44	0.15 (0.06)	0.56	0.11 (0.09)
Meat	0.29	-0.04 (0.08)	0.25	0.08 (0.05)	0.61	0.04 (0.09)
Eggs	0.44	0.01 (0.07)	0.40	0.07 (0.06)	0.69	-0.07 (0.08)
Fish	0.89	0.04 (0.05)	0.98	0.00 (0.01)	0.97	0.08 (0.04)
Legumes and nuts	0.84	0.09 (0.08)	0.87	-0.04 (0.05)	0.98	-0.03 (0.04)
Dairy (milk, yogurt, cheese)	0.26	-0.03 (0.09)	0.12	-0.06 (0.06)	0.47	0.07 (0.10)
Fats and oils	1.00	0.00	1.00	0.01 (0.01)	1.00	0.00
Sugar and sweets	0.48	-0.07 (0.09)	0.66	0.10 (0.06)	0.76	0.01 (0.08)
Spices, condiments and beverages	1.00	0.00	1.00	-0.00 (0.01)	1.00	0.00 (0.00)
Household dietary diversity score	8.39	0.16 (0.27)	8.51	0.29 (0.19)	9.99	0.22 (0.27)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

However, most households' priority was to achieve food security in terms of food quantity. Being able to 'fill your belly three times a day' was the most important thing for them. According to beneficiaries and also non-beneficiaries in all three programme areas, the livelihood programme has helped to ensure food security for households that had been 'on the verge to starvation at times'. Mothers' anxieties and stress about not being able to provide food to their families have been reduced. Especially in the CLP, households' dependency on the goodwill of neighbours in ensuring food security has decreased, as the following quotation shows:

We would wait for the share of a green gourd that grew in the neighbour's house before. But now I myself grow gourds in my vegetable bed. Again we would bury the seeds of pumpkin, gourd, bean, etc. in the earth. Some seeds would sprout while others not. But the CLP has taught us to make a hole in the ground according to certain measurement and fill it with cow dung and then to put the seeds or seedlings in it.

Another aspect of household wellbeing is the wellbeing of the mother of the designated 'index child' aged 0–23 months in each sampled household. Women's nutritional status, in addition to its intrinsic importance, is a key determinant of children's nutritional status while *in utero* and during lactation. To construct a measure of women's nutritional status, we calculate their body mass index (BMI).

The baseline survey recorded height and weight measurements for the mother of the index child. A measure of body mass index (BMI) is constructed as follows:

$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{height in metres})^2}$$

According to convention, pregnant women are excluded from the calculation of BMI, since their weight is affected by pregnancy. Following WHO cut-offs, BMI values between 18.5 and 25 are characterised as 'normal'. Women with BMI values under 18.5 are considered underweight, and women with BMI values above 25 are considered overweight.

In Table 4.13 below, difference-in-differences estimates of the additional impact of the nutrition intervention over the livelihoods intervention only are reported, for each programme. Table 4.13 shows results for the BMI of the index child's mother, whether the mother is underweight, and whether she is overweight. Reported results are from the repeated cross-section sample, but the results are almost identical for the panel sample.

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
BMI of mother of index child	19.99	-0.06 (0.36)	19.46	0.32 (0.27)	22.40	0.39 (0.57)
Low BMI (<18.5)	0.32	-0.01 (0.09)	0.42	-0.01 (0.06)	0.17	-0.04 (0.08)
High BMI (>25)	0.06	-0.02 (0.03)	0.05	0.04 (0.02)	0.25	0.01 (0.06)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

There are no impacts in any of the three programmes on women's BMI.

4.3.2 Pregnant women's exposure to antenatal care

Access to antenatal care has been positively associated with nutritional outcomes for children in a range of circumstances, including in Bangladesh (Headey, Hoddinott, Ali, Tesfaye and Dereje 2014). As well as ensuring an adequate diet for a pregnant mother, and supporting her health, adequate antenatal care can also lay the foundation for postnatal support and care of children. There are consistently better antenatal care indicators associated with receipt of the N intervention for the CLP and EEP Concern. Mothers in the CLP who have been exposed to the N components report 0.8 antenatal care sessions more than CLP beneficiaries who have not; an effect strongly significant statistically ($p < 0.001$). An increase of 0.8 sessions corresponds to a 38 per cent increase in the number of antenatal care sessions. For EEP Concern, the absolute increase in sessions due to N is smaller (0.35) and is significant at the 5 per cent level. But since the endline number of sessions reported by L-only mothers is also lower than in the CLP (1.2), the relative impact of N on the number of antenatal care sessions is still substantial, at 30 per cent. This finding is echoed in the qualitative evaluation, where beneficiaries describe that they are more aware of the importance of regular antenatal check-ups thanks to the intervention. However, mothers in the CLP and EEP Concern (and to a lesser extent the UPPR programme) highlight that access to antenatal care (as well as delivery in hospital or at another health facility) was often impossible during the rainy season because of poor infrastructure and flooding.

Within the CLP area, L+N mothers also reported a higher frequency of weight measurement during pregnancy (twice instead of 1.75 times for L-only mothers). This corresponds to an increase of 15 per cent in the number of weight measurement sessions, an effect statistically significant at the 5 per cent level. L+N mothers in the EEP Concern and UPPR areas have not benefited in this way from the N interventions.

Mothers who were in the L+N group were significantly more likely to have participated in a feeding programme during pregnancy. However, the proportion of mothers who have benefited from such programmes is very small even in the L+N group (1.6 per cent for the CLP and 1.8 per cent for EEP Concern).

L+N mothers in the CLP and EEP Concern programmes are more likely to have been advised on what to eat and how to cook during pregnancy than L mothers. Eighty-three per cent of L+N mothers in the CLP were advised on what to eat, 61 per cent on how to cook and 54 per cent on both during their pregnancy. The corresponding rates for L mothers were 52 per cent, 39 per cent and 32 per cent. All these differences are significant at the 1 per cent level. A similar impact is found in EEP Concern although the benchmarks are lower than in the CLP. Fifty-seven per cent of L+N mothers in EEP Concern were advised on what to eat, 40 per cent on how to cook and 33 per cent on both during their pregnancy. The corresponding rates for L EEP Concern mothers were 21 per cent, 21 per cent and 13 per cent. All these differences are significant at the 1 per cent level.

Finally, the N component is also associated with a higher likelihood that women in CLP received tetanus toxoid (TT) vaccinations during their pregnancy. The effect is quite modest (at 6 percentage points) but statistically significant at the 5 per cent level. Seventy-seven per cent of L+N mothers in the CLP were thus vaccinated, against 71 per cent of L-only mothers. Such an effect does not exist in EEP Concern and the UPPR programme.

Table 4.14: Double-difference impacts on antenatal care indicators – repeated cross-section sample						
	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
How many antenatal care sessions did you attend when you were pregnant with this child?	2.14	0.80*** (0.18)	1.20	0.35** (0.17)	4.07	0.21 (0.19)
During your pregnancy with this child, how often was your weight measured?	1.75	0.26** (0.15)	1.23	-0.15 (0.21)	2.99	0.16 (0.14)
Did you participate in any feeding programme during your pregnancy with this child?	0.01	0.06*** (0.01)	0.01	0.07*** (0.02)	0.02	-0.00 (0.01)
Were you advised on what to eat during pregnancy?	0.52	0.31*** (0.04)	0.21	0.36*** (0.06)	0.56	0.09 (0.05)
Were you advised on how to cook your food during pregnancy?	0.39	0.22*** (0.05)	0.21	0.19*** (0.04)	0.38	0.07 (0.05)
Were you advised on what to eat and how to cook your food during pregnancy?	0.32	0.22*** (0.05)	0.13	0.20*** (0.04)	0.31	0.07 (0.05)
Did you receive a tetanus toxoid (TT) vaccination during your pregnancy?	0.71	0.06** (0.03)	0.41	0.02 (0.04)	0.58	0.01 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

For the UPPR programme, none of the antenatal care indicators show any improvement associated with the N component. This is in stark contrast to the consistently positive effects found in the CLP and EEP Concern, and suggest again that the N implementation in the UPPR programme was problematic.

The qualitative evaluation suggests that while mothers in the CLP and EEP Concern were more aware of the benefits of antenatal care, incidences of delivery in a health facility remained low and was it avoided if possible. The reason for this was that (on the basis of the experiences of the beneficiaries) most hospital-based deliveries required a Caesarean section, which would be risky for the mother's health, needed a long time to heal (the mother could not get back to her chores/work for some time) and was expensive.

4.3.3 *Women's status, including intra-household decision-making and control over resources*

This section discusses the additional impact on women's status of the nutrition component compared to the livelihoods component alone, by programme. It can be expected that the livelihoods programme would have an impact on women's status by bringing women together and providing a forum for support and networking, building their confidence and consequently influencing their relationships in the household. However, the nutrition programmes may have had an impact on women's status above and beyond that of the livelihoods programme since it was supposed to involve both additional group gatherings and a well-respected person visiting the index child's mother regularly and imparting knowledge.

It is possible that the nutrition component has shifted dynamics within the households, by giving mothers of young children more power. The programmes may have had an impact on women's autonomy, giving them more voice in decisions, may have given them more bargaining power and thus control over purchases, and may have affected their ability to choose how mobile they are. All these things could be mechanisms for improving children's nutritional status if they enable the mother to make better health and nutrition decisions for her child.

This section focuses on three key indicators:

1. Whether the index child's mother was involved in making decisions about how to spend money on each of the following categories: food, housing, health, education and clothing. The mother is counted as being involved in the spending decision either if she herself made the decisions, or she made them together with her husband.
2. Whether the index child's mother herself controlled the money that was used to purchase items from each of the following categories: food from the market, clothing for herself, medicine for herself, and toiletries for herself.
3. Whether the index child's mother was involved in making decisions about whether she could go by herself to any of the following places: to visit friends, to the market, to the hospital/clinic/doctor, to the cinema/fair/theatre, and to training sessions run by NGOs or programmes. The mother is considered involved in the decision regarding her mobility if either she herself made the decisions, or she made them together with her husband.

Table 4.15, below, displays difference-in-differences estimates for the additional impact of the nutrition component over and above the livelihoods component for each programme, and for each of the above categories of the three indicators. Since the results are the same for the two types of samples, impacts are reported for the repeated cross-section sample and those of the panel sample are omitted.

There are no impacts in any of the three programmes on any of the categories. The nutrition component did not have an additional impact on women's involvement in spending decisions within the household over and above the livelihoods component. This may not be surprising, as the livelihoods component already brought women together and provided them with sources of income. The additional visits from CNWs and the supplements may not have had a large effect, particularly as they were not implemented as well as was intended.

While no significant change in mothers' contribution to decision-making could be observed, the qualitative data suggest that including mothers-in-law in nutrition counselling (as was done in the CLP) may have had some positive impact on decisions made about child feeding and care practices. Traditionally, mothers-in-law are the main decision-makers in these areas and were also responsible for most food choices and purchases at the markets (even more during the rainy season, when male household members frequently migrated for work to nearby towns).

Table 4.15: Double-difference impacts of women’s involvement in spending decisions – repeated cross-section sample

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Index child’s mother is involved in making decisions about how to spend money on...						
food	0.67	0.01 (0.09)	0.55	0.01 (0.08)	0.57	-0.12 (0.10)
housing	0.65	-0.00 (0.09)	0.55	0.00 (0.08)	0.56	-0.09 (0.10)
health	0.70	0.02 (0.08)	0.59	0.01 (0.08)	0.61	-0.05 (0.10)
education	0.55	0.08 (0.09)	0.51	0.02 (0.08)	0.43	0.09 (0.09)
clothing	0.70	0.08 (0.08)	0.59	0.03 (0.08)	0.61	-0.04 (0.10)
Index child’s mother herself makes the decisions on how to spend money on...						
food from the market	0.42	0.08 (0.09)	0.33	-0.05 (0.09)	0.57	-0.02 (0.09)
clothing for herself	0.48	0.11 (0.10)	0.36	-0.04 (0.08)	0.59	0.12 (0.10)
medicine for herself	0.53	0.10 (0.10)	0.40	-0.02 (0.09)	0.62	0.12 (0.10)
toiletries for herself	0.50	0.12 (0.10)	0.38	-0.04 (0.09)	0.62	0.08 (0.10)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

The next table, Table 4.16, reports difference-in-difference estimates of the additional impact of the nutrition component over and above the livelihoods component on women’s decisions regarding their mobility, for each of the three programmes. Since the results are the same for the two types of samples, impacts are reported for the repeated cross-section sample and those of the panel sample are omitted.

Indicator	CLP		EEP Concern		UPPR	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Mother of index child is involved in decision-making regarding whether she can go alone to...						
visit friends	0.73	0.10 (0.09)	0.63	-0.10 (0.07)	0.72	0.01 (0.10)
haat/bazaar	0.50	-0.01 (0.08)	0.47	-0.01 (0.07)	0.66	0.06 (0.09)
hospital/clinic/doctor	0.72	-0.02 (0.10)	0.61	-0.03 (0.07)	0.75	0.06 (0.09)
cinema/fair/theatre	0.15	0.03 (0.06)	0.17	0.06 (0.05)	0.36	0.01 (0.07)
training for NGO/programmes	0.40	0.06 (0.09)	0.37	0.04 (0.09)	0.44	0.05 (0.09)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

There are no additional impacts in any of the three programmes on women’s mobility. As with the impacts on women’s involvement in spending decisions, the nutrition component may not have been sufficient to increase women’s involvement in decision-making about their mobility over and above the livelihoods component, given its implementation.

4.3.4 Sanitation and hygiene practices and access to safe water

This section discusses impacts on access to and use of improved sanitation and water facilities. These facilities are important in ensuring the health of families since illness and disease are easily transmitted if these facilities are not accessible. The focus here is on three essential indicators: whether the household has access to any water source, whether the household has access to a safe source of drinking water, and whether the household has access to a sanitary latrine. Safe sources of drinking water include piped water and any type of tube well. Sources such as rivers and rain water are not considered safe. Sanitary latrines include those with or without a flush, but that are water-sealed, as well as community latrines. Open spaces, and latrines that are not water-sealed, are not considered sanitary. The qualitative data complement the quantitative analysis and add details on the use of improved facilities.

Table 4.17 reports double difference estimates of the additional impact of the nutrition component over and above the livelihoods component on the above three measures of sanitation, for each of the three programmes. Since the impacts are nearly identical for the panel and cross section samples, only impacts for the repeated cross section sample are reported.

Indicator	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Has access to water source	0.91	-0.04 (0.06)	0.73	-0.08 (0.08)	0.96	0.03 (0.06)
Safe source of drinking water	0.94	0.07 (0.05)	0.93	0.01 (0.08)	0.95	-0.01 (0.07)
Sanitary latrine	0.49	0.00 (0.09)	0.07	-0.04 (0.04)	0.67	-0.13 (0.10)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in ‘Additional Impact L+N’ reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

The nutrition component has no impacts over and above the livelihoods component for any of the three programmes on access to water, access to a safe source of drinking water or access to a sanitary latrine.

As shown in Table 4.17, above, access to improved water and sanitation remains a challenge especially in EEP Concern. It is not seen as a priority by many beneficiaries (‘We can’t feed ourselves properly, how can we build a latrine?’). Water-borne diseases thus remain very common among children (and may hamper improvements in nutritional status). No changes in hygiene behaviour could be observed, and soap was still perceived as a luxury product and waste of money in both L and L+N areas.

Access to safe drinking water remained a challenge for many households during the rainy season in EEP Concern. Women were often required to walk through the rain water to reach tube wells with safe water. Given the often strong currents and associated danger of falls or being swept away, easier-to-reach water sources such as surface water were frequently preferred. Another problem was that many tube well did not work during the rainy season and other wells had to be used. Owners of these wells often imposed strict controls on access, forcing households to seek other, unsafe water sources.

An ongoing problem reported in the EEP areas was the high arsenic and iron content of drinking water. The Government conducted a survey and marked several tube wells as red, indicating that the water was not fit for human consumption. Nevertheless, and owing to lack of alternatives, households continued consuming water collected from these tubes.

During focus group discussions with beneficiaries and non-beneficiaries in the UPPR programme, improvements in sanitation in urban settlements were frequently described as the most beneficial and valued benefit of the entire programme. A major challenge was the maintenance of the shared latrines, especially once the programme had finished and there was no regular monitoring by programme officers any more. Judging by the descriptions of the beneficiaries and the observations of the qualitative evaluation team, the majority of latrines were very dirty. One beneficiary described how her husband slipped on the dirty floor when entering the latrine and broke his leg. He had to stay in hospital for several weeks, with devastating economic consequences for the entire household.

Another issue was that the latrines that had been built to be shared by a maximum of seven families were often shared by 15–20 families as landlords had built additional houses to be able to collect more rent.

The increase of available income in urban areas and recommendation from the nutrition workers has led many beneficiary households to purchase water-purifying filters to filter iron and bacteria out of the water. The quality of their water has improved as a result.

The qualitative data suggest some changes in the local management of water and access to safe drinking water in urban settlements as a result of the changes in the political leadership in January 2014. Beneficiaries who supported the previous political leadership (the Bangladesh Nationalist Party) described how the new water management committee had reduced their access to water through the public tube well or provided water to them less regularly.

In one of the qualitative sites, access to safe water has become more time-consuming for many beneficiary households. The reason is that the Government drilled a deep tube well three years ago and as a consequence water levels in the entire urban community dropped and local tube wells dried up. The entire community then had to collect water from one tube well only, which was time-consuming (owing to queues, distance). Moreover, households usually collected water only once a day from the deep tube well and then stored it during the day. Water storage was often unsafe, leading to contamination.

4.3.5 *Child illness*

Table 4.18 shows the estimated impact of N on the prevalence of child illness. The impact is indistinguishable from 0 for all indicators. The prevalence of fever tends to be higher among L+N CLP beneficiaries than those receiving L only; but the effect is not statistically significant once correction for multiple inference is taken into account. Results were similar for respondents declaring that they took their child into a health centre because of malnutrition. The prevalence of illnesses among all household members over the last 30 days reported by the respondent was also the same across L-only and L+N households for all programmes.

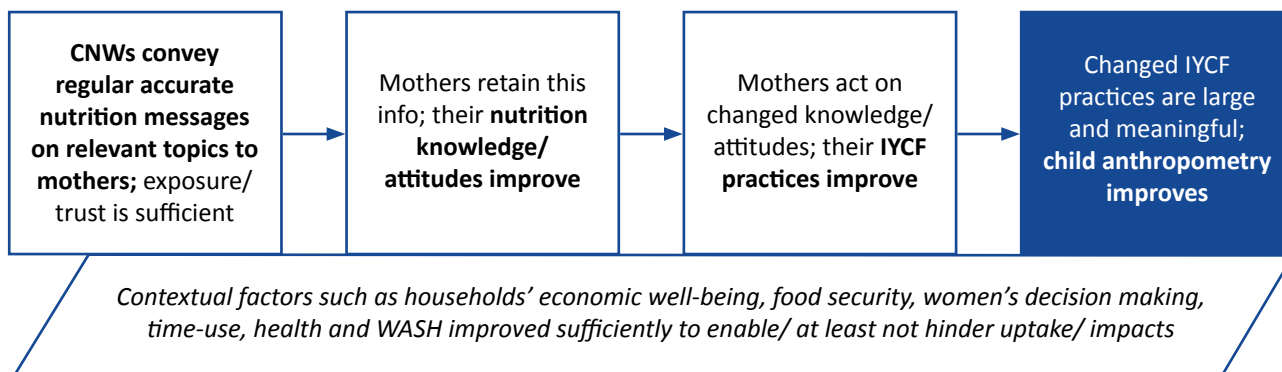
The qualitative evaluation in particular highlighted the seasonal component of child illness, with more children being sick during the rainy season. The reasons for this included use of unsafe water and sanitation during the rainy season, more crowded living conditions with more contact between humans and humans and animals, and flooded/muddy living environments.

Table 4.18: Double-difference impacts on child illness prevalence indicators – repeated cross-section sample						
	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
In the last 2 weeks, has the index child suffered from fever?	0.24	0.08 (0.04)	0.37	-0.08 (0.05)	0.39	-0.02 (0.04)
In the last 2 weeks, has the index child suffered from coughing/a cold?	0.29	0.05 (0.03)	0.39	-0.02 (0.04)	0.49	-0.05 (0.04)
In the last 2 weeks, has the index child suffered from fast breathing/shortness of breath?	0.02	0.01 (0.01)	0.04	-0.01 (0.01)	0.13	-0.12 (0.10)
In the last 2 weeks, has the index child suffered from diarrhoea?	0.03	0.01 (0.01)	0.07	0.01 (0.02)	0.15	-0.10 (0.10)
Was the index child ever treated in a health centre or hospital because he/she was malnourished?	0.03	0.04	0.05	0.03	0.08	-0.02
Proportion of household members who have been sick in the last 30 days	0.28	-0.00 (0.02)	0.29	-0.03 (0.01)	0.28	0.02 (0.01)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

5 IMPACTS ON CHILD NUTRITIONAL STATUS

Figure 5.1: Results chain, impact



The core measures of child nutritional status used here are anthropometric indicators. A child's height-for-age is an indicator of long-term nutritional status, capturing the child's cumulative nutritional environment from conception to about two years of age (the 'first thousand days' of life). Children's weight-for-height captures short-term nutritional status.

For an assessment of impacts on height-for-age and weight-for-height, normed z-scores by gender were used, based on the WHO standards. For the panel sample only, height-for-age difference was also assessed. The height-for-age difference indicator calculates the absolute difference in centimetres between a child's height-for-age and the reference population's mean height-for-age, without dividing by the reference population's standard deviation of height-for-age. This indicator is based on Leroy, Ruel, Habicht and Frongillo (2014), which notes that looking at changes in the HAZ-score (height-for-age z-score) across child ages (as would be done for the panel sample) can be misleading since the reference population's standard deviation of height-for-age also changes substantially across ages. In both the panel and repeated cross-section samples, additional impacts on the prevalence of stunting (HAZ-score less than 2 standard deviations below the reference mean) and wasting (WAZ-score – weight-for-age z-score – less than 2 standard deviations below the reference mean) are estimated, to assess whether there are impacts specifically in the bottom tails of the distributions.

Affecting height-for-age requires intensive intervention early in life, during the first thousand days. In the context of the N intervention, large changes in IYCF practices over a prolonged period or large changes in the mother's diet during pregnancy *could* have potentially affected a child's height-for-age, for example. However, evidence in all three programmes suggests that the causal chain breaks down prior to this stage in the theory of change – via limited contact between mothers and the N interventions' CNWs and consequent limited improvement in mothers' IYCF knowledge/attitudes, as well as multiple social, economic, individual-level and community-level barriers to the translation of the new knowledge into practice, and resulting lack of behaviour change in terms of improved IYCF practices, particularly in terms of complementary feeding and the consumption of animal-source foods. Not many impacts are seen in other mediating factors either (with the exception of increases in antenatal care). For all these reasons, meaningful impacts on height-for-age would not be expected.

Weight-for-height can be affected over a shorter period than height-for-age. Affecting it nonetheless requires meaningful changes in factors such as diet. For the same reasons described above, given findings presented in previous sections, on implementation, knowledge and practices, meaningful impacts on weight-for-height would again not be expected.

The analysis begins with anthropometric impacts on the repeated cross-section sample (Table 5.1). Children in this sample were aged 0–23 months at the time of the endline survey. All would have been exposed to the N intervention during their first thousand days and afterwards, and for nearly all of these children, exposure to the N intervention included at least some time prenatally. These children could be viewed as having had meaningful exposure to the N intervention during their critical first thousand days of life.

However, there were no significant impact from any of the programmes on the repeated cross-section sample's HAZ-score, WHZ-score, stunting prevalence or wasting prevalence.

Table 5.1: Double-difference impacts on anthropometry indicators of endline index children aged 0–23 months – repeated cross-section sample, by programme						
	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-1.62	-0.05 (0.10)	-1.89	-0.10 (0.10)	-1.21	0.07 (0.09)
Weight-for-height z-score	-0.74	0.04 (0.08)	-0.88	-0.14 (0.09)	-0.54	-0.00 (0.09)
Stunting prevalence	0.39	-0.00 (0.03)	0.51	-0.03 (0.03)	0.27	-0.02 (0.03)
Wasting prevalence	0.13	-0.02 (0.02)	0.15	0.05 (0.03)	0.11	0.01 (0.02)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Results are similar when disaggregated by gender; those for boys are presented in Table 5.2 and for girls in Table 5.3. For neither gender are there significant impacts on anthropometry. Although among EEP Concern boys there are borderline significant estimates indicating reductions in height-for-age and weight-for-height, and increases in wasting, these are unlikely to be meaningful and are most likely are driven by noise, as they are not statistically significant at conventional 5 per cent levels. Findings are consistent with not detecting any significant impacts on diet for either boys or girls in the previous section.

Table 5.2: Double-difference impacts on anthropometry indicators of endline index children aged 0–23 months, boys – repeated cross-section sample, by programme						
	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-1.75	-0.08 (0.14)	-1.95	-0.24* (0.16)	-1.25	-0.01 (0.13)
Weight-for-height z-score	-0.75	0.12 (0.11)	-0.82	-0.27* (0.12)	-0.50	-0.15 (0.13)
Stunting prevalence	0.42	0.01 (0.04)	0.53	-0.03 (0.05)	0.27	0.03 (0.04)
Wasting prevalence	0.16	-0.04 (0.03)	0.14	0.09* (0.04)	0.12	0.03 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 5.3: Double-difference impacts on anthropometry indicators of endline index children aged 0–23 months, girls – repeated cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-1.50	-0.02 (0.14)	-1.83	0.05 (0.13)	-1.17	0.15 (0.13)
Weight-for-height z-score	-0.72	-0.03 (0.11)	-0.94	-0.01 (0.11)	-0.58	0.14 (0.11)
Stunting prevalence	0.35	-0.02 (0.05)	0.48	-0.03 (0.04)	0.27	-0.07 (0.03)
Wasting prevalence	0.11	-0.00 (0.03)	0.15	0.01 (0.04)	0.10	-0.00 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

If repeated the cross-section sample is restricted to children aged 12–23 months at endline, meaning only those that had had at least 12 months of postnatal exposure (in addition to some prenatal exposure, for most) and therefore might have been more likely to have been affected than younger children, there are still no statistically significant impacts on anthropometry (Table 5.4).

Table 5.4: Double-difference impacts on anthropometry indicators of endline index children aged 12–23 months – repeated cross-section sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-1.96	-0.21 (0.14)	-2.31	-0.25 (0.15)	-1.63	0.10 (0.12)
Weight-for-height z-score	-0.85	-0.02 (0.10)	-0.94	-0.08 (0.09)	-0.64	-0.04 (0.11)
Stunting prevalence	0.50	0.02 (0.04)	0.64	0.02 (0.05)	0.38	-0.02 (0.04)
Wasting prevalence	0.13	-0.01 (0.03)	0.14	0.04 (0.03)	0.11	-0.00 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Anthropometric impacts on the panel sample are presented in Table 5.5. Children in this sample were aged 0–12 months at the time of the baseline survey and started receiving the N interventions soon afterwards; thus they were exposed to the N interventions for about 12–23 months postnatally during their first thousand days of life. These children could also be viewed as having had meaningful exposure to the N interventions. The panel nature of the sample furthermore improves statistical power for impact estimation.

However, in the panel sample as well, there are no significant impact from any of the programmes on HAZ-score, height-for-age difference, WHZ-score, stunting prevalence or wasting prevalence.

Table 5.5: Double-difference impacts on anthropometry indicators of baseline index children aged 24–39 months – panel sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-2.02	0.03 (0.10)	-2.52	-0.12 (0.12)	-1.81	0.01 (0.10)
Height-for-age difference	-7.05	-0.02 (0.26)	-8.97	-0.18 (0.33)	-6.37	0.09 (0.28)
Weight-for-height z-score	-0.99	0.05 (0.10)	-0.77	-0.13 (0.12)	-0.84	0.14 (0.10)
Stunting prevalence	0.51	-0.01 (0.04)	0.69	0.04 (0.04)	0.44	-0.04 (0.03)
Wasting prevalence	0.15	-0.01 (0.03)	0.10	0.03 (0.03)	0.14	-0.01 (0.03)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Disaggregating by gender, we again see no meaningful impacts (Table 5.6 and Table 5.7). In all cases, estimates are not statistically significant.

Table 5.6: Double-difference impacts on anthropometry indicators of baseline index children aged 24–39 months, boys – panel sample, by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-2.05	0.03 (0.13)	-2.49	-0.14 (0.14)	-1.80	-0.19 (0.12)
Height-for-age difference	-7.05	0.04 (0.34)	-8.77	-0.17 (0.38)	-6.29	-0.38 (0.35)
Weight-for-height z-score	-1.05	0.17 (0.14)	-0.82	-0.18 (0.15)	-0.85	0.28 (0.13)
Stunting prevalence	0.51	0.02 (0.05)	0.67	0.05 (0.05)	0.45	0.02 (0.04)
Wasting prevalence	0.16	-0.04 (0.04)	0.12	0.06 (0.05)	0.15	-0.03 (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Further variations on the estimation – disaggregating further by age, controlling directly for age in regressions, restricting the sample to children who were stunted at baseline and may have had maximal potential to benefit – also show no meaningful impacts (tables not presented for brevity).

Qualitative evaluation findings suggest that the awareness of undernutrition has improved among the beneficiaries in the L+N, with people being more conscious of the signs and ill effects of undernutrition. Nevertheless, undernutrition was still perceived as 'normal' as most children in the communities showed signs of undernutrition (e.g. being short, suffering repeated illness). Preventing and addressing undernutrition has not become a priority for poor households (as meeting the basic needs and ensuring food security remained the priority).

Table 5.7: Double-difference impacts on anthropometry indicators of baseline index children aged 24–39 months, girls – panel sample by programme

	CLP		EEP Concern		UPPR programme	
	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N	Endline mean L-only	Additional impact L+N
Height-for-age z-score	-1.98	0.03 (0.13)	-2.56	-0.11 (0.18)	-1.81	0.20 (0.13)
Height-for-age difference	-7.05	-0.07 (0.34)	-9.19	-0.18 (0.49)	-6.43	0.55 (0.36)
Weight-for-height z-score	-0.94	-0.07 (0.13)	-0.72	-0.06 (0.15)	-0.83	-0.01 (0.12)
Stunting prevalence	0.52	-0.04 (0.05)	0.71	0.03 (0.06)	0.43	-0.11 (0.05)
Wasting prevalence	0.13	0.02 (0.04)	0.09	0.01 (0.04)	0.12	0.02 (0.04)

Note: Endline mean L-only = mean value of outcome for households receiving the livelihoods intervention only at endline. Additional Impact L+N = additional impact from receiving both the livelihoods and nutrition interventions, relative to livelihoods only. Each cell in 'Additional Impact L+N' reflects the treatment impact from a distinct regression. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

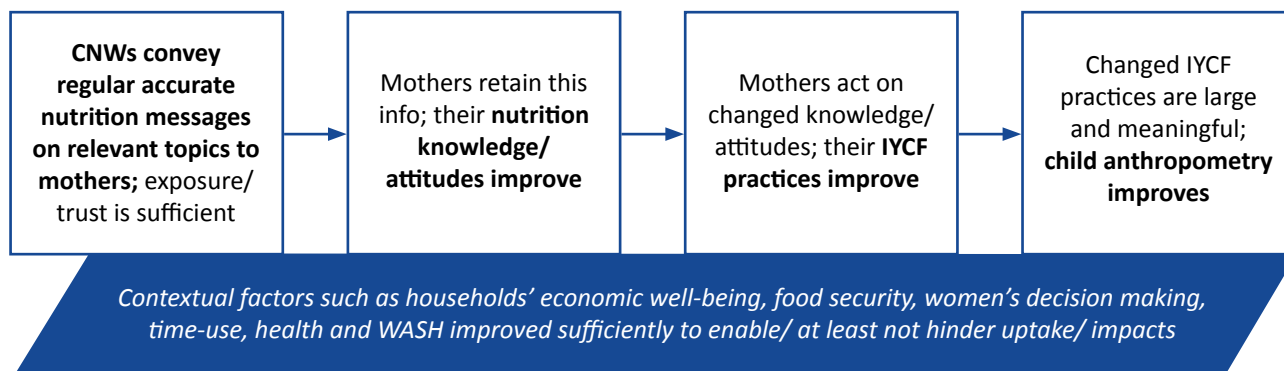
Overall it is concluded that there were no significant added impacts on anthropometry of the L+N component over and above the L component. This finding is consistent with findings in previous sections, following the theory of change. The N intervention provided infrequent contact with CNWs and very little time within visits to discuss important nutrition issues, particularly those related to complementary feeding. As a result, mothers' knowledge and attitudes regarding IYCF, and complementary feeding in particular, did not meaningfully improve. Furthermore, the qualitative evaluation identified multiple context-specific barriers to the translation of new knowledge into practice. Consequently, practices related to IYCF, particularly complementary feeding, also did not meaningfully improve. Given recent evidence on the importance of complementary feeding – and in particular the inclusion of animal-source foods in the diet – for linear growth (Iannotti *et al.* 2014; Semba *et al.* 2016), it is not surprising that there were no significant impacts on anthropometry via this pathway; intermediate outcomes in the causal chain were not affected. There was also limited evidence for alternative potential pathways for anthropometry impacts.

A point worth noting is that information on iron status was not collected in the quantitative evaluation. Given findings that CNWs spent a substantial portion of their visits checking on consumption of the iron supplements, that mothers' knowledge of iron significantly improved because of the N interventions, and that mothers' reported use of iron tablets for their children 0–23 months increased significantly as a result of the N interventions, it is possible that iron status among young children may have in fact improved. Given high rates of anaemia among children in Bangladesh, this result, if found, would reflect an important added impact of the N interventions on child nutritional status.

Putting the findings on iron into the context of the overall evaluation, there are two observations worth making. First, the iron supplements were given directly to mothers by the N interventions, thereby creating minimal additional barriers (in terms of resources, time, intra-household dynamics, etc.) to the translation of mothers' improved knowledge into practice. The increased use of iron tablets may not have been seen if only counselling had been provided, and if tablets needed to be purchased. Second, nonetheless, the topic to which CNWs devoted significant time did translate into improved knowledge. This suggests that increasing the contact time between CNWs and mothers and refocusing its content could lead to broader impacts on knowledge – a necessary (if not sufficient) step in the theory of change. In certain dimensions of IYCF, where knowledge is lacking *and* external constraints to acting on knowledge may be minimal (such as taking supplements that are directly provided, or delaying the introduction of liquids other than breastmilk), intensive counselling from an expert may be effective in improving practice. In other dimensions, where binding constraints limit the extent to which knowledge can be translated into practice, counselling alone may be insufficient for behaviour change and broader changes in nutritional status.

