



*Economic strengthening, resilient livelihoods
approaches and child well-being*
Evidence and knowledge gaps

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Published by Resilience and Livelihoods on behalf of World Vision International.

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Foreword

The World Vision (WV) imperative for supporting improved child health, nutrition and education is well understood, with rich research literature providing pathways for evidence-based practice and performance measurement in these areas. However, these goals cannot be achieved or sustained by focusing solely on sectoral interventions without also addressing the underlying foundations of children's well-being. WV recognises that, now more than ever, we must take a holistic view of child well-being (CWB) – the outcomes for which depend on complex social, economic and physical systems. Children depend on parents and caregivers, who, in turn, depend on some form of livelihood to generate income to provide for children's basic needs and create opportunities for physical and social development. Adequate and secure livelihoods, in turn, depend on economic opportunities, sustainable use of resources and resilience to shocks and disasters.

The goal of WV's work is transformation, not welfare, so it is critical that this work empowers and equips parents and other caregivers to maintain and increase child well-being outcomes (CWBOs) through their own knowledge, efforts and resources. WV's resilience and livelihoods (R&L) programmes, therefore, work to strengthen the very foundations of CWB by developing the assets, capabilities and livelihood strategies of children's parents and caregivers to conquer poverty and increase security and prosperity. Because the importance of this work in transforming CWB has not been universally understood, the R&L team, together with VisionFund International, commissioned an external review of the published literature to document what reputable research in economic strengthening has revealed about outcomes for children, and exploring CWBOs in various approaches encompassed within resilient livelihoods interventions.

The results of this literature review by researchers from University College London (UCL) are both gratifying and educational. At a macro-level there is no question that health, nutrition and education outcomes for children improve as household (HH) income increases. However, success depends largely on the mechanism and context for the increase in income:

It's not just what you do, but 'the way that you do it'.

The review also revealed significant research knowledge gaps – few studies have specifically tested the links between a particular livelihoods approach and outcomes for children. This should not be interpreted to mean that increasing livelihoods resilience does not translate into improved outcomes for children – only that there has been little research on the linkages. The lack of research is not surprising, given that measuring livelihoods resilience is in itself an emerging area and the sort of research needed to identify the linkages does not fit readily into simplistic evaluation paradigms, so researchers must grapple with uncertainty of the measurements in addition to the complex systems that create CWB. Fortunately, there is growing research interest amongst donors in understanding the connection between improved and resilient livelihoods and CWB; WV and VisionFund – working alongside external research partners – are well positioned to leverage this.

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Acknowledgements

World Vision's resilience and livelihoods team and VisionFund International wish to acknowledge that this report is based on work by consultants Matt Fortnam and Benjamin Flower, who undertook desk-based research which included a review of the economic strengthening and livelihoods literature and World Vision's national offices' 2014 child well-being reporting. We also wish to acknowledge the contributions of Dr Doug Brown, Mary Morris and Emily Woodroffe, other members of the World Vision's Resilience and Livelihoods team and the Resilience and Livelihoods community of practice, and Peter Harlock of VisionFund who reviewed and gave feedback on the consultants' reports and on this document. Your contributions were gratefully received.

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List of abbreviations

ADP	Area Development Programme	SBD	Solomon Islands Dollar
AP	Area Programme	SG	Savings Group
BF	Business Facilitation	SHG	Self-Help Group
BR	Ethiopian Birr	SKYE	Skills and Knowledge for Youth economic Empowerment
C4ED	Chickens for Economic Development	SWC	Soil and Water Conservation
CA	Conservation Agriculture	TNWDP	Tamil Nadu Women's Development Programme
CCT	Conditional Cash Transfer	UCL	University College London
CFPR/TUP	Challenging the Frontiers of Poverty Reduction – Targeting the Ultra-Poor	UCT	Unconditional Cash Transfer
CGAP	Consultative Group to Assist the Poor	USAID	United States Agency for International Development
CLM	<i>Chemin Lavi Miyo</i>	US\$	United States Dollar
CVA	Citizen Voice and Action	VCD	Value Chain Development
CWB	Child Well-Being	VSLA	Village Savings and Loans Association
CWBO	Child Well-Being Outcome	WV	World Vision
DFID	Department For International Development	ZAR	South African Rand
DRR	Disaster Risk Reduction		
ELA	Empowerment and Livelihoods for Adolescents		
EWV	Empowered World View		
FBu	Franc Burundian		
FCFA	<i>Franc Communauté Financière Africaine</i>		
FY	Fiscal Year		
FMNR	Farmer Managed Natural Regeneration		
GHC	Ghana Cedi		
HA	Hectare		
HH	HouseHold		
IRDP	Integrated Rural Development Programme		
JWG	Jerusalem / West Bank / Gaza		
LBE	Local Business Environment		
LVCD	Local Value Chain Development		
MEER	Middle East and Eastern Europe Region		
MFI	MicroFinance Institution		
MICAH	MICronutrient And Health programme		
NGO	Non-Governmental Organisation		
NO	National Office		
PKR	Pakistan Rupee		
PM	Project Model		
R&L	Resilience and Livelihoods		
RWF	Rwanda Franc		

Executive summary

Introduction

WV and many other international and local non-governmental organisations (NGOs) are seeking to alleviate poverty and improve CWB by helping individuals in the context of their communities to develop their assets, capabilities and livelihood strategies at the HH level. A key goal is to enable parents and caregivers to provide well for their children. Core to this is addressing HH economic well-being – improving access to income, savings and loans so that children’s food, medical, education and other basic needs can be covered. Improved and more reliable HH income is also assumed to build resilience to disasters and emergencies. These assumptions are based on evidence that HH assets influence CWB in developing countries by creating opportunities for accessing services, enhancing child development outcomes, lowering child mortality and illness, reducing the likelihood of detrimental child labour and improving school enrolment and educational attainment (Chowa et al., 2010). WV’s theory of change for CWB outlines the thinking on how change takes place. Reviews, such as this paper, seek to develop the evidence base supporting and challenging this theory.

Approach

This document pulls together into a single report the findings of three desk-based reviews by consultants Matt Fortnam and Benjamin Flower of University College London, UK. The consultants were asked to (i) summarise the research evidence linking economic strengthening with CWBOs, (ii) review evidence of sector-based and integrated approaches to building resilient livelihoods and (iii) appraise content reported under the R&L strategic objectives in WV’s 2014 CWB reports.¹ A bibliography at the end of this document lists all reference sources cited in the aforementioned papers by Fortnam and Flower.

¹ Note that for more detailed explanations and analyses of the literature readers should refer to the original 2015 reports by Fortnam and Flower *Economic Strengthening and Child Well-being in Developing Countries: A Review of the Literature*; *Resilient Livelihood Programming, Smallholder Farmers and Child Well-being*; and *Household and Child Well-being Outcomes of World Vision Resilience & Livelihood Programming: A review of World Vision National Office Child Well-being*.



Children like Dienabou (aged 5) in Kounkane area development programme (ADP) of Senegal are dependent on a range of economic and resilience factors for good nutrition

Findings

The desk-based research commissioned by WV and VisionFund in 2015 concluded that the links between increasing income and the ability for parents and caregivers to provide well for their children is supported by literature exploring economic strengthening and CWB. However, one of the conclusions was also that there is a paucity of actual research on the direct linkage between livelihoods programming or integrated approaches and CWB. WV and VisionFund should seek to correct this shortage of research and seek to encourage partner research organisations to provide a more complete picture and evidence in this space over time.

The review identified multiple examples where livelihood interventions are making a positive difference. For example, microcredit, cash transfers and savings groups (SGs) have been linked with higher levels of school enrolment and attendance and improved diets and health amongst children. Natural resource management approaches such as agroecology and farmer managed natural regeneration (FMNR) may improve crop yields, increase and diversify HH income

and lead to more nutritious diets, and home gardens can improve dietary diversity and increase child vitamin A intake. But generally there is a lack of research on pathways from livelihood interventions to CWBOs, except for some economic interventions.

Beyond economic strengthening interventions, published research on livelihood interventions does not adequately investigate the link with the multiple dimensions of CWB. Child nutritional status has been the main focus of research. Many empirical case studies report improvements in some nutritional indicators as a result of agricultural interventions such as livestock development and home gardens, but systematic reviews of this literature found little robust evidence validating these effects (with the exception of vitamin A from home gardens). This is attributed to weaknesses in impact evaluations rather than the ineffectiveness of programmes.

The impact of livelihood programmes on other indicators of CWB has received scant attention. Based on the current knowledge base, it is not possible to state conclusively whether income growth generated from the reviewed interventions has improved CWB. Studies tend to focus on the immediate outcomes of livelihood interventions, such as yields, income and food security, rather than the causal pathways by which CWB can be advanced; such pathways are challenging to track given the multiple determinants of CWB and poverty in any given context.

Economic strengthening

Economic strengthening approaches have been shown to improve CWBOs by increasing the financial capacity of HHs and/or children to meet expenditures associated with CWB indicators and encouraging behaviours associated with positive CWBOs. The success of economic strengthening interventions has been dependent on their characteristics. In general, programmes improving CWB through targeting caregivers have been more successful if they engage mothers rather than fathers. Crucially, there is strong evidence that programmes implemented in tandem with vocational and/or social/health training optimise CWBOs. In particular, supplementing economic interventions with initiatives specifically designed to improve CWB have resulted in synergies between increased economic capacity and increased awareness of CWB.

Microcredit

Microcredit has been linked with improved child nutrition, education and health. WV's CWB reporting suggests that microcredit has had positive effects on health and food security and expenditure on education (e.g. school fees and books). Not all microfinance has positive results. Some empirical studies of specific microcredit schemes found they had no effect or even negative effects on CWB (e.g. increased child labour). The likelihood of economic interventions such as microcredit having positive effects on children was heightened if they targeted women and/or were complemented with vocational, health and social development training and/or participation conditions.



VisionFund Philippines client

Cash transfers

Cash transfers are linked with higher levels of school enrolment and attendance and improved diets and health amongst children. Many studies have highlighted the benefits of conditional cash transfers (CCTs) for CWB – for example, when cash transfers are awarded on the condition that children attend school. Vulnerable children have directly benefited in many instances, particularly girls discriminated against because of entrenched cultural models of gender. Unconditional cash transfers (UCTs) have also been linked with modest improvements in children's educational and cognitive development.

Savings groups

SG participation is associated with varied and significant CWBOs with evidence that the increased financial resources attributed to SGs have increased spending on children in poor HHs. The review of WV's 2014 national CWB reports support this conclusion with examples

of where SGs have made HHs better able to cope with unexpected and increased expenditure on children.

Value chain development

Value chain development (VCD) has been proposed as a potentially important mechanism for improving child nutritional status by enabling access to a wider variety of food. Some studies have looked at imperfections in value chains that have limited the availability of nutritious food. However, research on VCD interventions and their impact on children's nutritional status is lacking. In WV programming, local value chain development (LVCD) has succeeded in raising the price received by farmers for their produce and there is some evidence of HH income growth.

