EVIDENCE REPORT
No 172

Reducing Hunger and Undernutrition

Addressing Market Constraints to Providing Nutrient-rich Foods: An Exploration of Market Systems Approaches

Jodie Thorpe and Philip Reed

February 2016

The IDS programme on Strengthening Evidence-based Policy works across seven key themes. Each theme works with partner institutions to co-construct policy-relevant knowledge and engage in policy-influencing processes. This material has been developed under the Reducing Hunger and Undernutrition theme.

The material has been funded by UK aid from the UK Government, however the views expressed do not necessarily reflect the UK Government's official policies.

AG Level 2 Output ID: 16

ADDRESSING MARKET CONSTRAINTS TO PROVIDING NUTRIENT-RICH FOODS: AN EXPLORATION OF MARKET SYSTEMS APPROACHES

Jodie Thorpe and Philip Reed

February 2016

First published by the Institute of Development Studies in February 2016

IDS is a charitable company limited by guarantee and registered in England (No. 877338).

Contents

Boxes

Figures

Tables

Acronyms

ATNI	Access to Nutrition Index
DFID	Department for International Development
FAO	Food and Agriculture Organization of the United Nations
FIPS	Farm Input Promotions Africa
GNP	gross national product
ICT	information and communications technology
IFPRI	International Food Policy Research Institute
NGO	non-governmental organisation
R&D	research and development
SDC	Swiss Agency for Development and Cooperation
SUN	Scaling Up Nutrition
USAID	United States Agency for International Development
WFP	World Food Programme

1 Introduction

This Evidence Report asks how a market systems approach could be applied to improve poor households' access to nutrient-dense foods.[1] By 'market systems approach'[2] we mean methods that identify and address underlying constraints in market transactions, their supporting functions and the institutional environment in which markets operate, and which are preventing markets from delivering desired outcomes. The report builds on a developing body of research on value chain approaches to nutrition, which has highlighted challenges in developing commercially viable business models that can deliver affordable, available, appropriate and acceptable foods. It explores how market systems approaches could be used to improve the diagnosis of constraints preventing a market from achieving these outcomes, and to develop interventions that change the way the market system works. The report does not seek to make specific recommendations for policy or practice, but rather sets out how a market systems approach could be applied to nutrition in different contexts in order to develop such recommendations.

The fact that 795 million people suffer from undernutrition (FAO 2015) and 2 billion people suffer from micronutrient deficiencies or 'hidden hunger' (FAO 2013) highlights the scale of the nutrition security challenge. Hidden hunger and the lack of adequate nutrition not only affect individuals across their lifetimes (von Grebmer *et al*. 2014: 24) but have a significant economic cost. Horton and Steckel (2011: 26) argue that there has been an 11 per cent yearly reduction of gross national product (GNP) in Africa and Asia due to poor nutrition.

One of the key problems driving undernutrition lies in the limits faced by people living in poverty – most of whom live in rural areas (Alkire *et al*. 2014; Olinto *et al*. 2013) – in accessing affordable and appropriate (safe and nutritious) food. While safe and nutritious foods are available in most countries, they are often under-consumed by poor people (Anim-Somuah 2013a; Temu *et al*. 2014); households that are extremely marginalised may fail to access sufficient food (calories) for some or all of the year. In addition, those who under-consume nutritious foods include households who may not be food insecure, but which rely on energy-dense but nutrient-poor foods that can lead to overweight, obesity and related chronic diseases (Hawkes and Ruel 2011).

There are many potential ways to address undernutrition (Humphrey and Robinson 2015). These include: improved health care (e.g. better hygiene and sanitation); better caring practices for infants; changes to agriculture and food production that lead to more nutritious or safer foods (e.g. with less incidence of aflatoxins or zoonoses); and increased food security by addressing protein and energy deficiencies, as well as micronutrient-specific interventions such as vitamin supplements, among others. However, there is a growing consensus[3] that given the limits of public sector capacity and resources to meet nutritional challenges, the private sector has a role to play. While much of the focus to date has been on the potential for value chains to contribute to reducing undernutrition, a value chain approach (if narrowly defined) will not identify and resolve key market challenges (Humphrey

[1] There is a substantial debate on the appropriate role of the private sector in nutrition, and the validity of efforts to support markets and the private sector in delivering nutrition. While acknowledging the many cases where particular businesses or products do not achieve this objective, this paper starts from the perspective that most poor communities get a substantial portion of their food from markets – and that these are linked to both the formal and informal sector. The question is, how to make these markets work better from a nutritional perspective?

[2] The market systems approach has been developed, supported and practised by a number of research, donor and non-profit agencies, including The Springfield Centre, the UK's Department for International Development, the Swiss Agency for Development and Cooperation, the Donor Committee for Enterprise Development, the SEEP Network and the Market Facilitation Initiative, among others. More information can be found at: www.beamexchange.org.

[3] The Scaling Up Nutrition (SUN) Movement has been calling for multi-stakeholder (including business) involvement to solve nutrition issues (Scaling Up Nutrition 2014). The Nutrition for Growth summit in 2013 also emphasised the importance of the private sector. At the summit, 22 of the world's biggest food and drinks manufacturers pledged to put good nutrition at the core of their businesses. The Access to Nutrition Index (ATNI) rates companies on a range of issues, including undernutrition. See Nutrition for Growth (2013).

and Robinson 2015). Instead, there is a need for approaches that are situated within a wider market and policy environment.

1.1 Outline and approach

This report explores how market systems approaches could provide an analytical framework and an alternative way of thinking about solutions to the constraints that inhibit markets from supplying nutritious foods. Section 2 presents the challenge from a nutrition perspective – four key outcomes in terms of product characteristics that are needed if markets are to deliver nutrient-dense foods to poor people. Section 3 draws from theory and literature to outline the key features of a market systems approach. Section 4 explores three existing cases of market systems approaches and how the theory works in practice.

These three case studies – in the veterinary, energy and input sectors respectively – provide the empirical basis for the report. They were chosen based on a review of existing market system case studies identified from the BEAM Exchange,[4] a knowledge-sharing platform for market systems approaches. Most of the existing programmes and case studies on market systems approaches focus on agriculture, and this is reflected in the fact that two of the three cases analysed here deal with input supply in agriculture. It is still relatively rare for the approach to be applied to other essential sectors, including health, energy and nutrition, and these are less well documented. We were not able to find any well-documented nutrition examples, although programmes are clearly starting to emerge in this area. The case studies for this report were chosen based on two main criteria:

a. to focus on sectors that aimed to make essential goods and services available to poor communities (as opposed to livelihood programmes), and in which many of the same challenges of affordability, availability, appropriateness and acceptability were likely to exist, to allow for relevant insights;
b. where there exists detailed, published information on programme design, implementation and at least initial results, meaning that the programmes had to be running for at least three years.

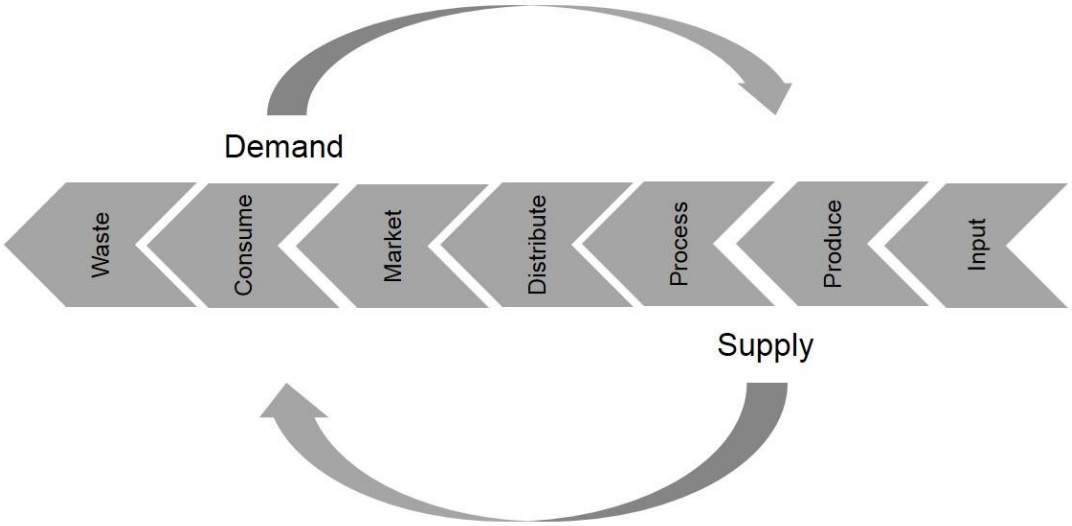
Finally, Section 5 and the concluding remarks in Section 6 seek to synthesise the learning from the analysis of the three case studies, in light of the framework set out in Section 2, to understand how the market systems approach might be applied to the challenge of making nutritious foods available to poor households. Section 5 also outlines some limitations of the approach.

[4] www.beamexchange.org.

2 Value chains and nutrition

A food value chain (Figure 2.1) is a system of processes and different actors that take food from its initial production, through to consumption and disposal as a waste product (Hawkes and Ruel 2011). At the core is an exchange, based on supply and demand, which delivers food, via a network of suppliers and distributors, through to customers. Economic value is created at each step of the chain, as well as produced throughout the whole chain.

Figure 2.1 Value chain business model



Source: Authors' own.

Value chains have been widely discussed as one potential mechanism for promoting rural development (Altenburg 2007; Humphrey and Navas-Alemán 2010; Stoian *et al*. 2012), although until recently this approach had not been used widely in nutrition. However, interest in how agricultural and food value chains may be adapted for this purpose has grown rapidly in recent years, focusing on different potential pathways.

One particular area of interest has been on agriculture, and how agricultural value chains can be designed to deliver better nutritional outcomes through greater production of more nutritious foods by poor households, which would be used both to generate income and for direct consumption (Le Cuziat and Mattinen 2011). Gelli *et al*. (2015) theorise three pathways where value chain approaches are relevant, involving agricultural production, as well as nutrition and health, and enterprise development along the value chain. They advocate starting with value chain diagnosis and an analysis of diets and consumption patterns among target populations, identifying constraints in supply and demand, and entry points for interventions – which focus on agricultural production, food processing, and consumer awareness and education. They also suggest that non-value chain actors be included in the analysis. By understanding how food value chains operate, the aim is to identify how market failures can be overcome such that value chains deliver nutritional outcomes.

2.1 Product characteristics that determine access to nutritious foods

To address undernutrition, value chains need to provide nutritious foods that poor households are able to access.[5] They also need to promote awareness of the product characteristics of these foods and establish their value and credibility (Humphrey, Agnew and Henson 2015). These product characteristics are: affordability, acceptability to the intended consumer, availability (in geographic terms) and appropriateness (e.g. safe, and with a high nutritional value). Table 2.1 presents a framework of these characteristics, drawing on relevant literature from both the nutrition (Hawkes and Ruel 2011) and health care[6] (Peters *et al*. 2008) sectors.

Table 2.1 Framework of product characteristics

Definition of product characteristics		**Terminology used in source papers**	
Characteristic	**Definition**	**Hawkes and Ruel (2011) concepts**	**Peters *et al*. (2008) concepts**
Affordability	Whether the cost and associated price of a product matches consumers' or users' ability and willingness to pay.	Food affordability	Financial accessibility
Acceptability	Whether there is awareness of the product or service that is available, whether it is perceived to add value, and whether it is socially and culturally acceptable to consumers or users.	Food acceptability	Acceptability
Availability (geographic)	Whether appropriate and acceptable products or services are geographically available to the consumer or user. Product availability is often a particular barrier in rural settings.	Food availability	Geographic accessibility
Appropriateness (quality)	Whether the product or service that is available meets the needs of consumers or users.	Food nutritional quality	Availability[7]

Source: Adapted from Hawkes and Ruel (2011) and Peters *et al*. (2008).

2.1.1 Affordability

Affordability is determined by the alignment between the cost (and associated price) of nutritious foods and the willingness and ability of households to pay for them; it often presents a significant barrier. A 2011 study by the World Food Programme (WFP), for example, found that in Mozambique, 80 per cent of households had insufficient income to obtain what had been calculated as the 'cheapest nutritionally adequate diet' that did not rely on fortified products (Humphrey and Robinson 2015). This challenge is exacerbated in rural markets. Tripp *et al*. (2011) found that incomes in rural parts tend to be much lower than those in urban locations, so even though people recognise the benefits of high nutrient-dense products, they are frequently unable to afford them.

[5] Nutritional attainment is not only determined by access to appropriate foods. Proper water and sanitation or norms around household food distribution also matter. However, the focus here is on access as one key aspect.
[6] Health care shares a number of similar challenges to those found in nutrition – notably that products in both sectors are often credence goods in which the usefulness to the consumer or user is difficult or impossible to ascertain at the time of purchase or even after consumption. There are also information asymmetries in which the seller of the good knows the true quality (e.g. nutritional value), which the consumer cannot judge, creating opportunities for the seller to misrepresent the goods or services.
[7] Peters *et al.* specifically refer to availability in terms of the opportunity to access (good quality) health care as and when needed.

