



Enhancing Resilience to Food Security Shocks in Africa

Discussion Paper

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Introduction

In recent decades communities within the Horn of Africa (HoA) and the Sahel have faced continuous cycles of crisis. These are the result of complex interactions between political, economic, social and environmental factors. In spite of efforts to respond to these combined sources of stress, recent climate-related crises coupled with conflict and chronic poverty have directly threatened the lives of millions of people. The collective response to these emergencies and underlying structural contributors to vulnerability have exposed the shortcomings of international aid practices and national and regional policies.

A common concern with these responses is that while they have saved lives, they have not increased the capacity of affected populations to withstand future shocks and stresses.¹ Another prominent concern, particularly given the global economic climate, is that despite investment of hundreds of millions of dollars in humanitarian assistance, there is scant evidence of which approaches to building resilience represent the best 'value for money'. The starting point for reversing the downward spiral of chronic vulnerability in these regions lies in understanding that while the frequency and severity of natural hazards are likely to increase as a result of climate-related change, this trend exacerbates other underlying factors such as poverty, degraded ecosystems, inadequate physical infrastructure, conflict and ineffective governance. While the combination of these and other factors results in considerably different contexts in individual regions and countries, they tend to have a consistently negative impact on the coping and adaptive capacities of affected households.² In such settings, a relatively mild stress on chronically vulnerable households – such as delayed or inadequate rains, sharp price increases in food staples – can lead to major consequences due to their inability to effectively respond.

Building the resilience of vulnerable households so they can respond positively to these changes requires helping people cope with current change, adapt their livelihoods, and improve governance systems and ecosystem health so they are better able to avoid problems in the future. This means not only helping people through direct implementation of assistance programs at multiple levels, but also facilitating change through promotion of improved policies and adaptive practices.

Recently, considerable research has gone into defining the properties, principles, and processes that strengthen resilience at the individual, household, community, institutional and ecosystem levels. As a result of this research, and ongoing programming experience, many definitions of 'resilience' have been developed. For this paper, the following definition of **resilience** will be used:

The ability of countries, communities, and households to anticipate, adapt to, and/or recover from the effects of potentially hazardous occurrences (natural disasters, economic instability, conflict) in a manner that protects livelihoods, accelerates and sustains recovery, and supports economic and social development.

¹ USAID. 2011. Enhancing resilience in the Horn of Africa: An evidence-based workshop on strategies for success. USAID Workshop Proceedings. December 13-14, 2011.

² FAO. 2008. Food Security in Protracted Crises. What can be done? Food Security Information for Action (FSIA). Policy Brief.

Facilitating the necessary changes in policy and practice for enhancing resilience at significant scale is inherently dependent on the political will to do so. There is no doubt that facilitating the political will to make long-term investments in the foundations of resilience building will be difficult. Currently there is significant competition for limited resources among public and private institutions that each have their own agendas and mandates. At the same time, the potential benefits of effective resilience initiatives are likely to be long-term and may not coincide with the short-term political priorities of policy makers. Nonetheless, acquiring adequate levels of political will is not dependent on achieving consensus among the diverse array of stakeholders at the regional and national levels. Rather, it will be demonstrated where sufficient numbers of key decision makers at the regional, national and community levels can reach a common understanding of resilience objectives and broad agreement on the best approaches for achieving them. Current processes coordinated by the Comprehensive Africa Agriculture Development (CAADP), the Global Alliance for Action for Drought Resilience and Growth in the Horn of Africa, and the Global Alliance for Resilience in the Sahel (AGIR--- Sahel) are promising developments in this direction.

This paper seeks to contribute to the political will and technical capacity for resilience programming by differentiating the resilience approach from traditional humanitarian and development assistance models. It provides a framework and prospective methodology for assessing resilience and measuring the outcomes of programs aimed at enhancing resilience in various contexts. It establishes clear priorities for resilience programming by outlining specific steps that must be taken to improve disaster risk management, enhance adaptive capacity, and facilitate effective governance and other enabling conditions for resilience. In an effort to ground the conceptual and technical discussions of resilience, the paper also identifies some of the key challenges to achieving resilience, highlights several promising practices from throughout sub-Saharan Africa, and describes necessary steps for moving the resilience agenda forward in the HoA and the Sahel.

A Conceptual Framework for Assessing Resilience

Adoption of a conceptual framework for the assessment of resilience is important for providing a comprehensive picture of the specific elements that contribute to resilience and clarifying the types of information that must be collected in order to adequately measure it. It also helps users understand how shocks, stresses and long-term trends (e.g., institutional, economic, socio-political or environmental factors) affect livelihoods security. Within constantly changing natural, social and economic environments, a conceptual framework for resilience assessment can ultimately help determine whether households, communities and larger populations are on a trajectory toward greater vulnerability or greater resilience.^{3,4}

The conceptual framework for resilience assessment (Figure 1) integrates a livelihoods approach, a disaster risk reduction (DRR) approach, and elements of a climate change approach to address the

³ Frankenberger, T., Sutter, P., Teshome, A., Aberra, A., Tefera, M., Tefera, M., Taffesse, A.S., and T. Bernard. 2007. Ethiopia: The path to self-resiliency. Final Report prepared for CHF-Partners in Rural Development. July 2007.

⁴ Department for International Development (DfID). 1999. Sustainable livelihoods guidance sheets. London: DFID.

underlying causes of vulnerability. The livelihoods approach emphasizes the importance of access to productive assets, institutional structures and processes, and the livelihood strategies pursued by households. Alternatively, the DRR approach focuses on preparedness, prevention, response and recovery activities formulated in response to potential disasters. Finally, the climate change adaptation (CCA) approach is similar to that of DRR, but focuses specifically on actions to be taken in response to, and preparation for ongoing changes in climate. It goes beyond the DRR approach in giving careful consideration to potential threats caused by the loss of biodiversity and a decrease in ecosystem services.

The overall objective of the resilience assessment framework is to enable policy makers and practitioners to have a comprehensive understanding of the factors and processes influencing vulnerability and resilience at the household and community levels. It helps identify gaps in key livelihood assets, the functioning of structures and processes of key institutions, and the livelihood strategies of vulnerable households. The extent and nature of community and household responses to shocks and stresses will result either in increased vulnerability or increased adaptive capacity and resilience over time.

In light of the continually changing social, economic and natural environments in most developing countries, resilience to shocks and stresses is properly viewed as a process rather than a static state. A resilience assessment must be comprehensive in order to identify the causal factors that must be addressed in resilience programming. To the extent possible, resilience assessments should involve multiple partners (government, NGOs, research institutions, community representatives) and technical expertise across multiple sectors. Box 1 (below) provides a brief description of the individual components of the conceptual framework for resilience assessment. A more detailed discussion of conceptual issues related to the resilience assessment framework is provided in Annex 2.

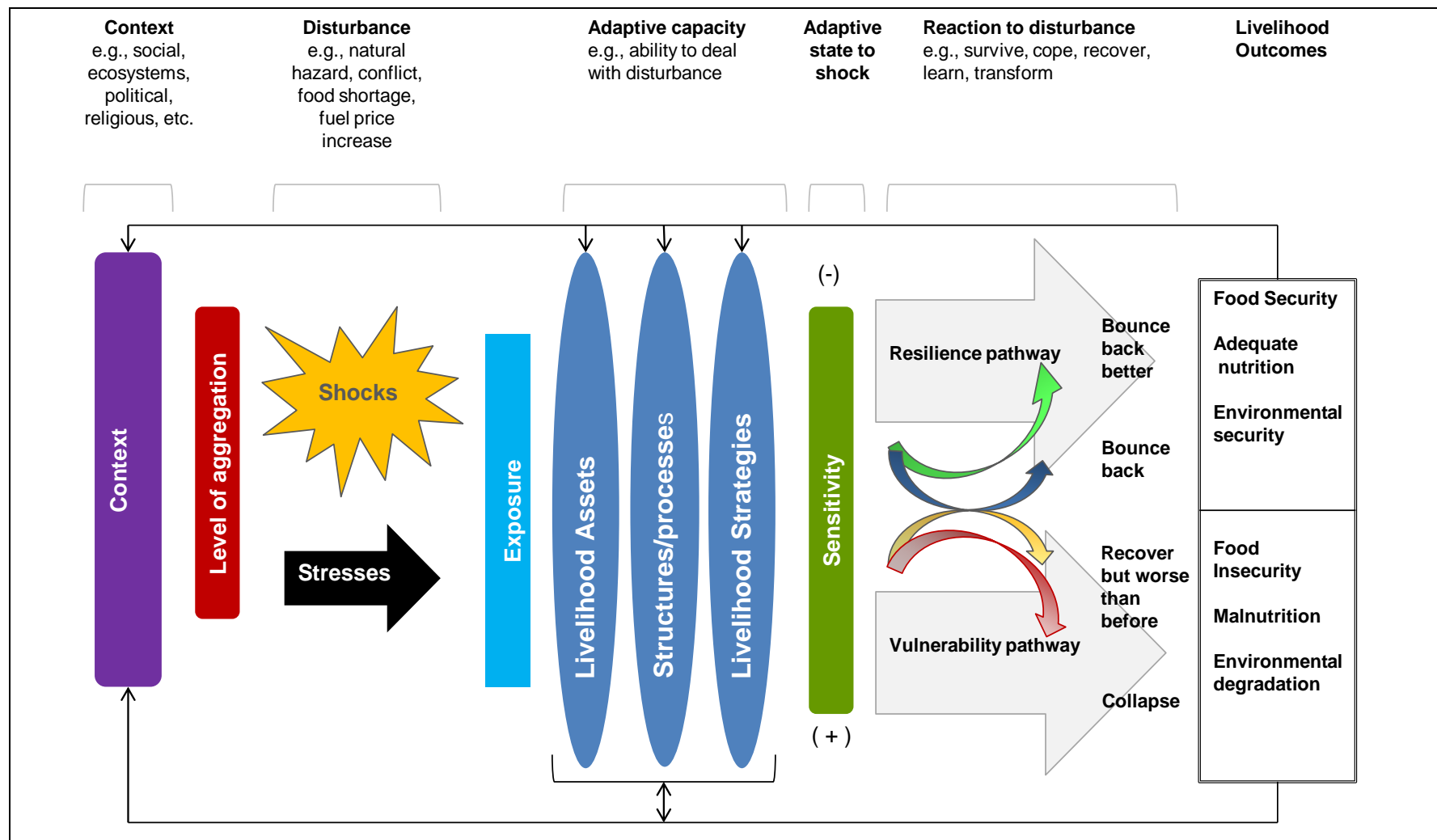
Whenever possible resilience assessments should be government-led, multi-sectoral and multi-agency endeavors. This will enable a common understanding among all stakeholders as to the main causes that are preventing households and communities from becoming resilient.

Once the assessment is done, it will be possible to identify the locations and populations where resilience action is needed, the casual factors that are preventing households and communities from becoming resilient, the identification of the key leverage points to focus on as part of a Theory of Change, and the interventions that should be included in a resilience program.

“A resilient system has the capacity to respond positively to change, maintaining or improving function; this includes monitoring, anticipating and managing known risks and vulnerabilities to existing shocks and stresses while being able to address uncertainties in the future. Change and responses may be incremental or transformational.”

- IRWG, 2012

Figure 1: Resilience Assessment Framework



TANGO 2012. Adapted from DFID Disaster Resilience Framework (2011), TANGO Livelihoods Framework (2007), DFID Sustainable Livelihoods Framework (1999) and CARE Household Livelihood Security Framework (2002).

Box 1: Elements of the Resilience Assessment Framework

Context – environmental, political, social, economic, historical, demographic, religious, conflict and policy conditions that affect, and are affected by adaptive capacity (ability of HHs, communities, and governments to cope with shocks).

Level of aggregation – the unit of analysis for determining resilience of what or whom (the individual, household, community, institution, government, or ecosystem). The relationships between various levels is a ‘nested hierarchy’, i.e., resilient individuals and HHs are the foundation for resilient communities. It is critical to note that resilience at one level does not automatically result in resilience at higher levels, i.e., resilient households do not necessarily result in resilient communities.

Disturbance - may come in the form of rapid onset or slow onset *shocks* (e.g., earthquakes or droughts) or longer-term *stresses* (e.g., environmental degradation, political instability). Experience shows that it is typically easier to mobilize resources for rapid onset shocks than slow onset shocks and stresses. In assessing resilience it is important to acknowledge that some disturbances are idiosyncratic (affecting only certain individuals or households) whereas others are covariate (affecting an entire population or geographic area). Also resilience to one type of shock (e.g., drought) does not ensure resilience to others (e.g., food price increases, conflict).

Exposure – a function of the magnitude, frequency, and duration of shocks

Adaptive Capacity – the nature and extent of access to and use of resources in order to deal with disturbance. Adaptive capacity both affects and is affected by the larger context and is comprised of three basic, but interrelated elements – livelihood assets; transforming structures and processes; and livelihood strategies.

- **Livelihood Assets** – tangible and intangible assets that allow individuals and households to meet their basic needs. Livelihood security depends on a sustainable combination of six assets/capitals: financial; physical; political; human; social; and natural. Certain assets are interdependent on others. Asset levels and quality can be improved and/or repaired. Landscapes can be restored, soils improved, new skills and abilities can be learned, and new markets can be developed or accessed. Livelihood assets can and should be grown and improved.
- **Structures and processes** – these are embodied in the formal and informal institutions that enable or inhibit the resilience of individuals, households and communities. Examples include national, regional, and local governments; civil society; religious institutions; trade associations; resource networks; shared customs and norms; informal/traditional governance structures; policies and laws.
- **Livelihood strategies** – represent the distinct or combined strategies that individuals and households pursue to make a living and cope with shocks. It is critical to note that different livelihood strategies have various risks associated with potential shocks and that certain coping strategies may have negative and permanent consequences with respect to resilience.

Sensitivity – is a cumulative outcome of the previous element that determines the degree to which an individual, household or community will be affected by a given shock or stress. Greater sensitivity implies a lower degree of resilience whereas lower sensitivity implies greater resilience.

Resilience and Vulnerability Pathways – the term ‘pathways’ underscores the idea that both vulnerability and resilience are properly viewed as processes rather than static states. Households or communities that are able to use their adaptive capacity to manage the shocks or stresses they are exposed to and incrementally reduce their vulnerability are less sensitive and are on a resilience pathway. Households that are not able to use their adaptive capacity to manage shocks or stresses are sensitive and are likely to go down a vulnerability pathway.

Livelihood Outcomes – these are the needs and objectives that households are trying to realize. Resilient individuals, communities and households will be able to meet their food security needs, will have access to adequate nutrition, their environment will be protected, they will have income security, health security, will be able to educate their children, and they will be able to participate in the decisions that affect their lives. Vulnerable households experience deficits, or a high risk of deficits in each of these aspects.

Resilience: a new paradigm for programming

Previous analyses of vulnerability and programming experience throughout the Horn of Africa and the Sahel strongly suggest that programming intended to enhance resilience is most necessary and appropriate where the following factors are present: **chronic vulnerability to food insecurity**, and recurrent **exposure to livelihood shocks and stresses**. Despite these common factors, specific strategies for enhancing resilience will be as diverse as the national and sub-national contexts in which they are implemented. Accordingly, strategies for improving resilience should not be defined by the “what”, but much more by the “why” and the “where.”

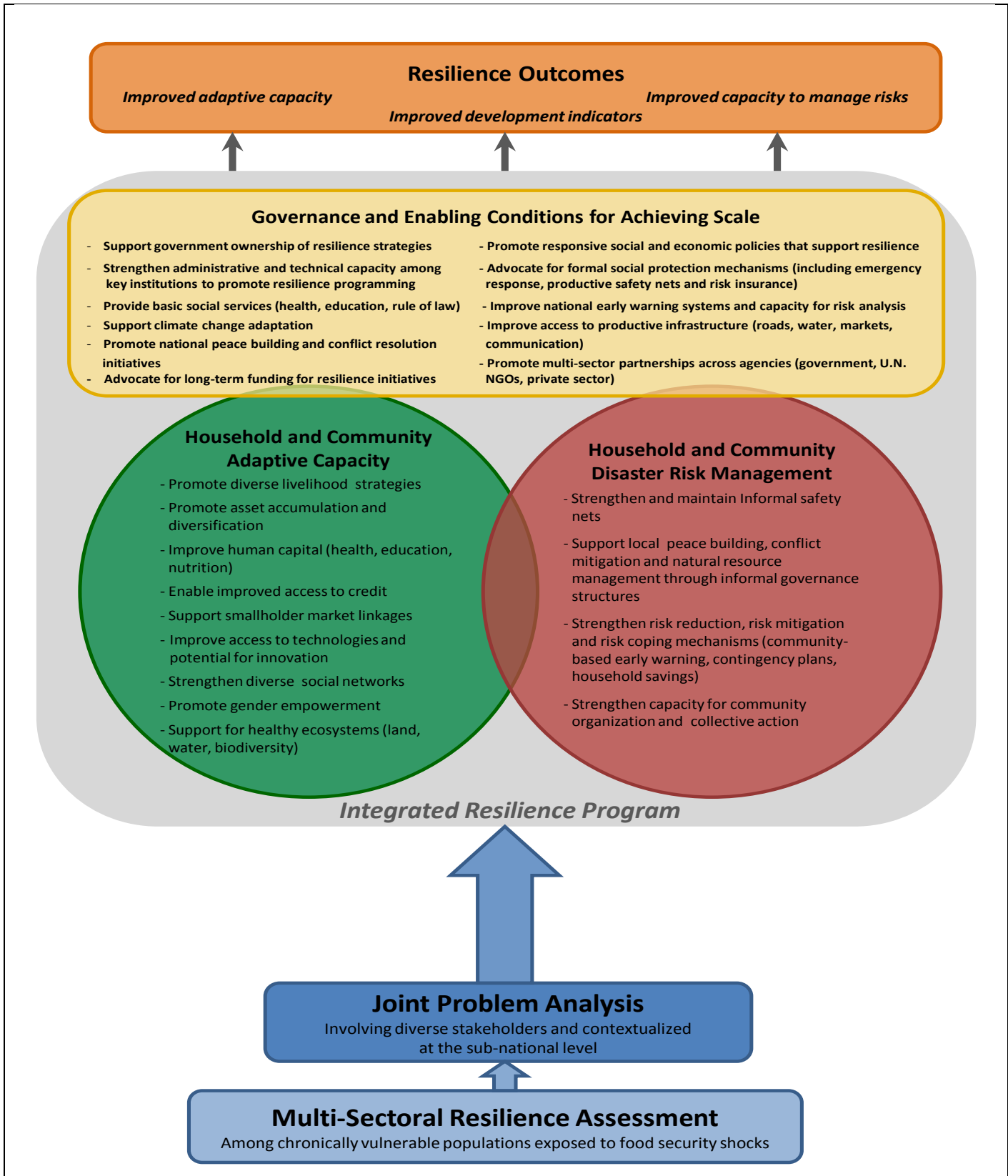
There is a general consensus that approaches to building resilience must somehow transcend the pitfalls and false distinctions made among humanitarian assistance efforts, longer-term development initiatives and social protection programs. Increasing resilience among chronically vulnerable populations affected by recurrent shock requires that humanitarian assistance operations, livelihood security development interventions, climate change adaptation, social protection, peace building and governance activities are designed and implemented in such a way that together they reduce disaster risk and strengthen adaptive capacity among target populations. At the same time, in order to break the cycle of recurrent humanitarian emergencies caused by predictable events (e.g., drought, flood) in disaster-prone areas (e.g., Horn of Africa, the Sahel), donors, policy makers and government must acknowledge the relative cost-effectiveness of long-term resilience building over periodic, short-term emergency response.^{5,6} This will require a transition, over time, in the balance of effort and resources from short-term humanitarian assistance efforts toward a combination of disaster risk management, climate change adaptation, livelihood diversification and social protection programs (see Figure 2).

Resilience programming provides a foundation for, rather than undermines, social and economic growth: where high levels of vulnerability to food insecurity and exposure to recurrent shocks exist, increasing resilience is a necessary component for sustainable growth.

⁵ Venton, Courtenay Cabot, et al. 2012. The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia. June, 2012.

⁶ This study estimates that for Kenya alone, late humanitarian response would cost \$20 billion more than resilience building initiatives over the course of 20 years.

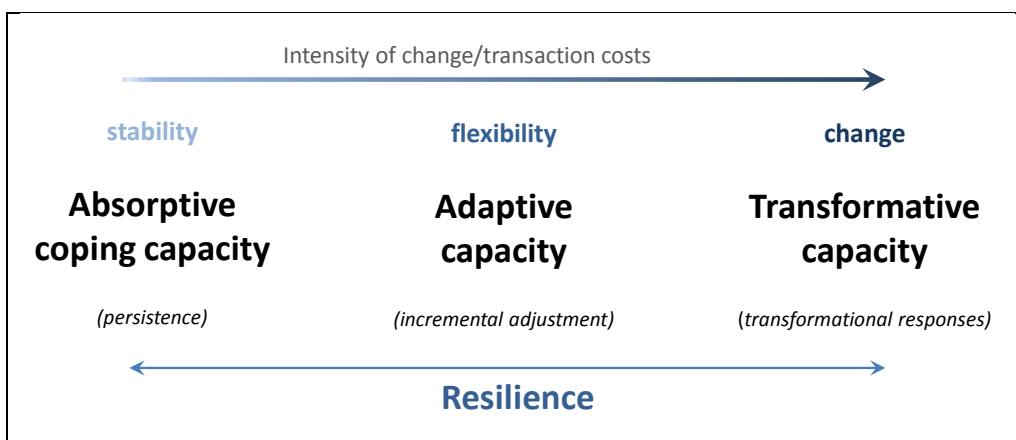
Figure 2: Resilience Programming Framework



Based on the assessment information and problem analysis, key leverage points would be matched up to the specific short-term and long-term program alternatives that are highlighted in the three areas in the diagram (adaptive capacity interventions, disaster risk management interventions, governance and enabling conditions interventions). Humanitarian and development assistance interventions would be integrated to enable households and communities to manage short-term shocks and stresses (DRM) and long-term trends and changes (adaptive capacity) to proceed down a resilient pathway. Interventions aimed at improving governance and enabling conditions would allow for successful resilience investments to be scaled up. The interventions that would be selected would then comprise the resilience program for the designated geographical area or population. Success would be measured using the three types of outcome measures (adaptive capacity indicators), improved development indicators (food security, nutrition, health, income) and indicators that capture improved capacity to manage risk.

Importantly, the framework for resilience programming provided in Figure 2 is consistent with and supports recent conceptual studies aimed at defining the temporal (time) scales of three distinct outcomes that should result from effective resilience programming (Figure 3).

Figure 3: Functional Roles of Resilience Programming



Source: Béné et al. 2012.

Under the resilience programming framework presented in Figure 2, improved disaster risk management is aimed at improving absorptive capacity at the community and household levels, helping them to both reduce disaster risk and absorb the impacts of shocks without suffering permanent, negative impacts on their longer-term livelihood security. It is at this critical stage of post-shock recovery that humanitarian assistance can provide the stability necessary for enabling and accelerating complementary development efforts.⁷ Such efforts should focus on strengthening the adaptive capacity of communities and households by improving their flexibility to respond to longer-term social, economic and environmental change. This necessarily entails promoting livelihood diversification, supporting asset accumulation, and improving the social and human capital available to vulnerable populations. The

⁷ Hill, Jeff. 2012. Personal communication. USAID. Bureau for Food Security (BFS).

continuous, incremental change needed to achieve these objectives underscores the importance of longer-term development strategies and funding streams for improving adaptive capacity. Finally, the transformative capacity of socio-ecological systems is primarily influenced by the governance structures and other enabling conditions for achieving resilience on a large scale. Building transformative capacity (i.e. enhancing governance and enabling conditions) will require a combination of technological innovations, institutional reforms, behaviour shifts, and cultural changes among relevant stakeholders at the international, regional, national, and sub-national levels.⁸ There are obvious barriers to transformation given that such changes typically require adaptation of entrenched systems maintained and protected by particularly influential actors.⁹ As such, enhancing transformational capacity – or promoting improved governance and enabling conditions – must be acknowledged as a long-term endeavor likely to be achieved (if at all) over the course of decades rather than years. The salient point of both frameworks is that building resilience requires an integrated approach, and a long-term commitment to improving three critical capacities: absorptive capacity (disaster risk management), adaptive capacity (longer-term livelihood investments) and transformative capacity (improved governance and enabling conditions).¹⁰

Obviously, designing, implementing and monitoring programs aimed at enhancing household and community resilience will not be necessary or appropriate in every environment. For example, in situations of protracted crisis, the continual interaction of factors contributing to vulnerability (conflict, displacement, drought, flood, weak governance, lack of social services, etc.) is much more dynamic and inherently complex. Achieving greater resilience in these environments requires that actors at multiple levels closely coordinate their efforts in a manner that is often difficult, if not impossible, under the current architecture of international development aid. In situations of protracted crisis where conflict is extensive, the necessary enabling conditions (e.g., functional institutions, good governance, productive infrastructure, healthy natural resource base) and convergence of multi-sectoral strategies among a range of stakeholders at multiple scales may not be possible.¹¹ In such cases it may not be possible to scale up resilience beyond a narrower focus on enhancing the resilience of communities and/or households. Figure 4 (below) illustrates the multiple sectors that will likely need to be addressed to enhance resilience at various levels. There will be certain situations – such as those where formal government remains fragile or absent and/or those experiencing ongoing violent conflict – where resilience building may be impossible unless and until basic minimum conditions are present.