6 IMPACT OF THE LIVELIHOOD INTERVENTIONS

Figure 6.1: Results chain, livelihood interventions



This section presents quantitative and qualitative findings on the impact of the livelihood programmes (without the additional N intervention), compared to receiving no intervention. As described in Annex D, because a suitable control group of non-beneficiaries could be identified and surveyed in the quantitative component only for the UPPR programme, but not for the CLP or EEP Concern, quantitative impacts of the livelihood intervention could be estimated only for the UPPR programme. Therefore, unlike in sections 3–5 of this report, the quantitative and qualitative evaluation findings are presented separately in this section. The two components also concentrated on different aspects of the livelihood intervention and thus provide different insights. The qualitative findings describe the pathway through which the livelihood assets and other services provided by the programmes influenced beneficiaries' well-being. The focus of the quantitative findings is on the impact (or lack thereof) of the livelihood intervention on IYCF, childcare practices and nutritional status.

Because ongoing monitoring and evaluation activities of the programmes focused in particular on their impact on livelihoods, reference is made here to available data and findings of those activities as a further method of triangulation. A full assessment of the robustness of these findings, however, was outside of the scope of this evaluation.²²

6.1 Qualitative findings

6.1.1 CLP

The qualitative evaluation indicated a mixture of perceived effects on household welfare and livelihoods as a result of participation in CLP. The overall benefits were perceived as substantial. However, the direct economic benefits from the livelihood asset the programme provided were perceived as relatively small by several beneficiaries (though there were considerable indirect benefits, which are discussed below). For example, several beneficiaries recounted that selling milk from their cow was not profitable as they received only a low price from the milk collectors (*gwalas*). The reason for this was that local milk collector needed to store the milk for long periods of time and often without sufficient cooling. Consequently, the milk arrived sour at the market and could only be sold at a low price. Selling eggs was similarly unprofitable as the price per egg was low. Many beneficiaries sold eggs only occasionally, to boost household income and to be able to purchase small items such as paper, pens or biscuits. The small profits generated by selling products from the livelihood assets were in most cases managed by the women (i.e. the mothers) and could be used by them to buy food, services and goods for the children.

While beneficiaries welcomed and very much appreciated receiving cows, many beneficiaries feared that the cow would get ill and die (and they would then lose their asset). Cows also relied on fodder and space provided by the beneficiaries, which sometimes could be challenging to organise.

²² In particular, this evaluation was able to draw on an external evaluation of the CLP project (OPM 2016a and 2016b) and internally commissioned analysis of the ongoing monitoring of cohorts carried out by EEP Concern (Mascie-Taylor and Goto 2014), both of which examined overall household welfare improvements and household 'graduation' from a set of criteria representing extreme poverty. There was no similar publication found for the UPPR programme. The CLP evaluation was an independent evaluation led by OPM. Neither evaluation/report was based on external survey data, instead using the data of a rolling survey recruiting from adding additional CLP Cohorts (OPM 2016a, 2016b) or additional NGO partner programmes (EEP Concern).

However, as reported in section 3.1, an indirect benefit resulting from this transfer was that many beneficiaries sold the cows early on and used the cash to lease land, which they perceived as a more secure investment than the cow. Poor and extremely poor households in particular were eager to weaken their complete economic dependency on the elite landowners. Previous studies have highlighted the complex land ownership issues in the *chars* that determine the hierarchy in the rural areas of Bangladesh (Feldman and Geisler 2012; Brandt 2014; Islam and Hossain 2014; Scott 2014, 2015). For beneficiaries, leasing land was a way of to secure their existence in the *chars* and become more independent of landowners. The land was mainly used to cultivate cash crops. Maize and sweet pumpkin were new and more profitable crops that were promoted by several NGOs in the *chars*. Maize, especially, was described as a ‘true money-maker’.

Additional income from the livelihood assets was also used to improve overall living conditions, pay off debts, buy household goods and clothes, and accumulate some savings for unexpected situations and shocks (e.g. ill health). Increased income also made households eligible to apply for loans and microcredit, in order to invest in improvements on their homes and investment in other productive assets.

These wider findings and indirect benefits are consistent with the recent and concurrent evaluation of CLP, which found strong household welfare improvements amongst CLP participants and which is summarised in Box 1.

6.1.2 EEP Concern

Findings similar to those of CLP apply to the EEP Concern programme, where beneficiaries interviewed as part of the qualitative evaluation also saw the overall benefits as high but many of them suggested that the livestock assets (i.e. ducks, cow, goats, hens or bulls) provided by the programme provided little or no *direct* economic benefit to their households (although, again, there were considerable indirect benefits reported). Products (milk, eggs or physical labour) from the assets generated only small additional incomes, owing mainly to difficult access to markets to sell the products and/or low demand. Several households complained about the premature death of their livestock from diseases (especially during the rainy season) or because they fell prey to foxes (hens, ducks) or were swept away by water. Some livestock swam away. The specific environmental conditions of the *haor* basin mean that most of the land is flooded for six to seven months each year. Between 5 and 15 households form clusters that are located on relatively small areas of dry land during the wet periods. Other clusters can only be reached by boat or in some cases by walking through water (although the current can be strong and this causes falls and injuries). Keeping livestock was challenging for many households because dry space was limited during the wet season and this frequently caused conflicts with other cluster households, triggered by damage to the joined courtyards caused by the animals.

Consequently (and again consistent with section 3.1), many beneficiaries decided to sell the livestock early on and re-invested in other productive assets or businesses (e.g. money-lending, making bamboo fish traps, running motorbike or rickshaw businesses). The qualitative data indicate that these households were usually better off than households that kept the livestock provided by the programme. Households that sold the livestock praised the way their new business/assets helped them to diversify their income sources and move from a situation of irregular, insecure income (e.g. work as day labourers) to more regular, secure employment and income. The qualitative evaluation findings also suggest that beneficiaries chose different pathways and approaches to how to use the livestock asset they had received from the programme. Selling the livestock and using the money for assets/businesses of their choice and adapted to their household situation (e.g. husband present or not; children able to help with new business) was important for the improvement of the household’s wellbeing.

The self-help groups set up as part of the livelihood intervention raised many beneficiaries’ awareness of their eligibility for benefits schemes and programmes offered by the Government. The schemes or programmes provided additional income or other benefits to the beneficiary household (e.g. via old age allowances for elderly household members).

It is harder to compare these findings with the small sample of EEP Concern households (n=41) surveyed as part of the ongoing monitoring of EEP Concern (Mascie-Taylor and Goto 2014), though notably, as with the CLP findings, this survey also found a high number of these families now meeting a range of criteria representing ‘graduation’ from extreme poverty.²³

²³ An increase to 73.2 per cent of families from 2.4 per cent when weighted to the 22,500 EEP Concern families and based on graduation criteria including food, poverty, income, assets, nutrition and health status, empowerment, water and sanitation and land access (for further description of criteria thresholds see Mascie-Taylor and Goto 2014).

6.1.3 UPPR programme

In general, it was more difficult (compared to CLP and EEP Concern) to attribute changes in the household's wellbeing to the programme. There were two main reasons: (1) the benefits the households received from the programme varied greatly and included livestock, sewing machines and educational grants; and (2) multiple NGOs and local organisations worked in the same area and also provided support, credit or other services to the beneficiaries. Some beneficiary households described how they used their own initiative to use the support the UPPR programme provided to transform their assets, diversify their income and improve their overall economic wellbeing. Others used grants provided by the programme to start a business or to renovate their house and did not experience any long-term economic improvements.

In one of the qualitative sites (based in Chittagong) the economic wellbeing of households (both of beneficiaries and non-beneficiaries) improved visibly. The reason for the economic upturn was that there were more employment opportunities, overall increased wages, and increased household income because of female employment in the garment industry. Employment in the garment industry had been at a low ebb in 2013 (after the disastrous collapse of the Rana Plaza factory complex outside Dhaka in April 2013, which cost more than 1,100 factory workers their lives). In the few months before data-gathering, the situation improved and both employment opportunities and wages in the garment industry rose again. Furthermore, owing to stricter controls on the garment sector in Dhaka following the Rana Plaza disaster, many factories shifted production to the Chittagong area, where controls were less strict. This led to the creation of a large number of new jobs in the garment industry in several sites included in this evaluation. Additional income generated by the women and adolescent girls resulted in improvements in the economic wellbeing of many households.

Political violence and the change of the political leadership in January 2014 affected the wellbeing of many beneficiary households (who supported the previous Bangladesh Nationalist Party leader) and often resulted in loss of the livelihood assets given by the programme and also reduced access to services (such as access to drinking water) for some.

6.2 Quantitative findings for the UPPR programme

The following analysis of the quantitative impacts of the UPPR's livelihoods intervention proceeds through outcomes following plausible pathways that could have led to effects on child nutrition. One such pathway is through improvements in overall household wellbeing, which might then improve child diet. Another is through improvements in hygiene and sanitation, which could plausibly reduce child illness. Other mediating factors could include women's status (if the livelihoods interventions were to change women's activities such that their status or bargaining power improved, which could in turn affect investments in children) or antenatal care (which could increase if additional resources were available to pay for care, which in turn could affect child outcomes). Results are reported by assessing evidence for the proposed pathways and then by showing impacts on child nutritional status as measured by anthropometry.

For each set of outcomes, both the impact of the livelihoods intervention and the combined impact of the livelihoods and nutrition interventions are reported as compared to no intervention. These address Secondary Objectives 2 and 3 shown in Table 2.2.

As in sections 4 and 5, the focus is on the repeated cross-section sample for the results presented, as this includes the age group most relevant for the majority of outcomes. However, patterns are largely consistent in the panel sample.

Throughout, propensity-score-weighted single-difference impacts are estimated, trimmed to the sub-sample, with meaningful common support in terms of propensity scores. Annex D elaborates on these methods. Single-difference estimates are used because the livelihoods intervention was already in place during the 'baseline' fieldwork of this evaluation. To understand the overall impacts of the livelihoods intervention, double-difference estimates are not appropriate, as they would subtract any differences between the livelihoods beneficiaries and non-beneficiaries that had already emerged by the time of our baseline survey. Propensity score weights are used for comparability between the L-only, L+N and C groups, to account for the fact that the livelihoods intervention was not randomly assigned. Trimming of the sample helps to ensure that only the most similar of the L, L+N and C households are compared. Importantly, this implies that the full sample of L households and L+N households analysed in sections 4 and 5 cannot be analysed here; those that

are too different from the available C households must be omitted from analysis, since there is no available counterfactual for them in impact estimation. This means that the estimated impact of L+N vs L in sections 4 and 5, combined with the estimated impact of L-only vs C in this section, will not add to the overall impact of L+N vs C in this section; the samples referred to are slightly different.

6.2.1 Household wellbeing

Impacts on overall household wellbeing are considered first. As in section 4, these are assessed using household dietary diversity and the BMI of mothers of index children (a proxy for women’s wellbeing, as well as a determinant of children’s nutritional status while *in utero* and during lactation). If the livelihoods intervention were effective in increasing household incomes and resource availability, it would be plausible to expect effects. However, there are no significant impacts on either household dietary diversity (Table 6.1) or mothers’ BMI (Table 6.2), from either L-only or L+N.

Table 6.1: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on household dietary diversity – repeated cross-section sample			
	Endline mean C	Impact L-only	Additional impact L+N
Cereals	1.00	0.00	0.00
White tubers, roots, other starchy food	0.97	-0.01 (0.01)	-0.01 (0.01)
All vegetables	1.00	0.00 (0.00)	0.00 (0.00)
All fruits	0.59	-0.05 (0.03)	0.04 (0.03)
Meat	0.66	-0.06 (0.03)	-0.00 (0.03)
Eggs	0.73	-0.05 (0.02)	-0.02 (0.02)
Fish	0.95	0.01 (0.01)	0.01 (0.01)
Legumes and nuts	0.99	-0.01 (0.01)	-0.01 (0.01)
Dairy (milk, yogurt, cheese)	0.46	0.02 (0.03)	-0.00 (0.03)
Fats and oils	1.00	0.00 (0.00)	0.00 (0.00)
Sugar and sweets	0.75	0.04 (0.02)	-0.03 (0.03)
Spices, condiments and beverages	1.00	0.00 (0.00)	0.00 (0.00)
Household dietary diversity score	10.08	-0.11 (0.08)	-0.02 (0.09)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in ‘Impact L-only’ and ‘Impact L+N’ reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.2: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on women’s BMI – repeated cross-section sample

	Endline mean C	Impact L-only	Additional impact L+N
BMI of mother of index child	22.33	0.19 (0.28)	-0.05 (0.23)
Low BMI (<18.5)	0.19	-0.01 (0.02)	-0.02 (0.02)
High BMI (>25)	0.26	-0.00 (0.03)	-0.04 (0.02)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in ‘Impact L-only’ and ‘Impact L+N’ reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

6.2.2 IYCF practices

Next, the impacts are assessed of the UPPR programme's livelihoods intervention – on its own and combined with the nutrition intervention – on IYCF practices in the trimmed sample. The livelihoods intervention is unlikely to have affected breastfeeding practices or the timely introduction of other liquids as these were not focuses of the intervention, but it had the potential to affect child diets – for example, if receiving an asset or training from the programme helped beneficiaries to increase their income and thus improved the household’s food security and dietary diversity. Given that UPPR’s L component was ‘light’ in terms of directly providing resources – for example, as shown in Table 3.3, only a small share of beneficiaries reported borrowing money or directly receiving grants – and given that no evidence is seen for impacts on household wellbeing, a large change resulting from alleviated resource constraints might not be expected. However, if the N component was effective in shaping behaviour regarding how any additional resources from L were used, the L+N intervention may have had more potential to affect child diets.

As expected, there were no meaningful impacts on practices related to breastfeeding (Tables 6.3 and 6.4) or the introduction of other liquids and solids (Tables 6.5 and 6.6) and the L component alone had no impact on complementary feeding. With the addition of the N interventions in the trimmed sample, there is some indication that child diets may have responded – a small but statistically significant increase (about 6 percentage points) in the share of index children consuming fruits and vegetables not rich in vitamin A – but no impact on minimum dietary diversity, minimum meal frequency or minimum acceptable diet. As also expected, the L component alone had no impact on children’s consumption of iron-rich foods broadly (including supplements) or tablets, syrup, or sprinkles containing iron specifically; but consistent with the findings in section 4, there are highly significant increases in these shares with the addition of the N interventions that directly provide these supplements.

Table 6.3: Propensity-score-weighted single-difference impacts of livelihoods intervention in UPPR programme on WHO IYCF indicators for breastfeeding practices – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Exclusive breastfeeding (0–5 months)	0.76	-0.08 (0.06)	0.04 (0.05)
Predominant breastfeeding (0–5 months)	0.85	-0.05 (0.04)	0.03 (0.04)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in ‘Impact L-only’ and ‘Impact L+N’ reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.4: Propensity-score-weighted single-difference impacts of livelihoods interventions in UPPR programme on other indicators of breastfeeding practices – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Only breastmilk given to the baby in the first 3 days after birth	0.74	0.02 (0.03)	0.06 (0.03)
Colostrum was given to the baby	0.98	-0.01 (0.01)	0.01 (0.01)
Breastfed the child until at least age 4 months	0.98	-0.00 (0.01)	0.01 (0.01)
Breastfed the child until at least age 6 months	0.98	0.00 (0.01)	0.01 (0.01)
Breastfed the child until at least age 12 months	0.97	-0.02 (0.01)	-0.00 (0.01)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.5: Propensity-score-weighted single-difference impacts of livelihoods intervention in UPPR programme on WHO IYCF indicators for introduction of solid/semi-solid/soft foods – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Introduction of solid/semi-solid/soft foods (6–8 months)	0.86	-0.03 (0.03)	0.01 (0.02)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.6: Propensity-score-weighted single-difference impacts of livelihoods interventions in UPPR programme on other indicators of timely introduction of water, liquids, and solids – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Gave water before the child was 6 months old	0.42	-0.02 (0.04)	-0.09* (0.04)
Gave other liquid before the child was 6 months old	0.20	0.03 (0.03)	-0.03 (0.03)
Gave solid food before the child was 6 months old	0.01	-0.00 (0.00)	-0.00 (0.01)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.7: Propensity-score-weighted single-difference impacts of livelihoods interventions in UPPR programme on WHO IYCF indicators and component indicators for complementary feeding – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Minimum dietary diversity (6–23 months)	0.24	-0.04 (0.03)	0.02 (0.03)
Minimum meal frequency (6–23 months)	0.50	-0.02 (0.04)	0.04 (0.04)
Minimum acceptable diet (6–23 months)	0.20	-0.03 (0.03)	0.02 (0.04)
Consumption of iron-rich/ iron-fortified foods (6–23 months)	0.60	-0.02 (0.04)	0.11*** (0.03)
Grain, roots or tubers	0.71	-0.02 (0.02)	-0.02 (0.02)
Beans, legumes or nuts	0.27	-0.01 (0.03)	0.03 (0.03)
Dairy	0.21	0.01 (0.03)	0.00 (0.03)
Meat, offal, fish	0.33	-0.02 (0.03)	0.05 (0.03)
Eggs	0.21	0.00 (0.03)	0.03 (0.02)
Vitamin-A-rich fruits or vegetables	0.27	0.02 (0.03)	0.03 (0.03)
Other fruits or vegetables	0.09	-0.01 (0.02)	0.04** (0.02)
Number of meals	3.42	-0.13 (0.16)	0.04 (0.17)
Any iron-containing tablet/syrup/sprinkles	0.01	-0.01 (0.00)	0.18*** (0.02)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Each cell in 'Impact L-only' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

6.2.3 Hygiene and sanitation

Table 6.8: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on sanitation – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Has access to water source	0.96	-0.00 (0.01)	0.00 (0.01)
Safe source of drinking water	0.96	-0.01 (0.01)	-0.00 (0.01)
Sanitary latrine	0.65	0.10 (0.05)	0.07 (0.04)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Next the impacts on access to sanitation and safe water are assessed (Table 6.8). Given that the UPPR's livelihood intervention aimed to provide clean water and sanitation facilities through the Settlement Improvement Fund, impacts are plausible here. In the control group, access to a water source and safe drinking water were already high, according to measures in the quantitative data (although the qualitative

data suggest some decline in access to safe water during the rainy season when the flooding of latrines and waste water drainage is common), leaving little potential for impact in these dimensions. On access to sanitary latrines, however, which was only 65 per cent in the control group, there was no statistically significant impact either from L alone or from the combined L+N. Notably Table 3.3 shows that only about a quarter of UPPR livelihoods beneficiaries received subsidies to build a latrine, which may explain the lack of statistically significant impacts.

6.2.4 Child illness

Reports on impacts on illness (Table 6.9). Given no significant changes in hygiene and sanitation from either L or L+N, as well as no evidence of improvement in overall household wellbeing or child diet, significant changes in illness levels should not be expected. Although the prevalence of reported illness was fairly high (with about 34 per cent of control children suffering from fever in the two weeks preceding the survey), no meaningful impacts on this were detected.

Table 6.9: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on child illness – repeated cross-section sample			
	Endline mean C	Impact L-only	Impact L+N
In the last 2 weeks, has the index child suffered from fever?	0.34	0.06 (0.04)	0.04 (0.04)
In the last 2 weeks, has the index child suffered from coughing/a cold?	0.50	-0.01 (0.04)	-0.04 (0.04)
In the last 2 weeks, has the index child suffered from fast breathing/shortness of breath?	0.02	0.17 (0.14)	-0.00 (0.01)
In the last 2 weeks, has the index child suffered from diarrhoea?	0.07	0.15 (0.14)	-0.02 (0.01)
Was the index child ever treated in a health centre or hospital because he/she was malnourished	0.05	0.01 (0.01)	0.01 (0.01)
Proportion of household members who have been sick in the last 30 days	0.28	-0.00 (0.00)	-0.00* (0.00)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

6.2.5 Evidence regarding other mediating/moderating factors

Now the impacts of the UPPR livelihood intervention are assessed - on their own and combined with the nutrition intervention – on other factors that mediate or moderate anthropometric impacts in the trimmed sample.

First impacts on women's status are looked at, including their participation in intra-household decision-making about how money is spent and whether they are allowed to go out independently. Women's roles in decision-making on expenditure could plausibly change if the L component caused meaningful shifts in gendered control over resources – for example, if a large share of women used block grants to start businesses and then controlled the proceeds. However, Table 3.3 indicates that only a small share of beneficiary households received these block grants. Indeed, there is no significant impact (Table 6.10) from L-only or L+N on the proportion of mothers reporting that they participate either solely or jointly in decision-making regarding household expenditure (including on food and health, which may be relevant to nutritional status) and also no significant impact on the proportion of mothers reporting that they themselves control the money needed to purchase items (including food from the market and medicine for themselves).

Table 6.10: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on women's decision-making on expenditure – repeated cross-section sample			
	Endline mean C	Impact L-only	Impact L+N
Index child's mother participates solely or jointly in decisions on how to spend money on...			
food	0.55	0.00 (0.04)	0.02 (0.04)
housing	0.54	-0.00 (0.04)	0.02 (0.04)
health	0.56	0.04 (0.03)	0.07 (0.04)
education	0.36	0.06 (0.03)	0.08* (0.03)
clothing	0.59	0.00 (0.03)	0.05 (0.03)
Index child's mother herself controls the money used to purchase...			
food from the market	0.58	-0.02 (0.04)	-0.04 (0.03)
clothing for yourself	0.58	0.02 (0.04)	0.02 (0.03)
medicine for yourself	0.59	0.03 (0.04)	0.02 (0.03)
toiletries for yourself	0.61	0.02 (0.04)	0.02 (0.03)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

There is a small but statistically significant increase in women having a voice in decisions regarding where they can go alone (Table 6.11). Plausibly this could arise from the predominant involvement of women in the primary groups that constituted the CDCs; members of these groups may have required the freedom to determine their own movements. Although differences in impact between the L-only and L+N groups do not appear to be meaningful, effects on decisions about mobility appear broadly from the L-only intervention, while the addition of the N interventions appears to show strongest impacts on mobility regarding hospital/ clinic/doctor visits or NGO training sessions – dimensions that may have been especially relevant to the N interventions.

Table 6.11: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on women's decision-making on their own mobility – repeated cross-section sample			
	Endline mean C	Impact L-only	Impact L+N
Mother of index child is involved in decision-making regarding whether she can go alone to...			
visit friends	0.65	0.06** (0.03)	0.05 (0.03)
haat/bazaar	0.58	0.07** (0.03)	0.05 (0.03)
hospital/clinic/doctor	0.65	0.08** (0.03)	0.10*** (0.03)
cinema/fair/theatre	0.33	0.05* (0.04)	0.03 (0.04)
training for NGO/programmes	0.37	0.09** (0.04)	0.10** (0.04)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Impacts on pregnant women’s exposure to antenatal care are presented in Table 6.12. The UPPR’s livelihood intervention did not relate directly to antenatal care, and no evidence was reported above of meaningfully relaxed resource constraints that might induce people to pay for antenatal care; therefore meaningful impacts should not be expected. Indeed, results show no significant impacts from the livelihoods intervention on women’s use of antenatal care, other than a reported increase in the number of weeks they got additional food during their pregnancy (likely to be statistical noise, given how small a sample reported participating in a feeding programme at all). However, consistent with the results in section 4, within this trimmed sample, there are some meaningful effects of adding the N component – in particular, in terms of receiving advice on what to eat during pregnancy (an increase of about 15 percentage points) and how to cook during pregnancy (an increase of about 12 percentage points).

Table 6.12: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on pregnant women’s antenatal care – repeated cross-section sample			
	Endline mean C	Impact L-only	Impact L+N
How many antenatal care sessions did you attend when you were pregnant with this child?	4.01	0.23 (0.25)	0.50** (0.23)
During your pregnancy with this child, how often was your weight measured?	3.21	-0.24 (0.18)	-0.10 (0.17)
Did you participate in any feeding programme during your pregnancy with this child?	0.01	0.02 (0.01)	0.01 (0.01)
For how many weeks did you get the additional food?	1.73	1.75*** (0.00)	-2.53* (1.29)
Were you advised on what to eat during pregnancy?	0.55	0.03 (0.05)	0.15*** (0.04)
Were you advised on how to cook your food during pregnancy?	0.34	0.06 (0.05)	0.12** (0.04)
Were you advised on what to eat and how to cook your food during pregnancy?	0.28	0.07 (0.05)	0.13** (0.05)
How many tetanus toxoid (TT) vaccinations did you have during your pregnancy with this child?	0.58	-0.01 (0.04)	0.01 (0.04)

Note: Endline mean C = propensity-score-weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in ‘Impact L-only’ and ‘Impact L+N’ reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

6.2.6 *Child nutritional status*

Finally, the impacts of the UPPR livelihoods intervention were estimated – on their own and combined with the nutrition intervention – on child anthropometry in the trimmed sample. Given few meaningful impacts on factors that affect anthropometry, limited impacts on these outcomes might be expected.

Indeed, there are no significant impacts on anthropometric outcomes from either the L-only intervention or the combined L+N intervention, relative to the control group in the trimmed sample. The pattern is the same for both the repeated cross-section sample of children who were exposed during the earliest part of the first thousand days (Table 6.13) and the panel sample of children who were older when initially exposed but were potentially exposed for a longer duration (Table 6.14).

Table 6.13: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on anthropometry of children aged 0–23 months at endline – repeated cross-section sample

	Endline mean C	Impact L-only	Impact L+N
Height-for-age z-score	-1.28	0.12 (0.07)	0.04 (0.08)
Weight-for-height z-score	-0.50	-0.10 (0.08)	-0.01 (0.07)
Stunting	0.32	-0.05 (0.03)	-0.04 (0.02)
Wasting	0.12	-0.01 (0.02)	-0.02 (0.02)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

Table 6.14: Propensity-score-weighted single-difference impacts of interventions in UPPR programme on anthropometry of children aged 24–39 months at endline – panel sample

	Endline mean C	Impact L-only	Impact L+N
Height-for-age z-score	-1.83	-0.02 (0.09)	0.07 (0.09)
Height-for-age difference	-6.35	-0.16 (0.32)	0.16 (0.33)
Weight-for-height z-score	-0.71	-0.14 (0.08)	0.04 (0.10)
Stunting	0.45	-0.01 (0.03)	-0.04 (0.04)
Wasting	0.09	0.05 (0.02)	0.02 (0.02)

Note: Endline mean C = propensity score weighted mean value of outcome for households in the control group at endline. Impact L-only = impact from receiving the livelihoods interventions, relative to the control group. Impact L+N = impact from receiving the livelihoods and nutrition interventions, relative to the control group. Each cell in 'Impact L-only' and 'Impact L+N' reflects the treatment impact from a distinct regression. Propensity score weights are used for comparability between the L-only, L+N, and C groups. The sample is trimmed to propensity scores between 0.10 and 0.90 for common support. Standard errors adjusted for clustering at PSU level are in parentheses. * = significant at the 10 per cent level; ** = significant at the 5 per cent level; *** = significant at the 1 per cent level. Statistical significance adjusted for multiple testing using sharpened two-stage q-values.

6.3 Summary – qualitative findings for all three interventions and quantitative findings on the impacts of UPPR interventions

6.3.1 Qualitative findings on the pathways through which the livelihood programmes influence household well-being

The qualitative findings identified different pathways through which the livelihood interventions influenced the economic wellbeing of beneficiary households (especially in the CLP and EEP Concern, though less so in the UPPR programme, where only a few individual households received assets). The beneficiaries appreciated the livestock assets they received, although the direct economic benefits these assets generated (e.g. money from selling milk or eggs) were often of low monetary value. Many beneficiaries sold the asset early on and successfully reinvested the proceeds in other productive assets of their choice and most suitable for the conditions of their household. This is generally consistent with the analysis of CLP and EEP Concern's own survey findings, which have been considered here (OPM 2016a, 2016b; Mascie-Taylor and Goto 2014).

Box 1: The impact assessment of Phase II of the CLP (CLP-2), June 2016

This impact assessment reviewed both the effectiveness of CLP-2 in achieving its objectives and the sustainability of its impact. The assessment focused its efforts in the areas of graduation, poverty, livelihoods, sustainability and efficiency. Graduation out of poverty was a key objective of CLP-2, and the proportion of households that moved out of extreme poverty was about 90 per cent (or 13,000 people); asset poverty decreased by 36 per cent after one year of the programme. Exposure to severe floods and erosion prevented households from benefiting fully, although the severity of these shocks was mitigated by household plinths or grants to counteract erosion, and the household strategies used to cope with shocks improved, pointing to sustainability.

The household characteristics that were found to hinder impact were high dependency ratios, female household headship, many daughters of marrying age, and high levels of debt. Factors that supported impact were diversification of household income, low dependency ratios, access to loans, reinvestment of savings in productive assets, and positive intra-household dynamics with joint work to manage assets and incomes. Levels of cash savings were low: savings were seen as a way of acquiring the means to invest in assets that were productive but easily liquidated. For most households, cash savings increased with the total value of assets held though those of female-headed households did not increase, but the total value of assets continued to expand.

The importance of cash to store value decreased, with households preferring to store value in assets, land in particular.

Demand-side interventions increased the volume and diversity of agricultural output, supporting female participants. Women typically do not visit markets on the mainland, but on the *chars*, they are now actively engaged in visiting traders or markets. The status of women has improved within households, with regard to participation in decision-making: women participated in decisions about activities outside their household without necessarily having the final say, and also actively engaging outside their houses. Selling assets directly to women increased female empowerment, allowing women to earn income. Households invested in assets controlled by men. There were changes in the level of political empowerment; *char* dwellers now face less stigmatisation from outsiders, engaging with local government and law enforcement support.

In terms of targeting, low levels of inclusion error were found, with over 90 per cent of all participants' households being extremely poor at baseline. CLP-2 was cost-effective, as the increase in household income substantially outweighed costs. However, CLP-2 was less cost-effective than other livelihood programmes in Bangladesh, partly because of its sizeable infrastructure development and operations in very remote and poor areas. Overall, the improvements brought about by CLP were sustainable for households.

Source: Based on OPM (2016a).

6.3.1.1 Interpreting these findings in understanding household welfare constraints on nutritional impacts

Interpreting these findings in the light of earlier sections of this report is difficult without being able to triangulate with the stronger evidence available from this evaluation's own external survey data, as has been the case in other sections. Additionally, although survey data have been reported here for the UPPR programme, the UPPR L model and context are sufficiently different from the CLP and EEP Concern contexts as to make it impossible to use UPPR data to draw conclusions applicable to the other programmes.

Drawing solely on the qualitative data and on the external sources consulted, it appears that the CLP and EEP Concern programmes might well have had the potential to raise household incomes and improve overall welfare, but not to the extent that any increase in income or assets, (for example) was translated into enabling people to make choices that would improve child nutritional outcomes. Indeed, mothers reported economic barriers to, for example, purchasing a greater diversity of foods (see section 4). Notably, however, these economic barriers were reported alongside other barriers presented by time use, access to markets (both mothers' ability to travel off the *chars* and infrastructural/geographical proximity);

competing purchasing power, social norms and mothers' power over decision-making. This is consistent with the findings of the CLP evaluation (OPM 2016a, 2016b) therefore, which balances findings on increased voice and choice of women with continued lack of access to markets and a tendency in some cases for the proceeds of assets transferred to women to be reinvested in those which fall under men's control (though this is not necessarily to the detriment of household welfare and security but it does imply a weakening of women's direct control). Roy *et al.* (2015), reporting on findings from survey data of BRAC's Targeting the Ultra-Poor programme in Bangladesh, note that women's control over resources, their own mobility and household income is similarly reduced when new investments are made in men's assets using proceeds from the original asset transferred to women.

A possible avenue for further research, therefore, would be to interpret the reported economic barriers to behaviour change found by the qualitative evaluation in this light; i.e. if it is assumed that overall household assets have increased, in line with the CLP evaluation (*ibid.*), then this suggests that further addressing women's continued control of these transfers and their reinvestment; their access to markets; and their ability to counter these wider social norms (i.e. time use, freedom of movement and decision-making) deserve more focus in a future design prioritising child nutrition, alongside the intensive BCC support emphasised in other sections. An interesting question then would be whether productive assets or cash are most beneficial to women in terms of purchasing control relating to nutrition; or whether the wider benefits of productive assets would enable households to build resilience. The relative contribution of the asset or cash to future income generation could also be assessed. Notably, wider evidence from Bangladesh again reveals the importance of effective and intensive behavioural change support to back up whatever design is chosen – in the TMRI trial (comparing both the food + BCC and cash + BCC arms against a food transfer; a cash transfer and a combined food/cash transfer – see section 7.3.2); the most significant improvements in children's dietary diversity were detected in those arms combining food/cash with BCC (only legume consumption increased in the non-BCC arms). The greatest gains, including, uniquely, improvements in child height, were detected in the cash + BCC arm).

6.3.2 Quantitative findings for UPPR programme

An important caveat in these results is that, because the UPPR livelihood intervention was not randomised, evaluating its impacts against a control group relies on only the trimmed sub-sets of the overall L-only and L+N samples that are similar enough to a trimmed sub-set of the available control group. Findings may not generalise to the full samples of L-only and L+N households analysed in sections 4 and 5.

Bearing that in mind – within the sample that can be analysed – the UPPR livelihood intervention had no significant impacts on child nutritional status. Some plausible pathways via which the UPPR livelihoods intervention could have had effects on child nutrition include improvements in overall household wellbeing, which might then have been mobilised to improve child diet, and improvements in hygiene and sanitation, which might then have reduced child illness. There were no significant impacts found on household wellbeing, hygiene/sanitation or child illness, and though there were some borderline significant impacts reported on child dietary diversity from the combined L+N intervention, these are not meaningful at conventional levels. There is also no meaningful evidence that the L interventions had an impact on nutrition via other pathways – including via greater participation in intra-household decision-making by women (there are significant impacts on their decisions regarding their own mobility, but not regarding household expenditure, including on food and health) or via greater use of antenatal care among pregnant women, etc. These results are largely consistent with what was seen in terms of exposure to the UPPR livelihoods intervention; Table 3.3 shows that there was relatively light provision of direct benefits that might have affected these factors. Taken together, results suggest that – within the analysis sample – the UPPR livelihoods intervention did not itself meaningfully improve child nutritional status, and also may not have provided sufficient resources for households to make use of the nutrition component; in other words, L+N households could not readily act on the advice they had been given by CNWs, because their resource constraints had not been alleviated.

