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RESILIENCE MEASUREMENT PRACTICAL GUIDANCE NOTE SERIES

3

Resilience Capacity Measurement



About the Resilience Evaluation, Analysis and Learning (REAL) Associate Award:

REAL is a consortium-led effort funded by the USAID Center for Resilience. It was established to respond to growing demand among USAID Missions, host governments, implementing organizations, and other key stakeholders for rigorous, yet practical, monitoring, evaluation, strategic analysis, and capacity building support. Led by Save the Children, REAL draws on the expertise of its partners: Food for the Hungry, Mercy Corps, and TANGO International.

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Disclaimer:

This report is made possible by the generous support and contribution of the American people through the United States Agency for International Development (USAID). The contents of the materials produced through the REAL Award do not necessarily reflect the views of USAID or the United States Government.

Acknowledgments:

This publication was produced for review by the United States Agency for International Development, Center for Resilience. It was prepared by Eric Vaughan (Mercy Corps), and Tim Frankenberger (TANGO International), with contributions from Tiffany Griffin (USAID Center for Resilience), and Mercy Corps staff: Christy Forster, Sarah Henly-Shepard, Kristin Lambert, David Nicholson and Brad Sagara.

Photo Credits:

Front cover: Sean Sheridan/Mercy Corps. Back cover: Matt Stysliger/Mercy Corps.

Recommended Citation:

Vaughan, E. and Frankenberger, T. (2018). *Resilience Measurement Practical Guidance Note Series 3: Resilience Capacity Measurement*. Produced by Mercy Corps as part of the Resilience Evaluation, Analysis and Learning (REAL) Associate Award.

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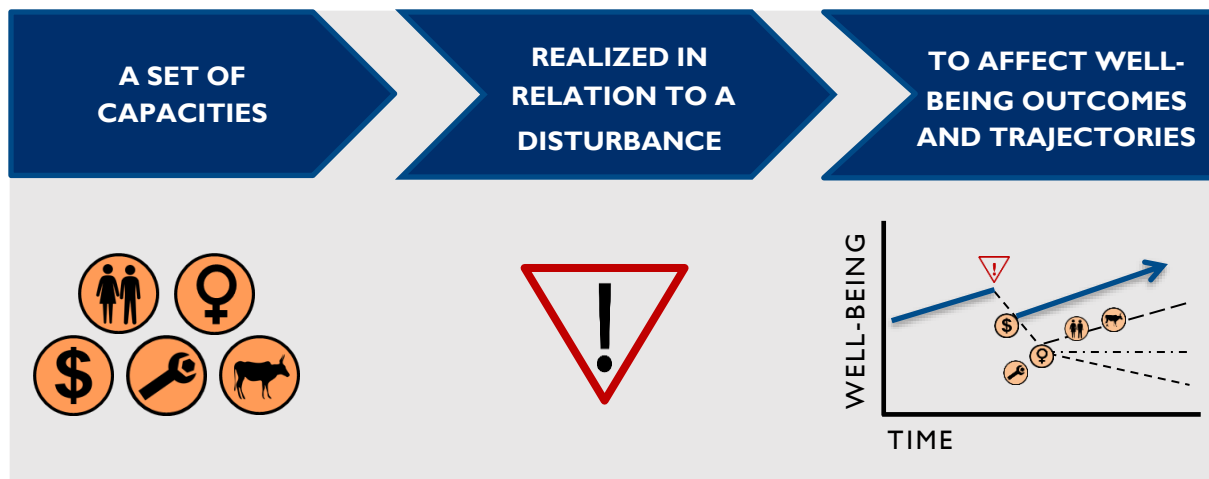
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1. Introduction

Resilience has emerged as a way to understand and address the increasing complexity and magnitude of risk in humanitarian and development contexts. Yet, the ability to develop strategies and programs that increase resilience requires robust measurement and analysis methods. The USAID *Resilience Measurement Practical Guidance* series intends to provide new insights based on recent efforts to assess, analyze, monitor, and evaluate resilience. The first guidance note in this series, *Guidance Note 1 – Risk and Resilience Assessments*, introduced resilience assessments and when, why and how to conduct them. The second, *Guidance Note 2 – Measuring Shocks and Stresses*, described how to measure and analyze shocks and stresses. Here, we describe how to measure resilience capacities.

USAID defines resilience as “the ability of people, households, communities, countries and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.”¹ This definition describes the relationship between three distinct elements that in combination form the basis of a resilience measurement framework – resilience capacities, shocks and stresses, and well-being outcomes.

Figure 1: Simplified Resilience Measurement Framework²



Shocks and stresses often manifest in complex ways and across a range of local, regional, national and international levels. The abilities of people, households, communities, and institutions to manage the impacts of shocks and stresses are underpinned by several factors. In order to promote development gains under uncertain, high-risk conditions, it is important to consider which of these factors matter, for whom, and at what level.