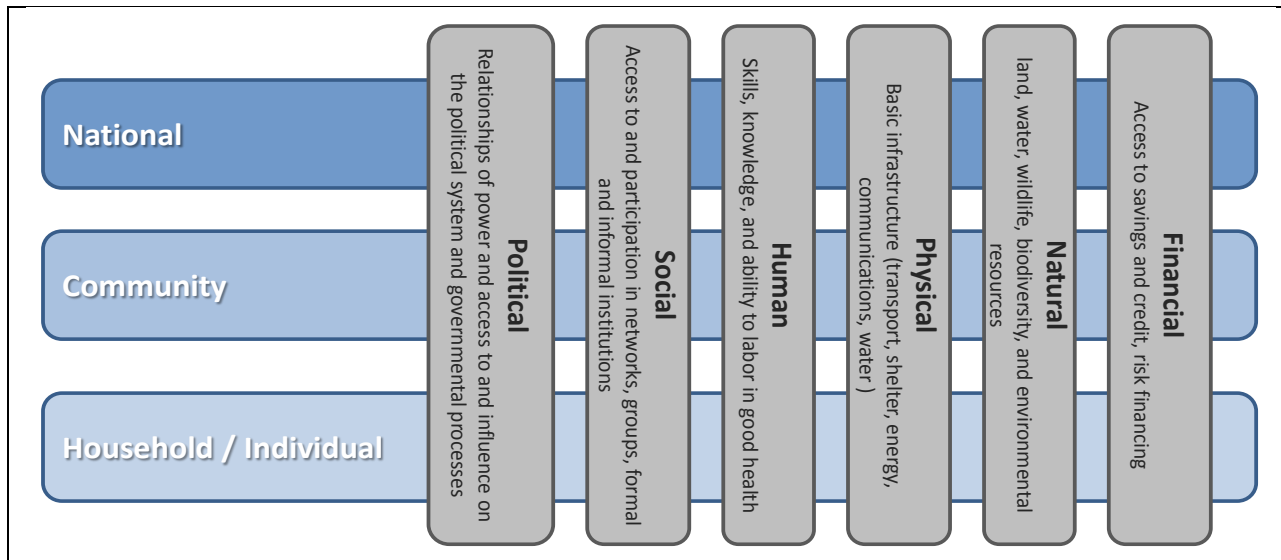
⁸ O'Brien, K. 2011. 'Global Environmental Change: From Adaptation to Deliberate Transformation', *Progress in Human Geography*.

⁹ Béné, Christophe, Rachel Godfrey Wood, Andrew Newsham 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 Programmes*. IDS Working Paper, Volume 2012 Number 405. CSP Working Paper Number 006. Institute of Development Studies (IDS) and Centre for Social Protection (CSP). September 2012.

¹⁰ Ibid.

¹¹ FAO, WFP, UNICEF. 2012. "Building Resilience – rethinking aid strategy for Somalia. A FAO-WFP-UNICEF Joint Strategy on building resilience against shocks for Somalia. 14 March 2012.

Figure 4: Building Resilience across Sectors and Scales



Source: Adapted from DFID 2012

Components of an Integrated Resilience Program

In order to achieve appropriate and sustainable approaches to enhancing resilience in the HoA and the Sahel, government, donors and implementing agencies should promote integrated strategies that ensure support for three separate but complementary components of community and household resilience: 1) disaster risk management; 2) adaptive capacity; and 3) governance and other enabling conditions. Each of these key components of resilience is described below.

Disaster Risk Management at the Household and Community Levels

Disaster risk management strategies are those that help people prepare for and respond to shocks, thereby reducing the vulnerability and increasing the adaptive capacity of affected households. Risk reduction strategies are preventative in nature and are therefore implemented *ex ante* – before a shock or stress occurs (e.g. crop diversification, use of drought-tolerant crops/livestock, obtaining insurance, protecting health). Alternatively disaster mitigation and coping strategies are those that are employed *ex post* – after a disaster has struck – in order to minimize its immediate and longer-term impacts. Use of household savings, labor migration, and reliance on community contingency plans are each common disaster mitigation strategies. Unfortunately, vulnerable households incapable of meeting basic needs in the wake of a disaster often employ negative coping strategies (divestment of productive assets, reduction in quantity and quality of meals, over-exploitation of natural resources) that are detrimental to livelihood strategies and reduce household adaptive capacity and resilience. Programming aimed at enhancing resilience can promote several actions for improving disaster risk management in vulnerable communities. They include:

- **Promote community-based early warning systems, contingency plans and household savings**

In addition to monitoring national-level warning systems, programming for resilience should strengthen the capacity of communities to take collective action to mitigate shocks and stresses. One means of doing so is through community-managed disaster risk reduction (CMDRR). Intended to help communities identify and effectively respond to the range of potential hazards they face, this approach goes beyond early warning and prioritizes the development of community action plans that can be implemented to reduce community vulnerability to disaster.¹² A key feature of CMDRR is drawing on communities' existing knowledge and skills in areas such as rangeland management, water resource management, and environmental remediation. Previous studies have also shown that establishment and maintenance of community-based savings associations has been instrumental in helping vulnerable households – particularly those headed by women – cope with the impacts of disaster.¹³

- **Support for informal safety nets**

Informal safety nets at the community level have traditionally been critical to smoothing food consumption and protecting assets among disaster-affected households. Unfortunately, many informal safety nets in disaster-prone regions have continually deteriorated amid an ever increasing number of chronically vulnerable households. While some government offer formal social protection schemes, most communities also have some access to informal safety nets provided by religious groups, social clubs, traditional authorities, and savings and credit associations. Informal safety nets are often more effective in dealing with idiosyncratic shocks (those affecting individual households) due to the fact that they incorporate community-specific knowledge and account for cultural, physical and economic differences among affective communities. They tend to be less effective than government-supported formal safety nets in dealing with covariate shocks (those that affect all members of the community).

- **Contribute to peace-building and conflict mitigation**

Conflict undermines resilience, particularly where impoverished communities are exposed to violence amid ongoing economic and/or environmental shock. Working on peace building and disaster risk reduction simultaneously has been shown to increase resilience by ensuring access to productive resources needed for maintaining livelihood security.¹⁴⁻¹⁶ In regions where chronic, violent conflict is present, activities to promote peace are a pre-requisite for strengthening resilience since livelihoods diversification, market integration, and other forms of risk reduction and adaptation among pastoralists are directly dependent on security and freedom of movement. Creating the enabling conditions for

¹² Cordaid and the International Institute of Rural Reconstruction (IIRR). 2011. Community managed disaster risk reduction experiences from the Horn of Africa. Cordaid, The Hague; IIRR, Nairobi.

¹³ TANGO International. 2011b. Final Evaluation – PSNP Plus Project. December 2011.

¹⁴ Kurtz, J., & G. Scarborough. 2011. From Conflict to Coping: Evidence from Southern Ethiopia on the contributions of peacebuilding to drought resilience among pastoralist groups.

¹⁵ International Institute for Environment and Development (IIED) and SOS Sahel UK. 2010. Modern and mobile: The future of livestock production in Africa's drylands.

¹⁶ Mercy Corps. 2012. From Conflict to Coping: Evidence from Southern Ethiopia on the contributions of peacebuilding to drought resilience among pastoralist groups.

peace over the longer-term will also require investment in human capital and development of livelihood alternatives for protagonists in violent conflict, especially male youths. Evidence suggests that in remote areas characterized by inter-ethnic and cross-border violence and chronic vulnerability to food insecurity, provision of infrastructure (roads, markets, communications) and basic services (health, education, security) can contribute to peace building and longer-term resilience.¹⁷ Finally, effective and durable resolution of conflict is dependent on comprehensive and locally contextualized conflict analysis.¹⁸

Improving the Adaptive Capacity of Households and Communities

Within the development context, adaptation has been described as the process of reducing the adverse effects of shocks and stresses on livelihoods and general well-being combined with the ability to take advantage of “new opportunities provided by a changing environment.”¹⁹ Alternatively, **adaptive capacity** can be understood as the nature and extent of access to and use of resources in order to deal not only with disturbance (e.g. shocks or hazards) but also with stresses and longer-term trends (e.g. price increases, climate change, demographic change). It results not only in the ability to ‘bounce back’ from shocks but also the ability to successfully adapt to long-term trends or changing conditions in the future.²⁰ In other words, adaptation for greater resilience requires that adaptive capacity be put into positive action.²¹

Adaptive capacity is context-specific and multi-dimensional; there is no “one size fits all”. Rather, adaptive capacity varies over time at the individual, household, community, and national levels.²² The framework for resilience programming (Figure 2) identifies several key components of adaptive capacity at the household and community levels. They include:

- **Diversification of livelihood strategies and productive assets**

Promotion of livelihood diversification in general – and reducing dependence on low-potential agricultural livelihoods in particular- is critical for improving the adaptive capacity of many vulnerable households in the HoA and the Sahel. The same is true for accumulation and diversification of productive assets. Household accumulation of a diverse set of productive assets reduces vulnerability to

¹⁷ Frankenberger, Timothy et al. 2012. Can Food Assistance Promoting Food Security and Livelihood Programs Contribute to Peace and Stability in Specific Countries? Paper developed for the High Level Expert Forum (HLEF) on Food Security in Protracted Crises. August 17, 2012.

¹⁸ Catley, A., and Iyasu, A. 2010. “Moving Up or Moving Out? A Rapid Livelihoods and Conflict Analysis in Mieso-Mulu Woreda, Shinile Zone, Somali Region, Ethiopia.” Feinstein International Center, Tufts University, Addis Ababa.

¹⁹ The Energy and Resources Institute (TERI). 2007. Adaptation to Climate Change in the context of Sustainable Development, The Energy and Resources Institute. Available at: <http://www.teriin.org/events/docs/adapt.pdf>.

²⁰ Ludi, E., Getnet, M., Wilson, K., Tesfaye, K., Shimelis, B., Levine, S. & L. Jones. 2011. Preparing for the future? Understanding the influence of development interventions on adaptive capacity at local level in Ethiopia. Africa Climate Change Resilience Alliance (ACCRA) Ethiopia Synthesis Report.

²¹ Intergovernmental Panel on Climate Change (IPCC). 2001. Climate Change 2001: Working Group I - The Scientific Basis. Cambridge University Press.

²² Ludi, E., Getnet, M., Wilson, K., Tesfaye, K., Shimelis, B., Levine, S. & L. Jones. 2011. Preparing for the future? Understanding the influence of development interventions on adaptive capacity at local level in Ethiopia. Africa Climate Change Resilience Alliance (ACCRA) Ethiopia Synthesis Report.

shocks. Improved adaptive capacity results from the ability of households and communities to access and utilize these key assets in a way that allows them to respond to changing circumstances. Promoting livelihood diversification among diverse populations dependent on natural resources will also require attention to issues related to ecosystem health, collective management of natural resources (land, water, forests, fisheries) and legal rights governing access to them (e.g. land tenure, water allocation, harvest/catch quotas). Given the pressure placed on rural livelihood by climate change, governments, donors, and implementing agencies should continue to seek means of enhancing income through value-addition and promoting 'off-farm' income generating opportunities. Access to, and participation in well-functioning markets is also important for improving adaptive capacity, as this will help ensure that small-holder farmers and pastoralists have consistent access to input and produce markets and diverse income streams.²³ Improving market access requires not only creation of market infrastructure (roads, market facilities) but also access to credit, price information, and innovative technologies. In the Horn of Africa and other regions with highly mobile populations, livelihood diversification and participation in markets are also dependent on government policies that support education and skills training and encourage and regulate (rather than restrict) cross-border trade.²⁴ Finally, governments, donors and implementing agencies can directly contribute to greater adaptive capacity at the household and community levels by providing access to and creating incentives for adoption of innovative technologies.

- ***Support greater investment in human capital***

Improving the human capital of vulnerable households is critical to enable them to maintain health, diversify livelihood options and exercise their individual and collective rights. Strategies for building human capital among chronically vulnerable and marginalized populations – provision of education, skills training for livelihood diversification, support for improved nutrition and hygiene practices and enhanced roles in household and community decision-making not only improve the adaptive capacity of vulnerable households, but typically have dramatic impacts on the health and wellbeing of individual members.²⁵⁻²⁷ Importantly, these are exactly the types of large scale investments that are needed to ensure social development and economic growth over the long-term. Governments and implementing partners can also do their part to ensure that vulnerable populations have improved access to and greater participation in diverse social networks. Strong social networks, trust in these networks and effective leadership of these networks has been shown to have a beneficial impact on the ability of households and individuals to anticipate and respond to disturbances in socio-ecological systems.²⁸

²³ Alinovi, L., D'Errico, M., Mane, E., & D. Romano. 2010. Livelihoods strategies and household resilience to food insecurity: an empirical analysis to Kenya. Paper prepared for the Conference on "Promoting Resilience through Social Protection in Sub-Saharan Africa", organised by the European Report of Development in Dakar, Senegal, 28-30 June, 2010.

²⁴ Mortimore, M. with contributions from S. Anderson, L. Cotula, J. Davies, K. Facer, C. Hesse, J. Morton, W. Nyangena, J. Skinner, and C. Wolfangel. 2009. Dryland Opportunities: A new paradigm for people, ecosystems and development, IUCN, Gland, Switzerland; IIED, London, UK and UNDP/DDC, Nairobi, Kenya. x + 86p.

²⁵ Agriculture for Impact. 2010. The Montpellier Panel Report: Africa and Europe: Partnerships for Agricultural Development.

²⁶ TANGO International. 2009. SHOUHARDO: A Title II program of USAID Final Evaluation Report. December 2009. Washington, D.C.: USAID.

²⁷ Frankenberger, T., Sutter, P., Teshome, A., Aberra, A., Tefera, M., Tefera, M., Taffesse, A.S., and T. Bernard. 2007. Ethiopia: The path to self-resiliency. Final Report prepared for CHF-Partners in Rural Development. July 2007.

²⁸ Orstrom, E. 1999. Coping with the tragedies of the commons. *Annual Review of Political Science*. 2:493-535.

Comprehensive and sustainable improvements in human capital are also dependent on promotion of gender equity. Throughout the HoA and the Sahel, women and girls are often prevented from reaching their full potential due to limited access to education and income opportunities, unequal access to land and other productive resources, and discriminatory social practices that limit their rights and ability to fully participate in society.

Governance and Enabling Conditions for Achieving Scale

The necessary elements for building resilience at the national level will vary greatly depending on the nature of the shock experienced, the population(s) affected, and the extent of their access to important assets and services. Nonetheless, experience and existing literature reveals several **common enabling conditions** for enhancing the resilience of socio-ecological systems. These enabling conditions are not in contrast to widely accepted 'best practices' identified through previous development work. Rather, they build on these experiences and contribute to an understanding of resilience programming in light of continuing climate change, increasing frequency and scale of humanitarian disasters, political instability, environmental degradation, and global market fluctuations. Key enabling conditions for improved resilience include:

- ***Effective formal and informal governance***

Representative, responsive, transparent and accountable governance is critical for enabling countries, communities and households to exercise their rights, benefit from equitable laws and policies, attain sustainable food and livelihood security and achieve greater resilience in the face of potential shocks.²⁹ Governance includes a wide range of public, private, formal, and informal organizations, policies and processes that function at local, national and international levels.³⁰ Creating the enabling conditions for effective governance is critical for resilience programming in that these structures and processes determine household and community access to resources, skills, technology, services, markets and information. Policies that strengthen existing local institutions, advocate for decentralized and participatory decision-making (including women), strengthen linkages between various levels of governance, and seek to address existing imbalances in power relations will enhance the adaptive capacity of communities by helping them anticipate, prepare for, respond to and recover from shocks and stresses.

Unless land policy and other issues surrounding commercialization of small-scale agricultural and pastoral livestock systems are addressed in a manner that promotes equitable, pro-poor growth, it will not be possible to achieve sustainable resilience for vulnerable populations in the Horn of Africa and the Sahel.

A commitment to enhancing resilience provides opportunities to address a range of complex governance issues including accountability, transparency and corruption. When designed and

²⁹ IRWG. 2012.

³⁰ Pasteur, K. 2011. From vulnerability to resilience: A framework for analysis and action to build community resilience. Rugby: Practical Action.

implemented appropriately, policies and programs aimed at enhancing resilience can (and should) manage social, economic and environmental volatility resulting from shocks.³¹ They also have the potential to fundamentally shift the relationship between the citizen and the state. For example, joint implementation of the Productive Safety Net Programme (PSNP) in Ethiopia is altering expectations of how the government can respond to shocks. By actively engaging the government at all levels, the PSNP has also established systems of accountability and transparency that were absent after 20 years of ‘short-term’ humanitarian support. Policies in support of resilience must also overcome a common disregard for informal governance arrangements at the local level that have evolved to ensure co-existence of diverse ethnic populations and collective management of livelihood resources.³² Rather, policies aimed at enhancing resilience should seek to bridge the current division between formal and informal governance systems and promote complementary approaches to resource management, resolution of conflicts, adjudication and social development.^{33,34}

Obviously, institutional transformation and reform of governance at this scale is a difficult, long-term process that will not be achieved through disconnected, short-term initiatives. Rather, success in this arena often requires years or decades and is the result of coordinated and complementary initiatives undertaken by a range of diverse stakeholders.^{35,36}

- ***Integrated and complementary partnerships, networks and strategies***

Building and maintaining resilience requires a diverse range of actors with complementary capacities and skills. By forging mutually advantageous partnerships and drawing on diverse networks among communities, civil society, research institutions, NGOs, technical agencies, government and the private sector, development actors can strengthen the ability of vulnerable populations to adapt to change, improve their wellbeing, and contribute to and benefit from social development and economic growth. For instance, public-private partnerships and clustering of donor, government and private-sector investments – in agricultural markets, household and public assets, social protection, climate change adaptation, and financial services – have the potential to secure livelihoods and enhance resilience. For example, private sector involvement in skills training, marketing support and input provision can facilitate greater participation of poor households in value chains, providing a means for them to escape poverty and achieve longer-term livelihood security. This entails building strategic partnerships around the common goal of helping poor households more effectively manage risk and reduce their vulnerability to economic, social and climatic shocks.³⁷

³¹ Hill, Jeff. 2012. Personal communication. USAID. Bureau for Food Security (BFS).

³² Kaplan, Seth. 2012. Ending Conflict in the Horn of Africa.

³³ African Union (AU). 2010. Policy Framework for Pastoralism in Africa: Securing, Protecting and Improving the Lives, Livelihoods and Rights of Pastoralist Communities.

³⁴ Mengisteab, Kidane. 2011. Critical Factors in the Horn of Africa’s Raging Conflicts. Nordic Africa Institute.

³⁵ World Bank. 2011. World Development Report 2011: Conflict Security and Development.

³⁶ Pritchett, Lant, and Frauke de Weijer. 2010. Fragile States: Stuck in a Capability Trap? Background paper for the World Development Report 2011.

³⁷ New Partnership for Africa’s Development (NEPAD). 2011. CAADP Pillar III Implementation Guide for Country Round Tables.

A promising example of greater strategic integration is USAID's support for establishment of Joint Planning Cells (JPCs). JPCs are charged with ensuring complementary investments in humanitarian and development assistance toward achievement of common goals including risk reduction, economic growth, good governance and enhanced resilience. The formulation of appropriate and durable solutions to chronic vulnerability is also dependent upon 'ownership' of (and investment in) resilience strategies by local communities, traditional institutions, and government at all levels. In the HOA and the Sahel, this will be reflected in part by alignment of resilience strategies with nationally and regionally focused policy frameworks such as those supported by the Comprehensive Africa Agriculture Development Programme (CAADP).

- **Promotion of healthy ecosystems**

Enhancing resilience among poor, rural populations -many of whom are dependent upon small-scale agriculture and livestock rearing – requires acknowledgement of the critical nature of healthy ecosystems. Currently in many disaster-prone regions of the Sahel and the HOA, degradation of land, water and biodiversity due to deforestation, overgrazing, over-exploitation of natural resources, and poor land management practices reduces the capacity of the natural environment to provide livelihood resources and ecosystem services to rural populations that depend on them. Enhancing resilience within this context will not come from focusing solely on drought preparedness, but rather will be achieved by helping communities better respond to highly variable, and largely unpredictable environmental and climatic conditions.³⁸ Development actors can complement proven traditional resource management practices through promotion of integrated watershed management, farmer managed natural regeneration (FMNR), drought-tolerant crop and livestock systems, integrated pest management, conservation and utilization of local genetic resources, breeding for local adaptation, and other climate smart agricultural practices.³⁹⁻⁴¹ Ecosystem-based planning, including payment for ecosystem services (PES), can also help rehabilitate degraded natural resources and ensure the environmental sustainability of predominant livelihood activities. Previous examples of PES include compensation of communities by external actors for conservation of landscapes, wildlife corridors and carbon sequestration.^{42,43} Policies can support achievement of greater resilience by promoting development of feasible financial incentives for engagement of smallholder agro- pastoralists in environmental remediation efforts.⁴⁴ Improved

³⁸ Walker, B., and D. Salt. 2006. Resilience thinking: sustaining ecosystems in a changing world. Island Press, Washington D.C., USA.

³⁹ Agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (mitigation), and enhances achievement of national food security and development goals.

⁴⁰ FAO. 2010. "Climate-smart agriculture: Policies, practices and financing for food security, adaptation and mitigation. Rome: Food and Agriculture Organization of the United Nations.

⁴¹ Macek, P. 2011. Natural resource management and resiliency: PVO examples from the Horn of Africa. Powerpoint presentation. World Vision International. Prepared for USAID Summit on Enhancing Resilience in the Horn of Africa. December 13, 2011.

⁴² Njoka, J.T. 2012. Enhancing Resilience to Climate Change in the Horn of Africa. Produced in collaboration with USAID, IFPRI, ILRI, and the University of Nairobi.

⁴³ TANGO International. 2011. Horn of Africa (HOA) Drought and Hunger Crisis Research – Kenya, Ethiopia, Somalia. Prepared for World Vision International. December 2011.

⁴⁴ The Montpellier Panel. 2012. Growth with resilience: Opportunities in African Agriculture. London: Agriculture for Impact.

health and security of the natural resource base can also be facilitated by securing clear rights of ownership (and management) of land and water resources by communities and representative traditional institutions.⁴⁵

- ***Advocate for and support social protection mechanisms***

Social protection programs are typically targeted at chronically vulnerable populations and often aim to address both immediate and long-term needs through cash or food transfers in exchange for creation of physical, human, and financial assets at the household and community levels. Social protection programs can play an important role in enhancing resilience to shocks by effectively linking humanitarian and longer-term development outcomes and providing guaranteed support that allows households to increase their adaptive capacity (through asset accumulation or livelihoods diversification) during times of non-stress conditions while cushioning households from destitution during times of stress or emergency. Transfers of cash or vouchers – either in place of or in combination with food assistance – have in many cases proven an effective means of addressing food insecurity while helping beneficiaries enhance livelihood activities and prepare for potential shock in the future.⁴⁷ The reliability of cash and food transfers provided through social protection schemes provides poor households with more flexibility in the use of limited financial and food resources. Cash and vouchers have also gained support due to their ability to counteract erosion of traditional/informal safety nets and the stimulating effect they have on local economies.⁴⁸⁻⁵⁰ Coordinated social protection schemes can also create economic opportunities for vulnerable households by linking safety net interventions with efforts to increase access to agricultural inputs, credit, skills training and other strategies for helping the poor accumulate, diversify and invest in assets.⁵¹⁻⁵⁴

Caution should be exercised, however, in deciding whether to utilize cash/vouchers or in-kind food assistance. Food assistance can have greater impact on food security and livelihood recovery than cash in certain situations, particularly those characterized by rapid currency devaluation and/or food price

⁴⁵ Levine, S. and S. Pavanello. 2012. Rules of the Range: Natural resources management in Kenya-Ethiopia border areas. London: Overseas Development Institute (ODI).

⁴⁶ FAO. 2010. "Climate-smart agriculture: Policies, practices and financing for food security, adaptation and mitigation. Rome: Food and Agriculture Organization of the United Nations.

⁴⁷ Garcia, M. and C.M.T. Moore. 2012. The cash dividend: the rise of cash transfer programs in Sub-Saharan Africa. Washington, D.C.: World Bank.

⁴⁸ WFP. 2009. Strategic Evaluation of the Effectiveness of WFP Livelihood Recovery Interventions. A Report from the Office of Evaluation. World Food Programme, Rome.

⁴⁹ Beesley, Jane. 2011. The Hunger Safety Nets Programme, Kenya: A social protection case study. Oxfam GB.

⁵⁰ Fitzgibbon, C. 2011. How distributing food aid via vouchers is stimulating local traders in pastoral communities and building the market for meat, milk and fish consumption. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).

⁵¹ Beesley, Jane. 2011. The Hunger Safety Nets Programme, Kenya: A social protection case study. Oxfam GB.

⁵² DFID. 2012. Programming for Resilience in Ethiopia – a model. DFID Ethiopia.

⁵³ NEPAD. 2011.

