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VALUE CHAINS FOR NUTRITION IN SOUTH ASIA: WHO DELIVERS, HOW, AND TO WHOM?

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Focus on Gender, Context, and Evidence: CARE's Lessons Learned

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Abstract This article explores the most effective ways to influence nutrition through value chains, based on CARE's long history in food and nutrition security. With implementation experience in 90 countries and evidence from 11 existing projects, the article argues that the best ways to impact nutrition through value chains and market systems are to focus on gender equality and pay attention to market systems contexts. Furthermore, experience in emergencies programming has different lessons and important caveats to strengthen markets rather than default to subsidised distribution systems.

Keywords: nutrition, gender equality, value chains, pro-poor, emergencies, market systems.

1 Introduction

CARE is an international non-governmental organisation (NGO) that has been focusing on improving food and nutrition security (FNS) since it sent its first CARE Package in 1945. In the intervening 72 years, CARE has expanded to reach 80 million people in more than 90 countries in the world in 2016. This depth and breadth of experience provides a rich set of evidence and lessons for how to use market systems to improve nutrition. Reducing stunting for children under five is one of CARE's top-level impact goals in the *CARE 2020 Program Strategy* (CARE 2017d). To achieve this goal, CARE uses both nutrition-specific and nutrition-sensitive interventions as part of its global theory of change, which rests on four technical pillars: smallholder agriculture, sustainable economies, nutrition, and humanitarian action (CARE 2015). CARE especially focuses on women and girls, who face even more hurdles than the average person living in poverty.

Within this context, market systems and value chains are a critical tool in the set of options that can help improve nutrition impacts around the world. However, this is only possible when market-based programming meets specific criteria that support nutritional impacts. When it comes to nutrition-sensitive programming, CARE aims to incorporate 12 key nutrition recommendations into all of its FNS



programming (CARE 2016b). These include a focus on the first 1,000 days, an emphasis on gender equality, community-centred approaches that emphasise sustainability and resilience, and a focus on the groups most at risk.

Value chain development is an approach that CARE has used in its programming in order to enhance the incomes of rural households and the most vulnerable, particularly women. Its focus is on productivity and profitability, and ensuring empowerment and participation. CARE's programming focuses on addressing the empowerment of marginalised women. Through value chain programming, CARE ensures that the most marginalised have access and capacity to engage equitably in agricultural value chains. This can also have a positive impact on nutrition as empowerment, equity, and increased incomes can lead to further spending on nutritious foods for families.

This article draws on CARE's experience in FNS to demonstrate key evidence of how to use increased intake, product demand environments, agri-food firm environments, food (and cash/voucher) distribution, and public policy to increase the nutritional impacts of market system interventions. It also highlights the importance of gender equality as a key lever for creating nutritional impacts in the context of market-based programming. Finally, it underlines the need to consider emergencies contexts and the data on rapidly changing market situations as a way to examine which pathways will best impact nutritional outcomes.

2 Objectives, methodology, and limitations

2.1 Objectives

This article aims to explore the most effective ways to influence nutrition through value chains, based on CARE's long history in FNS. It examines how work that supports market access and agri-food value chain development can support not only benefits for the poorest families, but also ensure impacts in nutrition – not just in income or agricultural production. The article builds on the Maestre (Maestre, Poole and Henson 2017) framework from *Food Policy*. It provides contributions to the framework through the lens of on-the-ground programming that works through value chains to improve nutrition for the poorest people. It draws from a portfolio of CARE's 619 FNS projects, which includes work in 62 countries, and reaches 28.6 million people directly – 17.8 million of them in Bangladesh, India, and Pakistan (CARE 2017c). Typically, these programmes focus on poor and extremely poor populations, those who live on less than US\$1.25 a day, and who have little access to markets, education, or decision-making.

