



USAID
FROM THE AMERICAN PEOPLE

MARKET SYSTEMS FOR RESILIENCE

LEO

Leveraging Economic
Opportunities

LEO REPORT #6



JANUARY 2015

This publication was produced for review by the United States Agency for International Development. It was prepared by Bronwyn Irwin and Ruth Campbell of ACDI/VOCA with funding from USAID/E3's Leveraging Economic Opportunity (LEO) project.

MARKET SYSTEMS FOR RESILIENCE



DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

ACKNOWLEDGEMENTS

Comments on earlier drafts by Jeanne Downing, Kristin O'Planick and Jennefer Sebstad of USAID's E3 Bureau; Greg Collins of the Bureau for Food Security; and Shannon Alexander, Tate Munro and Emma Proud of Mercy Corps are gratefully acknowledged.

CONTENTS

I. INTRODUCTION	1
II. DEFINING KEY CONCEPTS IN MARKET SYSTEMS FOR RESILIENCE	3
III. DETERMINANTS OF RESILIENCE	7
IV. A FRAMEWORK FOR STRENGTHENING RESILIENCE THROUGH MARKET SYSTEMS	13
V. PRINCIPLES FOR INTERVENING IN MARKET SYSTEMS TO STRENGTHEN RESILIENCE	17
VI. CONCLUSIONS & NEXT STEPS	20
REFERENCE LIST	22

I. INTRODUCTION

Resilience has recently surfaced as a key operational concept for development. The emergence of resilience has been driven by the need for strategies that more sustainably address the root causes of poverty and food insecurity in areas where chronic poverty overlaps with repeated crises due to recurrent shocks and stresses. After years of humanitarian support in response to crises in these areas, it has become clear that this assistance does not always reduce vulnerability and can leave households no better prepared for the next shock. At the same time, development activities would benefit from integrating interventions to strengthen resilience to increase the sustainability of program outcomes. USAID's resilience policy promotes a unifying model to organize and integrate humanitarian and development assistance. The policy promotes layering, integrating and sequencing humanitarian response to recurrent crises with longer-term development activities to empower households and communities to predict, prepare for, withstand, and recover from shocks (USAID 2012a). While the resilience concept has become quite prevalent in development over the past few years, the role of market systems in resilience has not been well developed. This paper aims to begin to fill this gap by focusing on the synergy and tensions between market systems development and resilience programming.

A. WHY MARKET SYSTEMS ARE IMPORTANT FOR RESILIENCE

Market systems are key to resilience for several reasons: engaging in market systems can strengthen the resilience of households; resilience strategies that do not take markets into account can undermine the market systems and result in long-term net loss of resilience; and engaging with market systems can be a more cost-effective strategy for mitigating the impact of shocks and stresses.

Engaging households in market systems can increase their resilience in many ways including by:

- **increasing incomes** (e.g., by enabling the sale of surplus production), which allows for greater asset accumulation, increased access to food, and consumption smoothing;
- **increasing food availability** by improving on-farm productivity (e.g., through increased access to quality inputs), providing market incentives for increased production, and increasing market efficiency; and
- **reducing risk** by diversifying livelihood opportunities and livelihood risk profiles (e.g., by engaging in off-farm and non-farm income generating activities), facilitating access to financial services to enable upgrading, building and protecting assets, and smoothing consumption.

The benefits from market system engagement will not be sustainable unless the market system itself is also resilient to shocks and stresses. Market systems that are not resilient can collapse or become highly distorted in the event of a shock, leading to dire long-term consequences for populations whose livelihoods depend on selling to, buying from and/or obtaining employment in those markets. To be resilient, individuals and households must engage with market systems and those systems must have the capacity to withstand, adapt and transform in face of shocks and stresses.

Market systems can also be seriously undermined when they are not taken into account when designing strategies to prepare for and respond to shocks. For example, failing to include a market perspective in relief efforts can create wasteful parallel distribution systems and can displace market actors and distort commercial incentives by flooding markets with low-priced or free commodities or inputs, which ultimately increase the vulnerability of producers (SEEP 2007). To illustrate, free livestock vaccinations provided by NGOs or

governments at the onset of a drought may have a positive immediate impact in preserving livestock populations, but the approach can undermine local veterinary services, ultimately reducing the resilience of the livestock market system and the households that depend on it.

Integrating market systems approaches to build resilience and respond to shocks can also be more cost-effective than traditional humanitarian and emergency responses on their own. A recent DFID study (Venton et al. 2012) conducted a cost comparison of three scenarios:

- late humanitarian response including the cost of food and non-food aid and losses;
- early response, which assumes timely delivery of aid before large deficit levels and results in overall lower levels of aid and the mitigation of some losses; and
- measures to build resilience including disaster readiness and response, and drought management through such activities as infrastructure development, sustainable livelihoods and contingency planning.

Although the study found that there is a lot of uncertainty regarding the cost of building resilience, the results suggest that the relatively high cost is significantly outweighed by the broad benefits, and that building resilience offers the best value for money compared to late or early humanitarian response to disasters. For example, in the Wajir grasslands of Kenya, over a 20-year period, for every \$1 spent on resilience, there would be an estimated gain of \$2.9 from reduced humanitarian aid, fewer animal losses and increased development benefits.

B. OBJECTIVES OF THE PAPER

The objectives for this paper are to: (1) describe the interaction of market systems and resilience, (2) propose a framework to strengthen resilience through market system engagement, and (3) identify knowledge gaps in using market systems interventions for strengthening resilience. The paper begins with a review of key definitions and underlying frameworks; then discusses the determinants of both household and market resilience; presents a framework for strengthening resilience through market systems; identifies principles for intervening in market systems to strengthen resilience; and concludes with areas for additional research.

II. DEFINING KEY CONCEPTS IN MARKET SYSTEMS FOR RESILIENCE

Before delving deeper into the links between market systems and resilience, definitions of the key terms *resilience* and *market systems* are explored below.

A. RESILIENCE DEFINED

The term resilience was coined by the field of ecology but is used today in many other fields including psychology, engineering, ecology, sociology, socio-ecological systems, socio-political systems, corporate strategy and economic development (Folke 2006, de Weijer 2013, and Bahadur et al. 2010). Holling (1996 in Barret and Conostas 2013) defines ecological resilience as persistence and recovery in the face of change and unpredictability. Walker et al. (2004) provide a definition of system resilience from the field of ecology: “The capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.” In spite of the longevity of the term resilience, or perhaps because of it, there is still much debate over the definition. Resilience is now generally understood to describe a process—the capacity to withstand, adapt and transform; but some still refer to Holling’s (1973 in Béné et al. 2012) definition of engineering resilience, which is the ability of the system to bounce back and return to a fixed stable state equilibrium following a shock.

Other definitions of resilience include a concept of time and transformation. DFID defines resilience as, “The ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses—such as earthquakes, drought or violent conflict—without compromising their long-term prospects” (DFID n.d.). Barrett and Conostas (2013) define resilience in the context of development: “The capacity to avoid and escape from unacceptable standards of living—‘poverty’ for short—over time and in the face of myriad stressors and shocks.” As stated by Walker (2012), “Resilience is largely about learning how to change in order not to be changed.” This paper uses the USAID definition of resilience: “The ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth” (2012a). This paper therefore considers resilience to be a set of capacities that are realized in relation to shocks and stresses and indexed for measurement purposes against outcomes of interest, such as poverty reduction, and improved nutrition. A key theme that cuts across all definitions of resilience is that it shifts the focus of preparing for and responding to shocks from addressing immediate needs to enhancing capacities to meet longer-term development objectives in the face of shocks and stresses. This point will be revisited below in presenting the framework.

B. MARKET SYSTEM DEFINED

The market system is “a dynamic space—incorporating resources, roles, relationships, rules and results—in which public and private actors collaborate, coordinate and compete for the production, distribution and consumption of goods and services” (Campbell 2014). The market system includes all the firms in interrelated value chains—input providers, producers, traders, processors, wholesalers and retailers; the supporting services (e.g., finance, transport, information services) for those actors; and the formal and informal enabling environment in which they operate. The relationships between these actors help to determine the efficiency of the system. The prevailing cultural and business norms influence how decisions are made that affect the

functioning and responsiveness of market systems to stimuli. The market system also interacts with a wide range of other systems including household systems, social systems and ecological systems.