Small business development and business facilitation

Small business development and business facilitation (BF) are typically implemented as a package of reforms designed to complement each other (e.g. microcredit accompanied by BF training and support). When development agencies work on projects to improve a local business environment (LBE), the interventions are designed to overcome barriers to 'doing business'. They aim to assist breadwinners who are poor to generate a sufficient and reliable income so that families have the means to care well for their children. There is little published research specifically reporting on how these approaches lead to improved CWB – although experience within WV programming shows promise.

Agricultural interventions

Agricultural interventions, such as livestock development, home gardens and crop production, have been demonstrated to increase HH incomes and food security. However, the research on such approaches often fails to consider whether total HH income has grown or attempts to investigate the causal pathway between immediate outcomes and specific interventions, HH assets and CWB. WV programmes have improved crop, and, to a lesser extent, livestock, productivity in many target communities with promising examples described in the CWB reports. However, insufficient reporting and limitations within the monitoring and evaluation system do not offer much insight into the CWB outcomes of such programming and limit the conclusions that can be made in this review.



This Zambian mother is better able to support her family because she is a member of a SG

Vocational training

Vocational training programmes have demonstrated potential to improve CWBOs particularly when combined with training related to social and health issues. Vocational training has increased incomes in many WV programmes and has been shown to generate benefits for children. Youth have become more employable or equipped to start their own businesses in a diverse range of contexts.

Integration

A common theme emerging from this review is that better results are achieved when interventions are integrated. Over the course of their desk-based research, Fortnam and Flower saw a pattern of growth in the number of integrated livelihood programmes implemented over the last decade. Where evidence exists, they are demonstrating positive outcomes for beneficiaries. For instance, the 'graduation' model integrates asset transfers (e.g. livestock) with training and support, sometimes including regular cash transfers. It has achieved impressive results in several developing countries, improving HH income and assets, consumption, health and women's empowerment. While expensive to implement, the return on investment is favourable. However, the few studies that have considered CWB have shown mixed results for education and health outcomes, with sometimes contradictory evidence.

Disaster risk reduction

Review of the disaster risk reduction (DRR) research suggests that strengthening livelihoods can enhance food security and resilience to hazards by improving food availability and HH assets. Early warning systems

can benefit HHs if they trigger adequate and timely preparedness actions and emergency responses. If sustained, seed and grain banks can provide a viable alternative for coping during periods of food insecurity. Destocking of livestock during crises offers a critical source of cash for HHs to care for remaining animals and pay for essential goods and services (including children's food and school fees). However, evidence of the causal pathway between DRR interventions, resilient livelihoods and HH and CWB is lacking. Progress on CWB indicators can falter when faced with external shocks such as conflict (e.g. South Sudan) and climate extremes (e.g. Zimbabwe). Making livelihood programmes robust and resilient to such externalities is clearly important, yet there are few indicators used to measure livelihood resilience.

Other findings

The research also drew out and discussed some additional findings, namely that:

- HH wealth growth is critical, but only part of the solution.
- Economic strengthening interventions often have positive effects on CWB but are more effective when implemented with complementary activities.
- Integrated livelihood approaches are more likely to produce positive effects for CWB than those focused solely on income generation.
- The evidence base for resilience and livelihoods needs to be strengthened.
- Women's empowerment is critical for the benefits of livelihood interventions to reach children.

Conclusion

WV must, where possible, make evidence-based and balanced assessments of the benefits of our R&L approaches for achieving CWB. Assumptions that underpin our programming are based on documented evidence that HH assets influence CWB in developing countries by creating opportunities for accessing services, enhancing child development outcomes, lowering child mortality and illness, reducing the likelihood of detrimental child labour and improving school enrolment and educational achievement.

The links between increasing income and the ability for parents and caregivers to provide well for their children are supported by literature exploring economic strengthening and CWB. However, research on links between livelihoods-based approaches and CWB, and on integrated approaches, is still emerging. There are gaps in research on the contexts and mechanisms under which interventions that improve livelihoods and their resilience lead to better outcomes for children.

At the same time, WV's national office (NO) CWB reporting for 2014 articulates the scale and range of investments and the achievements of our R&L interventions globally, making it clear that we have both an urgent need and an opportunity to fill these research knowledge gaps.

In 2016 the R&L team will undertake a research prioritisation process to identify the most pressing questions and the most promising internal and external research partners.



Improving family incomes in Latin America

Economic strengthening, resilient livelihoods approaches and child well-being – the evidence and knowledge gaps²

Economic strengthening and child well-being

Economic strengthening programmes assume a positive relationship between economic and CWB indicators. The literature review revealed a variety of studies assessing HH wealth against various CWB indicators, such as participation in education, health care and other key areas. There is strong evidence that increases in HH wealth are usually associated with better CWBOs. Economic strengthening programmes which aim to enhance HH economic indicators are found to be linked with positive CWBOs, except in circumstances where increases in HH assets also increase child labour.

The relationship between economic indicators and CWB in advanced economies is well established in the literature. According to a much-cited paper by Brooks-Gunn and Duncan (1997:55), ‘hundreds of studies have documented the association between family poverty and children’s health, achievement, and behaviour’. However, studies addressing such issues in developing countries remain ‘very scarce’ in comparison (Schady et al., 2015:8).

Assessing CWB in developing countries is crucial given that child risk factors are often exacerbated in developing country contexts (Walker et al., 2007). Improving CWB in developing countries can pay significant dividends in improving an individual’s life trajectory and their capacity to contribute to society.

A key constraint on investment and consumption in poor HHs is lack of capital. Poor HHs often do not have savings or are unable to access credit. They are, therefore, unable to invest in farming or other entrepreneurial activities or graduate from poverty, and have limited resources for health and education expenditures. Financial instruments such as microcredit, cash transfers and SGs often aim to remove these constraints and to benefit children by increasing HH expenditure on food, health, education and other goods and services. Approaches such as small business

development, BF and support for entrepreneurs also aim to improve HH incomes and create opportunities in local economies – essential for sustainable improvements in CWB.

Economic strengthening research

Studies from around the globe suggest that children in poorer families tend to be less well-nourished.

Urke et al. (2011) found that the inverse relationship between economic status and malnutrition was more pronounced in the poorer Andean region of Peru than nationally. In the Andean region, the study found that six per cent of children living in HHs in the richest quintile were stunted compared to 51 per cent in the poorest; nationally the figures were five per cent and 43 per cent, respectively.

Numerous large-sample studies have noted a link between wealth and incidence of stunting. In Vietnam, a study of 5,309 children found that those in poor HHs were 11 per cent more likely to be stunted or underweight than non-poor children (Thang and Popkin, 2003). A study of 5,977 children in Bangladesh found that those in the poorest quintile were three times more likely to be stunted than those in the richest (Hong et al., 2006). In Ghana, a study of 3,077 children found those in the poorest quintile were four times more likely to suffer stunted growth than those in the richest quintile (Hong, 2007). In Cambodia and Nepal, wealth indicators were closely linked to severe stunting, with children in the poorest HHs suffering most (Hong and Mishra 2006; Tiwar et al., 2014).

A number of empirical studies have shown that increased HH wealth is associated with better education outcomes for children (Filmer and Pritchett, 2001; Paxson and Schady, 2010; Rani and Lule, 2004).

HH wealth is also closely associated with a child’s cognitive development (Paxson and Schady, 2010; Schady et al., 2015). Linked to cognitive development, there is also evidence that children from wealthier HHs display lower levels of stress than their less well-off counterparts (e.g. Fernald and Gunnar, 2009).

Finally, there is ample evidence that adolescents from wealthier HHs are less likely to engage in risky sexual behaviour than those in poorer HHs (Madise et al., 2007). The negative CWBOs of risky sexual behaviour are severe. Infrequent use of condoms and early sexual debut are associated with increased risk of teen pregnancy and sexually transmitted diseases – a particularly potent risk in sub-Saharan Africa given the very high rates of HIV in many countries (Idele et al., 2013; Madise et al., 2007).

² This document is based on reviews of research literature available up until July 2015 and of WV’s national CWB reports published in 2015, which report NO programming achievements for 2014.

Microcredit

Microcredit contributes to positive CWBOs by increasing available resources for expenditure on children. Research exploring nutritional aspects of CWB suggests access to microcredit is positively linked with increased expenditure on children's diets, though with some gender variations (Doocy et al., 2005). Access to microcredit has also been shown to increase children's education opportunities (You and Annim, 2013). Often microcredit interventions are successful in improving CWB when supplemented with training programmes. A study of a microcredit intervention in India highlights improved outcomes for girls when loans are combined with education and training (Holvoet, 2004).



VisionFund Mongolia client

While the benefits of microfinance for improving children's health and education outcomes are widely documented, research has also revealed cases where microcredit has produced no such benefits (Stark et al., 2015) or is associated with an increase in reliance on child labour and corresponding decrease in education attendance (Augsburg et al., 2012). Such risks need to be mitigated by programme design.

Partnerships³ between WV NOs and VisionFund microfinance institutions (MFIs) have yielded positive results for children worldwide.

In Armenia, WV partnered with SEF International, a VisionFund MFI, to provide credit to 16,000 clients. By 2014, it had a US\$22.8 million loan portfolio, serving

³ Typically, microcredit is provided by VisionFund and does not come under the direct remit of WV NO. For this reason, there may be some underreporting of microcredit (as well as other microfinance interventions) in the 2014 CWB reports. Nevertheless, there is ample evidence of engagement with microcredit in interventions across WV offices.

Microfinance in World Vision

A survey conducted by WV Myanmar found that 95 per cent of microfinance clients reported some type of benefit for their children as a result of receiving a loan, and 60 per cent reported three or more benefits. The top five child benefits were:

- basic education (75 per cent)
- clothing/shoes (56 per cent)
- sufficient food (45 per cent)
- children's health costs (36 per cent)
- sufficient drinking water (18 per cent).

The NO reflected that integration of microfinance and livelihood activities at the programme level could increase the positive effects of economic development on target HHs (WV Myanmar 2014 CWB report).

In Armenia, SEF International's data showed that 93 per cent of sampled clients reported some type of benefit for their children because of the loan they received. Almost 79 per cent of sampled clients reported three or more benefits. The top two positive effects were on children's health (82 per cent) and food sufficiency (80 per cent). Living conditions also improved in more than half the cases (WV Armenia 2014 CWB report).

Cambodia's 2014 annual CWB report indicates that 99 per cent of VisionFund clients reported some form of benefit for their children as a result of loans and 69 per cent of clients reported three or more benefits, the top three being improved sanitation (62 per cent), additional clothing/shoes (59 per cent) and children's health costs covered (57 per cent) (WV Cambodia 2014 CWB report).