2.2 Methodology

In order to critically examine the Maestre framework, the authors started by conducting a meta-review of all projects in the FNS portfolio to select those that met the following criteria:

- 1 A focus on achieving nutrition outcomes through work with value chains;

- 2 Use of methods and approaches that are relevant to the framework; and
- 3 Enough evaluation or project-reporting evidence to be able to draw conclusions (this depends on the timing of the project cycle and the focus of evaluations).

A review of CARE's project portfolio using these criteria revealed 11 projects operating in 14 countries with relevant contributions to the question of how best to impact nutrition through value chains. The authors then conducted a thorough review of project documentation, including project proposals, annual reporting documents, theories of change, evaluations, and action research for those 11 projects (Weatherhead *et al.* 2016) to pull out common threads and recommendations based on evidence and experiences from projects on the ground. This article then examines the Maestre framework, drawing on project evidence for each of the six pathways proposed to determine their relevance, important notes about context, and adding any components that the current framework overlooks.

2.3 Limitations

Evidence of reduced stunting or micronutrient deficiency – the gold standard for proving nutrition impacts – takes time to generate and requires extensive measurement that we do not always have resources for in a project. Additionally, the evidence we have is that of correlation, not causation. We can say that we often see that value chain approaches often show changes in income, women's empowerment, and dietary habits. We cannot prove that those are causal relationships or that they necessarily resulted in improved diets for infants and young children under two years old, or in improved nutritional status.

The projects highlighted in this article have generated evidence that combines information on increased income or production with information about changes in dietary practice. This allows us to make a plausible case that there have been improvements in intake of nutritious foods. Some projects have also generated evidence about changes on the agri-business side that improves the supply of nutritious food available in the market. Additionally, evidence on women's empowerment outcomes gives us strong indications that there are also likely to be changes in nutritional status.