For extremely marginalised households on very low and precarious incomes, market solutions may never suffice (a point we return to in Section 5). However, for others, affordability is driven by a number of factors including household cash flow (which is often subject to seasonal variations), and the costs of developing, producing, marketing and distributing the food. Costs may be lower for products sold in higher quantities, whereas cash flow constraints may mean that households need to buy food more frequently in smaller quantities. The price of the product is also influenced by the business model and therefore expected profit margin of the businesses in the value chain. For example, where profits are required in order to pay dividends or reinvest, they need to be higher than for social businesses, which can accept lower returns.

Very poor consumers tend to be (understandably) risk averse and unwilling to spend money on unfamiliar products with unproven benefits. The particular challenge in nutrition is that nutrient-dense foods are both 'push products' and 'credence goods'[8] (Maestre *et al*. 2014: 4). They are push products because demand for the products needs to be created; consumers do not know or do not understand the benefits, or they first need to be convinced that nutrition is an issue that needs resolving. And they are credence goods because consumers generally find it challenging to distinguish which foods are more nutritious – both before and after consumption, especially among products that appear identical in all other respects. The asymmetric information about the nutritional value of food products between consumers and producers leads to market failures (Poole, Martínez-Carrasco and Vidal Giménez 2007; Humphrey and Robinson 2015). Regulation, branding, labelling, and marketing are all ways to overcome information asymmetries, but these tend to raise the cost of the product (Hystra 2014).

2.1.2 Acceptability

Product acceptability is determined by the appropriateness of the food being offered within a particular social and cultural context. It is strongly influenced by customs and informal norms, based on taste, habit and cultural significance. Acceptability may also be influenced by other factors such as food preparation time. Women, especially in poor rural households, have extremely high demands on their time both for household care activities and food preparation, and for productive activities on the farm or in the community. Introducing unfamiliar foods which require a great deal of time for preparation is therefore a significant barrier to uptake.

Acceptability is also related to awareness. If households are not aware of a product, or of its associated benefits, they are unlikely to buy it. This can be a particular problem in rural areas where small population densities and large distances between population centres affect information flow and awareness of products. On the other hand, where there is awareness of nutritional benefits, the scenario is reversed and low-income families are willing to pay more for foods they perceive to have a nutritional benefit than the price of traditional foods (Hystra 2014: 18). Other studies have shown a greater awareness and adoption of complementary foods (which can reduce micronutrient deficiencies) in urban areas (Ogunba 2012).

Awareness and acceptability of new nutritious food products can be affected by decisions made at various steps along the value chain, starting with product choice and design. Focusing on already familiar products or developing new products with familiar characteristics will gain acceptability much more readily than introducing nutritious but unfamiliar foods. Providing information through promotional activities, branding and packaging or public health campaigns can raise awareness and build acceptability. However, these activities – with the exception of public campaigns – require investment by businesses, which raise the cost of the product.

[8] Koh, Hegde and Karamchandani (2014) describe products as push or pull products. Pull products, such as solar lighting, are readily desirable and demand for them is strong. Push products are the opposite. Households are unaware of the product, or do not recognise its value or the problem it aims to solve. If the product also represents a 'credence good', this problem multiplies.

Awareness and acceptability are also influenced by more informal means – such as word of mouth from neighbours or other local community members. Acceptability can also be influenced by which households are targeted within a community. Where new products, including nutritious foods, are taken up by wealthier households and community leaders, they can gain aspirational value, which creates demand. Where products are targeted to the poorest households, they can instead be associated with poverty and social stigma.

2.1.3 Availability (geographic)

Geographic availability is determined by the alignment between the location where a particular food is provided and the location of the intended consumer or user. For example, some foods – especially those which are processed to be high quality and nutrient-rich, like weaning formulas – require high degrees of quality control and imply centralised production (Bruyeron *et al*. 2010). Where there is a large geographical gap between producer and consumer, this means significant efforts in distribution – a challenge often referred to as 'last mile' distribution. The distribution challenge is also often exacerbated by weak transportation linkages and infrastructure. Garrette and Karnani (2010) found that inadequate distribution is one of the largest causes of failure for businesses at the base of the pyramid.[9]

Overcoming these constraints tends to raise the cost of nutritious foods – often to such a level as to make them unaffordable to those who need them most – or to challenge the financial viability of the value chain, as one nutrition programme confirms: 'To sustain a business approach in rural areas, it will be necessary either to obtain a long-term public grant or to noticeably increase the prices of the products, which would lead to a reduction of their affordability' (Bruyeron *et al*. 2010: 163).

That said, centralised production through the formal sector comprises only a small percentage of overall food supply in many countries, with the majority of needs met through local and informal food markets. Although value chain approaches may ignore the role of the informal sector (Grace *et al*. 2007), by some estimates, the sector accounts for between 30 per cent and 40 per cent of all economic activity in the poorest countries (La Porta and Shleifer 2014). In Kenya, Uganda and Tanzania, raw milk produced in the informal sector accounts for around 90 per cent of marketed milk (Grace *et al*. 2007). A similar pattern has been found within fruit and vegetable markets (Gómez and Ricketts 2013).

The prevalence of informal food markets, particularly within Africa, is in large part due to their numerous advantages in serving the requirements of the poorest consumers. Close proximity means that distribution costs are reduced while cheaper inputs mean lower prices than equivalent products in the formal sector (Anim-Somuah *et al*. 2013b; Grace 2014). These products are also often more aligned with the cultural preferences of the poorest communities than centralised and processed products would be, thus increasing their acceptability. The challenge, however, is that the quality and nutritional value of these products can often vary substantially. Masters, Kuwornu and Sarpong (2011: 16) tested formal and informal packaged complementary foods in urban locations in Ghana and found that while some locally produced products contained levels of micronutrients equivalent to international brands, the levels in others were inadequate and it was difficult to differentiate between them.

2.1.4 Appropriateness (quality)

Appropriateness is determined by the alignment between the type of product needed by the household and the type of product offered, and is linked to (the consistency of) the nutritional quality and/or food safety of the product. Quality and safety are determined by decisions made in the value chain (including product design) and the sourcing of appropriate and high-

[9] The 'bottom' or 'base of the pyramid' – a concept popularised by Prahalad and Hart – refers to those in the poorest socioeconomic group.

quality inputs. Nutritional outcomes are also affected by decisions made in the household – whether the product is consumed in the correct quantity and frequency, and prepared in the right way. Education and information are important here – so that consumers know how to prepare and use products to achieve their intended benefits. Information can be provided either through public awareness campaigns or value chain functions such as marketing or distribution (for example, face-to-face distribution).

Consumers often find it challenging to recognise high-quality (nutritious) foods, and businesses which are selling nutrient-dense foods struggle to distinguish these from low-quality goods, leading to a reduction in demand as their credibility is undermined (Henson and Humphrey 2014). The low capacity of regulatory bodies is also a challenge, as governments often struggle to monitor smaller, informal businesses especially and to enforce standards or regulations (Robinson and Nyagaya 2014). For example, Tanzania requires all companies manufacturing three food staples (wheat flour, maize flour and vegetable oil) to add key micronutrients (iron, zinc and vitamin A). However, the Tanzania Food and Drug Authority has only five offices throughout the country, and each covers a wide area, with few resources (USAID Tanzania 2012).

Private sector certification schemes have drawn considerable interest as an alternative to regulation (Sanogo and Masters 2002; Anim-Somuah *et al*. 2013a). However, these private sector schemes face similar challenges to regulation, in that they require strong monitoring. Two studies (Robinson *et al*. 2014a; Robinson *et al*. 2014b) highlight the difficulties of implementing such mechanisms in Nigeria where the private sector is affected by the fragmented nature of informal producers and the high costs of monitoring. Finally, Dulleck, Kerschbamer and Sutter (2011) emphasise the importance of ensuring that liability is maintained. However, consumers currently have very limited ability to hold producers accountable if a product is mislabelled or mis-sold.

2.2 Value chain approaches: what are the challenges?

The literature on value chains and nutrition points to some of the key challenges facing formal sector food value chains in achieving these product characteristics and delivering nutrient-dense foods to undernourished households. Studies carried out in three African countries (Ghana, Nigeria and Tanzania) have identified a complex set of interrelated challenges that tend to undermine value chain viability, especially in rural areas (Anim-Somuah *et al*. 2013a; Nwuneli *et al*. 2014; Maestre *et al*. 2014). Based on these same studies, Humphrey and Robinson (2015) provide an overview of value chain approaches in the areas of fortification and complementary feeding products for infants. They find that key challenges include: understanding which marketing channels reach the poor; finding ways to work through informal sector businesses; signalling the nutritional value of the product to customers and distinguishing products from nutritionally inferior alternatives; and achieving affordability and rural outreach.

Other challenges relate to the difficulty in applying value chain approaches outside of single food commodities distributed through formal food markets (Hawkes and Ruell 2011). Generally, value chain approaches overlook informal sector food provision, which is lower cost and closer to poor households, but which may suffer from poor food safety or nutritional quality (Humphrey and Robinson 2015). Henson (2013) also emphasises that good nutrition depends on a high-quality diet, rather than an increase in one nutritional food. Hawkes and Ruell (2011) highlight the tendency to focus on consumers only as end users, rather than as value chain actors.

In order for a value chain to successfully and sustainably improve the nutrition of undernourished households, it must fulfil two fundamental requirements simultaneously (Humphrey and Robinson 2015). First, the food product must be presented in a way that increases the likelihood of households being able and willing to purchase and consume it;

second, these foods must be delivered through a viable business model that generates sufficient financial returns to create incentives for the businesses involved to continue to operate. These outcomes are affected not only by the value chain actors but by the broader macroeconomic context in which the chain operates (Hawkes *et al*. 2012), including issues such as the governance of a country, its politics, economic policy, culture, approaches to gender, as well as the climate and environment. These impact both the way in which value chains operate and their outcomes in terms of nutrition.

3 From value chains to market systems

The question, then, is how can the approach to value chains be modified to achieve nutritional and commercial goals at the same time? The challenges in doing so are threefold:

- There are **multiple factors** that affect a household's access to nutritious food, which the business model needs to address while remaining viable.
- These factors are **interrelated** so that addressing one factor tends to affect and often undermine other factors.
- Many of these factors lie **outside the core value chain transactions** and the control or direct influence of the lead firm.

This section explores these three challenges and proposes that a market systems approach could build on existing value chain work in ways that help to overcome these challenges.

One of the most influential theories of business and development in recent years was formulated by Prahalad and Hart (2002) in their work on the 'base of the pyramid'.[10] Their core idea is that very poor people are value-conscious consumers who collectively represent a profitable market for companies that are able to provide them with the goods and services they want and need. Despite the popularity of Prahalad and Hart's ideas with companies, however, the approach has been critiqued by many (Landrum 2007; Garrette and Karnani 2010; Bedi 2012; Simanis 2012; Kolk, Rivera-Santos and Rufin 2012), and the global corporations to which it was originally addressed have frequently failed to serve poor consumers (Karamchandani, Kubzansky and Lalwani 2011).

Nevertheless, Prahalad and Hart made a key contribution as they highlighted the (often inaccurate) assumptions or 'dominant logic' that informs the way that many companies, policymakers and development organisations understand markets and consumers at the base of the pyramid – and the factors that influence affordability, acceptability, availability and appropriateness. For example, Prahalad and Hart argued that companies *assume* that poor people cannot afford their products or services because they see their own cost structure as a given; or that companies *assume* that poor people do not accept or have use for their products because they are committed to a particular form and functionality of product. The message for value chains and markets is that assumptions around factors like demand, cost structure and product functionality should be analysed and contested.

The second challenge is that these factors are interrelated, and measures that seek to resolve one factor affect other factors – often negatively. For example, demand for products can be increased where (often risk-averse) consumers have greater confidence in the quality of the product, and quality can be better controlled through more centralised manufacturing. However, centralised production creates distribution challenges, especially where retail networks or infrastructure are lacking. In response, a business could create its own distribution network to take a product directly to households, but this would likely raise the cost of the product, which could either make it unaffordable for the household or erode financial returns for the company and make the business model unviable. This interrelatedness of different factors that co-produce an outcome is a feature of a 'complex system'.