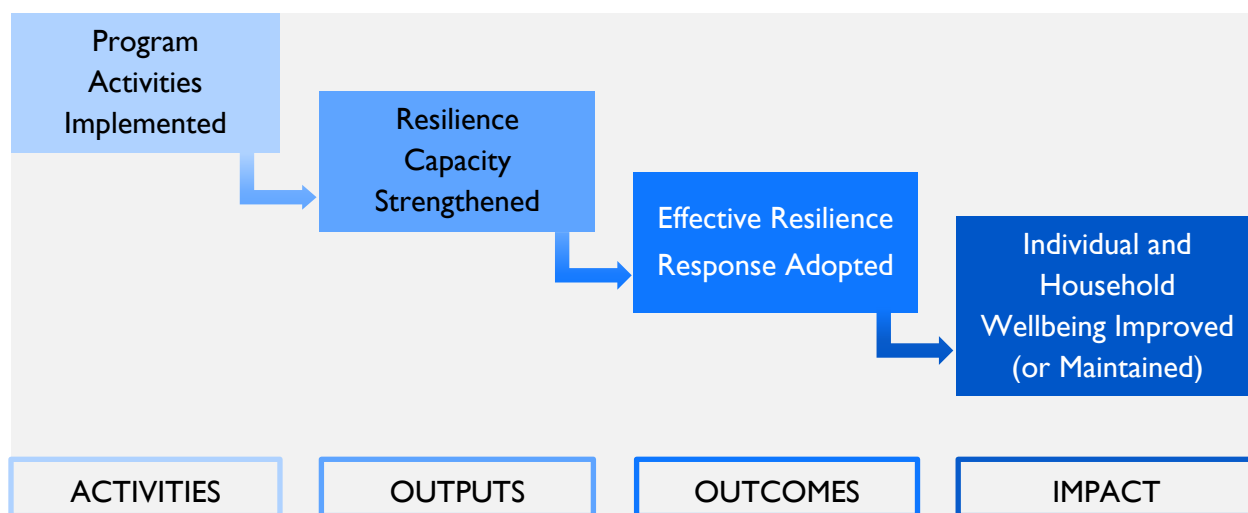
Resilience capacities represent the *potential* for proactive measures to be taken in order to deal with shocks or stresses. In a resilience Theory of Change (ToC), capacities can be represented at the output level. As shown in Figure 1, capacities can be developed, supported or strengthened by

¹ USAID (2013)

² Adapted from Mercy Corps (2016): Resilience Framework

program activities, and then contribute to effective responses to shocks and stresses. If the ToC holds true, then these responses enable people and institutions to achieve and maintain gains in well-being, despite exposure to shocks and stresses.

Figure 2: Resilience applied to a basic Theory of Change Framework³



The ability to measure resilience capacities is useful for several purposes, including to:

1. Inform and improve program interventions that strengthen resilience capacities and their use;
2. Build the evidence base of changes in resilience and the role of different capacities;
3. Improve monitoring, evaluation and adaptive management of program interventions; and,
4. Increase awareness, understanding and capacity of staff and partners of the value and practicalities of adopting a resilience approach.

1.1. Learning Objectives

Capacities are an essential component of a resilience measurement framework. This guidance note aims to enable readers to:

- Understand the role of resilience capacities as part of a resilience ToC;
- Define and describe resilience capacities relevant to a particular context;
- Identify and understand key indicators and data sources for measuring resilience capacities, and when and how to collect these data to suit various needs and constraints;
- Have a basic understanding of analytical approaches to measuring resilience capacities, including their purpose and how they might be incorporated into a broader resilience analysis and project management.

³ Béné, Frankenberger, and Nelson (2015)

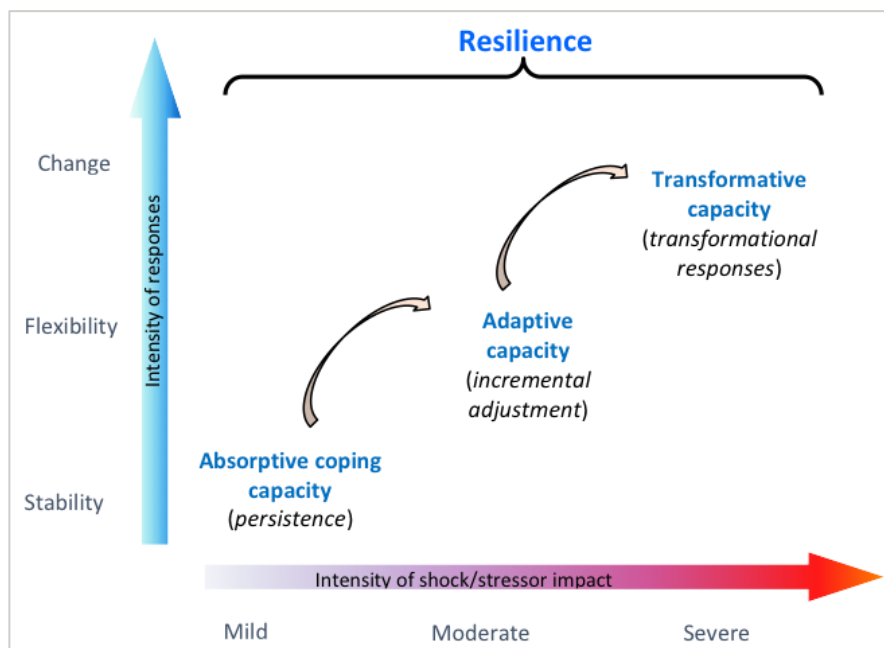
2. Core Concepts

2.1. Resilience as Interrelated Capacities

Resilience represents the ability of people, households, communities and institutions to prepare for, respond to and recover from shocks and stresses. This ability is prompted by resilience capacities, or the sources of resilience that enable protected or improved well-being outcomes. Many practitioners find it useful to organize capacities into three groupings that reflect different dimensions of resilience:⁴