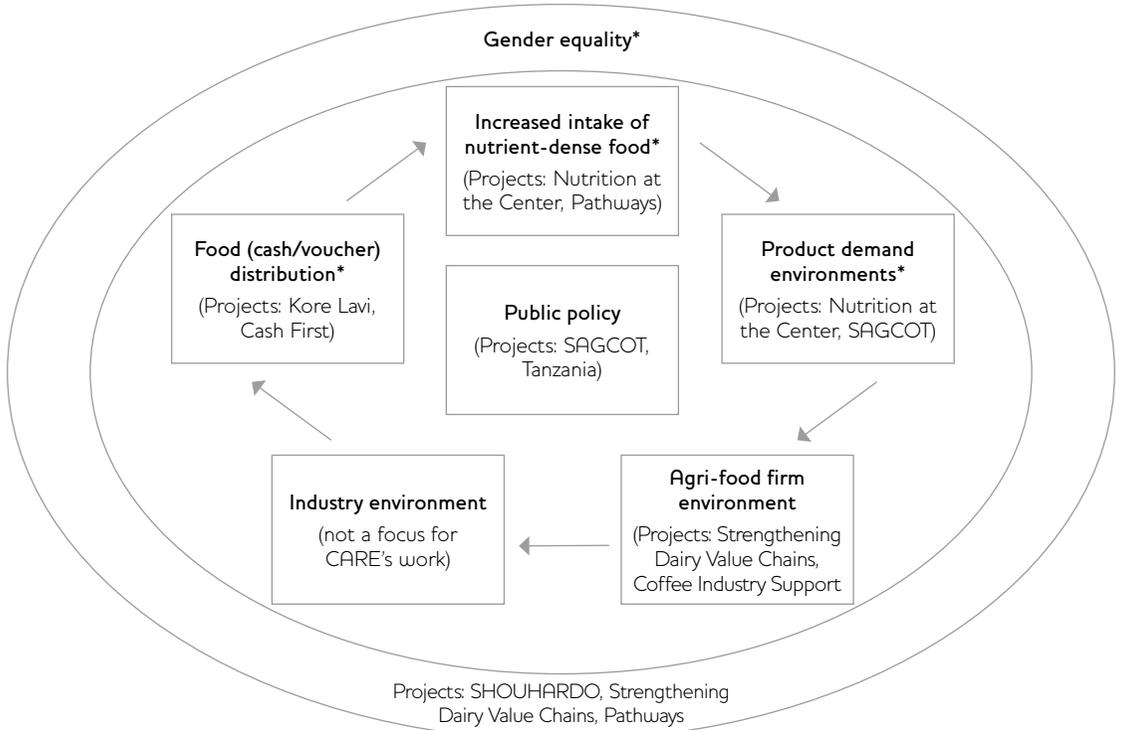
3 Findings on the framework

3.1 Relevant pathways

Maestre *et al.* (2017) propose a framework for agri-food linkages to nutrition, which includes six pathways for improved nutrition. The review of project documentation finds that these six pathways are all relevant to achieving nutrition outcomes through value chain work. While some of them are not prevalent in CARE's work – given the focus on action for the poorest and most vulnerable people – all six pathways point to relevant considerations for improving nutrition outcomes.

CARE's document review finds that if the ultimate goal is to improve nutrition for the poorest people, the most relevant pathways for

Figure 1 Revised framework based on CARE's programme experiences



* Changes in emergency context relative to development spaces.
Source Authors' own/CARE.

immediate action are: (1) increased intakes of nutrient-dense foods by vulnerable groups, (2) the product demand environment, (3) the agri-food firm environment, (4) the food (and cash/voucher) distribution environment (Maestre *et al.* 2017), and (6) public policy.

3.2 Linkages between pathways

It is also especially important to focus on the linkages between the different pathways. Focusing on only one pathway will miss important opportunities to have impacts on nutrition. A key focus for CARE's interventions is targeting the poorest and most vulnerable populations, using pro-poor value chain approaches to increase income, promote gender equality, and engage communities in market systems. The push-pull approach that CARE first piloted in Ethiopia (Garloch 2015) uses a combination of push factors – those that help producers change their own capacities and behaviours to increase production – and pull factors – which focus on changes to the market and enabling environment, making it more accessible and profitable for poor smallholder producers. The push-pull factors focus on strengthening the links between different pathways in the framework. These connections between pathways (for example, between product demand and agri-food firms) can maximise impact and strengthen feedback loops within the market system – eventually creating a more sustainable and resilient approach.

Figure 1 shows CARE's proposed revisions to the Maestre *et al.* (2017) pathways, and highlights project examples that this article uses as evidence to support each of the pathways in this revised framework.

3.3 Additions to the framework

3.3.1 Gender

To the existing framework, CARE adds the cross-cutting theme of gender equality and women's empowerment as a critical pathway, without which it would be impossible to have sustainable impacts on nutrition. Access to markets through deliberate focus on value chains with nutritional value is also seen as a critical pathway to achieving this. Through a selection process that not only looks at the nutritional value of selected value chains, but value addition that incorporates nutrition, one can have impact on nutrition (Gelli *et al.* 2015).

3.3.2 Emergencies

CARE's programming shows that emergency contexts change the framework and the relative importance of each pathway. For example, the food distribution environment and its impact on markets becomes especially critical in emergency contexts, when distribution is much more likely to become the default response to crisis. CARE works in places that are characterised by emergencies and disasters, some of which are related to conflict and some to natural disasters. Even in the most disaster- and conflict-affected areas, markets can play a critical role in improving nutrition. CARE strives to make market systems more resilient to crisis. CARE's programming in emergencies looks at both emergency market assessments as well as pre-crisis market mapping to look at opportunities to support vulnerable populations to recover and be more resilient.

4 Programme evidence supporting the pathways to improve nutrition

4.1 Gender empowerment and women's equality

Evidence shows that gender norms play a critical determining factor in household nutrition. In most societies, women are considered to be the primary caregivers, and are responsible for all food preparation and the feeding of young children. Research in 2003 in 39 countries identified that women's social status is a key determinant of children's nutritional status, and estimates that equalising men's and women's status in South Asia alone could reduce the number of malnourished children in the world by 13.4 million (Smith *et al.* 2003).