C. CORRELATION BETWEEN MARKET SYSTEM DEVELOPMENT AND RESILIENCE PROGRAMMING

There are similarities between resilience-focused programming and market system development that lend themselves well to coordination and integration. As discussed in more detail below, (1) they both integrate different scales of organization within the system; (2) they are both approaches for facilitating development in complex systems; and (3) both recognize the importance of the inter-connections and interactions between and among multiple systems.

INTERDEPENDENCY OF DIFFERENT LEVELS IN THE SYSTEM

Both resilience programming and market system development include actors and entities at different levels of aggregation, recognizing the relationships and interconnections between different elements. Market system development works with individuals, households, businesses, value chains and other systems such as the labor system. Resilience theory recognizes that there is an interrelated hierarchy of individuals, households, communities and systems with bidirectional feedback across these levels of organization. Resilience at each level is connected to and can be dependent on resilience at other levels (Barrett and Constan 2013). That is, the relative resilience of individuals is affected by and affects the resilience of households, which is affected by and affects the resilience of communities, and so on. Household resilience can be limited if resilience-enhancing policies and programs are not supported by local and regional institutions (Frankenberger et al. 2013a).

Similarly, market systems development recognizes that the dynamics at different levels are key. Behaviors at the household level regarding investments, and firm-level cooperation or predatory behavior affect the competitiveness of the market system. Moreover, policies in the enabling environment can affect performance at all levels of the system.

While all levels of organization are important for both resilience and market systems, this paper will focus on two levels that are particularly relevant to market systems: the resilience of households and the resilience of market systems. In order for vulnerable households to strengthen their resilience, they must engage with functional market systems that are themselves resilient to shocks.

COMPLEX SYSTEMS

Market system development and resilience-focused programming operate within the context of complex systems and require a systemic approach that looks at the broader dynamics affecting the system and the interdependence and interaction of elements within the system. Both approaches focus on addressing the underlying causes of poverty or poor performance. Barder (2013) believes that viewing the economy and society as complex adaptive systems requires a shift in development thinking to focus on the properties of the system that deliver the capabilities for people to improve their wellbeing. Barder developed seven principles for applying complexity theory to development (see text box on next page) and asserted that progress will not be linear and predictable.

INTERACTIONS AMONG COMPLEX SYSTEMS

The complex systems that form the context for market system development and resilience programming also interact with other systems. These complex systems are process dependent and dynamic and have feedback

loops on multiple scales, which allow for self-organization (Holland, 1995 in Folke 2006). In the resilience context, feedback loops within these complex systems provide information on shocks and their impacts. The system must be able to use this information to learn and reorganize in order to be resilient. Market systems by nature are self-organizing and should evolve to adapt to new opportunities and to shocks and stresses (Campbell 2014). This concept is critical to developing strategies to strengthen the resilience of the market system.

A systemic approach also leads to greater focus on inter-system dynamics, or approaches that build on the interaction between and interdependence of different systems. Both market system development and resilience programming recognize the interdependence among market systems, ecological systems, socio-cultural systems, and political systems, among others. The interdependence of market systems and ecosystems is particularly clear in areas where livelihoods are reliant on agriculture, which in turn depends on natural resources and is sensitive to climate change. There are also strong links between ecological and social systems. Béné et al. (2012) note that a systemic approach which emphasizes dependencies and connections between ecological and social components is particularly helpful in managing covariate shocks such as climate change that affect whole communities rather than individual households, and that make traditional informal safety nets less effective.

BOX 1: BARDER'S SEVEN PRINCIPLES

Principles for applying complexity theory to development are as follows:

1. Resist engineering—try things, learn, and iterate.
2. Resist fatalism—do not accept a given outcome as final.
3. Promote innovation—more equal societies promote innovation.
4. Embrace creative destruction—the system includes feedback loops that allow for learning, sometimes through failure.
5. Shape development by creating selection pressures that meet social and economic goals.
6. Embrace experimentation.
7. Act globally—think about the broader social, economic, and political dynamics and how those can be affected.

D. TENSIONS BETWEEN MARKET SYSTEM DEVELOPMENT AND RESILIENCE PROGRAMMING

While there are similarities between resilience-focused programming and market system development that lend themselves well to coordination and integration, there are inherent tensions—particularly relating to tradeoffs with market efficiency, and conflicting implementation approaches.

TRADEOFF BETWEEN EFFICIENCY AND RESILIENCE

Competitive market systems need to be efficient in order to maintain or grow market share. In an increasingly globalized economy, even local markets are vulnerable to competition from low-cost imports. Resilience, on the other hand, requires investments to mitigate risk against a wide variety of shocks that may or may not occur. Pennotti (2013) found that when strengthening the resilience of smallholder farmers there is a tradeoff between focusing on one market channel for increased efficiency, or focusing on multiple market channels to strengthen resilience. The Montpellier Panel (2012) similarly noted the tradeoff between agricultural productivity and reducing risk exposure. It observed: “It is possible to have a highly resilient but stagnant growth, or a rapid growth that is destructive and highly volatile. The ideal is somewhere in between where

appropriate resilience is built into growth at the outset in a way which exploits the synergies between growth and resilience.”

CONFLICTING IMPLEMENTATION APPROACHES

Currently, programming in areas prone to shocks typically includes activities aimed at improving the resilience of vulnerable households, and separate activities targeting value chain development for the less vulnerable. While in theory, both types of activity are mutually supportive, creating “pathways out of poverty”—a gradual transition from a reliance on direct assistance to integration into market mechanisms (Fowler and Brand 2011)—in practice this often manifests in a clash of modalities. Resilience-focused implementers may prioritize the provision of assets through conditional or unconditional transfers, while market development-oriented implementers strive to apply a more facilitative, commercially-driven approach. These contrasting approaches can stimulate conflicting incentives and may undermine one another, creating confusion and frustration for implementers and beneficiaries alike.

Implementers of resilience-oriented and market systems development projects therefore need a shared vision for a coherent balance between the need for smart subsidy and transfers when working with asset poor households and communities, and the concurrent need to move toward more sustainable, market-driven solutions. Within the context of a shared vision, varying modalities will be required in responding to the needs of different beneficiary groups, and to the same groups over time as shocks and stresses recur. (For more on the tensions between these approaches, see Garloch 2012.)

III. DETERMINANTS OF RESILIENCE

Designing market system interventions to increase resilience requires an understanding of the factors that contribute to resilience and those which can be influenced by market systems. Unfortunately, there is not yet a robust body of evidence in the development community on the underlying factors that determine resilience (Frankenberger and Nelson 2013). Amassing evidence on the contributing factors to resilience requires documenting shocks and measuring changes in outcomes over time to determine possible correlation, and this is still a relatively new area. This section discusses the characteristics of shocks, the contributing factors of household level resilience, and the contributing factors of market systems resilience. Since this paper focuses on both, the discussion below is organized by these two different scales of organization.

A. RESILIENCE TO WHAT AND OF WHOM?

One of the challenges in identifying the contributing factors to resilience for households (and the individuals within those households) and markets (and the actors within those markets) is that they can vary depending on the type of shock and context. According to Frankenberger and Nelson (2013), resilience is determined by the type of shock experienced, the context in which the shock takes place (including the social, environmental, economic and political situation), and exposure in terms of the frequency, duration and magnitude of the shock. The factors that strengthen resilience to drought for pastoralists in northern Kenya, for example, may be very different from the factors that strengthen crop producers' resilience to commodity price volatility in the same area. Consequently, it is important to look at the types of shocks and stresses that are relevant to market system resilience.

The literature identifies key shocks to market systems. Although the literature focuses mainly on the agricultural sector, many of these shocks are also relevant for non-agricultural sectors to varying degrees. Key shocks to the market system come from four major categories:

- *Economic shocks*—food price volatility, cash crop price volatility, and fuel price volatility
- *Social shocks*—political instability, unstable or ineffective governance, and trade policies
- *Environmental shocks*—natural resource degradation from floods, drought, erratic rainfall, soil fertility mining, etc.
- *Health shocks*—health crises such as Ebola, HIV/AIDS or the impact of aflatoxin on nutrition and wellbeing (UNDP 2012, World Bank 2013, Radcliff and Munro n.d., FAO et al. 2012).