- **Absorptive resilience capacities** – The ability to minimize exposure and sensitivity to shocks and stresses through preventative measures and appropriate coping strategies to avoid permanent, negative impacts. For example, disaster risk reduction, financial services, and health insurance.
- **Adaptive resilience capacities** – The ability to make informed choices and changes in livelihood and other strategies in response to longer-term social, economic and environmental change. For example, income diversification, market information and trade networks.
- **Transformative resilience capacities** – The governance mechanisms, policies and regulations, cultural and gender norms, community networks, and formal and informal social protection mechanisms that constitute the enabling environment for systemic change. For example, infrastructure, good governance and formal safety nets.

Figure 3: Resilience is the result of absorptive, adaptive, and transformative capacities⁵



⁴ Béné, C., Wood, R. G., Newsham, A., & Davies, M. (2012)

⁵ Béné, et al. (2015)

2.2. Characteristics of Resilience Capacities

Resilience capacities are contextual within a resilience storyline, insofar as they have several characteristics that establish their function and role in relation to shocks and stresses, needed responses, and desired well-being outcomes.⁶ For example, access to financial services does not necessarily make one more resilient, but it can when used to invest in a preventative action or to respond to a shock. For example, after the 2015 Gorkha Earthquake in Nepal, 25% of households with formal savings tried unsuccessfully to access their bank accounts to support their response, illustrating that, for them, bank accounts were not a source of resilience.⁷ In other words, capacities need to be functionally accessible with respect to a shock, and appropriate for the affected populations. In the case of financial services, the associated social norms, rules and repayment terms must enable people to be able to use them to respond to a shock.

Some additional characteristics of resilience capacities include:

- **Positive** – capacities play a key role in enabling improved well-being outcomes in the face of shocks and stresses, as compared to adverse factors, which have negative impacts on well-being and therefore do not contribute to resilience.
- **Predictive** – capacities serve a predictive role, the effects of which can be measured in connection with desired well-being outcomes such as food security in the face of shocks and stresses.
- **User-based** – capacities are attributed to specific people, households, communities or institutions.
- **Dynamic** – capacities must be measured and assigned to a specific point in time, because they change depending on circumstance, use and the prevalence of shocks and stresses.

Gender and Resilience Capacities

Women and girls are disproportionately affected by disasters. For example, during the 2004 tsunami, more than 70% of those who perished were women. One reason is that men and women often have different levels of resilience capacities. Disaggregating capacity data, and selecting indicators that reveal these differences, is vital to understanding and addressing this inequality. For example, the USAID-funded RISE program is monitoring changes in the resilience capacity of women through a Women's Empowerment Index that includes indicators related to women's participation in household activities, in groups and in political processes, decision-making power over household income from various sources, securing loans, and overall level of confidence. With this information, the program can investigate changes to the resilience capacities and wellbeing of women, men, girls, and boys distinctively in order to deliver more effective program support.

⁶ Conostas, et al. (2014)

⁷ Petryniak, O., Kurtz, J., & Frischknecht, S. (2015)

Table I: Types of Resilience Capacities at Different Levels

	<i>Absorptive</i>	<i>Adaptive</i>	<i>Transformative</i>
Individual	Psychological Risk Aversion	Aspirations Risk Tolerance Confidence Motivation	
Household	Financial Savings Credit Assets		
Community	Livelihoods Crop Insurance	Agricultural practices Input markets Market information Vocational skills Financial literacy Business skills Contract farming Diversified income sources	Roads Market infrastructure Extension Services Irrigation Infrastructure Research Institutions
Regional	Disaster Risk Management Emergency response structures Early warning information Climate/weather information Local conflict management structures		Flood protection infrastructure Green infrastructure Safety nets - cash, in-kinds
National	Health Hygiene & sanitation Health Insurance	Public health monitoring	Water infrastructure Energy Health Facilities
	Social Local group networks Local borrowing	Trade networks Producer organizations intercommunity arrangements	Equitable household decisions Gender equity and inclusion Social equity and inclusion
			Governance Policies & regulations Local budget allocations Institutional accountability Active civil society Integrated Water resources management Law enforcement

2.3. Resilience Capacities are Multi-level

Resilience requires capacities ranging from the individual to national levels. For example, absorptive capacity in a flood-prone area could include household preparedness (e.g. through raised housing, access to evacuation routes), local disaster management structures (e.g. early warning systems), local farming practices, and technical support by regional officials, coupled with supporting transformative capacities such as policies and budgetary support at the national level. Although these capacities are found at different levels, all are necessary building blocks of resilience in the face of floods.

Capacities also exist at different levels depending on how they are defined. For example, a bank account can be attributed to an individual or a household. To be measurable however, each capacity needs to be clearly defined according to the local context (e.g. livestock as a local asset; a specific insurance product and provider that is locally available; locally available improved seed varieties; and irrigation techniques that locally used, such as a treadle pump).