7 COST-EFFECTIVENESS ANALYSIS

7.1 How did the programmes perform on economy and efficiency?

7.1.1 Cost categories, drivers and unit costs

For economy, Table 7.1 summarises across all three programmes the approximate total number of households reached, the total spend on livelihood activities, the total spend on nutrition activities and the average annual nutrition cost-per-beneficiary figures. The total number of households reached was estimated by the programmes internally. This involved counting the cumulative number of direct beneficiaries, excluding wider family members, in order to avoid double-counting (as the wider set of family members targeted would be in the same households as the direct beneficiaries). It must be noted that the household numbers increased each year for the UPPR programme and CLP, reflecting the time taken to set up these programmes. For EEP Concern this annual tally of beneficiary numbers was not available. It must also be noted that the beneficiary numbers reported to the evaluation are only as good as the monitoring and reporting systems in place; thus there are data limitations here.

The average annual cost-per-beneficiary figure is useful for understanding the relative costs of each programme in order to make comparisons. For the UPPR programme and CLP this is estimated by calculating a cost per beneficiary for each year and taking an average. For EEP Concern it is estimated by dividing the total cumulative number of beneficiaries by the total programme expenditure, because annual beneficiary figures were not available.

The average annual cost-per-beneficiary figures for EEP Concern, CLP and the UPPR programme are £10.00, £8.00 and £6.00 respectively. EEP Concern has been the most expensive, and this largely reflects its more difficult geographic context. The UPPR programme had the lowest cost per beneficiary.

Programme	Total actual spend for livelihoods	Total actual spend (and some forecasts) for nutrition	Average nutrition cost per beneficiary per year	Cumulative number of beneficiaries reached over the total programme duration ^a
CLP	£14,004,914 ^b	£2,011,042 (July 2012 to June 2015)	£8.20	81,233
EEP Concern	£3,235,223	£336,593 (Sept 2012 to Dec 2015)	£10.40	10,800
UPPR programme	£ 9,093,880	£3,596,095 (2007 to 2014)	£5.90	253,905

^a Provided directly by the programmes. The household numbers were not constant from year one; they were on an upward trajectory.

^b Budget of the Livelihoods component as defined by Maxwell Stamp (likely to omit other components such as social mobilisation, water and sanitation).

EEP Concern and CLP spent 57 per cent and 42 per cent respectively of their total programme expenditure on staff, whereas the UPPR programme spent 69 per cent of its total budget on staff. EEP Concern, CLP and the UPPR programme spent 15 per cent, 18 per cent and 20 per cent respectively of their total programme expenditure on commodities. Staff and commodities are therefore the key cost drivers; thus even small changes in these costs impact significantly on the cost economy of the programme. In other words, if resources are invested more heavily in staff or commodities, this will impact on the final cost figures. Moreover, these costs are mostly variable costs, implying low potential for economies of scale and scope in this type of programming.²⁴

Table 7.2, below, indicates the cost-per-beneficiary figure for each year for CLP and the UPPR programme. As can be seen, they decline for both programmes over time, indicating an element of fixed costs: the cost of setting up accommodation, overheads for management overheads, etc. However, as explained above,

²⁴ Economies of scale occur when average costs fall as the number of outputs within one activity or purpose increase; economies of scope occur when average costs fall as the number of different activities or purposes increase.

the main costs are for staff and commodities; i.e. not variable costs. The declining cost-per-beneficiary figures, as seen in Table 7.2, can therefore perhaps be explained by reductions in inefficiencies as the programme matured.²⁵

Programme	Year 1	Year 2	Year 3
CLP ^a	10.7	7.8	6.3
UPPR	10.7	4.6	2.3

^a There is a slight mismatch in dates of expenditure and dates of beneficiary numbers, so these figures are approximate.

7.1.2 *On time and on budget?*

None of the programmes ran on time or on budget, according to the expenditure data they provided. All three programmes had first and second-year budget deviations ranging from 28 per cent to -45 per cent; i.e. underspend of between 28 per cent and 45 per cent. Two reasons were given for this. Firstly, there was an underspend of 60 per cent on commodities in years one and two as a result of overly high forecasts for MNP (commodities comprise 16 per cent of the total budget). In addition, for EEP Concern in particular cost savings were made in procurement, with lower than expected prices resulting.

Secondly, for EEP Concern there was an underspend on nutrition workers of 10 per cent in Year 1 and 13 per cent in Year 2. CNWs accounted on average for a quarter of the total budget, so are important cost drivers. Some of this may be due to the turnover of nutrition workers reported in section 3.2. In addition, the contract started in July 2013 but CPK recruitment was delayed until December 2014, which explains the substantial underspend.²⁶

7.1.3 *Management arrangements*

Table 7.3 indicates the management overhead costs for each programme. As can be seen, CLP allocated the highest percentage to these overheads. However, all the percentages fall below a rough standard upper benchmark of 20 per cent, used generally by evaluators, indicating that all show reasonable VfM for this particular measure.

Programme	
CLP	15% (Maxwell Stamp)
EEP Concern	6% (Concern Worldwide)
UPPR	9%

7.1.4 *Recruitment*

As discussed in section 3.2, the data suggest that recruitment has generally been good. The three programmes seem to have largely overcome any recruitment problems reported at the beginning of the programme; by the endline they had generally met their own qualifications criteria for recruitment (although with some surprising reliance on male staff) and were not experiencing excessive problems with turnover. CNW knowledge of appropriate IYCF practices was assessed as high at the endline.

7.1.5 *N inputs received, as reported by beneficiaries*

As explained in detail in section 3.2 of this report, most mothers reported receiving both supplements and household visits, and the household visits included counselling on a number of relevant topics. However, issues highlighted at the endline related not so much to the non-delivery of counselling highlighted earlier in the process evaluation (although this was still reported in a number of cases – notably nearly 21 per cent of EEP Concern and 33 per cent of UPPR beneficiaries reported not receiving a visit in the last 12 months) but to the duration and content of the sessions. These were reported to be short and to cover too many topics, which limited the time available for discussion of any one topic, particularly the time spent on complementary feeding (when compared to that spent on breastfeeding).

²⁵ There are also problems with data quality, particularly for the UPPR programme, owing to sub-standard monitoring and reporting, so these figures are only indicative.

²⁶ Source: EEP programme staff in key informant interviews and email exchanges during primary budget data collection.

7.2 How did the programmes perform on effectiveness and equity?

7.2.1 *Headline findings for effectiveness and equity*

The wider evaluation reports in detail on the findings on outcomes. In summary, there were no changes found in anthropometric outcomes and the following moderate behaviour changes were found when comparing L+N to L-only:

- In terms of outcomes with regard to mothers' knowledge and attitudes and IYCF, findings show that the impact of the N-intervention on caregivers' IYCF knowledge and attitudes was limited, except for their awareness of the value of iron. There was evidence of greater intake of iron (though mainly due to free supplements)
- Significant change with regard to the timely introduction of drinks/food other than breastmilk, although the proportion of infants that received supplementary feeding before six months of age remained high
- No significant impacts from any of the programmes on dietary diversity of the child
- No significant changes in wider determinants except for antenatal care and participation in feeding programmes.

On the whole, findings on equity are positive, as the Baseline Report (Roy *et al.* 2015) confirms that the beneficiaries were both households with a high aggregate level of stunting and poverty. This equity may have been undermined by some of the potential targeting errors reported in section 3.1.

7.3 What does the wider empirical evidence state, and how can we learn from this?

In order to assess whether the interventions being evaluated here are cost-effective, it is useful to have an understanding of the outcomes that could be expected from each intervention on the basis of the literature available on Bangladesh, as well as some measure of what constitutes successful implementation. This sub-section summarises two recent interventions that have followed similar community-based models and that have been rigorously evaluated and found to have had positive results on similar outcomes on IYCF and anthropometry.

7.3.1 *Alive & Thrive*

Alive & Thrive is a multi-year initiative which aims to reduce child stunting and death caused by suboptimal IYCF practices in three countries (Vietnam, Bangladesh and Ethiopia) over a period of six years (2009–14, see Saha *et al.* 2015). In Bangladesh, Alive & Thrive was implemented by BRAC at a community level on top of an existing programme that provided maternal and child health support. This existing programme already employed a cadre of health workers and volunteers who delivered community-based health support via group counselling and some individual counselling, which included some IYCF support. The Alive & Thrive package developed for Bangladesh consisted of a combination of four activities: intensified interpersonal counselling on IYCF (a series of eight structured home visits from late pregnancy until children reached two), mass media, community mobilisation and policy advocacy.

As part of a trial, this approach was randomly assigned to intensive and non-intensive areas; both areas were assumed to benefit from policy advocacy and mass media, given the nature of those interventions. Intensive areas included the community mobilisation and more intensive counselling interventions, while the non-intensive area had no community mobilisation and the standard wider health support already part of the existing BRAC package of health support.

The main findings of the trial were that IYCF practices improved substantially over time, and improved more in intensive areas than non-intensive areas. Compared to the 2010 baseline survey, improvements practices that are attributable to the Alive & Thrive intensive package of interventions were seen in several key IYCF practices. Specifically, large significant impacts were seen in two key breastfeeding indicators, complementary feeding, mothers' IYCF knowledge and several behavioural determinants along the intended pathway of change.

There was no significant difference found in the stunting between the two areas (although both areas had seen significant improvements in stunting during this period, mostly likely due to wider improvements in known determinants of stunting over time).

7.3.1.1 Policy implications

It can be concluded from this evidence that the presence of community mobilisation and home counselling focusing specifically on IYCF behavioural change (on top of mass media and policy advocacy) gives rise to better IYCF behavioural outcomes than the standard health support provided (with minimal IYCF topics and without a dedicated nutrition worker) combined with mass media, but not to more positive anthropometric outcomes. It is not possible to isolate which of the two factors is driving the higher outcomes – i.e. whether it is community mobilisation or more intensive home visits or the combination of the two.

7.3.2 Transfer Modality Research Initiative (TMRI)

7.3.2.1 Programme and research summary

TMRI is a research initiative investigating the impact of five alternative safety net modalities on income, food security and child nutrition in the northwest and southern regions of Bangladesh (see Ahmed *et al.* 2016, Ahmed *et al.* 2014). Some of the safety nets are conditional on participation in nutrition education programmes at the household and community level.

These programmes consisted of carefully designed, high-quality weekly group-oriented nutrition education, followed up by home visits. The nutrition workers were well trained, with a tightly focused curriculum emphasising core messages. The community focus involved other household members including husbands/mothers-in-law and other community leaders.

The motivation behind this research was to determine which types of transfer – cash, food or a combination of the two – make safety net programmes most effective at improving livelihoods, food security and child nutrition among the poor in Bangladesh. More importantly, the evaluation also explored whether entitlements made contingent upon participation in nutrition education result in better anthropometric outcomes, complementary feeding outcomes and behavioural changes in the long run.

7.3.2.2 TMRI Impacts due to BCC components

The results have been very positive in terms of the impacts of the BCC components. In terms of anthropometric status, the study found that in the north the cash+BCC arm had a statistically significant impact on reducing chronic undernutrition. It achieved almost three times the national average over the same time period. No other modality in the north and no modality in the south had any impact on chronic undernutrition.

The findings also demonstrated that the specific BCC components of the TMRI had large, statistically significant impacts on maternal knowledge regarding nutrition and related care practices, compared to the cash and food-only arms, which had no effect on these outcomes.

In terms of whether mothers are able to act on this knowledge, the study found that the two BCC treatment arms improved hygiene practices and the appropriate introduction of liquids and complementary foods, whilst the food-only, cash-only, and food+cash transfers generally had little impact on the diversity of children's diets. Only when transfers were combined with nutrition BCC were impacts observed on the consumption of non-staple foods. These impacts were large and statistically significant.

Similarly, the BCC treatment arms increased maternal knowledge and the use of micronutrient powders, but again these effects were larger in the north, where the BCC was twinned with cash, than in the south, where it was twinned with food.

7.3.2.3 Specifics of design

The programme invested heavily in the training of nutrition workers, with clear positive results. A concerted effort was made to address the approach trainers were taking in presenting the subject matter and interacting with female participants. In June 2012, more CNWs were hired and trained, supervision tools were revised and refresher courses were mandated for existing CNWs and field officers to improve their own nutritional knowledge and facilitation skills. Subsequently, the nutrition BCC component continued to show improvements each month. And as a result, programme staff noticed a stark difference between participants who received nutrition BCC training and those who did not. Participants in training sessions tended to be more informed on nutritional concepts and the purpose of the overall TMRI study. They also adapted more readily to mobile phone cash transfers, presumably because they were more accustomed to training.

7.3.2.4 TMRI policy implications

The salient features of the BCC components were that there was a very heavy investment in training, very low ratios of CNWs to households (at one point it was 1:15, suggesting a much lower caseload and more time for intensive and adaptive messaging) and a very high frequency of home visits. Unlike the programmes evaluated here, TMRI had a community mobilisation component within the overall package, which increased the exposure of mothers and others to wider messaging rather than just leaving them to absorb it from home visits.

Whilst it is clear that large and significant effects depended on the addition of the BCC elements of the programme, it is not as clear which key factors in the programme design drove the positive results. This could have been some or all of the following:

- the combination of multiple channels of communication, including regular individual and group counselling, as well as social mobilisation
- the presence of social mobilisation *per se* within the high-quality and tightly focused curriculum
- the presence of weekly peer-group counselling (was it the group counselling *per se* or the weekly contact that was the driver and/or did they have a reinforcing effect in terms of knowledge uptake?)
- the higher intensity of the home visits – a frequency of twice a month, so the high degree of contact as the main driver
- the high-quality and carefully designed training
- the presence of cash transfers instead of other livelihood-type interventions in combination with BCC
- or some combination of all of the above.

It was clear from the evaluation that some important dynamics shifted for women through the BCC overall (including their social status/inclusion, the level of respect afforded to them within the household, self-esteem, outspokenness, etc.), and the group focus could have played an important role in this, although this cannot be concluded with certainty.

It is evident from the cost-per-beneficiary figures that TMRI was a resource-intensive programme. The BCC component cost per household per year was £43.00. This on top of the cash transfer indicates that it is a high-spend programme. Notwithstanding its positive outcomes and the results observed, it is not possible to judge whether the programme offered good VfM; this depends on which particular activities were driving the results, and whether such results could have been achieved at a lower cost.

Other literature (Bhutta *et al.* 2013) suggests that BCC nutrition interventions targeting specific IYCF practices (e.g. breastfeeding and complementary feeding practices) can have significant impacts on child nutrition outcomes, feeding patterns and mothers' behaviours. The Alive & Thrive evidence points to a more extensive and comprehensive approach of conducting mass-media campaigns in addition to providing household-level counselling. The TMRI evidence points to high-intensity BCC, with significant resources for training for the nutrition workers, and home visits combined with group counselling.

The next section uses some of this evidence to explore a cost model which varies parameters to determine what the costs would look like in order to mimic outcomes as observed in the empirical evidence.

7.3.3 *What is the most cost-effective way to deliver changes in nutrition behaviour at scale?*

The EEP Concern, CLP and UPPR interventions have not been sufficient to deliver real change, as the quantitative endline results show. One of many reasons for this is that the amount of resources invested in key elements of programme design may have been insufficient. Therefore, using the external evidence presented above, this sub-section attempts to advise on the most cost-effective way to improve outcomes for future programming.

The aim of this section is to learn from the evaluations and to use empirical evidence from Alive & Thrive and TMRI to understand how DFID or others can flex and invest resources within similar programming to improve efficiency and thus lead to better outcomes. The purpose is to maximise resources in the areas that have proved to be constraining for programme performance. This section only models the costs of household-level counselling, it does not extend the model into community mobilisation activities

(i.e. awareness-raising of the importance of IYCF with key community members and wider family members of carers) as in Alive & Thrive and TMRI. That would be beyond the scope of this analysis, but it is recommended that in the future the model is extended in that way for future learning and programming.

7.3.4 *Building a cost model to deliver behaviour change at scale*

A cost model was constructed to explore what programme costs would look like under varying scenarios and to understand what new programming could look like at a bigger scale. Data were used from the following sources:

- internal budget and expenditure data for all three programmes from the current evaluation
- quantitative outcome endline findings and quantitative endline findings on nutrition workers' perspectives and descriptions
- qualitative findings on household-level counselling
- cost data and key assumptions from the evaluation of the Alive & Thrive programme and to a lesser extent the TMRI programme.

The aim of the model is to put greater resources into the weakest areas of household-level counselling (those areas that constrain programme delivery and affect results), as identified by the evaluation in order to estimate what a new more resource-intensive programme would look like in terms of costs and intermediate outcomes. The weakest areas identified in the evaluation were centred around work carried out by the CNWs; this model therefore focuses on putting greater resources into the CNW variables in order to boost their productivity and effectiveness. CNWs are important drivers of the cost of this type of programming, comprising roughly a quarter of the programme budget. Consequently, changes in the design and operations of this aspect of the programme will have cost implications.

7.3.5 *Cost-driven variables in the model*

The following cost driven variables have been identified as key weaknesses in the household counselling approach:

- ratio of nutrition workers to targeted households
- ratio of supervisors to nutrition workers
- size of the nutrition workers' honorarium
- intensity of training given to the nutrition workers
- frequency of household visits by the nutrition workers
- number of years for which the programme is running.

Table 7.4 presents the key cost-driven parameters that the evaluation considered to be weaknesses in the design, thus restricting outcomes. The table explains how the outcomes were likely to be constrained as a result. It also indicates how these parameters have been changed in the new model; i.e. it indicates where it is considered that greater resources should be spent to improve outcomes. These new parameters are largely taken from the Alive & Thrive and TMRI evaluations. The final column indicates how the new resources could be expected to impact on outcomes. The impact on outcomes has not been modelled as this is not a cost–benefit analysis; it is assumed that benefits will improve in line with evidence from Alive & Thrive and TMRI.

Table 7.4: Key parameters modified in the cost model to improve the productivity of future programming						
	Key design parameters used in the nutrition counselling component in EEP Concern, CLP and UPR programme	How can these parameters, as set in this evaluation, explain the observed outcomes?	What are the equivalent parameters in TMRI?	What are the equivalent parameters in Alive & Thrive?	How have these parameters been modified in the new forward-looking model?	What is the intended forecast impact on future outcomes resulting from the new parameters?
CPK-to-household ratio	For EEP Concern and CLP the ratio is around 1:90, but for the UPR programme it is significantly higher, at around 1:300–400.	This has meant that CPKs have not been able to spend enough time with each household, which has compromised the quality and effectiveness of counselling and impacted negatively on outcomes.	The ratio was reduced to 1:15, which is defined by the weekly group counselling and twice-monthly home visits.	Beneficiary ratios for the paid frontline IYCF promoters were as high (maximum 1:350 children) but greater intensity was achieved via the role promoters played in messages already being provided by health volunteers, (who also had responsibility for household visits and would visit the same number of families each month).	The ratio in the model is 1:70, based on the assumptions that this should both allow for regular monthly (or at least bi-monthly) visits and enable a manageable caseload to be built up in one or two communities proximate to the CNW's own residence. Higher ratios could be modelled if wanting to approximate the very high intensity of the successful TMRI trial.	This should result in CPKs spending more time with households, thus improving the quality of counselling and leading to better nutrition behaviour outcomes.
CPK supervision	Only one level of supervision in all three programmes; i.e. at the union level, not the <i>upazila</i> level as well. For EEP Concern the supervisor-to-CPK ratio was 1:40. This was found to be insufficient, and resulted in their inability to make	Insufficient supervision leading to sub-standard quality of counselling and high CPK dropout rates.			Two levels of supervision – union level and <i>upazila</i> level. Ten CPKs to one union-level supervisor (based on Alive & Thrive). TMRI also had a high degree of supervision.	Better supervision will improve the quality of counselling and the retention of CPKs, enabling them to achieve the required frequency and duration of visits.

<p>Honorarium for each CPK</p>	<p>household visits every month. It was recommended that more supervisors be hired.</p> <p>For CLP the ratio was 1:15, which was considered to be sufficient. However, it was recommended that the content of the training be improved (see below).</p> <p>For the UPPR programme the supervision was found to be significantly insufficient in terms of ratios and the content of training and capacity building.</p>	<p>Insufficient stipend for costs incurred. This did not cover the high transport costs, especially for the EEP programme, and hindered the mobility of the CPKs, resulting in dropouts and absences. EEP CPKs spent on average 2.6 hours a day travelling.</p>	<p>Unavailable</p>	<p>Unavailable</p>	<p>This has been increased to BDT 5,400, which will cover the high transport costs and help improve the mobility of the CPKs. This should also facilitate better recruitment and retention of CPKs.</p>	<p>A better stipend will improve attendance, retention, recruitment and attendance of sessions, increase mobility and encourage nutrition workers to provide hour-long sessions, thus providing a total beneficiary face time of 12 hours per year. This will lead to better nutrition behaviour outcomes.</p>
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	Key design parameters used in the nutrition counselling component in EEP Concern, CLP and UPPR programme	How can these parameters, as set in this evaluation, explain the observed outcomes?	What are the equivalent parameters in TMRI?	What are the equivalent parameters in Alive & Thrive?	How have these parameters been modified in the new forward-looking model?	What is the intended forecast impact on future outcomes resulting from the new parameters?
Frequency of household visits by CPKs	27 per cent of mothers in CLP did not receive the recommended minimum of nine visits per year. The figure is higher for EEP, at 42 per cent, and highest of all for UPPR, at 68 per cent. Median data indicate that the 'typical' CLP and EEP beneficiary received 12 visits, while the 'typical' UPPR programme beneficiary received eight visits.	Frequencies did not reach the intended requirement.	Twice-monthly home visits.	Eight home visits per year.	A higher honorarium should encourage better mobility, retention and recruitment to ensure that CPKs stick to the requirement of a minimum of nine visits per year.	More face-to-face time will improve the quality and impact of the counselling. This will allow a more tailored approach, so CPKs can assess and address the specific needs of a particular household (HH).
Duration of household visits by CPKs	The 'typical' CLP and EEP beneficiary received 12 visits, each lasting 30 minutes, which equated to six HH visit contact hours over 12 months. The 'typical' UPPR programme beneficiary received eight visits, each lasting 20 minutes, equating to 2.6 household visit contact hours over a 12-month period.	This has negated the effectiveness of the counselling. It is important to have optimum contact time.	Unavailable	Unavailable	This should be addressed in the training, which should give more focused guidance on the contact time. A higher honorarium should also encourage hour-long sessions.	This will allow better contextual assessments of each household by the CPK, so that they give more specific and targeted counselling knowledge.

Training of CPKs	<p>Whilst CNWs were found to be knowledgeable, other aspects of the evaluation (see section 8) suggest the need for improving their capabilities with regard to a client-focused problem-solving approach. This would require an intensification of training to deliver both knowledge and wider BCC competencies required by CNWs.</p>	<p>Lower quality of counselling, leading to lower observable impacts.</p>	<p>There was a proactive approach to providing high quality, focused training with a high resource intensity.</p>	<p>Unavailable</p>	<p>The following training is built into the model using assumptions from Alive & Thrive: Initial training of trainers. For CPKs and supervisors, initial seven-day training, One day per quarter refresher training, One day of ongoing training once a month. (This is consistent with TMRI, which had very intensive training).</p>	<p>This should build and maintain CPK capacity to enable them to do a better-quality job.</p>
Number of topics discussed	<p>Nutrition workers spent the following amounts of time discussing complementary feeding: CLP: eight minutes; EEP Concern: six minutes; UPPR: 4.5 minutes. (Please note: these are upper-bound estimates).</p>		<p>The curriculum was very focused and specific.</p>	<p>Unavailable</p>	<p>Recommended to cover fewer topics in greater depth, particularly any complementary feeding needs, in order to take into account the specific contexts of each household.</p>	<p>This should result in better IYCF outcomes for children.</p>

	Key design parameters used in the nutrition counselling component in EEP Concern, CLP and UPPR programme	How can these parameters, as set in this evaluation, explain the observed outcomes?	What are the equivalent parameters in TMRI?	What are the equivalent parameters in Alive & Thrive?	How have these parameters been modified in the new forward-looking model?	What is the intended forecast impact on future outcomes resulting from the new parameters?
Programme duration	Three years	The relatively short time horizon of three years may explain the lack of anthropometric outcomes observed.	Four years	Six years	Scenarios of three years, five years and eight years.	It takes three years to set up, efficiently operate and cover the critical first thousand days; after that rolling numbers of pregnant women would join. However, for a more sustained impact a longer investment period is necessary. A long time horizon is also justified on the grounds that in developed countries effective nutrition support is universal and permanent. There is also benefit in building up community knowledge and practice over time.

7.3.6 *Other technical assumptions in the modelling*

The key assumptions of the model are summarised below (a more comprehensive list of assumptions is presented in Annex F):

- Within a notional target area of 1,000,000 households,²⁷ it is assumed that there will be 198,000 children under the age of two years and 108,000 pregnant women, totalling 306,000²⁸ eligible beneficiaries at any one time.²⁹ Assuming one beneficiary per household, that leaves 306,000 households. The programme's eligible population is of a rolling nature; there are new households coming in with 0–2-year olds, replacing those that have left.
- For ease of modelling within the time constraints of this evaluation, it is assumed that households are constant from year one at the maximum 306,000. This does not allow for a glide path of cumulatively increasing household numbers over time, as has been seen in the programmes evaluated. This 100 per cent targeting from year one is potentially unrealistic.
- Management overheads of a flat 20 per cent of total intervention costs are applied. This is important in ensuring good leadership and accountability (as seen in CLP).
- Monitoring and evaluation costs of a flat 5 per cent of total intervention costs are applied.
- For the discounting of future costs, a discount rate of 10 per cent is applied. A discounted and an undiscounted total programme budget are presented.
- The model has a number of limitations: inevitable productive inefficiencies have not been factored in, thus assuming a 100 per cent efficiency rate, which is clearly unrealistic given the findings here.

7.3.7 *Wider elements of programming exogenous to the model*

Alongside the parameters varied above for the household level counselling, other binding constraints to impact exist which have no bearing on costs and so are exogenous to this cost model. Adjustments to the programme design in these areas are therefore also necessary above and beyond the adjustments in the cost model. These are explored in other parts of the evaluation and summarised in the final section in more detail, but in summary they comprise:

- reducing and refocusing the types of messaging provided in counselling sessions, particularly to those areas of complementary feeding
- ensuring that such messaging is both adapted to context *and* practicable
- stronger and more effective monitoring systems focused on earlier outcome tracking rather than self-reported inputs/activities by CNWs.

The empirical evidence also points to other types of programming (which do have cost implications) that are likely to have positive impacts, namely activities that focus on social mobilisation and group counselling activities, to consider targeting additional household members and include interventions or approaches that identify and address context-specific economic, social and gender-specific barriers that prevent the translation from knowledge into practice.

In addition, there is the consideration of other models of social transfer (including direct cash) that are likely to have a greater nutritional impact (of more direct utility to/within the control of mothers) when combined with an effective BCC model than the productive asset transfer considered here (potentially more sustainable in terms of household welfare but distal or ineffectual in terms of any nutritional impacts), although the sustainability of these different models needs to be considered carefully.

Finally, there is scope for better integration of the livelihoods and nutrition interventions (there is not *strong* evidence to conclude here that the relative lack of integration was a barrier to impact, but there is some evidence to suggest that mothers seeing resource transfers as pegged to nutritional improvements may improve their use towards this end.

²⁷ For the purposes of modelling, assuming a notional target area of 1 million households gives a sample of households so how much it costs to treat those households with the intervention, and what the cost per household is can be modelled.

²⁸ This is based on Bangladesh census data. See Annex F.

²⁹ In reality there will be households that have pregnant women and children under the age of two years, but this has not been modelled.

7.3.8 Results of the modelling

Table 7.5, below, presents the results of the cost modelling. All the key assumptions behind this base case modelling are presented above, in Table 7.4. This base case is designed to have the optimum investment in these cost categories, so as to fully maximise the potential for positive outcomes. The outcomes are not quantified; this is not a cost–benefit analysis.³⁰ Rather, the model assumes that increasing resources and improving the weaknesses found in the programme design evaluation will result in better outcomes, but the outcomes have not been modelled, as this would have been beyond the scope of this evaluation.

The costs are presented as an average annual cost-per-beneficiary figure in order to indicate the magnitude of difference between the models evaluated and TMRI. The total programme spend is also presented. It is assumed that the number of households (306,000) stays the same throughout the programme duration. The programme spend figures are presented as a discounted version (at 10 per cent)³¹ and a non-discounted version.

Table 7.5: Scenario 0 Base case: cost figures for new cost modelling		
Cost per beneficiary per year	£13.30	
Programme duration	Total programme cost: undiscounted	Total programme cost: discounted
8 years	£39,944,929	£18,634,604
5 years	£28,264,882	£17,550,268
3 years	£12,185,767	£9,155,347

The new cost model gives rise to an annual cost-per-beneficiary figure of £13.30, roughly one-third higher than that of EEP Concern, which was found to be £10.40 per beneficiary per year. The new modelled figure equates to an undiscounted total programme cost of £12.2 million for three years, rising to £39.9 million for eight years. Cost-per-beneficiary figures for the N interventions are presented below for reference.

Table 7.6: N cost per household	
Programme	Average nutrition cost per household per year
CLP	£8.20
EEP Concern	£10.40
UPPR programme	£5.90

7.3.9 Sensitivity analysis – key programme cost drivers

It is useful to undertake a sensitivity analysis on the main cost drivers of the programme.³² Table 7.7 presents a sensitivity scenario, reducing the honorarium by one-third from BDT 5,400 to BDT 3,600. This reduced rate is more in line with the revised honorarium provided by EEP Concern following the round of programmatic changes described in section 1.3. In the initial model here, it was set very high, at BDT 5,400, to encourage counselling sessions to last for an hour and to generally incentivise nutrition workers to improve the quality of their work. This is in line with findings from TMRI (see sub-section 7.3.2.).

This gives rise to an annual cost-per-beneficiary figure of £9.00, which equates to a total programme cost of £8.3 million for three years, rising to £27.0 million for eight years.

³⁰ A cost-benefit analysis was beyond the scope of this evaluation. Moreover, modelling and monetising behaviour change benefits is fraught with difficulty and there is no obvious robust and defensible methodology to do this.

³¹ It is standard in cost modelling to apply discounting to adjust for the risks and the time value of money. 10% is a standard approximate discount rate applied to this region, based on risks and preferences in the region.

³² The sensitivity analysis focuses on internal programming options, rather than changing external environmental factors. It is thus not a sensitivity analysis to mitigate uncertainty in the conventional sense.

Table 7.7: Scenario 1: honorarium is reduced by one-third to BDT 3,600		
Cost per beneficiary per year	£9.00	
Programme duration	Total programme cost: undiscounted	Total programme cost: discounted
8 years	£27,017,882	£12,604,041
5 years	£19,215,949	£11,931,593
3 years	£8,307,653	£6,241,662

Table 7.8 presents a second sensitivity scenario in which the ratio of nutrition workers to households is reduced from the base case ratio of 1:70 to 1:50. This gives rise to an annual cost-per-beneficiary figure of £18.10, and equates to a total programme cost of £16.9 million for three years, rising to £55.6 million for eight years.

Table 7.8: Scenario 2: nutrition-worker-to-household ratio is reduced from 1:70 to 1:50		
Cost per beneficiary per year	£18.10	
Programme duration	Total programme cost: undiscounted	Total programme cost: discounted
	Total cost	Total cost
8 years	£55,594,000	£25,935,011
5 years	£39,322,276	£24,416,040
3 years	£16,949,184	£12,734,173

7.4 Overall summary of cost-effectiveness findings

For all three programmes, both underspend on commodities due to inaccurate forecasting and budgeting, and problems with the initial recruitment and retention of nutrition workers are reflected in the budget deviations. The wider evaluation findings discuss in detail the process efficiency, which has been variable across the programmes. Falling cost per beneficiary figures for CLP and UPPR tentatively suggest reductions in inefficiency as the programmes mature.

Table 7.9: Annual cost-per-beneficiary figures from the programme, empirical evidence and new cost modelling	
Evaluation findings internal and external to the evaluation	Average nutrition programme cost per household per year (in order of magnitude)
Alive & Thrive finding	Not publicly available
TMRI finding	£43.00
New cost model sensitivity scenario 2 – reducing nutrition-worker-to-beneficiary ratio from 1:70 to 1:50	£18.00
New cost model base case scenario	£13.00
EEP Concern	£10.00
New cost model sensitivity scenario one – reducing honorarium by one-third	£9.00
CLP	£8.00
UPPR programme	£6.00

In terms of effectiveness, the wider evaluation reports in detail on the findings on outcomes, which were shown overall to be moderate in terms of IYCF practices and insignificant in terms of child anthropometry. Equity has largely been achieved in terms of reaching significantly poor and under-nourished householders.

In terms of economy, all three programmes on the whole have had no significant adverse findings on cost economy. As can be seen from Table 7.9 the programme cost figures are on the comparatively low side, ranging from £5.00 to £10.00. This indicates that it has been a relatively low-cost-intensity model.³³

Emerging findings from the evaluation indicate that the intensity, quality and programme design of EEP Concern, CLP and UPPR interventions has not been sufficient to deliver real change, as found in the quantitative endline results. It is arguable that some of these findings can be addressed by investing more heavily and changing the design. Following on from this, a cost model has been presented which invests greater resources into those cost drivers – i.e. the weakest areas as identified by the impact evaluation – in order to estimate what a new higher-resource-intense programme would look like in terms of costs.

The following cost-driven variables have been identified as the key weaknesses in all three programmes, both in terms of productive use of these variables and of the amount of resources invested in them:

- ratio of nutrition workers to targeted households
- ratio of supervisors to nutrition workers
- size of the nutrition workers' honorarium
- intensity of training given to the nutrition workers
- frequency of household visits by the nutrition workers
- number of years for which the programme is running.

The results of the cost modelling are summarised above, in Table 7.9; the internal modelling gives rise to annual cost-per-beneficiary figures ranging from £9.00 to £18.00.

In addition to these investments in cost drivers, there are wider elements of programme design which will also need modification, which are highly relevant to overall programme effectiveness and which are summarised below:

- the actual type and curriculum of messaging delivered in the counselling
- the strength and efficacy of monitoring systems
- extending the design to include more social mobilisation and more group level counselling (as exemplified in Alive & Thrive and TMRI)
- ensuring better integration between L and N.