Many of these shocks come from outside the market system, which further reinforces the importance of understanding the interconnections and interdependence of different systems. To illustrate, a UNDP (2012) report on agriculture in Africa identifies three key sources of instability in agriculture that need to be addressed to build resilience: 1) conflict and political instability; 2) volatility in international food prices; and 3) demographic and environmental pressures. Shocks can also be closely interrelated, as noted by a recent study of underlying agricultural sector risks in Niger that notes “drought is also the principal trigger for spikes in food prices and conflicts over pasture and water; it is highly correlated with some crop pests and diseases, and it aggravates mortality and morbidity due to livestock diseases” (World Bank 2013). (See text box on next page for a description of the key risk factors for agriculture in Niger.)

The relative exposure to shock is also important to resilience. Shocks and stresses are perpetual features in many places, but the severity of the shocks vary widely from seasonal price fluctuations that shift with the

agricultural season, to devastating cyclical droughts. Shocks are defined by whether they are acute—an event that is severe and usually of a shorter time-frame, or chronic—a disturbance that lasts for an extended period. Also important is whether the shock is covariate or idiosyncratic. Covariate shocks are events where there is correlated risk, such as drought or war. Covariate shocks tend to have a broader impact and affect a large population. Idiosyncratic shocks on the other hand tend to affect just one individual or household as they result from risks that are not shared, such as a death in a family, or a job loss. Interventions to strengthen resilience need to take into account these characteristics of the shock as they help to identify the contributing factors to resilience. For example, coping strategies that rely on support from other community actors may be less successful in responding to covariate shocks that impact the broader community.

BOX 2: NIGER SHOCKS AND STRESSES

The World Bank (2013) recently completed an agricultural sector risk assessment in Niger analyzing data from 1980 to 2012 to identify the underlying risk factors (shocks and stresses) at a national level. The study found that the key risk factors were:

Production risk—mainly drought but including locusts, livestock diseases, crop pests and diseases, floods, windstorms and bushfires.

Market risk—seasonal price volatility related to drought and food price volatility—a particular risk for consumers as almost all households are net buyers of food and prices spiked every 1-3 years.

Enabling environment risk—political instability affects the agricultural sector by limiting mobility in affected areas, providing disincentives for investment, diversion of public expenditure to military activities, and loss of donor funds.

Finally, shocks affect individuals differently depending on their sex, age, economic class, and other demographic categories. For example, while this paper generally focuses on the household, men and women within the household often face different shocks and stresses and have different capacities to respond to those shocks and stresses, with women often having less capacity. This results directly from the fact that women have less access to and control over resources (Kumar and Quisumbing 2014). In fact, a recent longitudinal study from 141 countries found that natural disasters reduced life expectancy for women more than for men (Neumayer 2013 in Kumar 2014). This differentiated impact from shocks and stresses must be taken into account when analyzing shocks and designing programs to strengthen resilience. It cannot be assumed that a shock or stressor will affect everybody in the same way and to the same degree.

B. DETERMINANTS OF HOUSEHOLD-LEVEL RESILIENCE

As described above, the underlying factors that determine resilience vary with different scales of organization. This section focuses on the determinants of household-level resilience. Only one study was identified in the literature that included quantitative analysis of the determinants of resilience in a specific context at the household-level. The key findings of this study are presented below, followed by a discussion of the commonly assumed determinants of resilience at the household level.

The study by Mercy Corps and TANGO (2013) looked at the determinants of household-level resilience in the political, ecological and humanitarian crisis of 2010-2011 in Southern Somalia, a region where there was little humanitarian support at the time to distort the study results. Unsurprisingly, the study found that access to basic resources and services (including access to markets, veterinary services and mobile phones) was a key underlying factor that determined which households were more resilient. Interestingly though, access to markets had a unique impact on resilience compared to access to other services such as extension, health

services and education. Households that had access to markets were much more likely to be food secure after the crisis and to have relied less on negative coping strategies. Unfortunately, during the crisis only a third of households had access to markets because of disruptions to transportation and market networks.

In terms of risk reduction, the same study found that it is not enough to diversify income sources to build resilience, but it is more important to diversify risk factors (Mercy Corps and Tango 2013). A household that is engaged in the production of different crops and livestock but has all of its economic activities susceptible to the same key risk factor of variable rainfall is not significantly reducing risk with income diversification. To effectively reduce risk, a household would need to diversify its income sources to activities with different underlying risk factors such as non-agricultural labor or remittances. This finding indicates that the importance of risk diversification is more nuanced than mere income diversification; and yet diversification of the sources of risk is not a widely adopted strategy.

The study also found that households in which women participated in decision making relied less on negative coping strategies during crisis. The implication is clear that interventions to increase resilience need to understand the different vulnerabilities of women and men, and include a focus on empowering women. Moreover, the study found that households that interacted more with others from outside their own clans were more resilient. These interactions could be either social, such as attending a wedding, or economic, such as engaging in trade. Broader networks gave these households access to a wider social support network during shocks (Mercy Corps and Tango 2013). This emphasizes the opportunity to build social capital (particularly bridging and linking social capital¹) through participation in market systems by developing and strengthening vertical and horizontal linkages and building trust. This strengthens the resilience of actors within the system, and as a result, strengthens the resilience of the system itself.

Given the dearth of evidence on the determinants of household resilience, the development community has made assumptions, which need to be verified to provide insights for a theoretical framework for strengthening resilience. To collect information on these assumptions, an analysis² was conducted of the variables currently being used by NGOs, UN agencies and other actors to measure resilience. Variables were drawn from Frankenberger and Nelson (2013), who reported on methodologies to measure resilience and assess resilience program impact at the household or community level. Variables were grouped into eight determinant categories. Table 1 provides a summary of the results, including the determinants with the highest prevalence and the specific indicators within each.

¹ Social capital is typically categorized as bonding, bridging or linking social capital. Bonding social capital refers to the close ties between people in similar situations, such as immediate family, neighbors and friends. Bridging social capital describes more distant connections, such as those between acquaintances and business associates. Linking social capital refers to relations with people outside of the community or at different levels of power within a hierarchy.

² Conducted by LEO researchers (2014).

Table 1. Assumed Determinants of Resilience

Determinant Category	Prevalence	Most Common Variables
Adaptive Capacity	92%	Coping capacity Access to or level of education Access to credit Crop/income diversity Agricultural practices and technology
Household Assets	83%	Asset ownership and value Livestock units, land ownership Natural resource capital
Income (Food Access)	58%	Income Expenditures
Social Capital & Safety Nets	58%	Social capital
Food Availability	50%	Food consumption Household stocks
Governance	33%	Government coordinating capacity
Access to Services	25%	Transportation Water Electricity
Stability	25%	Change in income Household jobs lost Change in asset ownership

These results are similar to the assumptions of the USAID Feed the Future Northern Kenya zone of influence baseline study, which covers resilience. The assumed determinants of resilience measured by the study include:

- *household adaptive capacity* measured through self-assessment of adaptive and coping strategies such as those required to recover from the last drought or cope with future periods of stress, and the recent sale of assets to meet household needs and the ability of households to recover or repurchase the assets
- *livelihood diversification* measured by the sources of household income and food, and the number of household livelihood activities
- *social capital* measured by household access to social networks and social support, specifically whether households could rely on others for support in getting food during the previous drought (Feed the Future 2013).

In addition, there is a growing evidence base that women’s empowerment is closely linked with improved household food security. For example, women’s autonomy in agricultural production was associated with positive maternal and child health and nutritional outcomes in an IFPRI study in Nepal (IFPRI 2013). FAO also notes, “When women have more influence over economic decisions, their families allocate more income to food, health, education, children’s clothing and children’s nutrition” (FAO 2011). These investments help to strengthen household-level resilience, so it is a rational assumption that women’s empowerment is also a key factor in determining resilience. The results of the Mercy Corps and TOPS study in South Sudan referenced above found that women’s empowerment was a key factor for resilience in that case.

As a result of this analysis, this paper suggests the following assumed key underlying factors that determine household resilience:

- adaptive capacity including livelihood diversification (that diversifies risk factors), access to credit, adaptive agricultural practices and technology to manage risk, and positive coping strategies
- household asset base and access to food
- availability of food
- social capital
- governance
- women's empowerment

C. DETERMINANTS OF MARKET SYSTEM-LEVEL RESILIENCE

Improving market system-level resilience entails not only strengthening the resilience of actors within the market system, but also ensuring that the system itself is resilient and can continue to provide a market for and source of goods, services and employment during and after periods of shock.