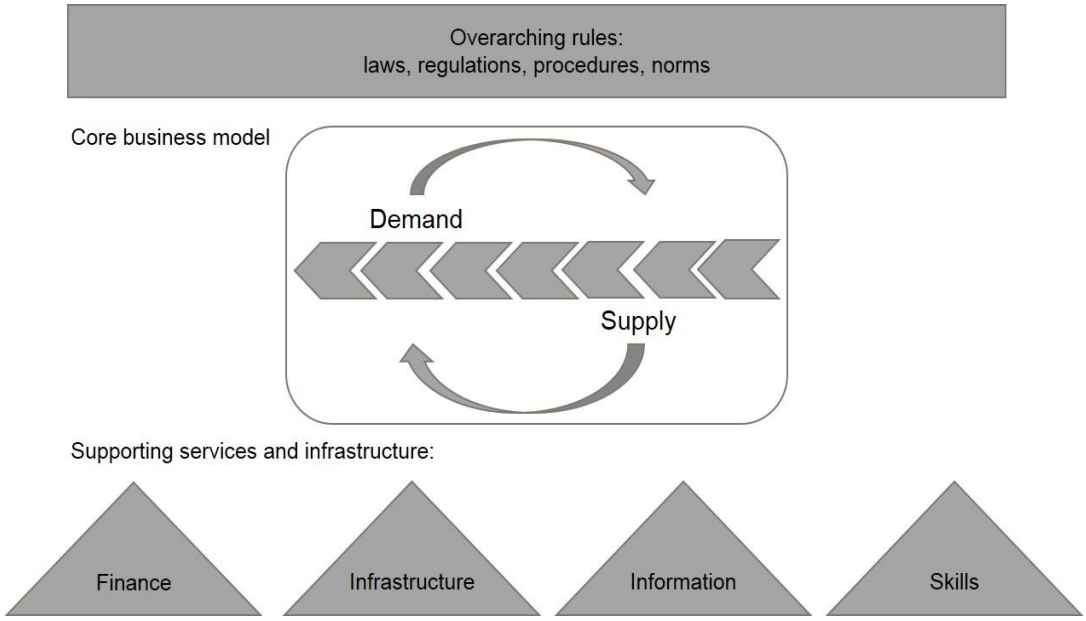
Williams (2015) describes a system as being characterised by dynamic patterns of interrelationships involving actors, objects and processes operating within a set of boundaries (defining what falls within or outside that system). Actors each have their own motivations and strategies, and the patterns and dynamics of the system emerge from

[10] Prahalad and Hart defined the base of the pyramid as the 4 billion people with an annual per capita income — based on purchasing power parity in US$ — of less than $1,500.

interactions between these actors, often with unanticipated effects. Taking a systemic approach involves starting from the desired outcome and working backwards to understand and diagnose the current system and the constraints that are blocking this outcome. Long-lasting changes to this system will be driven by actors who have the awareness, incentives and capacity to do so.

The conceptualisation of markets as complex systems underpins the 'market systems approach' (Ripley and Nippard 2014; DFID 2008; The Springfield Centre 2015), which has gained traction with some development organisations such as the Department for International Development (DFID) and the Swiss Agency for Development and Cooperation (SDC), as well as non-governmental organisations (NGOs) like Practical Action and Mercy Corps. In this approach, the 'market system' includes the core value chain – the interaction and exchange between suppliers and consumers of goods or services. It also includes the supporting functions that help facilitate, develop and grow these core value chain functions through improving skills and capacity, infrastructure, finance and information flows, for example. Finally, it includes the overarching rules that define market behaviour, outcomes and participation. These rules can be codified (through legislation and market standards, for example) or uncodified (through local practices and norms). Figure 3.1 illustrates a generic market system.

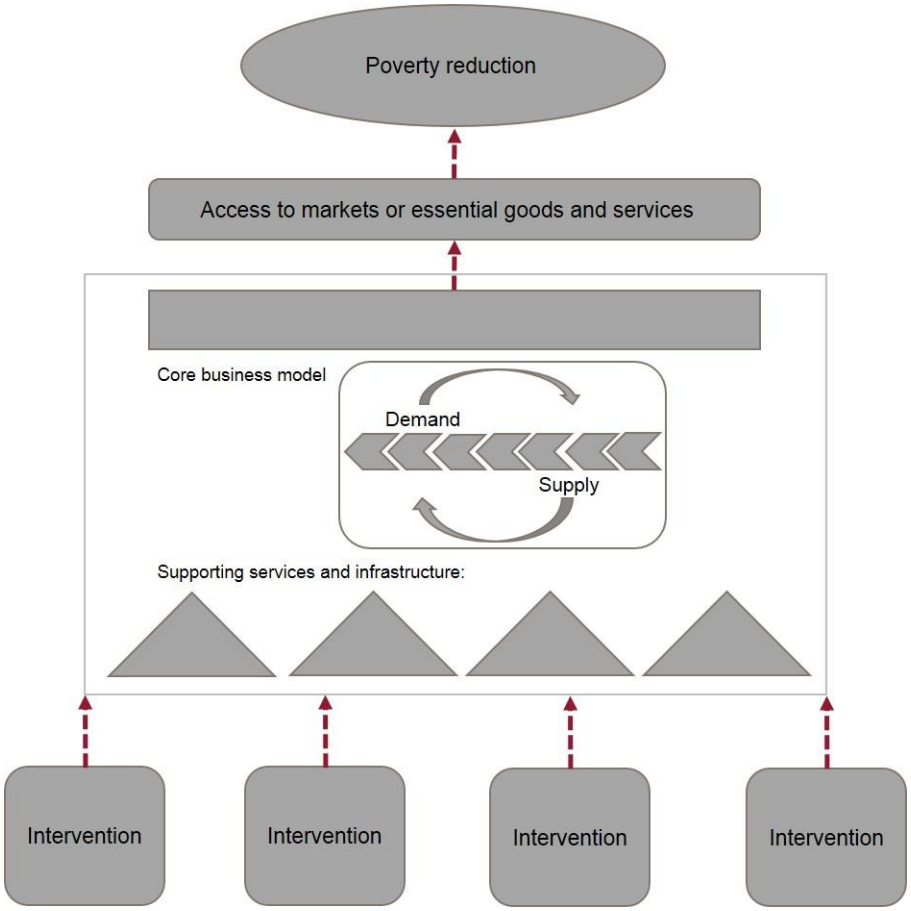
Figure 3.1 The market system



Source: Adapted from DFID (2008).

In the market systems approach, in order to achieve the desired impact – such as poverty reduction or improved health or nutrition – interventions work through existing markets to improve the way they function in relation to outcomes. Value chains are central to this. However, there is also space to identify and incorporate the broader context, including governance, culture, and approaches to gender or business environment, which affect how value chains operate but which value chain approaches may fail to reflect (Hawkes *et al*. 2012). By understanding and working through the market system – for example, by strengthening informal food markets – interventions can achieve a sustainability and scale that is not possible through direct interventions. To give another example, directly supplying food in response to nutritional needs is likely to be either time-limited (perhaps until donor funding runs out) or too expensive to extend beyond a small target population. However, both these limitations could be overcome by a well-functioning market. Figure 3.2 shows this theory of change, based on a generic impact pathway.

Figure 3.2 Theory of change



Source: Adapted from DFID (2008).

There are three key principles that should be followed when implementing a market systems approach:

- **Identify and address the root cause of problems rather than alleviate the symptoms.** Focusing on root causes is likely to lead to quite different choices about actions when compared to only addressing symptoms (see example in Box 3.1).
- **Recognise markets as complex adaptive systems involving interactions between a range of different actors** (including large and small businesses, governments, informal sector operators, civil society, community organisations).
- **Change the awareness, incentives and capabilities of system actors**. This idea is also elaborated by Koh *et al*. (2014), who identify the key 'scaling barriers' that hamper base-of-the-pyramid approaches. Some of these barriers are at the level of the individual company or value chain. However, some fall under the remit of governments, which set the laws, regulations and procedures to address market failures. Koh *et al*. (2014) also point to constraints around public goods, such as awareness of beneficial products and appreciation of their value; the availability of roads, electricity and telecommunications; and information and quality standards. Individual companies in a value chain either lack the resources to provide these on their own, or lack the incentive to provide them, as they would be unable to exclude others from the benefits and so capture the gains. Actors outside the value chain are often needed, and Koh *et al*. (2014) call for industry facilitators to play supporting roles in driving change.

These key principles are illustrated in the example in Box 3.1.

Box 3.1 Katalyst in Bangladesh: example of a market systems approach

The vegetable sector in Rangpur, Bangladesh, is a strategically important sector for poor producers, but is undermined by very low productivity. Katalyst is a market systems development programme funded by donor agencies[11] and implemented under the Ministry of Commerce of the Government of Bangladesh and Swisscontact. It instigated the training of retailers of agricultural inputs in order to improve the competitiveness of the sector.

While the low and static level of productivity was the **main symptom** of poor market performance, Katalyst sought to identify the **root causes** that were preventing solutions from emerging. Myriad factors were identified that contributed to the problem, but the root cause lay in the supporting functions of the value chain – specifically, low levels of knowledge and information about good vegetable farming practices that could raise productivity. Further diagnosis as to why existing knowledge and information services were not addressing the wider productivity problem led Katalyst to understand the many sources of information being used by farmers, and their perceptions of these. Through this process, Katalyst **identified those actors that were best placed to improve the spread of knowledge and information to farmers** – the input retailers (who the farmers were regularly in contact with) and the input suppliers (the retailers' main source of information).

Through this analysis, Katalyst developed a picture of the desired outcome – farmers demanding good-quality information and **market actors offering it on a sustainable basis, because it was in their commercial interests to do so**. The challenge was to build the capacity of relevant actors to strengthen their relationships with farmers and offer relevant knowledge and information services embedded within the supply chain.

In addressing this challenge, Katalyst had the flexibility to engage with appropriate actors and explore options with them. The solution that eventually emerged – retailer training – came from discussions with one input supplier, Syngenta. The company now directly manages training of input suppliers, sharing costs with Katalyst on a 60:40 basis.

Early results show positive impacts on market actors, with 20 per cent of all retailers in Rangpur (serving 200,000–350,000 farmers) trained over a two-year period. Farmers' perceptions of their experience with retailers' services have improved, while retailers place more emphasis on advice and information, have better customer relations and, in most cases, increased sales. Other input suppliers, who have often lost out competitively in the short term, are now showing positive signs of interest in retailer training. This 'crowding in' will be a crucial determinant of wider market change.

Source: Gibson (2005).

[11] The Swiss Agency for Development and Cooperation, the UK Department for International Development, the Canadian International Development Agency and the Embassy of the Kingdom of the Netherlands.

4 Market systems approaches in practice

Building on market systems theory, this section explores examples of market systems approaches that have already been applied to increase access to essential goods and services at the base of the pyramid. The experience in each case and the results achieved are context specific, and the findings are not directly applicable to nutrition, or to the specific nutritional contexts in different countries. However, there is value in exploring these cases for two reasons. First, they illustrate the market systems approach and how it can be applied in practice in relevant markets. Second, they help challenge the 'dominant logic' that informs how markets and consumers at the base of the pyramid are understood.

4.1 Case study 1: Building supply chains for vet drugs in rural Georgia[12]

4.1.1 Introduction

The development programme Alliances, funded by SDC, seeks to help rural livestock farmers improve livelihoods. One of the key objectives is to reduce the levels of disease through targeting and improving livestock market support functions (including breeding, financial and veterinary services) in the dairy, beef, sheep and honey market systems in Georgia.

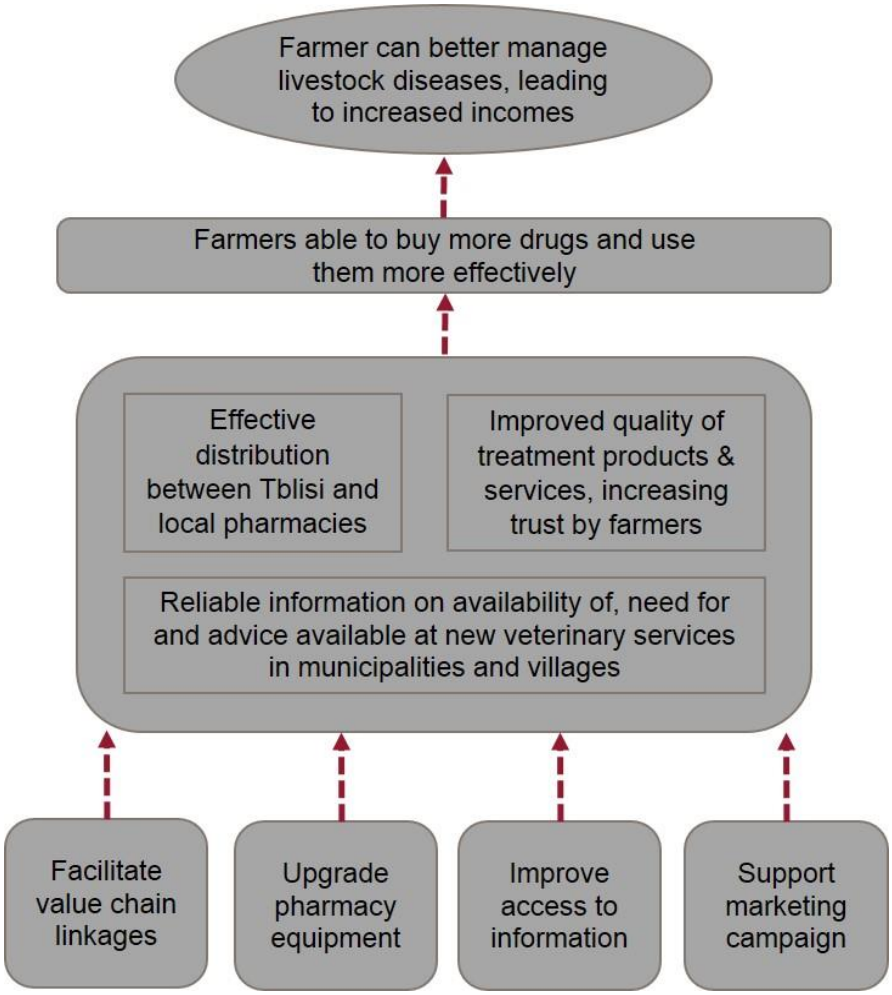
During their initial assessments, Alliances discovered that less than 10 per cent of livestock farmers were accessing veterinary drugs or services in rural 'vet pharmacies' in their communities. These local vet pharmacies were generally just a small room with a few patent medicines, often improperly stored and sold at high prices, and minimal, unavailable or out-of-date information. The poor quality and poor value for money being offered to farmers led to a lack of trust in local veterinary services, and in vets and veterinary provision in general.