Some of the above factors will add to the cost per beneficiary figure, but it has been beyond the scope of this evaluation to model those costs.

As seen in Table 7.9, TMRI is the most expensive programme, with a cost-per-beneficiary figure of £43.00. This can be explained by its dual focus on group counselling and household visits, but more importantly by its very intense CNW-to-household ratio, very high-quality training and very frequent (twice a month) home visits. Despite the positive outcomes achieved by TMRI, it is not possible to comment on the VfM of TMRI. But it can be stated that the internal cost model presented here gives conservative figures in comparison. Given TMRI's excellent observed outcomes, there is a case to increase resources on these cost-driven inputs even more than in the modelling reported here. (Alive & Thrive cost-per-beneficiary figures were not publicly available on report completion).

³³ While low costs can also indicate high efficiency, the efficiency has been reviewed here, and is held constant in this analysis, so as to understand how costs impact on outcomes.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Overview

This evaluation had three objectives:

1. To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes (the CLP, EEP Concern and the UPPR programme) on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions;
2. To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes;
3. To assess the cost-effectiveness (benefit received for cost incurred) of integrating nutrition-specific components into the livelihoods interventions of the three existing programmes.

To fulfil these objectives, the evaluation team ran an integrative and theory-driven mixed-method evaluation to test the three programmes' theory of change. With respect to the first objective listed above, reported here are (1) the relative impacts on nutritional status of the combined nutrition-specific and livelihoods interventions (L+N) and the existing livelihoods interventions (L) for all three programmes alongside the explanatory and cost data, and (2) the absolute impacts on nutritional status of the L and L+N programmes as compared to a suitably matched comparison population *for the UPPR programme only*, alongside qualitative and process findings for all three programmes. As discussed in Annex D it was not possible to quantitatively measure the absolute impact of the individual L or combined L+N programmes in two of the three programmes, largely because the saturation and geography of these programmes made it impossible to find a suitably matched non-beneficiary extremely poor population (confirmed in surveys of surrounding communities and the matching process attempted at baseline).

8.2 Relative impacts of the L+N programme compared to L beneficiaries

The primary impact indicator identified in the programmes' business case and their logframes was stunting in children under two years of age, measured using height-for-age z-scores. Stunting is the standard measure of longer-term deficiencies in nutritional status. There is also strong evidence associating stunting with a higher risk of irreversible physiological and cognitive deficiencies, higher mortality and morbidity rates, and wider lifelong consequences for health and productivity (Black *et al.* 2013). *The quantitative evaluation shows that there was no relative improvement from L+N over L in stunting or in other anthropometric indicators in the two-year period between baseline and endline.*

This lack of detected impact should not be interpreted as a failure. Significant shifts in anthropometric outcomes are in theory possible within a two-year timeframe but this was an ambitious outcome for this particular untested combination of interventions and it relied on assumptions of intensive delivery from the commencement of the programme, which are examined below. Any delay in or lowering of this required intensity will have affected the likelihood of detecting statistically significant impacts within the (ambitious) two-year time frame of the evaluation. Additionally, it should be noted that for a programme to have any cumulative impact on child height requires substantial improvements in wider underlying practices and environments in terms of food access and diversity; care and health environments; and mothers' nutritional status before giving birth (*ibid.*). Many of these factors, which have been assessed here as 'intermediate outcomes' are themselves beneficial outcomes for child nutrition and are targeted by the three programmes. Falling short of impacts on stunting or other anthropometric indicators, therefore, would not be a sign of absolute failure even within a longer timescale.

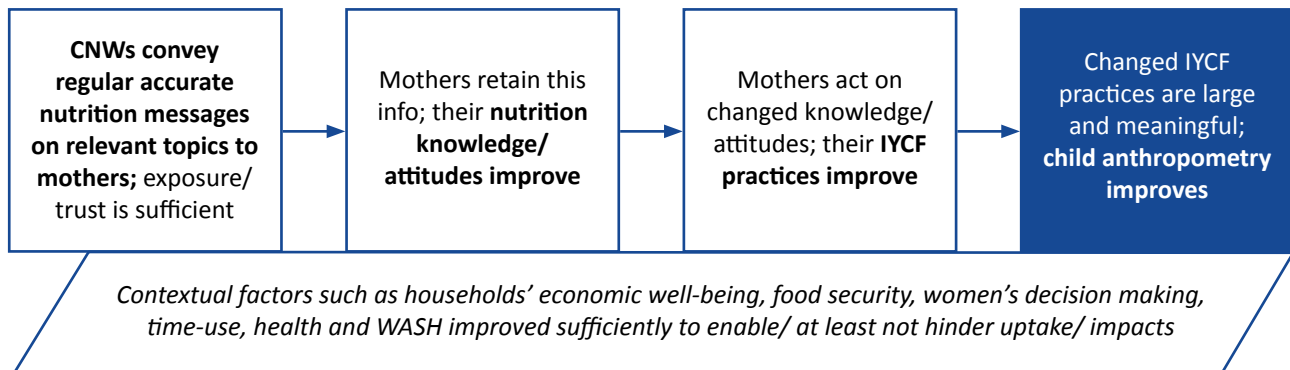
The wider nutritional goals of the programmes were focused on improving IYCF practices via individual and group counselling and improving nutrient intake via the provision of nutritional supplements for mothers, children and adolescent girls, alongside regular deworming treatment and hygiene advice to improve the body's nutrient absorption and prevent loss of micronutrients.

Whilst a two-year time frame may have been ambitious, focusing on these wider nutritional goals does allow for a sense of whether underlying indicators were starting to shift in the right direction, namely towards longer-term improvements in nutritional status. To understand the overall lack of change in nutritional status and to what extent the three programmes achieved these wider nutritional goals,

the evaluation tracked back along the causal chain at the core of the N intervention and identified weaknesses, barriers and opportunities, drawing on quantitative and qualitative evidence.

The results chain at the core of this evaluation is illustrated by Figure 8.1, which is based on a diagram introduced in section 2:

Figure 8.1. Primary pathway for nutrition impacts, explored via mixed methods explored via mixed methods



This core result chain is used to discuss the evaluation's findings, highlight barriers and opportunities, and provide recommendations for the design of future interventions in the rest of this section. Recommendations draw where possible on findings in the wider literature on effective models for behavioural change in nutrition, summarised in Box 2.

Box 2: Wider global evidence on effective models

Behaviour change communication has been shown to play an important role in improving child feeding practices in low- and middle-income countries (Caulfield, Huffman and Piwoz 1999; Imdad, Yakoob and Bhutta 2011). However, most of the evidence available is based on interventions that target one type of behaviour (e.g. breastfeeding only, handwashing only). Evidence on interventions targeting multiple types of behaviour (such as that provided by the N intervention) is still scarce (Prochaska, Spring *et al.* 2008). Moreover, the evidence available suggests that the effectiveness of behaviour change communication can be very variable and highly context-specific (Michie and Johnston 2012).

The evidence that exists suggests that behaviour change communication is most effective when it includes careful analysis of problems (with regard to IYCF) at household level, constructive problem-solving with negotiations of the practical feasibility of behaviour change with the caregiver (and if possible other household members), individualised support and ongoing motivation (Hillier, Batterham *et al.* 2012; Fabrizio, Liere *et al.* 2014).

A recent review on health behaviour change interventions in low-income country settings (Aboud and Singla 2012) concludes that to change IYCF behaviours effectively and sustainably it is important to address the socio-cultural and economic influences and determinants of current IYCF behaviours. Behaviour change interventions are more likely to be effective if they support caregivers (and their households) to address these context-specific barriers (Prochaska, Spring *et al.* 2008; Affleck and Pelto 2012; Atkins and Michie 2013; Elder, Pequegnat *et al.* 2014; Fabrizio, Liere *et al.* 2014).

The channel that is used to deliver behaviour change communication is equally important for successful change (Aboud and Singla 2012). While individual counselling can be effective (e.g., Imdad *et al.* 2011), behaviour change literature suggests that interventions that employ three or more behaviour change techniques in parallel are more likely to be effective in triggering change (Briscoe and Aboud 2012). The aim thereby is to engage beneficiaries at behavioural, cognitive, social and sensory levels. Successful interventions in Bangladesh, for example, including the Alive and Thrive programme (section 7) run by BRAC, have made strong use of social mobilisation techniques that target influential people in the community, such as community leaders, and aim to reach the entire household (rather than mothers only, who, as the qualitative evaluation suggested, often have limited decision-making power). Other techniques have included social marketing, active problem-solving and media campaigns.

8.2.1 *Delivery of IYCF messages*

The nutrition-specific intervention pursued via the programmes used individual counselling by CNWs as the main delivery channel for the behaviour change messages, complemented by some use of health and nutrition group meetings. Section 3.2 concluded that by programme close, there were no longer any significant problems in recruiting CNWs; that these CNWs understood the IYCF messages that they were supposed to convey; and that sufficient trust of CNWs amongst beneficiaries had been achieved (though the CNWs were competing with and/or complementary to several other sources of information in the community, as described in the qualitative work). Survey data collected from both mothers and CNWs agree, however, on a lower-than-optimal frequency of visits and, importantly, insufficient time spent by CNWs with mothers, whilst CNW surveys reveal a high caseload.³⁴ Cumulatively, this reduced the intensity of the behaviour change messaging over the year. Surveys also revealed a tendency to focus on several topics in the limited time available and established that less time was spent on complementary feeding practices than on breastfeeding, which has implications further along the results pathway. Supervision visits did occur, but the process evaluation raised questions on (1) whether the overall monitoring was effective beyond ensuring CNWs kept their own log of outputs, which did not seem to have been verified; and (2) whether there was sufficient integration between the frontline management/supervisory structures for the L and N programmes.

The literature (Box 2) highlights the importance of counselling skills when delivering behavioural change. Effective counselling includes, for example, adaptive problem-solving and contextualisation. While endline surveys demonstrated that the CNWs had appropriate basic nutrition knowledge, it is unlikely that they could have made use of more elaborate counselling techniques in the limited time available, even if they had been trained in them. Possible explanations for these shortcomings include the high workload of CNWs and the limited effectiveness of supervision they were given. The qualitative findings also suggest that the behaviour change messages often lacked context-specificity and as a consequence caregivers often struggled to adapt the messages to their individual situation. Another shortcoming suggested by the qualitative evaluation was the focus on just one channel of communication (individual counselling), rather than several; for example, social mobilisation, which is thought to have been an important ingredient of a successful approach trialled in Bangladesh (see Box 2), could have been included.

8.2.2 *Change in IYCF knowledge and attitudes*

Both qualitative and quantitative analysis converge again in section 4 in finding that the impact of the N intervention on caregivers' IYCF knowledge and attitudes was limited (with the exception of their knowledge about iron). Survey results reveal relatively high levels of maternal knowledge of appropriate breastfeeding practices both in households receiving the nutrition intervention and in comparison, households not receiving the nutrition intervention (related in the qualitative data to previous NGO and media campaigns, and nutrition information provided by health workers and school). The qualitative data also suggest that while general knowledge of optimal IYCF behaviours was high, there was a lack of awareness of the dangers of not following the optimal practices (e.g. introducing solids or fluid other than breastmilk before six months, which increases the likelihood of infections significantly) and of what constituted appropriate behaviours in special circumstances (e.g. the importance of beginning breastfeeding after Caesarean sections, which were common among the qualitative sample).

8.2.3 *Change in IYCF practices*

There is very limited evidence of behaviour change resulting from the nutrition-specific intervention. Behaviour with regard to the intake of iron had changed significantly, although the qualitative evaluation

³⁴ Benchmarks from other programmes reported in section 7, for example, include the TMRI's twice-monthly visits in addition to group counselling. In *Alive & Thrive*, paid IYCF promoters followed a fixed schedule of eight visits, which was combined with other activities, including monthly visits and health forums run by existing health volunteers as part of the wider BRAC programme. Notably, in line with the recommendations in Box2, both *Alive & Thrive* and the TMRI used multiple channels of communication (regular individual and group counselling, social mobilisation and, in the case of *Alive & Thrive*, mass media) and so the programmes' overall intensity needs to be inferred from their whole package and the exposure of mothers and others to messaging, rather than numbers of visits alone. It has not been possible to access data on or to estimate lengths of visits, but notably the TMRI had a CNW-to-beneficiary ratio of 1:15 after the programme was strengthened mid-course, suggesting a much lower caseload and more time for intensive and adaptive messaging. In the *Alive & Thrive* model, beneficiary ratios for the paid frontline IYCF promoters were as high as the programmes evaluated here (max 1:350 children) but these promoters reinforced messages already being provided by health volunteers, who also had responsibility for household visits and would visit the same number of families each month.

findings suggest that without the provision of iron supplements free of charge, this behaviour change would have been less likely and that households were unlikely to purchase iron once the intervention had stopped. There was also a significant change with regard to the timely introduction of drinks/food other than breastmilk, particularly in the EEP Concern programme, although the proportion of infants that received supplementary feeding before six months of age remained high. Where positive changes occurred, qualitative evidence suggests that a number of factors enabled change, including the positive experience of the behaviour change among peers (i.e. intake of IFA and its effects on overall wellbeing), and the provision of products needed for the behaviour change (micronutrient supplements, deworming tablets). Notably it seems that the instances of successful translation of knowledge to practice were in those areas which did not involve significant investment of new resources or time (small but beneficial changes in feeding practices or intake of the IFA provided by the programme).

In addition to the problems associated with the delivery of the nutrition intervention described above, the qualitative evaluation found several contextual barriers that may also explain the absence of behaviour change. These barriers include the following: lack of financial resources and presence of other priorities for available resources (e.g. achieving food security in terms of quantity of food); shortage of time (e.g. to prepare additional complementary dishes recommended by CNWs, to go to the market to purchase fresh vegetables, to practise responsive feeding of young children); fear of food wastage (e.g. through children throwing food on the ground); household taste preferences and the perceived social value of food; perceived need and readiness to change (e.g. breastfeeding and feeding biscuits were quick, easy and not messy and therefore preferred feeding options); limited influence of the targeted mother on household decision-making with regard to childcare and food purchases; and deeply rooted context-specific belief systems around IYCF (e.g. prelacteal feeding, water at three to four months of age). The ongoing financial barriers reported are perhaps surprising, given what can be learned from other evaluations of the potential impact on household assets and expenditure of livelihoods programmes based on productive assets (including a current unpublished evaluation of the CLP). Such findings require further consideration, therefore, in terms of whether women's lack of participation in decisions about the use of any increased assets was more of a barrier than the household's lack of capital alone and/or whether direct cash/food transfers to women, linked to behaviour change counselling on nutrition (as in the case of the TMRI evaluation detailed in section 7.3.2),³⁵ are more likely to be used for nutritionally optimal pathways than the products or proceeds of productive assets, even when these assets are given to women and provided alongside counselling.

8.2.4 *Changes in wider determinants*

The evaluation did not find significant changes in wider determinants, except for antenatal care. There were significant increases in the number of antenatal care sessions attended, participation in feeding programmes, and advice received on what to eat and how to cook food during pregnancy for the CLP and EEP Concern programme – but no impacts for the UPPR programme.

There were no significant changes detected in WASH outcomes and the qualitative evaluation found that usage and maintenance of sanitation facilities and access to safe drinking water remained an issue during the rainy season.

There were no reported additional impacts of the nutrition-specific intervention on women's empowerment. This may be expected, but in other programmes it has been suggested that participation in a behavioural change programme can add value to a mother's role as a source of knowledge about appropriate care and can encourage others to involve her in decision-making.

There were no significant impacts on the prevalence of child illness (though occurrence was high: e.g. 24–39 per cent of children were reported as having had fever in the two weeks prior to survey). Again, this may be explained by the lack of meaningful impacts earlier on in a results pathway to improved child morbidity – as there were no detected impacts on hygiene, sanitation, child diet, or measures of overall household wellbeing. Child health and wider behavioural issues around sanitation/ open defecation were only indirectly addressed by the programmes (most prominently in the CLP but not as one of the primary interventions)

³⁵ While improving gender relations was not an explicit goal of the TMRI, qualitative research suggests that the well-run weekly meetings with a trained CNW and other women from similar backgrounds may have indirectly improved women's position within the household and their communities.

and, in the light of wider and growing evidence on the links between morbidity, open defecation/use of unimproved sanitation and nutrition outcomes, the importance of these underlying determinants as potential barriers to impacts on child stunting and wasting (even if all IYCF practices had reached optimal levels) requires highlighting.

8.2.5 Recommendations

The results of this evaluation are both sobering and salutary. They are sobering because of the lack of improvement in child anthropometry, and because the additional improvements witnessed in IYCF knowledge and practices as a result of the N intervention are sparse. But they may be helpful to future programme design and implementation because a clearer picture has emerged of the barriers and enablers to successful progress along the impact pathway described above, particularly the contextual barriers that cannot reasonably be expected to be overcome by a behavioural change intervention. These factors are summarised in a revised theory of change below (Figure 8.2). Such barriers do not necessarily explain the observed lack of improvement in *knowledge* of most IYCF practices amongst surveyed mothers – and evidence elsewhere suggests that behaviour change may be possible in other dimensions of IYCF practices as well, if prioritised in implementation (or other indirect pathways, as evidenced by the positive antenatal care results in the EEP Concern and CLP programmes). However, it may be difficult or even impossible for beneficiaries to translate new knowledge and changed attitudes into better IYCF practices, owing to a multitude of economic, social and other contextual constraints and barriers highlighted by the qualitative findings. An effective CNW model designed to improve knowledge and attitudes can be considered, therefore, as a necessary factor for behaviour change; but not a sufficient factor if wider constraints limit what a mother can achieve.

Summarising the findings along this pathway allows therefore for a number of recommendations to come to the fore naturally which will be of use to future programming:

There is *strong* evidence to recommend:

- improving the frequency and duration of counselling sessions;
- reducing and refocusing the types of messaging provided in counselling sessions, particularly to those areas of complementary feeding which are both weak and which did not appear to have been a strong implementation focus;
- ensuring that such messaging is both adapted to context *and* practicable;
- drawing from best practice (e.g. social mobilisation and group components of other similar interventions) to consider targeting additional household members and include interventions or approaches that identify and address context-specific economic, social and gender-specific barriers that prevent the translation from knowledge into practice; and
- stronger and more effective monitoring systems focused on earlier outcome tracking rather than self-reported inputs/activities by CNWs.

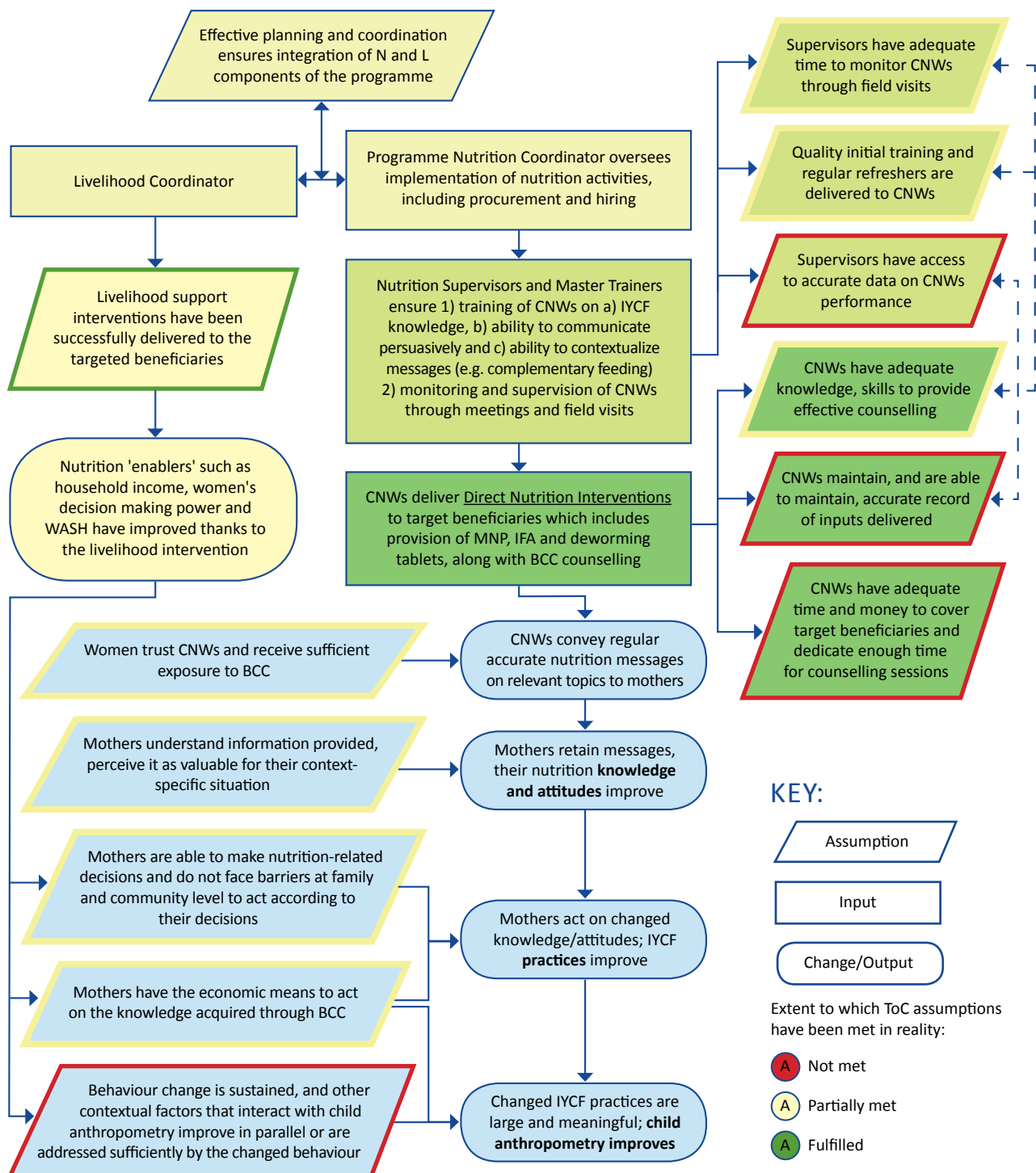
There is also some evidence to recommend:

- taking steps to ensure that CNWs can spend more time with each client, for example by lowering the ratio of beneficiaries to CNWs and/or allocating caseloads in such a way that travel times are minimised;
- focusing training and supervision on client-focused problem-solving, adaption to individual household conditions and ongoing support, rather than on imparting messages;
- increasing the CNW honorarium;
- considering whether other models of social transfer (including direct cash) are likely to have a greater nutritional impact (to be of more direct utility to or within the control of mothers) when combined with an effective behaviour change counselling model than the productive asset transfer considered here (which was potentially more sustainable in terms of household welfare but distal or ineffectual in terms of any nutritional impacts); and
- better integration of the livelihoods and nutrition interventions (there is not *strong* evidence to conclude here that the relative lack of integration was a barrier to impact but there is some evidence to suggest that if mothers see resource transfers as pegged to nutritional improvements, their use towards this end may improve).

The cost-effectiveness evaluation provided an indication of the costs of further investment in these areas that might be undertaken in future programming. The three programmes were based on relatively low-cost models, judging by a cost-per-beneficiary breakdown. Some underspends noted earlier also support the picture of delays in some aspects of the implementation and lower intensity earlier on in the programme. Modelling and sensitivity analysis present several scenarios for future investment – all of which present higher cost-per-beneficiary figures, given increases in the key cost drivers of CNW-to-beneficiary ratios and nutrition worker honorariums, but which might be deemed greater value for money given the likely stronger improvements in nutritional knowledge and practice if recommendations here are followed. Importantly, however, the cost-effectiveness evaluation also puts particular stress on some of the non-cost-driven factors reported here.

Figure 8.2 Revised theory of change for nutrition

IMPACT PATHWAY OF CLP, SHIRREE/EEP AND UPPR



8.3 Absolute impacts of the L and L+N programmes compared to comparison groups – qualitative and process findings across the three programmes and quantitative data for the UPPR programme only

The comparative quantitative data allow for conclusions to be reached on the absolute impacts of the livelihood intervention for the UPPR programme only. In the case of this programme there was no significant impact on child nutritional status as a result of either the livelihoods intervention or the combined livelihoods and nutrition-specific interventions.

Some plausible pathways for the livelihoods intervention to have had effects on child nutrition include improvements in overall household wellbeing, which would then be mobilised to improve child diet, and improvements in hygiene and sanitation, which would then reduce child illness. Across the three programmes there is evidence of successful implementation of some of the basic programme outputs, as indicated by beneficiary responses in the endline questionnaire, including:

- strong uptake of asset transfers in the CLP and EEP Concern programmes;
- high membership of savings and/or credit groups across all three programmes and of CDC membership in the UPPR programme; and
- high incidence latrine construction and homestead gardening in the CLP.

Similarly, there is qualitative evidence pointing to some positive beneficiary appraisal of the livelihood programme in terms of food security outcomes.

However, when turning to the comparative data in the UPPR programme, there are no significant impacts on household wellbeing, hygiene/sanitation or child illness, and although there are some borderline significant impacts on child dietary diversity from the combined L+N intervention, these are not meaningful at conventional levels. There is also no meaningful evidence that the L interventions have had an impact on nutrition via other pathways – including via greater participation in intra-household decision-making by women (there are significant impacts on their decisions regarding their own mobility, but not regarding household expenditure including on food and health items) or via greater use of antenatal care among pregnant women. These results are largely consistent with reported exposure to aspects of the livelihood intervention most likely to have contributed towards nutritional impacts in the UPPR programme.

Concluding on the UPPR programme alone, it appears that the UPPR livelihood intervention did not itself meaningfully improve child nutritional status, and also may not have provided sufficient extra resources for L+N households to act readily on the nutrition behaviour change messages they had received.

It is hard to reach such firm conclusions for the other two programmes evaluated, but despite some positive assessment of the food security benefits of the programmes, beneficiaries interviewed in the qualitative sample also reported difficulties in translating these benefits into nutritionally beneficial pathways. This latter perception has some support in the endline survey across both L and L+N beneficiary communities, who reveal, for example, that despite the high uptake of assets and homestead gardening in the CLP, gardening was rarely used to produce food in the last year and only 11 per cent of CLP recipients of a cow reported producing milk. In contrast, however, whilst only 10 per cent of EEP Concern beneficiaries surveyed reported ever starting homestead gardens, 90 per cent of those with homestead gardening reported producing food over the last year, selling up to or just over half of it.

Taken together, there is some evidence to support a stronger integration of nutrition-specific and livelihood programmes to focus more directly together on nutritionally beneficial pathways, and some evidence to recommend increasing the focus on the types of asset transfer most likely to lead to nutritionally optimal outcomes (including the trades-offs between productive assets and cash in terms of sustainability, direct impact and women's control). This better understanding of the linkage between asset transfers and nutritional outcomes could show the former to be a necessary but not sufficient condition, even though it is plausible to assume its necessity. Given the conclusions above it is also plausible to assume that such benefits will not accrue to children (as opposed to the household in general) without being accompanied by the significant investments in behavioural change proposed above.

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ANNEX A: ORIGINAL TERMS OF REFERENCE

TERMS OF REFERENCE

Impact Evaluation of a DFID programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh

1. INTRODUCTION

- 1.1. DFID Bangladesh is seeking a supplier to design and implement an independent impact evaluation of DFID's programme: Accelerating Improved Nutrition for the Extreme Poor in Bangladesh.

2. OBJECTIVES

- 2.1. To assess the impact of both direct (specific) and indirect (livelihoods) nutrition interventions in three different DFID programmes (combined nutrition specific interventions and livelihood supports) on nutrition outcomes: (i) nutritional status of children under two years including anthropometric status (stunting, wasting, underweight) and anaemia, (ii) anaemia in children (between 6-23 months), adolescent girls (between the age group of 10-16 years), pregnant and breastfeeding women (all women under this category regardless of age) and (iii) Chronic Energy Deficiency (CED) as measured by Body Mass Index (BMI) among adolescent girls, pregnant and breastfeeding women (Annex A theory of change).
- 2.2. The independent evaluation will also assess the impact of the combined programme on (i) the socioeconomic status of the beneficiaries (ii) whether direct nutrition interventions can be delivered effectively through different livelihood programmes, why and how the interventions succeed or fail and how they could be improved and (iii) the cost effectiveness (value for money analysis) of integrating direct and indirect interventions in the three livelihood programmes. All data collection through this evaluation should be disaggregated by gender, age, disability and ethnic group.
- 2.3. The evaluation team will determine the exact methodology for the impact evaluation/s, sample sizes and comparison groups for the baseline data collection, midline and endline of the programme evaluation.

3. THE RECIPIENT

- 3.1. The primary users of the evaluation are Government of Bangladesh, DFID and its programme implementing partners at all levels. However, DFID expects the findings to be published and disseminated more widely to the development community and government of Bangladesh.

4. THE SCOPE

- 4.1. The programme will run for three and half years (until the end of December 2015) in the three programmes. The impact evaluation will commence with the baseline survey before the direct nutrition interventions start. The evaluation will take place from July 2012 to December 2015. The impact evaluation will cover only areas and households that are targeted by DFID's programmes on (i) the Economic Empowerment of the Poorest Programme (EEP) (ii) Chars Livelihoods Programme (CLP), and (iii) the Urban Partnership for Poverty Reduction (UPPR).
- 4.2. DFID Bangladesh will use the Policy Division's Nutrition Global Framework Agreement signed with the PATH led consortium of agencies. PATH led consortium has been selected through the Official Journal of the European Union (OJEU) process to provide technical support for DFID country offices on different aspects of Nutrition programming including monitoring and evaluation. PATH will be requested to submit proposals to cover four phases and components of both quantitative and qualitative study. The four phases include:
 - Phase 1 – inception phase up to 4 months
 - Phase 2 – base line data collection August/September 2012
 - Phase 3 – midterm evaluation – early 2014
 - Phase 4 – end of the programme evaluation - end of 2015

5. PROGRAMME DESCRIPTION (see Background, Section 13)

5.1. **Programme Description of Nutrition Specific Interventions:** In addition to the livelihoods support described above all of the three programmes will provide the following four nutrition specific interventions:

- **Household Level Counselling:** Counselling on exclusive breast feeding, continuous breastfeeding, complementary feeding and hygiene promotion at household level by trained nutrition counsellors on monthly basis.
- **Micronutrient Supplement:** Five components Micronutrients will be given to children aged between 7 to 23 months. Doses will be 120 sachets a year.
- **Iron and Folic Acid (IFA) Tablets:** 180 IFA tablets will be given to each pregnant and 180 to each breastfeeding woman per year while 104 tablets will be given to each adolescent girl a year (detail in treatment regimen).
- **Deworming Treatment:** Children 1-5 years of age, adolescent girls, and pregnant women after the first trimester of pregnancy will receive regular deworming treatment based on WHO and Government of Bangladesh guidelines.

6. THE REQUIREMENTS AND TEAM STRUCTURE

6.1. The evaluation will draw expertise from the central DFID framework arrangement “Maximising the Quality of Scaling up Nutrition” that was signed with PATH International consortium which includes a range of partners that have extensive and comprehensive nutrition competences and experience. This framework agreement provides a flexible and ready resource for maximising the technical quality of nutritional investments, and reduces DFID’s overall transaction costs. This work calls for the following areas of expertise specified under the framework agreement:

- Analytical work which supports nutrition strategy development, programme design, enhanced coordination, national communications and advocacy work and reviews of capacity;
- Operational research to address key evidence gaps;
- Capacity development;
- Technical assistance to provide expert evidence-based guidance on nutrition-specific and nutrition-sensitive interventions;
- Information sharing to ensure lessons learned across DFID and beyond.

6.2. The process for accessing the service will include:

- DFID will provide the terms of reference (TOR);
- PATH will provide feedback/comments within 10 working days;
- DFID will respond to any queries and finalise the TOR in view of the feedback and comments received;
- PATH will provide one or more expressions of interest (EOI) from consortium members – these include more elaboration of the TOR which may include suggestions of different options and how these are implemented, CVs of the team, and estimated cost within 20 days. PATH will make a judgement on VfM and a recommendation on the EOI, while final selection rests with DFID;
- DFID will decide how we want to proceed the procurement of PATH services.

6.3. All the interventions through this call down agreement will need to be approved by DFID HQ’s Food and Nutrition Security Team in Palace Street as the budget for this framework is held centrally. They will therefore, have a key role in the overall process in relation to this specific input and the bids evaluation.

7. COMPOSITION OF THE EVALUATION TEAM

7.1. The evaluation team skills need to include:

- Internationally recognised experience and expertise in impact evaluation using rigorous methods, including quasi-experimental and experimental methods;
- A technical background in livelihoods, extreme poverty and nutrition – ideally a record of evaluating these programmes;
- Understanding of the nutrition and poverty context in Bangladesh;
- Strong facilitation, coordination and administrative skills;
- Strong project management skills;
- Expertise in performing cost effectiveness analysis; and

In addition to the above, it would be beneficial if the team does have some local presence either directly or through links with local institution/s in Bangladesh.

7.2. Constraints and Dependencies:

7.2.1 Baseline data collection will start before the programmes commence providing nutrition interventions. The endline impact evaluation will occur towards the end of 2015.

7.2.2 The impact evaluation team need to work in close collaboration with the three programmes to identify programme areas and beneficiaries of both livelihoods and nutrition interventions.

7.3. Key evaluation questions

7.3.1. The impact evaluation will answer, (but not be limited to) the following questions:

- Does the combination of direct and indirect nutrition interventions accelerate reduction of undernutrition in adolescent girls, pregnant and breastfeeding women and children under two in the three programmes core beneficiary households' areas compared with non-beneficiary households in programme areas?
- Does indirect nutrition intervention alone improve nutrition outcomes compared to direct nutrition interventions alone in adolescent girls, pregnant and breastfeeding women and children under two in the three programmes core beneficiary household?
- Does indirect nutrition intervention improve nutrition outcomes in adolescent girls, pregnant and breastfeeding women and children under two populations in the three programme areas compared with non-beneficiary households in programme areas?
- Can direct nutrition interventions be delivered effectively through different livelihood programmes such as (i) Challenge Fund through the Economic Empowerment of the Poorest Programme (EEP) (ii) Chars Livelihoods Programme (CLP), and (iii) the Urban Partnership for Poverty Reduction (UPPR)?
- Which livelihoods interventions (programmes) is the most effective in delivering nutrition interventions and why?