Resilient Ecosystems

Ecosystems and environmental conditions are an important dimension of resilience in any context. This is because people and communities rely on ecosystem services for their lives and livelihoods; the water they drink; the soil and water they grow crops with; the wood fuel they cook food and construct shelter with, the green infrastructure that protects them from hazards like floods, storm surge and high winds, etc. Yet, these ecological functions are often at risk because of shocks, stresses and harmful development consequences (such as poorly planned urbanization or deforestation). In addition, erratic weather and climate patterns are increasing the rate of ecological change and degradation. Therefore, resilience capacities (and any associated programming to support them) that relate to environmental and agro-ecological conditions must be included in any resilience framework or ToC.

3. How to Measure Resilience Capacities

The following process can be used to conceptualize, measure and incorporate resilience capacities into programming, research and learning efforts. This section draws from several recent examples. In keeping with the structure of this guidance note series, more detailed guidance for assessment and analysis are covered in Guidance Notes No. 1 and No. 4, respectively. The process outlined below is organized into three steps:

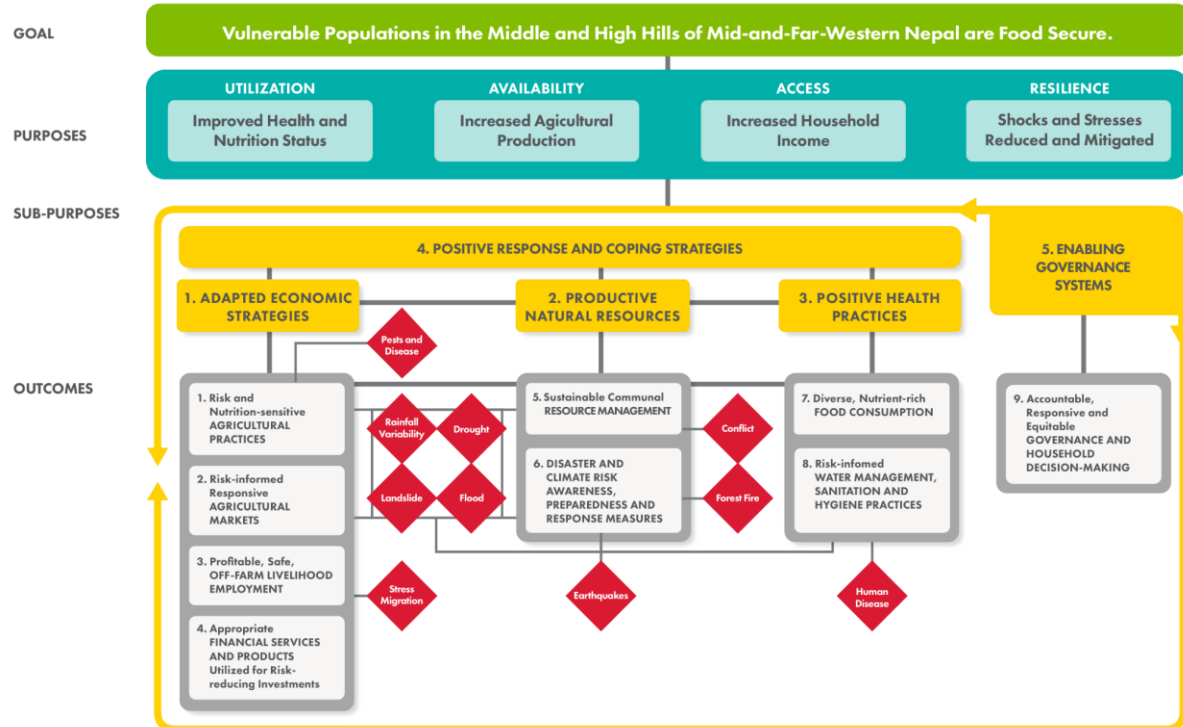
1. **Identify resilience capacities** by investigating the context including the target populations and groups, shocks/stresses and well-being outcomes of interest.
 - a. Determine contextually-relevant responses
 - b. Contextualize resilience capacities into discrete and measureable factors
2. **Plan for data collection and monitoring and evaluation** by identifying indicators, assessment approaches and tools, adaptive management mechanisms and scheduling.
 - a. Develop indicators for the resilience capacities and identify pertinent data sources
 - b. Organize resilience capacity indicators in M&E or research frameworks
 - c. Determine the timing and frequency of data collection

3. **Collect & analyze the data** by gaining a descriptive understanding and making inferences about the role and functionality of resilience capacities that are indexed to well-being outcomes.
 - a. Changes in Resilience Capacities over time
 - b. Changes in Resilience

3.1. Identification of Resilience Capacities

Research to date has shown several factors promote resilience.⁸ Yet, it is important to allow the local context to dictate which resilience capacities to measure and how they are defined. This is ideally done through an assessment that builds an absorptive, adaptive and transformative resilience storyline. This process, and the different levels of effort required to conduct it, is described in Guidance Note No. 1, and includes guidance for establishing the overall purpose (i.e. assessment, emergency response, evaluation); identifying the target population(s) and other stakeholders of interest; and characterizing the relevant shocks and stresses and their impacts on target populations. The steps for identifying and characterizing resilience capacities within that process are described in detail in the section below. There are also toolkits that can be used for this process, including Mercy Corps’ [Strategic Resilience Assessment \(STRESS\) process](#), FAO’s [Resilience Index Measurement and Analysis II Tool](#), and [OECD’s Guidelines for Resilience Systems Analysis](#).