Alliances' vision was for farmers to have access to well-equipped local pharmacies with trained personnel and advice, offering well-priced, modern and well-stored drugs. They aimed to do this by supporting and incentivising drug manufacturers (based in Tbilisi) to invest in improved distribution systems, including providing training for pharmacists (on common livestock diseases), local veterinarians and farmers. The resulting improvement in access and service quality would improve farmers' productivity, increase sales for drug manufacturers, and enable them to self-finance further growth and expansion of their distribution network.

To this end, in 2012 Alliances partnered with Roki, Georgia's leading veterinary products distributor and a subsidiary of Agro Development Group, which had been operating in Georgia since the early 1990s. Roki was already providing some limited training for vets, pharmacists and farmers, and understood the importance of improved management of its distribution systems, customer relations and pharmacist capacity for its future development.

[12] Information in this section comes from the following websites, supplemented by unpublished case study material: http://alcp.ge/; https://beamexchange.org/practice/snapshots/supply-chains-georgia/; www.eda.admin.ch/content/dam/countries/countries-content/georgia/en/resource_en_225353.pdf.

Figure 4.1 Alliances' theory of change



Source: Authors' own, based on case study information.

4.1.2 Constraints

The project identified the following factors and underlying constraints preventing the existing market system from delivering improved veterinary treatments.

Demand: There was a lack of trust by farmers, who rarely used the few products and services that were available.

Supply: Supplies of local veterinary products were unreliable, poor quality and expensive. The offer of veterinary services was also weak.

Underlying constraints

a. **Lack of a rural distribution system:** A rural distribution system for veterinary drugs to remote rural locations had not naturally developed. Pharmacists had to travel to the capital city, Tbilisi, generally making *ad hoc* trips, to buy supplies, and often had to close their shop while they were away. This meant that supplies were irregular and unreliable, and the cost of drugs was high.

b. **Lack of information:** Manufacturers in the capital failed to realise there was a potential market for their drugs in rural areas, with farmers able to pay, due to a lack of market information. Being unsure of the demand, they regarded investment in

distribution as too risky. Farmers also lacked awareness of animal husbandry, vaccination campaigns and common diseases.

c. **Lack of access to capital:** There was also a lack of access to capital for manufacturers to invest in distribution.

d. **Lack of essential equipment:** Rural pharmacists lacked equipment for veterinary services (shelves, fridges) and customer management (computers). This increased the cost and reduced the quality of services.

e. **Lack of skills:** Rural pharmacists lacked sufficient knowledge of animal disease control or use of drugs, and there was a lack of trained veterinarians in the region.

4.1.3 Interventions

Through the partnership with Roki, Alliances supported the development of a new weekly distribution model for key veterinary drugs. It also facilitated access to supporting infrastructure (equipment), information and marketing services. These interventions are described below.

Facilitating value chain linkages

- Alliances used its own market research to demonstrate a market for vet treatments among farmers in rural regions. Roki backed this up with its own market analysis, which confirmed that there was a large market.
- Roki invested in new weekly veterinary drug distribution to rural areas, by delivering to and supporting promising pharmacies and providing them with start-up drugs at wholesale rates.

Upgrading pharmacy equipment

- Alliances provided co-investment to equip vet pharmacies (with shelves, fridges and computers), improving their storage capacity and the quality of their supplies and providing capacity for a customer database.

Improving access to information

- Alliances and Roki supported high-potential pharmacies with an expanded programme of training, which covered not just disease and drug treatment but broader animal husbandry and management (e.g. nutrition and breeding), and a manual for veterinary services.
- Training sessions were extended to farmers, which helped extend the market for the drugs.
- Roki also offered access to its veterinary hotline service for vets and pharmacists.

Supporting marketing

- Alliances and Roki have supported promising pharmacies with advertising for vet products through the dissemination of brochures and flyers, and the creation of advertising banners for the pharmacies.

4.1.4 Results

Changes in market systems

For the first time, Roki has a distribution system outside Tbilisi. With support from Alliances, Roki has facilitated 44 pharmacies within the regions where the programme is operating, and has also expanded the model to other areas of Georgia, reaching a further 284 vet pharmacies. These pharmacies now know their customers and customer needs better, and

in many cases, trust has improved. For its part, Roki now has improved knowledge on the pharmacies it works with and more trust with pharmacists. However, scale-up beyond the initial programme areas has been slow, partly due to limited access to credit that would fund the expansion. As a result, Roki is focusing expansion on wholesale distribution to pharmacies, serving farmers based in towns rather than villages.

However, there are also signs of wider changes in the market. Roki's main competitor is starting to replicate the business model by importing identical medicines, creating a distribution chain and offering training to pharmacies. Eleven other vet pharmacies have also copied the model. In addition, Roki is starting to engage more actively with the government in areas that would support expanded distribution – for example, by seeking to have its training sessions accredited.

Table 4.1 Product characteristics addressed to improve access

	Outcomes
Affordability	The cost of veterinary services has been reduced by reducing transaction costs.
Acceptability	Farmers have greater information about veterinary services and, importantly, more confidence and trust in the services available.
Availability (geographic)	The intervention helped to create a rural distribution model that has created a more consistent and reliable supply of veterinary drugs within farming communities. Some new vet pharmacies have also opened.
Appropriateness (quality)	Local vet pharmacies now usually have a veterinarian on call to advise farmers and/or the pharmacists, as well as access to Roki's manual with information on how to use the drugs and basic information on animal husbandry. Improvements in drug quality (due to improved storage) were also reported; however, no specific data on changes in drug quality are available.

Use of improved veterinary services

The direct interventions have led to increased access to veterinary services for over 70,000 farmers, and when considering the expansion of the model outside the intervention areas, this number climbs to 250,000. While previously, treatment tended to be accessed only by more active farmers, who bought the veterinary drugs they thought they needed during trips to the capital, more 'passive' farmers (who previously only used veterinary treatments in extreme cases) are regularly accessing the service. Regular vaccination has increased by 15 per cent and treatment against external parasites has increased by 11 per cent. There have also been positive improvements for farmers in terms of the health and productivity of their cattle. For instance, internal parasite-related conditions have decreased by 11–14 per cent; postnatal diseases have reduced by 5–7 per cent; and milking and live weight has increased by 5–15 per cent.

4.2 Case study 2: Energy for All in Timor Leste[13]

4.2.1 Introduction

Energy for All (E4A) was a market development programme funded over three years (2011–14) by the European Commission. The programme sought to increase both availability of and demand for (acceptability of) improved energy solutions in rural and peri-urban Timor Leste. In these regions, access to electricity is low and most poor households rely on kerosene for lighting and open fires for cooking, both of which are unhealthy and can be dangerous.

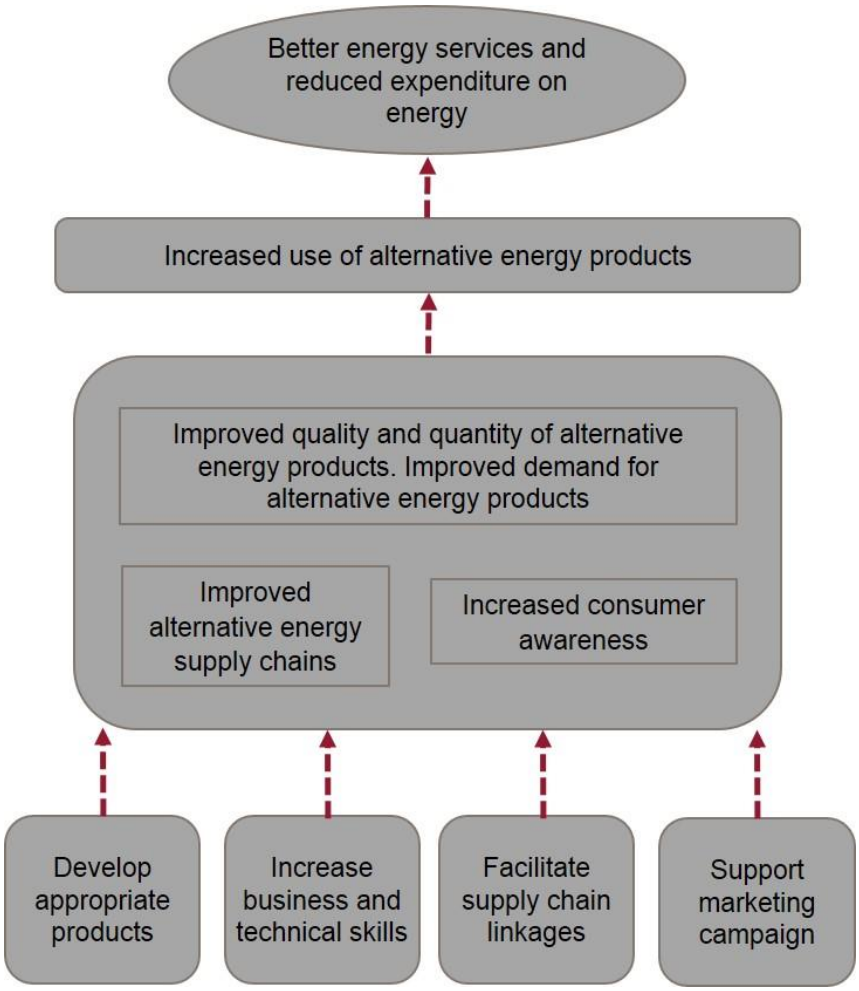
[13] All information in this section comes from the following sources:
www.wisions.net/files/uploads/SEPS_Summary_SF005_Timor_Leste__Solar_PV.pdf;
www.mercycorps.org/sites/default/files/MercyCorps_TimorLeste_E4AllCaseStudy_2015Final.pdf;
www.mercycorps.org.uk/sites/default/files/mercy_corps_e4a_baseline_assessment_report.pdf.

Despite the existence of low-cost, improved alternatives, many of the poorest households were also paying a high price for kerosene.

The programme aimed to: 'improve energy services, as well as reduce the household cost of energy (financial and social)'. It sought to 'strengthen and support an alternative energy market by facilitating: (1) improvements in the supply chain, (2) increased customer awareness, and (3) improved availability of financial products' (Proud and Nicholson n.d.: 8). It focused on two technologies: solar appliances and clean cookstoves.

While the outcomes of this programme have been hampered by low levels of trust along the value chain, and insufficient investment by lead companies, the case study outlines the underlying constraints and interventions that were trialled in relation to access to energy. It highlights the need for ongoing monitoring and adaptive management that responds to the evolving market system, such as the change in start-up support for an initial solar product inventory described in the interventions section.

Figure 4.2 Energy for All theory of change



Source: Adapted from Proud and Nicholson (n.d.).

4.2.2 Constraints

The programme identified the following factors and underlying constraints preventing the existing market system from delivering improved energy services.

Demand: Demand for improved energy products was low; 65 per cent of the population did not even know what solar energy was. In addition, purchasing improved energy products required a substantial one-off expenditure.

Supply: Solar energy products were low quality, largely inappropriate for rural areas, and only available in the capital, Dili. Access to improved cookstoves was also limited.

Underlying constraints

a. **Information:** There was a lack of awareness about alternative energy products on the part of consumers and businesses alike. There was generally a lack of market information and industry know-how. None of the businesses in Timor Leste had heard of the new brands of household solar products or about fuel-efficient clean cookstoves.
b. **Social norms:** There was a cultural reluctance (by retailers) to use proactive sales techniques.
c. **Weak value chain linkages:** Businesses supplying energy products in the capital had almost no connection to small business in other parts of the country. While there were some retailers, their business skills were low.
d. **Infrastructure:** Transportation costs were high, road infrastructure poor, and communities geographically dispersed.
e. **Market distortion:** There was some free distribution of solar energy systems by the government, based on political affiliation. However, those that received products did not know who the supplier was or how to access follow-up services, so products needing repairs were discarded.

4.2.3 Interventions

The interventions to address these constraints comprised four components: improving alternative energy supply chains by developing appropriate technology products; increasing business and technical capacity; facilitating supply chain linkages; and various measures to improve customer awareness.