⁵⁴ TANGO International. 2011b. Final Evaluation – PSNP Plus Project. December 2011.

inflation.⁵⁵⁻⁵⁷ While social protection mechanisms are typically coordinated through national governments, civil society organizations and donors can contribute to greater resilience of vulnerable populations by complementing social protection schemes where they exist, or advocating strongly for their establishment where they do not.

All too often, promising pilot initiatives targeting small populations have experienced difficulty in scaling up innovative and effective practices to benefit millions of affected households in disaster-prone regions.^{59,60} Others have ultimately failed because they have not adequately built sufficient vertical and horizontal linkages across multiple scales. For example, priority must be placed on ensuring that social protection schemes are complementary to regional and national strategies for economic growth.⁶¹ To achieve scale resilience programming must adopt a holistic approach to strengthening linkages between local, national, regional and international levels, and promote effective collaboration across multiple disciplines (governance, agriculture, markets, financial services, health, education, etc.)⁶²

The concept of Adaptive Social Protection (ASP) focuses on the ability of social protection systems to respond to evolving social, economic and climate trends, reduce disaster risk, and/or buffer the impacts of climate change on vulnerable populations.⁵⁸

Given the range of assistance needs and the distinct structure of various funding streams, this calls for considerable attention to be paid to the proper sequencing and combination of interventions. For instance, while disaster risk reduction plays a critical role in enhancing resilience to drought and other stresses common throughout the Horn, all too often funding of DRR initiatives is untimely, and the duration of emergency resources (6-12 months) is insufficient to enable improvement of community risk management capacities.^{63,64} Alternatively, while funding of development projects is often longer-term, it's often insufficiently flexible to allow reallocation of resources in the event of periodic shocks. In order to avoid recurrent crises, and the huge allocations of financial and human resources directed

⁵⁵ TANGO International. 2012b. NGO response to food price crises: Evidence of change in NGO operations since 2008. Input for policy brief. March 2012. DRAFT prepared for International Food Policy Research Institute.

⁵⁶ Hobson, Matt. 2009. The Food Price Crisis and its Impact on the Ethiopian Productive Safety Net Programme 2008. Humanitarian Practice Network. No.42. March 2009. London: Overseas Development Institute.

⁵⁷ Sabates-Wheeler R, and S Devereux. 2010. Cash Transfers and High Food Prices: Explaining Outcomes on Ethiopia's Productive Safety Net Programme. Working Paper 004. Future Agricultures Consortium, United Kingdom.

⁵⁸ Béné, C. E. L. Mills, D. Ovie, S. Raji, A. Tafida, A. Kodio, A. Sinaba, F. Morand, P. Lemoalle, J. and Andrew, N. (2011) 'Testing Resilience Thinking in a Poverty Context: Experience from the Niger River Basin', *Global Environmental Change* 21: 1173-1184.

⁵⁹ Agriculture for Impact. 2010. The Montpellier Panel Report: Africa and Europe: Partnerships for Agricultural Development.

⁶⁰ TANGO International. 2007. Ethiopia: The Path to Self-Resiliency. Prepared for CHF – Partners in Rural Development. July 2007.

⁶¹ Hill, Jeff. 2012. Personal communication. USAID. Bureau for Food Security (BFS).

⁶² IRWG. 2012.

⁶³ The vast majority of donor funding in response to the 2011 drought in the HOA became available only in July/August, several months after subsequent rain failures and the issuance of 'early warnings'.

⁶⁴ Save the Children/Oxfam. 2012. A Dangerous Delay: The cost of late response to early warnings in the 2011 drought in the Horn of Africa.

toward periodic humanitarian assistance, government, civil society and donors should collaborate on developing strategies for bridging short-term relief and longer-term development activities over longer time frames (6-10 years). It is critical that such long-term investments have built-in response capacity for dealing with periodic shock (e.g., with crisis modifiers) and avoid bureaucratic obstacles to transitioning between emergency and longer-term development programming.

Principles of Resilience Programming

Development specialists involved in resilience work at the international and regional levels have identified a number of related *principles* to guide practitioners, policy makers and communities in developing and implementing programs aimed at enhancing resilience (Box 2).^{65,66}

Box 2: Principles of Resilience Programming

- **Promote Resilience as a Common Perspective and a Common Objective.** In order to achieve sustainable impact at adequate scale it is essential that governments, donors, and implementing agencies achieve a shared perspective on the importance of enhanced resilience and a common understanding of the specific objectives that will make greater resilience possible in the HoA and the Sahel. This will require establishment and maintenance of close working relationships between agencies traditionally focused on either humanitarian or development assistance. A primary goal of this coordinated effort will be improved combination, integration and sequencing of interventions that enables achievement of shared resilience objectives. Achievement of this goal will be dependent in part on the flexibility of funding streams and the willingness of complementary partners to utilize financial and human resources to achieve common resilience objectives.
- **Prioritize selective and focused implementation of resilience building initiatives.** Applying a resilience lens will not be an appropriate or feasible response to development needs in all circumstances. Rather, strategic investment of limited resources requires that government, donors and implementing agencies prioritize resilience-building efforts in situations in which: 1) chronically vulnerable populations are exposed to recurrent shocks and stresses; 2) there is existing operational capacity among governments and civil society with ongoing assistance programs; and 3) enabling conditions – in terms of basic infrastructure and functional governance, etc. – can support longer-term resilience strategies.
- **Encourage government and community participation in and ownership of strategies** for building resilience. Governments must embrace the value-added of resilience programming to respond differently to chronic vulnerability. Identifying and engaging customary institutions and valuable forms of traditional knowledge for coping with climate variability, conflict, and food insecurity should be a priority. Community solidarity, engagement, ownership of resources, and the capacity to organize are critical for building resilience. When people are empowered to draw on their own capacities, strengths, and values rather than depending on others and viewing themselves in a situation of hopeless poverty, resilience is strengthened. Empowering communities also entails the exchange of knowledge and information so that they have the ability to make informed decisions that lead to improved adaptive capacity and reduced vulnerability. It also requires that policy makers and implementing organizations are well-attuned to the culture, values and aspirations of participating communities and other stakeholders. Honoring a commitment to local ownership of resilience initiatives not only enhances their sustainability, it enables greater accountability of external actors and contributes to more appropriate and effective use of human and financial resources.
- **Commitment to pursuing integrated multi-sector approaches**
Given the range of issues contributing to vulnerability in the HoA and the Sahel, strategies for enhancing resilience must adopt multi-sector approaches to addressing both emergency and development needs. Among

⁶⁵ DfID. 2011.

⁶⁶ Inter-Agency Standing Committee (IASC). 2011. Inter-Agency Plan of Action for the Horn of Africa. 30 September 2011.

Box 2: Principles of Resilience Programming

implementing agencies, this entails not only embracing integrated multi-sector strategies, but also improving their technical capacity to design, implement and monitor them. In the short-term, multi-sector approaches may best be supported by the formation of strategic partnerships among agencies with complementary strengths in food security, nutrition, disaster risk reduction, livelihoods, value-chain development, natural resource management and governance.

- **Support a transition toward longer-term investments in disaster risk management, climate change adaptation, livelihood diversification, and social protection** in order to reduce the need for large-scale humanitarian assistance in response to recurrent disasters. This will require concerted advocacy on the part of development agencies (and willingness on the part of humanitarian assistance agencies) to enable necessary changes in the current aid architecture. To support this transition, all stakeholder must acknowledge that the artificial divide between humanitarian emergency assistance and long-term development inhibits progress towards achievement of resilience to food security shocks in the HoA and the Sahel. A promising example of means through which this transition can be managed is USAID's support for Joint Planning Cells (JPCs).
- **Recognize and respond to the different needs, capabilities and aspirations of different populations,** especially the most vulnerable (women, children, orphans, elderly, displaced, conflict-affected). In many disaster-prone areas, women are often disproportionately affected by the onset of shocks and their aftermath.^{67,68} Evidence strongly suggests that providing equal access to assets and opportunities for women results in better food security and health outcomes for all household members.^{69,70} Resilience programming should focus on diversifying and enhancing livelihood options for women, girls and other marginalized populations by empowering them through education and skills training, and supporting their efforts to achieve a greater voice in policy formulation, problem assessment and development planning at the community level. It's important to remember, however, that approaches to building resilience in one context or for one particular population may be ineffective, or even detrimental when applied in different contexts or among different populations.⁷¹ Accordingly, assessment and evaluation must account for the possible trade-offs and asymmetries in resilience between different groups and individuals within the same system, especially in cases where such differences have the potential to contribute to conflict.⁷²
- **Contribute to improved knowledge management and innovation** by identifying and addressing key knowledge gaps. Despite accumulating evidence of the adverse impacts of climate change throughout Africa, agricultural research and development spending throughout the continent grew less than two percent between 2000 and 2008. Governments and civil society have a role to play in establishing agricultural research partnerships to provide climate smart technologies to smallholder farmers.⁷³ Knowledge management also

⁶⁷ Flintan, F. 2011. The importance of gender in drought and Disaster Risk Reduction. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).

⁶⁸ Pincha, Chaman. 2008. Indian Ocean Tsunami Through The Gender Lens: Insights from Tamil Nadu, India.

⁶⁹ International Food Policy Research Institute (IFPRI). 2012. Women's empowerment in agriculture index.

⁷⁰ TANGO . 2009. SHOUHARDO: A Title II program of USAID Final Evaluation Report. December 2009. Washington, D.C.: USAID.

⁷¹ Interagency Resilience Working Group (IRWG). 2012. The Characteristics of Resilience Building: A discussion paper. 16 April, 2012.

⁷² Béné, Christophe, Rachel Godfrey Wood, Andrew Newsham and Mark Davies. Resilience: New Utopia or New Tyranny? Reflection on the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes. IDS Working Paper, Volume 2012 Number 405. CSP Working Paper Number 006. Institute of Development Studies (IDS) and Centre for Social Protection (CSP). September 2012.

⁷³ The Montpellier Panel. 2012. Growth with resilience: Opportunities in African Agriculture. London: Agriculture for Impact.

Box 2: Principles of Resilience Programming

requires coherent policy formulation and program design that encourages innovation in response to ongoing change in environmental, social and economic conditions.⁷⁴ Evidence-based knowledge regarding the effectiveness of alternative approaches to building resilience and cost-benefit analysis of these various alternatives are especially high priorities for informing future resilience programming.

Resilience Programming: Challenges and Promising Practices

As mentioned in the introduction, the increasing advocacy for ‘resilience building’ stems in part from widespread acknowledgement that previous humanitarian responses and development initiatives have failed to adequately address the needs of chronically vulnerable populations exposed to a range of shocks and stresses. At the same time, policy makers and other development actors are confronted with a range of significant challenges in their efforts to operationalize the principles of resilience programming. While many of these challenges are not new, they pose specific constraints to the type of integrated and long-term program strategies necessary for enhancing resilience to food security shocks.

Donors, implementing agencies, and national governments are eager to identify and replicate activities that have proven effective (or show promise) in enhancing resilience and in achieving wide-scale and sustainable impact in the Horn of Africa and other chronically vulnerable regions. However, the general lack of objective, verifiable evidence of impact prevents the determination of ‘best practice’ for enhancing resilience in various contexts. The examples below were selected for the extent to which they have effectively responded to the general and context-specific challenges to resilience programming. They also provide some indication of how the principles of resilience programming (integrated program strategies, government ownership, long-term funding) can best be applied at the ground level. The examples below also demonstrate a range of institutional structures involving a diverse array of government, donor, private, academic and civil society stakeholders. Some programs are currently operating as evidenced-based pilots with the intention of scaling-up; others currently operate at scale.

Linking humanitarian and development approaches

The objectives of humanitarian assistance and development programming often overlap, making it possible to meet people’s basic needs while also helping them recover key livelihood assets. However, the lack of temporal and/or spatial overlap that often exists between emergency and development operations limits resilience programming. Humanitarian efforts often provide support to populations who are difficult to access and not being served by other actors (e.g., development), making it difficult to find development partners willing to fund follow-up activities aligned with previous emergency activities.⁷⁶ Government priorities compete for limited resources, and can result in marginalizing

⁷⁴ Walker, B., and D. Salt. 2006. *Resilience thinking: sustaining ecosystems in a changing world*. Island Press, Washington D.C., USA.

⁷⁵ Hobson, Matt. 2009. *The Food Price Crisis and its Impact on the Ethiopian Productive Safety Net Programme 2008*. Humanitarian Practice Network. No.42. March 2009. London: Overseas Development Institute.

⁷⁶ Haver, K., Frankenberger, T., Greeley, M., & P. Harvey. 2012.

geographic regions or populations – creating “aid orphans”.⁷⁷ Lack of government investment (e.g., roads, markets, basic services) in such areas perpetuates a vicious cycle: few development actors are engaged in such areas due to logistical difficulties (or government restrictions), resulting in structurally vulnerable populations, which then necessitates short-term humanitarian responses in the face of shocks. Resilience programming should link short-term humanitarian responses and medium- to long-term development measures in order to reduce risks and strengthen the ability of households to deal with future shocks.

Promising Practice: The Sahel Plan

In 2007 the European Commission for Humanitarian Aid department (ECHO) developed a “Sahel strategy” promoting short and long-term aid to achieve a sustainable reduction in malnutrition rates in the Sahel.⁷⁸ The Sahel Plan pursues a broad approach to resilience that is built, in large part, on lessons learned from the 2005 food security crisis in the Sahel; in particular, a lack of understanding of the underlying structural causes of malnutrition in the Sahel.⁷⁹ The Plan originally covered Niger, Burkina Faso, Chad, Mali, and Mauritania, and provided funding from the Humanitarian Food Assistance (HFA) budget of ECHO to NGOs and UN agencies for humanitarian food assistance aimed at reducing (through treatment *and* prevention) severe acute malnutrition (SAM). Strategies included in the Plan support Disaster Risk Reduction (DRR) and advocacy to prioritize integration of food and nutrition security into public policies.⁸⁰

Promoting a regional approach, including cross-border learning and cooperation, the Plan advocates among governments and donors for strengthening linkages between relief and development activities to prevent acute malnutrition by addressing its underlying structural causes. To more effectively advocate with government and other partners, the Plan places high priority on using Standardized Monitoring and Assessment of Relief and Transition surveys (SMART) and Emergency Market Mapping and Analysis (EMMA).

Key to ECHO’s Sahel Strategy is linking short- and longer-term funding mechanisms to sustainably reduce rates of malnutrition in the Sahel. ECHO’s 2011 Sahel plan expanded its reach to include northern Sahel zones in Nigeria and neighboring countries, and gave priority to ‘operations that give emphasis to disaster risk reduction’, and aims to assist people ‘to strengthen their coping mechanisms and resilience.’

ECHO’s 2012 Sahel strategy continues to build on a LRRD approach “to put food and nutrition security firmly on the development agenda.”⁸¹ Under the Plan, humanitarian aid in the Sahel emphasizes mainstreaming nutrition security into government health policies and strengthening resilience of vulnerable households to deal with future crises through increased adaptive capacity. Many Sahel states have committed to replicable interventions to prevent under-nutrition, particularly the Scaling Up Nutrition (SUN) initiative. Increased aid support to these national commitments, such as through the 11th European Development Fund, will “permit the gradual exit for humanitarian funding from the food and nutrition security sector.”⁸²

⁷⁷ Gubbels, P. 2011. Escaping the Hunger Cycle: Pathways to Resilience in the Sahel. Sahel Working Group.

⁷⁸ Gubbels, P. 2011. Escaping the Hunger Cycle: Pathways to Resilience in the Sahel. Sahel Working Group.

⁷⁹ Haver, K., Frankenberger, T., Greeley, M., & P. Harvey. 2012. Evaluation and Review of DG ECHO financed livelihood interventions in humanitarian crises. Final Report 5 March 2012. European Commission Humanitarian Aid Office (ECHO).

⁸⁰ Gubbels, P. 2011.

⁸¹ DG ECHO. 2012. Humanitarian Implementation Plan (HIP) West Africa Sahel Region. Version 3 19/6/2012. ECHO/WWD/BUD/2012/01000,

⁸² DG ECHO 2012.

Funding mechanisms

As argued throughout this paper, effective resilience programming is a strategic approach that integrates short- and longer-term responses based on analysis of chronic situations and exposure to recurrent shocks and stresses. Rather than relying on individual and often restricted funding streams, resilience programming is best funded through a complimentary combination of short-, medium-, and long-term funding streams. However, the differing programming timelines and procurement processes between humanitarian assistance and development interventions have hampered previous efforts to adopt a combined approach to enhancing livelihood security.⁸³ Development funding tends to be more structured and less flexible than emergency funding, making it more difficult to shift back to a humanitarian response if needed.

Experience strongly suggests that flexible funding commitments in the range of 6-10 years will likely be needed to restore livelihoods and address the root causes of vulnerability to livelihood security in disaster-prone regions. Securing long-term, flexible and timely funding streams for resilience programming will require innovative approaches to funding (e.g., crisis modifiers, risk financing) and closer coordination between donors currently supporting short-term humanitarian assistance and longer-term development initiatives.^{84,85}

Promising Practice: African Risk Capacity (ARC) Project

African-owned, the ARC is a continent-wide, index-based weather risk insurance pool and early response mechanism that offers African governments with timely and reliable contingency funding for occurrences of severe drought. The ARC represents a paradigm shift from managing crises to managing risks.⁸⁶ Led by the African Union Commission (AUC) with technical and financial support from WFP, DFID, Rockefeller Foundation, Swedish International Development Cooperation Agency (SIDA), the Government of the United Kingdom and International Fund for Agriculture Development (IFAD), the ARC provides a framework for drought risk financing (e.g., reserves, contingency lines of credit, weather-indexed insurance) that emphasizes monitoring and early warning, vulnerability assessment and mapping, emergency response, and financial planning and risk management.

A recent cost-benefit analysis of the ARC reported that early intervention can result in gains of over US \$1,200 per household assisted.⁸⁷ While most African countries have early warning systems that alert decision-makers of deficits in rainfall or grain availability, these systems are not linked to financial mechanisms that allow governments and others to respond quickly. Rather, humanitarian emergency responses often lag behind the onset of emergencies by six or more months, well after those affected need it most.⁸⁸ By combining the benefits of

⁸³ Haver, K., Frankenberger, T., Greeley, M., & P. Harvey. 2012. Evaluation and Review of DG ECHO financed livelihood interventions in humanitarian crises. Final Report 5 March 2012. European Commission Humanitarian Aid Office (ECHO).

⁸⁴ TANGO International. 2012. Secure the Future: Enhancing resilience of drought-affected nations, communities, and households in the Horn of Africa. World Vision Concept note. DRAFT. March 2012.

⁸⁵ FAO/WFP/UNICEF. 2012.

⁸⁶ WFP. 2012. African Risk Capacity: Sovereign Disaster Risk Management for Africa. Powerpoint. Accessed September 12, 2012 at: <http://www.africanriskcapacity.org/documents/ARCOverview.pdf>.

⁸⁷ Clarke, D., & R. Hill. 2012. Cost-benefit analysis of the African Risk Capacity Facility. A paper commissioned by World Food Programme on behalf of the African Union Commission. Accessed on September 12, 2012 at: http://www.stats.ox.ac.uk/~clarke/pdf/research/ARC_CostBenefitAnalysis.pdf.

⁸⁸ WFP. 2012. African Risk Capacity: Sovereign Disaster Risk Management for Africa. Powerpoint. Accessed September 12, 2012 at: <http://www.africanriskcapacity.org/documents/ARCOverview.pdf>.

insurance mechanisms with contingency planning, the ARC shifts the burden of managing weather risks away from African governments and towards international markets that are much more capable of dealing with such risks.

As promoted by ARC, risk pooling takes advantage of the unlikely event of severe drought occurring across the entire continent in any given year. Thus, not every country contributing to the pool is likely to require contingency funds at the same time. The funds required to manage risk pooled across nations is considerably less – estimated at up to 50% less – than that required by any individual country alone.⁸⁹

Implementation of the ARC has yet to be realized and some challenges remain relative to its full-fledged establishment. However, the key messages of the ARC are that it:⁹⁰

- Provides immediate, short term liquidity to participating nations after a drought has occurred;
- Will provide economic gains from early assistance to avoid adverse negative coping strategies being widely adopted by vulnerable populations;
- Includes a regionally diverse risk pool that would make funds available at reduced costs;
- Is an African-owned contingency funding mechanism for extreme drought emergencies (and potentially for other extreme weather events in the future); and
- Needs to be linked to well-defined contingency plans within a national risk management framework.

The technical engine of the ARC risk pooling concept is Africa *RiskView*, a modeling program that uses rainfall-based early warning models on agricultural drought in Africa as well as data on vulnerable populations in order to standardize calculating food insecurity response costs across Africa. It serves as a financial early warning tool by providing decision-makers with costs of drought-related responses before and during the agricultural season, helping to focus government responses and target investments in food security.

Ecosystem health

Ecosystem health is the foundation on which resilience programming is based but deforestation, encroachment into fragile ecosystems, overgrazing, and improper land management have resulted in soil erosion, loss of vegetation, and loss of biodiversity and ecosystem services throughout much of the developing world. Traditional management systems are often less damaging to the environment⁹¹ and should be considered along with non-traditional systems to improve ecosystem health in resilience programming. Environmental degradation is exacerbated by extreme weather events (e.g., drought, flood, high temperatures) and increasing population pressure, both of which affect the carrying capacity of an ecosystem.⁹² While family planning and birth spacing may be considered, generally, as part of the development agenda in terms of women's ability to engage in productive activities and contribute to

⁸⁹ WFP. 2012. African Risk Capacity: Sovereign Disaster Risk Management for Africa. Powerpoint. Accessed September 12, 2012 at: <http://www.africanriskcapacity.org/documents/general/SummaryNote.pdf>.

⁹⁰ African Risk Capacity Project Team. 2012. African Risk Capacity: Sovereign Disaster Risk Solutions: A Project of the African Union. Accessed September 12, 2012 at: <http://www.africanriskcapacity.org/documents/general/SummaryNote.pdf>.

⁹¹ Mortimore, M. with contributions from S. Anderson, L. Cotula, J. Davies, K. Facer, C. Hesse, J. Morton, W. Nyangena, J. Skinner, and C. Wolfangel. 2009. Dryland Opportunities: A new paradigm for people, ecosystems and development, IUCN, Gland, Switzerland; IIED, London, UK and UNDP/DDC, Nairobi, Kenya. x + 86p.

⁹² The carrying capacity of an ecosystem is the size of the population that can be supported indefinitely upon the available resources and services provided by that ecosystem. Carrying capacity depends on the resources available in the ecosystem, the size of the population, and the amount of resources being consumed.

household wellbeing, burgeoning population growth – and its impact on access to and availability to natural resources – represents a slow onset shock that should not be ignored in resilience planning.

Promising Practices: Payment for environmental services (PES) and Farmer-managed natural regeneration (FMNR)

Payment for environmental services (PES) is an innovative market-based approach to promoting conservation of natural ecosystems and the ecosystem services they provide by compensating communities that conserve and protect natural environments. Initiated in 2011 by ILRI, the University of Hohenheim (Stuttgart), and the Leibniz-Centre for Agricultural Landscape Research in Germany, the “Enabling livestock-based economies in Kenya to adapt to climate change” project is exploring the use of compensation to pastoralist communities in Kenya for promoting wildlife conservation to attract tourists and generate income while simultaneously managing rangelands for their livestock.

Farmer managed natural regeneration (FMNR) and watershed management are other practices that contribute to preserving ecosystem health.⁹³ Natural resource management, including use of PES, can be extremely effective at restoring and protecting ecosystems, particularly when it is integrated within a multi-sectoral approach, is linked to economic development, and is community-owned.

Internal and cross-border conflicts

Lack of access to natural resources and degraded ecosystems represent significant constraints to livelihood security and resilience in many disaster-prone regions and often underlies local and regional conflict. Conflict in turn contributes to large-scale displacement, loss of or damage to assets, and further erosion of livelihood opportunities. Conflict mitigation and peace building must therefore be included in resilience strategies for conflict-affected populations, along with measures to strengthen local governance structures and improve social cohesion and collective resource management among vulnerable communities.⁹⁴

Promising Practice: Strengthening Institutions for Peace and Development (SIPED)

After receiving anecdotal evidence from local leaders that drought-affected pastoralist communities that had participated in Mercy Corps’ SIPED programme were better able to cope with recent drought than pastoralist groups that had not participated in the programme, Mercy Corps conducted a study to “generate greater insights and evidence on the extent to which peace-building efforts that rely on skills building and sustained dialogue among conflicting parties can serve as an effective form of disaster risk reduction”.⁹⁵

The peace-building process utilized by Mercy Corps in the SIPED project, funded by USAID, included strengthening government and customary institutions, community dialogues (including clan leaders, elders, women and youths), joint livelihood activities, formation of peace committees, and development of peace accords and resource use plans. In particular, the Negelle Peace Accord was considered by local officials and communities to have played a

⁹³ Macek, P. 2012. Natural resource management and resiliency: PVO examples from the Horn of Africa. Powerpoint presentation. World Vision International. February 2012.

⁹⁴ Njoka, J.T. 2012. Enhancing Resilience to Climate Change in the Horn of Africa. Produced in collaboration with USAID, IFPRI, ILRI, and the University of Nairobi.

⁹⁵ Kurtz, J., & G. Scarborough. 2011. From Conflict to Coping: Evidence from Southern Ethiopia on the contributions of peacebuilding to drought resilience among pastoralist groups.

critical role in reducing conflict and promoting peaceful co-existence among clans. Freedom of movement and access to water, grazing lands, and other natural resources facilitated by Mercy Corps' peace-building programme has positively contributed to household drought resilience.