7.3.2. The evaluation must test the following Hypotheses:

- Pregnant women in the treatment group (i.e. beneficiaries covered by the three programmes) will have a higher mean haemoglobin concentration (and concomitant less anaemia) than pregnant women in the control/comparison group.
- Breastfeeding women in the treatment group will be more likely to exclusively breast feed for the first 6 months than lactating women from the control group.
- Nutritional status, as assessed by weight, body mass index and haemoglobin concentration of breastfeeding women at 6 months and 24 months post-partum will be higher in the treatment group than the control group.

- Infant growth (as measured by weight gain and length gain) and nutritional status (as defined by height-for-age, weight-for-age, weight-for-height and haemoglobin concentration) from 6-23 months will be greater, on average, in the treatment group than infants in the control group.
 - Child growth and nutritional status between 24-59 months will be greater, on average, in the treatment than in the control group.
 - Adolescent girls receiving the direct treatment (intervention group) will have better growth (weight and height gain) and nutritional status (as defined by height-for-age, weight-for-age, weight-for-height, body mass index and haemoglobin concentration) than adolescent girls in the control group.
 - All target groups consumed MNS and deworming treatments at the right quality, quantity and frequency as set out in the project intervention.
 - Identify any unintended impacts either in the intervention groups or those who are not direct recipients of the programme.
- 7.3.3. The evaluators are expected to consider possible spill-overs and contamination when designing and implementing the evaluation.
- 7.3.4 The expected outcome for the impact evaluation is a robust, rigorous evidence base on effectiveness of combining nutrition specific interventions with livelihood programmes and effective strategies to improve nutritional status of extreme poor in Bangladesh and inform the development of improved policies and programmes.

7.4. Methodology

- 7.4.1. The supplier is expected to develop a design and approaches as part of the bid which will be refined during the inception phase of the project in consultation with DFID Asia Research and Evaluation Division, Policy Division Food and Nutrition team, DFID Bangladesh and the three programmes. It is expected that mixed-methods will be most appropriate to answer the evaluation questions, including rigorous experimental or quasi-experimental methods, as well as qualitative and process evaluation methods.
- 7.4.2. The evaluation methodology should include:
- A comprehensive and detailed explanation of the different methodologies used to answer the evaluation questions
 - Analytical framework to show how different methods are to be combined
 - Power calculations to determine sample sizes
 - Final indicators to be studied
 - Qualitative and quantitative surveys
 - Questionnaires
 - Field visits
 - Developing robust sampling methodology and a framework for analysing secondary and primary data
 - Data validation
 - Participation of key stakeholders.
- 7.4.3. The study will include the following components:
- Detailed Evaluation design and framework. Methodology for the evaluation must be chosen in a way that will ensure that subsequent analysis can attribute causality to the programme through the use of a robust counterfactual. The bidders should propose a methodology to address this, but the use of experimental or quasi-experimental designs is expected.

- Sample size. Sample sizes for the data collection should be determined according to the relevant power calculations and to allow for key sub-group analysis.
- Appropriate baseline, midline and endline surveys of the beneficiaries (children under five, adolescent girls, breastfeeding and pregnant women) and relevant comparison groups to track nutritional outcomes and other key indicators. The design should consider how to adjust for factors that may contribute to changes in the programme areas/households.
- Criteria for the selection and assignment of census area. Targeted groups in the beneficiary households of the three programmes, including both urban and rural areas, will be selected.
- Indicators. Suggested indicators are stunting, wasting underweight and anaemia in children under two, BMI and anaemia in adolescent girls, pregnant and breast feeding women. The socioeconomic status of the targeted beneficiary population should also be included. Bidders can propose additional indicators.
- Data collection and sources of information. The technical proposal must include details of specific secondary data that will be used, and where primary data will need to be collected. The selected supplier will suggest the most appropriate strategy for data collection for both the quantitative and qualitative components, and be responsible for collecting such data. A clear framework for selecting primary and secondary data and how these are analysed must be proposed.
- Cost of data collection. The cost of all data collection and analysis will be borne by the supplier and should be included in the financial proposal.
- Ownership. The evaluation design needs to take into account any government of Bangladesh rules regarding the use of data collected as part of this evaluation.
- The technical proposal should also identify and raise any potential ethical concerns with DFID. The evaluation proposal must conform to DFID's ethical principles (http://DFIDinsight/Other/Departments/EvaluationDepartment/Evaluationstudies/Capacityquality/PUB_031075). It also needs to seek approval from relevant local bodies for conducting the evaluation.
- It is expected that qualitative methods will be used to provide deeper insights into the impact of the selected interventions or programme. In particular, the qualitative research should provide a better understanding of beneficiaries' behaviour, attitudes and expectations, as well as explaining conflicting responses among informants and internal contradictions if any. It is expected that this component will include the use of case studies, focus groups and key informant interviews to examine why an intervention is succeeding or failing to work and how it could be improved or expanded. In addition, a selection of other relevant research issues may be examined (e.g. breast-feeding practices, acceptability of fortified food among mothers and children, etc.).

7.4.4. ***Cost-effectiveness of DFID's nutrition support:*** This evaluation is expected to assess whether integrating nutrition specific intervention in existing livelihood programmes are cost effective. The evaluation team are expected to answer the following questions:

- Do (and if so, to what extent) the direct nutrition interventions make the livelihoods programmes more cost effective?
- How does the cost of delivery of direct nutrition interventions through these programmes compare to costs of delivery through the health system?
- Does this delivery system have other benefits (e.g. reaching the poorest more effectively)?

8. REPORTING

- 8.1. The evaluation team will report to the DFID Bangladesh Evaluation Management Committee. PrG will be responsible for managing all contractual issues. The evaluation team will work closely with the three programmes at field level and with the evaluation management committee led by DFID B. Payment will be according to an agreed schedule of outputs. The percentages will be determined at the time of contract negotiations on the budget.

Output 1

- Work plan – within three weeks of signing the contract.

Output 2

- Inception report – within three months of signing the contract, the consultancy firm will present an inception report with a detailed methodology for the evaluation. Some of the methodological issues that should be included in the report are: sample size and design, including relative size of treatment and comparison samples, significance level, power calculations, methodology for identifying the treatment and comparison groups, and an analytical framework bringing together both quantitative and qualitative components.

Output 3

- Report on first (baseline) survey and appropriateness of control group – within 6 months after signing the contract, the consultants will provide a short the report (15-20 pages) presenting and analysing key variables in the survey. The report should compare observations from control and treatment groups and assess whether the proposed control group is statistically valid. If this is not valid, recommendations on how to adjust the data collection must be done in order to minimise potential bias.

Output 4

- Report on the midterm report covering all aspects of the impact evaluation questions (qualitative and quantitative). Data collection will commence in July and report is expected in June 2014. This report will present the initial impact evaluation results for the nutritional status of the target groups using the first and second surveys. Sample size must be sufficient to assess differential impacts among sub-groups.

Output 5

- Workshop on midterm results. This should include representatives from all key stakeholders, present the findings of the first phase quantitative and qualitative studies and discuss measures for corrective action if necessary May 2014.

Output 6

- Report on the final evaluation which covers all aspects of the impact evaluation questions (qualitative and quantitative) by December 2015. This report will present final impact results from the quantitative surveys using all three rounds of data. Sub-group analysis will also be done. In addition, the results from the qualitative evaluation (beneficiaries and other stakeholders' attitudes, compliance, and other) should be cross-checked with all the surveys to assess the potential impact of other factors on final outcomes.

Output 7

- Publication of the final Impact Evaluation in more than one academic paper and journal on nutrition, livelihoods, etc. by March 2016.

Output 8

- Conduct a workshop with DFID and all key stakeholders in Bangladesh on final results – and prepare workshop proceedings report at end of programme.

- 8.2. All the reports should include spreadsheets of the underlying primary data that has been collected, information on whether the interventions have had an impact or not, the lessons learned, recommendations, value for money assessment and overall socioeconomic situation of the target population. There will be open access six months after the evaluation report is submitted and approved.

9. USE OF EVALUATION FINDINGS AND RESULTS

- 9.1. The evaluation findings and results will be used by Government of Bangladesh, DFID, implementing partners, NGOs, and the development community.
- 9.2. PATH consortium are required to propose a dissemination and communication plan as part of the inception report and implement the plan on behalf of DFID. The supplier is encouraged to use the data collected as part of the evaluation to publish academic papers and journals. Data sets will be made available to other researchers for analysis, with due consideration given for the privacy of respondents. The design and protocol for the evaluation will be registered with medical journals in advance of the evaluation.

10. TIME FRAME

- 10.1. The call down contract is expected to commence in July 2012 and end by December 2015. An inception report will be within three months. This will be used to inform the implementation phase. All timing will need to be coordinated with the programme implementing entity.

11. DFID COORDINATION

- 11.1. The supplier will report to DFID Bangladesh. DFID Bangladesh will work closely with Asia Research and Evaluation Division and the Food and Nutrition Security team of policy division for coordinating technical inputs and follow-up implementation at country level.
- 11.2. Both the livelihoods support and the nutrition component of the three programmes are managed by DFID appointed implementing partners. The supplier will be required to work closely with the three implementing partners throughout the life of the 3.5 year nutrition programme, including identification of beneficiaries and the areas to be covered by each programme.
- 11.3. DFID will establish an evaluation management committee which include Asia Evaluation and Research Division, the Food and Nutrition team of Policy Division, DFID Bangladesh and representatives from the three programmes. The committee will provide guidance in the implementation of the evaluation.

12. PROJECT MANAGEMENT AND LOGISTICS

- 12.1. The supplier (PATH led consortium) will be expected to supply their own logistic requirements including office space and transport.
- 12.2. The supplier is expected to undertake the evaluation independently, recruiting its own staff for survey design, data collection and analysis, and report production. It will be expected that the same firm will be retained throughout the project period, depending upon satisfactory completion of deliverables and Outputs outlined in Section 7, to ensure consistency of survey execution and to build on historical knowledge. PATH led consortium should comment on how independence can be maintained from the programme implementing entity, given the need for a very close working relationship through the life of this evaluation.
- 12.3. It is expected that the evaluation should conform to OECD-DAC principles of accuracy and credibility, and to the evaluation principles set out in the UK's 2009 policy on evaluation for international development. Bidders should set out how they will ensure the study is ethically sound and with which relevant ethical protocols it will comply.
- 12.4. All equipment purchased for the work, collected data and reporting will remain the property of DFID.
- 12.5. All mandatory requirements in DFID's 'Information Note (copy attached) and requirements for all visiting staff, consultants and suppliers' must be adhered to.

13. BACKGROUND

- 13.1. In Bangladesh, 41 per cent of children under five years of age are underweight and 87 per cent of children under two years of age are anaemic. The situation is worse in extreme poor households. A recent nutrition survey of extremely poor households found that among children under five years of age, 47 per cent are underweight, over 52 per cent are stunted, and around 90 per cent are

anaemic. In addition, over 50 per cent of extreme poor women are undernourished, compared to a national average of 30 per cent. Evidence from the Economic Empowerment of the Poorest Programme (EEP) and Chars Livelihoods Programme (CLP) nutrition survey indicates that nutritional status is improving at very slow rate and in some cases worsening despite increased income and asset level programme beneficiaries.

- 13.2. DFID has recently approved a programme to integrate nutrition specific interventions that includes household level counselling (on exclusive breastfeeding, complementary feeding and hygiene), micronutrient supplementation, and regular deworming treatment. These interventions will be delivered through three extreme poverty programmes (i) Challenge Fund through the Economic Empowerment of the Poorest Programme (EEP) (ii) Chars Livelihoods Programme (CLP), and (iii) the Urban Partnership for Poverty Reduction (UPPR). It will target children under five years, adolescent girls, pregnant and breast feeding women from core beneficiary households of the three programmes.
- 13.3. The rationale for integrating nutrition specific intervention in existing programmes are (i) to address both immediate and underlying causes of undernutrition (ii) accelerate improved nutrition in extreme poor households and draw lessons on what works (theory of change matrix attached for information).
- 13.4. DFID is seeking a supplier to design and conduct impact evaluation of both nutrition specific interventions and ongoing livelihoods support to core beneficiaries. The proposed evaluation is expected to provide baseline, midline and final evaluation reports.

14. THE PROGRAMMES THAT PROVIDE INDIRECT NUTRITION INTERVENTIONS ARE:

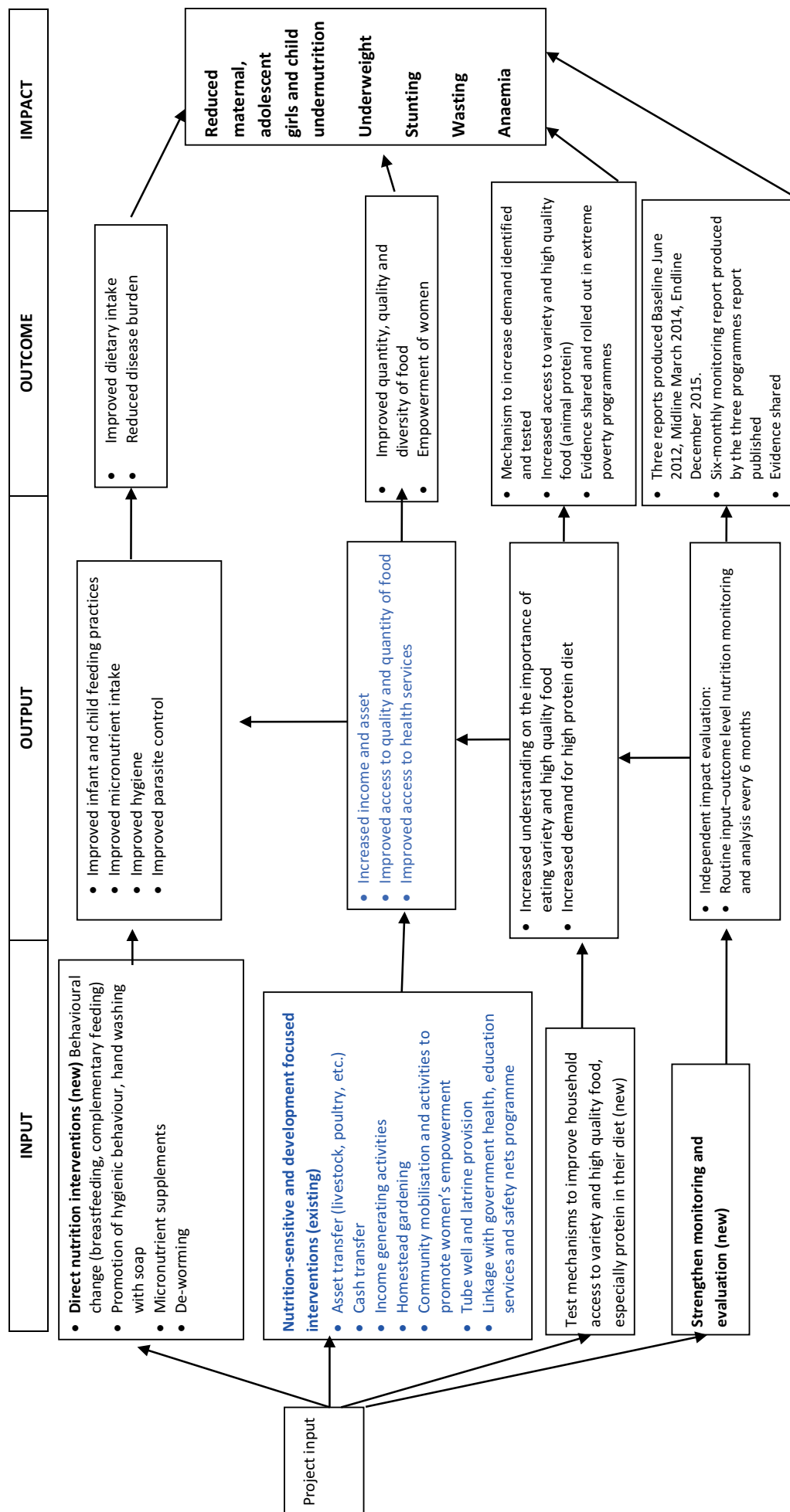
- 14.1 **Chars Livelihoods Programme (CLP):** The programme aims to improve the livelihoods and food security of 1 million extremely poor and vulnerable island char dwellers; to improve the resilience of char dwellers to the effects of flooding. It covers remote char islands of the north-western districts of Bangladesh. The main activities of the programme include: homestead plinth above the highest known local flood level; provides sanitary latrine and access to clean drinking water; one-time transfer of productive assets (ranging from cows to goats); backed by cash stipends for 18 months; short-term social protection activities for preventing people from slipping even deeper into poverty. These mainly include employment creation during seasonal hunger (*monga*), and emergency grants to withstand the sudden shocks caused by river erosion, tornadoes, domestic fire etc. It increases awareness and knowledge about range of social development issues including health and environment, disaster preparedness, women's empowerment and their rights, basic loan and financial management skills. It also promotes entrepreneurship and strengthens their market linkages in livestock and other areas. It has also piloted nutrition specific intervention within the programme such as MNS and deworming. For the full report, please visit http://www.clp-bangladesh.org/pdf/survey_report_27_july_2010.pdf. CLP also conducted Cross-sectional analysis of Round 4 and Longitudinal analyses of changes in nutritional status over rounds 1 to 4" carried out in February 2010. For the report of this survey, please visit http://clp-bangladesh.org/pdf/report_on_4_rounds_july_27_2010.pdf. Integrating direct nutrition intervention is expected to commence from October 2012 and to end in September 2015 the entrants of Year-1 will receive services for 3 years, entrants of Year-2 will receive for 2 years while the entrants of Year-3 will receive services for 1 year only (for details refer to the BC roll out plan).
- 14.2 **Economic Empowerment of the Poor Programme (EEP):** It aims to enable over 1 million people in rural and urban areas to lift themselves out of extreme poverty and achieve sustainable livelihoods. It covers geographical areas where extreme poverty is concentrated, including flood prone river islands (*chars*) and basins (*haors*); cyclone prone coastal regions; seasonal hunger (*monga*) affected areas and Chittagong Hill Tracts; also urban slum and street dwellers. The main activities include: challenge fund to support livelihoods for extreme poor; targeting very poorest of extreme poor and socially excluded groups such as *Adivashis*. It also includes a pro-active programme of lesson learning and research to enhance the understanding of extreme poverty and of the effectiveness of alternative interventions. EEP also conducted socioeconomic and nutritional status survey in March 2010 and March 2012 (<http://www.shiree.org/content/survey>)

report will be available. EEP nine Scale Fund NGO partners are responsible for the delivery for individual project delivery and the selection of beneficiaries. Six Scale Fund partners commenced activities in 2009 involving 82,850 direct beneficiary households, over the three years of project period. An additional 92,000 households will be enrolled in the programme by late 2013, during the phase 2 of these six projects. In 2011 EEP also began working with three more scale fund partners 47,000 households. The direct beneficiaries of the nutrition intervention will be a sub set of these 221,850 (82,850, 92,000 and 47,000) households with family members corresponding to the specific target groups. All the eligible target population for the nutrition intervention will be identified by the nine Scale Fund NGOs and verified by EEP Concern during the implementation phase. Regular updating of the beneficiaries list will be done to track new recipients for nutrition activities (e.g. pregnant women, adolescent girls etc.) (for details refer to the BC roll out plan).

- 14.3 **Urban Partnership for Poverty Reduction (UPPR):** Aim to improve livelihoods and living conditions of 3 million poor and extremely poor people, especially women and children, living in urban areas. It covers six City Corporations (including Dhaka) and 24 municipalities (“Pourashavas”). The main activities of the programme include: Healthy and secure living environments – created through mobilising communities in partnership with local government, civil society and the private sector. Through Settlement Improvement Funds it is supporting safe water, toilets, safe walk-ways and improved drainage. It provides resources, knowledge and skills to increase the incomes and assets of poor and extremely poor households. For example, the Socioeconomic Fund to provide education and apprenticeships, block grants to set up small businesses particularly for poor youths and women. It also advocates for a more supportive policy environment, delivering benefits to the urban poor – for example new approaches to security of tenure and forced evictions.

DFID Bangladesh June 2012

Figure 1.1 Theory of Change: Integrating Direct Nutrition Intervention in Extreme Poverty Programme



ANNEX B: MAPS OF PROGRAMME SITES

Figure 2.1: CLP Phase II implementation areas

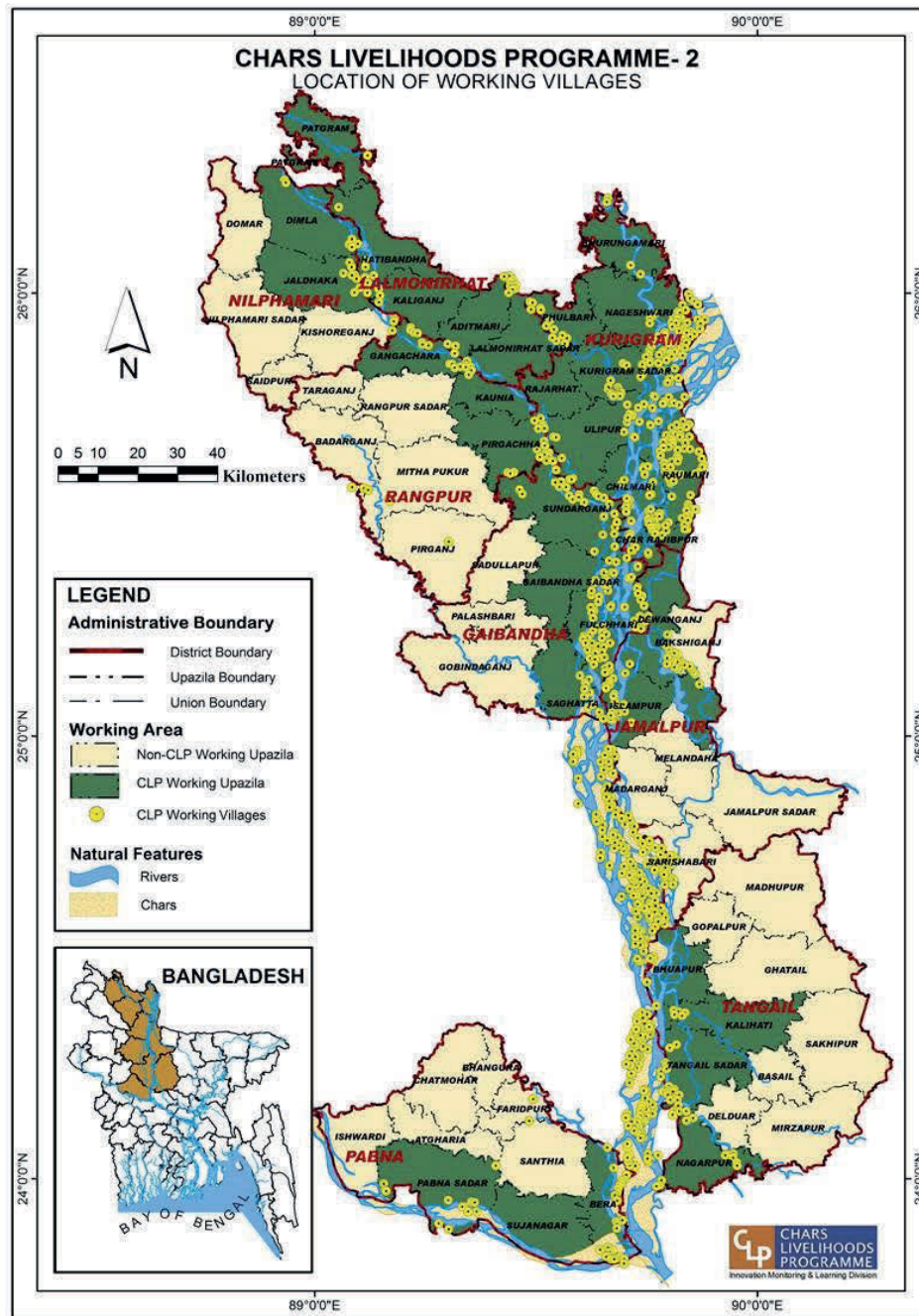


Figure 2.2: EEP Concern implementation areas

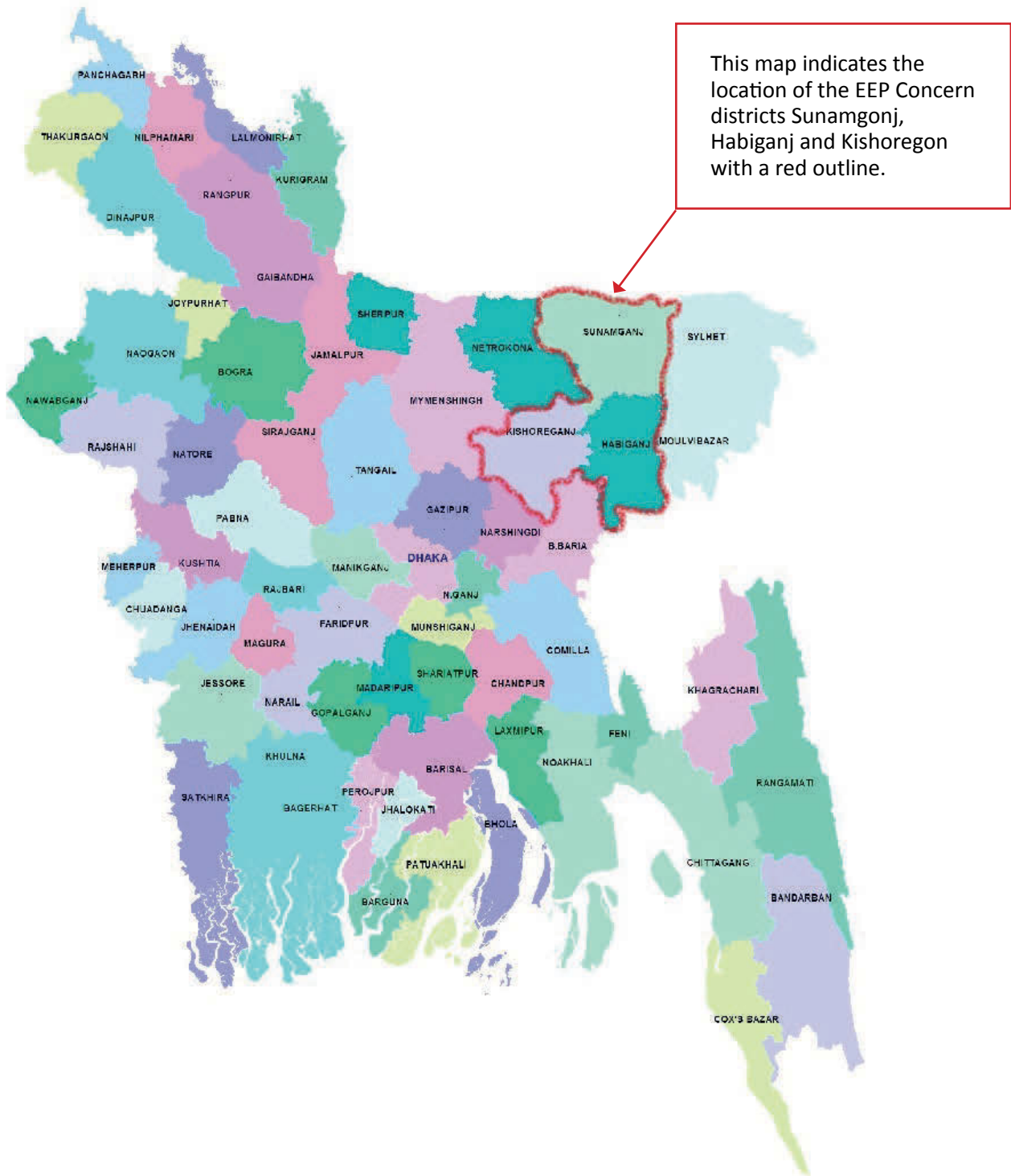
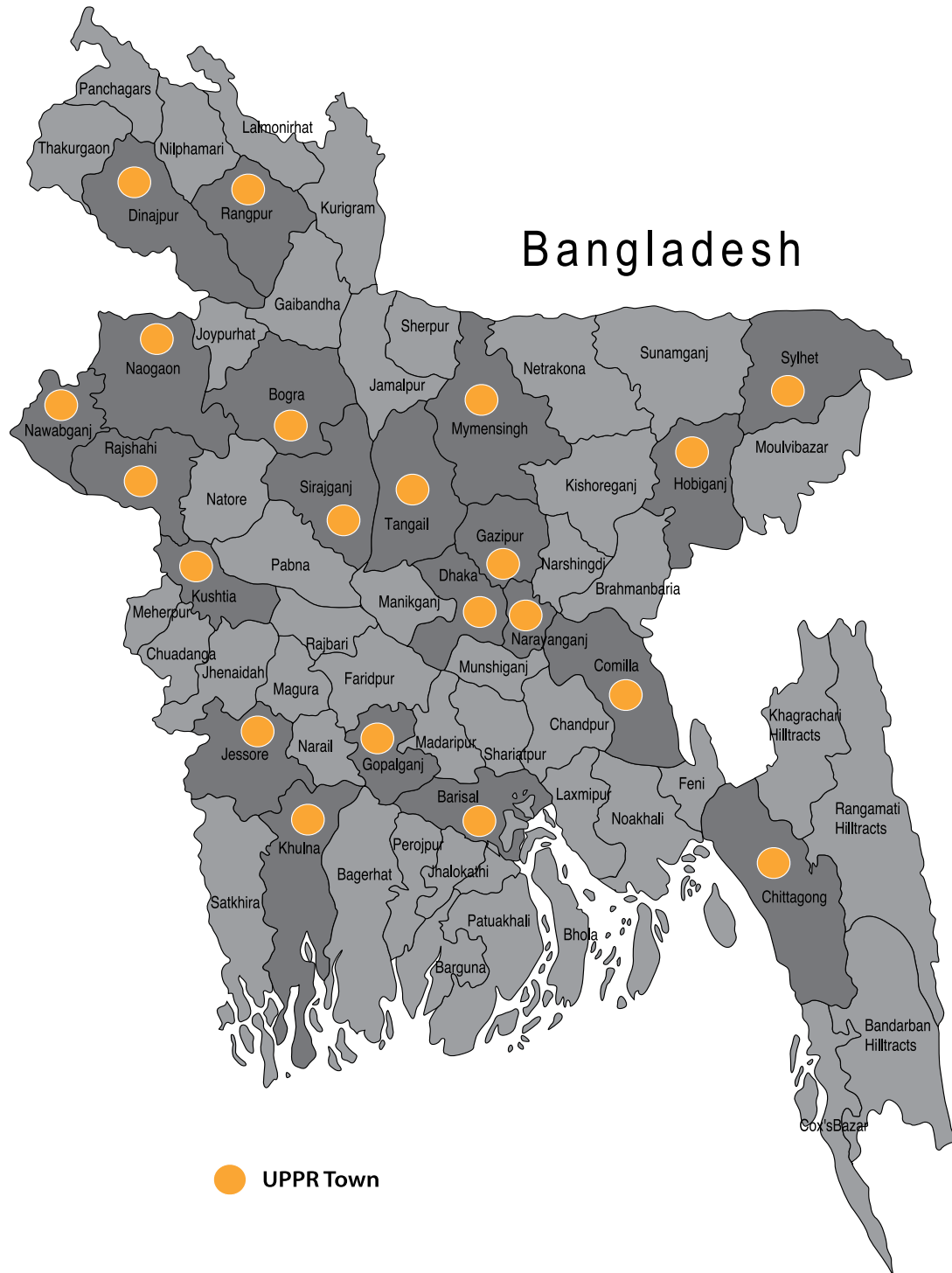


Figure 2.3: UPPR implementation areas



ANNEX C: NUTRITION-SPECIFIC PROGRAMME ORGANOGRAMS

Figure 3.1: CLP nutrition programme staff organogram

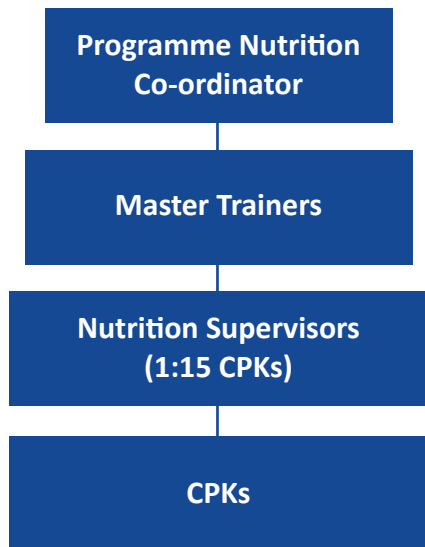
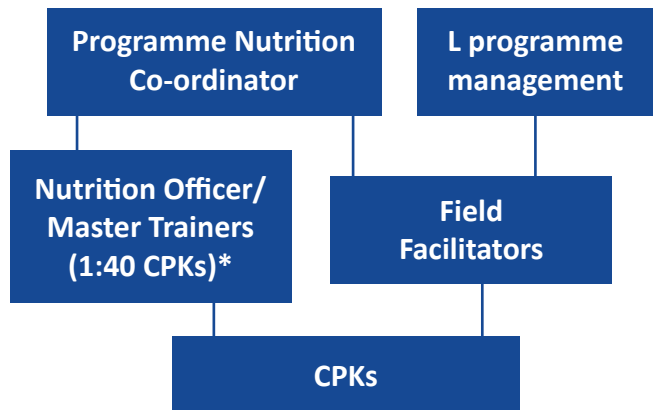


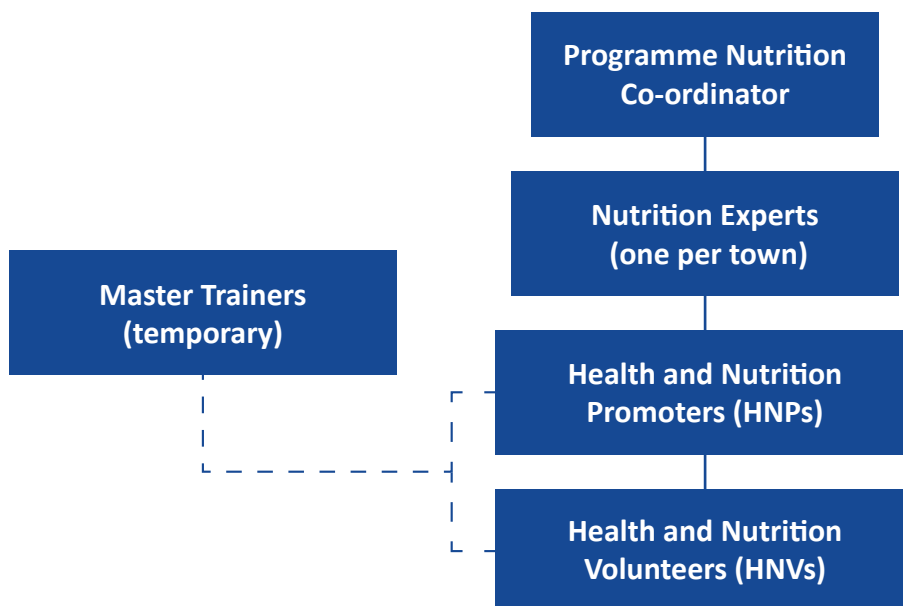
Figure 3.2: EEP Concern nutrition programme staff organogram



EEP Concern

*Additional NOMTs hired in Jan 2015, (more than halving supervision ratio)

Figure 3.3: UPPR nutrition programme staff organogram



ANNEX D: QUANTITATIVE EVALUATION COMPONENT METHODOLOGY

D.1 Quantitative evaluation design

The quantitative component was designed to provide numerical estimates of the causal impacts of the programmes on beneficiaries’ nutrition outcomes. IFPRI and IDS led this component, with in-country support from survey firm Data Analysis and Technical Assistance Limited (DATA) on conducting the baseline and endline surveys.