The pathways for this change are multifaceted. One example is the barriers women face regarding decision-making with household income. While women are often charged with buying and preparing food for the household, they rarely make decisions about how much money to spend on food, and often do not set the menu. It is estimated that increasing a woman's income by US\$10 will have the same health and nutritional impact in the household as increasing a man's income by US\$110 (Haddad, Hoddinott and Alderman 1997). Another example is in women's time use. According to the Food and Agricultural Organization of the United Nations, women in rural areas often work

a 16-hour day (FAO 2016), and they have insufficient time to prepare nutritious complementary foods for young children, or to feed or breastfeed adequately. For example, a study of women's time by CARE and Cornell found that although women reported spending the second largest proportion of their time on childcare, on average they reported 75 per cent of this childcare was 'secondary' to another concurrently performed activity (Cornell 2016).

Focusing on strategies that empower women can change this. Many projects have borne out the evidence that focusing on women's empowerment can have significant changes, not only on women's empowerment, but also on the pathways that improve nutrition. A 2011 review of CARE's SHOUHARDO programme in Bangladesh demonstrated that women's empowerment interventions were the single biggest contribution to a reduction in stunting of 6.5 percentage points a year (Smith *et al.* 2011). The combination of maternal and child health nutrition (MCHN) and empowerment interventions together was stronger – an 8.4 percentage point reduction in stunting, while MCHN interventions alone were less than half as powerful as empowerment interventions on their own. CARE focuses on women's empowerment as a cross-cutting pathway – similar to public policy – that must permeate all activities in the value chain and with private sector partners in order to take effect. It is important to note that women's empowerment does not mean working only with women. Men's engagement, particularly as it relates to helping with household chores and giving women the time and mobility to access markets, health care, and educational opportunities, is a critical component to success (Barker, Ricardo and Nascimento 2007).

Funded by the Bill and Melinda Gates Foundation, the Strengthening Dairy Value Chains (SDVC) project operated in Bangladesh from 2007 to 2016, and focused on helping rural women dairy producers improve their production and income using a value chain approach. Working with BRAC Dairy – which had expressed a commitment to social good and supporting the livelihoods of rural women producers – the project opened up new economic opportunities for women (McKague and Siddiquee 2014). Over the life of the project, women's access to and control over inputs increased significantly, and women began to play a much bigger role in the supply chain (Quisumbing *et al.* 2013).

CARE's Pathways to Empowerment programme operates in Bangladesh, Ethiopia, India, Ghana, Mali, Malawi, and Tanzania with the generous support of the Bill and Melinda Gates Foundation starting in 2012 (CARE 2017c). It focuses on getting women farmers access to the inputs, information, and support they need to become more productive farmers and change their families' livelihoods. The impacts have been remarkable. For every US\$1 invested in the programme, communities have seen an average of US\$31 in benefits, spread across food security, women's empowerment, and income increases (Weatherhead *et al.* 2016).

With funding from USAID's Feed the Future and implemented with the Dhaka Asiana Mission, the Agriculture Extension Support Activity (AESAs) in Bangladesh is focusing on building farmers' access to extension, credit, and inputs in order to increase production, especially in jute, livestock, potato, vegetable, and dairy value chains. There is also a strong focus on transforming gender norms and empowering women. While the project is not collecting data on nutrition outcomes, a promising sign is that the gender dialogues are taking effect. Seventy-six per cent of women in the project have more leisure time than the control group – on average 1–2 hours more per day (Chakraborty 2017). Largely, this is a result of men being more involved in household chores, such as cooking, shopping, and taking care of the children. This is not definitive proof that nutrition will improve, but does address some of the key factors inhibiting good nutrition for families and especially children.

4.2 Emergency response and the food/cash/voucher distribution environment

Undertaking market analysis as part of preparedness has a larger potential than simply providing a benchmark on the functionality of several critical market systems from 'reference' to 'post-shock' times. By understanding the capacity and constraints of critical market systems, the pre-crisis market mapping and analysis can not only improve preparedness and feed into contingency planning, but can also help design responses that could mitigate the effects of a crisis, through protecting and/or strengthening certain parts of a market system.