22,419 HHs and potentially benefitting 29,071 children. The loans are reported to have significant CWBOs (WV Armenia 2014 CWB report).

In Myanmar, over US\$1.6 million in loan funds has been disbursed via 13,860 education loans, over 60 per cent of which are for middle/high school. The loans are primarily used for books and supplies, school fees, clothing, after-school tuition and transportation to and from school (WV Myanmar 2014 CWB report).

In Senegal, WV's partnership with MFIs generated loans of FCFA1,248,659,200 (US\$2,119,367) for the benefit of 6,698 customers, 63.1 per cent of whom are women (4,226). Positive effects were observed on the more than 24,000 children residing in participating HHs, but the content in the CWB report does not specify the benefits (WV Senegal 2014 CWB report).

Microcredit research

A study of 819 HHs in areas of Ethiopia afflicted by drought and food insecurity found that children in HHs with female microcredit clients had significantly better nutritional status than control populations or children in HHs with male clients (Doocy et al., 2005).

A study of microcredit and education in China found that children living in HHs that had accessed microcredit through rural credit cooperatives attended school for more years than those from HHs that had not (You and Annim, 2013).

A 1998 study compared those who accessed microcredit through the integrated rural development programme (IRDP) with those who accessed microcredit through the Tamil Nadu women's development programme (TNWDP). The TNWDP also provided, through women's groups, information-sharing, training in technical areas, management and leadership, and awareness-raising activities related to gender and social development issues. The study found that girls living in HHs where credit came through the TNWDP model remained on average about one to 1.5 years longer in school, were 3.2 to 3.9 times more likely to be enrolled in private rather than in public schools, and were 2.7 to 3.5 times more likely to be able to read and write, compared to the IRDP participants (Holvoet, 2004).

In Bosnia, a study found that adolescents (aged 16 to 19) from families who had accessed microcredit loans worked 20 hours more per week than those in the control sample, usually in family business activities funded by loans. Correspondingly, children in loan recipient HHs were nine per cent less likely to attend school in comparison to the control group (Augsburg et al., 2012).

A study in Aceh, Indonesia, post-tsunami, compared indicators that described the quality of diet, health and education for children in HHs that participated in local service provider Afdhal's micro-lending programme against those who did not. The data revealed no differences in CWB indicators between beneficiary and non-beneficiary HHs (Stark et al. 2015).

Coordination between VisionFund and WV NOs is extending the reach of microcredit. WV India focuses on pre-microfinance efforts, which include forming self-help groups (SHGs) and providing training and education on bookkeeping, business/skill development, health and family welfare, sanitation and thrift. After two to three years, members of the SHGs graduate to the status of 'microentrepreneur' and 'credit-worthy'. At this stage, Impact (part of the VisionFund network) grades the SHGs and provides microfinance services to their members (WV India 2014 CWB report).



Bean Mao is a VisionFund Cambodia client

Cash transfers

Numerous studies have highlighted the benefits of CCTs for CWB. CCTs involve payments to beneficiary HHs on the condition of participation in activities designed to improve CWB, particularly health and education. In Colombia, HH participation in the CCT *Familias en Acción* was associated with positive education outcomes for children (Attanasio et al., 2006). In Mexico, the *Oportunidades* programme (later known as *PROGRESA*) was found to have significant education and health benefits. Various studies demonstrate the programme's positive effect on child nutrition (Barber and Gertler, 2009). Increased expenditure capacity as a result of the cash transfer was important to achieving positive CWBOs (Fernald et al., 2008).

UCTs have also been linked with positive CWBOs. For example, the *Bono de Desarrollo Humano* programme in Ecuador provided beneficiary families US\$15 per month, which generated modest improvements in children's educational and cognitive development (Paxson and Schady, 2010).

In South Africa, the UCT child support grant, which targets single mothers earning under ZAR2,600 a month or married couples earning less than ZAR5,200 a month, reaches more than 10 million children each month (UNICEF et al., 2012). UNICEF reported that enrolment in the programme reduced the likelihood of illness (measured during a 15-day period prior to the survey).

Overall, CCTs are reported to have a greater impact on schooling than UCTs. A systematic review of 32 studies of CCTs and UCTs found that across all studies

CCTs increased the probability of a child being enrolled in school by 41 per cent while UCTs increased the probability of a child being enrolled in school by 23 per cent (Baird et al., 2014).

UCT research

In a study of *Bono de Desarrollo Humano* programme in Ecuador, a survey of 5,547 children from 3,426 families found that participation in the programme was associated with improved cognitive development (*Test de Vocabulario en Imagenes Peabody* score) by 0.18 standard deviations compared to control groups (Paxson and Schady, 2010).

Conditional cash transfer research

CCT *Familias en Acción* programme in Colombia provided cash transfers to mothers of children attending at least 80 per cent of school classes. Analysis of panel data from 10,742 HHs found that the programme increased enrolment amongst 14 to 17 year old children by between five and seven percentage points (Attanasio et al., 2006).

The conditions of the cash transfer in the *Oportunidades* programme in Mexico included school enrolment and attendance, health clinic visits and completion of courses of vitamin supplements. A study by Barber and Gertler (2009) showed that beneficiary babies had an average of 127.3g extra birthweight and a 4.6 per cent reduction of low birthweight as a result of participation in the programme.

Fernald et al. (2008) notes that children in *Oportunidades* programme recipient HHs who received a doubled cash transfer displayed a higher height-for-age ratio, lower prevalence of stunting, lower body-mass index for age and lower prevalence of being overweight. A doubling of cash transfers was also associated with children doing better on a scale of motor development, three scales of cognitive development and of receptive language (Fernald et al., 2008).

Other *Oportunidades* studies emphasised the role of supplements in improving child nutritional status (Neufeld et al., 2011; Skoufias et al., 2001).

A key attribute of *Oportunidades* planning is that gains are expected to be long term and beneficiaries graduate from the programme out of poverty. A study by Villa and Niño-Zarazúa (2014) found that only around one-third of HHs assessed to have graduated are in fact 'true' long-term graduates. In other words, only one-third of graduating HHs exhibit low probabilities of returning to poverty. The authors suggest that recertification for programme eligibility should occur less frequently in order for beneficiaries to have sufficient time to build up their long-term resilience and 'truly' graduate.

Savings groups

SG participation is associated with varied and significant CWBOs. This is supported by evidence that increased financial resources attributed to SGs leads to increased spending on children in poor HHs. There are many impact studies on SGs, though not a large number directly measure impact on aspects of CWB.

A longitudinal study of a SG intervention on child nutrition indicators for malnourished children in Mozambique found a positive relationship between

Savings group research

In Mozambique, a study of 1,276 HHs found that children in families that participated in the SG consumed 0.81 more food groups than those in the control sample (Brunie et al., 2014).

In Ghana, a study by Karlan and Udry (2012) assessed the effects of SG participation in a sample of 7,000 HHs and found participants more likely to take a loan from a SG to finance school fees and other school expenses. Correspondingly, primary school enrolment for girls increased by 2.5 per cent in participating HHs.

A study by PLAN UK on the impacts of SG participation, also in Ghana, suggests that loans obtained by participants were often used to strengthen CWBOs. The qualitative assessment noted that loans were used for school fees, clothes for children and health expenses (Cameron and Ananga, 2013).

Uganda's WORTH programme combined SGs with literacy and numeracy training. Children in HHs that participated in the WORTH programme were nearly twice as likely to have three or more meals per day, while in non-WORTH HHs, they were slightly more likely to have only one meal per day. In addition, child beneficiaries enjoyed a more nutritious diet and were more likely to eat fruit and proteins.

Second, children in WORTH beneficiary HHs enjoyed better health than others. Caregivers in WORTH HHs were more likely to know if their child was sick than non-WORTH caregivers. WORTH caregivers also sought access to health care for diseases more regularly, and had better standards of hygiene. For example, participant HHs accessed treated water with 15 per cent to 19 per cent more frequency than non-WORTH HHs.

Third, those who participated in the WORTH programme experienced more positive education outcomes. Caregivers in the programme were approximately 10 times more likely to support their children's academic development than control groups, including paying tutoring fees, helping with homework and buying additional school supplies (Swarts et al., 2010).

HH SG participation and nutrition (Brunie et al., 2014). In a study in Ghana, SG participation was associated with an increased likelihood to borrow to finance school expenses and with a modest increase in school enrolment for girls (Karlan and Udry, 2012). Another study in Ghana suggested that loans obtained by participants were often used to strengthen CWBOs such as meeting children's basic needs (Cameron and Ananga, 2013). Similarly, in Malawi, self-reported use of credit by SG members included education, health and food consumption (Ksoll and Forskningsenhet, 2013).

There are various examples of SGs implemented in tandem with training programmes that have yielded positive CWBOs. Uganda's WORTH programme, a women's empowerment programme centred on village banking, which combined SGs with literacy and numeracy training, yielded many positive CWBOs for participants. A study by Swarts et al. (2010) surveyed 685 HHs with caregivers of orphaned and vulnerable children – and children themselves between the ages of 12 to 19 years – and found that the WORTH programme had significant impacts on children's food intake and dietary diversity, children's health care and education as well as on HH finances. Positive synergies between SGs and training programmes were also noted in areas of armed conflict such as in Burundi (Annan et al., 2013).

Children's participation in SGs can also increase their financial management capacity. This, in turn, can secure the sustainability of CWBOs and stand programme beneficiaries in good stead for adulthood (see Deshpande and Zimmerman, 2010).

Spurred on not only by the positive external evidence, but also by the promising outcomes achieved in its own programming, WV is expanding the use of the SG project model (PM) globally. Based on information in the 2014 CWB annual reports, 27 NOs have begun to implement the WV SG PM, resulting in a total of 24,970 SGs and 432,709 members globally.

Often, SGs organise social fund accounts whereby each member contributes to taking care of the most vulnerable children in their villages, supporting them with scholastic materials, school fees contribution, shelter and food materials. According to the CWB reports, under this approach, social barriers of religion, ethnicity and economic status are reducing, and there is

Savings groups in World Vision

Progress in implementing SGs has been rapid for WV. For example, in Kenya, SG savings increased from US\$259,866 in 2013 to US\$479,822 in 2014, while the membership of female clients tripled from 3,687 to 10,699 (WV Kenya 2014 CWB report).

WV Tanzania continues to scale up the SG model in all ADPs. Membership grew from 21,162 in fiscal year (FY)13 to 33,435 in FY14, organised into 1,278 SGs. The accumulated savings of the groups' financial assets also increased from US\$1,336,259 in FY13 to US\$1,783,383 in FY14 (WV Tanzania 2014 CWB report).

In Rwanda, 1,540 SGs were formed with 37,699 members who saved RWF403,430,942 (US\$584,682) across all ADPs and projects. Of this, 83 per cent was given out in loans to the members with a return on investment worth 17.6 per cent (WV Rwanda 2014 CWB report).