Developing appropriate technology products

- Mercy Corps conducted research to identify consumer demands for solar energy products, considering durability, usability, affordability and customer satisfaction. This led to the selection of models designed by two international suppliers: d.light Design and Barefoot Power. These brands had a one-year warranty, which could build credibility through the supply chain.
- Two ‘lead firms’ (Startec Enterprises and Loja Lidwi) were selected to act as importers and distributors of solar energy products, and trust and relationships were created between these international suppliers and the lead firms.
- In partnership with Aprovecho Research Center (ARC) and Dili Institute of Technology, Mercy Corps invested in innovating the cookstove design, leading to a hybrid stove that was affordable, high quality, and efficient.
- Startec Enterprises was selected as the importer and distributor of cookstove components, which would be assembled by local micro-manufacturers.

Increasing business and technical capacity

- Rural micro-businesses were selected to act as ‘alternative energy centres’ selling solar products, and receiving training on how to use the products, as well as financial and management training.

- Mercy Corps provided co-financing for an initial solar product inventory, reducing risk for the energy centres in an area where there was no proven demand. The cost of the initial stock was covered in full by Mercy Corps, which was later recognised as a mistake, since retail businesses' willingness to invest is the most reliable indicator of their commitment. This learning led to a modification by Mercy Corps in which start-up support was limited to matched financing.
- d.light Design and Barefoot Power funded and provided initial training for Startec Enterprises and Loja Lidwi, as well as the energy centres, related to solar products and to marketing.
- Stove production training-of-trainers was provided to staff at Startec, who in turn delivered training to micro-enterprise cookstove producers/retailers, who also received training in business and financial management.

Facilitating value chain linkages

- Mercy Corps was reported to have facilitated strong relationships between the energy centres, cookstove micro-enterprises, and lead companies to establish trust throughout the supply chain.
- An energy centre business association was also created, which met regularly with the two lead companies to discuss products and sales strategy.

Improving customer awareness

- All businesses were trained in marketing and sales techniques. Peer-to-peer learning between the energy centres was also encouraged.
- Mercy Corps developed and funded several strategic (one-off) large-scale marketing campaigns to increase awareness and stimulate demand, while generating materials to support the marketing efforts of private sector actors.
- Fifty-nine solar energy systems were installed in public buildings to further raise awareness.

4.2.4 Results

Changes in the market system

According to Mercy Corps, by 2014, 26 alternative energy centres were operational, of which 25 had reinvested capital to make more purchases. The lead companies in the supply chain also imported three shipments of solar products, indicating 'some degree of sustainability'. Similarly, 17 of the 18 cookstove manufacturers that purchased initial stock had reinvested capital and purchased more parts from Startec Enterprises to continue production. By the end of the programme, these 17 cookstove manufacturers were still active, and the lead firm in Dili had reinvested capital and imported multiple shipments of products. Five of the energy centres were repeatedly purchasing cookstoves to sell in their towns.

On marketing, the Timor Leste government recognised that using cookstoves is in the interest of all citizens, and allocated a budget to continue releasing the television adverts after the end of the programme. However, there has been insufficient investment in marketing activities by the businesses in the value chain. While all businesses have been trained in marketing and sales techniques, many fail to practise them.

Poor access to information and poor communication has also affected trust along the value chain. When solar retailers and cookstove manufacturers were unable to purchase stock from lead firms, who ran short of supply, they became suspicious of their motives. In addition, the lead firms did not perform all the functions expected of them – identifying and selecting new retailers; providing informal business mentoring and technical training;

providing marketing and promotional materials; transporting stock; and providing credit. As the revenue and profits from these product lines were small relative to other elements of their business, it created an insufficient incentive for them to invest the time needed. One lesson is that in terms of rural businesses, those that were most active and motivated were often the smallest. In the solar market, there has been very little 'crowding in' of new businesses (beyond those identified by Mercy Corps) – meaning systemic change has not been achieved.

Table 4.2 Product characteristics addressed to improve access

	Outcomes
Affordability	For solar, the warranty helped build trust in product quality. 43% of purchasers said they were aware there was a warranty on solar products and would use it if the product stopped working. Startec Enterprises reportedly has strong trust that the international supplier (d.light) would refund faulty products. Based on Startec's good track record of replacing products, rural businesses are confident that Startec will replace or repair products. For cookstoves, a high-quality design was developed. But in its final form, it is indistinguishable from stoves with locally made combustion chambers, which lack durability. This threatens to undermine trust in the improved cookstoves.
Acceptability	The programme substantially increased awareness of solar panels within the community – 57% of people had heard of the product. Consumer awareness of cookstoves is also reported to be high as a result of the TV adverts.
Availability (geographic)	Rural micro-businesses were selected as 'alternative energy centres' for retailing, increasing product availability. Relationships were facilitated between the cookstove producers and energy centres, and between the energy centres, cookstove micro-enterprises, and lead firms. But the cookstove market did not spread to rural areas, as the stoves are too large and heavy to be transported on motorbikes.
Appropriateness (quality)	Innovation in the cookstove design led to a hybrid stove that was affordable, high quality, and efficient.

Use of improved energy products

By 2014, more than 10,000 alternative energy products had been sold or provided. Further, an estimated 36,000 households had access to alternative energy products. Of the households that purchased solar products, 70 per cent no longer use any kerosene, and they have also nearly doubled the number of hours of access to light. Households that purchased a clean cookstove reduced firewood expenditure by 50 per cent and reduced firewood collection time by 38 per cent.

However, sales of solar products began stagnating from February 2014 onwards, linked to stock shortages. In addition, while sales of cookstoves worked well in urban settings, they did not spread to rural areas due to high transportation costs.

4.3 Case study 3: Access to fertilisers in Nigeria[14]

4.3.1 Introduction

The boom in demand for agricultural produce in Nigeria, driven by an expanding population and a growing middle class, has led to food imports increasing by an average of 11 per cent a year. Domestically, Nigeria's agricultural productivity has paled in contrast to Africa's top performers and as a result, local farmers have failed to benefit from the increased demand.

[14] All information in this section comes from the following reports: Banful, Nkonya and Oboh (2010); Federal Ministry of Agriculture and Rural Development (2002); Propcom (2015).

Improving productivity through improved inputs such as fertiliser could have a transformative impact on the lives of smallholders. Studies conducted by the Nigerian government found that those farmers who do use fertilisers and apply them correctly have been able to improve their yields and make additional profits (Federal Ministry of Agriculture and Rural Development 2002).

Propcom, a DFID-funded programme, worked with Notore Chemical Industries (Nigeria's only domestic fertiliser producer) to increase market access to fertilisers for low-income, remote smallholder farmers. Through the programme, Notore began to better target their products to poor farmers by increasing availability, improving understanding of the product and creating small 'trial' size packs, which reduced the risk for farmers to invest in the fertiliser. Two key interventions supporting this approach required increasing consumer education as well as investment in a 'last kilometre' sales and distribution network.

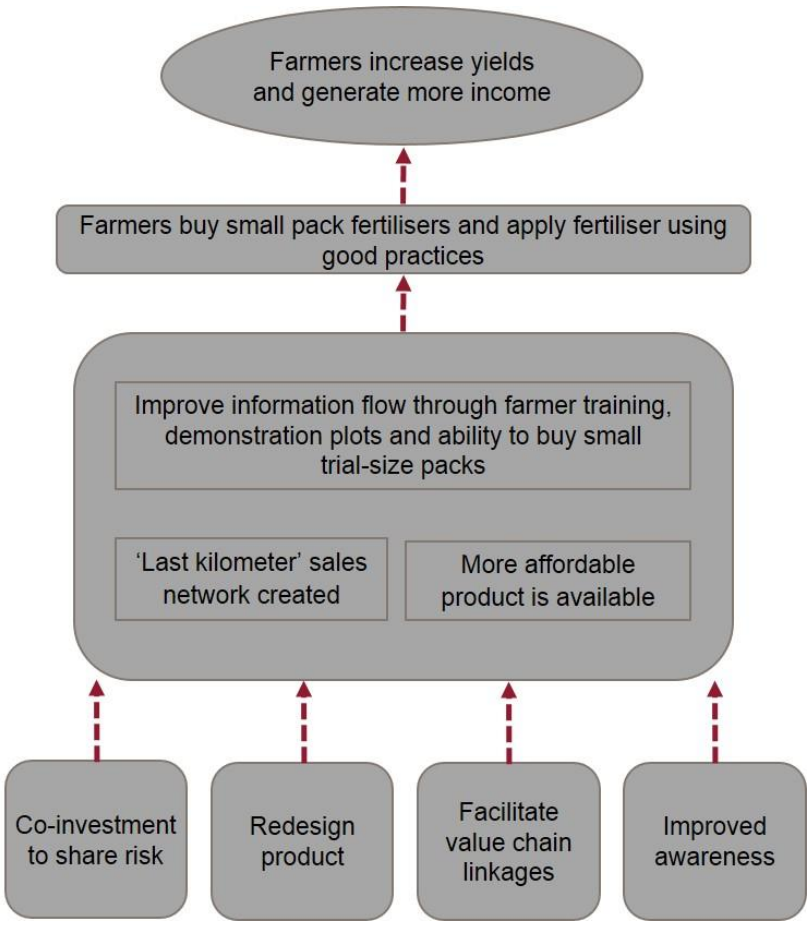
4.3.2 Constraints

The programme identified the following factors and underlying constraints preventing the existing market system from delivering high-quality fertilisers to rural Nigerian farmers.

Demand: Many farmers recognised the potential of fertilisers, but demand was low.

Supply: Suppliers did not know what pack sizes smallholders might prefer, with high-quality fertilisers being sold only in 50kg packets, which were either unaffordable for farmers or too big a risk with an unknown product. In some cases, the large bags were of poor quality, or were inappropriate for farmers' particular soil or crop type.

Figure 4.3 Propcom theory of change



Source: Authors' own, based on case study information.

Underlying constraints

a. **Lack of information:** Lack of information and knowledge about fertilisers, their impact on agriculture, and the right blends, techniques, timing and quantities to apply was a widespread problem. Many farmers were understandably not keen to spend money on a product they did not understand. In addition, quality was often poor. Fertiliser came in a large pack size (50kg), and local distributors would sell portions by the '*mudu*', a local measurement of about 2.5kg. However, once a large sack of fertiliser is open, farmers do not know that its contents have not been tampered with or attenuated. Open sacks of fertiliser also lose nutrients through evaporation and, as a result, decline in quality, with negative effects on expected yields.
b. **Lack of resources and capacity of extension services:** While government extension agents were responsible for teaching farmers about fertiliser, their availability and capacity was low. Local fertiliser traders (which in some countries provide product information) either did not exist or lacked knowledge.
c. **Market distortion:** Until 2011, the government had brought and distributed large volumes of fertiliser through a subsidised scheme. However, this rarely benefited smallholder farmers, since much of the subsidised fertiliser was hindered by delays (arriving after the planting season) or arrived damaged and attenuated. Corruption, inflated purchasing prices and phantom orders were also a common occurrence.
d. **Weak value chain linkages:** Potential linkages between fertiliser suppliers (importers and manufacturers) and smallholders were undermined by the government scheme. Suppliers preferred to sell directly to the government, since contracts were more stable and secure than selling to smallholders, more profitable, and were carried out in bulk. Even where suppliers were selling on the open market, they preferred to sell to bigger buyers, including large farms, exporters and overseas buyers.
e. **Informal norms:** Suppliers assumed that 'peasant farmers' could not afford fertiliser, especially if it was not subsidised. This was due to lack of good market information, but also assumptions and biases.

4.3.3 Interventions

Notore knew that it would not be able to create a product that could compete with subsidised fertiliser based on price alone. However, research by Propcom showed that many farmers cared more about a fertiliser's effects on yields and crop quality than its price per kilogram. Farmers were also more likely to buy fertiliser if they could access it at planting time and if the transactions costs (travel to buy fertiliser) could be minimised. Propcom co-invested with Notore to share the risk of investing in developing a new business model and 'last kilometre' distribution network, which took these factors into account.

Redesigning the product

- With input from Farm Input Promotions Africa (FIPS), Notore created 50,000 low-cost, trial-size (1kg) packs for two of its fertilisers. In some cases, this small pack size was needed to make the product affordable, but in many cases it was designed to give farmers the chance to trial a product that they could later buy in bulk.

Facilitating value chain linkages by creating a distribution network

- FIPS advised Notore on a new 'last kilometre' sales and distribution network, based on a successful network the organisation had already created in Kenya.
- 'Village promoters' were recruited and trained by Notore to act as sales persons for Notore products. They were paid by commission and received no basic salary.

- To further incentivise the village promoters, Notore later raised the sales margin, and offered prizes for those who sold high quantities of the small packs.

Improving awareness and education about how best to use fertilisers

- Village promoters provide information and training to potential clients on how best to use the fertiliser. Propcom paid for the first group of promoters to be trained to conduct demonstrations, and to develop demonstration plots of products grown with and without fertiliser.
- Propcom encouraged Notore to keep pushing this programme of training by rewarding the company based on the percentage of farmers that bought the small packs and also applied two or more good agricultural practices taught by the village promoters. Notore marketing managers held their field staff accountable for meeting training targets and ensuring that village promoters were providing adequate farmer training.