Land tenure systems/laws

Natural resources are owned, managed and used collectively by various entities and are often under different tenure arrangements.⁹⁶ Rights of use and access to land and water are largely determined by the type of tenure arrangement and have a direct influence land management options available to users.⁹⁷ Common property or community-owned lands are subject to collective (communal) management, though privatization of communal lands has increased, largely from encroachment by agriculture, urbanization, sedentarization and emergence of human settlements. Currently, over 90 percent of land in Africa remains outside the formal legal tenure system, placing owners at risk of exploitation and/or dispossession.⁹⁸

Promising Practice: Cross Border Drought Preparedness Project (ICRD)

The Cross Border Drought Preparedness Project (ICRD) is an innovative project implemented by Vétérinaires San Frontières (VSF) that helps communities to holistically review their resource needs and problems, and to develop conflict-sensitive solutions through a participatory approach to developing reciprocal resource agreements.⁹⁹ The ICRD does not work specifically to change laws relating to land tenure, but employs a traditional DRR strategy utilized by neighbouring pastoralist groups. Reciprocal resource agreements are agreed-upon plans for sharing resources, notably water and grazing lands. Community working groups, the use of resource use maps (including areas of conflict), and inter-community meetings and strategic plans are used to promote a participatory process validated by key community members, political leaders and government representatives. Such agreements have dramatically reduced conflict between communities within Ethiopia, between communities in Uganda and Kenya, and between communities on the Kenya-Ethiopia border. As a result, dramatically improved security and resource management has demonstrated a positive influence on the resilience of participating communities.

Governance/political leadership

Governance can be defined as “the manner in which power is exercised in the management of a country’s economic and social resources for development.”¹⁰⁰ Ensuring delivery of core functions (e.g., reducing poverty and providing public services) to the majority of its people is the purview of good governance, along with fighting corruption, and ensuring accountability and transparency.¹⁰¹ Fragile

⁹⁶ International Institute for Environment and Development (IIED) and SOS Sahel UK. 2010. Modern and mobile: The future of livestock production in Africa’s drylands.

⁹⁷ Njoka, J.T. 2012. Enhancing Resilience to Climate Change in the Horn of Africa. Produced in collaboration with USAID, IFPRI, ILRI, and the University of Nairobi.

⁹⁸ The Montpellier Panel. 2012. Growth with resilience: Opportunities in African Agriculture. London: Agriculture for Impact.

⁹⁹ Obala, E. 2011. Reciprocal grazing agreements build peace between communities and reduce the impact of drought. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).

¹⁰⁰ Gubbels. 2011.

¹⁰¹ Kauffman, D. 2009. Aid Effectiveness and Governance: The Good, the Bad and the Ugly. Development Outreach, World Bank Institute. Washington, D.C.

states – those that will not or cannot deliver core functions to its people, including the poor – present special challenges to donors. Existing funding mechanisms do not adequately address governance issues related to structural food insecurity and vulnerability: increased assistance is not likely to improve such challenges without concomitant changes in governance to adequately deal with the root causes of recurring crises.¹⁰² Based on different principles and managed by different departments, the separation of humanitarian and development funding mechanisms makes it difficult for states to deal effectively with recurrent crises. Donors should use diplomacy and advocacy to generate political will, build strong state institutions and promote good governance to prevent humanitarian crises.¹⁰³

Ineffectual governance (including inefficient and/or inappropriate policies) poses a clear constraint to achievement of greater household and community resilience in many developing countries. Notable and common outcomes of policy and governance failures in the Horn of Africa include conflict over natural resources, inefficient livestock marketing, insecure land rights, and inadequate provision of services and infrastructure in arid and semi-arid lands (ASALs).¹⁰⁴⁻¹⁰⁶ Weak governance and protracted conflict in Somalia over the last decades have contributed greatly to increased vulnerability of the Somali people.¹⁰⁷ Lack of political will, or in some cases interference by local or national governments in humanitarian and development activities, also compromises the ability of efforts to address the root causes of household and community vulnerability to drought.¹⁰⁸

Effective decentralization of political, administrative and fiscal responsibilities to sub-national structures can help bridge the geographical distances between marginalized areas (e.g., pastoral and agro-pastoral regions) and the centers of political power that serve to isolate entire sectors of the population from contributing their voices to national and regional affairs.¹⁰⁹

¹⁰² Gubbels. 2011.

¹⁰³ Gubbels. 2011.

¹⁰⁴ Helland. J. 2006. Land Tenure in the Pastoral Areas of Ethiopia. International Livestock Research Institute Campus. Addis Ababa, Ethiopia.

¹⁰⁵ Humanitarian Policy Group (HPG). 2006. Saving lives through livelihoods: critical gaps in the response to the drought in the Greater Horn of Africa.

¹⁰⁶ Morton J. 2005. Legislators and Livestock: A comparative Analysis of Pastoralist Parliamentary Groups in Ethiopia, Kenya and Uganda. Final Report for the NRI/PENHA Research Project on Pastoralist Parliamentary Groups.

¹⁰⁷ FAO/WFP/UNICEF. 2012. Building Resilience – rethinking aid strategy for Somalia. A FAO/WFP/UNICEF Joint Strategy on building resilience against shocks for Somalia. DRAFT. 14 March 2012.

¹⁰⁸ Njoka, J.T. 2012.

¹⁰⁹ ILRI Technical Paper on Conflict Resolution.

Promising Practice: Productive Safety Net Program (PSNP)

The PSNP was established in 2005 as part of the Food Security Program (FSP) within the Government of Ethiopia's (GoE) poverty reduction strategy, or *Plan for Accelerated and Sustained Development to End Poverty* (PASDEP).¹¹⁰ Its overall purpose was to shift millions of chronically food-insecure rural people from recurrent emergency food aid to a more secure and predictable, and largely cash-based, form of social protection.¹¹¹ It provides resources to chronically food insecure households through direct grants to labour-poor, elderly or incapacitated individuals, and food and cash transfers to able-bodied members in exchange for participation in labour-intensive public works.¹¹²

Built into the second phase of the PSNP, drought risk financing allows flexibility in the event of large, unanticipated shocks, including food price shocks.¹¹³ It helps bridge the gap between the PSNP, which addresses chronic food insecurity, and short-term emergency responses that address transitory food insecurity. The PSNP risk financing mechanism integrates early warning with the PSNP and allows for early and preventive responses that help preserve lives and livelihoods and prevent disposal of household assets, all of which help prevent negative impacts on growth. As summarized in a recent value for money assessment of the PSNP, "drought risk financing extends the capability of PSNP to respond to shocks.... by meeting transient as well as chronic food needs (in food or in cash). It makes PSNP scalable within contingent financing limits. It anticipates unexpected additional food stress through the early warning system, and it provides additional transfers in timely fashion, thus avoiding adverse coping strategies by affected households."¹¹⁴ According to the study, PSNP's risk financing transfers the "food insecurity caseload out of the emergency system and into the PSNP, thus taking efficient advantage of existing PSNP delivery capabilities", but does not eliminate the need for emergency operations altogether.

The PSNP has demonstrated that when designed and implemented appropriately, policies and programs aimed at enhancing resilience can (and should) fundamentally shift the relationship between the citizen and the state. For example, joint implementation of the Productive Safety Net Programme (PSNP) in Ethiopia is altering expectations of how the government can respond to shocks. Nearly 1,000 regular Government of Ethiopia staff members are fully employed with the PSNP. They are joined by over 14,000 Development Agents (DAs) in chronically food insecure woredas also spend a significant amount of time and effort contributing to PSNP implementation. Finally, over 1,000 technical specialists, including sectoral experts, accountants and public works foremen were employed by the PSNP as of 2008.¹¹⁵

Civil society partners have played a major role in building the technical and administrative capacity of the GOE to design and implement the PSNP. Much of the capacity building efforts to date have been directed toward establishing better systems of labor accounting for public works, promoting inclusive and sustainable mechanisms for kebele- and woreda-level planning, and developing functional early warning systems.¹¹⁶ By actively engaging the government at all levels, the PSNP has also established systems of accountability and transparency that were absent after 20 years of 'short-term' humanitarian support.

¹¹⁰ TANGO International. 2011. Horn of Africa (HOA) Drought and Hunger Crisis Research – Kenya, Ethiopia, Somalia. Draft. Prepared for World Vision International.

¹¹¹ White, P. & F. Ellis. 2012. Ethiopia's Productive Safety Net Programme, 2010-2014 – a value for money assessment. Draft report: 17 April 2012.

¹¹² Government of Ethiopia. 2011. Revised Project Implementation Manual for the Sustainable Land Management Program. The Federal Democratic Republic of Ethiopia Ministry of Agriculture and Rural Development. January.

¹¹³ White and Ellis. 2012.

¹¹⁴ White and Ellis. 2012

¹¹⁵ Government of the Federal Democratic Republic of Ethiopia (GFDRE). Designing and Implementing a Rural Safety Net – Report to the October 2008 PSNP Mid-Term Review Mission. . Food Security Coordination Directorate.

¹¹⁶ Robins, Catherine and Tsegahun Tessema. 2011. Final Evaluation. USAID/FFP Title II DAP/MYAP/PAP assistance in support of the Productive Safety Net Program: 2005 – 2011. Ethiopia Development Assistance Consortium (EDAC). March 2011.

Donor support

Under the guise of pursuing economic growth and poverty eradication, governments may be particularly averse to allocating scarce resources toward development initiatives in destitute, drought-prone, and asset-poor regions of their countries. Trade-offs between government priorities often complicate building resilience if it is feared that investments in marginalized regions do not yield short-term economic returns. Alternatively, governments may be hesitant to acknowledge crises specifically because doing so tacitly admits failure of their policies on economic growth and poverty reduction.¹¹⁷ As a result of government priorities, donor support is often geographically biased. For example, donors supporting humanitarian activities predominate in the high-risk agro-pastoral areas of Ethiopia whereas donors supporting development activities predominate in the low-risk highlands. Thus, donor support is focused in different areas of the country, resulting in a lack of development activities in areas of high vulnerability, which not surprisingly results in recurring humanitarian assistance.

Promising Practice: Pastoral Livelihoods Initiative (PLI)

Jointly designed and funded by the Government of Ethiopia (GOE) and USAID/Ethiopia, the Pastoral Livelihoods Initiative (PLI) is implemented by a range of NGOs, private sector representatives and universities in an effort to strengthen livelihood security among pastoralist populations in Ethiopia through a variety of proven interventions.¹¹⁸ A particularly innovative and effective component of the PLI in terms of supporting resilience among pastoralists is the incorporation of a ‘crisis modifier’ approach to funding. Based on the idea that periodic ‘emergencies’ should not undermine longer-term development activities, the crisis modifier approach enables implementing partners to access Office of Foreign Disaster Assistance (OFDA) funding in the event of severe drought. By linking project activities with early warning ‘trigger’ indicators, the crisis modifier approach enables indicators to inform timely responses including animal destocking, provision of animal health services, and provision of emergency fodder and water support to valuable breeding stock.¹¹⁹

Capacity

Given the multi-sectoral nature of resilience programming, the administrative and technical capacities of all levels of government, civil society and NGOs need to be strengthened.¹²⁰ Effective engagement by government and other actors will require building their capacity to develop, implement, coordinate and monitor resilience programming, including technical capacity in climate change adaptation, peace building and livelihood diversity. In light of recurring shocks and crises, governments must have the capacity (and political will) to respond quickly and effectively to early warning systems, which must in turn be based on quality data collected at community, sub-national and national levels.

¹¹⁷ Gubbels. 2011

¹¹⁸ Feinstein International Famine Center. 2006. Pastoralist Livelihood Initiative: Guidelines for Livestock-based Livelihood Relief Interventions in Pastoralist Areas. Tufts University. USAID/Ethiopia.

¹¹⁹ Ismail, A. 2011. Strengthening Pastoralists Livelihoods in the Drylands of Ethiopia.

¹²⁰ Gubbels. 2011.

Promising Practice: Arid Lands Resource Management Project (ALRMP)

Supported by the World Bank, the Arid Lands Resource Management Project is a community-based drought management project of the Government of Kenya (GoK).¹²¹ The project follows on the earlier World Bank-supported Emergency Drought Recovery Project that provided “quick-fixes” to the effects of severe drought. However, the ALRMP is a longer-term development-type project that mainstreams drought management activities within the GoK and aims to enhance food security and reduce livelihood vulnerability in drought-prone and marginalized communities in the ASALs.¹²²

Other development partners (including NGOs) support ALRMP activities. The EC provides support to the Drought Management Initiative (DMI) Programme that is implemented within the ALRMP framework and is intended to improve effectiveness and efficiency of Kenya’s drought management system. The drought management system includes development and operationalization of relevant policies and strategies, an early warning system, a funded contingency plan and overall drought coordination and response structure.¹²³ Capacity building efforts have enabled important institutional changes to the drought management system including development of a Drought Management Authority and a National Drought Contingency Fund.

Gender equality

Women play a critical and potentially transformative role in social and economic processes at the household and community levels. Despite their potential, women continue to face cultural, political and economic obstacles limiting their ability to make decisions about agricultural production, access to and decision-making power over productive resources, control over use of income, leadership opportunities within their communities, use of their time,¹²⁴ and most importantly, to control their reproductive health decisions (e.g., birth spacing, family planning). A commitment to addressing gender inequality at the household and community levels will be critical for all programs seeking to improve long-term resilience of vulnerable populations.

Promising Practice: Managing Environmental Resources to Enable Transition to More Sustainable Livelihoods(MERET) Programme

Targeting the chronically food-insecure, MERET is currently implemented in over 450 watersheds in 72 woredas of five regions (Amhara, Oromiya, SNNP, Tigray, Somali) and Dire Dawa administrative council.¹²⁵ The program provides food assistance through FFW activities as a short-term means of enabling progress in the agriculture sector over the medium to long-term. Main activities are in the areas of physical and biological conservation, reforestation, small-scale irrigation, road construction and maintenance, income generation activities, livelihood diversification, and soil fertility improvements. Capacity building is also a core component of MERET under the current country programme. The MERET approach is characterized by adherence to certain core principles: community-based participatory watershed development (CBPWD) and a commitment to community capacity building. It is also unique in that it links sustainable land management goals and activities with livelihoods

¹²¹ <http://www.aridland.go.ke/inside.php?articleid=441>

¹²² Zwaagstra, L., Sharif, Z., Wambile, A., de Leeuw, J., Said, M.Y., Johnson, N., Njuki, J., Ericksen, P. & M. Herrero. 2010. An assessment of the response to the 2008-2009 drought in Kenya. A report commissioned by the European Delegation to the Republic of Kenya. Nairobi: International Livestock Research Institute.

¹²³ <http://www.ilri.org/ilrinews/index.php/archives/tag/kenya-arid-lands-resource-management-project>

¹²⁴ International Food Policy Research Institute (IFPRI). 2012. Women’s empowerment in agriculture index.

¹²⁵ MoARD MERET Project Coordination Office. 2011. Guideline to implement MERET project phasing out strategy: 4.

objectives.

Since its inception in 2003, the design of the MERET program has acknowledged the critical role for women in improving environmental health and maintaining household food security. As a result of MERET activities focused on watershed management, participating women affirm greater access to land and enhanced participation in productive activities including crop production, livestock fattening and agriculture-related small business (bee keeping, poultry, horticulture, milling, etc.). At the same time, women's participation in MERET has reportedly had a direct and lasting influence on the role of women in household and community decision-making and improved their access to financial services (credit and savings schemes).

Measuring Resilience Outcomes and Impact

Given the relatively recent emergence of the concept of resilience within the wider development community, there is an understandable scarcity of robust, verifiable evidence of impact among programs seeking to build resilience within such regions.^{126,127} Looking forward, a major milestone in achieving resilience at a significant scale will be the ability to measure resilience outcomes at the household, community and national levels. Importantly for policy, programming and resource procurement, the development of robust measures of resilience will also enable evaluation of the effectiveness of various initiatives specifically aimed at enhancing resilience to food security shocks.

Several ongoing efforts show considerable potential for enhancing the resilience of vulnerable populations. However, to date few measures have been put in place to provide objective, verifiable information on the outcomes and impact of such efforts. While various models for measuring resilience have been recently – or are currently being – developed, few have been field-tested and adopted as “standard.” This is partly due to the fact that continuous, complex and dynamic process of building resilience makes it inherently difficult to measure. Nonetheless, such information is critical for assessing the relative potential of different approaches to building resilience in the face of recurrent shocks.

Experience shows that measurement of resilience to shock must be highly context-specific. In particular, measurement systems must first be clear in answering the questions of: “Resilience of whom?” and “Resilience to what?” In order to inform development, implementation and evaluation of programs aimed at enhancing resilience, measurement systems must have the capacity to explain different resilience outcomes among distinct populations and accurately gauge the resilience of the populations to a range of idiosyncratic and covariate shocks.¹²⁸ While measurement systems must be tailored to the particular context and program strategy, M&E systems for measuring resilience should enable in-depth analysis of indicators under three broad resilience outcomes: 1) Improved capacity to manage risks; 2) Improved adaptive capacity; and 4) Improved development indicators.

¹²⁶ DfID. 2011. Defining Disaster Resilience: A DFID Approach Paper. London: DFID.

¹²⁷ Headey, Derek, Alemayehu Seyoum Taffesse, and Liangzhi You. 2012. Enhancing Resilience in the Horn of Africa: An Exploration into Alternative Investment Options. IFPRI Discussion Paper 01176. April 2012.

¹²⁸ One of the shortcomings of much of the existing empirical research on vulnerability is that it is not assessing vulnerability with respect to specific types of shocks or populations, but rather assesses vulnerability of homogenous communities to all types of shocks (both idiosyncratic and covariate).

Table 1: Description of Key Resilience Outcomes

Improved Capacity to Manage Risks

The ability to effectively manage risk is a key measure of resilience. It includes the ability to understand and reduce the occurrence of shocks and stresses where possible, and to recover quickly when exposure to shocks cannot be avoided. When assessing capacity to manage risk, it's important to distinguish between positive and negative coping strategies. Positive coping strategies enable households to withstand periodic shocks without adversely affecting livelihood security or jeopardizing the health and nutrition of individual members. This may include use of cash savings, consumption of reserve food stocks or reliance on formal and informal safety nets. Alternatively, negative coping strategies – such as divestment of productive assets, reduction of food consumption, or reliance on risky livelihood activities – can have a permanent and debilitating impact on a households' capacity to manage future risk. When developing specific indicators of risk management capacity, it should be noted that effective risk management entails both *ex ante* (risk prevention) and *ex post* (risk mitigation) activities. Likewise, the presence of necessary structures (e.g. flood prevention, erosion control) and systems (informal safety nets, conflict resolution) should be viewed as positive contributors to resilience, even in the absence of the shocks and stresses they were designed to prevent.

Improved Adaptive Capacity

The ability to quickly and effectively respond to uncertain changes in environmental, climatic, social, political and economic conditions is a central factor in achieving resilience at all levels. In contrast to reactive coping strategies, adaptive strategies are proactive and entail making informed choices about alternative livelihood strategies in light of changing conditions. This requires diversification of livelihood strategies, access to a diverse array of productive assets, participation in diverse and equitable social networks, information on changing market and climatic conditions, and openness to new practices and technological innovation.

Improved Development Indicators

While monitoring of disaster risk management and adaptive capacity is important, measurement of resilience is also informed by assessment of more traditional indicators of development such as food security, nutrition, human capital and livelihood security. Even though improvement in these indicators is likely to be incremental over the long-term, they provide the foundation for transformational social and economic development at the national and regional levels. Achievement of gains in each of these areas is dependent on the ability to produce or purchase adequate amounts of nutritious and culturally appropriate food, the ability to earn adequate income, maintain the health of household members, and participate in decisions related to natural resources and other key assets. The degree of resilience of a particular household, community or population can also be determined in part by the ability to maintain general well-being (e.g. food, shelter, income, health, safety) in the event of periodic shocks (natural disasters, conflict, price volatility).

When designing systems to measure resilience it is useful to make the distinction between “general” resilience and “specific” resilience. Given the context of the HoA and the Sahel, it is easy to think of specific resilience to the impact of drought on food security. Likewise, measurement tools could be designed to measure household resilience to specific stresses such as food price increases. However, in the absence of a specific shock, measurement systems can also be designed to gauge resilience to general (non-specific) shocks and stresses such as the impact of environmental degradation, ineffective governance, sporadic conflict, changing weather patterns, or the combination of all of the above.¹²⁹

While development of tools and research methods specifically designed to measure the resilience of populations to different shocks is very much a work-in-progress, several important principles have been

¹²⁹ Personal correspondence: Thamana Lekprichakul – Senior Researcher at the Research Institute for Humanity and Nature.

established. One is that comprehensive and context-specific measurement of outcomes and impact is best achieved through a 'mixed methods' approach utilizing analysis of both quantitative and qualitative data.

Another aspect of context specificity is the technical capacity to utilize sophisticated measurement approaches (involving econometric models, factor and regression analysis) and properly analyze the information generated. When designing systems to measure the impact of resilience programs, priority should always be given to approaches that engage local actors and the affected communities themselves in assessing the success of interventions in ways that are meaningful to them.

Quantitative analysis

Humanitarian and development actors have contributed to the design of a number of quantitative research models aimed at measuring vulnerability at the household level. The majority of these models focus on measures of household consumption, asset ownership, and income diversification. While such measures are helpful for determining the characteristics of vulnerable households, it is less helpful in understanding either the factors influencing households' choice of risk management strategies in light of particular shocks, or the means through which specific interventions may strengthen households' adaptive capacities resilience to future shocks. [Annex 3](#) presents a detailed description of a recently developed econometric model capable of capturing information on these critical components of resilience. Quantitative analysis of resilience that corresponds to this empirical model, and the conceptual framework for resilience presented in Figure 1 requires collection of a range of quantitative information including:

- *Context*
Access to infrastructure and services, economic opportunities based on agro-ecological conditions, access to markets, local employment conditions, population dynamics, environmental degradation, etc.
- *Shocks*
Type of shock (natural, social, economic, health, political, etc.), level of shock (household, community, national, global), frequency (transitory, seasonal, trend-related, structural) and severity
- *Household adaptive capacity and capacity to manage risks*
Livelihood strategies, productive assets, risk management strategies, aspirations and empowerment
- *Livelihood outcomes (improved development indicators)*
Per-capita expenditures, household diet diversity score, health and nutritional status indicators, access to various types of capital

Resilience measurement using this model is already being carried out with CRS programming in Niger, MercyCorps programming in Somalia, and WFP programming in Ethiopia.

Qualitative analysis

Qualitative approaches to assessing resilience must be specifically designed to complement these quantitative models. For instance, a qualitative analysis of the context for specific types of shocks is necessary to identify the key variables that should be included in the quantitative analysis and the means through which they are appropriately measured. Qualitative research methods are also valuable for identifying the key characteristics that influence the adaptive capacities of households. Earlier studies have provided insight into the types of qualitative information useful in determining resilience at both the household and community levels.¹³⁰ A partial list of potential qualitative indicators includes:

- *Income diversification;*
- *Willingness and capacity to invest in quality improvements to natural resources;*
- *Propensity for household savings;*
- *Seasonal variations in access to food;*
- *Joint household decision-making;*
- *Openness to innovation and adoption of improved livelihood practices;*
- *Value placed on improvement of human capital (investments in health and education);*
- *Access to and content of disaster preparedness information; and*
- *Community capacity for organizing collective action*

Monitoring and evaluation of resilience interventions

As mentioned previously, there is considerable demand for appropriate methods of measuring the impact of interventions specifically designed to enhance the resilience of households and communities. This is made inherently challenging by the fact that resilience is a process (rather than a static outcome) which is reflected by the capacities of households and communities to adapt in order to minimize vulnerability to future risk. The task of measuring the impact of individual interventions is made even more challenging given that project participants may not have to draw on this capacity if a shock (e.g. severe drought) does not occur within the lifecycle of the project. In order to account for such possibilities, measuring the effectiveness of resilience programming is best approached through selection of indicators within two general categories.

1) *Increased stability of indicators of household livelihood outcomes*

Relative improvement (smaller disruptions) in such outcome indicators in response to shocks as a result of the interventions may be measured directly for recurring or structural stresses, or for

¹³⁰ Frankenberger, et al. 2007.

shocks that occur with high frequency. For these types of shocks, comparison of the impact on outcome variables before and after the interventions have been implemented will directly measure the benefits of the resilience-enhancing interventions on the target populations.

2) *Indicators of improved capacities of communities, households, and individuals to respond to shocks*

These are outcome-level indicators to demonstrate that necessary physical infrastructure, service delivery mechanisms, governance structures, early warning systems, etc. are put into place. They are assumed to be necessary conditions to protect households from the negative impacts of particular types of shocks.

Outcome Monitoring

The dynamic nature of vulnerability and the resilience-building process places particular importance on monitoring of both changes in conditions and households' responses to those changes over time.