In the Solomon Islands, there has been an encouraging rise in the number of parents in participating communities who are now saving money. Even in the most remote Reef Islands in Temotu, SGs now have on average SBD500 (US\$70) of savings reserves after spending and issuing loans, where previously they had none (WV Solomon Islands 2014 CWB report).

an increased sense of social responsibility as the needs of the most vulnerable members are addressed.

According to the consultant review of 2014 CWB reports, there appears to be a gender variation in some cases. For example, in Lesotho, in most of the ADPs assessed, female-headed HHs are saving better than men, with women consistently looking for resources to build 'small business' enterprises and to better support their families. In Mauritania, the SG approach has also been noted to indirectly improve the performance of



SGs in Muecate, Mozambique are helping communities to invest in small businesses to raise incomes

behaviour change programmes such as hygiene, health, education and facilitate close monitoring of sponsored children due to the regular interactions amongst WV staff, community volunteers and beneficiaries.

Value chain development

VCD has the potential to improve child nutritional status by enabling access to a wider variety of food types. However, there has been little impact research on the links between VCD and child nutrition. Linking the benefits of local value chain development (LVCD) with specific CWBOs is an area where WV and external researchers are yet to explore deeply.

According to Kidoido and Child, (2014) impact evaluations of value chain projects conducted between 2008 and 2011 by the United States Agency for International Development (USAID) show significant results in terms of increased yields, incomes and employment, which suggest value chain approaches result in reductions in poverty. However, there are few studies that quantify this reduction (WVA 2015).

WV has conducted numerous end-of-project evaluations of LVCD projects and findings show increased incomes can support improvements in children's health and education (Mulenga and Richardson, 2014). For example, a social return on investment analysis of an LVCD project in Flotim, Indonesia found that every US\$1 invested returned US\$4.41 for stakeholders. Profits from cocoa and copra increased by 120 per cent and 80 per cent respectively. Spending their profits on children, with a particular focus on meeting their educational needs, was a priority for many respondents in the Flotim LVCD evaluation.

In Homosha-Asossa, Ethiopia, the average price of mango fruit increased from BR5.70/kg in 2011 to BR6.60/kg in 2013 as a result of employing the LVCD strategies. Children and women whose families participated in the LVCD project stated that the increase in income from mango sales was used to buy more food to improve the nutritional status of children (WVA 2015).

Within WV, the LVCD PM is used by a number of NOs in a variety of settings, both rural and urban, to ensure HHs benefit from improved and fairer participation in markets. WV Zambia has demonstrated the potential of linking LVCD with nutrition-sensitive agriculture to

Local value chain development in World Vision

WV LVCD Project Model is present in 35 countries, constituting 120 area programmes (APs) and 1,820 groups with 75,875 group members (WV Market Development Interest Group, 2015).

In Jerusalem / West Bank / Gaza (JWG), the NO reported that 27 LVCD producer groups were established with 1,400 members. Seven LVCD market facilitators were assigned to support the LVCD producer groups. This project resulted in a 35 per cent positive change in the average price received by farmers for their crops (WV JWG 2014 CWB report).

Solomon Islands LVCD producer groups collaborated to share market information and obtain the best price for their produce. WV also facilitated an agreement with wholesale buyers that committed them to provide their own transportation to collect produce. The project resulted in improvements to the quality of produce, enabling producers to receive a price per kilogram that was 12 per cent above the average market price. The incomes of 40 HHs from the weather coast of Guadalcanal consequently grew (WV Solomon Islands 2014 CWB report).

In Kenya, LVCD was implemented across 87 collective marketing groups and 12 secondary schools. The groups were supported with new agricultural technologies (greenhouses, drip irrigation, improved seed varieties, post harvest management and extension services) which increased the production of tomatoes and onions – two of the most profitable vegetable value chain products (WV Kenya 2014 CWB report).

In Tanzania, WV focused on providing training to support the development of four value chain products: cereals, vegetables, legumes and livestock. Farmers were exposed to 'learning sites' and received on-the-ground training in appropriate farming practices. Production per acre of maize, paddy, Bambara nuts, onions and sorghum increased (WV Tanzania 2014 CWB report).

improve economic well-being and health. Partnerships with agricultural training organisations built the capacity of dairy farmers, and farmers were linked with an export trading group in order to access markets for their produce. To enhance the nutritional content of produce, WV Zambia also partnered with HarvestPlus to promote the adoption of a bio-fortified maize variety, which is a rich source of vitamin A. Increased HH income in some ADPs was partly attributed to efforts to develop the local value chain as well as increasing the proportion of HHs with year-round access to food (WVA 2015).

The Propenda programme in Angola enabled 22,000 smallholder farming families to increase their income by 82 per cent over five years through competitive value chains for high-value crops in the central highlands region. A key component of the programme was gender mainstreaming. WV Angola found that the majority of HH income growth was directed at improving the well-being of children, with female beneficiaries reporting that income was spent on children's medicine, education needs and food (WVA 2015).

A key aspect of VCD is training participants to get more from business relationships. Frequently, LVCD is complemented by capacity building of producer groups and/or other organisations to provide a strong, collective platform for low-income HHs to participate in markets. In Middle East and Eastern Europe Region (MEER), WV Armenia introduced LVCD into its 12 rural APs and is using a rigorous evidence-building plan that uses a countrywide common log frame, baselines and data collection (WVA 2015).

Benefits of the LVCD approach are reported by several NOs in their 2014 CWB reporting including JWG, Solomon Islands, Kenya, Tanzania, Zambia and Angola. Benefits have included increased production and productivity of profitable crops, better prices received by farmers for value chain crops, with more profits leading to increased HH income. WV Kenya also engaged local schools in the LVCD programme and consequently profits from the sale of surplus production were used to support needy students.

Small business development and business facilitation

In economic development practice, 'business environment' refers to the policy, legal, institutional and regulatory conditions that govern business activities (DCED, 2015 in Bartlett 2016). Environmental factors in this context are those conditions that impact on the ease of doing business and include the availability of infrastructure such as electricity and roads, economic policy, the availability of finance, education and training services. Creating an environment that enables or supports business development (as opposed to restricting it) is key for business development. (Eliot, Hitchins & Ruijter de Wildt, 2006). Small business owners living in poor communities often struggle to find ways to work collectively to create a more enabling business environment. WV's work takes

place primarily at the community level and deals with a range of local interrelated factors within the Local Business Environment (LBE). The LBE encompasses all external factors that can enable – or impede – business development for a local community. Interventions may include:

- small business training
- entrepreneurship initiatives
- small start-up grants linked with training and microfinance
- community-based organisations that produce a common product, handicraft, etc.
- linkages to networks and associations
- advocacy to improve LBEs.

In the case of WV's BF PM, the LBE is viewed as separate from the internal capacity (mindset and world views) of individual business owners. This PM has a 23-module 60-hour curriculum for small business training. WV's MEER economic development learning hub, in conjunction with WV Albania and WV JWG, has developed a detailed evidence-building plan for the BF PM, and common baselines and data collection methodologies are being implemented across five APs in JWG and one AP in Albania (Bartlett 2016).



A women's community milk cooperative in Bolivia

Agricultural interventions

Agricultural programmes can play an essential role in improving HH food security as well as health and nutritional status. The literature on livestock development and home gardening includes numerous examples of CWB gains, and a review of empirical literature by Hawkes and Ruel (2008) found a wide range of studies documenting successful agricultural interventions that had improved child nutritional status, food security, income and women's empowerment.

Although many agricultural programmes now include nutrition-related components, conventionally their primary aim is to elevate HH incomes by increasing agricultural production. With higher, more reliable incomes, small-scale farmers can better be expected to purchase and access water, land, health services, and diverse and nutritious food, which ultimately influences the health status of a HH (Hawkes and Ruel, 2006).

At a global scale, Hoddinott et al. (2012) show that growth in the agricultural sector can indeed reduce the occurrence of malnutrition. An extra annual investment of US\$8 billion in agricultural productivity and global food supply is estimated to lower the number of underweight children by 10 million by 2050. However, such investments may not solve issues of access to nutritious food.

Evidence of the link between agricultural programmes, income growth and nutrition status remains weak, but this is partly due to a lack of robust published research. For example, in a systematic review by Masset et al. (2011) of agricultural interventions that aimed to improve children's nutritional status, only 23 out of 7,000 possible studies met the rigorous criteria for inclusion in the review.



Irene tends to her home garden in Keembe, Zambia

Agricultural and nutrition research

A longitudinal study of HHs in north-western Tanzania illustrates the insufficiency of income growth alone for meeting nutrition goals; only when income growth was combined with large-scale nutrition interventions was the nutritional status of children significantly enhanced (Alderman et al., 2006). Neither intervention alone resulted in the desired improvement in nutritional status. If the nutritional status of children is improved, however, there is strong evidence that their educational achievement can be advanced too (Gelli et al., 2015).

Masset et al. (2011) undertook a systematic review of published and unpublished literature on agricultural interventions implemented between 1990 and 2010 that aimed to improve children's nutritional status through income growth and improved diets of the rural poor. The review found little evidence of changes in the diet of the poor, no evidence of an impact on rates of stunting, wasting and underweight in children under 5 and little robust evidence of the interventions having a positive impact on the nutritional status of children, which conferred with the findings of previous reviews on the same topic (Berti et al., 2004; Hawkes and Ruel, 2008; Leroy and Frongillo, 2007; Ruel, 2001).

There is firm evidence that improving maternal, infant and young child feeding and care practices can reduce malnutrition, which suggests that behaviour change should be an essential component of agriculture related programmes that seek to improve the health and nutritional status of children in developing countries. However, behaviour change strategies alone are unlikely to result in improved nutrition status of children where cereals are the major component of diets and/or infectious diseases are rife (Girard et al., 2012; Herforth and Harris, 2014).

Importantly, these findings do not dismiss the efficacy of agricultural interventions in improving HH income and child nutritional status. Effective agricultural interventions do have the potential to increase HH incomes, but often studies fail to consider whether total HH income has grown. Studies tended to focus on immediate outcomes of projects and not the specific pathways by which advancements in child nutrition and other well-being indicators are made.

An emerging body of empirical research supports claims about the benefits of integrating agriculture and nutrition with each other as well as with other sectors. In South Africa, a home gardening programme that cultivated yellow and dark-green leafy vegetables was integrated with health care and nutrition education, resulting in improved vitamin A status amongst

young children (Faber et al., 2002). Another review by Hawkes and Ruel (2008) concluded that positive nutrition outcomes are most likely to be achieved when agricultural interventions that aim to increase food production are combined with promoting gender equality, enhancing human capital (e.g. nutrition education and gender issues) and broadly improving the livelihood assets of the poor. This conclusion is supported by an earlier systematic review of agricultural interventions by Berti et al. (2004) – agricultural

Improving farm production through World Vision

WV used a number of approaches in Lebanon to increase crop yields and improve the quality of produce. As part of the larger economic development project, 50 farmers were provided with opportunities to adopt good agriculture practices and 50 cooperative members regularly attended training sessions. Smart agriculture technology was also promoted. For example, 81 farmers conducted soil sample analyses and were given education materials on how to solve constraints to productivity, and a further 25 received drip irrigation systems and fertilisers (WV Lebanon 2014 CWB report).