In a quantitative evaluation, ‘impact’ refers to the difference in beneficiary households’ observed outcomes after receiving a set of interventions, relative to those same households’ counterfactual outcomes in the same time period, had they not received the interventions.¹ It was intended that three secondary objectives regarding programme impact would be addressed by the quantitative component, as shown in Table 4.1.²

Table 4.1: Original quantitative component objectives mapped to methods			
Objective	Secondary objective	Metrics/type of data or explanation available	Method and source of data
(1) To estimate the quantitative impact of the combined nutrition-specific and livelihoods interventions in three different DFID programmes on the nutritional status of children under two, and to compare this with the impact of the existing livelihoods interventions	(1.1) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions (denoting this scenario ‘L+N’), relative to receiving a livelihoods intervention only (denoting this scenario ‘L-only’)?	Estimates of the intervention’s causal impacts on beneficiaries’ outcomes compared to counterfactual of no intervention	Baseline and endline surveys of households as repeated cross-sections Communities randomised to receive intervention Outcomes analysed using difference in difference estimation
	(1.2) What is the impact on nutrition outcomes of receiving a combination of livelihoods and nutrition-specific interventions (‘L+N’), relative to receiving no intervention (denoting this scenario ‘C’ for comparison)?		
	(1.3) What is the impact on nutrition outcomes of receiving a livelihoods intervention only (‘L-only’), relative to receiving no intervention (‘C’)?		

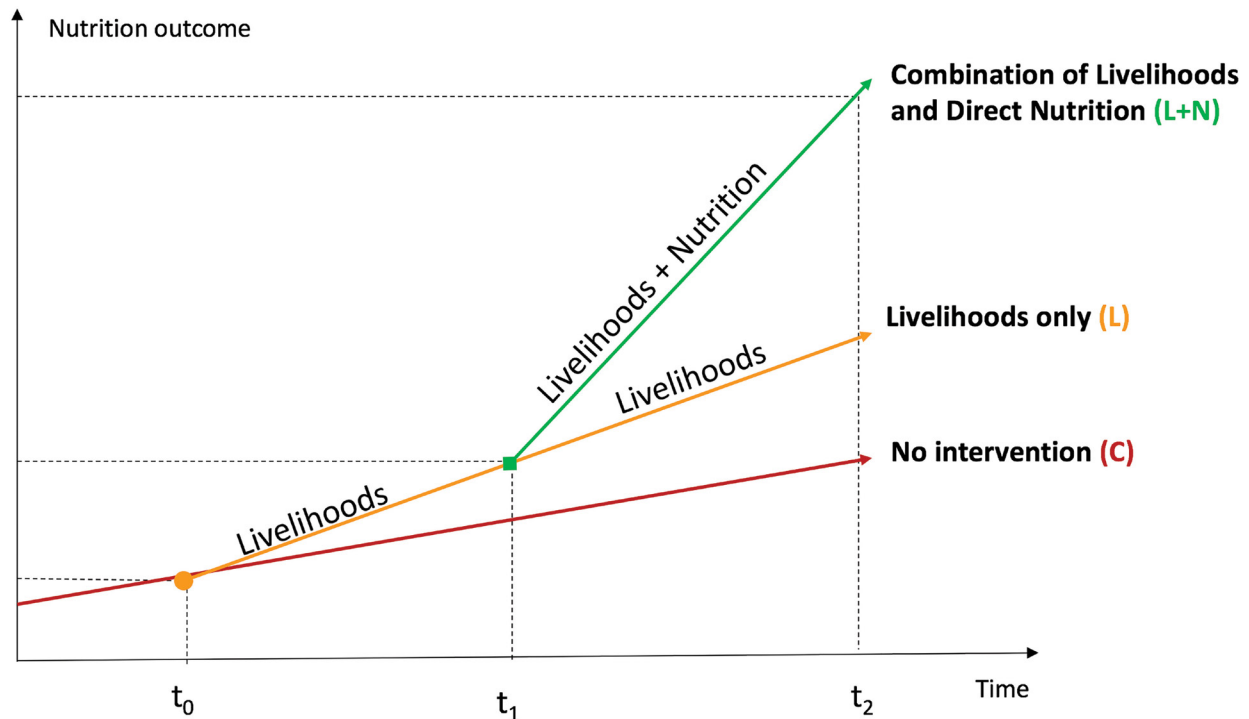
The three distinct measures of impact can be conceptualised by imagining three possible ‘paths’ for a household, depending on whether that household receives no intervention (C), a livelihoods intervention only (L or L-only), or a livelihoods and nutrition-specific interventions (L+N). Figure 4.1 shows a diagram of these possible paths towards a given nutrition outcome, with the horizontal axis reflecting time. First, consider a path in which the household receives no intervention through three successive periods

¹ In the context of quantitative analysis, the terms ‘impacts’ and ‘outcomes’ have statistical definitions distinct from those in a theory of change.

² As discussed in section 2.1 of the main report, there were various modifications to the research questions and subsequent quantitative component design and methods employed. The final design (presented in the main report, section 2.3.2) primarily impacted research questions 2 and 3, leaving question 1 to be answered as planned.

(t_0 , t_1 , and t_2). The red line (C) gives an example of this possible path, reflecting that the nutrition outcome may slightly increase over time, despite no intervention, for example because of general improvements in hygiene and sanitation. Then, consider an alternative path for the same household, in which until t_0 the household receives no intervention, like the C group, but after t_0 and continuing through time t_1 and time t_2 , the household receives a livelihoods intervention. The yellow line (L-only) shows this possible path. Finally, consider another alternative path for the same household, in which until t_0 the household receives no intervention, like the C and L-only groups, after t_0 the household receives a livelihoods intervention like the L-only group, but after t_1 the household receives a combined nutrition and livelihoods intervention. The green line (L+N) shows this possible path.

Figure 4.1: Different possible paths towards outcomes, according to interventions received

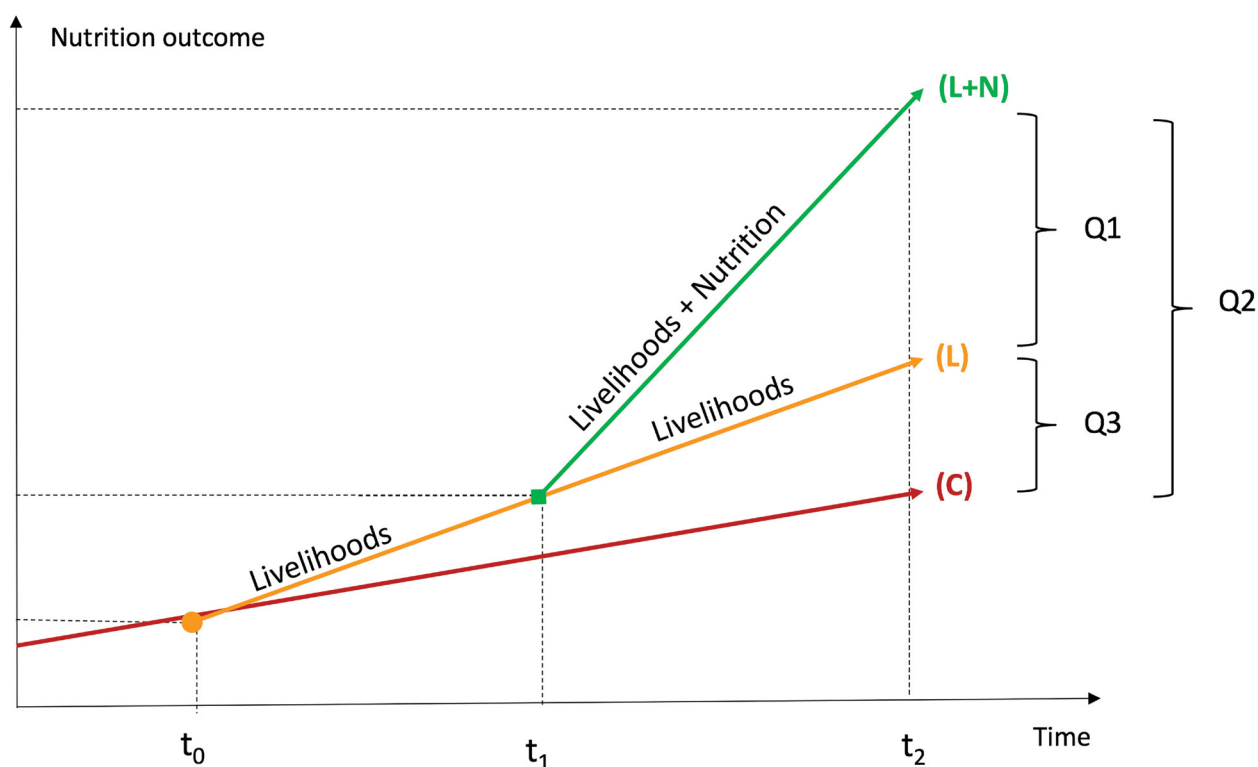


If it were possible to observe all three possible paths (i.e., L+N, L-only and C) for a given household, it would also be possible to answer all three of the quantitative component secondary objectives by directly comparing the paths. Figure 4.2 shows a diagram of the measures of impact that would correspond to each of the three research questions. The difference between the L+N and L groups at time t_2 provides the answer to objective 1.1 – the impact on a nutrition outcome of receiving a combination of livelihoods and nutrition-specific interventions (L+N), relative to receiving a livelihoods intervention (L-only). The difference between the L+N and C groups at time t_2 provides the answer to objective 1.2 – the impact on a nutrition outcome of receiving a combination of livelihoods and nutrition-specific interventions (L+N), relative to receiving no intervention (C). The difference between the L-only and C groups at time t_2 provides the answer to objective 1.3 – the impact on a nutrition outcome of receiving a livelihoods intervention (L-only), relative to receiving no intervention (C).

However, the key complication in an impact evaluation is that all three paths cannot be observed for any one household. For a given household, it is possible to observe only a single one of the three paths, depending on which (if any) interventions it actually does receive. Therefore, in order to develop a measure of any counterfactual scenarios for observed households, proxies must be constructed.

The quantitative component of this evaluation is designed around constructing these proxies to capture the notion of impact. Intuitively, the estimation approach assesses changes over time for households that receive interventions, then compares these to changes over time in proxies for those same households had they not received interventions. The original design for measuring these changes over time was through a panel survey; this was later modified to a hybrid design of a panel survey and a repeated cross-section survey.

Figure 4.2: Relative impacts of the three interventions and their relationship to the research questions



D.1.1 Design for comparison of L-only and L+N interventions

In order to construct a proxy for the L+N households in the counterfactual L scenario within each of the three programmes, randomisation was used. Among the households that already received L at baseline (corresponding to time t_1 above), half were randomly assigned to additionally receive the nutrition intervention (N) after the baseline (the L+N group). The remaining half continued to receive only the livelihoods intervention (the L-only group). Randomisation was conducted at the level of primary sampling units (PSUs) that cover an entire locality – wards in the case of the two rural programmes, CLP and EEP Concern, and programme-defined ‘clusters’ of slums in the case of the urban programme, the UPPR programme – rather than at the level of individual households. The randomisation was intended to make it very likely that characteristics of the L-only and L+N groups would on average be similar at baseline. L-only would then be a valid proxy for L+N, and average differences between the groups at endline could be interpreted as impacts caused only by the addition of N rather than by pre-existing differences.

Analysis presented in the baseline report for the quantitative component of this evaluation (Roy *et al.* 2015) demonstrated that the randomisation was successful in statistically balancing nearly all indicators across the three programmes between the L-only and L+N arms. In the isolated cases where statistically significant average differences in indicators are found between L-only and L+N, the magnitudes of differences tended to be quite small. Moreover, it was expected that some statistically significant differences would appear by chance because of multiple testing, and even the small baseline differences found between L-only and L+N could be controlled for in the eventual impact analysis. Overall, the analysis of the quantitative baseline data gave confidence that any statistically significant differences between the L+N and L-only groups later found at endline could be causally attributed to the addition of N, rather than any pre-existing differences between the two groups.

D.1.2 Design for comparison of C with L-only and L+N interventions

In order to construct a proxy for each programme’s L+N households in the counterfactual (C) scenario of no intervention, non-randomised approaches were used. Since none of the original livelihoods interventions were rolled out following a randomised control trial design, there was no obvious set of comparable non-beneficiaries to serve as the counterfactual. Because a control group was nonetheless required to assess the absolute benefits of either the L-only or the L+N intervention, attempts were made to construct the best

possible control group out of non-randomly selected non-beneficiaries. Although a non-random control group was not expected to be on average identical to beneficiary households, the objective in the baseline survey was to sample a group of non-beneficiaries as similar as possible to the beneficiaries except for receipt of the intervention.

In practical terms, a complication was that the CLP and EEP Concern had nearly blanket coverage of areas meeting their eligibility criteria, meaning there were very few areas not receiving livelihoods interventions that were similar to intervention areas. The UPPR programme was a bit less complicated, since Bangladesh has many urban slums, and UPPR covers only a sub-set. For the CLP, the control group approved by their implementation staff was a set of riverine *char* islands scheduled to receive the CLP in the future but not yet receiving it – referred to as ‘Cohort 2.6’ – as well as a small number of mainland *chars*. However, after the baseline survey, DFID decided on ethical grounds that CLP Cohort 2.6 should receive the CLP before the endline survey, leaving only mainland *chars* in the CLP control group. For EEP Concern, the control group approved by EEP Concern implementation staff was a set of areas near the *haor* not meeting their eligibility criteria but as similar as possible to the areas covered. The control group approved by UPPR implementation staff was a set of urban slums not covered by the UPPR.

Exploratory analysis presented in the baseline report (Roy *et al.* 2015) used propensity score estimation to show the following. For the CLP – where only riverine *chars* appeared in the treatment group and only mainland *chars* remained in the control group after the exclusion of Cohort 2.6 – the treatment and control groups exhibited very little overlap in propensity scores based on observables, showing quite conclusively that observable characteristics were very different between the two and that the control group without Cohort 2.6 could not serve as a proxy for the treatment group. For EEP Concern – where the programme had nearly blanket coverage of areas meeting its eligibility criteria – the distributions of propensity scores for the treatment and control groups suggested that, although it might be possible to find a very small sub-set of control households to serve as a proxy for a very small sub-set of the treatment group, these matched samples with common support might be too small for meaningful impact estimation, such that the EEP Concern control group was not an ideal proxy for the treatment group. For the UPPR programme – which covered only a sub-set of the many urban slums in Bangladesh – the distributions of propensity scores for the treatment and control groups exhibited a considerable amount of overlap over a small but potentially meaningful proportion of the sample, suggesting that there was reasonable potential for a sub-set of the UPPR control group to serve as a proxy for a sub-set of the treatment group. On the basis of this analysis, it was decided in collaboration with DFID to drop the control groups for the CLP and EEP Concern from the study, but retain the control group for the UPPR programme.

D.2 Sample design

At baseline, the quantitative sample was designed around the ability to detect impacts in key outcomes of interest – in particular, 0.25 standard deviation changes in the height-for-age z-scores (HAZ scores) of children aged 0–23 months. Sample size calculations indicated that a minimum of 70 localities must be sampled for each intervention arm (L+N, L-only, C) for each programme (the CLP, EEP Concern and the UPPR programme), with about 18 children aged 0–23 months sampled per locality. Therefore the design implied 1,260 children per intervention arm per programme, for an overall total of 11,340 children aged 0–23 months.

Before the endline survey, adjustments were made to the study sample in response to preliminary findings on implementation. The original sample design of the study was a repeated cross-section, wherein new households with a child aged 0–23 months at endline would be drawn and interviewed at endline. A double-difference specification would be used to compare the pool of 0–23-month-olds at baseline with the pool of 0–23-month-olds at endline, across intervention arms. Although this analysis would compare different households over time and would thus have limited statistical power, it would include children who were exposed to the N component during their first thousand days (including during their mother’s pregnancy) and for whom key outcomes like IYCF would still be relevant at endline. At the outset it was perceived that, if the N component was started immediately after the baseline survey and was implemented intensively, the repeated cross-section sample’s advantages would outweigh its disadvantages. However, when initial findings suggested that implementation of N may not have been as intensive as envisaged (discussed in main report, section 3.2), the disadvantage of limited power seemed likely to weigh more heavily.

On this basis, the sample was revised to a partial repeated cross-section and partial panel. In particular, a repeated cross-section sample of new households with a child aged 0–23 months at endline would still be collected. However, in addition, of the original sample of households with a child aged 0–23 months at baseline, those with a child aged 0–12 months at baseline would also be followed up as a panel. These panel children would have reasonably long exposure to the N component during the first thousand days. The panel design had several advantages: allowing the double-difference impact estimation to control for individual-level fixed effects, which improves power; allowing disaggregation of impacts by an individual’s baseline characteristics; drawing on a sample with prolonged exposure to intervention; and so on. There were also disadvantages – children aged 0–23 months at baseline were already past the window of opportunity for some features of the N component by the time they were exposed (e.g., measures during mother’s pregnancy); some key outcomes would no longer be relevant at endline (e.g. IYCF practices relating to very young ages) – but these issues could be captured by the repeated cross-section sample. In other words, the final hybrid sample attempted to balance the advantages and disadvantages of the panel and repeated cross-section by including some of both. The repeated cross-section sample would be used for most outcomes including IYCF practices, mother’s knowledge about these practices and anthropometry. The panel sample would be additionally used to assess outcomes where prolonged exposure and power seemed particularly important (such as anthropometric impacts). The number of households interviewed for each was decided by balancing cost considerations with the need to ensure reasonable statistical power in each sample.

Another adjustment made to the quantitative design on the basis of preliminary process evaluation findings about implementation was the addition of surveys administered to CNWs. Given initial indications of some issues in the implementation of the N component (discussed in the main report, section 3.2), value was seen in collecting information directly from the CNWs on their experiences (caseload of households, time spent with each household, frequency of visits, etc.), in order to triangulate this information with what was found in the process evaluation. A survey of all CNWs was therefore included in the quantitative endline survey.

The omission of the CLP and EEP Concern control groups described above offset the survey costs for expanding the sample to include the hybrid sample design and the CNW survey. The final quantitative sample design can be summarised as follows (Table 4.2).

Programme	Intervention arm	BASELINE (BL)	ENDLINE (EL)	Cross-section HH sample	CNW sample
		Panel HH sample	Panel HH sample		
		HH with child aged 0–23 months at BL	HH with child aged 0–12 months at BL (estimate)		
CLP	L-only	1,260	630	980	-
	L+N	1,260	630	980	About 100
	C	1,260	-	-	-
EEP Concern	L-only	1,260	630	980	-
	L+N	1,260	630	980	About 100
	C	1,260	-	-	-
UPPR programme	L-only	1,260	630	980	-
	L+N	1,260	630	980	About 100
	C	1,260	630	980	-
TOTAL		11,340	4,410	6,860	About 300

D.3 Data collection and management

The quantitative baseline survey was fielded from September to November 2013. Because respondents from all three intervention arms were interviewed at the same time of year, seasonal factors are not expected to bias comparisons between them within a programme. The endline survey was fielded approximately two years after the baseline survey, from October to December 2015.

The key instrument of the quantitative component was a questionnaire that collected information on indicators along the causal chain for nutrition outcomes. In particular, it captured indicators that allowed

tracing out that, without improvement in ‘intermediate outcomes’, it was highly unlikely that improvement in ‘final outcomes’ would be observed. Accordingly, it collected direct measures of anthropometry, but also elicited information on, among other topics, household demographic characteristics; maternal knowledge; attitudes and practice regarding care behaviours; and IYCF practices.

The survey firm DATA conducted the preparation and administration of the baseline and endline surveys. DATA has extensive experience conducting large-scale household surveys in Bangladesh that focus on social protection and nutrition, and included measurements of anthropometry and elicitation of detailed food-consumption recall. IFPRI has collaborated with DATA on impact evaluations in Bangladesh for over 20 years. DATA’s supervisors and enumerators are all local people and native speakers of Bangla.

Prior to enumerator training, the survey instrument was translated from English into Bangla. Many of the modules in the survey instrument were drawn from previous questionnaires administered by IFPRI and DATA, such that these modules were already well tested and translated. For each survey round, DATA’s enumerator training included comprehensive discussion of each survey module, a pre-test, a review session, a mock interview, a test, refresher training as needed, a field practice, feedback from field practice, a problem-solving session, and a final discussion of logistics and survey tool distribution.

Fieldwork was conducted from September to November 2013 for the baseline survey and from October to December 2015 for the endline survey. Each household interview took approximately two hours to field. As part of the fieldwork, there were two phases to receiving informed consent. In the first phase, DATA survey supervisors met with leaders of the village (typically the ward member or another respected person in the village) to describe the scope, purpose and duration of the study, the respondent burden and the potential risks and benefits, and to provide contact details of individuals in Bangladesh who could be contacted for additional details. If the work was deemed acceptable to this local leadership, a survey supervisor and enumerator would make initial contact with respondent households, providing the same information about the study (also included in the written consent form), stressing that participation was strictly voluntary, and recording voluntary consent. No payment or other gifts were offered to households in exchange for participation. However, refusal to participate among sampled households was very low.

Field teams were structured to include supervision and coordination at several levels. For each programme’s baseline survey, the field staff consisted of one overall coordinator, three field coordinators, 15 survey supervisors (one for each of 15 distinct field teams), 15 field editors (one for each of 15 field teams), and 75 enumerators (five for each of 15 field teams).

When the baseline fieldwork had been completed, data entry and preliminary cleaning were conducted, with additional cleaning performed by both DATA and the evaluation team during subsequent analysis (including DATA reverting to the hard copy questionnaires to resolve questions on outliers or possible data entry errors). Names and other easily recognisable identifiers were removed prior to data entry and have not been included in any electronic databases. Study identifiers have been included instead, which are not meaningful to casual observers but can be used to link data for the same household across several instruments. Study logs and hard copies of filled-in questionnaires are stored in locked facilities in Dhaka. Data files have been released only to the evaluation team members working on the quantitative analysis at IFPRI and IDS. Following IFPRI’s official dataset policy, the baseline and endline data will be made publicly available two years after all data collection for this evaluation ceases. Prior to the end of the two-year release time, access to these data will be permitted in response to reasonable requests only with the agreement of the quantitative researchers in the evaluation team.

D.4 Estimation approach

Because the comparison of the L-only and L+N interventions draws on randomisation, while the comparison of C with the L-only and L+N interventions is non-randomised, the methodologies for impact estimation differ slightly and are described separately below. All analysis was conducted in Stata 14.

D.4.1 Comparison of L-only and L+N interventions

Intent to treat impacts are estimated using the double-difference approach on baseline and endline data, for both repeated cross-section households and panel households. For repeated cross-section households, the estimation equation for each household i with a child aged 0–23 months at baseline or endline is

as follows: denoting with *groupdummy* variable for being in L+N vs L-only, and denoting with a dummy variable for the household observation being at endline vs baseline, β_3 is the estimate of treatment impact.

$$Y_i = \beta_0 + \beta_1 * groupdummy_i + \beta_2 * rounddummy_i + \beta_3 * groupdummy_i * rounddummy_i + \varepsilon_i$$

For panel households, the estimation equation for each household *i* with a child aged 0–12 months at baseline is as follows: denoting with a *rounddummy_{it}* variable for the observation of *household_i* at time *t* being at endline vs baseline, denoting *treatdummy_{it}* with a dummy variable for *household_i* being treated at time *t*, and denoting with *c_i* a household or individual fixed effect for *household_i*, β_2 is the estimate of treatment impact.

$$Y_{it} = \beta_0 + \beta_1 * rounddummy_{it} + \beta_2 * treatdummy_{it} + c_i + \varepsilon_{it}$$

Owing to the randomisation, the error terms in the above equations can be assumed uncorrelated with the terms on which treatment impacts are estimated, such that treatment impacts estimated using ordinary least squares (OLS) are unbiased. Standard errors are adjusted for clustering at the PSU level (i.e., wards for the CLP and EEP Concern, and programme-defined clusters of slums for the UPPR programme). Statistical significance of treatment impacts is adjusted for multiple testing, using BKY sharpened two-stage q-values, as introduced in Benjamini, Krieger and Yekutieli (2006) and as implemented in Anderson (2008). Although the baseline analysis showed that households in the L+N and L-only groups in each programme were well balanced, a small number of household characteristics were found to significantly differ between the two; the impact estimation checks for robustness of results to directly controlling for these characteristics in regressions.

D.4.2 Comparison of C with L-only and L+N interventions

As described above, the comparison of C with L-only and L+N interventions can be undertaken only for the UPPR programme. The UPPR's control group for their programme was selected from a set of urban slums not covered by the programme and purposively included households perceived to be similar to livelihoods beneficiary households in the absence of the livelihoods intervention. However, because the control group was not derived through randomised assignment of the livelihoods intervention, differences are still expected; in order to distinguish intervention impacts from pre-existing differences, it is necessary to take further measures to make the control group comparable to beneficiary households prior to running impact estimation.

The method used in this analysis is propensity score weighting (Hirano, Imbens and Ridder 2003) with trimming of the sample for common support. Propensity score weighting statistically balances a large set of relevant observable pre-programme characteristics across the UPPR beneficiary and control groups, such that, with weights applied, there are no remaining meaningful pre-existing differences. The methodology entails first estimating a 'propensity score' for each household, indicating the predicted probability that the household is in the UPPR beneficiary group rather than the control group, based on running a probit specification on a range of observable pre-programme characteristics. The sample is then 'trimmed' to restrict analysis to beneficiary and control households that have similar propensity scores; for example, if no control households have a propensity score close to 1, then this indicates that no control households are similar to households most likely to be beneficiaries on the basis of observables. The trimmed sample, with similar propensity scores, is referred to as the sample with 'common support'. Within this trimmed sample, each observation is then assigned a weight based on its predicted propensity score, denoted 'p': each beneficiary observation receives a weight of 1, whereas each control observation receives a weight of p/(1-p). This means that control households with more similar observable characteristics to beneficiary households are assigned higher weights. These weights are then applied to the same estimation equations shown above, and equations are estimated using weighted OLS regressions. Hirano *et al.* (2003) show that, under a set of reasonable assumptions and with appropriate trimming, applying these propensity score weights in impact estimation equations leads to unbiased estimates of impact, and that, furthermore, including the propensity score covariates directly in the impact estimation equations further improves the precision of estimates. In the context of this evaluation, single-difference impact estimates are run, comparing weighted differences in outcomes at endline only, rather than subtracting weighted differences in outcomes at baseline; the rationale is that, because the 'baseline' for this evaluation occurred at a point when the livelihoods interventions were already in progress, subtracting any differences apparent at baseline would be inappropriate for capturing the overall impact of the interventions relative to a control group.

Implementation of this method for the UPPR analysis entailed the following steps. First, the set of observable characteristics to include in propensity score estimation were identified. The key criterion for propensity score methods to yield unbiased estimates is that the observable characteristics include, to the extent possible, all factors correlated both with being a beneficiary and with key outcomes. Intuitively, propensity score weighting constructs weights that make the beneficiary and control groups comparable on average in terms of these characteristics. These characteristics should then include the eligibility criteria for the UPPR's livelihoods intervention, as well as any other factors that might relate to key outcomes assessed in the evaluation. Because the aim is to construct weights that achieve similarity between the beneficiary and control groups in a period *before* the livelihoods intervention started, the characteristics should also either be from a pre-intervention time (given quantitative data showing that most UPPR beneficiaries in the sample did not receive benefits before 2010, characteristics from 2010 are used for this purpose) or be unlikely to meaningfully change as a result of the livelihoods intervention (relatively stable features of households and their communities are used for this purpose). Based on all of these considerations, the list of observable characteristics used for propensity score estimation included the following:

- Gender of household head in 2010
- Age of household head in 2010
- Whether the household head had had any schooling in 2010
- Occupation of household head in 2010
- Household size in 2010
- Number of children below age 16 in 2010
- Asset index (summarising ownership of a long list of assets) in 2010
- Type of toilets in 2010
- Type of water source in 2010
- Height of index child's mother
- Number of households in the slum
- Share of households with electricity supply from main grid in the slum
- Share of households with solar electricity in the slum
- Share of households with access to latrines in the slum
- Share of households with access to tube wells in the slum
- Whether multiple micronutrient sprinkles (e.g., Monimix, Mymix) are sold in the slum
- Number of years of existence for the slum
- Share of households that are homeless in the slum
- Whether there had been forced evictions of households in the slum
- Access to facilities index (summarising access to a long list of locations including clinics, union sub-centre, etc.) for the slum
- Disaster-proneness index (summarising proneness to cyclone, river erosion, drought, flood) for the slum.

Second, a probit specification is estimated, with each household's beneficiary status as the dependent variable and the full list of observables above as independent variables. The predicted probability of each household of being a beneficiary on the basis of its observables is its 'propensity score'.

Third, the sample is trimmed to restrict observations to those with propensity scores between 0.10 and 0.90. As seen in Figures 4.3 and 4.4, which plot the overlapping distribution of propensity scores in each of the groups for the panel and the cross-section samples, there is a substantial share of both beneficiary and control households with propensity scores in this range, indicating common support in the trimmed sample.

Figure 4.3: Overlapping distribution of propensity scores, panel sample

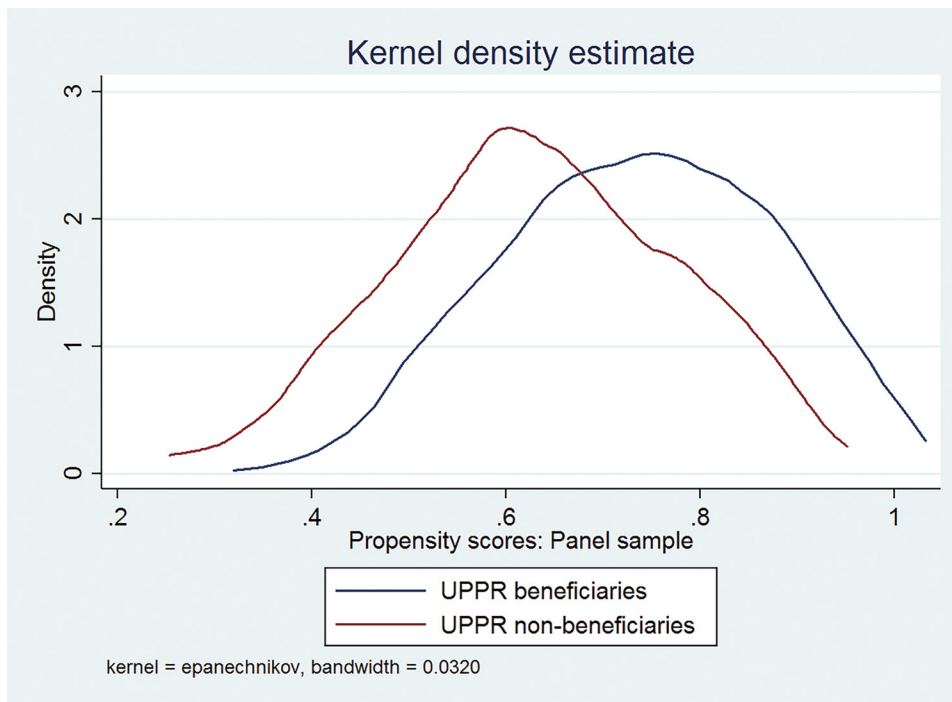
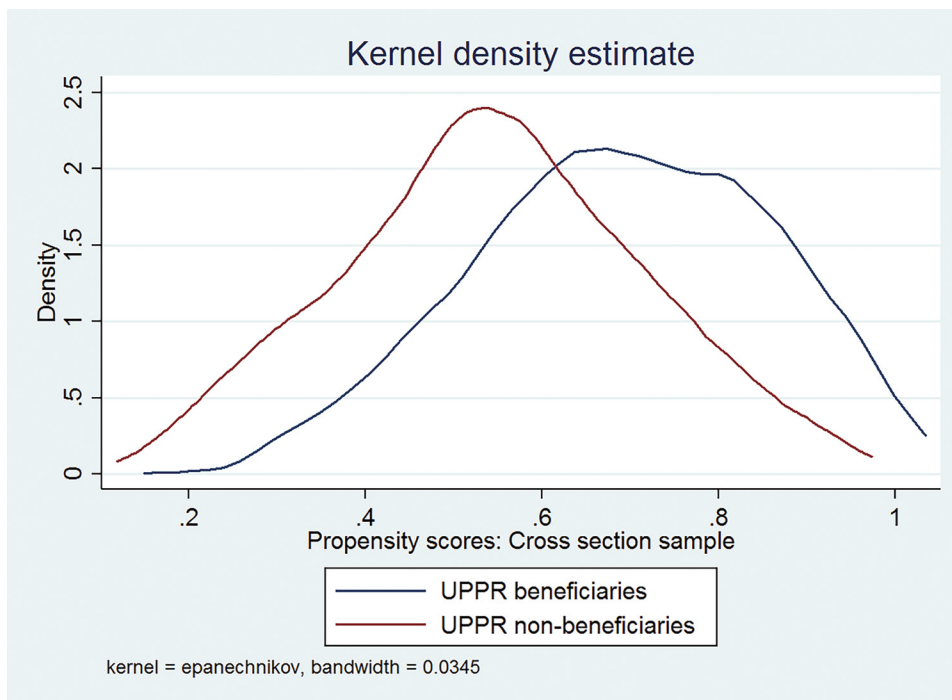


Figure 4.4: Overlapping distribution of propensity scores, cross-section sample



Fourth, for the trimmed sample, propensity score weights are constructed as described above, using these propensity scores. It is confirmed that these propensity score weights lead to the full set of observable characteristics being statistically balanced between the beneficiary and control households; that is, although there are many statistically significant mean differences between the two groups in the observable characteristics without weights applied, there are no remaining meaningful differences once the weights are applied.