Literature on the underlying factors that determine resilient systems (not necessarily market systems) often rely on aggregated surveys of development organizations. For example, a survey of 26 NGOs that implement disaster risk reduction and climate change adaptation activities in communities found that “resilient systems are expected to be ones which promote or encourage diversity, flexibility, inclusion and participation; which recognize social values, accept uncertainty and change (at multi-scale); and which foster learning” (Interagency Resilience Working Group 2012 in Béné et al. 2012). The same survey found that resilient systems tend to be collaborative, responsive and flexible, enable learning through feedback loops, and have a high degree of autonomy (Interagency Working Group 2012).

Another literature review analyzed the characteristics of resilient systems and identified those most commonly cited (in order of prevalence): i) high diversity; ii) effective governance or control mechanisms; iii) acceptance of uncertainty and change; iv) community engagement and the importance of local knowledge; v) preparedness and planning; vi) high degree of equity (inter-scalar resilience requires risk sharing); vii) consideration of social values and structure; viii) dynamic systems that do not enter into a fixed stable state equilibrium following a shock; ix) learning from experience; and x) adoption of a cross-scalar perspective (Bahadur et al. 2010).

Analyses of supply chains, sectors, and regional market systems identify many of these same determinants of resilience. Supply chain resilience, according to Deloitte, is supported by four pillars: i) the ability to track and monitor supply chain events; ii) flexibility to respond quickly; iii) collaboration among actors in the chain; and iv) control mechanisms (Deloitte 2013). These same four factors are identified by the World Economic Forum as: i) data sharing platforms; ii) agile, adaptable strategies; iii) multi-stakeholder risk assessment; and iv) adoption of resilience standards.

Little and McPeak's analysis of pastoralism in sub-Saharan Africa, also highlights the importance of flexibility and governance to resilience. Flexibility is created through diversified income sources and marketing strategies, in addition to diversified herd composition in terms of species and breeds. Governance is key to mobility, access to infrastructure and services, and equitable participation of pastoralists in labor markets (Little and McPeak 2014). The USAID (2012 b) Sahel joint planning cell strategy for resilience similarly aims to increase sustainable economic wellbeing through diversified economic activities, increased access to financial services, and improved market infrastructure (transportation, roads, communications networks).

Value chain practitioners have likewise identified the importance of reducing risk through diversification, advocating a “portfolio approach” to value chain development (Charette 2011). Studies of the global apparel value chain highlight the role of value chain governance in enabling firms to learn, innovate, and adapt; and highlight the importance of collaboration among value chain actors through production and trade networks—“resilient forms of social capital that are a valuable competitive asset in the global economy” (Gereffi 1999).

Drawing on evolutionary economic geography, researchers have found that the resilience of regional economies depends on having a diversity of related sectors within the economy. “Related variety” allows learning to flow through shared or complementary knowledge bases, and the labor force to develop competencies relevant to multiple sectors (Asheim, Boschma and Cooke 2009; Sedita, Noni and Pilotti 2014).

Redundancy is another important characteristic of relevance to market system resilience. This ecological concept can be described as “a quantifiable measure, or count, of a single resource type that performs a specific function. Redundant resources provide a failsafe, or back-up, when any individual unit fails” (Longstaff 2013, p6). Redundancy is not the same as diversity. Redundancy is when the same resource is used to perform the same function, while diversity is when different resources are used to perform the same function. For example, redundancy could be built into a farming system by producing more of the same crop than the household needs, while diversity would suggest planting different crops (Bujones et al. 2013). For market systems, the concept of redundancy implies that having multiple market actors providing a specific service or filling a specific role can increase resilience. While redundancy in a market system can relate to competitiveness in the system—compared to a monopoly—there is likely a tradeoff between redundancy and resilience on the one hand, and market efficiency on the other (see also section II of this paper).

As a result of this review, this paper suggests the following determinants of market system resilience:

- Diversity of related products and diverse market channels (preferably with different risk profiles)
- Redundancy of multiple buyers, sellers and service providers
- Trusting relationships that allow cooperation, communication, learning and innovation
- Market governance and policy environment characterized by transparency, equity and consistency

IV. A FRAMEWORK FOR STRENGTHENING RESILIENCE THROUGH MARKET SYSTEMS

This section includes the key capacities required for resilience, a framework for strengthening resilience through market systems, and examples of practical market systems interventions for increasing resilience.

A. KEY CAPACITIES FOR RESILIENCE

Resilience programming shifts the focus of addressing shocks from meeting immediate needs to strengthening capacities to meet longer-term development objectives in the face of shocks. Capacity underpins resilience. Three key capacities for resilience—developed by the field of ecology and adapted to the field of socio-ecology by Béné (2012) and others—have been adapted here for market systems resilience:

- *Absorptive capacity* is the ability to mitigate or resist the impact of shocks and maintain stability without negative impact on the basic needs of the household or the function of the market system. Absorptive capacity requires effective coping strategies.
- *Adaptive capacity* is the ability of households or the market system to learn and adjust to shocks and stresses through incremental changes, to maintain flexibility, and to take advantage of new opportunities that arise from change.
- *Transformative capacity* is the ability to fundamentally change the structure of the system when the previous system is no longer sustainable as a result of severe shocks. According to Walker et al. (2004), “transformability refers to fundamentally altering the nature of a system.” It requires functional inclusive governance systems able to facilitate changes to the primary structure of the system. Transformative capacity is more complex than the other capacities. To illustrate, for many decades in southeastern Zimbabwe, the dominant livelihood was cattle ranching. Gradually the rangeland ecosystem and the markets became unfavorable for ranching. However, a drought in the early 1980s catalyzed a transformation from ranching to ecotourism as many ranchers converted their land into wildlife conservancies (Walker et al. 2004). The system itself had the transformative capacity to bring about this change in the function of the system (from ranching to tourism).

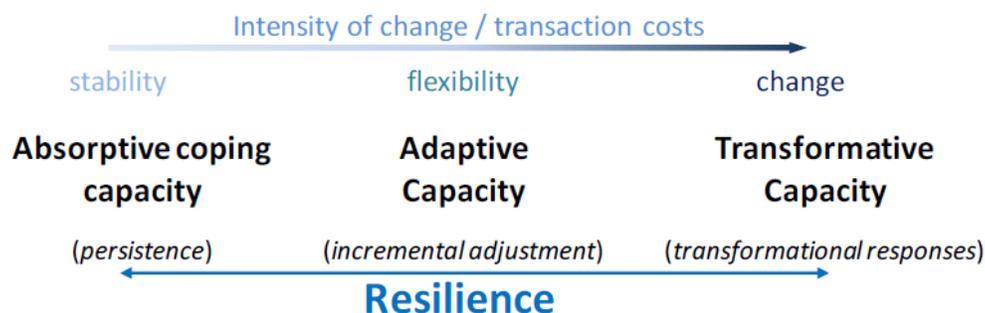
In practice all three capacities are utilized concurrently as different actors and different levels of aggregation in the system may use all three capacities or a subset of the capacities to build and maintain resilience at any given time (Béné et al. 2012).

B. A FRAMEWORK FOR RESILIENCE

Béné et al. (2012) utilized the three capacities for resilience to provide the basic structure for a framework on strengthening resilience. This framework, presented in figure 1, emphasizes that resilience is derived from strength in all three capacities. This framework suggests that as the intensity of a shock increases, the transaction costs for responding to the shock also increase. At the same time, as the intensity of the shock increases, the capacities required to respond to the shock shift from absorptive (which is characterized by stability or avoiding negative consequences), to adaptive (characterized by flexibility and the ability to make incremental changes), and finally to transformative (characterized by structural change). This does not imply a

shift from using absorptive capacity to using transformative capacity, but rather an integration of adaptive and transformative capacity as the severity of the shock increases (Béné et al. 2012).

Figure 1: Resilience Framework



Source: Béné, C., R. Godfrey Wood, A. Nesham, and M. Davies. 2012. "Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programme." IDS Working Paper 405.