In Afghanistan, the cultivation of drought-resistant crops was promoted amongst 400 farmers to protect their harvest, income and food security (WV Afghanistan 2014 CWB report).

In Somalia, emergency support for drought and conflict-affected areas included the irrigation of 240 hectares (ha) of land, which resulted in a 50 per cent increase in yields of key crops (WV Somalia 2014 CWB report).

In Niger, improved seed varieties were developed in collaboration with a research institute to increase rain-fed production yields. This has been combined with the promotion of dry-season gardening, training on production techniques and food stocks to reinforce cereal bank security stocks (WV Niger 2014 CWB report).

WV Tanzania livelihood programming focused on four value chain products: cereals (maize, sorghum and paddy), horticulture (carrots, tomatoes, potatoes and onions), legumes (groundnuts, beans, green grams, lablab, pigeon peas and bambara nuts) and livestock. Farmers undertook learning visits and training in appropriate practices. WV worked directly with farmers organised into producer groups promoting high value agricultural crops and livestock breeds in 180 commercial villages; 118 are engaged in crop production and 62 are in livestock production. WV also scaled up community-based input supplier systems in Same, Babati and Nzega clusters. A total of 4,797 HHs and close to 24,000 children benefited from this system, based on an estimate of five children per HH (WV Tanzania 2014 CWB report).

interventions that had invested in a broad range of capital and assets were more likely to improve nutrition status. Nutrition-sensitive programmes may therefore need to combine multiple sectors, including agriculture, social safety nets, early child development and schooling (Ruel et al., 2013). Finally, it should be noted that these reviews do not analyse the efficacy of nutrition programmes against the level of poverty to question at what level livelihood interventions are needed concurrently with direct nutrition interventions.

Increasing the productivity of agriculture can have significant impacts on CWB through increasing both food supply and income. Many WV NOs have programming directly targeting livelihoods of smallholder farmers. According to 2014 CWB reporting, WV's interventions have focused on improving productivity and diversifying products by promoting the adoption of new seed types and technologies supported by training.

Review of the 2014 CWB reports suggests that WV agricultural interventions focus on increasing productivity to improve food security and increase resilience to droughts. Improvements in crop production is via promotion of new crops, improved plant varieties, improved seeds and technologies and the introduction of irrigation and dry season gardening. A good example is provided by WV Tanzania who worked directly with 63,845 farmers in 1,059 producer groups, improving incomes and food security. In 2014, using the measure of proportion of HHs having year-round access to food, 10 out of 12 ADPs scored above the national average (36 per cent) and seven achieved their 2014 annual target of 48 per cent (WV Tanzania 2014 CWB report).

Livestock

About two-thirds of poor rural HHs rear livestock (LiD, 1999). Livestock typically plays a key role in the livelihood strategies of rural HHs as a source of cash income, savings, asset accumulation and buffer against HH shocks such as crop failures (Dolberg, 2001; Kitanyi et al., 2005). Animals also provide fuel for cooking and fertiliser and labour for growing crops. In certain cultural contexts, they even enhance social status. Given their value, livestock development programmes have been a key feature of NGO and donor investments for poverty alleviation (Carlson-Bremer et al., 2013).

Livestock and nutrition research

Leroy and Frongillo (2007) reviewed 14 studies of livestock interventions promoting animal production to understand their impact on nutrition-related outcomes. Most studies indicated a positive effect on the production of animal source food, dietary intake, and HH income and expenditure. There was insufficient evidence, however, to draw conclusions on the effect of the interventions on caregiver income and workload. Only four of the reviewed studies considered nutritional status, all of which reported positive nutritional outcomes. The analysis was unable to determine whether increases in dietary intake and nutritional status were a result of increased animal production or income growth.

Rawlins et al. (2014) study of the impact of an animal donation programme found substantial positive effects on the nutritional status of children, while Hoddinott et al. (2013) reported that cow ownership reduced average stunting occurrence by seven to nine per cent.

Livestock programmes in World Vision

Livestock development was linked to improved child nutrition in Vietnam. Families with children under 5 received support from WV to raise chickens and/or ducks which generated increased cash income and intake of animal sourced protein by their families. Measured reductions in under-5 malnutrition were attributed to increased intakes of protein and fat from livestock and vitamins from vegetable gardens (WV Vietnam 2014 CWB report).

WV Burundi's chickens for economic development (C4ED) programme trained 6,010 community members to start off-farm income generating activities. The programme worked with established village savings and loans associations (VSLAs) that were business minded, as well as harnessing private sector resources and networks. The programme involved Safechicks, a private sector chicken company with the aim to link targeted groups with high value, national-level markets. Safechicks undertook inputs production (feed, hatching and brooding of chicks), brokered market linkages (e.g. with leading hotels and restaurants in Burundi) and built the capacity of targeted groups. Today, it is reported that clients insist on buying the 'Rutegama chicken' from the programme, attesting to the bright future for C4ED. A study showed that 60 chickens costing FBu480,000 generated FBu1,908,000 (US\$1,192) profit in one production cycle of 18 months (WV Burundi 2014 CWB report).

Despite many success stories, there is little evidence of a large-scale impact from livestock development programmes on the livelihoods of the poor (Millar and

Photakoun, 2008) and methodological weaknesses of evaluation studies and a lack of evidence prevents firm conclusions being drawn on whether such programmes are an effective approach to addressing nutrition deficiencies (Leroy and Frongillo, 2007). Moreover, some studies have found that livestock interventions have been largely ineffective at alleviating poverty, with the wealthier farmers benefiting the most (Peacock, 2005). To fully evaluate the impact of livestock interventions on HHs and children, it is necessary to understand the casual pathways between their immediate outcomes, HH assets and well-being. Such insights are essential for designing and implementing evidence-based programmes in the future (Carlson-Bremer et al., 2013).

The consultant's review of the 2014 CWB reports revealed that livestock development is a strategy employed by several WV NOs to improve food, income and assets. For example, in Rwanda, the introduction of improved dairy cows has boosted HH milk production and income in participating HHs. Livestock vaccination has been deployed in South Sudan and Sudan where livestock productivity is affected by disease outbreaks. Other WV NOs have implemented holistic livestock development programmes such as WV Zimbabwe's approach which was based on improved feeding, pen fattening, disease control, breeding and the use of artificial insemination.

Home gardening

NGOs and donor agencies fund gardening projects with the aim of providing HHs with direct access to nutritious food (Attig et al., 1993; Marsh, 1998; Mitchell and Hanstad, 2004). Home gardens offer multiple benefits to families: they can provide additional income, improve the nutritional status of family members and/or empower women within HHs (Mitchell and Hanstad, 2004). Although animal-source foods are more micronutrient rich, home-grown vegetables and fruit diversify diets and supply a reliable source of nutritious food for HHs, which may otherwise be inaccessible (Talukder et al., 2000). Increased intake of nutritious fruit and vegetables can have positive health benefits for children. In Mozambique, for example, consumption of orange sweet potatoes grown in home gardens substantially increased serum retinol concentrations in children, indicating improved vitamin A status (Low et al., 2007).

Home gardening research

Girard et al. (2012) reviewed studies of 20 home garden projects as part of a systematic analysis of the impact of HH food production projects on the health and nutrition of women and children. They found that home gardens, with or without animal production, improved diet diversity and intake of vitamin A increased amongst children under 5. Evidence of increased intake of other nutrients or of changes in fat, protein and iron consumption was inconclusive. With some exceptions, the reviewed projects had an insignificant effect on child malnutrition including stunting, underweight and wasting and variable impacts on morbidity and anaemia. The authors noted that evidence of the link between home gardening and the nutrition and health of children and women tends to be based on diverse and experimental studies with often weak methodologies.

In one example, disappointing child malnutrition outcomes from a Helen Keller International Homestead Food Production home gardening programme in Bangladesh were reversed when the programme was combined with animal production, nutrition education and women's empowerment activities in a second phase of the project. This resulted in significant reductions in wasting amongst participating families.

Homestead gardening can also generate additional non-nutritional benefits. Income from selling surplus produce is used to purchase additional food, home-grown produce can help families buffer seasonal food insecurity and the projects often empower women (Hawkes and Ruel, 2008; Talukder et al., 2000). Bushamuka et al. (2005) found that women participating in a home gardening programme in Bangladesh perceived that their contribution to HH finance and influence on HH decision-making grew as a consequence of the programme. Furthermore, if land is redistributed to landless or land-poor families as part of a gardening project, their social status is often elevated within communities (Mitchell and Hanstad, 2004).



Home-grown vegetables and fruit are supplementing both income and nutrition for this family in Makindube, Tanzania

Farmer managed natural regeneration

Natural resource management on smallholder farms is generating multiple benefits for smallholders including restoration of soils and vegetation, increased crop yields, income growth, more diverse and nutritious diets and diversified sources of income from new crops, livestock and fish farming. However, this review has identified a significant gap in published research exploring the links between natural resource management and CWB. Within WV, reporting describes diverse benefits including increased access to

Farmer managed natural regeneration research

Haglund et al. (2011), based on a survey of 410 HHs participating in FMNR in the Maradi region of Niger, found that FMNR increased crop production values by up to 60 per cent, while annual gross income of the region rose by US\$17 to US\$21 million and HH income grew by 18 to 24 per cent.

A case study of the Maradi integrated development project also found that incomes from wood were substantially higher amongst FMNR adopters than non-adopters (Cunningham and Abasse, 2005).

The Humbo community-based natural regeneration project in Ethiopia regenerated 2,728 ha of degraded forests, which is expected to generate about US\$760,000 in the first 10 years of the project through the clean development mechanism (Brown et al., 2011).

Tougiani et al. (2009) concluded that income, food security and community resilience to drought was enhanced in Niger as a consequence of FMNR adoption as part of the desert community initiative. Firewood and timber sales alone generated between US\$46 and US\$92 a year for individuals, representing significant income growth for an area where average annual incomes are US\$200. These additional revenues were critical in enabling FMNR project participants to cope with a drought and locust plague in 2005 where one-third of Niger's population experienced famine.

In a study by Binam et al. (2015) a multi-valued treatment framework was used to assess the effects of FMNR on 1,080 HHs across the Sahel. The average HH increased its annual gross income by US\$72. The authors also reported additional benefits for participating HHs. The value of products harvested from trees increased by approximately one-third across the Sahel and smallholder farmers who adopted FMNR were more likely to be food-secure and have a greater capacity to cope with droughts and floods. The diets of participants diversified significantly by 10-14 per cent in Burkino Faso, Mali, Niger and Senegal.

and consumption of wild foods, but does not measure HH changes in food consumption and nutrition. There is a need for impact research to better capture indirect benefits.