Figure 4: PAHAL Theory of Change Derived from the Mercy Corps STRESS⁹



⁸ Frankenberger et al., (2013)

⁹ Mercy Corps (2015)

3.1.1. Determining Contextually Relevant Responses

In order to identify resilience capacities, it is essential to determine which responses are important in a target context. Responses are the ways in which people and groups at different levels use resilience capacities to proactively deal with shocks and stresses. Responses are nested into a resilience ToC or results framework at the outcome level (Fig. 2) and typically serve three types of functions: 1) to prevent or reduce exposure to a shock or stress (e.g. evacuation or relocation, annual health checks, investments in reforestation or water supply infrastructure); 2) to prepare for an anticipated shock or stress (e.g. disaster preparedness plans and campaigns, investments in new livelihoods or inputs, establishing an evacuation shelter); or 3) to act when shocks and stresses occur (e.g. disaster response, use of credit, asset sales, use of emergency health services, etc.).¹⁰

For example, the PAHAL ToC (Fig. 4) is organized into five categories of responses which are located at the Sub-Purpose level (yellow). The types of responses are located at the Outcome level. The ToC hypothesizes that if these responses are employed by target populations and groups, then different aspects of food security will be improved despite the occurrence of shocks and stresses as described at the *Purpose* level. Specific examples of responses from PAHAL are shown in Table 2.

Once responses have been identified, it is possible to select the capacities needed to elicit them. It is often the case that a combination of different types of capacities are needed to elicit a particular response. For example, use of drought resistant seeds might require input markets, access to credit, technical knowledge, and productive assets. There are likely other important underlying types of transformative capacities related to extension services, research institutions, gender or caste equity, or infrastructure, just to name a few. Some examples from PAHAL are shown in Table 2.

Table 2: Responses and Capacities Example (PAHAL STRESS)

Response	Level	Type of Capacity	Resources
Sustainable farming practices (<i>prevention</i>)	Household	Agricultural techniques	Extension Services, farmer field schools
		Agricultural markets	Input Suppliers, buyers, traders
		Financial services	Savings, Insurance, credit suppliers
Diversified Incomes (<i>preparation</i>)	Household	Off-farm livelihood options	Vocational training providers Business development service providers
		Agricultural markets	Input Suppliers, buyers, traders
		Financial Services	Savings, credit suppliers, VSLAs
Disaster preparedness and response	Community	Early Warning Structures	Committees, district officials
		Flood Protection Infrastructure	Budget allocations, district engineers
		Climate/weather information	Radio stations, national meteorology dept.

¹⁰ Guidance on best practices for building a food security Theory of Change can be found in [USAID's Office of Food for Peace Policy and Guidance for Monitoring, Evaluation, and Reporting for Development Food Security Activities](#)

3.1.2. Contextualizing Resilience Capacities into Measureable Factors

Capacities are underpinned by different types of resources. The next step is to understand what *resources* might be available to support each type of capacity and at what *level* its users can be found in the target geography. This is important because capacities are meant to enable people, groups, and/or institutions to carry out specific responses. For example, a loan product could be a resource that supports household financial capacity. To do so, that product must be appropriate for the desired response, or application of it. If, for instance, the desired response is to purchase drought resistant seeds, then the repayment terms must fit the ability of local farmers to pay. If not, then it does not support the desired response. For each type of capacity, it is therefore necessary to identify resources that are, or could be, locally available and suitable for the different responses needed within different target populations.

Key outputs after identifying contextually-relevant resilience capacities include:

- A well-defined set of responses that people and groups within the target geography can employ to deal with shocks and stresses, in order to protect their development gains
- A descriptive list of capacities and the necessary resources that people, groups, and/or institutions require in order to elicit the desired set of responses

3.2. Planning for Data Collection

The second step is to plan for data collection and other monitoring and evaluation activities. This section outlines key considerations for what kind, when and how to collect resilience capacity data. Capacities vary considerably and the appropriate measurement methods must correspond to the respective capacity in terms of unit of analysis, timing, etc..

3.2.1. Defining Indicators and Data Source for Resilience Capacities

Resilience capacity indicators can provide evidence that specific people, groups, or institutions have the *ability* or *means* to respond to shocks and stresses. As shown in Fig. 2, resilience capacity indicators are typically located at the output or outcome level of a ToC. For programs, this means that resilience capacity indicators often relate to specific activities that increase agency or *access* to, *participation* in, or *ownership* of something. For example, the number of people with increased access to safe drinking water sources or *participation* in village savings and loan associations.

As mentioned above, resilience capacities can vary widely and be perceived in different ways; their relevance will also vary by geography, socio-economic, gender and cultural norms. **Subjective measures** can be used to capture these differences and the context-specific nature of resilience capacities. Subjective measures generally rely on self-reported quantitative and qualitative data and are less standardized than objective measures, but tend to focus on events experienced, the perceived severity of shocks and stresses, the ability to recover from them, and coping strategies. In some cases, **objective measures**, such as the availability of different types of information regarding climate, weather, and commodity prices, can be used to measure resilience capacities.

These measures tend to be more standardized and widely applicable across different contexts and populations.