Finally, impact estimation is run using single-difference specifications on endline data. The basic specification for single-difference estimates is as follows. Propensity score weights are applied to it and all propensity score covariates are included in it as additional independent variables for added precision of estimates.

$$Y_{i,endline} = \beta_0 + \beta_1 * treatdummy_i + \varepsilon_{i,endline}$$

In this specification, denoting with $treatdummy_i$ a dummy variable for $household_i$ being a beneficiary, β_1 is the estimate of treatment impact.

D.5 Presentation and interpretation of impact estimates

For brevity and ease of comparison, we present impact estimation results in sections 4, 5 and 6 with only the estimated treatment impact shown for each programme and each outcome of interest. Each cell in our tables of results reflects the treatment impact estimated from a distinct regression. Adjusted standard errors are shown in parentheses below the coefficient of treatment impact. Adjusted statistical significance of treatment impact is reflected by *, ** or *** for borderline significant at the 10 per cent level, significant at the 5 per cent level, and highly significant at the 1 per cent level, respectively. Following convention, we interpret estimated impacts with significance at the 5 per cent level to be statistically significant. For comparisons of L+N and L-only, we show not only impact estimates of the additional impact of L+N vs L-only, but also the mean value of each outcome in the L group to provide context for the situation without the N component. For comparisons of L-only and C or L+N, or of L-only and C, we show not only impact estimates of the absolute impact compared to C but also the mean value of each outcome in the C group to provide context for the situation without treatment.

An important caveat is that because of the trimming necessary for evaluating the absolute impacts of L and L+N against the control group, the resulting impact estimates also apply only to the trimmed sub-sets of the overall L-only and L+N samples that are similar enough to a trimmed sub-set of the available control group. Findings may not generalise to the full samples of L-only and L+N households analysed in sections 4 and 5.

ANNEX E: EXPLORATORY/EXPLANATORY COMPONENT METHODOLOGY

E.1 Process evaluation sub-component

E.1.1 Process evaluation design

The process evaluation sub-component of the exploratory/explanatory component, led by Itad based in the UK together with CNRS in Bangladesh, was designed to focus on the evaluation's secondary objectives 2.1 and 2.2 (see section 2):

- 2.1 To identify the critical processes and mechanisms in the implementation of each programme's strategy, assess whether these processes were implemented as planned, and consider the extent to which this affected the achievement of outputs.
- 2.2 To map the quality of programme delivery to more intermediate outcomes identified in the quantitative survey (care, feeding, livelihoods, etc.) and use this to explain the impacts detected (or not detected).

In line with standard process evaluation methodologies, the process evaluation sought to determine whether target populations were being reached, whether communities received the services and inputs intended by the programmes and whether staff were qualified and trained to provide the level of support that would result in the achievement of the desired household and community outcomes, as articulated by the theory of change (see Figure 2.1 in section 2). It also assessed the extent to which the programmes were implemented as designed and what the consequences of this were. Thus the process evaluation validated the relationships between the intervention and its outcomes and programme assumptions. The focus was on trends rather than standalone elements of an intervention, in an attempt to identify whether there were systematic flaws within programme processes. The process evaluation also aimed to map the quality of programme delivery to more intermediate outcomes identified in the quantitative survey in order to explain the impacts detected or not detected.

E.1.2 Data collection and tools

A range of tools/ instruments were administered by the process evaluation research teams including the following:

1. Process maps: These were conducted with staff from all three programmes and L+N beneficiaries. They aimed to identify the 'planned' processes in order to identify any deviations from them.
2. Cluster process diaries: One cluster process diary (CPD) report was produced for each cluster or village. These documents were used by each process evaluation field team to document and critically reflect on field-based findings and to identify avenues for further investigation. CPD report meetings were held each night during field work to assist with critical reflection and analysis. CPDs were synthesis documents that brought together the findings of the full range of other tools employed by the process evaluation. These consisted of the following:
 - a. *Household-level interviews*: These were conducted with both L+N and L-only beneficiaries in order to triangulate processes and identify deviations. In practice they were mainly used to check receipt and usage of assets and carry out any associated programme monitoring.
 - b. *Focus group discussions*: These were conducted with L+N and L-only beneficiaries.
 - c. *Key informant interviews*: In order to understand the context and triangulate findings, key members of the community were interviewed.
 - d. *Participant observation*: General observation was important for the CPDs in order to enrich the contextual detail. Where it was possible to observe a physical piece of evidence (for example, the record books), it was recorded or photographed by the research team.
 - e. *Case studies*: If a particularly pertinent example of the processes or effects of processes was identified, a case study was put together as long as the individual concerned gave their consent.

E.1.3 Sample selection

The process evaluation sampling approach was to select a stratified random sample of around 12 villages/ clusters from each programme area (total = 36) from a relatively wide selection of sites within the CLP, EEP Concern and the UPPR programmes, in order to supplement the quantitative component survey data. The sample frame for the quantitative survey was stratified against criteria such as geographical coverage (district, *upazila* and union), proximity to a service delivery centre, and whether villages contained L+N or L-only beneficiaries. No villages were sampled from the C groups, given that the main focus and interest of this evaluation component was on programme processes. A proportionate number of villages were then randomly selected from the stratified lists. Further random sampling then took place at village level to select individual households, targeting L+N beneficiaries/households with children aged 6–24 months. For interviews with key informants, including programme staff (based both at head office and district level), individuals were purposively selected for inclusion. Process evaluation field tools and assessment methods were tested during visits to one pilot site per programme in July and August 2014 before the roll-out of data collection, which was undertaken by the CNRS team between September and December 2015.

In total 1,591 beneficiaries and key stakeholders were engaged in data collection, which took place across 38 villages.

Table 5.1 below summarises the process evaluation tools used, their target groups and sample sizes.

Instrument	Quantity	Engagement/ target group
Process map	12	12 in sampled villages, and partner NGO/ programme
Household interview	646	17 project HHs in each of the 38 sampled villages
Participant observation	38 villages/clusters (18 L-only and 20 L+N)	Beneficiaries, CNWs
Focus group discussion	12	Beneficiaries
Key informant interview	127 (village-/cluster-level and with others)	Beneficiaries, <i>upazila</i> level, district level, NGO and programme-level staff
Case study	6 (2 for each programme)	Beneficiaries

A more detailed breakdown of the sample size for each tool by beneficiary group can be found in Table 5.2, below.

	Project staff	L+N beneficiaries ^a	Pregnant women	Lactating women	Adolescent girls	IYC (7–24 months)	Other L beneficiaries	Non-beneficiaries ^b
EEP Concern								
Process mapping	14	46	n/a	n/a	n/a	n/a	n/a	n/a
HH interview	n/a	0	13	10	41	18	145	
Participant observation	n/a	0	13	10	41	18	69	
Focus group discussion	n/a	25	0	0	0	0	35	
Key informant interview	13	0	0	0	0	0		39
Case study	n/a	0	1	0	0	0	1	
CLP								
Process mapping	31	29	n/a	n/a	n/a	n/a	n/a	n/a
HH interview	n/a	0	14	21	34	27	88	
Participant observation	n/a	0	14	21	34	27	42	

Focus group discussion	n/a	30	0	0	0	0	28	
Key informant interview	10	0	0	0	0	0	0	30
Case study	n/a	0	0	1	0	0	1	
UPPR								
Process mapping	8	38	n/a	n/a	n/a	n/a	n/a	n/a
HH interview	n/a	0	15	10	32	13	177	
Participant observation	n/a	0	15	10	32	13	89	
Focus group discussion	n/a	35	0	0	0	0	33	
Key informant interview	12	0	0	0	0	0	0	23
Case study	n/a	0	1	0	0	0	1	

^aProcess mapping and focus group discussions were conducted with a mix of the L+N beneficiaries who were available, further disaggregation not available.

^bNon-beneficiaries include key informants in the villages, input sellers, community clinic attendants, other NGO members e.g. BRAC, other project beneficiaries e.g. SHOUHARDO and Nuton Jibon.

E.2 Qualitative evaluation sub-component

E.2.1 Qualitative evaluation design

The qualitative evaluation led by BIGD and IDS was designed to address the exploratory/explanatory component's secondary objectives 2.3 and 2.4 (see also main report, section 2).

- 2.3 To investigate interactions between societal, community, family and programme structures and how these might influence intervention uptake and behaviour change.
- 2.4 To identify contextual factors that can enhance or hinder the programme uptake. This will include an in-depth examination and testing of the programme assumptions and causal chain processes within the context of the study communities.

Under Objective 2.3, the qualitative evaluation explored and documented local-level processes and interactions among societal, community and family structures that may have mediated or hindered the engagement with the nutrition-specific interventions and the behaviour change seen across different beneficiary groups and the three existing livelihood programmes. These processes and structures may have also shaped beneficiaries' perceptions of the interventions.

Under Objective 2.4, this sub-component was designed to deepen the evaluation team's understanding of the social, cultural and political contexts and physical environments in which the different programmes were embedded. A better understanding of the 'real-world' context of the different programmes is important as context may be intrinsically involved in the causal processes that bring about (or not) the desired impacts of the interventions (Maxwell 2004). Contextual analysis was important to help us to understand potential variants in the impact of the intervention across the three different programmes and identify context-specific factors that might facilitate or hinder the effectiveness of the interventions.

The qualitative investigations also sought to identify and explain any unexpected or unintended impacts (both positive and negative) of the interventions in different local contexts, to help us better understand the programmes' impact pathways and related issues concerning the livelihoods, nutrition and other aspects of the lives of extremely poor people living in the programme areas.

E.2.2 Qualitative evaluation methods

The approach for this sub-component consisted of several village-/cluster-level longitudinal case studies taken from a sub-set of the quantitative survey sample and tracked at key phases during the programme's implementation and evaluation lifecycle. Three village sites were purposively selected per programme area: one in an L-only site, one in an L+N site and one in a C site. The nine villages selected within the relevant district and *upazila* are presented in Table 5.3.³

³ Village names have been removed to respect confidentiality.

Programme	District	Upazila	Village
EEP Concern	Sunamgonj	Dharmapasha	L-only
		Dharmapasha	L+N
		Sulla	C
CLP	Nilaphamari	Jhal Dhaka	L-only
		Dimla	L+N
		Dimla	C
UPPR programme	Chittagong	Daksin Kattali	L-only
		Uttar Pahartoli	L+N
		Chittagong slum	C

A typical case sampling approach was chosen to select the study communities for the qualitative evaluation. The aim was thereby to gain an understanding of how the interventions affected average or ‘normal’ communities. Which communities constituted typical communities was determined following consultation with key local informants who were familiar with the area.

These nine sites remained the focus for all phases of qualitative data collection (phases described below), with the exception of the final phase of data collection, when the decision was made to exclude the C villages, in order to take into account the modification in the design of the quantitative component endline survey, which would no longer be conducting surveys with C sites for the CLP and EEP Concern programmes (see Annex D).

In order to capture multiple perspectives and the context-specific conditions within which the programmes were operating, a range of different data collection methods were used, including social mapping, in-depth interviews, focus group discussions, life histories and household-level observation. These targeted a variety of sources including beneficiaries, non-beneficiaries, key influential figures, elderly household members, adolescent girls, mothers, health workers and programme staff.

Table 5.4 provides a breakdown of the total number of respondents/ groups sampled for the qualitative evaluation per method by programme and type of intervention.

Method	EEP Concern				UPPR programme				CLP			
	L+N area	L-only area	Total	Total participants	L+N area	L-only area	Total	Total participants	L+N area	L-only area	Total	Total participants
In-depth interview	17	16	33	33	18	17	35	35	16	16	32	32
Focus group discussion	9	8	17	148	10	9	19	155	9	10	19	159
HH-level observation	6	6	12	24	6	5	11	22	6	6	12	24
Counselling observation	2	0	2	4	0	0	0	0	0	0	0	0
Life history	3	3	6	6	2	2	4	4	3	3	6	6
TOTAL	37	33	70	215	36	33	69	216	34	35	69	221

Data collection tools (including detailed checklists for interviews and focus group discussions for both beneficiary and non-beneficiary groups in L-only, L+N and C villages) and field plans were developed, piloted and refined prior to implementation of all phases of data collection (in collaborative workshops with the BIGD and IDS teams) to ensure that data collection focused on the most important and relevant target individuals/ groups as well as on relevant themes and issues for investigation. This also exposed the teams to potential limitations and practical considerations (such as transport) to build into the field plan and data collection schedules.

The design and thematic content of the tools were also in part informed by two desk-based qualitative literature reviews and one programme review conducted during the initial phase of the evaluation.⁴ Checklists were regularly reviewed, revised and refocused as a result of qualitative findings as they emerged from ongoing analysis as well as data generated from the other evaluation components.

Data collection for the qualitative evaluation was undertaken in three distinct phases:

1. The first phase of intensive in-depth data collection was carried out during the early stages of programme implementation, between February and May 2014 (it was initially planned to start in December 2013 but was postponed because of political unrest and instability and the potential risk this posed to research staff). The purpose of the first qualitative data collection was to gain in-depth perspectives on the prevailing contexts, perceptions and initial experiences relating to the nutrition interventions, which would provide a useful source of comparison against subsequent stages of data collection further into the programme implementation and at the final phase towards the end of the programmes' lifecycle. The field teams spent several weeks in each qualitative site and conducted several follow-up visits in order to be able to immerse themselves in the local context, as well as to ensure a rich and comprehensive documentation of usual (rather than one-off non-representative) interactions, contexts and experiences. During follow-up visits the team also validated the initial qualitative findings by asking participants to review the findings and confirm or deny their accuracy and sufficiency.
2. The second phase of data collection comprised three briefer phases of follow-up within the same sample village sites and was carried out in October 2014, April 2015 and August 2015. The purpose of these periodic follow-up 'snapshots' was to identify any subtle changes in the programmes and people's perceptions of them, as well as any other social, seasonal or contextual factors that may have affected communities' perceptions and experiences of the programmes. These factors included socioeconomic issues such as land ownership, income, migration and power dynamics; and health- and nutrition-related issues such as changing eating habits, health and hygiene practices, water and sanitation facilities and health-care services). These visits also included a field visit during the rainy season, given differences in living conditions and access to services and food across seasons.
3. The third and final in-depth phase of data collection was designed as to run parallel with the quantitative endline survey and was conducted between October and December 2015. Data collection for this phase focused on the same six L-only and L+N villages initially sampled and excluded the three initial C villages (for the reasons described above).

⁴ One focusing on the determinants of child undernutrition in Bangladesh, one concentrating on urban and rural livelihood strategies and trends for extremely poor households in Bangladesh and one summarising the documentation and literature available on the three livelihood programmes selected for this evaluation (CLP, EEP Concern, UPPR programme).

ANNEX F: COST-EFFECTIVENESS COMPONENT METHODOLOGY

F.1 Cost-effectiveness component design

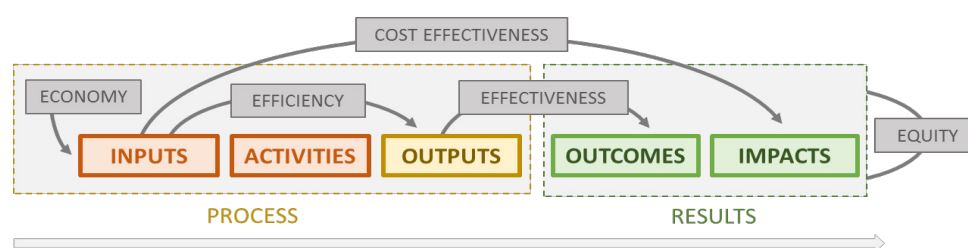
The original aim of including a cost-effectiveness component as part of the overall evaluation design was to be able to assess the cost-effectiveness of integrating nutrition-specific interventions into the three existing livelihood programmes and to specify the best model for doing so. The main objective was to understand whether nutritional benefits (improvements in nutritional status based on HAZ-scores as a measure of child stunting) could be achieved from minimum resource costs.

In order to determine the unit costs for changes in child stunting tracked over the course of the evaluation, detailed financial data from the programme expenditure as well as end-user cost data from the quantitative survey were required.

The approach followed the standard DFID Value for Money (VfM) framework of economy, efficiency, effectiveness and equity (see Figure 6.1).

- **Economy:** Focuses on minimising input costs whilst maintaining quality. Economies of scale⁵ are relevant here too – the size of the intervention may result in lower unit costs.
- **Efficiency:** Concentrates on transforming inputs into outputs with maximum efficiency. For example, certain combinations of interventions may have economies of scope⁶ – where two or more goals (e.g. nutrition improvement and resilience building) are targeted within the same fixed costs of setting up the platforms. This may increase efficiency gains by delivering the same outputs with a reduced number of inputs.
- **Effectiveness:** Focuses on the relative benefits of the interventions, being a measurement of the changes in health and welfare indicators of the beneficiaries.
- **Equity:** Although this fourth ‘E’ is not always applied in VfM analysis, it is useful to consider whether the right people are being reached in the programmes, in terms of needs and vulnerability. This will involve explicitly tracking the types of beneficiaries targeted, in terms of socioeconomic indicators, in order to measure the equity of the results.

Figure 6.1: The logic chain and the four ‘E’s of cost-effectiveness



As shown in Table 6.1, there were original secondary objectives within the cost-effectiveness component, regarding (1) the greatest change in wellbeing of the beneficiaries from the interventions and (2) the most cost-effective means of delivery. The cost-effectiveness component methodology outlined in the Inception Report (IDS *et al.* 2013) was designed to draw on detailed programme budget costs and an analysis of evaluation findings.

⁵ Economies of scale occur when average costs fall as the size of an operation increases, as any fixed costs involved (e.g. the costs of project offices) are spread over a greater number of outputs.

⁶ Economies of scope occur when average costs fall as the range of activities are diversified – for example, it may be more cost-effective for intervention packages to be combined, thereby sharing resources in their delivery and proving cheaper than providing the same services separately.

Table 6.1: Original cost-effectiveness component objectives mapped to methods			
Objective	Research question	Metrics/type of data or explanation available	Method and source of data
(3) To assess the cost-effectiveness (benefit received for cost incurred) of integrating nutrition-specific interventions into the livelihoods interventions of the three existing programmes	(3.1) What is the unit cost of changes to child stunting for each of the three programmes for both L-only, and L+N? Which nutrition-specific intervention is the most cost-effective, and why?	Estimates of changes in child stunting: percentage change in HAZ: 1. How much did it cost to increase HAZ by x per cent using L-only? 2. How much did it cost to increase HAZ by x per cent using L+N?	Cost-effectiveness analysis of detailed financial data on programme expenditure and end-user cost data from quantitative survey. Quantitative survey baseline and endline data; Standardised data assumptions and threshold indicators on cost-effective DALYs from WHO; region-specific literature.
	(3.2) How cost-effective are these programmes compared with similar programmes in other countries and contexts? What are the main cost categories, and how do they compare to external benchmarks? If possible to assess, what are the main cost drivers that justify relatively high costs?	Conversion of HAZ scores into cost per disability-adjusted life year (DALY) for each intervention. If data permit, the evaluation will also attempt to convert z-scores to DALYs using standardised assumptions from the WHO and region-specific literature in a model built up from first principles.	Disaggregated financial data from all programmes (see Annex E). External benchmarks from similar programmes; regional literature on cost drivers.
	(3.3) What are the total costs incurred by society and opportunity costs incurred to participate in the programme?	Actual (not projected) monetary value of direct costs (project inputs, equipment, services, human resources, etc.) and indirect costs (office services, security, administrative staff, etc.) per year for each programme (see Annex E).	Opportunity costs tracked in quantitative survey.
	(3.4) What are the unquantified benefits, direct and indirect of the nutrition-specific interventions?	Documentation of total resource costs incurred in delivery of intervention (used in unit cost analysis) and extra opportunity costs incurred and reported by beneficiaries (estimated by local wages in community if relevant to foregone benefits). Qualitative and process data on intervention efficiency; beneficiary perceptions including direct/indirect benefits and costs of intervention; barriers to accessing intervention, etc.	Qualitative and process-related investigations as part of exploratory/ explanatory component (in-depth interviews, focus group discussions, detailed life histories, participatory observation, process map and cluster process diary).

To ensure that the cost-effectiveness component was fully integrated and consistent with the other components of the evaluation (i.e. not an add-on) and that the cost-effectiveness VfM analysis (for example, on programme efficiency and equity) could effectively draw on findings from the exploratory/ explanatory data collection, the cost-effectiveness component also included a qualitative component which was designed to:

1. conceptualise and explain the quantitative VfM data by exploring qualitatively the underlying processes and the beneficiaries' perceptions and experiences of and beliefs about the interventions; and
2. explore the putative costs and benefits of the interventions above and beyond the quantitative findings of the outcomes, which will arise again at the end of the evaluation.

F.1.1 *Cost-effectiveness data collection and analysis*

The majority of the cost-effectiveness data collection and analysis was intended to be based on secondary data from the other evaluation components. The only primary data collection was for the programmes' financial data.

The first phase of data collection, conducted by Itad between July and December 2014, involved desk-based data collection of detailed budget and expenditure information requested remotely (via email and phone discussions) from DFID and the finance staff of each of the three programmes. The focus was on collecting the figures relevant to specific cost categories for N activities across all three programmes, including nutrition inputs, personnel, monitoring and evaluation, office equipment and overheads, and travel and management costs. The programmes did not routinely break down the budget data in this way, so it required some effort to determine how to allocate figures to the different cost categories.

These were then used to determine the actual monetary value of direct and indirect costs per year for each programme. During the financial data collection, beneficiary number figures were also collected, as were the programme finance officers' explanations of why timings and expenditure varied from the original budgets.

Budget figures were triangulated with DFID's own budget records and documentation and were examined further where necessary, to ensure the accuracy of the information recorded.

In order to meet the qualitative objectives of the cost-effectiveness component, during this first phase of work, one of the Itad team members was responsible for shadowing some of the process evaluation fieldwork (October 2014), in order to be able to systematically explain and provide a narrative for the benefits (effectiveness) of each intervention at output and (proximate) outcome level qualitatively, and say why they occurred. This included a focus on direct and indirect benefits, societal interactions, efficiency, external complexities and equity. Findings from this phase of work later fed into the final cost-effectiveness analysis.

A second round of budget data collection with programmes was carried out between August and December 2015 in order to provide updated figures on programme expenditure specific to the N activities, as well as on the wider budget for the livelihood interventions. During this phase of work the team also tried to resolve any previous gaps in data that had emerged following the first phase of the cost-effectiveness analysis and write-up.

The final phase of cost-effectiveness work was undertaken in April–May 2016, following the completion of the quantitative endline data analysis. Modifications to the design of the component, required to keep it in line with the results of the other evaluation components, are reflected in the final design, as presented in section 2.3.4 of the main report.

F.1.2 *Adapted methodology for cost modelling approach*

For the adapted methodology described in section 2.3.4 of the main report, a new cost model was built using data from following sources:

- internal financial cost data for all three programmes from the evaluation
- quantitative component's outcome endline findings
- quantitative component's endline findings on nutrition workers' perspectives and descriptive information
- qualitative findings on household-level counselling
- cost data and assumptions from the Alive & Thrive evaluation.

The cost model was built from scratch using principles from cost–benefit analysis, building a bottom-up cost model, and making assumptions that fit with the underlying theory of change in household-level counselling programmes for IYCF. This enabled the team to vary specific cost drivers to see what the cost-per-beneficiary figure would look like under different scenarios.

ANNEX G: MIXED METHOD APPROACH

Figure 7.1: Evaluation Data Collection Process Map

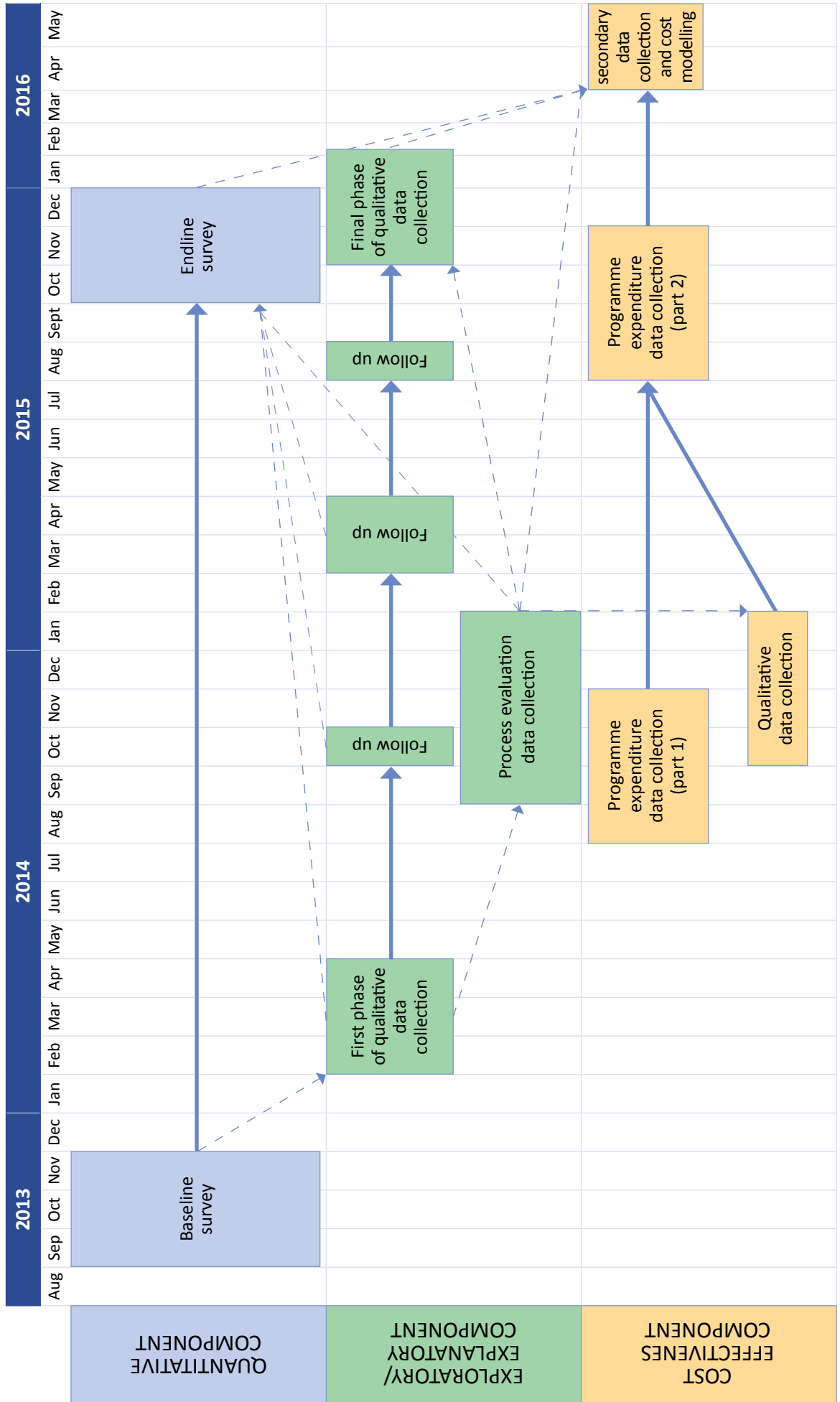


Table 7.1: Theory of change mapped to impact pathway, evaluation component and means of assessment

	Impact pathway/ ToC element	Outcome assessed by evaluation	Main source (evaluation component or other secondary)	Type of assessment/method triangulation	
				Qual	Quant
Design	Design	Design was appropriate and local context was taken into account	DFID business case; programme documents; academic literature	Comparison with local & international evidence	
Inputs	DFID investment	Expenditure took place as planned	CE	Descriptive	
Inputs – N	CPK recruitment, characteristics and training	CPK recruitment, characteristics, knowledge and training are all appropriate for objectives sought	PE & Qual; Quant (module B,C,D); CE – programme expenditure (training and recruitment)	Qualitative thematic analysis and process tracing; programme documents	Descriptive
Outputs – L	Beneficiary targeting and selection	Beneficiaries were appropriately targeted and selected	PE & Qual; Quant (modules M,N)	Qualitative thematic analysis and process tracing	Descriptive
Outputs – L	HH & community receipt of L inputs	HHs & communities received inputs	PE & Qual; Quant CE – programme expenditure (inputs)	Qualitative thematic analysis and process tracing	Descriptive
Outputs - N	Beneficiary targeting and selection	Beneficiaries were appropriately targeted and selected	PE & Qual; Quant (module M)	Qualitative thematic analysis and process tracing	Descriptive
Outputs – N	HH & community receipt of N inputs	Receipt of IFA, deworming, MNP, household and group counselling happened as planned	PE & Qual; Quant (module M); CE – programme expenditure (inputs)	Qualitative thematic analysis and process tracing; description of spend	Descriptive
Outputs – N	Quality of counselling	CPK ability and knowledge was sufficient for quality counselling	PE & Qual; Quant (module B,C,D)	Qualitative thematic analysis and process tracing	Descriptive
Outcomes – L	Improvement in overall HH wellbeing	Income, employment, assets, dietary diversity and WASH have improved via L alone	PE & Qual; Quant modules, UPPR only	Qualitative thematic analysis; wider existing programme evaluations	DiD UPPR only

	Impact pathway/ ToC element	Outcome assessed by evaluation	Main source (evaluation component or other secondary)	Type of assessment/method triangulation	
				Qual	Quant
Outcomes – L+N	Mothers' knowledge and attitudes	Mothers' base and endline knowledge and attitudes improved over L only (all) and in both L+N and N over C (UPPR only) Mothers' trust of CPKs and sources of competing advice	Qual; Quant (module R2)	Qualitative thematic analysis	Descriptive DiD – all
Outcomes – L+N	IYCF practices & HH diets	IYCF practices (EBF, BF, CF), child DD and mothers' DD improved over L only (all) and in both L+N and N over C (UPPR only)	Qual; Quant (modules R1, R3, R5, P: parts 1,2,3)	Qualitative thematic analysis	DiD – all
Outcomes – L+N	Health care	Health-care access/seeking improved over L-only (all) and in both L+N and N over C (UPPR only)	Qual; Quant	Qualitative thematic analysis	Descriptive DiD UPPR only
Outcomes – L+N	WASH	WASH practice/access improved over L-only (all) and in both L+N and N over C (UPPR only)	Qual; Quant	Qualitative thematic analysis	Descriptive DiD UPPR only
Outcomes – L+N	Women's status	Women's status/decision-making/ resource control improved over L-only (all) and in both L+N and N over C (UPPR only)	Qual: Quant (modules S, S2, S3a, S4, T parts 1,2)	Qualitative thematic analysis	Descriptive DiD UPPR only
Impact	Child anthropometry	Child height/weight improved in L+N over L only (all) and in both L+N and N over C (UPPR only)	Qual, PE, Quant (module 2)	Qual, PE & CE - bringing together plausible explanation of why/how	Descriptive DiD all

Note: EBF = early breastfeeding; BF = breastfeeding; CF = complementary feeding; DD= dietary diversity; DiD = difference-in-difference impact assessment; WASH = water, sanitation and hygiene; CE = cost-effectiveness component; PE = process evaluation component.

ANNEX H: COMMUNICATIONS STRATEGY

This communications strategy (including key messages, target audiences and related outputs) is continuing to be developed and refined, taking into account the recent final results of the impact evaluation, so the following details below should not be considered as final.

H.1 Statement of purpose

This communications strategy maps the audiences, communications channels and activities that will support and guide engagement with key stakeholders and encourage them to make use of the impact evaluation findings and lessons learned.

The impact evaluation team, DFID and PATH are committed to implementing a targeted communications strategy to maximise the uptake of the impact evaluation findings and this annex is intended to lay out this strategy.

H.2 Communication goal and objectives

H.2.1 Goal

To communicate the findings and lessons learned from the Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh; and to promote the use of these findings to inform decision-making and enhance understanding of the integration of nutrition-specific and nutrition-sensitive interventions in programmes in Bangladesh and (if relevant) elsewhere.

H.2.2 Objectives

1. Ensure that DFID and other national and global stakeholders understand and apply the knowledge generated by the impact evaluation to inform future programme design and influence nutrition-oriented policy in Bangladesh and (if relevant) elsewhere;
2. Contribute to the wider MQSUN objective of providing technical services to DFID to improve the quality of their nutrition-specific and nutrition-sensitive programmes, through commitment to the following services:
 - 1) expanding the evidence base on the causes of undernutrition
 - 2) enhancing skills and capacity to support the scaling up of nutrition-specific and nutrition-sensitive programmes
 - 3) providing guidance to support programme design, implementation, monitoring and evaluation
 - 4) increasing innovation in nutrition programmes
 - 5) sharing knowledge to ensure that lessons are learned across DFID and beyond;
3. Contribute to a wider body of evidence on the design and use of impact evaluations and mixed methods.

H.3 Impact evaluation components, timeline and core outputs

The impact evaluation employed a mixed-method approach. The various methodological approaches and their objectives are briefly summarised below:

1. The *quantitative impact component* provides primarily quantitative estimates of the outcomes and impacts of both the direct and the indirect interventions.
2. The *exploratory/explanatory component* explores the underlying causal processes and mechanisms and provides detailed contextual analysis that will help to explain *how* and *why* the combination of indirect and direct nutrition interventions may have had an impact on child nutrition outcomes within the three livelihood programmes.
3. The *cost-effectiveness component* estimates the costs of different interventions in terms of their impact on IYCF practices and knowledge.

Throughout the evaluation process, several outputs were planned, in order to compile and present findings from the various evaluation components. These outputs and their respective completion/projected completion dates are detailed in Table 8.1.

Evaluation output	Timing
Inception Report	March 2014
Literature review on the determinants of child undernutrition in Bangladesh	July 2015
Baseline Report	July 2015
Mixed-method Report ^a	July 2015
Project background and design overview briefing note	October 2015
Final Report (electronic)	June 2016
Final Report (hard copy)	September 2016
Other outputs (e.g. evidence papers, policy briefs, etc.)	From September 2016 onwards
Academic journal articles(s)	From December 2016 onwards

^a The Mixed Methods Report (Barnett *et al.* 2015) was uploaded to the IDS website mid-2015, and by December 2015 it had been viewed and downloaded more than 14,600 times – making it the third most popular publication in 2015.