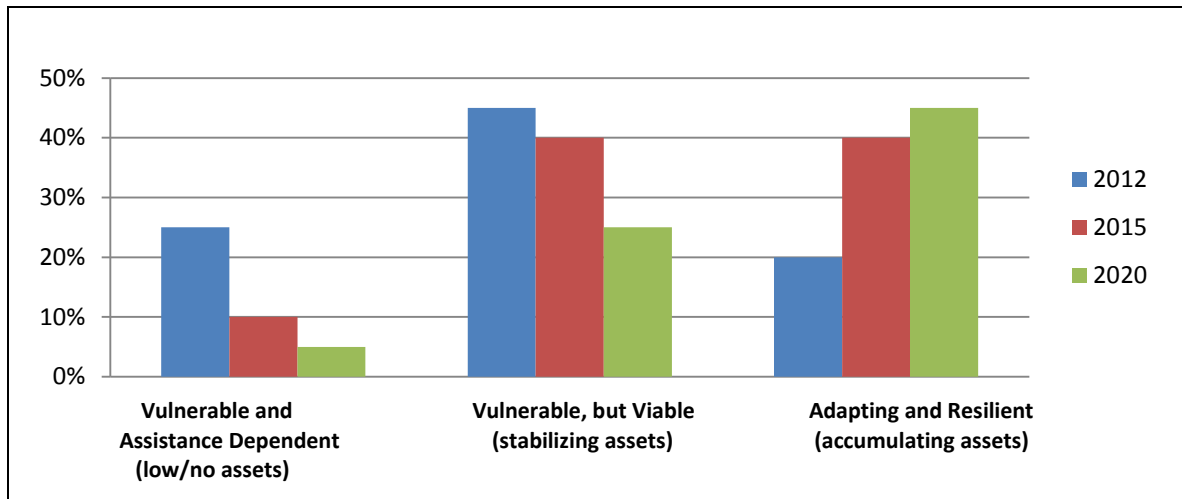
Monitoring of project outcome-level indicators, namely changes in risk management behaviours and adaptive capacity in response to shocks should be monitored over short (3-4 month) intervals. In these shorter intervals, the following categories of information should be tracked in outcome monitoring:

- Exposure to (and severity of) shock over the measurement interval (if possible);
- Outcome level indicators of risk management strategies and adaptive capacities (coping strategies, adaptive strategies, adoption of improved behaviors and practices promoted by resilience programs);
- Easily measurable and sensitive impact indicators (e.g. household dietary diversity score)

Tracking these indicators in short intervals enables monitoring and evaluation systems to track shocks and their impacts on household food security status in “real time”, providing a rich set of information on the responses of various households in the wake of shocks and stresses. This information can be used to identify which interventions, or combinations of interventions, are most effective and robust in enhancing resilience of households to particular types of shocks.

Figure 5 (below) demonstrates positive trends in outcomes that governments, donors and implementing agencies would hope to see if resilience programming was effective in helping vulnerable households improve their adaptive capacity and their ability to manage risk. It charts an incremental transition from dependence on external assistance to greater resilience based on accumulation (and diversification) of productive assets.

Figure 5: Intended Outcomes of Resilience Programming Over Time



A more detailed description of the theoretical and technical approach to measuring resilience outcomes and impact is provided in Annex 3.

Moving the Resilience Agenda Forward

The concept of resilience holds promise for guiding humanitarian assistance and development efforts in the Sahel, the Horn of Africa and other regions exposed to diverse and recurrent shocks. In order to have a significant and lasting impact, actors involved in these regions will need to integrate the various elements and enablers of resilience into a coherent strategy that addresses the current and future sources of vulnerability among poor households. They must also continue to monitor and capture lessons from resilience building initiatives in order to inform donor investment portfolios and influence the policies of national governments. Within the context of natural disaster, climate change and underlying structural constraints, resilience must serve as a unifying concept that bridges the traditionally distinct domains of humanitarian assistance and longer-term development programming.

This paper has provided a conceptual framework for the assessment of resilience, the design of resilience programming, and the measurement of resilience outcomes. Looking ahead, achieving greater effectiveness in resilience programming will also require addressing problems at sufficient scale, over a longer duration, and with greater flexibility in strategies, funding streams and procurement mechanisms. In order to ensure greater sustainability, transparency and accountability, development partners must establish partnerships among national governments, regional policy institutions, the private sector and communities that reflect the principles of resilience programming. Towards this end, several important steps for responding to the ongoing challenges of resilience building have been identified.

Challenge: *Government policy makers, donors and implementing agencies have limited understanding of how best to prioritize investment in resilience building in light of scarce resources. There is currently little clarity regarding how resilience approaches can best be operationalized and what the added value would be compared to other more mainstream approaches such as poverty reduction.*

A critical aspect of moving the resilience agenda forward will be facilitation and promotion of the necessary **political will** to adopt approaches that are different from those taken in traditional humanitarian assistance and development initiatives. This will require achievement of a common understanding of what is meant by ‘resilience’ and agreement on common objectives among governments, donors, civil society and communities. Increasing political will is not dependent on achieving consensus on the definition of resilience or complete agreement on the methods of promoting it. Rather, political will be evident when key policy organizations and decision makers devote significant time, energy and resources to enable concerted and coordinated action to be taken toward achievement of resilience outcomes.

Identification of common objectives and agreement on coordinated approaches to enhancing resilience should simultaneously build support for contextually appropriate and comprehensive assessments of resilience at the national and sub-national levels. By carrying out **resilience assessments** in several countries, stakeholders can help determine if the analytical approach outlined in this paper has value for measuring resilience outcomes in diverse contexts. Emphasis should be placed on joint assessments and analyses so that diverse stakeholders can ensure analysis of multiple sectors, assume ownership of the findings, and contribute to development of collaborative solutions. It is expected that information gained from such exercises would highlight key factors contributing to or constraining resilience beyond the more generic indicators of vulnerability (poverty, malnutrition, etc.). Arguments for resilience programming may also be strengthened through **enhanced knowledge management**. This requires identifying and addressing critical knowledge gaps, making program-based knowledge available in a timely fashion and reader-friendly format. Knowledge management also requires that relevant information is linked back into iterative programming.

Resilience assessments, impact evaluation and enhanced knowledge management can also shed light on a top priority among national governments and donors – achieving **‘value for money’**. Through objective and verifiable impact measurement, comprehensive and transparent accounting of costs incurred in humanitarian emergency and longer-term resilience programming, civil society and policy makers can more effectively advocate for greater investment in initiatives with the best potential to enhance resilience. The resilience assessment framework and information gained from comprehensive resilience assessments will also provide critical insight into the proper **sequencing and combination** of distinct activities or interventions. Practitioners of resilience programming will need to design projects capable of addressing immediate needs and longer-term objectives simultaneously. All too often, progress made through longer-term development initiatives has been immediately undone due to the effects of rapid-onset disaster. By preparing for these scenarios, implementers can continue to address critical needs in the areas of infrastructure, education, health, and social protection without fearing that periodic shocks

(drought, flood, conflict) will have a permanently negative impact on the adaptive capacity of target populations.

This will necessarily include close coordination between humanitarian and development actors throughout the entire project cycle, especially through joint needs assessments, and joint programming exercises. In order to attain the flexibility needed to quickly respond to changing conditions, implementing organizations may also consider “built-in” contingency planning mechanisms such as the ‘crisis modifiers’ utilized by USAID’s DRR program in the HOA. These modifiers enable implementing organizations to shift focus from development programming to humanitarian response when localized early warning systems detect a significant change in conditions. Such crisis modifiers allow both implementing agencies and donors to avoid the critical disruptions that often accompany procurement of emergency funding and retooling of development activities during times of crisis.¹³¹

Finally, donors and governments must overcome the notion of inevitable **trade-offs between investments in economic growth and greater resilience** of vulnerable populations. Indeed, by ensuring that resilience investment is made at significant scale it can lay the foundation for long-term economic growth.¹³²

Challenge: *The institutional framework for implementing resilience oriented programs needs to be clarified in order to develop integrated, multi-sectoral programs that may not be aligned with the current work of sectoral ministries and related policy frameworks.*

Donors and policy makers should seize the current momentum for building resilience by alleviating current obstacles to coordination across sectoral boundaries and temporal scales. One means of doing this is to **seek consensus on a contextually appropriate framework for resilience**, identify the principle constraints to resilience within a particular country or region, and solicit firm commitments to common strategic objectives.

One such effort was initiated at the recent ‘*Joint IGAD Ministerial and High-Level Development Partners Meeting on Drought Resilience in the Horn of Africa*’.¹³³ Jointly organized by the Intergovernmental Authority on Development (IGAD) and the Comprehensive Africa Agriculture Development (CAADP) Program, the meeting resulted in a “Common Framework for Risk, Resilience and Growth in the Drylands.” The framework is intended to result in a collective agenda that can focus the complementary efforts of governments, development agencies, civil society, and the private sector in order to enhance community and household resilience throughout the Horn of Africa. During the meeting, participants reached consensus on six central areas of concern (or pillars) for the Common Framework. They include: 1) Increased economic opportunity; 2) Strengthened institutions, governance and accountability; 3)

¹³¹ European Commission. 2010b. Commission Staff Working Document, accompanying document to the Communication from the Commission to the Council and the European Parliament, Humanitarian Food Assistance, Brussels, 31.3.2010, SEC (2010) 374 final {COM(2010)126}

¹³² The Montpellier Panel. 2012. Growth with resilience: Opportunities in African Agriculture. London: Agriculture for Impact.

¹³³ <http://www.hornofafricadevelopment.org/>

Improved security conditions and conflict-management capacity; 4) Improved physical infrastructure; 5) Sustainable natural resource management; and 6) Enhanced innovation and knowledge management.¹³⁴ Individual countries within the region are currently drafting their own “Country Program Frameworks” that will be reviewed by technical experts in both the humanitarian assistance and development communities to ensure coherence and consistency with the regional Common Framework. At a higher level, the development of these frameworks are consistent with and complementary to achievement of investment strategies under Pillar III of CAADP – Increasing food supply, reducing hunger and improving responses to food emergency crises.¹³⁵

Similar policy support for resilience at the regional and national levels is being coordinated by the Global Alliance for Action for Drought Resilience and Growth in the Horn of Africa (led by USAID) and the Global Alliance for Resilience in the Sahel (AGIR--- Sahel) (led by the European Union). Initiated at the *Joint IGAD Ministerial and High-Level Development Partners Meeting on Drought Resilience* in April 2012, these Global Alliances also prioritize the establishment of common frameworks for resilience programming, capacity building, and monitoring and evaluation.

By directly involving counterparts from multiple sectors, levels of government and civil society, these efforts have the potential to create appropriate, coherent and sustainable institutional environments capable of effectively promoting resilience in the HOA and the Sahel.

Challenge: *Governments and the private sector have difficulty prioritizing investments for improved resilience in ‘low potential’ areas and instead focus national poverty reduction and economic growth initiatives within ‘high potential’ areas.*

A history of failed attempts to address widespread poverty and food insecurity has discouraged governments, donors, and private interests from making new investments in many disaster-prone regions of sub-Saharan Africa. **External private investment has been particularly limited** due to a range of negative stereotypes regarding the investment climate in rural areas. These include a lack of physical infrastructure capable of strengthening human capital and enabling sector development; poor access to financial services; limited information on and/or right to environmental resources; physical insecurity; and high trade barriers. Nonetheless, previous research has revealed that investments in soil and water conservation in Niger, farmer-managed irrigation in Mali, forest management in Tanzania, and farmer-to-farmer extension in Ethiopia have all resulted in satisfactory economic rates of return (from 12 -40 percent) for investors.¹³⁶

Opportunities for private (commercial) investment in many disaster-prone regions are likely to increase with continual monetization of local economies, growing international trade, rural-urban interactions

¹³⁴ USAID. 2012. Meeting Notes: New Country and Region-Led Efforts and Partnerships for Enhancing Resilience and Building Growth in the Horn of Africa. May 10, 2012.

¹³⁵ New Partnership for Africa’s Development (NEPAD). 2011. CAADP Pillar III Implementation Guide for Country Round Tables.

¹³⁶ Mortimore, M. with contributions from S. Anderson, L. Cotula, J. Davies, K. Faccar, C. Hesse, J. Morton, W. Nyangena, J. Skinner, and C. Wolfangel. 2009. *Dryland Opportunities: A new paradigm for people, ecosystems and development*, IUCN, Gland, Switzerland; IIED, London, UK and UNDP/DDC, Nairobi, Kenya. x + 86p.

and the emergence of larger middle-income social groups. These opportunities include commodity bulking in agricultural value chains, service provision (agricultural and health extension, possibly education provision), provision of financial services, communication and transportation networks.¹³⁷

Spurring private investors to build on these opportunities will require creation of both **direct and indirect investment incentives**. Direct incentives for investment are linked to distinct projects where financial gains are made through project participation. Indirect incentives include both market and enabling incentives. In recent years, market incentives for investment in sub-Saharan Africa have increased as the perceived risks of market isolation (e.g. cash and food scarcity, unemployment, limited access to services) have outweighed the perceived risks of market involvement (e.g. dependence on greater food purchases) among many rural households. Governments can do their part to create enabling incentives for greater private investment in disaster-prone areas by establishing appropriate regulatory environments conducive to private investment, adopting more effective and just land tenure policies, facilitating development of profitable and resilient value chains benefitting agro-pastoralists, making improvements to transportation and communication infrastructure, supporting establishment of credit institutions, providing decentralized government services, and integrating research and extension systems.¹³⁸⁻¹⁴⁰

To promote greater private investment in resource poor environments characterized by chronically vulnerable populations, several important considerations must be made. First, government and private sector investment should not be made at the expense of adequate social protection mechanisms. Such mechanisms are vital for ensuring the health and survival of the most vulnerable during times of crisis, and enabling them to take the risks necessary to build greater household resilience over the longer-term. In fact, previous studies have suggested that social protection interventions can be complementary to market-based activities by providing a degree of protection from market failures and/or adverse market-based corrections.¹⁴¹ By **clustering investments** in social protection, disaster risk reduction, livelihoods, and climate change adaptation within specific geographic areas, government can work with the private sector and civil society to create synergistic effects and scale up successful pilot initiatives. The resilience agenda should seek to ensure establishment of enabling environments (policies and institutions) that can support predictable private and public investments in poor communities over an extended period, even (or especially) when those communities are impacted by shock.¹⁴²

¹³⁷ Mortimore, M. et al. 2009.

¹³⁸ Mortimore, M. et al. 2009.

¹³⁹ Private sector banks, such as Kenya's Equity Bank, are important partners in Kenya's resilience programming in that they provide access to credit, savings and loans, and insurance instruments to vulnerable households. Through Kenya's Hunger Safety Nets Programme (HSNP), Equity Bank uses "smart cards" to provide cash transfers to beneficiary households through local shopkeepers (Beesley 2011).

¹⁴⁰ Hill, Jeff. 2012. Personal communication. USAID. Bureau for Food Security (BFS).

¹⁴¹ European University Institute (EUI). 2010. The 2010 European Report on Development, Social Protection for Inclusive Development, Robert Schuman Centre for Advanced Studies, European University Institute, San Domenico di Fiesole.

¹⁴² Independent Evaluation Group (IEG). 2011. Assessing IFC's Poverty Focus and Results. Washington, DC: World Bank.

References

- Abdi, S. 2011. Ending drought emergencies: will the promises of the Nairobi Strategy be met? In: de Jode, H., & V. Tilstone (eds.), *Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2*. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).
- African Union (AU). 2010. Policy Framework for Pastoralism in Africa: Securing, Protecting and Improving the Lives, Livelihoods and Rights of Pastoralist Communities.
- Agriculture for Impact. 2010. The Montpellier Panel Report: Africa and Europe: Partnerships for Agricultural Development.
- Alinovi, L., D'Errico, M., Mane, E., & D. Romano. 2010. Livelihoods strategies and household resilience to food insecurity: an empirical analysis to Kenya. Paper prepared for the Conference on "Promoting Resilience through Social Protection in Sub-Saharan Africa", organised by the European Report of Development in Dakar, Senegal, 28-30 June, 2010.
- Alinovi, L., Mane, E., & D. Romano. 2009. Measuring household resilience to food insecurity: application to Palestinian households. Working Paper, January 2009. EC-FAO Food Security Programme. Rome: FAO.
- Amemiya, T. 1977. The maximum likelihood estimator and the non-linear three stage least squares estimator in the general nonlinear simultaneous equation model. *Econometrics* Vo. 45: 955-968.
- Appadurai. 2001. The Capacity to Aspire: Culture and the Terms of Recognition. DRAFT.
- ATA. 2012. Ethiopian Agricultural Transformation Agency Quarterly Newsletter. March 2012. Vol. 1 No. 1.
- Beesley, Jane. 2011. The Hunger Safety Nets Programme, Kenya: A social protection case study. Oxfam GB.
- Béné, C. 2012. Social protection and resilience to climate and disaster. IDS Programme Briefing. March 2012. Brighton: Institute of Development Studies.
- Béné, Christophe, Rachel Godfrey Wood, Andrew Newsham 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 Programmes. IDS Working Paper, Volume 2012 Number 405. CSP Working Paper Number 006. Institute of Development Studies (IDS) and Centre for Social Protection (CSP). September 2012.
- Béné, C. E. L. Mills, D. Ovie, S. Raji, A. Tafida, A. Kodio, A. Sinaba, F. Morand, P. Lemoalle, J. and Andrew, N. (2011) 'Testing Resilience Thinking in a Poverty Context: Experience from the Niger River Basin', *Global Environmental Change* 21: 1173-1184.
- Berger, R., & M Chambwera. 2010. Beyond cost-benefit: developing a complete toolkit for adaptation decisions. International Institute for Environment and Development. London: IIED.
- Burns, John. 2011. PSNP Plus Longitudinal Impact Study Summary of Findings. Feinstein International Center, Tufts University. November 2011.
- CARE. 2002. Household livelihood security assessments. A Toolkit for Practitioners. July 2002.

- Catley, A., and Iyasu, A. 2010. "Moving Up or Moving Out? A Rapid Livelihoods and Conflict Analysis in Mieso-Mulu Woreda, Shinile Zone, Somali Region, Ethiopia." Feinstein International Center, Tufts University, Addis Ababa.
- Chaudhuri, S., Jalan, J. and A. Suryahadi. 2002. Assessing household vulnerability to poverty from cross-sectional data: A methodology and estimates from Indonesia. Department of Economics Discussion Paper # 0102-52. New York: Columbia University.
- Cordaid and the International Institute of Rural Reconstruction (IIRR). 2011. Community managed disaster risk reduction experiences from the Horn of Africa. Cordaid, The Hague; IIRR, Nairobi.
- Dana, J., Noel, M., & J. Syroka. 2011. Drought Risk Financing in Africa: The African Risk Capacity (ARC) Project. Presentation for SDN Week: Disaster Risk Management, January 2011. Accessed on 13 March 2012 at: http://www.gfdr.org/gfdr/sites/gfdr.org/files/DRMWeek2011_Day1_Pres3_Drought_Risk_Financing_JulieDana.pdf
- DFID. 2012. Programming for Resilience in Ethiopia – a model. DFID Ethiopia.
- _____. 2011. Defining Disaster Resilience: A DFID Approach Paper. London: DFID.
- _____. 1999. Sustainable livelihoods guidance sheets. London: DFID.
- European Commission (EC). 2010a. Communication from the Commission to the Council and the European Parliament: Humanitarian Food Assistance {SEC(2010)374, Brussels, 31.3.2010 COM(2010) 126 final.
- _____. 2010b. Commission Staff Working Document, accompanying document to the Communication from the Commission to the Council and the European Parliament, Humanitarian Food Assistance, Brussels, 31.3.2010, SEC (2010) 374 final {COM(2010)126}.
- European University Institute (EUI). 2010. The 2010 European Report on Development, Social Protection for Inclusive Development, Robert Schuman Centre for Advanced Studies, European University Institute, San Domenico di Fiesole.
- FAO. 2011. Resilient livelihoods – Disaster Risk Reduction for Food and Nutrition Security Framework Programme. Rome: Food and Agriculture Organization of the United Nations.
- _____. 2010. "Climate-smart agriculture: Policies, practices and financing for food security, adaptation and mitigation. Rome: Food and Agriculture Organization of the United Nations.
- FAO/WFP/UNICEF. 2012. Building Resilience – rethinking aid strategy for Somalia. A FAO/WFP/UNICEF Joint Strategy on building resilience against shocks for Somalia. DRAFT. 14 March 2012.
- Feinstein International Famine Center. 2006. Pastoralist Livelihood Initiative: Guidelines for Livestock-based Livelihood Relief Interventions in Pastoralist Areas. Tufts University. USAID/Ethiopia.
- Fitzgibbon, C. 2011. How distributing food aid via vouchers is stimulating local traders in pastoral communities and building the market for meat, milk and fish consumption. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).

- Flintan, F. 2011. The importance of gender in drought and Disaster Risk Reduction. In: de Jode, H., & V. Tilstone (eds.), *Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).*
- Frankenberger, Timothy, Tom Spangler, Laura Barber, Marie Blanche-Roudaut, Kimberly A. Deni, Jeanne Downen, Martin Greeley, Ken Miller, Monica Mueller, and Jake Sherman. 2012. *Can Food Assistance Promoting Food Security and Livelihood Programs Contribute to Peace and Stability in Specific Countries? Paper developed for the High Level Expert Forum (HLEF) on Food Security in Protracted Crises. August 17, 2012.*
- Frankenberger, T., Sutter, P., Teshome, A., Aberra, A., Tefera, M., Tefera, M., Taffesse, A.S., and T. Bernard. 2007. *Ethiopia: The path to self-resiliency. Final Report prepared for CHF-Partners in Rural Development. July 2007.*
- Garcia, M. and C.M.T. Moore. 2012. *The cash dividend: the rise of cash transfer programs in Sub-Saharan Africa. Washington, D.C.: World Bank.*
- Glewwe, P. and G. Hall. 1998. *Are some groups more vulnerable to macroeconomic shocks than others? Hypothesis tests based on panel data from Peru. Journal of Development Economics. Vol. 56: 181-206.*
- Government of the Federal Democratic Republic of Ethiopia (GFDRE). *Designing and Implementing a Rural Safety Net – Report to the October 2008 PSNP Mid-Term Review Mission. . Food Security Coordination Directorate.*
- Gubbels, P. 2011. *Escaping the Hunger Cycle: Pathways to Resilience in the Sahel. Sahel Working Group.*
- Harris, K. 2011. *Resilience in Practice: Operationalising the ten characteristics of resilience through the case of Greening Darfur. Strengthening Climate Resilience Paper 10. Brighton: IDS.*
- Haver, K., Frankenberger, T., Greeley, M., & P. Harvey. 2012. *Evaluation and Review of DG ECHO financed livelihood interventions in humanitarian crises. Final Report 5 March 2012. European Commission Humanitarian Aid Office (ECHO).*
- Headey, Derek, Alemayehu Seyoum Taffesse, and Liangzhi You. 2012. *Enhancing Resilience in the Horn of Africa: An Exploration into Alternative Investment Options. IFPRI Discussion Paper 01176. April 2012.*
- Helland. J. 2006. *Land Tenure in the Pastoral Areas of Ethiopia. International Livestock Research Institute Campus. Addis Ababa, Ethiopia.*
- Hill, Jeff. 2012. *Personal communication. USAID. Bureau for Food Security (BFS).*
- Hobson, Matt. 2009. *The Food Price Crisis and its Impact on the Ethiopian Productive Safety Net Programme 2008. Humanitarian Practice Network. No.42. March 2009. London: Overseas Development Institute.*
- Hossain N., Fillaili, R., Lubaale, G., Mulumbi, M., Rashid M., & M. Tadros. 2010. *The social impacts of crisis: Findings from community-level research in five developing countries. London: DFID.*
- Humanitarian Policy Group (HPG). 2006. *Saving lives through livelihoods: critical gaps in the response to the drought in the Greater Horn of Africa.*

- Independent Evaluation Group (IEG). 2011. Assessing IFC's Poverty Focus and Results. Washington, DC: World Bank.
- Inter-Agency Standing Committee (IASC). 2011. Inter-Agency Plan of Action for the Horn of Africa. 30 September 2011.
- Interagency Resilience Working Group (IRWG). 2012. The Characteristics of Resilience Building: A discussion paper. 16 April, 2012.
- International Food Policy Research Institute (IFPRI). 2012. Women's empowerment in agriculture index. Accessed at: <http://www.ifpri.org/publication/womens-empowerment-agriculture-index>
- International Institute for Environment and Development (IIED) and SOS Sahel UK. 2010. Modern and mobile: The future of livestock production in Africa's drylands. Accessed at: <http://www.sahel.org.uk/publications.html>.
- ILRI. n.d. Enabling livestock based economies in Kenya to adapt to climate change: A review of payment for ecosystem services from wildlife tourism as a climate change adaptation option. Accessed at: <http://www.ilri.org/node/1184>.
- Intergovernmental Panel on Climate Change (IPCC). 2001. Climate Change 2001: Working Group I - The Scientific Basis. Cambridge University Press.
- IRIN. 2011. [website accessed Sept. 23, 2011]. Kenya: Push to put pastoralists on the map. <http://www.irinnews.org/report.aspx?reportid=93786>
- Ismail, A. 2011. Strengthening Pastoralists Livelihoods in the Drylands of Ethiopia.
- Jalan, J. and M. Ravallion. 1998. Transient poverty in post-reform rural China. *Journal of Comparative Economics*. Vol. 26: 338-357.
- Kaplan, Seth. 2012. Ending Conflict in the Horn of Africa.
- Kurtz, J., & G. Scarborough. 2011. From Conflict to Coping: Evidence from Southern Ethiopia on the contributions of peacebuilding to drought resilience among pastoralist groups.
- Levine, S. and S. Pavanello. 2012. Rules of the Range: Natural resources management in Kenya-Ethiopia border areas. London. Overseas Development Institute (ODI).
- Levine, Simon, Eva Ludi and Lindsey Jones. 2011. Rethinking Support for Adaptive Capacity to Climate Change: The Role of Development Interventions. Overseas Development Institute (ODI). Prepared for the Africa Climate Change Resilience Alliance (ACCRA).
- Løvendal, C., and M. Knowles. 2005. Tomorrow's hunger: A framework for analysing vulnerability to food insecurity. ESA Working Paper No. 05-07. Rome: Food and Agriculture Organization.
- Ludi, E., Getnet, M., Wilson, K., Tesfaye, K., Shimelis, B., Levine, S. & L. Jones. 2011. Preparing for the future? Understanding the influence of development interventions on adaptive capacity at local level in Ethiopia. Africa Climate Change Resilience Alliance (ACCRA) Ethiopia Synthesis Report.
- Macek, P. 2011. Natural resource management and resiliency: PVO examples from the Horn of Africa. Powerpoint presentation. World Vision International. Prepared for USAID Summit on Enhancing Resilience in the Horn of Africa. December 13, 2011.
- Markakis J. 2004. Pastoralism on the Margin. Minority Rights Group International.
- Mengisteab, Kidane. 2011. Critical Factors in the Horn of Africa's Raging Conflicts. Nordic Africa Institute.