C. APPLYING THE RESILIENCE FRAMEWORK TO MARKET SYSTEMS

MARKET SYSTEMS INTERVENTIONS TO STRENGTHEN RESILIENCE

The resilience framework above provides a structure for the design of market system development programs that strengthen resilience, and enables an extrapolation of specific interventions that strengthen absorptive, adaptive, and transformative capacities. Drawing from USAID's key features of the value chain approach (Campbell 2008), this paper proposes the following key areas of intervention for strengthening resilience through market systems:

- *Linking to social protection*—Using market mechanisms for activities that include social assistance transfers, labor market interventions to promote employment, and social insurance (life, health, etc.), which provide a safety net and increase absorptive capacity. While these activities do not always employ market systems approaches, some of these services can be extended through market actors.
- *Facilitating access to end markets*—Ensuring that market actors have information on and access to a diversity of market opportunities and are aware of their respective risks and returns. These risks and returns may be economic, social, environmental, etc. Interventions that enhance market access include fostering market transparency, and promoting behavior that rewards consistent, quality performance.
- *Catalyzing change in market systems*—Interventions that try to catalyze the improved performance of the market system, addressing critical vulnerabilities and constraints and unleashing opportunities by targeting leverage points in the system, and using competitive pressures to stimulate behavior change.
- *Fostering improved relationships and system norms*—Interventions that improve the nature of relationships between market actors at different levels of the system. Such interventions can improve the ability of the market system to respond to threats and opportunities. Trusting relationships foster cooperation and constructive competition that can improve market system flexibility and adaptability.
- *Strengthening value chain governance*—Strengthening the structure of relationships in the market system to allow the market systems to self-organize and prepare for, adapt to, and recover from shocks and

stresses in a way that benefits the target population. Value chain governance influences the power dynamics in the chain, and who benefits and by how much from improvements in the system.

Figure 2 offers an analytical framework for identifying market system interventions that can contribute to building resilience in the three key capacities discussed above. The framework is also meant to enable the assessment of market systems strategies to determine whether their outcomes are likely to improve resilience, which capacities for resilience they are building, and whether there are gaps in the capacities being developed. The vertical axis presents the areas of intervention, while the horizontal axis depicts the outcomes. This framework allows for the integration of strategies to strengthen resilience at different levels of operation – integrating strategies at both the household and the market systems level.

Figure 2. Market Systems Resilience Framework

Types of Interventions	Intensity of Shock & Transaction Cost 		
	Absorptive Capacity (Coping) Stability	Adaptative Capacity (Learning and Adjusting) Flexibility	Transformative Capacity (Structural Change) Change
<i>Linking to social protection</i>			
<i>Facilitating access to end markets</i>			
<i>Catalyzing change in market systems</i>			
<i>Fostering improved relationships and system norms</i>			
<i>Strengthening value chain governance</i>			

Adapted from: Béné, C., R. Godfrey Wood, A. Nesham, and M. Davies. 2012. "Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programme." IDS Working Paper 405.

Figure 3 below shows a market systems and resilience matrix completed with examples of interventions. It is important to note that some interventions along the vertical axis can strengthen multiple capacities for resilience, so the exact location of interventions on the matrix can vary, depending on the approach and the targeted outcome of the intervention. The interventions included in figure 3 are illustrative, and not meant as a comprehensive list.

Figure 3. Market Systems Resilience Framework with Examples of Interventions

	Absorptive Capacity (Coping) Stability	Adaptative Capacity (Learning and Adjusting) Flexibility	Transformative Capacity (Structural Change) Change
Types of Interventions	Intensity of Shock & Transaction Cost 		
<i>Linking to social protection</i>	<ul style="list-style-type: none"> - Food, cash and input transfers to meet immediate needs and build assets - Health, life and funeral insurance products 	<ul style="list-style-type: none"> - Savings groups to smooth consumption and provide working capital for households' agricultural and business activities (van Haefen et al. 2013) - Transfers to enable participation in value chains and upgrading 	<ul style="list-style-type: none"> - Strengthening labor markets to facilitate employment of vulnerable populations
<i>Facilitating access to end markets</i>	<ul style="list-style-type: none"> - Linking producers to multiple input suppliers and buyers 	<ul style="list-style-type: none"> - Diversifying economic activities to diversify risk 	<ul style="list-style-type: none"> - Promoting investment in marketing infrastructure (transportation, roads, communications networks, irrigation)
<i>Catalyzing change in market systems</i>	<ul style="list-style-type: none"> - Defining a regulatory framework for the development of a regional system of 'buffer stocks' or 'food security stocks' as provided for in CAADP and ECOWAS agreements (Gubbels 2011) - Increasing crop and livestock productivity - Increasing value addition and storage 	<ul style="list-style-type: none"> - Promoting value chain coordination and adaptive management 	<ul style="list-style-type: none"> - Increasing efficiency of food value chains to stabilize food prices
<i>Fostering improved relationships and system norms</i>	<ul style="list-style-type: none"> - Corporate resilience strategies to strengthen the resilience of individual support service firms - Diversifying household market opportunities to increase and smooth incomes 	<ul style="list-style-type: none"> - Increasing access to financial services such as microfinance and crop/livestock insurance 	<ul style="list-style-type: none"> - Building trust: bonding social capital, bridging social capital, and linking social capital - Market system coordination and coordinated adaptive management leading to a more resilient market system
<i>Strengthening value chain governance</i>	<ul style="list-style-type: none"> - Engaging vulnerable populations in market systems to increase incomes - Engaging women in market systems and strengthening leadership to empower women and increase their participation in household decision making 	<ul style="list-style-type: none"> - Early warning systems that incorporate market system and food price indicators 	<ul style="list-style-type: none"> - DRR increases resilience to shocks and so decreases risk to the market system

V. PRINCIPLES FOR INTERVENING IN MARKET SYSTEMS TO STRENGTHEN RESILIENCE

In designing strategies for building resilience, the literature provides three important areas of guidance: combining multiple interventions, cost-effectiveness through the use of existing structures, and women's empowerment. Some initial principles to guide intervention design are proposed below.

A. INTEGRATE MARKET SYSTEMS INTERVENTIONS WITH OTHER STRATEGIES

This principle is reflected in the USAID policy and program guidance (2012a) for resilience, which promotes program approaches that layer, integrate, and sequence humanitarian assistance and development assistance to strengthen resilience. Concern Worldwide (2013) provides a good example of combining interventions in a strategy for increasing resilience that includes five pathways: 1) multisector action for better nutrition; 2) livelihoods and natural resource management; 3) social protection; 4) disaster risk reduction and climate change adaptation; and 5) economic recovery and market systems programs. Another example is OFDA's Economic Recovery and Market Systems programs that aim to strengthen resilience by rebuilding critical community infrastructure, linking households to agriculture and livestock markets, and providing nutrition programming (Meissner 2012). The World Bank (2013) study of agricultural sector risks in Niger provides an example of a market system approach that builds multiple capacities of resilience. The study identifies that coping mechanisms to strengthen absorptive capacity such as social safety nets are necessary to address immediate needs, but they do not address fundamental risks in the agricultural sector. Risk transfer through insurance or commodity hedging is not tenable in Niger for a variety of reasons, but there needs to be more emphasis on long-term structural solutions to risk.

It is important that programs integrate multiple interventions, rather than merely co-locating them. To the extent possible, implementation principles should be consistent across activities, and different interventions should reinforce one another to create a coherent strategy to strengthening resilience. One specific strategy for integrating interventions using a market system development methodology is the push-pull approach (Garloch 2012). According to Frankenberger et al. (2013b) constraints to market access stem from both market inefficiencies and poverty, and these are interrelated: therefore, interventions need to address both to succeed. The push-pull approach alleviates constraints on the push side by addressing the immediate needs of vulnerable households and building their assets to reduce their risk profile, enabling them to engage in markets. On the pull side, engagement in markets is facilitated by leveraging commercial incentives both for farmer engagement in production and for business investment in supply chains that incorporate vulnerable populations. Pull strategies focus on incorporating vulnerable populations into contextually defined opportunities, including those that may arise as a result of structural change and market transformation. In implementation to date there has been less attention paid to the 'pull' from market development aspects in the context of crisis than the 'push' side, perhaps because of the challenges of implementing market systems approaches with vulnerable populations.

B. INTEGRATE MARKET APPROACHES INTO PROGRAMS RESPONDING TO CRISES

The SEEP Market Development Working Group (2007) promotes a market-integrated relief approach that focuses on avoiding market distortions by: 1) implementing through private sector partners; 2) adopting the value chain approach to post-crisis market assessments, with a focus on demand subsidies as needed; 3) local and regional purchases; and 4) institutional development for market systems such as grading and standards, certified warehouses, etc.

Drawing on lessons from Kenya and Ethiopia, Venton et al. (2012) identify key implementation principles for ensuring the cost-effectiveness of resilience interventions, including the following:

- *Use participatory approaches* for developing and implementing community and district development plans to ensure that the response meets the needs of the local community.
- *Focus on interventions that have a wider development impact*, such as commercial livestock destocking, which addresses immediate needs due to drought but also strengthens market systems.
- *Rely on the private sector to provide services where possible*, facilitating the willingness to pay for services which can often be delivered cheaper by the private sector than by NGOs or government.