Marketing

- Both the distribution network of village promoters and the small pack sizes had an important marketing element. Farmers cited product demonstrations and the small trial packs as the main factors for buying the product. The small packs built trust in Notore's products and often led to sales of the 50kg bags.
- Village promoters built stronger relationships with customers by making fertiliser and advice regularly available (which other fertiliser schemes do not do).
- Propcom co-funded research into improving the efficiency of rural marketing. One innovation was to show videos of good practices, arranged in village halls, schools and other community buildings – which are proving to be very popular.

4.3.4 Results

Changes in the market system

In 2012, Notore village promoters together sold 5,049 tonnes of fertiliser in small packs, to an estimated 1.7 million farmers, and farmers are returning to place even larger orders. Notore has also stimulated the creation of 3,920 enterprises run by village promoters – many of whom set up shops once their business grows. Notore is now exploring using this distribution network to enter other businesses such as seeds, or buying and marketing produce.

By the end of 2013, Notore no longer needed any technical or financial assistance to continue with the programme as it had become self-sustaining. The company oversees its own rural marketing strategy, and invests in improvements. However, 2013 proved a difficult year for the company, with unforeseen shocks having a negative impact on the business, and stock shortages due to problems with production capacity and delayed imports. These problems were compounded by the government's revised fertiliser scheme, which tied up most of Notore's available fertiliser (sold by Notore distributors to the government). Sales were also lost due to competition from the subsidised fertiliser. However, the company was planning to revitalise its rural distribution channels in 2014.

Notore's competitors are also starting to enter the field, which should increase the benefit to farmers. Other companies such as Springfield Agro are emulating Notore's example, selling seeds, fertiliser and other farming products.

Table 4.3 Product characteristics addressed to improve access

	Outcomes
Affordability	Notore has been able to make fertiliser more affordable for low-income farmers by investing in smaller package sizes. As well as allowing farmers to trial the fertiliser, smaller pack sizes accommodate farmers who cannot afford a 50kg bag (even when subsidised), and farmers who only need small quantities. For example, women often cultivate smaller plots.
Acceptability	More Notore customers cite training from village promoters as the main reason for their first purchase than any other factor. Among 2,977 farmers surveyed in 2012, those who adopted two or more of the good practices demonstrated bought 42 per cent more Notore small pack fertiliser than those who did not.
Availability (geographic)	For the many farmers who have limited transport options, the geographical proximity of the product is crucial. Investment in the distribution network reduces transaction costs for these farmers to acquire fertilisers. The village promoters also make advice regularly available when the government extension agents often lack capacity to do so.
Appropriateness (quality)	The quality of Notore's brands is perceived to be superior to alternatives, such as the government-subsidised fertilisers. In a 2013 survey, 83 of Notore customers said they would still buy Notore even if they had access to subsidised fertiliser; 70% of loyal customers cited product quality as the reason.

Use of higher-quality fertilisers

An analysis carried out by Propcom in 2012 found that roughly 619,000 Nigerian farmers had purchased Notore fertiliser and had also adopted at least two good practices from Notore's educational campaigns. On average, farmers experience an increase in yields of 20–30 per cent. Compared with farmers who did not use fertiliser, Notore users increased their yields by 53 per cent and their productivity by 31 per cent. After deducting the cost of fertiliser, Notore small pack users collectively earned ₦319m (£1.3m) in additional income.

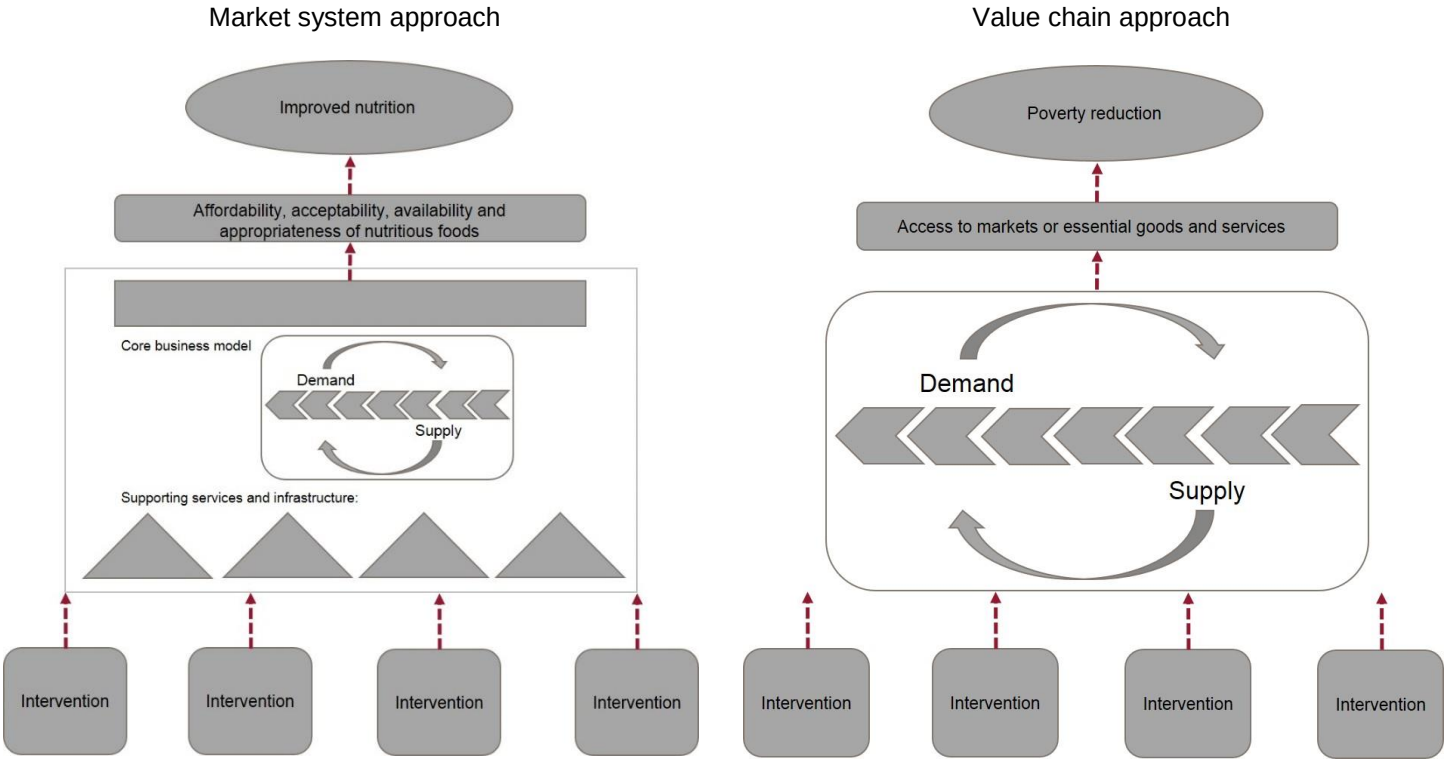
5 The market systems approach – lessons for nutrition

The preceding analysis of three cases in the energy, input and veterinary health sectors is not intended to be directly applied in the nutrition sector. Market-based approaches and interventions that may succeed in one field will not automatically be replicable in another; context matters, both between and within sectors. However, the case examples have been selected because of similarities in the basic underlying challenge – i.e. how to make a high-quality and essential product or service available to poor households with limited purchasing power and limited access to product information, and which are geographically distant or dispersed, and how to do so in a sustainable manner. They provide important general lessons on using a theory of change, on the analysis of constraints, and on the types of innovations that might address these constraints.

5.1 Theory of change

The market systems approach introduces a systemic perspective into the theory of change, and so emphasises the whole market system, rather than a narrower interpretation of the value chain. Not only are the value chain actors important, but also the supporting services, public goods and institutions that make up the wider market system. The way the market system functions can be changed by interventions that affect the behaviours and capabilities of the various actors, objects and processes that together co-produce the market system. Therefore, it is at the level of the market system that constraints are diagnosed and interventions are applied. Figure 5.1 contrasts how the relationship between intervention and impact are understood in a market system and a more traditional value chain approach.

Figure 5.1 Value chain versus market system theory of change



Source: Author's own, based on DFID (2008).

5.2 Diagnosis and intervention design

Moving from the theory of change to diagnosis of market constraints and design of interventions requires an understanding of the market system – the value chain (or potential value chain if the product is not yet available), the institutional environment and the supporting functions, infrastructure and public goods on which the value chain does or would rely. What are the underlying constraints that prevent the system from delivering the desired outcomes?

Table 5.1 maps the underlying constraints and interventions found in the case studies against the four product characteristics of affordability, acceptability, availability and appropriateness. It is not intended to be exhaustive or to identify all potential constraints that may be relevant for nutrition – these will always be driven by context. Important constraints that did not surface from the cases will be missing. Nor are all of the constraints included necessarily applicable to nutrition. For example, a high one-off upfront cost is a significant issue for a major household purchase like solar panels or cookstoves, but less relevant to nutrition. Nevertheless, many of the issues identified here – including low incomes, being risk averse, low product awareness, (lack of) quality or suitability of products for intended market, difficulty in distinguishing between high- and low-quality products, high start-up costs and risks for investing firms, high transaction costs, low levels of trust, incorrect product usage, and last-mile distribution challenges – are also found in nutrition (Robinson *et al*. 2014a, 2014b; Maestre *et al*. 2014; Temu *et al*. 2014; Humphrey *et al.* 2015). This mapping can therefore shed light on how an understanding of constraints might be translated into innovations and interventions.

Table 5.1 Underlying constraints and market system innovations relevant to nutrition

	Constraints	Underlying constraints	Innovations in the market system
AFFORDABILITY	Low incomes	High production costs due to operational inefficiencies	Process redesign, e.g. through use of information and communications technology (ICT)
		High procurement or transportation costs (e.g. due to a weakly organised value chain and lack of infrastructure)	Facilitation of better value chain linkages and trust between actors
		High transaction costs due to poorly organised value chain	
	Cash flow	High one-off upfront costs for products	Product redesign (e.g. smaller packs) or access to finance
	Willingness to pay	Lack of trust in product or product availability, being risk averse or having low perception of value, especially based on bad past experiences	Quality improvements in design, storage, transport. Brand differentiation from low-quality alternatives, including low prices for trialling improved product. Offering warranty as a means of signalling.
		Market distortions – free or subsidised products[15] are available (for some), affecting willingness to pay or product trust, where subsidised products are inferior	Engage relevant actors regarding distortions. Brand differentiation

(cont'd).

[15] This does not suggest that the provision of free or subsidised products or services is necessarily inappropriate. However, it is problematic when it is unsustainable, or when it cannot reach the entire target population.

Table 5.1 (cont'd)

	Constraints	Underlying constraints	Innovations in the market system
ACCEPTABILITY	Norms/social acceptability	Product not adapted to needs of poor or rural households	Product R&D or redesign
		Lack of capital or skills to invest in product research and development (R&D)	Training or co-investment
		Weak marketing capacity in supply chain due to lack of skills or capital to invest, or cultural norms (e.g. reluctance to use sales techniques)	Marketing support through training, supply of materials or co-investment
	Awareness of product	Customers lack awareness of the product, its benefits or how these fits their needs	Marketing, training and awareness raising
		Weak marketing capacity due to lack of skills or capital to invest (e.g. in labelling or brand), or cultural norms (e.g. reluctance to use sales techniques)	Marketing support through training, supply of materials or co-investment
AVAILABILITY	Lack of availability of appropriate product	Lack of product information in the industry, e.g. about clean cookstoves	Provision of product information and/or market research to demonstrate demand and ability to pay
		Lack of awareness of potential market (both willingness and ability to pay) – so industry does not provide	
		High start-up costs and investment risk (real or perceived) for companies in making product available, especially where demand is uncertain	Co-financing to share initial investment risk
	Last-mile distribution	Businesses manufacturing or importing products lack linkages to small or informal distributors and retailers, especially in rural areas. High transaction costs act as a disincentive	Facilitation of better value chain linkages
		Lack of local retail or sales network or other intermediaries	Sales network of local businesses or entrepreneurs developed
		Lack of capital to invest in distribution	Co-investment
APPROPRIATENESS	Low product quality	Product quality undermined by adulteration of product sold in bulk	Product packaged in smaller quantities
		Lack of access to essential equipment to ensure quality (e.g. refrigeration)	Development of equipment supply chain or direct (one-off) equipment provision
		Lack of skills and training of producers	System actors provide ongoing training, or direct (one-off) training support
	Incorrect product use	Customers (e.g. farmers, mothers) do not know how to use product correctly due to lack of skills, training or information provided to users	System actors provide ongoing training (e.g. retailers). Stronger relationship between users and suppliers, who can provide product demonstration and follow-up support
		Existing training, outreach or extension services lack resources or capacity (e.g. government extension)	
		Weak supply chain linkages – customer does not know who the supplier was and/or how to access follow-up services or information	

5.3 Changing the awareness, incentives and capabilities of system actors

Most of the innovations in Table 5.1 have been trialled in other contexts by those seeking to reach the base of the pyramid. They are not 'new'. However, the key point is that the actions and investments in response to (multiple) constraints raise the cost of production so that products become too expensive, or the firm's business model becomes unviable. As Robinson *et al*. (2014a) conclude for nutrition, firms alone will not be able to provide nutrient-dense foods at a price that poor people can afford. They are often not best placed to act, where activities are either beyond their commercial interests or core competencies (Koh *et al*. 2014).