- Mercy Corps. 2012. From Conflict to Coping: Evidence from Southern Ethiopia on the contributions of peacebuilding to drought resilience among pastoralist groups.
- Mitchell, T, Ibrahim, M., Harris, K., Hedger, M., Polack E., Ahmed A., Hall, N., Hawrylyshyn, K., Nightingale, K., Onyango, M., Adow M., and S. Sajjad Mohammed. 2010. Climate smart disaster risk management. Strengthening Climate Resilience. Brighton: IDS.
- Mortimore, M. with contributions from S. Anderson, L. Cotula, J. Davies, K. Faccar, C. Hesse, J. Morton, W. Nyangena, J. Skinner, and C. Wolfangel. 2009. Dryland Opportunities: A new paradigm for people, ecosystems and development, IUCN, Gland, Switzerland; IIED, London, UK and UNDP/DDC, Nairobi, Kenya. x + 86p.
- Morton J. 2005. Legislators and Livestock: A comparative Analysis of Pastoralist Parliamentary Groups in Ethiopia, Kenya and Uganda. Final Report for the NRI/PENHA Research Project on Pastoralist Parliamentary Groups.
- Mwiti, C. and N. Kukrety. 2009. Delivery of social protection programmes in Kenya. Accessed at: <http://fex.enonline.net/37/delivery.aspx>.
- New Partnership for Africa's Development (NEPAD). 2011. CAADP Pillar III Implementation Guide for Country Round Tables.
- Njoka, J.T. 2012. Enhancing Resilience to Climate Change in the Horn of Africa. Produced in collaboration with USAID, IFPRI, ILRI, and the University of Nairobi.
- Obala, E. 2011. Reciprocal grazing agreements build peace between communities and reduce the impact of drought. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).
- O'Brien, K. 2011. 'Global Environmental Change: From Adaptation to Deliberate Transformation', Progress in Human Geography.
- Orstrom, E. 1999. Coping with the tragedies of the commons. Annual Review of Political Science. 2:493-535.
- Pagiola, S. 2007. Guidelines for "Pro-Poor" payments for environmental services. Washington: World Bank. Accessed: <http://siteresources.worldbank.org/INTEEI/Resources/ProPoorPES-2col.pdf>.
- Pasteur, K. 2011. From vulnerability to resilience: A framework for analysis and action to build community resilience. Rugby: Practical Action.
- Pavanello, S. 2009. Pastoralists' Vulnerability in the Horn of Africa: Exploring political marginalization, donors' policies and cross-border issues – Literature review. Humanitarian Policy Group (HPG).
- Pincha, Chaman. 2008. Indian Ocean Tsunami Through The Gender Lens: Insights from Tamil Nadu, India.
- Pritchett, Lant, and Frauke de Weijer. 2010. Fragile States: Stuck in a Capability Trap? Background paper for the World Development Report 2011.
- Pritchett, L, Suryahadi, A. and S. Sumarto. 2000. Quantifying Vulnerability to Poverty: A Proposed Measure , Applied to Indonesia, Policy Research Working Paper No. 2437. Washington DC: The World Bank.

- Rao, V. and M. Walton (eds). 2002. Culture and Public Action. Stanford University Press.
- Republic of Kenya. 2011. Vision 2030 Development Strategy for northern Kenya and other arid lands. Final, August 2011.
- Sabates-Wheeler R, and S Devereux. 2010. Cash Transfers and High Food Prices: Explaining Outcomes on Ethiopia's Productive Safety Net Programme. Working Paper 004. Future Agricultures Consortium, United Kingdom.
- Save the Children/Oxfam. 2012. A Dangerous Delay: The cost of late response to early warnings in the 2011 drought in the Horn of Africa.
- Shadish, W.R., Cook, T.D. and D.T. Campbell. 2002. Experimental and Quasi-Experimental Designs for Generalized Causal Inference. Boston: Houghton Mifflin.
- Shephard, A. 2007. Understanding and explaining chronic poverty: An evolving framework for Phase III of CPRC's research. CPRC Working Paper #80. London: Overseas Development Institute.
- TANGO International. 2012. Secure the Future: Enhancing resilience of drought-affected nations, communities, and households in the Horn of Africa. World Vision Concept note. DRAFT. March 2012.
- _____. 2012b. NGO response to food price crises: Evidence of change in NGO operations since 2008. Input for policy brief. March 2012. DRAFT prepared for International Food Policy Research Institute.
- _____. 2011a. Horn of Africa (HOA) Drought and Hunger Crisis Research – Kenya, Ethiopia, Somalia. Prepared for World Vision International. December 2011.
- _____. 2011b. Final Evaluation – PSNP Plus Project. December 2011.
- _____. 2009. SHOUHARDO: A Title II program of USAID Final Evaluation Report. December 2009. Washington, D.C.: USAID.
- _____. 2007. Ethiopia: The Path to Self-Resiliency. Prepared for CHF – Partners in Rural Development. July 2007.
- TANGO International/Florida International University. 2011. Disaster Risk Reduction Distance Learning Course. Washington, D.C.: OFDA.
- The Energy and Resources Institute (TERI). 2007. Adaptation to Climate Change in the context of Sustainable Development, The Energy and Resources Institute. Available at: <http://www.teriin.org/events/docs/adapt.pdf>.
- The Montpellier Panel. 2012. Growth with resilience: Opportunities in African Agriculture. London: Agriculture for Impact.
- Tilstone, V. 2011. An innovative approach to drought management in Kenya: the establishment of the National Drought Management Authority. In: de Jode, H., & V. Tilstone (eds.), Disaster risk reduction in the drylands of the Horn of Africa: Good practice examples from the ECHO DCM partners and beyond - Edition 2. Regional Learning & Advocacy Programme (REGLAP) for Vulnerable Dryland Communities. European Commission Humanitarian Aid Department (ECHO).
- Twigg, J. 2009. Characteristics of a disaster-resilient community. A guidance note. Version 2. Available at: www.abuhrc.org/research/dsm/Pages/project_view.aspx?project=13.

- UN ISDR (UN International Strategy for Disaster Reduction). 2008. Disaster preparedness for effective response: Guidance and indicator package for implementing priority five of the Hyogo Framework. Geneva: United Nations.
- USAID. 2012. Meeting Notes: New Country and Region-Led Efforts and Partnerships for Enhancing Resilience and Building Growth in the Horn of Africa. May 10, 2012.
- USAID. 2011. Enhancing resilience in the Horn of Africa: An evidence-based workshop on strategies for success. USAID Workshop Proceedings. December 13-14, 2011.
- Venton, Courtenay Cabot, Catherine Fitzgibbon, Tenna Shitarek, Lorraine Coulter, Olivia Dooley. 2012. The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia. June, 2012.
- Walker, B., and D. Salt. 2006. Resilience thinking: sustaining ecosystems in a changing world. Island Press, Washington D.C., USA.
- World Bank. 2011. World Development Report 2011: Conflict Security and Development.
- World Food Programme (WFP). 2011a. Comprehensive Food Security and Vulnerability Analysis (CFSVA): The Gambia. Rome: World Food Programme.
- _____. 2011b. The state of food security and nutrition, Sierra Leone 2011. Rome: World Food Programme.
- _____. 2011c. Analysis on food security and vulnerability in six countries in rural China. Rome: World Food Programme.
- _____. 2011d. The status of food security and vulnerability in Egypt, 2009. Rome: World Food Programme.
- _____. 2011e. WFP East and Central Africa Bureau (ODN) Medium Term Regional Strategy 2012-2015. Second Draft. 15 December 2011. Rome: World Food Programme.
- _____. 2010a. The state of food and nutrition security in Liberia. October 2010. Rome: World Food Programme.
- _____. 2010b. Comprehensive food security and vulnerability analysis: Republic of Mozambique. September 2010.
- _____. 2009. Strategic Evaluation of the Effectiveness of WFP Livelihood Recovery Interventions. A Report from the Office of Evaluation. World Food Programme, Rome.
- World Meteorological Organization (WMO). 2009. Fact sheet #1Climate information for reducing disaster risk.
- Zwaagstra, L., Sharif, Z., Wambile, A., de Leeuw, J., Said, M.Y., Johnson, N., Njuki, J., Ericksen, P. & M. Herrero. 2010. An assessment of the response to the 2008-2009 drought in Kenya. A report commissioned by the European Delegation to the Republic of Kenya. Nairobi: International Livestock Research Institute.

Annex 1: Definition of Terms

Vulnerability and resilience are often seen as opposing poles of an individual's or a group's capacity to deal with stresses or shocks. Promoting and building resilience directly contributes to a lessening of vulnerabilities in communities at risk of natural disasters and a range of social and or economic shocks. The concept draws on multiple disciplines across different societal levels and thus draws on a variety of concepts and terms. The most common are defined below.

Adaptive capacity refers to the ability of households or communities to cope with and adapt to shocks or stresses i.e., do they have the skills and tools needed to deal with shocks or stresses?

Adaptation can be thought of as the learning component of adaptive capacity; adaptation occurs when communities learn from past experiences and make adjustments that reduce their vulnerability to future shocks.

Coping strategies are strategies that households and communities use based on available skills and resources to face, manage and recover from adverse conditions, emergencies or disasters in the short-term (Pasteur 2011). These are reactive short-term responses. **Adaptive strategies** involve responding to change proactively and tend to be longer-term anticipatory strategies that moderate harm or exploit beneficial opportunities.

Shocks or hazards are sudden onset unexpected high impact events. They are dangerous natural phenomena, human activities or conditions that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage (Pasteur 2011).

Stresses are smaller low impact events and seasonal factors, unemployment, price fluctuations, ill health, local conflicts or gradual change in climate conditions that undermine livelihoods (Pasteur 2011).

Disasters are commonly defined as a serious disruption in the functioning of a community or society involving widespread human, material, economic or environmental losses and impacts that exceed the ability of the affected community or society to cope with its own resources (Pasteur 2011). Not all shocks and stresses lead to disasters.

Annex 2: Basis of the Conceptual Framework for Resilience Assessment

The livelihoods framework focuses on the adaptive capacity of households and communities and consists of **access to assets** (e.g., physical, political, social, human, natural, financial), transformative **structures and processes** (e.g., governance, laws, policies, institutions), and diverse **livelihood strategies**. In general, households and communities are more capable of dealing with shocks and stresses when they have more than one way of earning a living (i.e., engage in a diversity of livelihood strategies), access to sufficient livelihood assets (e.g., financial markets, good education, social networks, roads, water) and access to formal and informal governance structures that promote resource management and policies, laws, and social/cultural norms that enable households and communities to manifest adaptive capacity (e.g., delivery of basic services, security, access to social safety nets).

The disaster management framework (DRR) focuses on preparedness, prevention, response and recovery (i.e., ex ante and ex post activities). Ex ante responses stress prevention and preparedness in order to reduce the risk of disaster. Communities that are well prepared for a disaster will require fewer relief and recovery resources because either the disaster was diverted through prevention or its impact was reduced through preparedness (Pasteur 2011). In a resilience approach, response and recovery (i.e., ex post) needs to go farther than dealing with immediate infrastructure needs and consider ways of building back better to reduce vulnerability in the future.

The climate change adaptation (CCA) approach essentially focuses on reducing the impacts of climate change through a more integrated approach linked to Disaster Risk Reduction (DRR). DRR and CCA are overlapping but distinct approaches: both involve focusing on managing risks and reducing vulnerability to hazards (Twigg 2009). However, DRR addresses hazards beyond those relating specifically to climate change (FAO 2011); CCA addresses issues beyond the scope of DRR, such as loss of biodiversity and ecosystem changes. By considering Disaster Risk Management in the context of a changing climate, strategies and programming can be developed for managing and adapting to long-term trends and future uncertainty.

The conceptual framework for resilience integrates all three approaches to address the underlying causes (e.g., institutional, structural, socio-economic, environmental) that contribute to vulnerability and seeks to understand and address how long-term trends (e.g., climate change, economic, socio-political or environment factors) affect livelihoods security and exposure to risk, which results either in increased vulnerability or increased adaptive capacity over time. It is comprised of the following elements:

Context

Context refers to the environmental, political, social, economic, historical, demographic and policy conditions that affect households, communities, and governments (i.e., a unit), and determine to some

degree the extent to which they are able to cope with risks. The context is dynamic, rather than static, and changes according to the adaptive capacity of a unit in response to risks and disasters (Alinovi et al. 2010). Thus, while a snapshot of initial contextual conditions sets the stage for developing responses that build resilience, those responses then change at least some contextual factors, which impacts – either positively or negatively – the ability of a unit to cope with future risks and disasters. Incorporation of new contextual factors is critical to a resilience approach and underscores the importance of disaster planning and “future thinking”.

Level of aggregation

This can be thought of as the unit of analysis for determining resilience to what or of whom (e.g., the individual, household, community, institution, government, ecosystem) (Alinovi et al. 2009). There is no “one size fits all” in resilience programming. What makes a household resilient differs from what makes a community or government resilient. The relationship between these levels is that of a ‘nested hierarchy’, i.e., resilient individuals and households are the foundation for resilient communities. However, resilience at one level does not automatically result in resilience at other levels; resilient households do not necessarily result in resilient communities and vice versa.

Both ex ante and ex post responses must consider both the type of shock being addressed and how a particular type of shock might affect the different individuals that make up households and sub-groups within a community (i.e., men, women, children, the elderly, the disabled) as no single intervention will build resilience in all vulnerable groups.

Disturbance

Disturbance may come in the form of rapid or slow onset *shocks* (i.e., natural or man-made hazards) such as earthquakes, floods, drought, human disease epidemics, plant pest outbreaks, and conflict, or longer-term *stresses* (e.g., environmental degradation, political instability, conflict, price inflation). By itself, a shock is not a disaster; it can, however, trigger a disaster because of underlying physical, social, economic or environmental vulnerabilities. A disaster occurs when households, communities, institutions or governments are unable to cope with a shock or stress (Pasteur 2011).

In assessing resilience it is important to acknowledge that some disturbances are ***idiosyncratic*** (i.e., affecting only certain individuals or households) whereas others are ***covariate*** (i.e., affecting an entire population or geographic area).

While certain broad characteristics (particularly those related to enabling environments) may promote resilience to shocks generally (Alinovi et al. 2009; Twigg 2009), the underlying causes of vulnerability to shock or stress differ and therefore require different analysis and response based on the type of shock/stress (Harris 2011). Resilience to one type of shock (e.g., drought) does not necessarily ensure resilience to others (e.g., food price increases, insect outbreaks).

Exposure

In the resilience framework, exposure is a function of the magnitude, frequency, and duration of a shock or stress. Some shocks come on quickly, with little or no advance warning and are over with quickly (e.g., earthquakes, flash floods) while others may be so slow to progress that their duration can be marked in years (e.g., conflict, drought). Duration only refers to the actual shock itself, not the resulting impact, which may be short- or long-term.

Many stresses or shocks are seasonal, including floods, pest outbreaks, and unemployment. The inability to cope with seasonal shocks or stresses can make already vulnerable households even more vulnerable to disaster by increasing their risk of exposure to future hazards (Pasteur 2011). According to Twigg (2009), disaster preparedness and planning can significantly reduce exposure: good risk analysis, including disaggregation by gender, socio-economic, or other groupings; contingency planning; early warning systems and awareness; and improved disaster risk prevention and protection strategies reduce exposure of communities to shocks and therefore reduce their vulnerability to disasters.

Adaptive Capacity

Adaptive capacity can be understood as the nature and extent of access to and use of resources in order to deal not only with disturbance (e.g., shocks or hazards) but also with stresses and longer-term trends (i.e., changing conditions). It results not only in the ability to ‘bounce back’ from shocks but to successfully adapt to long-term trends or changing conditions in the future. It can be thought of as both the processes and assets that enable a unit or system to adapt rather than the act of adapting, or its outcome (Ludi et al. 2011).

In contrast, adaptation can be thought of as the result of reducing the adverse effects of shocks and stresses on livelihoods and general well-being combined with the ability to take advantage of “new opportunities provided by a changing environment” (TERI 2007). Adaptation requires that adaptive capacity be put into positive action; it is described as the adjustments that occur – in either natural or human systems – in response to actual or expected events (or their impacts), which minimize negative consequences or exploit positive opportunities (IPCC 2011).

Adaptation can be both positive and negative, though building resilience focuses on positive adaptation. Particularly during very slow onset shocks or long-term trends, such as cyclical drought or unemployment, negative adaptation can occur when “crisis” conditions become normalized through a “gradual process of adjusting expectations and habits downward” (Hossain et al. 2010). In other words, hunger becomes “normal” and what might otherwise have been considered a shock or disaster does not differ significantly from various local and idiosyncratic shocks characteristic of poverty itself.

Adaptive capacity is context-specific and multi-dimensional; there is no “one size fits all,” rather adaptive capacity varies by individual, household, community, government, and over time. At the community level, the ability to adapt has been characterized generally by access to certain assets and enabling environments: asset base, institutions and entitlements, knowledge and information, innovation, and flexible, forward-looking decision-making (Ludi et al. 2011). In the resilience framework,

adaptive capacity is comprised of three basic, but interrelated elements – livelihood assets; transforming structures and processes; and livelihood strategies.

- **Livelihood Assets** – The tangible and intangible assets that allow individuals and households to meet their basic needs. Livelihood security depends on a sustainable combination of six assets, or capitals: **financial** (e.g., cash, savings, credit, remittances); **physical** (e.g., roads, markets, water systems, electricity); **political** (e.g., formal/informal governance mechanisms, voice in decision-making and advocating for resources or change); **human** (e.g., education, health/nutritional status, skills, ability to work); **social** (e.g., formal/informal networks, family/extended family structures, group membership, labour-sharing systems, social relations, tribe relations, access to wider institutions in society); and **natural** (e.g., land, water, biodiversity, forest resources). Certain assets are prerequisites to others (e.g., education may allow individuals to better manage financial capital) and trade-offs exist between assets (e.g., investment in education may increase human capital but at the expense of household income, or financial capital) (TANGO 2011). Greater diversity of assets reduces vulnerability to shocks, and high adaptive capacity results from the ability of households and communities to access and utilize these key assets in a way that allows them to respond to changing circumstances. For example, high adaptive capacity is possible when the “system has the ability to collect, analyze, and disseminate knowledge and information in support of adaptation activities” (Ludi et al. 2011). This includes use of local or traditional knowledge, where communities may already have developed mechanisms for early warning, prediction, preparedness and coping with stresses and shocks, which have evolved *in situ* over long periods of time (Pasteur 2011). Thus, it is not only critical to have access to livelihoods assets but also to have the skills and knowledge base required to utilize them in ways that improve the capacity of households and communities to deal with future shocks and long-term trends.
- **Structures and processes** – These are embodied in the formal and informal institutions that enable or inhibit the resilience of individuals, households and communities. High adaptive capacity results when a “system is able to anticipate, incorporate and respond to changes with regards to its governance structures and future planning” (Ludi et al. 2011).

In any given community, multiple institutions and organizations share responsibility for certain community functions that directly influence the adaptive capacity of local households (TANGO 2011). In the public sector, this typically includes national, regional, and local (formal and informal) governance bodies or structures that manage and implement political, judicial, and legislative processes, including delivery of basic services, security, and access to social safety nets. In civil society, examples of typical structures are non-governmental organizations (NGOs) and community-based organizations (CBOs), religious institutions, and trade associations. There may also be structures within the private or commercial sector, such as financial institutions that offer financial services (e.g., credit, savings, insurance) to poor households.

These structures organize and regulate community behaviour and processes, such as through creating and enforcing policy and legislation, or through setting and maintaining social and cultural norms or power relations. They shape and influence people's values and behaviour, affecting what they do and how they do it. High adaptive capacity requires flexible and forward-looking decision-making and governance. Community resilience can be enhanced by creation/strengthening of community governance mechanisms that promote awareness of risks and risk reduction strategies, community DRR and disaster preparedness plans/committees, community-based early warning systems, and training community members in search and rescue, relief distribution, risk assessment, etc.

Important interactions exist between structures and processes within the context of rules and social norms in which they exist. Various structures and patterns of collaboration among institutions, and among individuals or communities, can have positive or negative effects on local livelihood systems (e.g., individuals or communities with many assets may be able to change some of the rules, such as who has access to specific assets). These interactions can enhance or limit adaptive capacity. High adaptive capacity results from "an appropriate and evolving institutional environment that allows fair access and entitlement to key assets and capitals" (Ludi et al. 2011).

- **Livelihood strategies** – This represents the distinct or combined strategies that individuals and households pursue to make a living and cope with shocks. It is critical to note that different livelihood strategies have various risks associated with potential shocks and that certain coping strategies may have negative and permanent consequences with respect to resilience. Positive coping strategies are "the strategies that households and communities use, based on available skills and resources, to face, manage and recover from adverse conditions, emergencies or disasters in the short term" (Pasteur 2011). This may include using stored assets (e.g., savings, extra food, excess livestock), even to their exhaustion, without necessarily diminishing their future ability to cope. In contrast, negative coping strategies (e.g., eating less, eating less nutritious food, delaying medical treatment, taking children out of school, exploiting natural resources) erode productive assets (e.g., educational attainment, health status, ability to work, healthy ecosystems). These strategies are negative in that they undermine future options, making it more difficult to cope with the next shock or stress.

Importantly, people's **aspirations** – or lack thereof – influence the choices and preferences they make, either individually or in groups (Frankenberger et al. 2007). Aspirations represent "the manner in which people visualize the future and engage in forward-thinking behaviour" (see Rao and Walton 2002; Appadurai 2001). From a resilience perspective, aspirations are a critical component of the livelihood strategies used by households and communities in terms of risk reduction and response to shocks, i.e., whether an individual "chooses" a positive or negative coping strategy. According to Appadurai (2001), lack of "aspiration" (to a better life or future) results in not making the needed investments to better one's well-being, even when the return

on those investments might be positive. Such a response is often seen among poorer people, though it has also been shown that even the poor make choices (Frankenberger et al. 2007). This does not, however, mean that the poor lack aspirations. Rather, their opportunities for exploring the links between the means (i.e., how to achieve a desired outcome) and the ends (i.e., a desired outcome) are more limited than the non-poor (e.g., through lack of education, limited resources, less exposure to new ideas/technology).

Livelihood strategies include various types of activities intended to build-up assets as well as those which aim to reduce risk or cope with shock. Households form livelihood strategies based on the combination of assets they have, the shocks and trends they are exposed to, and the overall context regarding formal and informal structures and social and legal systems. Asset optimizing strategies include production and income-generating activities (e.g., agricultural production, off-farm employment, informal sector employment) and strategic investment (e.g., land, animals, tools, training) or, more often, a diverse and evolving combination of multiple income-generating activities. They also include actions such as advocating for rights and services, getting married, going to school, or diversifying assets. High adaptive capacity involves systems that create “an enabling environment to foster innovation, experimentation and the ability to explore niche solutions in order to take advantage of new opportunities” (Ludi et al. 2011). Importantly, taking advantage of such opportunities may require reducing household aversion to “taking a risk” (e.g., investing in new and unfamiliar livelihood activities). For example, use of insurance mechanisms to spread risk (e.g., weather-indexed crop/livestock insurance) may be limited not only by access to such instruments but also by unfamiliarity with the concept of insurance and how it would be of benefit.

Risk reduction strategies are those that help people prepare for and respond to shocks, thereby reducing their vulnerability to the shock, and increasing adaptive capacity. Risk reduction strategies are preventive in nature and are therefore implemented *ex ante* – before a shock or stress occurs (e.g., crop diversification, use of drought-tolerant crops/livestock, obtaining insurance, protecting health). Vulnerable populations use coping strategies when they are incapable of meeting basic household needs because of the impact a shock has had on their normal livelihood options. Household coping strategies are implemented *ex post*, in response to a shock or stress. Some coping strategies are unsustainable (e.g., selling productive assets, reducing meals, switching to less nutritious foods) others are beneficial (e.g., social interdependence, solidarity). As the impact of a shock becomes more severe, households’ coping strategies are likely to become more desperate and/or irreversible. Households generally begin with the short-term strategies and transition to longer-term (distress) strategies as the impact of the shock continues and worsens. Distress strategies are more detrimental over the long term to household livelihood systems and tend to reduce household adaptive capacity and resilience.