Many of the examples cited in this guidance note used primary data sources to measure resilience capacities. **Primary data** is typically based on household or community questionnaires (quantitative and qualitative). The benefit of using primary data is that it can be customized to measure the capacities of interest and tailored to the context of interest. The downside is that it can be time consuming and resource intensive to develop and implement. If a survey will be employed, it is important to sample appropriately in order to ensure that the right set of stakeholders and target groups are represented. This is done to understand how capacities vary based on different types of factors such as livelihood, agro-ecologic location, population density, gender, ethnicity, caste, or other factors deemed relevant.

It is also possible to use **secondary data** to measure resilience capacities. Secondary data, or data collected by governments, donors, academics, and multi-lateral organizations, has become increasingly publically available and in some cases, includes relevant information on shocks and stresses, well-being outcomes and/or capacities. The main challenge with secondary data is that information may be limited to a subset of the total number of capacities of interest. Ideally these gaps are filled in with primary or other secondary data. The major benefit of secondary is significantly reduced data collection costs.

Measuring resilience capacities using secondary data in Nigeria

Recent research in Nigeria from Mercy Corps (2017) highlights how secondary data can be used to measure resilience capacities. The study aimed to understand which household and community characteristics are important sources of resilience when households deal with conflict and related shocks in fragile contexts. The study drew from the World Bank Living Standards Measurement Study (LSMS) Nigeria General Household Survey to obtain measures of various resilience capacities. Panel data from this survey provided a unique opportunity to study conflict and resilience dynamics, as it was collected from the same households in three waves from 2010-2016, a timeline which coincides with the rise of violence associated with Boko Haram. Among the capacities evaluated by the study, access to financial services, electricity and other basic services were found to reduce the negative impact of conflict on all measures of child malnutrition. Using panel data like this enables analysis of trends over time for key household indicators, to determine which characteristics are associated with improved wellbeing outcomes in the face of a shock, in this example, conflict

It can also be useful to combine primary and secondary sources of data. This was done to measure resilience capacities in Bangladesh following the 2014 floods. In this case, the USAID-funded Strengthening Household Ability to Respond to Development Opportunities II (SHOUHARDO II) program was being implemented in the most shock-prone areas of Bangladesh—the Chars, the Haors, and the Coastal flood plains—from 2010 through 2015. Fifty percent of the 1,573 participating villages were exposed to the flooding. A study was carried out to understand the role of resilience capacities in the ability for households to deal with the floods. The study complemented primary survey data by leveraging secondary data from a “Village Grading Dataset” collected in 2014 through Focus Group Discussions, Key Informant Interviews, reviews of the

meeting notes of Village Development Committees, training records and physical observations. The data were used to measure several indicators of resilience capacities, including social capital, support for disaster preparedness and mitigation, and the quality of village governance.¹¹

All data collection tools must gather information at the level that corresponds to the capacity. At the community-level, for example, the tools might include questions related to the presence of local disaster management structures or various types of community groups. At the household-level, the tools might include questions related to different types of productive assets, household finances, types of livelihoods, or access to financial institutions. There may be overlaps across different levels. For example, it may be useful to know if VSLAs are present in a community (availability), as well as how many households participate in them (access).

Table 3: Resources and Resilience Capacity Indicators Example (PAHAL STRESS)

Type of Capacity	Indicator	Data Source
Agricultural techniques	Number of farmers with access to technical services (index for different types)	Population Based Survey
Agricultural markets	Number of MSMEs, including farmers, receiving business development services	Population Based Survey
	Number of new non-agricultural enterprises created	Routine Monitoring
Financial services	Number of farmers with access to financial services (index)	Population Based Survey
	Number of MSMEs with access to loan services	Routine Monitoring
Off-farm livelihood options	Number of migrants and technical trainees receiving counselling services on safe migration through formal and informal institutions	Routine Monitoring
Early Warning Structures	Number of communities with disaster early warning and response (EWR) systems working effectively	Routine Monitoring
Flood Protection Infrastructure	Number of flood protection infrastructure projects realized	Routine Monitoring
Climate/weather information	Percentage of men and women reporting receiving climate and weather information	Population Based Survey

In many cases, indicators for different types of capacities can be relatively straightforward (see Tables 2 and 3). In these cases, indicators relate to the degree to which different target populations and groups access the specific resources identified through the process described in section 3.1. Building from Table 2, some straightforward examples of resilience capacity indicators from the PAHAL program are shown in Table 3. There are other types of resilience capacities that are more difficult to measure but have been shown to be important.¹² These tend to be cross-sectional, non-sectoral latent constructs that are not directly observable, and must accordingly be captured

¹¹ TANGO International (2016)

¹² Conostas, et al. (2014)

through proxy indicators.^{13,14} While less straightforward than directly observable resilience capacities such as assets, early evidence points to the efficacy of these factors in buffering the negative effects of shocks and stresses on important well-being outcomes.^{15,16} The following are some examples drawn from recent efforts:

Psychosocial capacities are factors that can indicate the degree to which people feel empowered or have the agency to deal with risk. The monitoring and evaluation framework, including baseline and end-line evaluations for the USAID funded Pastoralist Areas Resilience Improvement and Market Expansion (PRIME) program, included measures of people’s *aspiration* and *confidence to adapt* as resilience capacities.¹⁷ This is based on the hypothesis that people will not elect to leverage resources such as financial services, or participate in more diverse market systems, if they do not believe they have the power to do so. It explored three properties, which were assigned specific survey questions:

- **Belief in free will/freedom.** The sense of possessing the power to enact change and that one has control over their life.
- **Sense of individual power.** A sense of having power to enact change as an individual rather than being subject to the decisions of more powerful people.
- **Exposure to alternatives to the status quo.** The degree to which a person has been exposed to alternative ways of life other than one’s own.