However, there are other actors in the market system that may have the incentives and capacities to act. This means mapping the different actors that are relevant to the market system, and understanding their capacities and interests, as well as their importance to the final objectives. This then provides a guide to understand who is best placed to act on specific constraints, and how they may be influenced.

For example, other actors involved in the three case studies included the following:

- **Small-scale distributors or retailers:** Networks of local sales agents were an integral part of all three cases. In Timor Leste, rural micro-businesses act as 'alternative energy centres', and strong linkages were facilitated between these energy centres and cookstove producers and lead firms. In Georgia, vet pharmacies are core to the new distribution system, improving product availability, quality and information. In Nigeria, new 'village promoters' were incentivised to provide training and demonstrations to farmers and act as sales agents. Some of these developed into local retail shops.
- **Business associations:** An energy centre business association was created in Timor Leste to facilitate engagement between micro-businesses and lead firms (e.g. to discuss products and sales strategy). Peer-to-peer learning via quarterly meetings of all energy businesses is also part of the model.
- **Professionals relevant to the market system:** Innovation in cookstoves design in Timor Leste was undertaken in partnership with the Dili Institute of Technology, while in Georgia, veterinarians are part of the system providing technical advice to farmers and pharmacists.
- **Civil society:** Often, civil society groups, including grass-roots organisations, have competencies that are lacking in the private sector. This includes linkages to and understanding of local enterprises and communities. In Nigeria, FIPS had a model for last-kilometre distribution and the use of small pack sizes for product trials that responded to the needs of poor rural farmers, with whom Notore lacked experience.
- **Government**: In Timor Leste, solar energy systems were installed in 59 public buildings as a means of raising goodwill, and awareness and acceptance of the technology, complementing marketing efforts. The government also recognised that using cookstoves was in the interest of all citizens, and allocated a budget to fund the television marketing campaign on a more ongoing basis.

Finally, all three case studies involved an important degree of donor support, through an implementing agency that acted to facilitate changes in the market system. These included, for example, better value chain linkages and trust between actors, organising informal actors to reduce transaction costs, overcoming information gaps, providing some financial support (such as co-financing of initial investments where high risks were acting as a disincentive), and providing some support on training and marketing. This is consistent with the observation of Koh *et al*. (2014) – that industry facilitators are often needed in light of the company-level limitations in addressing barriers to scale. They suggest that in addition to

donor agencies, facilitators may include foundations, mission-driven intermediaries, multilateral development agencies, state agencies, industry associations or even some investors.

5.4 Final considerations and limitations[16]

This section concludes with some final considerations regarding the market systems approach, and its implications for nutrition. First, what comes out very strongly from the three examples is the importance of starting with an analysis of the potential market demand and ability to pay, before moving to address product and value chain design. In addition, in all three cases, considerable effort was invested by the lead firm, the donor/facilitator and value chain partners in marketing, training and awareness raising, through large-scale marketing campaigns as well as local-level product demonstrations, training support and sales networks. This reflects the fact that products being sold were either 'push products', for which there was limited household awareness or recognition of their value, and/or had a poor existing reputation in terms of reliability or quality, which had to be overcome.

These observations resonate with the finding of Humphrey and Robinson (2015), that achieving nutritional outcomes is best served starting with nutritional priorities and working backwards, rather than starting with agricultural value chains. It also flags both the importance of understanding demand and the need to take into account that considerable resources will be needed for awareness raising and behavioural change. These need not always be large-scale marketing campaigns by a lead firm, but they need to be built into the model. Consideration may also be given to the ethics of marketing and risk of unfair marketing practices – a particular concern where sales agents are paid on commission. While these approaches may be justified, provided the product that is being marketed is beneficial, they nevertheless raise ethical concerns, especially where differences in power and education could be manipulated.

Second, it is important to highlight that the core objective of the market systems approach is not only creating a market system that successfully delivers an essential product or service to a target population, but rather to do so in a way that creates lasting incentives for actors, such that the market system is resilient, sustainable and has large-scale reach. None of the case studies explored can yet be considered a success in this sense, although in Nigeria (fertilisers) and Georgia (veterinary treatments) other companies were starting to 'crowd in' to the market and replicate the innovations, which could bring the benefits to a wider population. However, achieving sustainable and large-scale change is likely to take considerable time and investment.

These interventions take time partly because they rarely progress in a linear manner, and therefore require adaptive management – for example, if the responses of actors in the system produce unanticipated effects, or where wrong assumptions about actors' motivations mean they will not perform as intended. In the case of fertilisers in Nigeria, the village promoters were offered financial incentives to organise on-farm demonstrations, as this was judged to be important for farmer training, yet was an activity that village promoters would be unfamiliar with and would need to be incentivised to perform. However, after disappointing sales in the first year – reaching only 9 per cent of target – it was identified that many village promoters were spending more time on demonstrations than on market promotion, possibly due to these financial incentives. Future iterations of the programme were careful not to provide rewards based on the number of demonstrations, but rather based on sales.

[16] The limitations described here focus on the limits of the market systems approach to deliver nutritious foods to poor households. However, there are a number of broader critiques of private sector activity in relation to nutrition. These criticisms focus on the type of food products private companies are promoting, which may be detrimental to health and nutrition, or the importance for nutrition of a high-quality diet, rather than an increase in one nutritional food. These critiques are valid. In both cases, there is a crucial role for governments as both regulators and service providers. However, the aim of the paper overall is to explore the market systems approach as one tool among many.

Two areas which the case studies do not sufficiently illuminate and which require further consideration are the issues of credence goods and signalling, and the problem of rural distribution. Nutritious foods are credence goods, and the question of how the quality of such goods can be signalled in a market system was not directly addressed in the three case examples. In principle, adequate regulation is the best way to achieve consumer confidence that a product will deliver the benefits it promises. Yet, the studies in three African countries already mentioned (Anim-Somuah *et al*. 2013a; Nwuneli *et al*. 2014; Maestre *et al*. 2014;) have identified weak regulatory capacity, in an often informal and diffuse food sector, as a key challenge. Private certification schemes are offered as an alternative, but again run up against similar challenges of enforceability across a diffuse food sector, or require involving only a few larger brands in a more centralised manner, undermining affordability and availability for poor households. Branding and building brand trust is a third alternative, and this is covered by the cases to some degree.

In addition, although there were significant efforts in all three cases to promote better rural distribution, getting essential products to poor households in extremely remote areas remained problematic. In Timor Leste, for example, while sales of cookstoves worked well in urban settings, they did not spread to rural areas due to high transportation costs. Similarly, in Georgia, limited investment funds have negatively affected the scale-up of the initiative, and as a result the company has chosen to focus on wholesale distribution to pharmacies serving farmers based in towns rather than villages. Product distribution to remote rural regions in a cost-effective manner remains a challenge.

More broadly, there are disagreements around the ability of market systems approaches to adequately reach extremely marginalised populations or the 'poorest of the poor' (see, for example, Blaser (2014), which reviews the current experience and debates). On the one hand, even if market systems cannot reach everyone, that does not invalidate the approach. There are many poor households that would benefit from improved nutrition, even if they are not among the absolute poorest (Humphrey and Robinson 2015). However, if the market systems approach does not benefit extremely isolated and marginalised populations, the focus needs to be on other approaches – which could be in the form of free government distribution, social protection and livelihood support to 'graduate' out of extreme poverty, and/or hybrid public-private approaches.

6 Conclusions

This paper set out to explore how a market systems approach could be applied to the challenge of making nutrient-dense foods more accessible for poor households. It starts from an understanding of food value chains and key product characteristics that determine whether poor households can access nutritious foods – affordability, acceptability, availability and appropriateness – and then places this framework within a wider market context. The analysis leads to four conclusions:

1. Market approaches to nutrition need a clear theory of change that starts from the desired impact – improved nutrition – and works backwards to the underlying market system, and which challenges 'dominant logics' – assumptions about how markets and households at the base of the pyramid function. These approaches are likely to be non-linear, requiring adaptations along the way, and taking time to achieve outcomes, especially ones that that are large scale and long-lasting.

2. Using a systemic approach means widening the boundaries of action beyond a value chain and the business models of chain actors, to consider a much broader range of factors, including the institutional environment and the presence or absence of supporting services and infrastructure that also affect outcomes. In this way, the underlying systemic constraints that prevent favourable outcomes can be identified and innovative solutions to redesign the system can be found. However, there is no blueprint. Whether any particular solution works will be context specific.

3. Using a systemic approach widens our understanding of the actors that may have (or acquire) the awareness, incentives and capabilities to change the way the market system operates. They include small, medium and micro-businesses, business associations, government, professionals and civil society organisations, among others. This conclusion does not imply the development of partnerships with all these actors, but rather, that they have potentially relevant roles in the market system. In addition, systemic approaches may work best when there is a market facilitator – a (relatively) neutral agent that can catalyse linkages and build trust, reduce transaction costs, overcome information gaps, provide key resources, and share risks.

4. There seem to be particular challenges in reaching very isolated or marginalised populations, which need more investigation. Results of market system interventions need to be disaggregated to understand who is being affected and how. If market approaches are not reaching marginalised populations, other non-market solutions are called for. However, even if market-based approaches are not able to reach the most marginalised groups, that does not invalidate them as approaches to development.

Finally, this paper points to a number of areas where further research is needed. One is in relation to credence goods, and how market systems approaches can overcome the resulting market failures. Another is an analysis of the conditions under which markets for nutrition can overcome the 'last-mile' distribution challenge in rural areas, and under what conditions this challenge is insurmountable through markets. A third would involve more analysis around the experience of market facilitators. Who are they, what are their ideal roles and what are their incentives to act? Perhaps most importantly, there is a need for action research – both to take learning from a few market system programmes that have already identified improved nutrition as a substantive objective, and to pilot the approach in different contexts.

References

Alkire, S.; Chatterjee, M.; Conconi, A.; Seth, S. and Vaz, A. (2014) *Poverty in Rural and Urban Areas: Direct Comparisons Using the Global MPI 2014*, Oxford Poverty and Human Development Initiative, www.ophi.org.uk/wp-content/uploads/Poverty-in-Rural-and-Urban-Areas-Direct-Comparisons-using-the-Global-MPI-2014.pdf?884214 (accessed November 2015)

Altenburg, T. (2007) *Donor Approaches to Supporting Pro-Poor Value Chains,* Report prepared for the Donor Committee for Enterprise Development Working Group on Linkages and Value Chains. Cambridge: Donor Committee for Enterprise Development, www.enterprise-development.orge/page/library-item?id=386 (accessed November 2015)

Anim-Somuah, H.; Henson, S.; Humphrey, J. and Robinson, E. (2013a) *Strengthening Agri-Food Value Chains for Nutrition: Mapping Value Chains for Nutrient-Dense Foods in Ghana*, IDS Evidence Report 2, Brighton: IDS

Anim-Somuah, H.; Henson, S.; Humphrey, J. and Robinson, E. (2013b) *Policy Guidelines: Enhancing Markets for Nutrient-Dense Foods in Ghana*, IDS Evidence Report 28, Brighton: IDS

Banful, A.B.; Nkonya, E. and Oboh, V. (2010) *Constraints to Fertilizer Use in Nigeria*: *Insights from Agricultural Extension Service*, IFPRI Discussion Paper 01010, Abuja: International Food Policy Research Institute (IFPRI)

Bedi, S. (2012) 'A Foundational Criticism of the Base of the Pyramid Model', *Social Science Research Network,* 15 October, http://ssrn.com/abstract=2161900 (accessed 20 January 2016)

Blaser, M. (2014) *Can the "Making Markets Work for the Poor" (M4P) Approach Reach the Poorest, and are there Measures to Improve its Inclusiveness?* Zurich: NADEL Center for Development and Cooperation, www.nadel.ethz.ch/content/dam/ethz/special-interest/gess/nadel-dam/documents/mas/mas-essays/MAS_2012_Blaser_Michael.pdf (accessed 30 November 2015)

Bruyeron, O.; Denizeau, M.; Berger, J. and Trèche, S. (2010) 'Marketing Complementary Foods and Supplements in Burkina Faso, Madagascar and Vietnam: Lessons Learned from the Nutridev Program', *Food and Nutrition Bulletin* 31.2 (supplement): S154–67

Department for International Development (DFID) (2008) *A Synthesis of the Making Markets Work for the Poor (M4P) Approach*, Bern: Swiss Agency for Development and Cooperation, www.value-chains.org/dyn/bds/docs/681/Synthesis_2008.pdf (accessed August 2015)

Dulleck, U.; Kerschbamer, R. and Sutter, M. (2011) 'The Economics of Credence Goods: An Experiment on the Role of Liability, Verifiability, Reputation, and Competition', *American Economic Review* 101.2: 526–55