Farmland and grazing land has been severely degraded over much of the developing world, undermining smallholder farm productivity. Approximately two per cent of global terrestrial net primary productivity of vegetation is lost yearly due to dryland degradation (Zika and Erb, 2009). Extreme land degradation is known as desertification, a process which has turned large tracts of farmland into desert, especially in the Sahel and China (UNEP GEO 5 Report, 2012).

Smallholder farmers have traditionally maintained trees and bush areas as a source of energy, nutrition, medicine and construction materials and to provide a buffer to crises such as crop failures or income shortfalls. Products from trees can also provide cash income (e.g. Angelsen and Wunder, 2003; Luckert and Campbell, 2012; Maranz et al., 2004; Sabiiti and Cobbina, 1992; Shackleton and Shackleton, 2004).

FMNR is a technique employed by semi-subsistence farmers to restore degraded land by growing indigenous trees. FMNR involves the adoption of methods to regenerate, trim and prune trees and shrubs that re-sprout rapidly, and thus provide reliable supplies of wood for fuel and building and fodder for livestock, without having to be replanted. The return of trees and shrubs support crop cultivation by enhancing water infiltration, providing shelter from winds, moderating local temperatures and supplementing organic matter in soils with leaf fall and litter (Cameron, 2011; Haglund et al., 2011).



Nancy, change agent and FMNR role model in Kenya

Farmer managed natural regeneration in World Vision

The semi-arid district of Talensi, in northern Ghana, suffers from poverty, recurrent drought and severe land degradation. WV implemented a FMNR project in nine communities in Talensi between 2009 and 2012. The project promoted community-managed and farmland forest regeneration and complementary activities such as soil protection techniques, fuel-efficient wood stoves and SGs. At the end of the project, 161 ha of community-managed forest and 336 ha of farmland were restored, with the project facilitating the planting of an additional 377,000 trees. A social return on investment analysis found that the project generated US\$2 million of value, which is estimated to rise to US\$5.5 million by 2016. The net social return on investment by WV was six to one. Furthermore, the total value generated for each HH from the project was estimated to be US\$887 per year and US\$654 per year for neighbouring HHs – a substantial boost for HHs in a country where gross national income per capita is only US\$1,410 (Weston et al., 2015).

In the Pacific and Timor-Leste, a FMNR approach introduced micro-irrigation and promoted the diversification of production. Climate change projects in 25 communities (7,186 people) of Aileu district adapted FMNR techniques. Farmer groups produced agro-forestry products and planted 50,900 timber seedlings to regenerate degraded forest lands, as well as non-timber seedlings such as turmeric and coffee as a source of income. Between 2013 and 2014, FMNR practice expanded from 22 to 32 villages, and the number of ADPs adopting FMNR grew from four to 21. This resulted in the total area under FMNR increasing from 571 to 1,035 ha (WV Timor-Leste 2014 CWB report).

In Tanzania, the number of ADPs adopting FMNR increased from four to 21 between 2013 and 2014. Beekeeping has been linked with land preservation under a traditional system of natural resource management called *ngitili*. FMNR increased honey production from an average of 10 to 15 litres from local beehives to an average of 30 to 40 litres from modern beehives. In 2014, beekeepers produced 750 litres of honey per group enabling each member to earn US\$200 (WV Tanzania 2014 CWB report).

In Ghana, one beneficiary described the outcomes of regenerating native shea trees combined with pepper and groundnut production on farmland ... 'FMNR has revolutionised my shea butter business because of increased yield from the crop. What I consider most thrilling about FMNR is the increase in the pepper and groundnut produce. I now sell an average of four bags of pepper a day and make GHC40 profit on them. Previously, I only could sell one bag. My pocket money has increased vastly. Because of this I am now able to provide good health care and food for my children who are in grades five, two, one and nursery. They have become better nourished and also immune to infections. I am now also able to access good health services for them, and paying for health insurance is now easier.' (WV Ghana 2014 CWB report).



Balta Minamo with his children and wife in Humbo, Ethiopia

In Niger, increased crop harvests due to FMNR have reduced the annual 'hungry period' from six or more months to two to three months in some communities – in several places the period no longer occurs (Gubbels, 2012). However, Haglund et al. (2011) was unable to draw concrete conclusions of the effects of FMNR on food security in Niger; they attribute this to either data weaknesses or that income growth does not necessarily result in food security because of HH consumption preferences or that income gains are unavailable during food insecure periods. However, Binam et al. (2015) did conclude that Sahelian HHs adopting FMNR were more likely to be food-secure, have a more diverse diet and have a greater capacity to cope with shocks – important characteristics for both improved nutrition and improved resilience at the HH level.

A review of published and unpublished literature by Weston (2015) suggests that FMNR may result in increased crop yields and HH incomes. In addition, qualitative evidence suggests that women and children no longer need to walk long distances in search of firewood for cooking and heating, freeing up their time to engage in other activities. FMNR also teaches children about the link between environmental degradation and poverty, and of the value of trees for farming. This engenders hope and a sense of security about the future amongst children – the introduction of trees to farmland was found to boost the optimism of children about their future compared with children living in places where trees continued to be lost (Weston, 2012).

The increased access to and consumption of wild foods may also provide nutritional benefits for children. Such findings have not been substantiated empirically due to the lack of research on the link between FMNR and health outcomes, such as child growth, food consumption and nutrition.

Many countries in which WV NOs are located suffer from the impacts of climate change and FMNR is increasingly seen as an important approach to building the resilience of smallholder livelihoods. WV FMNR projects typically also include interventions that target farm production and/or income earning opportunities. Some examples are beekeeping, cash crops, high value timber supply, tree nuts, fruit trees and vegetable enterprises. The experience of beneficiaries illustrates the positive impacts such interventions can have on livelihoods and CWB.

Vocational training

Vocational training programmes have been shown to improve CWBOs where supplemented by training relating to key social and health issues. The consultant review of WVs CWB reports notes that some WV NOs have made vocational training for youth a priority. In Azerbaijan, for example, WV provided youth with vocational training, job search support, professional orientation by private sector representatives, small-scale business development training and support to develop business ideas. In addition, they used labour market data to ensure that youth are provided with the skills that employers demand.

A WV project in Bangladesh organised sewing and electrician training for unemployed youths who began to work and earn an income for their families. For example, a sewing entrepreneurs' group started working with a garment company, which diversified and increased HH income.

In Vietnam, out-of-school youth were given training sessions tailored to their interests, capacity and employment opportunities in the area. Youth from mountainous areas preferred to learn farming and animal raising techniques while those from other rural areas chose to learn service-related professions such as motorbike repair, hairdressing, tailoring, carpentry and mobile phone repair. Over 60 per cent of the graduates went on to earn between US\$100 and US\$200 per month in 2014.

The Somalia vocational entrepreneur livelihood support project tackled the issue of high unemployment and low vocational skills through training. Trainees received literacy, numeracy and enterprise/institution-based technical vocational education training.

In Romania, WV used training events and capacity-building sessions to inform and prepare participants to take advantage of economic opportunities. The package of interventions led to a significant increase in the assets and income of HHs with benefits for child nutrition and the percentage of HHs whose children have access to basic needs. However, well-being improved in only seven per cent of targeted HHs. This demonstrates the challenges of overcoming chronic poverty with short-term solutions (the project had a two-year lifespan).

WV Pakistan demonstrated that CWBOs can be achieved by targeting both adolescents and parents with vocational skills training. More than 250 adolescents and 1,429 parents received a vocational education and many of those are now earning an income using these skills. Seventy-nine per cent of respondents reported an increase in their monthly income of between PKR1,000 and PKR6,000 per month (US\$9 to US\$58). Albania, Armenia, Georgia, JWG and Cambodia NOs are all introducing skills and knowledge for youth

Vocational training research

The 'Street Smart' programme provided Ugandan youth (aged 13 to 23) with training in various vocations. In addition, programme participants received a course about HIV prevention. A study by Rotheram-Borus et al. (2011) compared sexual behaviour of programme beneficiaries who had received a vocational and HIV prevention course to those who had received the HIV course but not vocational training. Over time both groups registered a reduction in sexual partners and an increase in abstinence or condom use. The reduction in risky sexual behaviour was more pronounced in the group that had received both vocational and sexual health training. For example, 95 per cent of those who had received sexual health training reported 100 per cent condom use compared to 64 per cent of those who had not attended a training.

A study of a BRAC empowerment and livelihoods for adolescents (ELA) intervention in Uganda, which included vocational and training relating to social issues and sexual health, exhibited positive CWBOs. The study of 4,800 girls tracked over two years by Bandiera et al. (2012) found programme participants registered a significantly improved level of HIV and pregnancy related knowledge, as well as a corresponding decrease in risky behaviour. Amongst those sexually active, self-reported routine condom usage increased by 50 per cent. In addition, the incidence of girls reporting they unwillingly engaged in sexual activity was nearly eliminated from a baseline of 21 per cent. The ELA intervention also increased the likelihood of girls being engaged in income generating activities by 35 per cent, mainly driven by increased participation in self-employment.

economic empowerment (SKYE) – a youth-focused economic development model that has been co-developed by WV, New Horizons Foundation and CEFE International. SKYE club PM is designed to address the livelihood needs and aspirations of young people while also addressing critical community development challenges – through focuses on employability, entrepreneurship, leadership and engagement in civil society.⁴ There are currently 48 SKYE clubs operating in 22 programme areas and detailed evidence building is in place in 16 APs in Albania and Armenia (WV 2014 CWB reports).

Integration

Published research shows that agricultural interventions are more likely to have positive effects on CWB if they are nutrition-sensitive (Fortnam and Flower 2015) while – at least with the current CWB reporting format – WV seems to address nutrition as a separate issue to livelihood interventions. Similarly, livelihood interventions at WV do not happen in concert with health and education service development. While all these types of interventions are implemented by NOs, it is unclear whether they are delivered to the same beneficiaries in an integrated, strategic manner.

Integrated programmes involve partners and sectors working together to address core aims, such as CWB or nutritional status, and design synergistic strategies that promote livelihood resilience. Several idealised types of 'integration' can be identified in existing development practice or have been proposed in R&L literature, including integrated agriculture and nutrition programmes, graduation programmes and other integrated livelihood programmes.

There is broad agreement that a multi-sector approach is required to address child malnutrition. Food systems face multiple threats – climate change, food and oil volatility, conflicts, water scarcity and more – coupled with changes in demand for food associated with rising populations and incomes. This calls for interventions that address both direct and indirect causes of malnutrition. Nutritional status is an outcome of: (i) access to sufficient, safe and nutritious food; (ii) environmental factors such as prevalence of pathogens and contaminants, water quality and sanitation, and access to health care; and (iii) child feeding and care

⁴ WV, 'SKYE Clubs Snapshot', <https://www.worldvision.com.au/docs/default-source/seed-docs/skyeclubssnapshots_revised.pdf?sfvrsn=2>.