To maximise CARE's impact and reduce the harm it does to communities and markets, much of its emergency work takes the form of food vouchers or cash transfers rather than direct food distribution. This allows communities to buy the food they need directly from the local markets, and offers a more diverse blend of foods than would be available purely through the distribution of staple commodities. Any food distribution work rests on careful market analysis to ensure that there are no other options that would serve to strengthen markets and long-term resilience.

Programming in Haiti and Zimbabwe shows that it is possible to combine food subsidies for poor families in the form of a social safety net with strengthening local markets, both in long-term development contexts and in emergencies. The voucher systems also allow for rapid scaling of food interventions in periods of crisis. For example, during Hurricane Matthew in Haiti, the Kore Lavi project was rapidly able to scale up to reach more than one million additional people between October and December 2016 (WFP 2017). The overall response of working through the local markets increased the availability of nutritious foods in the local markets. Ninety-two per cent of vendors have increased the quantity of the stock they keep, and 76 per cent purchase food more often from local and regional markets. Forty-four per cent of vendors are stocking more diverse commodities than before (Calixte 2016).

In Zimbabwe's UK Department for International Development (DFID)-funded Cash First programme, families that received vouchers instead of direct food distribution reported getting more and better food as the primary impact. About 88 per cent of the cash transfers went into purchasing food. There was a 69 per cent drop in the number of families that had to reduce food intake, and an 84 per cent drop in households suffering from food insecurity (Bailey *et al.* 2017). The project put a specific focus on routinely mapping market information to be prepared to shift project responses in order to deal with market fluctuations that happen quickly in emergency situations, such as the cash crisis in late 2016 (Aggiss 2017).

4.3 Increased intakes of nutrient-dense foods

In order to increase intakes of nutrient-dense foods, CARE focuses on: (1) the capacity of families to use new production and nutrition information to improve their livelihoods; (2) access to nutritious foods through markets and production, as well as access to high-quality nutrition, agricultural, and market information; and (3) increased production and/or income. These are generally combined approaches that use community platforms such as care groups, savings associations, or production groups to bring together the multiple components that make up nutrition behaviours and status.

A 2016 review of the SDVC project's nutritional impact showed that SDVC producers consume nearly four times more milk than the national average (CARE 2017a). Fifty-six per cent of SDVC households have access to adequately diverse foods, according to the Household Dietary Diversity Scale, which includes a fourfold increase in the amount of fish consumed during a month. Women are also more likely to consume milk than previously, as now they are seen to be key players in milk production, who have earned the right to consume a share of the milk. Finally, families said that the income from dairy production, and the steady daily production from their cows, allowed them to have more food and consume milk and vegetables even during the lean season.

Income increases can also influence intake of nutrient-dense foods. The Social and Economic Transformation of the Ultra-Poor (SETU) project was funded by DFID from 2009 to 2015, and focused on helping ultra-poor populations in rural Bangladesh increase their livelihood options and diversify their incomes (Eusuf 2015). The project focused on a diverse variety of value chains, including food crops, cash crops, and consumer goods such as rugs and mats. In addition to seeing an eightfold increase in income over the life of the project, and a 95 per cent graduation rate out of poverty, participants increased their spending on animal-source foods (especially fish, meat, and eggs) on 49 occasions. This means that they went from eating an animal-source food once or twice in a week to at least nine times in a week. Consumption of animal-source foods has been associated with prevention of stunting as well as improvement of dietary quality, micronutrient status, growth and cognitive function among children (Neumann *et al.* 2003; Iannotti *et al.* 2017).

The Pathways programme has shown significant improvements in this pathway. In India alone, farm income has gone up by 54 per cent. Not only has average income gone up, but people earning income from agriculture has nearly tripled – going up to 82 per cent. Rice production has gone up 27 per cent, and there is higher production of many kinds of vegetables. Sixty-one per cent of women have seen their crop yields go up since joining Pathways, despite climate shocks. The number of families that consume a minimum dietary diversity has gone up 32 per cent. Thirty-three per cent more families are able to eat vegetables regularly, and four times more families have access to fish or other animal-source protein (Gamer 2016).