Social capital has often been described as the “glue” that binds people in society together. It is based on strong perceptions of local embeddedness, self-regulating moral codes, and the norms, reciprocity, and trust that exist between individuals and groups at the community level.¹⁸ The monitoring and evaluation baseline survey for the USAID-funded Resilience in the Sahel-Enhanced (RISE) program included sets of indicators that describe social resources such as networks, group memberships, social relations, and access to institutional actors that people can potentially draw from to deal with shocks and stresses.¹⁹ The measurement framework included three types of social capital, each of which was assigned specific survey questions:

- **Bonding social capital** is seen in the bonds between community members. It involves principles and norms such as trust, reciprocity and cooperation, and is often drawn on in the disaster context, where survivors work closely to help each other to cope and recover.

¹³ Garger (2011)

¹⁴ Latent constructs represent variables that cannot be directly observed (things like self-esteem, intelligence, confidence, and extraversion). As such, these variables cannot be measured directly and must be captured through indicators that represent the underlying constructs. These indicators are called proxy indicators, and can be both directly observed and measured.

¹⁵ Petryniak, O., Kurtz, J., & Frischknecht, S. (2015)

¹⁶ TANGO International (2016)

¹⁷ TANGO International (2015)

¹⁸ Chaskin, R. J. (2008)

¹⁹ Feed the Future FEEDBACK (2016)

- **Bridging social capital** connects members of one community or group to other communities/groups. It often crosses ethnic/racial lines, geographic boundaries and language groups, and can facilitate links to external resources and broader social and economic identities. Those with social ties outside their immediate community can draw on these links when local resources are insufficient or unavailable.
- **Linking social capital** is seen in trusted social networks between individuals and groups interacting across explicit, institutionalized and formal boundaries in society. Linked networks can provide resources and information that are otherwise unavailable. This type of social capital is often conceived of as a vertical link between a network and some form of authority or power.

Governance is comprised of various norms and practices related to public affairs and the management of public resources. Access to functional formal and informal governance structures has been shown to play an important role in resilience.²⁰ The monitoring and evaluation framework for the USAID-funded PAHAL program includes a set of indicators grouped into the below two categories that describes the extent to which governance structures function in a way that enables target populations and groups to better deal with shocks and stresses.

- **Participation, agency and voice** can improve the relevance and value of decisions about how public resources are accessed and used. Increases in the meaningful participation of certain populations, such as women, youth, or people of marginalized castes, can result in more equitable distribution of public benefits.
- **Delivery of public services** is seen as vital to giving people access to resources that can be used to respond to shocks and stresses.

3.2.2. Organizing Resilience Capacity Indicators into a Measurement Framework

As discussed in Section 2, resilience capacities are multi-dimensional and multi-level. For measurement, this means that they can be grouped in different ways to see if and how they can be connected with changes in well-being outcomes when shocks and stresses occur.

One way to track broad changes in resilience is to organize capacities into absorptive, adaptive, and transformative groupings. Several monitoring and evaluation frameworks, including PRIME, RISE, BRACED, and SHOUHARDO II, organized resilience indicators into absorptive, adaptive and transformative composite indices. In doing so, it is easy to expend energy organizing capacities into specific categories. In reality, many capacities fit into multiple categories. What is most important is to include a range of capacities across categories. The groupings for the PRIME M&E framework, for example, are shown in Table 4.

²⁰ Bedi, et al. (2014)

Table 4: Resilience capacities developed for the PRIME program in Ethiopia

Absorptive	Adaptive	Transformative
Informal Safety Nets, including Credit or micro-finance group, Savings group, Zakat, Mutual help group (including burial societies), Civic (“improving community”) group, Charitable group (“helping others”), Religious group, Women’s group	Livelihood diversity, including crop production, livestock production, wage labor, salaried work, sale of bush products, own business, land rental, remittances, gifts/inheritance, other	Basic services, including a primary school or within 5 km, a health center within 5 km, veterinary services within 5 km, agricultural extension services, institutions where people can borrow money, security services that can reach the community within 1 hour.
Asset Ownership, including consumer durables, agricultural productive assets, livestock	Human Capital, including basic literacy, primary or higher education, number of trainings received	Formal safety nets, including institutional food assistance, housing or non-food items, assistance for lost livestock, NGO disaster response assistance
Hazard insurance availability	Financial service availability	Access to infrastructure, including piped water, electricity, telecommunications, paved roads
Perceived ability to recover	Exposure to information	Number of livestock services
Local shock preparedness structure in place	Asset Ownership, including consumer durables, agricultural productive assets, livestock	Access to communal natural resources, including grazing land, water sources for livestock, community forest
Household savings	Aspirations and confidence to adapt	Access to markets, including livestock, agricultural products, and inputs
Bonding Social Capital	Bridging social capital	Bridging social capital
	Linking social capital	Linking Social capital