Integrated approaches research

At the HH level, Herforth and Harris (2014) identify three pathways to address child malnutrition: food production, which can affect the food available for HH consumption as well the price of diverse foods; agricultural income for expenditure on food and non-food items; and women's empowerment, which affects income, caring capacity and practices and female energy expenditure.

Herforth and Harris (2014) emphasise the importance of addressing the structural causes of poverty, which are often considered as beyond the influence of nutrition practitioners (Iannotti and Gillespie, 2002; Smith et al., 2013).

Smith et al. (2013) found that, while recognising the need for a multi-sector approach, the 13 nutrition interventions they studied had no specific plans for addressing structural causes of malnutrition.

Ruel et al. (2013) reviewed evidence of the impact of agriculture, social safety nets, early child development and schooling programmes. While social safety nets (cash and food transfers) were found to have some positive effects, the realisation of nutritional benefits were hampered by the poor delivery of the programmes and because they rarely contained specific nutrition goals or actions. Early child development combined with nutrition interventions yielded positive outcomes for child development, and sometimes also nutrition, while parental schooling had a strong correlation with child nutrition.

practices and the associated care of women. Political, economic and institutional factors influence these conditions.

Programmes which concentrate only on food availability and access may not produce desired outcomes for the nutritional status of children; factors such as poor sanitation, detrimental care practices or lack of access to health services may inhibit children's development. At the same time, the reverse is also true. Nutrition interventions that fail to address the structural causes of malnutrition (including food availability and access) do nothing to resolve the long-term underlying issue. Recent research has suggested that scaling 10 nutrition-specific interventions to achieve 90 per cent coverage in 34 countries would succeed in averting 20 per cent of the stunting in those countries (Bhutta et al., 2013). However, without concurrent interventions to deal with inadequate livelihoods and other issues that affect the adequacy and reliability of food availability, access and use, the remaining 80 per cent would go unchallenged. Graduation programmes provide the extreme

Graduation approach research

The graduation model originated in Bangladesh, where BRAC, a Bangladeshi NGO, has several large-scale programmes. It has since been applied in approximately 20 countries in various forms and in diverse contexts, from Zimbabwe, Ethiopia and Ghana to Honduras, Pakistan, India and Peru.

HHs in the BRAC graduation programme increased their income and expenditure on food, which was attributed to cash stipends and the building of an asset base. However, there were mixed results for the final impact on nutrition, even though food security and diets improved. In Haiti, severe wasting amongst children in HHs participating in the Fonkoze consultative group to assist the poor (CGAP) programme reduced between its start and 24 months, but moderate malnutrition increased between months 18 and 24 of the project. Furthermore, while the Department for International Development's (DFID) Chars Livelihood Programme in Bangladesh generated improvements in women's body mass index, it had no effect on wasting and stunting in children under 5.

Banerjee et al. (2015) investigated whether the graduation model can enable the extreme poor to establish sustainable livelihoods and experience sustained improvements in their well-being. The findings show that the programmes improve the lives of the extreme poor in many respects. Consumption increased and is maintained for at least a year after graduation, food security improved and HH income and assets increased. Physical and mental health, political involvement and women's empowerment were also found to significantly improve. While results vary between countries, overall the benefits provided by the programmes continue for at least a year after the end of the programme. However, there is no indication that they actually achieve or maintain 'non-poor' status as a result of the graduation interventions.

The intensity of graduation programmes due to the high involvement of programme staff means that a significant investment of labour and capital is required, ranging from US\$1,455 per HH in India to US\$5,962 in Pakistan (Raza et al., 2012).

Banerjee et al.'s 2015 study demonstrates that the benefits of the programmes outweighed the costs in all countries studied except Honduras. In India, the benefits were valued at over four times the costs. Programme impact varies considerably between HHs; however, the impact at the 90th percentile was 10 times that of the 10th percentile.

poor with a productive asset grant (e.g. livestock), complemented with training and support (e.g. how to look after their asset), life skills coaching, regular cash support, and (usually) access to a savings account and free health care. Additional services may include social

development, such as nutrition and hygiene awareness and education. A holistic package of interventions is intended to provide a 'push' for HHs to start and sustain self-employment activities. At some stage within 18 to 24 months the beneficiaries are expected to 'graduate' from the programme and continue to move out of poverty (Banerjee et al., 2015; Holmes et al., 2013).

Holmes et al. (2013) reviewed evidence of the impacts of integrated livelihood programmes on resilient food systems. While agricultural productivity was not explicitly the aim of the graduation programmes reviewed, it was found to increase as a result of the uptake of home gardening. The effect of training and awareness components of the graduation programmes on food security was not possible to discern.

Lessons from BRAC challenging the frontiers of poverty reduction – targeting the ultra-poor (CFPR) programme in Bangladesh – suggest improvements in child education and nutritional status may take time to be observed, and intra-household dynamics may have important implications for whether strengthened livelihoods have trickle-down effects on CWB. In the *Chemin Lavi Miyo* (CLM) graduation programme in Haiti, immediate improvements were observed in school enrolment and nutrition. However, actual long-term improvements in education attainment may be affected by the sustainability of the programme and the quality of health and education services available (Pain et al., 2015).

Beyond nutrition outcomes, the effects on CWB from graduation programmes have not been explicitly analysed. However, positive effects of programmes on asset accumulation, income, expenditure, food security, health and women's empowerment would be expected to improve the lives of children in participating HHs. There remains a need to systematically review the outcomes of graduation programmes on CWB.

Fortnam and Flower's desk research indicates that most livelihood programmes do not follow a model such as graduation. Various combinations of interventions are tailored to a diverse range of developing world contexts. Some programmes adopt a similar package of interventions as graduation programmes without explicitly focusing on graduation. Others focus on improving rural livelihoods by increasing agricultural

production and productivity through a range of interventions such as agricultural inputs, improved farming practices, catchment management, training and skills development, SHGs, microcredit and community seed banks.

Integrated approaches in World Vision

A good example of the benefits of a holistic R&L approach is found in Ethiopia. WV Ethiopia promoted enhanced field crop production (rain-fed cereal), horticulture (vegetable farming using irrigation) and livestock production through an integrated approach involving several components. First, farmers with surplus harvest were linked with markets to enhance their income from the sale of their product at better prices. Second, communities in various ADPs were assisted with the formation of 833 new SGs, and VisionFund loaned US\$24,175,009 to 65,064 beneficiaries in 10,679 SGs. Third, producer groups (with a total of 7,866 members) benefited from adopting a LVCD PM and training activities. Fourth, the programme engaged MFIs to enable HHs with no access to banking to access loans to pursue various income-generating activities: 1,257 vulnerable HHs gained access to US\$147,500 from rural savings and credit associations. These activities laid the foundation towards achieving an immediate objective of diversifying income as well as meeting an overarching goal of providing better care and support to family members, especially children. As a consequence of this programme, the proportion of parents able to provide basic needs to their family increased by 28 percentage points, and the proportion of participants with a secondary income source increased by 16 percentage points (WV Ethiopia 2014 CWB report).

WV's micronutrient and health (MICAHA) programme implemented integrated strategies in five African countries (i.e. Ethiopia, Ghana, Malawi, Senegal and Tanzania) between 1995 and 2005. MICAHA programme activities included HH gardens, latrine construction, and breastfeeding, health and nutrition training for community health workers. The programme reached more than 6 million people. An evaluation of the programme reported the establishment of over 60,000 new home gardens, the planting of 1.1 million fruit trees, increases in water and sanitation coverage, and substantially more babies breastfed for six months. For example, the proportion of women exclusively breastfeeding for six months increased from 15 per cent to 70 per cent in Malawi and tripled from seven per cent to 22 per cent in Senegal. Anaemia and malaria infection rates decreased in women, pregnant women and preschool children in Tanzania, Malawi and Ghana. Vitamin A status improved for school children in Ethiopia and preschool children in Tanzania. The proportion of mothers with low levels of vitamin A in breast milk decreased from 24 per cent to nine per cent in Ghana (WV, 2006).



A family working in their home garden in Sri Lanka

Some programmes combine livelihoods approaches with health services, nutrition interventions, education, infrastructure development and small business support (Holmes et al., 2013). Increasingly, livelihood projects are also integrating resilience thinking in recognition of the dynamic and complex environments in which the programmes are implemented and the need to address the underlying causes of vulnerability (Béné et al., 2012).

While WV NOs implement a range of complementary interventions, there are not many examples of cross-sector integration in the CWB reports. This is in large part due to the sector-based CWB targets reporting framework. Offices provide good examples of integration of economic strengthening approaches with natural resource management, DRR and social capital strengthening approaches (e.g. Citizen Voice and Action (CVA) and empowered world view (EWV), such as those used in the THRIVE approach implemented by WV Tanzania). Mongolia and Sri Lanka are implementing a graduation model similar to that which has had substantial impacts on HH income in countries such as Bangladesh, India and Peru (Banerjee et al., 2015). However, evidence in the Sri Lanka and Mongolia 2014 CWB reports is not yet at a stage where it confirms whether this approach is delivering similar benefits.

WV Sri Lanka's graduation model approach recognises the multiplicity of economic constraints affecting beneficiaries. In practice, this has involved the integration of an asset transfer to HHs, supported with skills development training, VCD, microfinance and the formation of SGs. Interestingly, the programme also introduced family planning and the Positive Deviance/Hearth programme to rehabilitate malnourished children. Unfortunately, indicators measuring the impact

of this programme are limited, although a 14 per cent improvement has been shown in the proportion of families able to save. WV is currently undertaking an evaluation of this work in Sri Lanka (WV Sri Lanka 2014 CWB report).

In Angola, microfinance was linked to education programming. The NO established an inclusive education centre under the State Teachers' Training Institute, the provider of all courses, qualifications and certificates to teachers nationally. At the same time, youth with disabilities received knowledge and support to launch sustainable livelihood projects.

SGs have the potential for strong integration with other programming approaches through strengthening community cohesion and providing a powerful community-level entry point for other interventions. In Mauritania, for example, regular meetings of the newly created 'savings and credit groups' facilitate effective communication between WV staff, community volunteers and beneficiaries. This indirectly improves the performance of behaviour change programmes such as hygiene, health and education. It also helps with close monitoring of sponsored children.

Disaster risk reduction

DRR is concerned with protecting livelihoods and enabling them to 'bounce back better' following a shock event. DRR demands an integrated approach, framing disasters as complex problems that require organisations and groups from different disciplines and sectors to work together (Twigg, 2009). Interventions that fall under the umbrella of DRR are therefore diverse and varied; here, we focus on food security and livelihoods-based approaches.

There are evidence gaps linking outcomes of DRR programmes to CWB in general, including whether the expected gains in child survival, education achievement and health are delivered (Back et al., 2009). Evidence of the causal pathway between DRR interventions, resilient livelihoods and HH and CWB is also lacking.