C. INTEGRATE WOMEN'S EMPOWERMENT INTO THE DESIGN OF RESILIENCE PROGRAMING

As discussed elsewhere in this paper, women often face different shocks and stresses and have fewer capacities to respond than their male peers because of gendered social norms and women's limited access to and control over resources. Flintan (2011) notes that the impact of evolving gender relations on resilience must be taken into account in developing interventions, particularly in pastoralist societies as gender roles affect the ability of men and women to participate in program activities. In their recent paper on gender and resilience, Kumar and Quisumbing (2014) identify three key policy implications that relate to using market systems to address this heightened vulnerability of women. First, when women control fewer assets than men, they are more likely to depend on negative coping strategies such as distress sale of assets or by eating less or poorer quality foods. In order to avoid long-term negative impact from these coping mechanisms, efforts to strengthen resilience should focus on building women's asset base and control over assets. Second, efforts to strengthen resilience need to be particularly sensitive to adding to the already heavy demands on women's time. Third, as migration can be an important coping strategy to access new labor markets or resources, it is important to have financial market mechanisms in place to send remittances back to the household, as well as policies that ensure safe work environments and legal protection, particularly for women.

At the same time, sensitivity to women's potentially increased vulnerability to shocks should not obscure women's key role in building market, community and household resilience. In terms of access to and the availability of food, the FAO estimates that in sub-Saharan Africa, women produce and market up to 90 percent of all locally grown food (FAO 1995). Concerning risk diversification, in Karamoja, Uganda, women are playing an increasing role in diversifying incomes as pastoralists look for alternative livelihoods (DFID 2013). Westermann, Ashby and Pretty (2005) document the positive impact of women's participation in community-based collective action groups, including increased collaboration, solidarity, reciprocity and conflict resolution—characteristics that are linked to absorptive and adaptive capacity.

Women are generally the principal caregivers in the household, and empowered mothers are better able to ensure the wellbeing of their children. Adhikari and Sawangdee's (2011) analysis of data from the 2006 Nepal

Demographic and Health Survey reveals mothers' literacy and involvement in healthcare decision making as the most powerful predictors for reducing infant mortality. Similarly, women in Southern Somalia who were empowered to make decisions in the household were found to be better able to feed and care for their children during drought and famine than those who lacked decision making power (Mercy Corps and Tango 2013).

Because of women's critical role in strengthening resilience, and their increased vulnerability to shocks and stresses, it is essential to integrate women's empowerment into the design of resilience-oriented programing.

VI. CONCLUSIONS & NEXT STEPS

Resilience is an organizing principle for development that has recently gained popularity. The concept provides a framework for integrating, layering and sequencing humanitarian and development assistance using the three key capacities of resilience: absorptive capacity, adaptive capacity, and transformative capacity. Strategies to strengthen resilience require combinations of diverse activities that cut across the three capacities for resilience. It is also important to note that there is inter-scalar dependency, where resilience at one level of aggregation affects resilience at other levels.

To be resilient, individuals and households must engage with market systems, and those systems must have the capacity to withstand and adapt to shocks and stresses. It is therefore important to take into account the long-term functioning of market systems when designing strategies to prepare for and respond to shocks. Integrating market systems approaches to build resilience and respond to shocks can also be more cost-effective than traditional humanitarian and emergency responses on their own.

The market system development approach aims to catalyze a process that results in a market system that is competitive, inclusive and resilient (Campbell 2014). The recognition that market systems need to be resilient has implications for how practitioners design, operationalize, and measure market system performance. This includes the need for diversity (of products and market channels), redundancy (in buyers, sellers and service providers), trusting relationships (that facilitate learning and innovation), and consistent and equitable market governance.

Although there is convergence around the typical characteristics of resilient market systems, there is not yet a strong body of quantitative evidence that ranks the key determining factors for market resilience, or for resilient systems in general. There are also several key gaps either in research or in program guidance, as described below.

A. WHAT ARE THE KEY DETERMINANTS OF RESILIENCE?

It is clear that the resilience community needs to conduct additional quantitative and qualitative research, including monitoring and evaluating ongoing resilience programs, in order to further test and refine the framework for how market systems interventions can strengthen resilience. While the specific determinants for resilience will vary depending on the nature of the shock, the local context, and the target population, the broader underlying determinants that cut across these factors need to be supported up with evidence.

Additional research is needed to test the relative importance of the following characteristics of resilient systems: i) diversity, ii) redundancy, iii) relationships, and iv) governance. Further, the role of markets in contributing to household-level resilience through the promotion of diversified livelihoods, women's empowerment and increased social capital needs to be analyzed more rigorously.

B. DIVERSIFICATION OF WHAT AND BY WHOM?

There is clear consensus that diversification is an important strategy to reduce risk and strengthen absorptive and adaptive capacity and thus increase resilience, but there has been little focus on diving deeper into diversification to understand how households and market systems should diversify and from what. For example, a common resilience strategy is income diversification, but the Mercy Corps and TANGO (2013) study in Somalia found that it is not enough to diversify income sources; risk factors must also be diversified. While this result is not groundbreaking, there needs to be greater effort to integrate these diversification

strategies into resilience strategies. More evidence on the importance of diversified risk factors for resilience would also be useful in further developing the framework presented in this paper.

C. HOW TO BALANCE THE TRADEOFFS BETWEEN RESILIENCE AND EFFICIENCY?

There is a tradeoff between resilience and efficiency as resilience requires preparations to mitigate risk against a wide variety of shocks that may or may not occur. Many studies note this tradeoff between resilience and market system efficiency. There is a need for guidance in developing resilience strategies for how to identify tradeoffs and the appropriate balance between resilience and market efficiency. Further research is needed to identify key tradeoffs for consideration—such as the tradeoff between adaptive capacity and market efficiency, or between redundancy in the system and efficiency in one market channel—and recommendations should be made for how to address these tradeoffs.

D. DOES THE ADAPTIVE NATURE OF COMPETITIVE MARKET SYSTEMS INHERENTLY MAKE THEM RESILIENT?

The literature suggests that resilient systems are adaptive, flexible and able to learn, and they tend to encourage diversity. Competitive market systems are adaptive in order to respond to new and changing market opportunities, but there has been little research on whether this ability to track and respond to market signals translates into an ability to adapt to shocks and stresses, and if so, under what circumstances. Additional research in this area is needed to examine how market systems themselves prepare for and respond to shocks.

E. WHAT GOVERNANCE STRUCTURES BEST SUPPORT RESILIENCE?

Functional inclusive governance systems are critical for resilience and underpin transformational capacity. Governance of the market system impacts resilience by determining the rules of the game, which ultimately determine who benefits and who is more resilient. Additional research is needed to understand what governance structures best promote resilience, and what governance structures promote resilience for the poor and other highly vulnerable groups.

F. HOW CAN MARKET SYSTEMS DEVELOPMENT AND RESILIENCE PROGRAMMING BE BETTER INTEGRATED?

As previously mentioned, programming in areas prone to shocks typically includes activities aimed at improving the resilience of vulnerable households, and separate activities targeting value chain development for the less vulnerable. Since the literature identifies the complementarity of resilience and market development programming, practical guidance is needed for project designers and implementers on how to integrate the principles, approaches and activities of each. Tension points between the two types of intervention, and ways to resolve or mitigate these tensions need to be identified.