Ex-post risk management strategies also include use of safety nets that provide consumption smoothing and asset protection for vulnerable populations. These can be facilitated by either formal or informal groups or organizations, including religious groups, social clubs, savings, or credit groups, funeral societies, etc. Informal safety nets are often more effective in dealing with idiosyncratic shocks due to the fact that they incorporate community-specific knowledge and account for cultural, physical and economic differences among affected communities. Formal safety nets implemented by the government or NGOs often take the form of employment programmes or cash/food transfers, and are often more effective at addressing covariate shocks.

Adaptive capacity both affects and is affected by the larger contextual factors that contribute to vulnerability or resilience. Households and communities that are able to learn from past experiences and make changes (i.e., adapt) that lessen the impact of future shocks are more resilient. Those not able to adapt remain or become more vulnerable, depending on the coping strategies they utilized and their ability to rebuild depleted assets.

Sensitivity

Sensitivity to shocks refers to the degree to which an individual, household or community will be affected by a given shock or stress. Sensitivity, or susceptibility, differs from exposure in that it reflects different underlying causes of vulnerability to shocks. Vulnerability is a function of exposure, adaptive capacity, and sensitivity. Certain individuals or groups of individuals (e.g., women, children, the elderly, displaced persons) are differentially affected by shocks (Ludi et al. 2011). Even within the same household, individuals will be affected differently by the same shock and by different shocks (i.e., some will be more/less impacted than others depending on the shock). For example, the elderly may not be sufficiently mobile to quickly seek higher ground during a flood; women were more sensitive to the 2005 tsunami in Indonesia because of cultural constraints on their mobility within the community; owners of large livestock herds may be more sensitive to drought than owners of smaller herds. Greater sensitivity implies a lower degree of resilience whereas lower sensitivity implies greater resilience.

Men and women are not only differentially affected by shocks, they also differ in their perceptions of the impact of shocks, as do livelihood or wealth groups (Ludi et al. 2011). While there is typically broad agreement on weather-related covariate hazards, each group prioritizes those hazards that most directly affect them. Thus, interventions aimed at building resilience need to not only target improving adaptive capacity generally but specifically need to target reducing sensitivity of vulnerable groups.

Resilience and Vulnerability Pathways

The term 'pathways' underscores the idea that both vulnerability and resilience are properly viewed as processes rather than static states. Households or communities that are able to use their adaptive capacity to manage the shocks or stresses they are exposed to are less sensitive and are on a ***resilience pathway***. Households that are not able to use their adaptive capacity to manage shocks or stresses are sensitive to shocks and are likely to go down a ***vulnerability pathway***. The vulnerability pathway could

result in permanent and negative changes to coping capacity, ultimately leading to a state of chronic vulnerability and destitution; the more vulnerable households and communities are, the less able they will be to cope with shocks and disaster may result.

The resilience pathway is based largely on preparedness, in terms of infrastructure (e.g., flood or earthquake-proofing), early warning systems (including community-based systems and knowledge), contingency/emergency planning, governance structures that are flexible and responsive to community needs, access to information (e.g., market price information) and the ability to utilize that information (e.g., access to markets), strong community mechanisms for managing natural resources and avoiding conflict, government provision of basic services and social safety nets, diverse and ample household assets (e.g., land, skills, education, livestock), diversified livelihood strategies, etc. The resilience pathway is an iterative process, involving innovation and application of lessons learned from past experience that increases adaptive capacity and leads to resilience.

Livelihood Outcomes

These are the needs and objectives that households are trying to realize – or aspire to. Resilient individuals, communities and households will be able to meet their food security needs, will have access to adequate nutrition, their environment will be protected, they will have income security, health security, and they will be able to participate in the decisions that affect their lives. Vulnerable households experience deficits, or a high risk of deficits in each of these aspects. In the resilience framework, a resilience pathway leads to positive livelihood outcomes, which lead to resilience outcomes; the ability to cope with shocks, to learn from past and prepare for future shocks while remaining food secure, and ultimately, moving beyond poverty and food insecurity.

Aspirations are reflected in household livelihood outcomes, in terms of whether they were met or not. When households are willing to make pro-active investments directed at bettering their lives, they are more likely to be resilient, even in the absence of achieving all of their household objectives or to the desired level.

It is important to note that the resilience framework is not uni-directional, but includes several feedback loops. Improved adaptive capacity affects contextual factors (especially those related to poverty and vulnerability), exposure and sensitivity. Increased resilience (or increased vulnerability) also reshapes contextual factors, exposure and sensitivity. Importantly, improved livelihood outcomes (resilience pathway) increase adaptive capacity and reduce exposure and sensitivity to shocks/stresses. Conversely, worsening livelihood outcomes (vulnerability pathway) negatively impact adaptive capacity and increase exposure and sensitivity. Thus, resilience is not just about dealing with today's shocks and stresses but also planning for and being able to adapt to unpredictable shocks and changing conditions in the future.

Annex 3: Analyzing Resilience

The resilience conceptual framework provides guidelines for ways to measure the resilience/vulnerability of communities, households, and individuals, and in addition, provides a framework for measuring quantitatively the impacts of different factors, including interventions and policies, on resilience.

For the purposes of assessing the effectiveness of policies and programmes to strengthen resilience, several empirical questions must be addressed:

- a) Who are the vulnerable households? What are their characteristics? Are they located in certain geographic areas?
- b) What are the differences in the risk management strategies (both short- and long-term) adopted by different types of households in response to shocks, and how effective are these different types of strategies for maintaining current household food security and resilience in the face of future shocks?
- c) What are the most effective intervention strategies to enhance resilience or reduce vulnerability?

The first question is important for targeting and overall resource allocation decisions. In order to decide how many resources should be used to increase resilience of vulnerable households it is necessary to know the number of vulnerable households. For planning purposes, it is also necessary to know the characteristics and geographic locations of vulnerable households. Questions b) and c) are important to make assessments about what are appropriate interventions or policies to improve resilience of targeted households to specific types of shocks.

To be operationally meaningful, each of these questions must be addressed in relation to particular types or categories of shocks. One of the shortcomings of much of the existing empirical research on vulnerability is that it is not assessing vulnerability with respect to specific types of shocks, but rather assesses vulnerability to all types of shocks (both idiosyncratic and covariate) that households are exposed to. The results from this research are unsurprising: there are more vulnerable households than those that are currently food insecure (and conversely there are some households that are currently food insecure for transitory reasons but are not vulnerable), and households with more capital (of all types) are more resilient than those with less capital. In addition to being fairly self-evident, these findings do not help to identify appropriate interventions that will strengthen household resilience.

Quantitative analysis

Much of the recent empirical research focuses on the first question, namely, identifying vulnerable households within a particular context, and in some cases with respect to specific types of risk. The theoretical basis for much of the empirical work on vulnerability has started from the operational definition of vulnerability based on the probability that a household will fall below the poverty level at some point in the future. This general concept is then expressed in an equation of observable variables in the following general form (adapted from Chaudhuri et al. 2002):

$$(1) \quad V_{h,t} = \Pr(c_{h,t+1} < z \mid X_h, B_t, e_{h,t})$$

Where $V_{h,t}$ is the vulnerability of household h at time t , $c_{h,t+1}$ is the household's consumption expenditures in time $t+1$, z is the minimum required consumption expenditure (poverty line), X_h are the set of household-level characteristics of household h , B_t is the set of external (community, national

economy, etc.) factors in time t , and $e_{h,t}$ is the set of shocks that household h is exposed to in time t . This formal definition of vulnerability based on observable variables forms the conceptual basis for developing equations of variables that can be empirically estimated. A number of variations of this general formulation have been proposed (Azam and Imai 2012; Dutta et al. 2010; Calvo and Dercon 2005; Christiaensen and Subbarao 2004; Christiaensen and Boisvert 2000; Pritchett, et al. 2000).

Attempts to measure resilience and its determinants have been hindered by the fact that resilience as defined in (1) is a dynamic concept, which implies that empirical estimates should be based on time-series, preferably panel data from the same households over time. Some studies have been able to utilize panel data (Pritchett et al. 2005; Glewwe and Hall 1998; Jalan and Ravallion 1998), but as Christiaensen and Subbarao (2004) point out, such data are usually not available, particularly in developing countries.

Given this relative scarcity of panel data, a number of researchers have developed empirical models estimated on cross-sectional data. One early approach (Chaudhuri et al. 2002) was based on the following model, which estimates consumption expenditure per household member, c_h , as a function of household characteristics (X_h), with an error term (e_h) as follows:

$$(2) \quad c_h = X_h \beta + e_h$$

The variance of e_h ($\sigma_{e,h}^2$) is then modelled to also be a function of household characteristics, in the following form:

$$(3) \quad \sigma_{e,h}^2 = X_h \Theta$$

The parameters in equations (2) and (3), β and Θ , are estimated by Chaudhuri et al. (2002) using a three step feasible generalized least squares (FGLS) procedure proposed by Amemiya (1977),¹⁴³ in which the estimated residuals from (2) are used to estimate Θ . The parameters are then employed to estimate *expected* consumption expenditures and the variance of consumption expenditures for each household, which finally yield an estimate of the probability that a household with characteristics X_h will be poor, that is, the level of vulnerability as defined in (1) above.

In this formulation, the specific strategies that households adopt to cope with shocks are captured in the unexplained residual variation in observed consumption, and so are the “black box” of the model. This basic model has been extended by others to include both more dimensions of household level (idiosyncratic) factors, such as access to various types of capital and assets and agricultural production technologies used (Karfakis et al. 2011; Capaldo et al. 2010), and community-level (covariate) factors affecting household consumption patterns (Azam and Imai 2012). Later models also incorporated exogenous variables to measure specific shocks: drought and illness (Capaldo et al. 2010) and variations in rainfall and temperature from mean values (Karfakis et al. 2010).

Several studies by FAO have examined vulnerability using the general form of model described above. Capaldo et al. (2010) estimated a model based on a cross-section survey of 1,831 rural households in Nicaragua. This model estimated the probability that a household would consume less than the minimum required level of calories based on household characteristics, whether the household experienced an illness shock, and whether the household experienced a drought shock. The results from

¹⁴³ Other researchers (Capaldo et al. 2010; Karfakis et al. 2011; Azam and Imai 2012) have used somewhat different estimating models from that of Chaudhuri et al., but the underlying logic is similar, namely to estimate both the mean and variance of food security indicators as a function of exogenous household (and community-level) characteristics.

this model provide estimates of the proportion of vulnerable households in the population, and the characteristics of vulnerable households.

A later paper by Karfakis et al. (2011) examined the impacts of global warming, as measured by changes in rainfall and temperature patterns at the household level. By simulating alternative scenarios for future changes in rainfall and temperature, the authors were able to estimate the impacts on the vulnerability levels of households. This paper represents an advancement in the empirical studies of vulnerability to estimate the impacts of a particular type of risk, in this case weather risks associated with global warming, on patterns of vulnerability within a specific population, specifically households in rural Nicaragua.

Research by Alinovi and others (Alinovi et al. 2010; Alinovi et al. 2008) follows a different empirical approach. These studies use structural equation modelling and factor analysis to identify unobserved (latent) variables that are components of household resilience. Then overall resilience is estimated as a higher-level latent variable that is a function of the component latent variables. In this formulation, the resilience variable is an aggregate measure, which is a combination of exogenous factors, endogenous responses of households, and outcome measures of household well-being. In the Kenya study, the overall resilience measure, along with the components, are compared across different household livelihood categories.

While this line of research helps to better understand the differences in resilience across categories of livelihood strategy, it is less helpful in determining why some households are more resilient than others, and identifying appropriate interventions to strengthen resilience.¹⁴⁴ Because the resilience index is a composite of both the determinants and the results of resilience, it does not help to shed light on how households adjust to shocks. In particular, the model does not clarify the factors that determine or limit the types of risk management strategies that households choose. Another limitation of this framework is that, because resilience is measured in relation to all types of shocks in aggregate (in the form of the stability latent variable), the model does not shed light on household resilience to specific categories of shocks.

With the exception of Karfakis et al. (2011), all these FAO studies were designed to identify the proportion of vulnerable households in a particular context, and to identify the characteristics of vulnerable households, particularly their access to different types of physical and financial capital and the characteristics of their livelihood strategies. These studies were not designed to explicitly explore the particular risk management strategies adopted by different kinds of households in response to specific types of shocks, or to understand how the adoption of different risk management strategies affected household outcomes or measure of well-being.

The World Food Programme (WFP) conducts country-level Comprehensive Food Security and Vulnerability Analyses (CFSVA) to “provide an in-depth picture of the food security situation and the vulnerability of households in a given country.” These are baseline surveys, conducted in normal times (not crises), in countries that are subject to vulnerabilities. The CFSVAs are intended to identify food insecure and vulnerable populations within a county, provide insights into why they are food insecure or vulnerable, and identify appropriate assistance to reduce vulnerability and food insecurity.

¹⁴⁴ This limitation is undoubtedly due to limitations on access to rich datasets with detailed information on households’ adoption of specific risk management strategies.

In addition to obtaining basic descriptive information on the scope of food insecurity and vulnerability, the assessments are intended to undertake analyses to identify the root causes of food insecurity, and analyze the risks of all types of shocks and their potential impacts on the most vulnerable.

An external review of CFSVAs was conducted in 2006. This study recommended that vulnerability assessments should “go beyond estimating how many people are currently food insecure, and where they currently live.” The report concluded that CFSVAs should:

“...seek to analyze multiple dimensions of vulnerability. An essential attribute of the concept of vulnerability is that it is forward-looking. Assessments of current assets or livelihood strategies [should be] made through the temporal lens of risk analysis.”

In fact, most CFSVAs collect extensive information about the current food security status of households, including anthropometric indicators, income, expenditure, and household assets, and frequencies of different types of livelihood strategies. Information about coping strategies is also often collected, as well as seasonal variations in food security variables (WFP 2011a-c; WFP 2010 a-b). The information presented in the CFSVA reports focuses on current food insecurity status in the populations, but most of the reports do not provide any assessment of households that are vulnerable to food insecurity in the future.

One exception is the Status of Food Security and Vulnerability in Egypt 2009 (WFP 2011d). This report includes an analysis that is similar in spirit to the empirical models summarized above. A model that estimates the likelihood that a household will have caloric deprivation (estimated household calorie consumption below recommended requirements) based on a number of household characteristics, including participation in food subsidy programmes (purchases subsidized bread, holds ration card) was estimated using a logistic regression model. The results of the model show that these food subsidy interventions reduce the probability that households will experience caloric deprivation. Following the logic of the empirical models based on cross-section data described above, these results can arguably be used to conclude that not only do the interventions reduce the likelihood of current caloric deprivation, but also that the likelihood of caloric deprivation in the future (i.e., vulnerability) is reduced as well.

To date, empirical work on vulnerability has focused on identifying the characteristics of vulnerable households, but has not been directed toward understanding 1) the factors that affect households’ choice of risk management strategies to prepare for and respond to particular shocks, and 2) how specific interventions may strengthen households’ adaptive capacities to utilize strategies (either coping or adaptive) that better maintain their resilience to future shocks.¹⁴⁵ Most of the empirical work on vulnerability is based on estimates of reduced form models; the final outcome variables that measure household well-being (e.g., per-capita expenditures) are estimated as functions of household and community-level exogenous variables, in the general form given by equations (2) and (3) above, and in some cases extended to include variables measuring specific types of shock. This form of estimating model does not shed light on the particular strategies used by households to adapt to the shock. The adaptive capacities and coping strategies of households are all hidden in the “black box” of the unexplained variation. These models address question a) above, but not questions b) and c).

¹⁴⁵ It is likely that the empirical studies reviewed here did not explicitly model household adoption of particular risk management strategies because this information was not available in the data sets they analyzed.

An extension of the empirical modelling approaches reviewed above would be to include household coping and adaptive strategies explicitly in the model. Following on the theoretical framework presented previously in this paper, consider the following hierarchical model:

$$(4) \quad r_{h,k} = F(X_h, B_i, S_m) + \eta_{h,k}$$

where $r_{h,k}$ is a binary variable that has a value of 1 if risk management strategy k (indexed over all possible strategies K) is adopted by household h , X_h is a vector of characteristics of household h , B_i is a vector of characteristics of the community i in which household h resides, and S_m is a vector of shocks (out of M possible shocks) to which households might be exposed and

$$(5) \quad c_h = G(r_{h,k}, X_h, B_i, S_m) + \varepsilon_h,$$

where c_h is a household food security indicator (e.g., per-capita consumption). Then the variance of ε_h is assumed to follow the general form

$$(6) \quad \sigma^2_{\varepsilon,h} = H(r_{h,k}, X_h, B_i, S_m),$$

allowing estimates of the probability that households will be food insecure that take into account both specific shocks and households' risk management strategies adopted to cope with them.

Logically, this is a hierarchical model, with the following sequential steps:

1. In response to particular shocks (or the risk of exposure to shocks), household h adopts a series of risk management strategies $r_{h,k}$ based on household characteristics X_h (e.g., access to different types of capital, livelihood strategies followed by the household), community characteristics B_i (e.g., local safety networks, access to government services, community physical assets), and its exposure to shocks S_m out of the set M of all possible shocks. Equation (4) would be estimated as a binary response model (logistic or probit), since the dependent variable is a binary variable indicating whether or not household i adopts strategy k .
2. The level and variance of the food security indicator are both functions of the types of risk management strategies adopted by the household, as well as household and community characteristics, and the shocks experienced by each household.

While the adoption of a risk management strategy is logically prior to achievement of outcome variables, both the adoption of the strategy and the realization of the outcome occur within the recall period of the survey, so that econometrically, the measurement of risk management strategies and outcome variable levels occur simultaneously. Therefore, appropriate estimation techniques, such as inclusion of instrumental variables, should be applied to account for the simultaneity of risk management choices and outcome variables.

This econometric model corresponds directly with the schematic diagram of the resilience framework presented in this paper. In particular, the set of equations (4) – (6) can be restated as:

$$(7) \quad \text{Reaction to shock}_i = F(\text{Context variables, Shock variables, HH adaptive capacity variables})$$

$$(8) \quad \text{Livelihood outcome variables} = G(\text{Reaction to shock, Context variables, Shock variables, HH adaptive capacity variables})$$

(with separate equations to estimate the level and variance of the outcome variables)

This structural model provides two key kinds of information. First, the model identifies the factors that influence and constrain the adoption of specific risk management strategies, including the characteristics of households, the social, physical, and economic dimensions of their environments, and the specific types of shocks they face. Second, the model indicates how the choice of specific risk

management strategies affects the livelihood outcomes of households, including the expected variability of those outcomes. Thus, in droughts, the model can capture that households with large herds may sell off livestock in the face of drought, while households without livestock must migrate. Furthermore, the model can detect that impact of livestock sales on livelihood outcomes may be less severe on households with large herds as compared to households with small herds. By incorporating variables that correspond to policy interventions, the model can also assess the effects of these interventions on, first, changes in household risk management strategies, and on the resulting changes in household livelihood outcomes, including the changes in the variability of these outcomes. These results can be used to better understand the risk management behaviours of different types of households, how those behaviours may be affected by alternative interventions, and the impacts of the changed risk management strategies on household current and expected future welfare, that is, on vulnerability.

Information needs

A wide range of quantitative information is needed in order to be able to estimate the empirical model of resilience described above. Quantitative analyses of resilience based on this framework will require datasets that include each of the following general types of information:

Context. These are the variables that measure all the exogenous factors at the level of community or region that affect household-level adoption of risk management strategies. In a cross-section survey, the context variables would capture the various community or regional level factors. These should include access to infrastructure and government services (which may vary by community, but normally are the same for households within a community), economic opportunities based on agro-climatic conditions, access to markets, local employment conditions, etc. In time-series data, national-level factors (e.g., macroeconomic conditions) would also have to be included, as these factors change over time.

Shocks (risks). Detailed information about the various types of shock that households are exposed to must be collected. Even though the research should focus on analyzing one particular type of shock, information about exposure to all other types of shock should also be collected.

Løvendal and Knowles (2005) offer a typology of risk characteristics:

- Type: political, social, economic, health, natural, environmental, life-cycle related
- Level: individual/household (micro), community/regional (meso), national (macro), and global/regional (supra-macro)
- Frequency: transitory, trend-related, structural
- Timing (frequency): infrequent/random, infrequent/regular pattern, seasonal, concatenated, and compounded
- Severity

Variables that account for all these dimensions should be measured and incorporated into empirical models of vulnerability. For example, dummy variables can be included for each type of shock relevant for a particular context, or categorical variables that measure the level of severity (e.g., low/medium/high) of the incidence of specific shocks. In addition, variables measuring the probability that specific shocks will occur can be included to capture the frequency dimension.

Another modelling strategy could be to incorporate variables that measure the probabilities of certain shocks occurring, rather than ex-post recording of shocks that individual households experienced during the recall period of a survey. These probability variables, such as the probability that annual rainfall will be a specified amount below the mean level for a particular location, would be obtained from secondary

sources, such as meteorological time series information for specific locations. The probabilities of risks occurring should be computed at the smallest geographic unit possible, such as the community-specific probabilities of being exposed to flooding. If secondary data permits computing risks only at the national level, then primary data should be collected to estimate the risks for a smaller geographic unit. Incorporation of risks of shocks occurring rather than ex-post information about past exposure to risks would permit analysis of a priori strategies to reduce or mitigate the impacts of risks on household welfare.

Adaptive capacities of households.

- *Aspirations and empowerment* – The aspirations of households provide the motivation for households to become more resilient (Bernard et al. 2011; Frankenberger et al. 2007). In particular, households and individuals with greater aspirations will have more incentives to make short-term sacrifices to be able to adopt more effective risk management strategies that protect their future food security levels. A report by TANGO International on Self-Resilience in Ethiopia (Frankenberger et al. 2007) incorporated several sets of questions to get measures of: 1) degree of control people feel they have over their life, 2) aspiration gaps and desire for change, 3) individuals’ “aspirations windows” based on contact with others within and outside their communities, and 4) “aspiration failures” when individuals are unwilling to make pro-active investments to better their lives.

In addition, more empowered households, and in particular households in which women are more empowered, will be able to act on their aspirations by being able to effectively interact with more powerful individuals and groups within their communities and with local governments to access needed resources and services. IFPRI (2012) has developed for Feed the Future an index to measure women’s empowerment, for use in monitoring impact evaluations of projects. The index measures whether women are empowered across five domains of activity (production, resources, income, leadership, time) based on women’s ability to make decisions in each of these domains. A separate index measures the percentage of women who are as empowered as men in their households.

Resilience studies should include information to measure these dimensions of aspirations and empowerment. The analysis may be conducted using the indexes proposed in these studies, or other indexes may be developed that are more relevant for specific contexts being analyzed.

- *Livelihood assets* – Within the model, household access to livelihood assets (capital) conditions the types of reactions that households may adopt in response to particular shocks. Livelihood assets include natural, financial, physical (productive and non-productive), social, political, and human capital. The values of financial and physical assets are relatively easy to assess, based on market prices. Proxy indicators for human capital include years of education of household head, or of all household members. Social capital may be proxied by the number of different community and local organizations that a household or individual is a member of, or by more complex indexes of participation in these groups. The value of natural capital should be based on the potential economic returns (including long-term) of the natural capital combined with the level of the household’s (individual’s) access or use rights to the natural capital.

Note that one challenge with livelihood assets, is that information about household assets prior to as well as after the household was exposed to shocks is extremely important. In particular, it

is important to be able to measure or estimate the magnitudes of changes in the different types of capital after a shock, not just whether or not the availability declined. In cross-section surveys, this information must be obtained through respondents' recall. Households may not be able to provide the magnitudes of these changes very accurately.¹⁴⁶

Livelihood strategies. Many dimensions of livelihood strategies may be measured, including the following examples:

- Number of sources of household income
- Number of household members employed or engaged in income-generating activities
- Number of household members employed in specific types of employment or income-generating activities
- Monthly (or annual) income from specified sources
- Types and quantities of crops grown
- Types and quantities of livestock owned

As with assets, it would be extremely useful to have information about livelihood strategies before and after the shocks, in order to be able to capture changes in livelihood strategies (adaptation) as a response to shocks. With panel data these changes could be measured directly, otherwise recall questions would need to be used in questionnaires.

- *Risk management strategies* – Detailed information about how households react and adapt to shocks as well as how they prepare for the risk of future shocks is critical to measuring resilience in a way that can provide policy insights. This information is necessary to get inside the “black box”, to be able to understand how people react to shocks, what the implications are to household welfare of different types of reactions, and what factors permit or restrict households from responding to shocks in ways that will not compromise their resilience to future shocks. Løvendal and Knowles (2005), identify the following types of risk management strategies:
 1. Prevention strategies aimed at reducing the probability of a negative shock occurring
 2. Mitigation strategies to reduce the impact of a negative shock by providing compensation for risk-generated losses
 3. Risk preparedness strategies are ex-ante strategies seeking to ensure effective ex-post responses to shocks
 4. Coping strategies are reactive, only utilized after the shocks actually occur

Resilience surveys should collect information about each of these types of risk management strategy. Note that several national surveys have included sections about coping strategies and shocks (e.g., Kenya Integrated Household Budget Survey 2004/5, Uganda National Panel Survey 2009/10, and Afghanistan National Risk and Vulnerability Assessment 2007/8).