However, good evidence exists that livelihood interventions can improve food security and build resilience to droughts and other hazards by improving the amount and reliability of food production, HH assets, income and health. Livelihood interventions to mitigate disaster risk are predominantly the same

as those aimed at livelihood development; resilient livelihoods require asset accumulation and economic strengthening of HHs, transformations in agriculture and food production and improved management of natural resources. Activities that reverse environmental degradation in agricultural landscapes (such as FMNR, conservation agriculture (CA), and soil and water conservation (SWC)) can improve the amount and reliability of agricultural production, leading to improved and more resilient livelihoods. Similarly, livelihoods diversification can reduce vulnerability to the failure of one activity, such as losing harvests to drought, or a collapse in prices for certain foods. By protecting and enhancing agricultural livelihoods, these interventions can address the underlying vulnerabilities of smallholder farmers to disaster risks. DRR should therefore be mainstreamed across these sectors to achieve long-term sustainable development (FAO, 2013).

Food security and famine early warning systems typically combine meteorological monitoring with food production assessments and other indicators of HH food security such as sale of assets (Twigg, 2015). Several studies consider that early warning systems have functioned well when put to the test; for example, during the 2011 famine in Somalia, early warning systems provided timely, accurate and actionable information (Darcy et al., 2012; Ververs, 2012).

Cereal/grain and seed banks provide an in-kind savings function run by village co-operatives. They aim to maintain food and seed availability during periods of food shortage and/or price spikes, such as the 'hungry season' or during droughts. The outcomes are that commodity prices are stabilised and food consumption smoothed across the agricultural cycle (Bhattamishra and Barrett, 2010). In this way, they can be highly responsive to food security shocks (Bhattamishra, 2012). An important finding is that such banks can address local food shortages faster than large-scale centralised food security programmes. Systematic empirical evidence on the HH and CWBOs of grain banks is limited, although there is anecdotal evidence that seasonal food insecurity is alleviated, dependence on money lenders is lessened, women are empowered and participating and members' lives have improved (Reddy and Adolph, 2002; WFP, 2014). According to Kelly and Khinmaung (2007), knowing there is a reserve of food engenders an enhanced sense of security amongst farmers.

Disaster risk reduction research

An assessment of the HH outcomes of information and early warning systems is problematic as benefits can only be realised when such systems are linked with mitigation, preparedness and emergency responses. However, early response is widely recognised as more cost-effective than late response. An analysis of HH level economic data for DFID found that between US\$662 million and US\$1.3 billion could have been saved from a single event in southern Ethiopia if early warning systems had triggered an earlier response (Venton et al., 2012).

Livestock development programmes can increase livelihood resilience by providing a buffer during droughts. A dairy goat development project supported by the Farm Africa NGO provided loans and training to groups of women-headed HHs to rear and breed goats. The women developed herds, enabling some goats to be sold during a severe drought from 1999 to 2000 in order to buy grain to sustain themselves without the need of food aid (Peacock, 2005). Home gardening can also help families buffer seasonal food insecurity by providing additional produce (Hawkes and Ruel, 2008; Talukder et al., 2000).

Destocking involves agencies purchasing livestock, which are then slaughtered and distributed locally to schools, hospitals and the poorest HHs. An impact assessment of a destocking programme in Ethiopia found that over half of HH income during a drought was sourced from destocking, with each HH receiving on average BR1,618 (US\$184). Over three-quarters of this income was spent on local goods and services, such as family food, feed for remaining animals, medicines and veterinary care. The remaining income was used to pay for school fees, to financially support relatives and to repay debt. A key finding was that families were able to buy their own food instead of waiting for food aid (Abebe et al., 2008).

Grain banks research

A review by Holmes et al. (2013) of integrated livelihood programmes found that community-managed grain and seed banks provided effective rapid response to seasonal and unexpected stresses and shocks.

Bhattamishra (2008) found that members of grain bank cooperatives were less likely to borrow from money lenders and that grain banks provided a viable alternative for coping during periods of food insecurity.

Bhattamishra (2008) also explored the effect of grain bank participation on children's health outcomes in Orissa, India. The impact on height-for-age, weight-for-age and change in height was found to be statistically insignificant.

Supplementary feeding for livestock aims to protect the assets of pastoralists and support their recovery following a drought. Impact assessments of livestock feed supplementation initiatives has shown some positive outcomes for pastoralists and their children (Bekele and Abera, 2008). Social safety nets are increasingly employed in DRR and climate change adaptation programmes in areas with endemic poverty (Gubbels, 2012). They provide cash or food transfers to 1 billion poor people and others affected by disasters and other shock events. In other cases, seeds, fertiliser, livestock and equipment may be transferred to replace disposed assets. There is some evidence that social safety net programmes provide nutritional benefits for young children but their lack of explicit nutrition goals and interventions prevent the full benefits to maternal and child nutrition and development to be realised (Ruel et al., 2013).

CCTs can provide an effective intervention for keeping children at school and not working when HH income is affected by short-term shocks. De Janvry et al. (2006) modelled HH decisions regarding child schooling and work in response to shocks and found that cash transfers protected enrolment but child workload still increased during shock events.

Safety nets research

In a study of Ethiopia's productive safety net programme, Debela and Holden (2014) used panel data to understand whether the programme increased livestock assets and children's education amongst beneficiary HHs. The study found that participants in the public work programme invested more in livestock assets and their children's education than control HHs. Importantly, the decisions of parents in response to shocks did not harm their children's education. Previous studies also found the programme has a positive effect on the food security of children, statistically increasing the number of meals consumed by children during the lean season between 2006 and 2010 (Berhane et al., 2011).

Tafere and Woldehanna (2012) found contradictory evidence. From a survey of 569 HHs and qualitative case studies of 32 HHs and children, they found that HHs sent their children to work instead of school during shocks, and, in some cases, children were forced to drop out. They attributed this failing to cash and food transfers not increasing in line with the increased incidence of economic shocks (e.g. drought and food price inflation).

Summary

Household wealth growth is critical but only part of the solution

Wealth refers to economic assets, such as income, savings, material resources, land, crops and livestock. At the HH level, these types of assets influence CWB in developing countries by creating opportunities to access services, enhance child development outcomes, lower child mortality and illness, reduce the likelihood of detrimental child labour and improve children's school enrolment and educational attainment. Many of the sectoral livelihood interventions can successfully grow HH wealth by, for instance, increasing crop yields, expanding livestock assets and growing incomes.

Published economic literature conclusively shows that there is a strong association between HH wealth and CWB. However, the review found little published research that tested the causal pathways from specific livelihood interventions to income growth and eventually to improved CWB.

To deliver resilient livelihoods, the sustainable livelihood framework reminds us that efforts to enhance financial (e.g. income) and physical (e.g. cows) assets (or capitals) must be complemented with measures to build other assets, including natural (e.g. soil fertility), human (e.g. education and health) and social (e.g. community support networks) capitals. The evidence in this review supports this perspective and points towards the critical role of integrated livelihood programming for building such livelihood assets and enabling HHs to adopt improved, more diverse and resilient livelihood strategies.

Economic strengthening interventions often have positive effects on child well-being but are more effective when implemented with complementary activities

Economic strengthening approaches highlighted in this review have improved CWBOs in many cases, by increasing the financial capacity of HHs to meet

expenditures associated with CWB indicators such as education and health. The evidence base on the link between economic strengthening approaches and CWB is significantly more developed than for any of the other sectors reviewed.

In general, programmes that target mothers and caregivers, rather than fathers, have been the most successful. Crucially, there is strong evidence that programmes implemented in tandem with vocational, health and social development training optimise CWBOs. For example, where some studies found that microcredit alone in certain circumstances did not improve CWB, microcredit approaches combined with education and other training were likely to have positive effects. Furthermore, cash transfers had the most positive outcomes when awarded on the condition that children attend school and receive regular health check-ups.

Integrated livelihood approaches are more likely to produce positive effects for child well-being than those focused solely on income generation

A common theme emerging from this review is that better results are achieved when interventions are integrated. For example, improvements in child nutrition are most likely to be delivered and sustained when agricultural interventions aimed at food production are combined with nutrition education, gender equality activities and building the assets of the poor. Without specific nutrient goals and adequate health care and/or water sanitation, malnutrition can persist. This suggests deeper cross-sector integration is necessary.

Over the last decade, integrated livelihood programming has grown in the development sector (Fortnam and Flower, 2015). Where evidence exists, programmes are demonstrating some positive outcomes for beneficiaries. The 'graduation' model,

for instance, integrates asset transfers (e.g. livestock) with training and support, including regular cash transfers. It has achieved impressive results in several developing countries, improving HH income and assets, consumption, health and women's empowerment. However, the few studies that have considered CWB have shown mixed results for education and health outcomes, with sometimes contradictory evidence.

The evidence base for integrated resilience and livelihood programming needs to be strengthened

There are very few empirical studies evaluating large-scale integrated R&L programmes, with the exception of graduation programmes and no evidence base to assess their potential to improve CWB. However, the fact that there is no evidence does not mean that there is no impact. It may be that we are not measuring the right things. This would also apply to nutrition, health and education programmes that do not normally set up control data for confounding variables that can have an indirect effect on their targeted outcomes – such as livelihoods, poverty, food security and other income-related indicators. A first step to filling this knowledge gap would be to review the increasing number of integrated R&L programme end-of-project impact evaluations – looking for those evaluations that take an approach similar to that of Smith et al. (2013). Additionally, WV can take major steps to contribute to this evidence base by (i) adopting a more holistic approach to design, monitoring and evaluation, (ii) making some minor changes to the way WV does baseline and end-line evaluations in order to ensure good quality, consistent data sets and (iii) revising the

way WV analyses that data – in particular, identifying causal pathways and analysing the data so as to assess the multiple direct and indirect factors that contributed to changes in each of the CWBOs.

Women's empowerment is critical for the benefits of livelihood interventions to reach children

Across sector and integrated livelihood approaches, women's empowerment was commonly cited as a predictor of project success and the realisation of CWB benefits. Women's empowerment affects control over resources within HHs, their caring capacity and practices and the time they dedicate to their children. Accepting the importance of promoting gender equality for CWB points to the importance of addressing structural causes of poverty, such as culture, politics and power relations that are likely to be playing a key role in gender and thus determining whether resilient livelihood and CWB gains are sustainable.

SGs and microfinance are interventions cited in the literature as being more accessible to women and facilitating impacts. There is evidence that some of this empowerment is also generational (e.g. a study in Tamil Nadu in Sri Lanka from 1998 found that girls living in HHs where credit entered through women's groups remained on average about one to 1.5 years longer in school, were 3.2 to 3.9 times more likely to be enrolled in private rather than in public schools and were 2.7 to 3.5 times more likely to be able to read and write (Holvoet, 2004)).

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