The evaluation’s Final Report will be completed by 30 June 2016; however, some of the outputs based on the results in the Final Report will be completed after the 30 June project end date. These outputs include academic publications and additional outputs which may take forward interesting findings that deserve further exploration and/or description than is possible within the final report (owing to constraints on the length of the report, etc.). Some of these outputs may focus on lessons learned, evaluation methods or policy considerations. Examples of topic areas for which additional outputs could be produced include:

- use of innovative quantitative methods for impact evaluations (lessons learned from combining panel and cross-section data)
- implementation of mixed-method impact evaluations
- implementation considerations for programmes combining nutrition and livelihoods/agriculture.

H.4 Target audiences for dissemination

The primary intended users of the impact evaluation results are DFID, the Government of Bangladesh and the programme implementing partners. We have been communicating frequently with DFID and PATH throughout the evaluation, to (1) understand and be able to deliver on specific information needs; and (2) keep DFID informed of the progress and preliminary findings as they emerge.

Secondary users include other stakeholders in the Bangladesh nutrition and development community, and – since the evaluation expects to generate evidence that has wider global significance – global policymakers, practitioners and researchers concerned with nutrition programming. In addition, the evaluation results focusing on evaluation design will be of interest to researchers and development practitioners.

Engagement and communications will be targeted at the sub-national, national and global levels. This will help us to promote the use of the findings on multiple levels and foster long-term impact. A preliminary mapping of target audiences has been disaggregated by level of engagement and detailed in Table 8.2 below.

Table 8.2 Preliminary mapping of stakeholders, by level of engagement		
Level of engagement	Audience type	Preliminary mapping of stakeholders
Regional (sub-national)	Local government authorities	<ul style="list-style-type: none"> • CLP beneficiary communities • UPPR beneficiary communities • EEP Concern beneficiary communities • National Nutrition Service (NNS)
	Civil society organisations (CSOs)	<ul style="list-style-type: none"> • Concern World Wide • BRAC • Jhanjira Samaj Kallyan Sangstha (JSKS)
National	Government departments	<ul style="list-style-type: none"> • DGHS and DGFP • MofFood, MoAg, MoWCAs and MoSW
	Government coordination bodies	<ul style="list-style-type: none"> • Bangladesh nutrition technical working group and sub-groups • National Nutrition Steering Committee • Institute of Public Health Nutrition
	International agencies and donors	<ul style="list-style-type: none"> • DFID Bangladesh • UNICEF Bangladesh
	CSOs	<ul style="list-style-type: none"> • Concern • BRAC • Jhanjira Samaj Kallyan Sangstha (JSKS)
	Academic institutions	<ul style="list-style-type: none"> • BRAC University • University of Dhaka
	Private sector representatives	<ul style="list-style-type: none"> • To be determined
	Other bodies/groups relevant to nutrition	<ul style="list-style-type: none"> • Local consultative group ICDDR,B; • Scaling Up Nutrition (SUN) focal points/networks
Global	International agencies and donors	<ul style="list-style-type: none"> • DFID (UK Policy Division; Health Education and Nutrition PEAKS + Health and Nutrition Advisors; Nutrition Hub; Research for Development (R4D); DFID/PATH MQSUN Framework) • European Commission • UNICEF • World Health Organization • UN Standing Committee on Nutrition • USAID • UN Food and Agriculture Organization • World Bank
	NGOs	<ul style="list-style-type: none"> • PATH • Save the Children • Concern
	Academic institutions	<ul style="list-style-type: none"> • To be determined
	Other research and practitioner initiatives/networks	<ul style="list-style-type: none"> • SUN network and secretariat • ELDIS nutrition group • Centre for Development Impact (CDI) • International Initiative for Impact Evaluation (3ie)
	Media	<ul style="list-style-type: none"> • <i>The Guardian</i> Global Development

H.5 Information needs/messages

The key information requirements from the evaluation findings and outputs are summarised here.

1. To determine impact:
 - robust evidence of the impact on nutritional outcomes in children of integrating nutrition-specific and nutrition-sensitive programming into other interventions
 - critical discussion on how the programme design did (or did not) contribute to improved nutritional outcomes in children (impact pathways);
2. To inform future design/modify existing programmes:
 - lessons learned on the design and implementation of integrated programmes
 - key considerations regarding the design of such programmes in resource-poor settings
 - cost-effectiveness of the models evaluated (cost–benefit in terms of impact on child stunting/ VfM);
3. To inform future research:
 - lessons learned on the design of evaluations investigating integrated.

H.6 Channels for communications

We will collaborate with stakeholders and partners to produce outputs for the dissemination of the evaluation findings. The impact evaluation partners are able to draw on existing communications expertise and resources via the MQSUN framework (e.g. the HEART website), as well as benefiting from existing stakeholder engagement carried out by DFID, IDS and IFPRI in Bangladesh (the latter including the Transform Nutrition RPC, which includes dedicated research uptake resources) and IDS' wider Knowledge Services. Table 8.3 presents an initial mapping of knowledge/dissemination platforms for evaluation outputs.

Table 8.3: Preliminary mapping of communication channels

Online spaces			
Title	URL	Description	Target audience(s)
IDS website & IDS nutrition email newsletter	www.ids.ac.uk	IDS website. Features news from IDS on front page but each team also can list current projects.	International development practitioners, students, policymakers
IDS social media	Twitter, Facebook	Various social media channels	Students, development practitioners
Blogs	http://www.transformingdevelopment.com/	Melissa Leach's 'Transforming Development' blog	International development practitioners, students, policymakers,
Transform Nutrition	http://www.transformnutrition.org/	Consortium of international research partners who use research-based evidence to inspire effective action to address undernutrition	Policy makers, nutrition practitioners
DFID R4D	http://r4d.dfid.gov.uk/	R4D is a free access online portal containing the latest information about research funded by DFID, including details of current and past research, in over 40,000 project and document records.	DFID staff and advisors, development practitioners
DFID Intranet / theme sites		Internal themed sites for DFID advisors	DFID advisors
HEART	http://www.heart-resources.org/ & newsletter & blog	A resource centre that hosts reports from MQSUN and provides DFID staff and other development actors with health, education and nutrition knowledge and expertise	DFID staff and advisors
Eldis Nutrition Resource Guide and newsletter	http://www.eldis.org/go/topics/resource-guides/nutrition	The Resource Guide provides quick access to research on major policy and research issues about nutrition. Monthly newsletter.	Policy makers, development practitioners. Primarily those based in developing countries.
BRIDGE	http://www.bridge.ids.ac.uk/go/global-resources-database	BRIDGE is a research and information programme located within IDS Knowledge Services.	Researcher, policymakers and CSOs working on gender-related issues
Centre for Development Impact (CDI)	http://www.cdimpact.org/	The CDI contributes to learning and innovation in the field of impact evaluation, through the use of appropriate, mixed-method and robust evaluation designs. The CDI website includes a database of publications/outputs from CDI, IDS and partner organisations that are relevant to impact evaluations.	Researchers, students
IDS Open Docs	http://opendocs.ids.ac.uk/opendocs/	An e-repository of development research from IDS. OpenDocs consists of: 1. The British Library for Development Studies (BLDS) Digital Library (publications digitised from BLDS holdings on behalf of research institutes in developing countries) 2. IDS Research Community (publications by IDS Fellows and from partner research centres and consortia).	Students, development practitioners, researchers

Online spaces		
World Bank SecureNutrition	https://www.securenutritionplatform.org/Pages/Home.aspx	SecureNutrition is one of the six Knowledge Platforms run by the World Bank. All of these aim to contribute to the shift towards open development: open data, open knowledge and open solutions. SecureNutrition is working to bridge the operational knowledge gap between agriculture, food security, and nutrition.
WHO Partnership for Maternal Newborn and Child Health (PMNCH) – Knowledge Centre	http://www.who.int/pmnch/knowledge/en/	The Partnership joins the reproductive, maternal, newborn and child health communities into an alliance consisting of academic, research and teaching institutions; donors and foundations; health-care professionals; multilateral agencies; NGOs; partner countries; and the private sector.
Governance and Social Development Resource Centre (GSDRC)	http://www.gsdr.org/	GSDRC provides bespoke research and consultancy services in addition to the regularly updated information resources available on its website. The GSDRC team has been providing high-quality knowledge services to international development agencies for over a decade to DFID, the Australian Government, the European Commission, the OECD, the World Bank, and UNDP.
International Malnutrition Taskforce Forum	http://www.imtf.org/page/resources/	The International Malnutrition Task Force of the International Union of Nutritional Sciences (IUNS) is an initiative working to raise the profile and build capacity to tackle malnutrition.
1,000 Days	http://www.thousanddays.org/resources/	US-based nutrition advocacy organisation specifically interested in creating political will to end malnutrition. They are looking for content and have a resource page where they seem happy to post relevant material from a variety of actors.
EBPDN (Evidence-Based Policy in Development Network)	https://partnerplatform.org/ebp/dn/	A community of development professionals interested in the intersection between evidence, policy and practice. Their aim is to share resources and participate in discussions on knowledge, policy influence, power and politics
Research to Action	http://www.researchtoaction.org/	Website catering for the strategic and practical needs of people trying to improve the uptake of development research, in particular those funded by DFID
Knowledge brokers' forum	http://www.knowledgebrokersforum.org/	A collaborative space to promote knowledge sharing and dissemination around intermediary work in international development
International Initiative for Impact Evaluations (3ie)	http://www.3ieimpact.org/	An international grant-making NGO promoting evidence-based development policies and programmes. A global leader in funding and producing high-quality evidence of what works, how, why and at what cost in international development

Table 8.4 summarises the general target audiences; their information needs and expected use; and the potential channels for communicating with them.

Table 8.4 Target audiences and channels for communication				
Audience	Intended use/outcome	Information needs/messages	Type of output	Method for communication
DFID	<ul style="list-style-type: none"> Inform future design, implementation and decisions on whether or not to fund new projects/continue funding existing projects which include nutrition-specific and nutrition-sensitive programming Modify programmes to reflect on findings and lessons learned Act on lessons learned on evaluation design for integrated programmes; on impact evaluations; and on mixed-method evaluations 	<ul style="list-style-type: none"> Robust evidence on the effectiveness of integrating nutrition-specific and nutrition-sensitive programming into other interventions Lessons learned on the design and implementation of integrated programmes Lessons learned on the design of evaluations investigating integrated programmes 	<ul style="list-style-type: none"> Evaluation outputs/reports (Inception Report; Baseline Report, Mixed-method Report, Final Report, etc.) Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. 	<ul style="list-style-type: none"> Regular updates and meetings Circulation to DFID advisors Knowledge platforms (HEART website) Dissemination workshops) Global meetings
Govt. of Bangladesh	<ul style="list-style-type: none"> Inform livelihood and nutrition intervention designs, whether and how to integrate nutrition-sensitive and nutrition-specific interventions 	<ul style="list-style-type: none"> Robust evidence on the impact, cost-effectiveness and sustainability of integrating nutrition-specific and nutrition-sensitive programming Lessons learned on design and implementation of integrated programmes 	<ul style="list-style-type: none"> Evaluation outputs/reports (Inception Report; Baseline Report, Mixed-method Report, Final Report, etc.) Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. 	<ul style="list-style-type: none"> Knowledge platforms (e.g. IDS and HEART websites) Dissemination workshops
Programme partners	<ul style="list-style-type: none"> Inform future design, implementation and decisions on where or where not to fund new projects/continue funding existing projects which include nutrition-specific and nutrition-sensitive programming Modify programmes to reflect on findings and lessons learned Act on lessons learned on evaluation design for integrated programmes; on impact evaluations; and on mixed-method evaluations 	<ul style="list-style-type: none"> Robust evidence on the effectiveness of integrating nutrition-specific and nutrition-sensitive programming Lessons learned on the design and implementation of integrated programmes Lessons learned on the design of evaluations investigating integrated programmes 	<ul style="list-style-type: none"> Evaluation outputs/reports (Inception Report; Baseline Report, Mixed-method Report, Final Report, etc.) Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. 	<ul style="list-style-type: none"> Circulation through DFID advisors Dissemination workshops

Audience	Intended use/outcome	Information needs/messages	Type of output	Method for communication
International agencies and donors	<ul style="list-style-type: none"> Increased understanding of the opportunities and challenges of integrating nutrition-specific and nutrition-sensitive interventions into other types of programme Act on lessons learned on evaluation design for integrated programmes; on impact evaluations; and on mixed-method evaluations 	<ul style="list-style-type: none"> Robust empirical evidence on the impact, cost-effectiveness and sustainability of integrating nutrition specific and sensitive programming into other interventions Lessons learned on design and implementation of integrated programmes Lessons learned on the design of evaluations investigating integrated programmes 	<ul style="list-style-type: none"> Final report Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. Peer-reviewed journal articles 	<ul style="list-style-type: none"> Knowledge platforms (e.g. HEART website) Dissemination workshops Global meetings Social media Blogs
Academic institutions	<ul style="list-style-type: none"> Critical discussions, increased understanding and engagement of the academic community with the challenges and opportunities of integrated programmes for nutritional outcomes in children in resource-poor settings Act on lessons learned on evaluation design for integrated programmes; on impact evaluations; and on mixed-method evaluations 	<ul style="list-style-type: none"> Robust empirical evidence on the impact, cost-effectiveness and sustainability of integrated programmes for nutritional outcomes in children 	<ul style="list-style-type: none"> Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. Peer-reviewed journal articles 	<ul style="list-style-type: none"> Knowledge platforms (HEART website) Dissemination workshops Global meetings Social media Blog Seminars/webinars Personal contacts
CSOs	<ul style="list-style-type: none"> Inform design and planning of projects Enable advocacy based on findings and evidence to influence policymakers with regard to the of integration nutrition-specific and nutrition-sensitive interventions in other programmes Act on lessons learned on evaluation design for integrated programmes; on impact evaluations; and on mixed-method evaluations 	<ul style="list-style-type: none"> Evidence and learning to inform planning and delivery of integrated programming Strong evidence to inform engagement with and advocacy to government and partners 	<ul style="list-style-type: none"> Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. Peer-reviewed journal articles 	<ul style="list-style-type: none"> Knowledge platforms (HEART website) Dissemination workshops Global meetings Social media Blog
Media	<ul style="list-style-type: none"> Findings are shared broadly with key stakeholders Broad coverage of case studies in key media outlets 	<ul style="list-style-type: none"> Better understanding of the need for evaluation in implementing agriculture and nutrition linkages Strong appropriate evidence for advocacy to government and general public 	<ul style="list-style-type: none"> Additional outputs: e.g. briefing notes, evidence reports, policy briefs, etc. Blog 	<ul style="list-style-type: none"> Knowledge platforms (HEART website) Global meetings Social media Blog

H.7 Monitoring and evaluation of the communication activities

The monitoring and evaluation plan aims to assess whether the impact evaluation findings and the lessons learned during the evaluation process have influenced key stakeholders in their decision-making on integrating nutrition-specific and nutrition-sensitive programming into other interventions and/or evaluating integrated programmes. We will seek to monitor impact at the national and global levels. Impact will be measured at different stages, and the following aspects will be monitored/measured:

1. Initial impact: where evaluation outputs are published; publication downloads, media hits, social media and blog traffic, where feasible (e.g. IDS webstats and HEART webstats);
2. Medium-term impact: the involvement of the impact evaluation team in policy meetings at national and international levels; invitations issued to team members for participation in external and academic and policy seminars and conferences;
3. Long-term impact: the use of impact evaluation findings to inform future integrated projects in developing country contexts; the level of demand for additional research; evidence of influence in policy statements and documents; citations in publications.

ANNEX I: LIST OF KEY INDIVIDUALS CONSULTED

Individual	Position	Organisation
Tina Sanghvi	Country Director	Alive & Thrive
Sumitro Roy	Deputy Country Director	Alive & Thrive
Md. Maksudul Hannan	IMLC Unit Manager/ Nutrition Coordinator	CLP
Dr Shamia Khanam Chowdhury	Nutrition Coordinator	CLP
Stuart Kenward	M&E Director	CLP
Lokman Hossan	Human Development Unit Manager	CLP
Mir Mostaque Ahamed	Nutrition Coordinator	CLP
Md Abdul Momin	Partnerships Director	CLP
Dr Malcolm Marks	Chief Executive Officer	CLP
Matthew Pritchard	CEO/ Director for Innovation, Monitoring and Learning	CLP
Zakir Khan	Head of Program	Concern Worldwide, Bangladesh
Shahzada Sayeed	Head of M&E	Concern Worldwide, Bangladesh
Zahidul Hassan	Director	DATA
Alomgir Hussen	Nutrition Coordinator	EEP/Shiree
Md Masud Rana	Nutrition Coordinator	EEP/Shiree
Faria Shabnam	Nutrition Coordinator	EEP/Shiree
Eamoinn Taylor	Chief Executive Officer	EEP/Shiree
Colin Risner	Chief Executive Officer	EEP/Shiree
Najir Khan	Chief Operating Officer	EEP/Shiree
Shams El Arifeen	Director	ICDDR,B
Purnima Menon	Senior Research Fellow	IFPRI
Akhter Ahmed	Senior Research Fellow	IFPRI
Ashekur Rahman	Urban Program Analyst	UPPR
Sandrine Capelle-Manuel	International Project Manager	UPPR
Md. Ruhul Amin	Nutrition Coordinator	UPPR
Md. Kamruzzaman	Training and Social Mobilisation Expert	UPPR
Per Olof Bertilsson	International Project Manager	UPPR
Kishore Singh	International Poverty Reduction Specialist	UPPR

ANNEX J: ECONOMIC, CLIMATIC AND POLITICAL SHOCKS

The difference-in-difference estimator that will be used later in the report to assess the effectiveness of the direct nutrition component requires that the assumption of ‘parallel trend’ holds. This assumption requires that the evolution of the outcomes of interest would be the same across treated and control units, had the treatment not taken place. In other words, we need to make sure that the trend of the outcome of interest would not have been significantly different in the treatment group even in the absence of the intervention. Otherwise, we would not be able to disentangle the effect of the intervention from the effect of this differentiated trend.

If, say, L-only households were to be more affected by flood than L+N households, then we would expect the outcomes of interest to evolve more favourably in the L+N households even without the intervention, thereby biasing upwards the estimate of the impact of N. The assignment of households to the direct nutrition component was randomised so the risk that the parallel trend assumption is violated was minimised. Indeed, the baseline report showed that as the result of the randomisation, the characteristics at baseline were very well balanced between the L-only and L+N groups. It is however, important to check that each treatment arm was not affected by a particular trend over the period of study. If we find that some shocks were more common in a given treatment arm, we could then alleviate the resulting bias by controlling for the presence of asymmetric shocks in the difference-in-difference estimations. The analysis below will therefore assess whether asymmetric shocks exist, so that they can be controlled for in the main estimations if necessary.

Shocks may also directly influence the delivery, access or use of L and N interventions. Widespread political instability in urban areas may, for instance, have hampered the capacity of the UPPR teams to operate. This is another reason why looking at shocks is important before turning to the main estimations.

J.1 Climatic and economic shocks

Table 10.1: Endline means of shock exposure by intervention arm (panel) – CLP

	Mean		P-value of differences
	L+N	L-only	L+N - L-only
Hurt by at least 1 shock	0.55	0.53	0.61
Number of shocks	1.35	1.39	0.86
Different types of shock	0.88	0.81	0.52
Frequency of each shock	1.58	1.52	0.81
Loss of income due to death or injury	0.03	0.05	0.03
Medical expenses due to death or injury	0.18	0.19	0.73
Major loss of crops due to flood	0.08	0.10	0.33
Loss of livestock due to death	0.10	0.08	0.11
Increase in food prices	0.12	0.06	0.19
Other shocks	0.29	0.29	0.98
Mean value of loss	11,713.41	19,263.48	0.10

Table 10.2: Endline means of shock exposure by intervention arm (cross-section) – CLP

	Mean		P-value of differences
	L+N	L-only	L+N - L-only
Hurt by at least 1 shock	0.58	0.59	0.84
Number of shocks	1.34	1.68	0.15
Different types of shock	0.89	0.93	0.71
Frequency of each shock	1.56	1.72	0.53
Loss of income due to death or injury	0.03	0.05	0.06
Medical expenses due to death or injury	0.21	0.20	0.63
Major loss of crops due to flood	0.10	0.11	0.61
Loss of livestock due to death	0.10	0.11	0.86
Increase in food prices	0.12	0.07	0.23
Other shocks	0.29	0.32	0.48
Mean value of loss	13,008.93	14,655.90	0.40

The household survey asks the respondents whether the household has been hurt by ‘bad surprises or things’ over the last five years. Over 30 types of shocks were listed as bad surprises or things.

Tables 10.1 and 10.2 display summary statistics on exposure to shocks by intervention arm among CLP beneficiaries. Fifty-four per cent of beneficiaries reported having been affected by at least one shock over the last five years. The mean total number of shocks reported by CLP households is 1.37, with each household reporting on average 0.85 different types of shocks, and each type of shock being repeated 1.55 times over the period. There are no statistically significant differences between L+N and L-only households on these indicators.

Looking at the details of shocks, the most commonly reported one is ‘medical expenses due to death or injury’ (18.5 per cent), followed by ‘loss of livestock due to death’ (9 per cent), ‘major loss of crops due to flood’ (9 per cent), ‘increase in food prices’ (9 per cent) and ‘loss of income due to death or injury’ (4 per cent). All other shocks bundled together represent 29 per cent of all shocks. The main value of monetary loss per shock is around BDT 15,000. Except for the rate of ‘loss of income due to death or injury’, exposure to shocks appears to be similar in L+N and L-only households. L+N households, however, are significantly less likely (3 per cent against 5 per cent) to report loss of income due to death or injury. The difference is not very large, but is confirmed by the calculations made using the repeated cross-section sample (Table 10.2). Generally speaking, the figures in Tables 10.1 and 10.2 are very similar.

Tables 10.3 and 10.4 replicate the analysis of Tables 10.1 and 10.2 for EEP Concern beneficiaries. Once again, exposure to shocks is statistically similar in L+N and L-only households. Fifty-three per cent of EEP Concern beneficiaries report that at least one shock hurt their household over the last five years. The average number of shocks that are reported is just below 1 (0.96), with each household reporting 0.76 different types of shocks, and each shock being repeated 1.27 times over the last five years.

	Means		P-values of differences
	L+N	L-only	L+N - L-only
Hurt by at least 1 shock	0.56	0.50	0.22
Number of shocks	1.04	0.89	0.29
Different types of shock	0.78	0.74	0.69
Frequency of each shock	1.32	1.22	0.22
Loss of income due to death or injury	0.06	0.07	0.77
Medical expenses due to death or injury	0.29	0.25	0.43
Major loss of crops due to flood	0.04	0.05	0.44
Loss of livestock due to death	0.05	0.04	0.32
Increase in food prices	0.01	0.01	0.71
Other shocks	0.28	0.27	0.93
Mean value of loss	10,772.42	10,577.72	0.91

	Mean		P-value of differences
	L+N	L-only	L+N - L-only
Hurt by at least 1 shock	0.65	0.61	0.38
Number of shocks	1.28	1.06	0.12
Different types of shocks	0.90	0.85	0.61
Frequency of each shock	1.41	1.28	0.14
Loss of income due to death or injury	0.08	0.06	0.20
Medical expenses due to death or injury	0.33	0.36	0.45
Major loss of crops due to flood	0.04	0.05	0.43
Loss of livestock due to death	0.06	0.04	0.18
Increase in food prices	0.02	0.03	0.57
Other shocks	0.31	0.28	0.43
Mean value of loss	15,354.29	19,343.92	0.28

The most common shock is by far ‘medical expenses due to death or injury’ (27 per cent), followed by ‘loss of income due to death or injury’ (6.5 per cent), ‘major loss of crops due to flood’ (4.5 per cent), ‘loss of livestock due to death’ (4.5 per cent) and ‘increase in food prices’ (1 per cent). Other shocks put together represent 27.5 per cent of all shocks. The mean value of monetary loss per shock is about BDT 10,000.

Table 10.4 suggests that shock occurrence is higher among the repeated cross-section sample. Sixty-three per cent of households report at least one shock and the average number of shocks reported is 1.2. The mean monetary value of each shock is also higher in Table 10.4 (at BDT 17,000). However, like for the panel analysis, the distribution of all indicators in Table 10.4 is symmetrical in L+N and L-only households when the repeated cross-section sample is used.

Tables 10.5 and 10.6 replicate the analysis for UPPR households. Like for CLP and EEP Concern, we do not find evidence that shocks affected one group of households more than the other. Forty-three per cent of UPPR beneficiaries reported at least one shock over the last five years. The mean number of shocks is 0.97, with the average household reporting 0.62 types of shocks, and each being repeated 1.48 times over the period.

The most common shock is ‘medical expenses due to death or injury’ (26.5 per cent), followed by ‘loss of income due to death or injury’ (5.5 per cent) and ‘increase in food prices’ (5 per cent). Other shocks put together represent 19 per cent of all shocks. The mean value of each shock is about BDT 29,000.

Table 10.6 provides a very similar picture, although the proportion of households reporting at least one shock and the mean number of shocks are a bit higher than in Table 10.5 (49 per cent instead of 46 per cent; and 1.11 instead of 0.97, respectively). The one notable difference is that using the repeated cross-section sample in Table 10.6 causes the estimate of the mean value of loss per shock to be much lower for L-only households (at about BDT 20,000 against BDT 28,000 in Table 10.5). This is enough of a change for the difference in mean value of loss between L-only and L+N households to become statistically significant at the 6 per cent level. If L-only households are affected by shocks of lesser severity than L+N households (causing the mean monetary value of loss per shock to be lower), then the difference-in-difference estimates of the outcomes of interest may be biased downwards.

	Mean		P-value of differences
	L+N	L-only	L+N - L-only
(mean) Any shock	0.46	0.46	0.95
Number of shocks	0.99	0.95	0.83
Different types of shock	0.60	0.63	0.67
Frequency of each shock	1.55	1.41	0.39
Loss of income due to death or injury	0.05	0.06	0.77
Medical expenses due to death or injury	0.27	0.26	0.76
Major loss of crops due to flood	0.00	0.00	0.32
Loss of livestock due to death	0.01	0.01	0.65
Increase in food prices	0.04	0.06	0.64
Other shocks	0.19	0.19	0.99
Mean value of loss	29,139.47	28,813.47	0.97

	Mean		P-value of differences
	L+N	L-only	L+N - L-only
(mean) Any shock	0.52	0.46	0.11
Number of shocks	1.20	1.03	0.41
Different types of shock	0.68	0.63	0.38
Frequency of each shock	1.59	1.61	0.90
Loss of income due to death or injury	0.06	0.06	0.77
Medical expenses due to death or injury	0.30	0.25	0.05
Major loss of crops due to flood	0.00	0.00	0.57
Loss of livestock due to death	0.01	0.00	0.07
Increase in food prices	0.05	0.06	0.74
Other shocks	0.21	0.21	0.81
Mean value of loss	27,622.86	19,628.77	0.06

In sum, shocks are a frequent occurrence in the three programmes, which is not surprising as they focus on vulnerable households. About half of the beneficiaries in each programme report experiencing at least one shock. Health- and climate-related shocks (affecting crops and livestock) dominate; whereas economic

shocks tend to be much less frequent. For the most part, shock exposure appears perfectly symmetrical across L-only and L+N households, which was expected, given the random assignment. However, it was important to confirm with the data that the hypothesis of ‘parallel trend’ holds. The exercise revealed that UPPR L-only households may have been affected by slightly less severe shocks, causing the monetary value of the loss per shock to be lower among them than among L+N households. Such a statistically significant difference only arises when the repeated cross-section sample is used; but it should not be dismissed. Similarly, among CLP beneficiaries L-only households appear to be significantly more affected by ‘loss of income due to death or injuries’ than L+N households.

J.2 Political shocks

The period of the study coincided with severe and recurring political instability in Bangladesh.

The shocks module of the household survey comprised questions on political shocks and *hartals* (strikes). It turns out that exposure to *hartals* was virtually non-existent in CLP and EEP Concern areas; however, the qualitative evaluation found that many families were economically affected by the political situation as male household members migrated for several months each year to Dhaka (or other cities) for work. *Hartals* made it impossible for them to work for many weeks (meaning that they had no income) and also forced them to stay in Dhaka as there was no transport (which meant further loss of income as they had to pay living costs in Dhaka).

Exposure to *hartals* was high in UPPR areas. More specifically, 44 per cent of UPPR beneficiaries reported that widespread closure of shops, government services, etc. had occurred during *hartals* in their communities in the last two years (see Table 10.7). More often than not, these *hartals* were violent. Sixty-four per cent of respondents affected by *hartals* reported that destruction of property and and/or rioting occurred during *hartals*. Some 6.5 per cent of respondents had had their own assets/property destroyed. Four per cent of respondents had assets that had been transferred to them by the UPPR destroyed, so that *hartals* have a direct bearing on the course of the programme. Likewise, owing to *hartals*, 3 per cent of respondents were unable to receive transfers from the UPPR, 2 per cent were unable to attend training sessions organised by the UPPR and 3 per cent were unable to participate in UPPR group sessions. This extends to the nutrition intervention, as 2 per cent of respondents reported that at least one visit from the CNWs was prevented by *hartals*.

The most detrimental effect of *hartals* on beneficiaries’ lives seems to have been the way they prevented them from going to work. Owing to political instability, 55 per cent of respondents reported that they had been unable to go to work at least once. L-only households (50 per cent) appear to have been less likely to lose days of work than L+N households (61 per cent), a difference significant at the 7 per cent level. Yet Table 10.8, which displays findings on the repeated cross-section sample, does not confirm such a significant difference (the corresponding figures are 52 per cent and 51 per cent, respectively). Inability to go to work was not a one-off event, as affected respondents lost, on average, a total of 19 days of work over the last two years. In addition, the qualitative evaluation found that apart from losing income because they were unable to work during *hartals*, several beneficiaries who had supported the previous political leadership (the Bangladesh Nationalist Party) were excluded from services by the new leadership and some of them lost assets that they had received from the programme.

Table 10.8 – which uses the repeated cross-section sample – mostly confirms the findings of Table 10.7. The proportion of households reporting violence during *hartals* is a bit higher than among the panel sample (72 per cent instead of 64 per cent), and, contrary to Table 10.7, the role of *hartals* in lost days of work appears to be the same in L-only and L+N households.

Overall, political instability appears to have been a constant feature in the lives of about half the UPPR beneficiaries. Exposure to *hartals* is thus widespread, and people living in areas affected by *hartals* have suffered a range of consequences. A small but not negligible proportion of these people have had their assets and property confiscated or destroyed, and their access to UPPR services (transfers, training and group work) undermined. About 2 per cent of UPPR respondents had to cancel at least one visit by the CNW because of political instability.⁷

⁷ Given the lack of CNWs and ensuing very high caseload per worker, the role of political instability in the limited number of visits appears to be have been modest.

Table 10.7: Endline means of political shock indicators by intervention arm (panel) – UPPR programme			
	Mean		P-value of differences
	L+N	L-only	L+N - L-only
Over the last two years, have widespread closures of shops, government services, etc., occurred during <i>hartals</i> in your community?	0.44	0.44	0.92
Did destruction of property/rioting occur during <i>hartals</i> in your community?	0.64	0.64	0.99
Were any of your assets/property that were not provided by UPPR destroyed?	0.06	0.07	0.73
Were any of your assets/property that were provided by UPPR destroyed?	0.03	0.05	0.49
Were you or any household members unable to go to work during <i>hartals</i> over the last 2 years?	0.61	0.50	0.07
How many days were you or other household members unable to go to work because of <i>hartals</i> over the last 2 years?	18.19	19.23	0.58
Were you or other household members unable to receive transfers from UPPR due to <i>hartals</i> over the last 2 years?	0.03	0.03	0.74
Were you or other household members unable to attend training organised by UPPR due to <i>hartals</i> over the last 2 years?	0.01	0.03	0.42
Were you or other household members unable to participate in UPPR organised group sessions due to <i>hartals</i> over the last 2 years?	0.02	0.04	0.34
As a result of the <i>hartals</i> , were there any times in the past 2 years that a CPK worker could not visit your home?	0.01	0.04	0.41
How many times in the past 2 years was a CPK worker prevented from visiting your home?	2.00	3.67	0.11

Table 10.8: Endline means of political shock indicators by intervention arm (cross-section) – UPPR programme			
	Means		P-values of differences
	L+N	L-only	L+N - L-only
Over the last 2 years, have widespread closures of shops, government services, etc., occurred during <i>hartals</i> in your community?	0.41	0.45	0.55
Did destruction of property/rioting occur during <i>hartals</i> in your community?	0.73	0.70	0.57
Were any of your assets/property that were not provided by UPPR destroyed?	0.11	0.10	0.73
Were any of your assets/property that were provided by UPPR destroyed?	0.06	0.06	0.97
Were you or any household members unable to go to work during <i>hartals</i> over the last 2 years?	0.52	0.51	0.79
How many days were you or other household members unable to go to work because of <i>hartals</i> over the last 2 years?	21.31	18.43	0.04
Were you or other household members unable to receive transfers from UPPR due to <i>hartals</i> over the last 2 years?	0.02	0.02	0.48
Were you or other household members unable to attend training organised by UPPR due to <i>hartals</i> over the last 2 years?	0.01	0.04	0.18
Were you or other household members unable to participate in UPPR organised group sessions due to <i>hartals</i> over the last 2 years?	0.01	0.03	0.25
As a result of the <i>hartals</i> , were there any times in the past 2 years that a CPK worker could not visit your home?	0.01	0.02	0.49
How many times in the past 2 years was a CPK worker prevented from visiting your home?	2.75	3.78	0.43

Political instability has also widely affected urban residents by limiting their ability to go to work. Over half of UPPR beneficiaries reported that they lost days of work because of *hartals*, and for those, the average total number of days lost over the last two years was about twenty. This is a very high figure, especially for the vulnerable urban dwellers relying on casual labour who tend to live in the slums targeted by the UPPR.

Reassuringly, exposure to *hartals* and their consequences seems to be have been the same across L-only and L+N households, so that difference-in-difference estimates of the impact of N will not be biased by a group-specific trend. There is the possibility that L-only households will have lost fewer days of work than L+N households, although this difference is only weakly significant in one specification (the panel sample).

This report was produced by the Institute of Development Studies (IDS), International Food Policy Research Institute (IFPRI), ITAD and the BRAC Institute of Governance and Development (BIGD) through the UK Government's Department for International Development (DFID)-funded MQSUN project, 'Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh'.

This document was produced through support provided by UK aid from the Department for International Development. The opinions herein are those of the authors and do not necessarily reflect the views of the Department for International Development.

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