REFERENCE LIST

- Adhkari, Ramesh and Yothin Sawangdee. (2011). “Influence of Women’s Autonomy on Infant Mortality in Nepal.” <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3101134/>
- Aklilu, Jacob, Peter D. Little, Hussein Mahmoud, and John McPeak. 2013. “Market Access and Trade Issues Affecting the Drylands in the Horn of Africa.” CGIAR and the FAO Investment Center.
- Aldrich, Daniel. 2014. Presentation at IFPRI Building Resilience for Food & Nutrition Security: 2020 Conference.
- Asheim, Bjørn, Ron Boschma and Philip Cooke. 2009. “Constructing Regional Advantage: Platform Policies Based on Related Variety and Differentiated Knowledge Bases.” Utrecht University.
- Bahadur, Aditya V., Maggie Ibrahim and Thomas Tanner. 2010. “The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters.” Strengthening Climate Change Resilience: Discussion Paper 1. DFID.
- Baily, Rob. 2013. “Managing Famine Risk: Linking Early Warning to Early Action.” London: The Royal Institute of International Affairs.
- Barder, Owen. 2012. “What is Development?” The Center for Global Development Blog, August 16. <http://www.cgdev.org/blog/what-development>
- Barder, Owen. 2013. “Complexity Theory and Development Policy.” Video of public event at the Center for Global Development. February 5. <http://www.cgdev.org/event/complexity-theory-and-development-policy>
- Barichello, Rick and Brad Gilmour. 2011. “Moving Beyond Market Volatility Towards Agri-food System Resilience.” Presented at 2011 PECC Agricultural and Food Policy Forum: “Moving Beyond Market Volatility to Foster Food Security.” Taipei: December 1-2i.
- Barrett, Christopher and Mark Constan. 2013. “Toward a Theory of Resilience for International Development Applications.” Unpublished.
- Béné, Christophe, Rachel Godfrey Wood, Andrew Nesham, and Mark Davies. 2012. “Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programme.” IDS Working Paper 405. The Institute of Development Studies.
- Berkes 2007 in Bahadur, Aditya V., Maggie Ibrahim and Thomas Tanner. 2010. “The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters.” Strengthening Climate Change Resilience: Discussion Paper 1. DFID.
- Boudreau, Tanya. 2013. “Livelihoods at the Limit: Reducing the risk of disasters and adapting to climate change. Evidence from the consolidated Household Economy Analysis database.” Save the Children UK.
- Buchanan-Smith, Margie, Abdul Jabar Abdulla Fadul, Abdul Rahman Tahir, Musa Adam Ismail, and Mohamoud Jumma. 2013. “Taking Root.” Khartoum: The Feinstein Center.

- Bujones, Alejandra Kubitschek, Katrin Jaskiewicz, Lauren Linakis, Michael McGirr. 2013. “A Framework for Analyzing Resilience in Fragile and Conflict-Affected Situations.” USAID.
- Campbell, Ruth. 2014. “A Framework for Inclusive Market System Development.” ACDI/VOCA and USAID.
- Campbell, Ruth. 2008. “Key Elements of the Value Chain Approach.” USAID Briefing Paper.
- Ceballos, Francisco and Miguel Robles. 2014. “Weather Risks and Insurance Opportunity for the Rural Poor.” IFPRI Building Resilience for Food & Nutrition Security: 2020 Conference Brief 10.
- Chaffin, Josh, Natalie Rhoads, Jennine Carmichael. 2013. “Children and Economic Strengthening Programs: Maximizing Benefits and Minimizing Harm.” USAID, Child Protection in Crisis Network, Women's Refugee Commission, and FHI360.
- Charette, Dan. 2011. “A Portfolio Approach to Value Chain Development Programs.” USAID.
- Concern Worldwide. 2013. “Confronting Crisis: Transforming lives through improved resilience.” Accessed February 14, 2014: <https://www.concern.net/resources/transforming-lives-through-improved-resilience>
- Cunha, J. M., G. De Giorgi, and S. Jayachandran (2011). “The Price Effects of Cash versus In-Kind Transfers.” IPC Working Paper 116. Cambridge, MA: Massachusetts Institute of Technology. In Margolies, Amy; Hoddinott, John (2012): Mapping the impacts of food aid: Current knowledge and future directions, WIDER Working Paper, No. 2012/34, ISBN 978-92-9230-497-3
- Deloitte Development LLC. 2013. “Supply Chain Resilience: A Risk Intelligent Approach to Managing Global Supply Chains.”
- de Weijer, Frauke. 2013. “Resilience: A Trojan Horse for a New Way of Thinking?” Discussion Paper No. 139. European Centre for Development Policy Management.
- DFID. 2013. “Enhancing Resilience in Karamoja, Uganda.” DFID.
- DFID. No date. “Defining Disaster Resilience: A DFID Approach Paper.” https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/186874/defining-disaster-resilience-approach-paper.pdf
- Drost, Sarah, Jeroen van Wijk, and Fenta Mandefro. 2011. “Multi Stakeholder Platform Contribution to Value Chain Development: The Honey & Beeswax, Milk & Milk Products, Pineapple and Edible Oil & Oilseeds Value Chains in Ethiopia.” Partnerships Resource Centre /SDC-Maastricht School of Management: Project #594.
- Dunn, Elizabeth. 2014. “Smallholders and Inclusive Growth in Agricultural Value Chains.” Field Report No. 18. USAID, Impact LLC, and FHI360.
- FAO. 2011. “The State of Food and Agriculture: Women in Agriculture, Closing the Gender Gap for development.”
- FAO. 1995. “Dimensions of Need: An Atlas of Food and Agriculture.”

- FAO, WFP and UNICEF. 2012. Building resilience – rethinking aid strategy for Somalia: A FAO-WFP-UNICEF Joint Strategy on Building Resilience against Shocks for Somalia. DRAFT. March 14, 2012.
- Farrington, John. 2013. “Reducing and managing risks in the context of resilient food systems – what role for insurance?” GIZ.
- Feed the Future FEEDBACK. 2013. Feed the Future Northern Kenya Zone of Influence Baseline Report. Rockville, MD: Westat.
- Field, Michael, Hannah Schiff, Lisa Kearns, and Marshall Bear. 2012. “Facilitating Value Chain Development.” ACDI/VOCA and USAID.
- Flintan, Fiona. 2011. “The Changing Nature of Gender Roles in the Drylands of the Horn and East Africa: Implications for DRR Programming.” Regional Learning and Advocacy Programme, Oxfam.
- Folke, Carl. 2006. “Resilience: The emergence of a perspective for social-ecological systems analysis.” *Global Environmental Change* 16: 253-267.
- Fowler, Ben and Margie Brand. 2011. “Pathways Out Of Poverty: Applying Key Principles of the Value Chain Approach to Reach the Very Poor.” USAID.
- Fowler, Ben and Bronwyn Irwin. 2012. “Integrating Food Security and the Value Chain Approach.” USAID Briefing Paper.
- Frankenberger, Tim. 2012a. “Enhancing Resilience to Food Insecurity Amid Protracted Crisis.” Paper presented at the High-Level Expert Forum on Food Insecurity in Protracted Crises, Rome, Italy, September 13-14.
- Frankenberger, Tim, Mark Langworthy, Tom Spangler, and Suzanne Nelson. 2012b. “Enhancing Resilience to Food Security Shocks.” TANGO International.
- Frankenberger, Tim, Monica Mueller, Tom Spangler, and Sara Alexander. 2013a. “Community Resilience: Conceptual Framework and Measurement (Feed the Future Learning Agenda).” USAID.
- Frankenberger, Tim, Suzanne Nelson. 2013. “Background Paper for the Expert Consultation on Resilience Measurement for Food Security.” Tango International.
- Frankenberger, Tim, Kimberly Swallow, Monica Mueller, Tom Spangler, Jeanne Downing, and Sara Alexander. 2013b. “Feed the Future Learning Agenda Literature Review: Improving the Resilience of Vulnerable Populations.” USAID.
- Future Agricultures. “Promoting Agriculture for Social Protection or Social Protection for Agriculture: Concepts and Framework.”
- Garloch, Anna. 2012. “Pushing the Poverty Frontiers of Inclusive Value Chain Development.” ACDI/VOCA and USAID.
- Gash, Megan and Kathleen Odell. 2013. “The Evidence-Based Story of Savings Groups: A Synthesis of Seven Randomized Control Trials.” A publication of the Savings-led Financial Services Group at SEEP.