4.4 Agri-food firm environment

CARE often works with the private sector to change their behaviours towards rural poor populations. This primarily takes three forms: (1) increasing purchases from poor smallholder farmers; (2) making inputs and services more available to rural poor communities; and (3) improving their gender equality behaviours to make products, markets, and information more accessible to women. The Strengthening Dairy Value Chains project worked with BRAC Dairy to accomplish all three of these ends. CARE and BRAC worked together to correct market failures and increase transparency with dairy producers using digital fat testers so that producers had an incentive to produce higher-quality, more nutrient-dense milk for sale. As a result, average monthly income from milk sales more than doubled, from US\$9 to US\$20, and production increased by 12 per cent. Women producers went from being 2 per cent of BRAC's supply chain to 55 per cent between 2011 and 2016 (CARE 2017b).

In contrast, the Coffee Industry Support project in Papua New Guinea focuses primarily on gender equality and changing the way coffee-buying companies conduct activities so that they include more women. This project has shown that it is possible to get agri-food firms to focus more on gender, despite their initial reluctance. The mid-term evaluation showed that women's participation in coffee-related extension services has risen from less than 5 per cent to 33–55 per cent. One of CARE's partners has started rearranging their extension sessions – both the setup and the timing – to make sure that women can participate. Extension agents are now focusing on working with men and women together. Many of the partners are also getting CARE's help to conduct gender audits and are adopting better human resources (HR) policies to get women involved (Huxtable and Nardi 2015).

4.5 Public policy

A key pathway in CARE's work in value chains and nutrition is to influence public policy in order to promote more effective inclusion of the poor in decision-making, as well as to create policies and government programmes that will more effectively and sustainably improve nutrition. In the Nutrition at the Center programme, connecting women's solidarity groups to local governments resulted

in a commitment from mayors' offices to allocate nearly US\$2,500 to nutritional needs at the community level (CARE 2016a).

An example of this is the work in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) in collaboration with the World Wildlife Fund (WWF). In the SAGCOT area, the government has prioritised support to value chains that have both nutritional and multipurpose economic value. Through supporting a number of initiatives working on livestock and livestock feed, production of nutrient-rich food such as soy beans that can also be used for animal feed and oil processing, there is increased focus on nutrition.

5 Recommendations

This survey of project evidence suggests several recommendations to strengthen value chain programming in order to have impacts on nutrition.

5.1 Focus on gender equality

When coupled with strong *women's empowerment*, value chain approaches can lead to changes in *income and household production* of nutritious foods that gets used at least in part to improve dietary practices – all ways to improve the intake of nutritious foods and likely improve nutrition status. Our project evidence especially shows that having diverse sources of income improves dietary diversity and the ability to maintain a nutritious diet even in the face of shocks.

5.2 Engage men in women's empowerment and gender equality programming

Many projects take a gender empowerment approach to mean targeting women for activities, and nothing else. In the context of value chains, this often means that a project selects a 'women's crop' for the value chain and implements everything else as business as usual. This will impair the ability to have impacts at all, especially on nutrition. The Windows of Opportunity project showed that interventions that focused exclusively on women were limited in their impacts (CARE 2013). As the AESA project shows, engaging men can free up women's time, change power dynamics around who gets to make decisions on food and nutrition, and get men more actively involved in nutrition and childcare. A 2016 review of CARE's work involving collectives in value chains showed that the most successful groups were those that included both men and women, and included women in leadership rather than as just token participants (Krause 2016). This was especially true for issues around women's time use, household income, and household decision-making.

5.3 Work with the private sector

The private sector can also be a strong force for women's empowerment, as is the case with BRAC Dairy in Bangladesh, or the coffee industry in Papua New Guinea. BRAC plans to roll out the process it uses with SDVC producers to its entire national network – creating a scale that is not possible with an NGO project alone. As the

Kore Lavi project shows, supporting private sector markets can have benefits for the wider community beyond direct project participants.