Federal Ministry of Agriculture and Rural Development (FMARD) (2002) *Farm Management Survey and Advisory Services: 2000/2001 Advisory Handbook*, Abuja: FMARD

Food and Agriculture Organization of the United Nations (FAO) (2015) *The State of Food Insecurity in the World. Meeting the 2015 International Hunger Targets: Taking Stock of Uneven Progress*, Rome: FAO, www.fao.org/3/a4ef2d16–70a7–460a-a9ac-2a65a533269a/i4646e.pdf (accessed 13 August 2015)

Food and Agriculture Organization of the United Nations (FAO) (2013) *The State of Food and Agriculture: Food Systems for better Nutrition*, Rome: FAO, www.fao.org/docrep/018/i3300e/i3300e.pdf (accessed 13 August 2015)

Garrette, B. and Karnani, A. (2010) 'Challenges in Marketing Socially Useful Goods to the Poor', *California Management Review* 52.4: 1–19

Gelli, A.; Hawkes, C.; Donovan, J.; Harris, J.; Allen, S.; de Brauw, A.; Henson, S.; Johnson, N.; Garrett, J. and Ryckembusch, D. (2015) *Value Chains and Nutrition: A Framework to Support the Identification, Design and Evaluation of Interventions*, IFPRI Discussion Paper 01413, Washington DC: International Food Policy Research Institute, http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128951 (accessed 20 January 2016)

Gibson, A. (2005) *Bringing Knowledge to Vegetable Farmers: Improving Embedded Information in the Distribution System*, Case Study No. 1, Katalyst Bangladesh

Gómez, M. and Ricketts, K. (2013) 'Food Value Chain Transformations in Developing Countries: Selected Hypotheses on Nutritional Implications', *Food Policy* 42: 139–50

Grace, D. (2014) 'Food Safety in Informal Markets', presentation at IFPRI 2020 Policy Consultation and Conference, Addis Ababa, 15–17 May 2014, www.slideshare.net/ILRI/foodsafety-may2014-grace (accessed March 2015)

Grace, D.; Randolph, T.; Omore, A.; Schelling, E. and Bonfoh, B. (2007) 'Place of Food Safety in Evolving Pro-Poor Dairy Policy in East and West Africa', *Revue d'élevage et de médecine vétérinaire des pays tropicaux* 60.1–4: 153–62

Hawkes, C. and Ruel, M.T. (2011) 'Value Chains for Nutrition', paper presented at Conference Leveraging Agriculture for Improving Nutrition and Health, New Delhi, 10–12 February 2011, www.ifpri.org/sites/default/files/publications/2020anhconfpaper04.pdf (accessed 13 August 2015)

Hawkes, C.; Friel, S.; Lobstein, T. and Lang, T. (2012) 'Linking Agricultural Policies with Obesity and Noncommunicable Diseases: A New Perspective for a Globalising World', *Food Policy* 37.3: 343–53

Henson, S. (2013) 'Understanding How Value Chains Create Food System Outcomes: Bangladesh', presentation at the A4NH workshop, Washington DC, June 2013

Henson, S. and Humphrey, J. (2014) *Review of Agri-Food Value Chain Interventions. Assessing the Effectiveness of Agri-Food Value Chain Interventions Aimed at Enhancing Consumption of Nutritious Food by the Poor: Conceptual Framework*, Leveraging Agriculture for Nutrition in South Asia (LANSA)

Horton, S. and Steckel, R. (2011) *Malnutrition: Global Economic Losses Attributable to Malnutrition 1900–2000 and Projections to 2050*, Copenhagen Consensus on Human Challenges, www.copenhagenconsensus.com/sites/default/files/malnutrition.pdf (accessed 13 august 2015)

Humphrey, J. and Navas-Alemán, L. (2010) *Value Chains, Donor Interventions and Poverty Reduction: A Review of Donor Practice*, IDS Research Report 63, Brighton: IDS

Humphrey, J. and Robinson, E. (2015) *Markets for Nutrient-Rich Foods: Policy Synthesis from Three Country Studies*, IDS Evidence Report 161, Brighton: IDS.

Humphrey, J.; Agnew, J. and Henson, S. (2015) 'Making Markets Work More Effectively for Reducing Malnutrition: The State of Business Models for Nutrition as Strategy', mimeo, IDS

Hystra (2014) ‘Marketing Nutrition for the Base of the Pyramid: Introducing Successful Practices for Improved Access to Nutritious Complementary Foods, Key Lessons from Case Studies, www.gainhealth.org/wp-content/uploads/2015/02/Marketing-Nutrition-for-Base-of-Pyramid-report.pdf (accessed 13 August 2015)

Karamchandani, A.; Kubzansky, M. and Lalwani, N. (2011) ‘The Globe: Is the Bottom of the Pyramid Really for You?’, *Harvard Business Review*, March

Koh, H.; Hegde, N. and Karamchandani, A. (2014) *Beyond the Pioneer: Getting Inclusive Industries to Scale, Mumbai: Monitor Inclusive Markets*, www.beyondthepioneer.org/wp-content/themes/monitor/Beyond-the-Pioneer-Report.pdf (accessed November 2015)

Kolk, A.; Rivera-Santos, M. and Rufin, C.R. (2014) ‘Reviewing a Decade of Research on the “Base/Bottom of the Pyramid” (BOP) Concept’, *Business & Society* 53.3: 338–77

Kolk, A.; Rivera-Santos, M. and Rufin, C.R. (2012) ‘Reviewing a Decade of Research on the ‘Base/Bottom of the Pyramid’ (BOP) Concept’, *Business & Society*, forthcoming, http://ssrn.com/abstract=2193938 (accessed 20 January 2016)

Landrum, N.E. (2007) ‘Advancing the “Base of the Pyramid” Debate’, *Strategic Management Review* 1.1: 1–12

La Porta, R. and Shleifer, A. (2014) ‘Informality and Development’, *Journal of Economic Perspectives* 28.3: 109–26

Le Cuziat, G. and Mattinen, H. (2011) *Maximising the Nutritional Impact of Food Security and Livelihoods Interventions: A Manual for Field Workers*, New York: ACF International, www.fao.org/fileadmin/user_upload/fsn/docs/Food_security_indicators/ACF_Manual_Maximising_the_Nutritional_Impact_of_FSL_Interventions_FINAL.pdf (accessed December 2015)

Maestre, M.; Robinson, E.; Humphrey, J. and Henson, S. (2014) *The Role of Businesses in Providing Nutrient-Rich Foods for the Poor: A Case Study in Tanzania*, IDS Evidence Report 52, Brighton: IDS

Masters, W.A.; Kuwornu, J. and Sarpong, D. (2011) *Improving Child Nutrition through Quality Certification of Infant Foods: Scoping Study for a Randomized Trial in Ghana*, London: International Growth Centre, www.theigc.org/wp-content/uploads/2014/09/Masters-Et-Al-2011-Working-Paper.pdf (accessed January 2016)

Nutrition for Growth (2013) *Nutrition for Growth Commitments: Executive Summary*, www.gov.uk/government/uploads/system/uploads/attachment_data/file/207274/nutrition-for-growth-commitments.pdf (accessed November 2015)

Nwuneli, N.; Robinson, E.; Humphrey, J. and Henson, S. (2014) *The Role of Businesses in Providing Nutrient-Rich Foods for the Poor: Two Case Studies in Nigeria*, Evidence Report 64, Brighton: IDS, www.ids.ac.uk/publication/the-role-of-businesses-in-providing-nutrient-rich-foods-for-the-poor-two-case-studies-in-nigeria (accessed 20 January 2016)

Ogunba, B.O. (2012) ‘Adoption of Enriched Local Complementary Food in Osun State: Combating Micronutrient Deficiency in the First Two Years of Life’, *African Research Review* 6.1: 171–83

Olinto, P.; Beegle, K.; Sobrado, C. and Uematsu, H. (2013) ‘The State of the Poor: Where are the Poor, Where is Extreme Poverty Harder to End, and What is the Current Profile of the World’s Poor?’ The World Bank, *Economic Premise*, October, 125

Peters, D.H.; Garg, A.; Bloom, G.; Walker, D.; Brieger, W. and Rahman, H. (2008) 'Poverty and Access to Health Care in Developing Countries', *Annals of the New York Academy of Sciences* 1136.1: 161–71

Poole, N.; Martínez-Carrasco, L. and Vidal Giménez, F. (2007) 'Quality Perceptions Under Evolving Information Conditions: Implications for Diet, Health and Consumer Satisfaction', *Food Policy* 32.2: 175–88

Prahalad, C.K. and Hart, S. (2002) 'The Fortune at the Bottom of the Pyramid', *strategy +business* 26: 1–14

Propcom (2015) *Education and Lasting Access to Fertiliser: How Nigerian Smallholders and Businesses are Prospering Together*, A Propcom Mai-karfi case study, www.propcommaikarfi.org/wp-content/uploads/2014/09/Fertiliser-Case-Study-Summary.pdf (accessed 5 January 2016)

Proud, E. and Nicholson, D. (n.d.) *Illuminating Market Systems Development in Fragile Environments: A Case Study of the Alternative Energy Market in Timor Leste*, Portland: Mercy Corps

Ripley, M. and Nippard, D. (2014) *Making Sense of 'Messiness': Monitoring and Measuring Change in Market Systems: A Practitioner's Perspective*, Samarth-NMDP and The Springfield Centre, www.springfieldcentre.com/wp-content/uploads/2014/03/2014-02-Making-Sense-of-Messiness1.pdf (accessed 13 January 2016)

Robinson, E. and Nyagaya, M. (2014) *Ensuring that Food Fortification will Reach the Poor in Tanzania*, IDS Policy Briefing 72, Brighton: IDS

Robinson, E.; Akinyele, I.O.; Humphrey, J. and Henson, S. (2014a) *Policy Options to Enhance Markets for Nutrient-Dense Foods in Nigeria'*, Evidence Report 66, Brighton: IDS, www.ids.ac.uk/publication/policy-options-to-enhance-markets-for-nutrient-dense-foods-in-nigeria (accessed 13 January 2016)

Robinson, E.; Nwuneli, N.; Henson, S. and Humphrey, J. (2014b) *Mapping Value Chains for Nutrient-Dense Foods in Nigeria*, Evidence Report 65, Brighton: IDS, www.ids.ac.uk/publication/mapping-value-chains-for-nutrient-dense-foods-in-nigeria (accessed 13 January 2016)

Sanogo, D. and Masters, W. (2002) 'A Market-Based Approach to Child Nutrition: Mothers' Demand for Quality Certification of Infant Foods in Bamako, Mali', *Food Policy* 27.3: 251–68

Scaling Up Nutrition (2014) *Effectively Engaging Multiple Stakeholders*, In Practice, February, http://scalingupnutrition.org/wp-content/uploads/2014/04/Green_External_InPractice_ENG_20140415_web.pdf (accessed November 2015)

Simanis, E. (2012) 'Reality Check at the Bottom of The Pyramid', *Harvard Business Review*, June, https://hbr.org/2012/06/reality-check-at-the-bottom-of-the-pyramid (accessed 14 January 2016)

Stoian, D.; Donovan, J.; Fisk, J. and Muldoon, M. (2012) 'Value Chain Development for Rural Poverty Reduction: A Reality Check and a Warning', *Enterprise Development and Microfinance* 23.1: 54–69

Temu, A.; Waized, B.; Ndyetabula, D.; Robinson, E.; Humphrey, J. and Henson, S. (2014) *Mapping Value Chains for Nutrient-Dense Foods in Tanzania*, Evidence Report 76, Brighton: IDS

The Springfield Centre (2015) *The Operational Guide for the Making Markets Work for the Poor (M4P) Approach*, 2nd edition, The Springfield Centre/SDC and DFID

Tripp, K.; Perrine, C.; de Campos, P.; Knieriemen, M.; Hartz, R.; Ali, F.; Jefferds, M. and Kupka, R. (2011) 'Formative Research for the Development of a Market-Based Home Fortification Programme for Young Children in Niger', *Maternal & Child Nutrition* 7.3: 82–95

United States Agency for International Development (USAID) Tanzania (2012) *Tanzania Feed the Future Processing and Consumption Project (Tuboreshe Chakula): Year 2 Work Plan*. Dar es Salaam: USAID Tanzania

von Grebmer, K.; Saltzman, A.; Birol, E.; Wiesmann, D.; Prasai, N.; Yin, S.; Yohannes, Y.; Menon, P.; Thompson, J. and Sonntag, A. (2014) *2014 Global Hunger Index. The Challenge of Hidden Hunger*, Bonn, Washington DC and Dublin: Welthungerhilfe, International Food Policy Research Institute and Concern Worldwide, http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/128360/filename/128571.pdf (accessed 13 August 2015)

Williams, B. (2015) 'Prosaic or Profound? The Adoption of Systems Ideas by Impact Evaluation', *IDS Bulletin* 46: 7–16

Brighton BN1 9RE

T +44 (0)1273 606261
F +44 (0)1273 621202
E ids@ids.ac.uk
www.ids.ac.uk