- Geleta, Bekele, Goli Ameri, Kiflemariam Amdemariam, Shenggan Fan, Alexander J. Stein, and Tolulope Olofinbiyi. 2012. “Reducing the Risk of Food and Nutrition Insecurity among Vulnerable Populations.” International Federation of Red Cross and Red Crescent Societies and the International Food Policy Research Institute.
- Gereffi, Gary. 1999. “International Trade and Industrial Upgrading in the Apparel Commodity Chain.” *Journal of International Economics* 48 (1999) 37-70
- Gubbels, Peter. 2011. “Escaping the Hunger Cycle: Pathways to Resilience in the Sahel.” The Sahel Working Group.
- Holling, CS. 1996. Engineering Resilience vs. Ecological resilience. Engineering within ecological constraints, ed. Schulze PC. National Academy Press, Washington, DC. in Barrett, Christopher and Mark Conostas. 2013. “Toward a Theory of Resilience for International Development Applications.” Unpublished.
- IFPRI, Women’s Empowerment in Agriculture, Production Diversity and Nutrition, December 2013
- Interagency Resilience Working Group. 2012. “The Characteristics of Resilience building: A Discussion Paper.”
- International Red Cross and Red Crescent Movement. 2007. “Guidelines for cash transfer programming.”
- KPMG and Oxford Economics. 2013. Change Readiness Index.
- Kumar, Neha and Agnes Quisumbing. “Gender, Shocks, and Resilience.” IFPRI Building Resilience for Food & Nutrition Security: 2020 Conference Brief 11. May 2014.
- Lentz, E. C., S. Passarelli, and C. B. Barrett. 2013. “The Timeliness and Cost Effectiveness of the Local and Regional Procurement of Food Aid.” *World Development* 49 (September): 9–18. In Hoddinott, John, Susanna Sandstrom, and Joanna Upton. 2014. “The Impact of Cash and Food Transfers: Evidence from a Randomized Intervention in Niger.” IFPRI Discussion Paper 01341.
- Levy, Stephanie, and Sherman Robinson. 2014. “Can Cash Transfers Promote the Local Economy: A Case Study for Cambodia.” IFPRI Discussion Paper 01334.
- Little, Peter D. and John G. McPeak. 2014. “Resilience and Pastoralism in Africa South of the Sahara, with a Particular Focus on the Horn of Africa and the Sahel, West Africa.” Building Resilience for Food and Nutrition Security. 2020 Conference Paper 9.
- Longstaff, Patricia, Nicholas Armstrong, Keli Perrin, Whitney Parker, and Matthew Hidek,. “Building Resilient Communities: A Preliminary Framework for Assessment.” *Homeland Security Affairs* VI, no. 3 (September 2013).
- Meissner , Laura. 2012. “USAID/OFDA Economic Recovery and Market Systems.” USAID/OFDA.
- Mentijan, Vijay. “Micro insurance.” IFPRI 2020 Policy Consultation and Conference. Building Resilience for Food and Nutrition Security. 15-17 May 2014. Addis Ababa, Ethiopia.
- Mercy Corps. No date. “Rethinking Resilience: Prioritizing Gender Integration to Enhance Household and Community Resilience to Food Insecurity in the Sahel.”

- Mercy Corps. 2013. “Resilience, Development and Disaster Risk Reduction.” Accessed February 14, 2014: http://www.mercycorps.org/sites/default/files/TheConnectionBetweenResilienceDevelopmentDR_R_Sept2013.pdf
- Mercy Corps and TANGO. 2013. “What Really Matters for Resilience? Exploratory Evidence on the Determinants of Resilience to Food Security Shocks in Southern Somalia.”
- Meybeck, Alexandre, Jussi Lankoski, Suzanne Redfern, Nadine Azzu, and Vincent Gitz (ed). 2012. “Building Resilience for Adaptation to Climate Change in the Agricultural Sector.” Workshop proceedings. FAO/OECD Workshop, Rome, April 23-24.
- Merrill, Scott, Hem Chandro Roy, Saeqah Kabir, Erin Dahan. nd. “Market Development for Disaster Risk Reduction.” Swiss Agency for Development and Cooperation.
- The Montpellier Panel. 2012. “Growth with Resilience: Opportunities in African Agriculture.” London: Agriculture for Impact.
- Morton, John and Carol Kerven. 2013. “Livelihoods and Basic Service Support in the Drylands of the Horn of Africa.” CGIAR and the FAO Investment Center.
- Nelson et al 2007 in Bahadur, Aditya V., Maggie Ibrahim and Thomas Tanner. 2010. “The Resilience Renaissance? Unpacking of Resilience for Tackling Climate Change and Disasters.” Strengthening Climate Change Resilience: Discussion Paper 1. DFID.
- Neumayer, E. and T. Plümper. 2007. “The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981-2002.” *Annals of the American Association of Geographers* 97 (3): 551-566. In Kumar, Neha and Agnes Quisumbing. “Gender, Shocks, and Resilience.” Building Resilience for Food & Nutrition Security 2020 Conference Brief 11. May 2014.
- Norell, Dan and Margie Brand. 2012. “Integrating Very Poor Producers into Value Chains: Field Guide.” USAID and FHI360 FIELD-Support LWA publication.
- Olsson et al. in de Weijer, Frauke. 2013. “Resilience: A Trojan Horse for a New Way of Thinking?” Discussion Paper No. 139. European Centre for Development Policy Management.
- Pavanello, Sara. 2010. “Working Across Borders: Harnessing the potential of cross-border activities to improve livelihood security in the Horn of Africa drylands.” Humanitarian Policy Group Brief 41. Care, European Commission, Overseas Development Institute.
- Pennotti, Christinan. 2013. “Pushing the Limits: Lessons from CARE on Market Systems Approaches, Food Security, and Resilience.” USAID MPEP Seminar.
- Radcliff, Darius and Tate Munro. “Resilience in East Africa: A Framework for Action.” Mercy Corps.
- Sadler, Kate, Emily Mitchard, Abdulahi Abdi, Yoseph Shiferaw, Gezu Bekele, and Andrew Catley. 2012. “Milk Matters: The Impact of Dry Season Livestock Support on Milk Supply and Child Nutrition in Somali Region, Ethiopia.” Feinstein International Center (Tufts University), Save the Children, USAID.

- Sedita, Silvia Rita, Ivan de Noni and Luciano Pilotti. 2014. "How do Related Variety and Differentiated Knowledge Bases Influence the Resilience of Local Production Systems?" Marco Fanno Working Paper 180. Universita Degli Studi di Padova
- The SEEP Market Development Working Group. 2007. "Market Development in Crisis-Affected Environments: Emerging Lessons for Achieving Pro-Poor Economic Reconstruction." The SEEP Network.
- Tirivayi, Nyasha, Marco Knowles, and Benjamin Davis. 2013. "The Interaction between Social Protection and Agriculture: a review of evidence." Rome: Food and Agriculture Organization of the United Nations.
- Twigg, John. 2009. "Characteristics of a Disaster-Resilient Community: A Guidance Note." Interagency Group.
- United Nations Development Programme. 2012. "Chapter 6. Resilience and Social Protection for Stability in Food Systems." In Africa Human Development Report 2012: Towards a Food Secure Future. 99-111. New York: United Nations Development Programme.
- USAID. 2012a. "Building Resilience to Recurrent Crisis: USAID Policy and Program Guidance" Accessed February 13, 2014: www.usaid.gov/sites/default/files/documents/1870/USAIDResiliencePolicyGuidanceDocument.pdf
- USAID. 2012b. "Sahel JPC Strategic Plan: Reducing Risk, Building Resilience and Facilitating Inclusive Economic Growth." USAID presentation.
- USAID. No date. "Using Social Protection to Build Resilience."
- Briefing Paper van Haeften, Roberta, Mary Ann Anderson, Herbert Caudill, and Eamonn Kilmartin. 2013. Second Food Aid and Food Security Assessment (FAFSA-2).
- Venton, C.C, Fitzgibbon, D. Shiterek, T., Coulter, L. and O. Dooley. 2012. The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia. Final Report. June 2012.
- Walker, Brian. 2012. "Applying Resilience Thinking to Resource Management." Presentation. Environmental Defense Society Conference.
- Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004). Ecology and Society 9 (2): 5.
- Walker, B., Sayer, J., Andrew, N. L., & Campbell, B. (2010). Should enhanced resilience be an objective of natural resource management research for developing countries? Crop Science, 50, 10. in Frankenberger, Tim, Monica Mueller, Tom Spangler, and Sara Alexander. 2013a. "Community Resilience: Conceptual Framework and Measurement (Feed the Future Learning Agenda)." USAID.
- Wetterberg, A. (2004). Crisis, social ties, and household welfare: Testing social capital theory with evidence from Indonesia. Washington DC: World Bank. in Frankenberger, Tim, Monica Mueller, Tom Spangler, and Sara Alexander. 2013a. "Community Resilience: Conceptual Framework and Measurement (Feed the Future Learning Agenda)." USAID.
- Winston, Andrew. "Resilience in a Hotter World." Harvard Business Review. April 2014.

The World Bank. 2013. “Agricultural Sector Risk Assessment in Niger: Moving from Crisis Response to Long-Term Risk Management.” The International Bank of Reconstruction and Development/International Development Association.

World Economic Forum. 2013. “Building Resilience in Supply Chains.” An Initiative of the Risk Response Network in collaboration with Accenture.