Livelihood outcomes. Livelihood outcome variables are measures of the current well-being of households or individuals. They measure the level of consumption of basic necessities, including food (or may focus only on food security). Examples of outcome indicators include:

- Per-capita expenditures

¹⁴⁶See Echevin, 2011a for an estimate of recall bias of estimates of physical assets pre- and post-earthquake in Haiti. In this instance the bias is estimated to be small.

- Household diet diversity score
- Health and nutritional status indicators
- Household/individual access to various types of capital

These are measures of the current status of households or individuals. If the observed levels of these outcomes fall below minimum threshold levels, then the households are identified as currently poor, or food insecure. Households who are currently observed as poor – their consumption levels are below the minimum thresholds – may not be considered as vulnerable if their future consumption levels are expected to be above the threshold levels. Conversely, households with current outcome variables above the poverty line may be vulnerable if they have a high risk of falling below the poverty line when faced with future shocks.

Qualitative analysis

Qualitative data collection approaches are complementary to quantitative approaches to analyzing vulnerability and resilience. Because the different factors that affect household resilience are so context-specific, it is not possible to identify all of the key variables that should be included in an analysis. A qualitative analysis of the context for specific types of shocks is necessary to identify the key variables that should be included in the quantitative analysis, as well as indicate how the variables should be appropriately measured.

Qualitative approaches are also important for analyzing some shocks that happen so infrequently that sufficient data are not available, or the timeframes needed to measure resilience are so long as to be unworkable for policy analysis (e.g., resilience to tsunamis or earthquakes), or the shocks may be of varied manifestations across time and space (e.g., civil unrest). In such cases quantitative analysis may not be feasible. For these types of shocks, detailed qualitative analysis of past events may be necessary to understand vulnerability and resilience.

Another way that qualitative techniques are used in analyzing resilience is to have communities identify key characteristics of households and communities that affect how well they are able to cope with shocks and adapt to longer term climatic change. For example, in a study in Ethiopia carried out in 2007 (Frankenberger et al. 2007), communities were asked to identify several households (both male and female headed) that were able to meet their food needs for the whole year and to manage the types of shocks that regularly plague the community. Interviews were then conducted with these households to identify the characteristics that made them more resilient than the rest of the households. What was surprising was that many of these households across locations had many of the same attributes (Frankenberger et al. 2007). Most of these households exhibited pro-active behaviour and an entrepreneurial spirit that enabled them to overcome their vulnerable state. Some the key attributes can be summarized below. These are listed in rank order.

- **Income diversification.** Households across livelihood contexts emphasized the importance of diversifying sources of income to manage climatic shocks more effectively. Limited resources that were available would be used strategically to make such investments.
- **Investing in quality improvements in their farmland to raise production.** These households often invest in soil conservation and water management to improve their yields. They were considered model farmers by others in the community.
- **Propensity to save.** These households saw the value to save income earned for future investments rather than spend it on non-productive items like alcohol, chat or new clothes.

Some of these individuals felt pressure from the rest of the community to use these resources in less productive ways.

- **Good work ethic.** All of these households saw the value of hard work in achieving their objectives despite community pressure not to work so hard.
- **Access to food year round.** Most of the resilient households emphasized the need to have access to food on a year round basis.
- **Joint decision making with spouse.** The majority of these households had positive relationships with their spouses and regularly consulted them on all investment decisions. This common household vision seems to be very important to successful income diversification strategies.
- **Openness to change and early adopters of extension packages.** These households were often the first adopters of new extension technologies and used credit effectively in investments.
- **Contingency funds.** Households living in areas prone to erratic rainfall saw the value of investing in contingency funds to manage risk (lowland mixed livelihood systems). This was especially true in resilient female-headed households. In some locations, this involved storing grain for 2 years. In other locations it involved cash savings.
- **Placing value on education.** Although many of these household heads did not have much education, they recognized the value of education for income diversification. If possible, they made sure that all of their children were educated.
- **Do not drink or chew chat.** These households see conspicuous consumption of alcohol and chat as negative attributes.
- **Sharing with others.** Several resilient households saw the value of sharing food and resources with other members of the community to build social capital. Community cohesion was important to maintain through these informal safety nets.
- **Engaging the community as change agents.** Many resilient households sought opportunities to share their ideas and even resources to enable other households to follow their example.

The study also looked at characteristics of resilient communities. These are outlined below.

- **Attitudes toward change.** Resilient communities exhibit a sense of pride and openness to new ideas and alternatives, see the value of education, and understand the economic impact of social issues.
- **Organizational capacity.** There is a collaborative spirit in the community to respond to shocks and adversity. Resilient communities also have sufficient organizational capacity to respond in a collective manner. They use both traditional social capital mechanisms and strategically selected, externally-derived organizational structures to achieve their objectives.
- **Management of internal and external resources.** These communities can manage communal resources effectively and seek out external resources strategically to meet objectives.
- **Decision making processes.** These communities have decision making processes that enable planning, equitable participation and implementation of shared goals and objectives.

In another study (Hughes 2011) carried out in Ethiopia by Oxfam GB that focused on key characteristics of resilient households and communities, the following key characteristics were identified.

- **Livelihood viability**-having less climate-sensitive livelihood activities to fall back on. The key indicators that are being tracked are the ability to meet household needs, livelihood diversification, livestock herd diversity, crop portfolio, access to veterinary services, access to agricultural extension.
- **Livelihood innovation potential**-ability to modify livelihood strategies in response to shocks and climate change. Indicators would include level of interest and willingness to experiment with

new livelihood practices, access to seasonal forecasting information, access to disaster preparedness information.

- **Contingency resources and external support**-indicators are access to savings, food and seed reserves, access to social protection, kin and non-kin support networks, access to emergency programmes and access to assets that can be converted to cash.
- **Natural resource access**-access to healthy ecosystems. Indicators would include access to pastureland during drought, access to livestock feed, access to productive agricultural land, and access to water for productive use.
- **Social response capability**-community leadership that is capable of mobilizing collective action. Indicators would include the existence of DRR/CCA committees, conflict prevention and resolution mechanisms, linkages and coordination with local government.

What is interesting about these two studies is that they found very similar characteristics that support household and community resilience.

Monitoring and evaluation of resilience interventions

As stated earlier, resilience is the *capacity* of communities, households, or individuals to deal effectively with shocks and stresses, not an observed measurement of well-being at a particular point in time. It is the capacity to be able to maintain “acceptable” well-being outcomes after experiencing some kind of shock. Thus, a particular challenge for monitoring and evaluation of projects designed to enhance resilience is to come up with appropriate indicators to measure this capacity. It is made more challenging that households may never have to actually utilize this capacity (e.g., improved response to severe drought conditions) within the timeframe of the project. Thus, if the particular shock for which the intervention is targeted is not experienced within the timeframe of the project, then direct measurement of improved capacity in terms of a reduction in post-shock disruptions of household well-being cannot be measured directly. In this situation, indirect measures of capacities will need to be measured. For example, there may be a low chance that a particular project intervention area will experience a severe flood during the life of a project, so it will be impossible to measure whether the project reduced the negative impacts of flooding on household well-being. In this case, the highest level of “impact” that can be measured is whether all the flood control and mitigation infrastructures and systems are in place and operational.

Two general categories of indicators to measure the impacts of interventions to enhance resilience are:

1. **Increased stability of indicators of household livelihood outcomes**, such as food security. For example, after construction of retaining walls, households’ food consumption is more stable from year to year because they are less likely to experience crop loss from flooding. Relative improvement (smaller disruptions) in such outcome indicators in response to shocks as a result of the interventions may be measured directly for recurring or structural stresses, or for shocks that occur with high frequency. For these types of shocks, comparison of the impact on outcome variables before and after the interventions have been implemented will directly measure the benefits of the resilience-enhancing interventions on the target populations.
2. **Indicators of improved capacities of communities, households, and individuals to respond to shocks**. These are outcome-level indicators to demonstrate that necessary physical infrastructures, service delivery infrastructures, local organizations, early warning systems, etc. are put into place. They are assumed to be necessary and sufficient conditions to protect households from the negative impacts of particular types of shocks. These assumptions are either based on logical connections

made between improved capacities and actual behaviours in response to shocks, or on findings from previous empirical studies.

The second category of indicators does not measure the final impacts on target beneficiaries in terms of livelihood outcomes. In many cases, direct measurement of such outcome indicators may not be feasible because the incidence of the risks (cyclones, floods, earthquakes, tsunamis, etc) may be too infrequent to ensure that direct measurement is feasible within a reasonable timeframe.

Measurement of the benefits from interventions to improve resilience may utilize the following standard evaluation techniques:

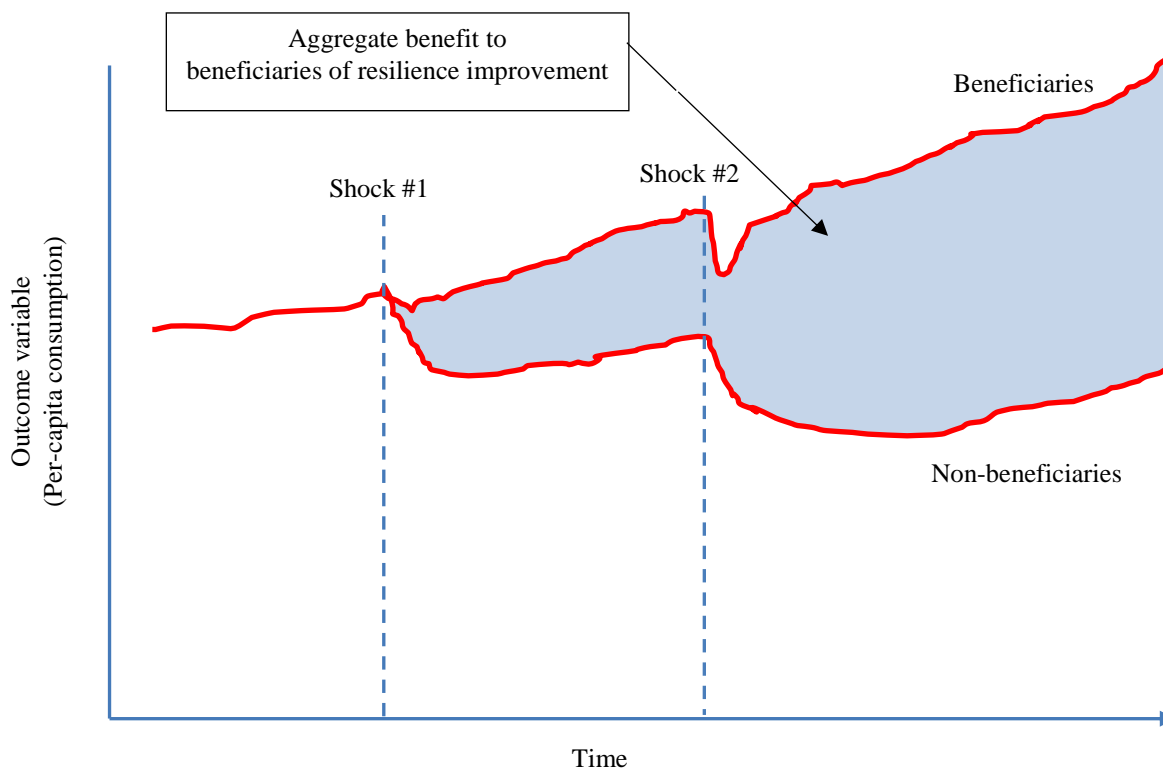
1. **Simple pre-post comparisons of outcome indicators.** For example, before a resilience-enhancing intervention is implemented, food security indicators fall by 10 percent after a drought, and then after interventions, the same indicators fall by only 3 percent after a later drought. For analyzing outcome indicators, this is the least preferred technique because it is very difficult to attribute the observed changes in the outcome indicators to interventions. An additional difficulty in applying pre-post comparisons to measuring resilience is that the severity of the shock (drought) may also be different between the two rounds of observations. The fact that food security indicators fell less in the second round may be because the second drought was less severe than the first, not because of the interventions. For indicators of capacity (e.g., early warning systems in place), pre-post comparisons are sufficient, if the improved capacities can be clearly attributed to project interventions.
2. **Experimental design (randomized control trials)**, in which households are randomly assigned to receive or not receive resilience-enhancing interventions. This is the “gold standard” for impact evaluations, because the differences between the treatment and control groups can be more clearly attributed to the treatment compared with the other techniques, and selection bias of treatment group is minimized. However, this technique will be very difficult to apply in measuring resilience, because shocks cannot be “administered” in a controlled way, they are not “manipulable causes” (Shadish et al. 2002).
3. **Quasi-experimental design**, in which household adoption of risk management strategies, are estimated in statistical models that control for the effects of household characteristics and other exogenous factors on choice of risk management strategies. This technique is normally not considered as robust as randomized control trials, since selection bias cannot be accounted for as completely. However, in most cases, this is the best evaluation technique available to measure the impacts of interventions to enhance resilience. The empirical model described above provides an analytical framework to develop statistical models that can be used for evaluation of the impacts of interventions on household resilience using quasi-experimental design. In particular, models of the form described will identify the exogenous factors that are associated with different types of households adopting specific risk management strategies, and how the adoption of those strategies affects the vulnerability of the households to future shocks. By including exogenous variables that are associated with particular interventions, such as whether the household is in a community with an early-warning system, the impacts of these interventions on outcome variables can be estimated and simulated from the model results.

In cases where measurement of livelihood outcome variables before and after shocks is not feasible, because the shocks are too infrequent or unpredictable, the best option for measuring impact is on the basis of outcome-level variables of improved capacities of households to respond to future shocks. For measurement of capacity indicators that can be directly attributed to interventions, a basic pre-post intervention comparison of capacities is the best available evaluation strategy. In these instances, the

underlying assumptions that link these capacity indicators to improved (more stable) livelihood outcomes should be supported by other empirical studies and by extensive qualitative research to understand the factors that determine and constrain adoption of alternative risk management strategies by different types of households.

In cases where it is possible to measure or estimate livelihood outcome variables before and after shocks, the measurement of the impacts must be made over a period of time, not at a single point in time. This is because resilience is a dynamic concept, and improved resilience can only be measured over time. Consider the alternative scenarios shown in Figure 2. After being exposed to a shock, non-beneficiary households experience large declines in their livelihood outcome indicators (e.g., per-capita consumption), and they recover relatively slowly over time. As shown in the diagram, they may not be able to fully recover from one shock and a subsequent shock will move them to a lower trajectory. Households who benefit from a resilience-improving intervention will follow a different trajectory: they will experience a smaller decline in their livelihood outcome variables after a shock, and will be able to recover more quickly. As shown in the diagram, they are able to maintain a general upward trend in livelihood outcomes, even when exposed to future shocks. The total measure of benefits that the beneficiary household accrues from the resilience-improving intervention is the difference between the two trajectories measured over time, represented by the shaded area in the graph.¹⁴⁷

Figure 6. Projected benefits from resilience-enhancing intervention

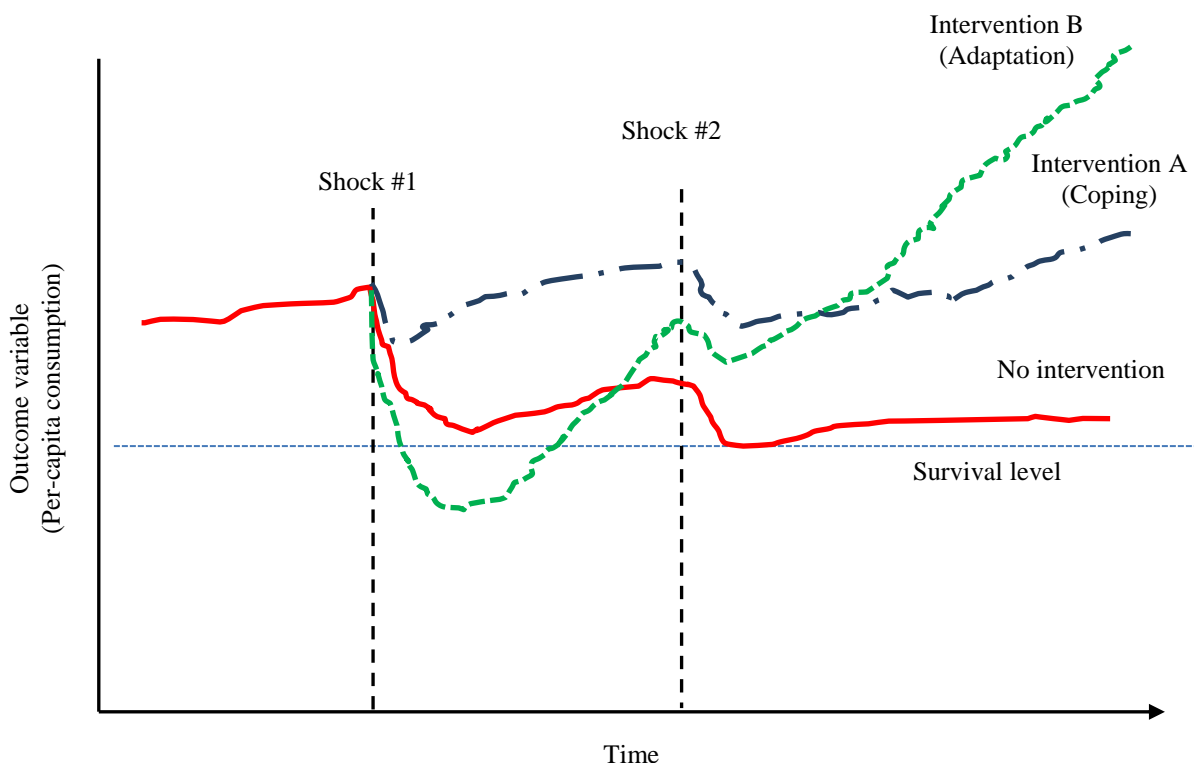


¹⁴⁷ One way to collapse the time dimension of outcomes is to use the statistical measurement of the standard deviation of the indicator over time. That is, rather than projecting that a livelihood outcome indicator will be at a particular level at a particular time in the future, estimate the likelihood that the indicator will fall below a specified threshold at some point in the future. This is the logic of the empirical models described above.

This time-bound measure of the benefits of improved resilience introduces an additional set of assumptions that must be made in order to estimate the total benefits. In addition to the assumption of the counter-factual – what would be the livelihood outcome of beneficiary households if they did not receive the intervention – it is also necessary to make assumptions about the future trajectories of both the beneficiary and non-beneficiary households. In other words, how will the non-beneficiary households respond to future shocks, and how will the beneficiary households respond to future shocks. The empirical model described above can be used to estimate how beneficiary and non-beneficiary households will respond to shocks and then used to simulate future outcomes.

This process of comparing future trends in livelihood outcomes for non-beneficiaries can be extended to measure and compare the benefits of alternative strategies.¹⁴⁸ Figure 3 shows a non-beneficiary household that suffers from large declines in livelihood outcomes after being exposed to shocks, and is unable to recover, eventually falling to the basic survival level where livelihoods are just enough to meet current basic necessities. Intervention A is an intervention that provides short-term protection to the household (such as food aid distribution), so livelihood outcomes are stabilized after shocks, but the overall trend of livelihood outcomes remains unchanged. Intervention B allows the household to undertake an adaptive strategy, such as adopting irrigation agriculture or destocking livestock, which has the potential to reduce the negative impacts of shocks, and also put the household on a higher livelihood outcome path.

Figure 7. Projected benefits from alternative resilience-enhancing interventions



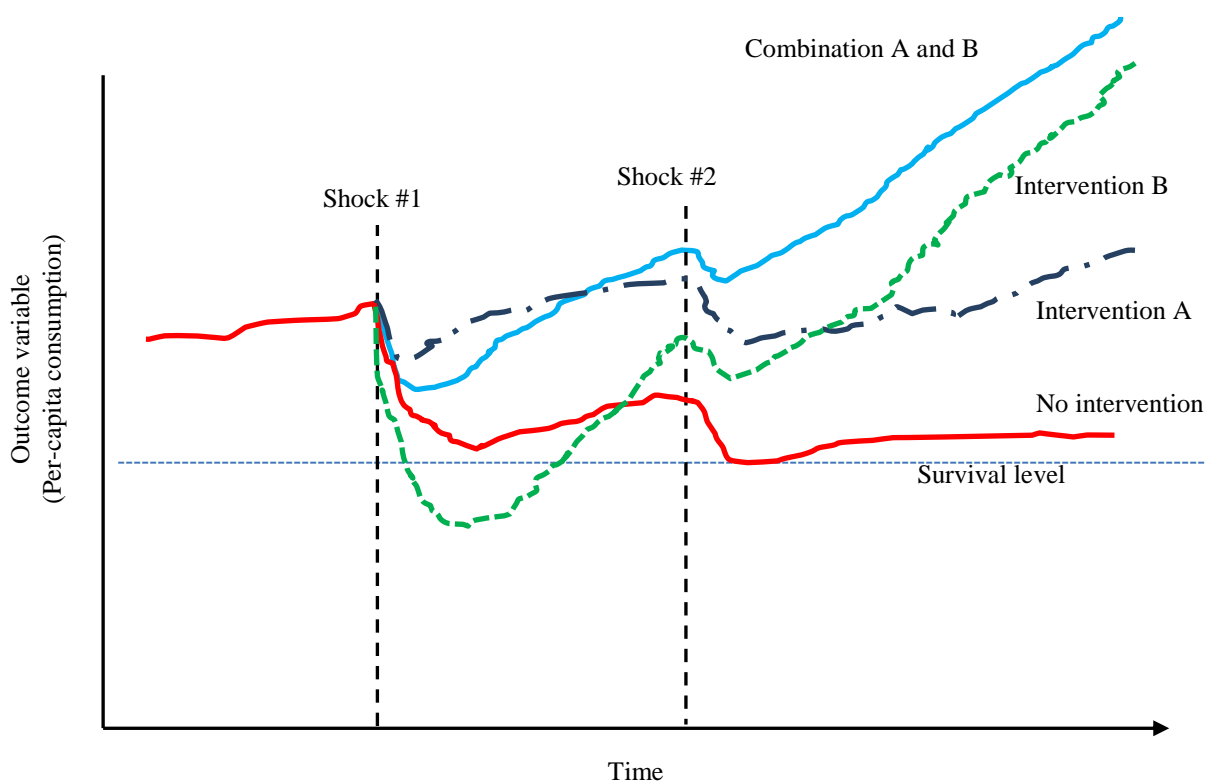
As drawn in this diagram, the household is not able to adopt this particular strategy because the initial investments required would initially drop the household below the survival level. By measuring the

¹⁴⁸ See Owens and Hoddinott (1999) for an example of an estimate of benefits from alternative policies over time.

difference between the trend lines of the alternative interventions and the no intervention, the relative benefits of the two interventions can be compared. The long-term benefits associated with Intervention B may be much larger than Intervention A, even though some households may not be able to adopt Intervention B because of the high initial investment requirements. In this situation, there are potential benefits to a combined strategy, which protects households from the large initial investment costs associated with Intervention B, as shown by a combination of Interventions A and B in Figure 4. By comparing the costs of these interventions with their projected benefits, it is possible to determine which option provides the greatest overall net benefits, and the time horizon of the benefits.

These examples demonstrating the benefits of interventions to improve resilience must be measured over time. Projected future benefits depend on many assumptions about future conditions. For example, in particular contexts it may be necessary to incorporate assumptions about the future impacts of climate change or changing economic conditions on the different scenarios. For example, a rainfed livelihood strategy (the non-intervention counterfactual) may be exposed to increased likelihood of drought in the future, whereas investment in irrigation (an intervention option) may be expected to face increasingly variable market prices for the crops produced. While conceptually the idea of comparing alternative scenarios is quite clear, the estimation of future benefits of increased resilience depends on a large number of assumptions about future conditions.

Figure 8. Projected benefits from alternative resilience-enhancing interventions



Outcome Monitoring

The important time dimension of resilience places particular importance on monitoring of both changes in conditions and households' responses to those changes over time. **Monitoring of project outcome-**

level indicators, namely changes in risk management behaviours, in response to shocks should be monitored over short (3-4 month) intervals. In these shorter intervals, the following categories of information should be tracked in outcome monitoring:

1. All shocks that households have been exposed to since the time of the last round, including measures of severity of exposure, if possible.
2. Outcome level indicators – indication of all risk management strategies adopted by households in response to shocks, including:
 - Coping strategies adopted
 - Adaptive strategies
 - Adoption of behaviours or practices that are promoted by project interventions to enhance resilience
3. A limited set of impact indicators that can be easily measured and are sensitive. Examples of appropriate impact indicators, which meet these criteria are:
 - Household diet diversity score (HDDS)
 - Household Food Insecurity Access score (HFIAS)

The reasons for tracking these indicators in short intervals are to be able to track shocks and their impacts on household food security status in “real time”, and to provide a richer set of information about how different types of households react to different types of shocks in different environments. This information can be used to identify which interventions, or combinations of interventions, are most effective and robust in enhancing resilience of households to particular types of shocks.