5.4 Select appropriate value chains

CARE's agricultural and market systems programming takes a market systems approach that involves the identification and selection of the most viable value chains to promote and support. In all considerations CARE considers value chains that not only increase the earning potential of beneficiaries but the ability for these value chains to contribute to the nutrition status of beneficiaries. Nutrition is a critical criterion in selecting value chains in order to have an impact on nutrition.

5.5 Consider how value chain activities affect women's time use

Introducing new value chains – whether or not they are targeted explicitly at women – can often add hours to women's list of daily chores. Few projects account for women's time and labour as part of the value calculation on income or profit results, and this can obscure a large risk to nutrition. Especially for breastfeeding mothers or women having to cook complementary foods for small children in addition to large family meals, additional burdens reduce the time they have to ensure that their children get the nutrition they need. Households participating in the SDVC project noted that in times of high workload (for example, the height of the agricultural season), family dietary diversity and meal frequency went down because there was not enough time to prepare meals during the day. Producers also noted that household milk consumption dropped when market prices were especially high because families wished to maximise their profits. When market prices dipped, families chose to consume a greater share of their production.

There is much more research to do on questions of women's time use generally, and specifically on how it relates to nutrition. Participants in CARE projects consistently rate the time-use exercises in the gender dialogues as some of the most useful and influential tools available to them in changing their own thinking about gender roles, but these are rarely collected at a project, value chain, or national level. Because value chain activities can pose a risk to nutrition by taking away women's time to care for their family – especially if men do not step in to take on care work – this is an area that needs further investigation to ensure that value chain programmes are not harming nutrition.

5.6 Include water, sanitation, and hygiene (WASH) considerations

This is at least as important as consumption in long-term healthy nutrition. While it is neither possible nor appropriate for value chain approaches to cover all aspects of nutrition, WASH is an overlooked component that value chains should address, at the very least from a do-no-harm perspective. Value chains involving fertiliser or livestock can be actively harmful to nutrition, as they can increase the risk of diarrhoea which can rapidly damage nutrition, especially for small children. Particularly interventions that place animal faeces near the home increase the risk of environmental enteric disorder (Keusch *et al.* 2013) – a chronic condition that reduces the ability

to absorb nutrients after repeated childhood exposure to faecal pathogens. There is little evidence on the links between WASH and value chains, but the causal pathways are clear, and the issue merits further investigation.

5.7 Generate evidence on nutrition

Value chain programmes rarely collect nutrition evidence consistently, and often use income or production as an assumed proxy. It is necessary to widen the scope of value chain programming and private sector partners to include nutrition in the goals, and monitoring and evaluation systems before programmes will start collecting consistent data on how their activities influence nutrition. CARE's programming provides abundant evidence on the link between value chains, income, and assets. If the programme is done well, we generally see increases in income, assets, and savings. However, we have little evidence of whether assets or savings play into improved nutrition. We also do not know whether the question of who controls the assets in the family (husband, wife, or jointly) impacts nutritional status. This is an area for further exploration.

5.8 Collect market data more frequently

The state of the market at any given moment is critical to understanding how market-based and value chains programming will impact nutrition. Undertaking market analysis as part of preparedness has a larger potential than simply providing a benchmark on the functionality of several critical market systems from 'reference' to 'post-shock' times. By understanding the capacity and constraints of critical market systems, the pre-crisis market mapping and analysis can not only improve preparedness and feed into contingency planning, but can also help design responses that could mitigate the effects of a crisis, through protecting and/or strengthening certain parts of a market system. From the moment that the initial market analysis is done, response options can be designed and implemented, so that certain parts of the market are strengthened, helping to support both access to basic needs and livelihoods so that they could, potentially, better withstand shocks. This can begin to address the long-term or 'chronic' nature of vulnerability and poverty in some areas.

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