Another important way to organize resilience capacities is by level. In the RISE Impact Evaluation, for instance, a key evaluation question pertained to the interplay between household and community resilience. Therefore, resilience capacities had to be grouped into levels. Community level measures in that evaluation included capacities such as:

- **Natural resource management** - the existence of water user groups, grazing land user groups, groups regulating the collection of firewood, and a survey question regarding whether the village has defined “clear and widely accepted rules to ensure good management of natural resources”
- **Presence of a disaster risk management group**
- **Social protection** – the presence of different types of support groups (VSLAs, women’s groups, charity groups), the ability to give or receive assistance within the community

- **Managing and maintaining public goods** – the presence of civic groups, good quality roads, schools in good condition
- **Presence of a conflict mitigation committee**

3.2.3. Determining Timing and Frequency of Data Collection

The timing and frequency of data collection depends on what you want to know and how you want to manage a program or portfolio. Several options are presented below.

Program or portfolio evaluation – At a minimum, changes in resilience capacities can be measured to support an evaluation of a program or portfolio of programs. This involves incorporating resilience capacity indicators into the baseline and endline evaluations, as well as annual performance monitoring. Frequent data collection facilitates understanding of the changes in resilience capacity that may have taken place during implementation, and the extent to which these resulted in changes in resilience for different populations and groups.

Routine Monitoring – An additional benefit to scheduling frequent resilience capacity data collection points (on at least an annual basis) is to foster course correction. Adaptive management is a structured, iterative process of robust decision making in the face of uncertainty, with an aim to reduce uncertainty over time via system monitoring. This helps to ensure that any false assumptions made during the design phase (articulated, for example, in a development program ToC) can be corrected. It also helps to adjust programs to changes that occur in the operating environment (e.g. a new policy, political instability, a drought, currency devaluation). At a minimum, this can be done through a mid-term evaluation. However, more frequent reflections can increase the agility of a program to adapt to changing contexts. One way to do this is to review the sub-set of resilience indicators captured through routine monitoring or annual beneficiary surveys.

Recurrent Monitoring Surveys – Another important reason to measure changes in capacity more frequently than in baseline and end-line surveys is to understand how resilience capacities change before and after a shock occurs. Though this topic will be covered in more detail in Guidance Note No. 04, the implication for data collection is that there is value in understanding how capacities change and contribute to responses over time, as shocks and stresses occur. For example, Ethiopia’s PRIME Impact Evaluation used a real-time recurrent monitoring survey that measured changes in capacities and their efficacy in the face of shocks and stresses to stabilize or improve well-being outcomes.²¹ Triggered by a shock or stressor, monitoring involved interim panel surveys (i.e. using a subset of households surveyed at baseline) conducted every two months over a 12-month period through a brief (20 minute) survey.²²

Post-shock Research – Capacities need not only be measured within a program or portfolio M&E framework. Research conducted following a shock can support a learning agenda by providing evidence about the role of specific capacities, and how differences in capacities between populations

²¹ Frankenberger and Smith (2015)

²² TANGO International (2015)

and groups can result in different resilience outcomes. For example, Mercy Corps conducted a study following the 7.8 magnitude earthquake that struck Nepal in April 2015. The study evaluated the role of several types of capacities including disaster preparedness and response, social identity and networks, financial services and economic options. Data was collected through a household survey in 25 affected wards, including a total of 1225 households through systematic random sampling stratified by caste.²³ This type of research can build the resilience evidence base of development factors that inhibit effective disaster response.

Key outputs from organizing resilience capacity indicators include:

- Measureable indicators for each capacity
- A set of primary and/or secondary data sources
- A set of capacity groupings to track broader changes in resilience
- A data collection plan that includes a sampling strategy

3.3. Data Collection & Analysis

The final step in measuring resilience capacities is to collect and analyze your data. Detailed guidance on analyzing resilience capacity data for resilience analysis is addressed in depth in Guidance Note No. 04 of this series. The following are descriptions of the types of analysis that are possible, along with recent examples with a focus on implications for measurement.

3.3.1. Changes in Resilience Capacities over Time

Resilience capacities change over time as resources are expended, social and political dynamics swing, and other types of conditions shift. This is especially the case in areas that are chronically exposed to shocks and stresses. Data can be used to identify how capacities change over time, which can be further disaggregated by different types of populations, groups, communities and locations. Changes can be monitored in either individual capacities (local disaster preparedness, for example) or an indexed set of capacities (absorptive, adaptive, transformative). Depending on the frequency of data collection, this can serve two primary purposes from an adaptive program management perspective:

1. Assessing the ability of program interventions to achieve increases in resilience capacities of different populations and groups. Doing so in combination with adaptive management can enable program staff to course correct when necessary, including modified development or crisis modifier interventions.
2. Assessing to what extent capacities are drawn on when a shock occurs. This is an especially important question from a resilience perspective, because it is explicitly focused on the connection between capacity and response – a key link in the overall resilience measurement framework²⁴

²³ Petryniak, O., Kurtz, J., and Frischknecht, S. (2015)

²⁴ Petryniak, O., Kurtz, J., and Frischknecht, S. (2015)

Gorkha (Nepal) Earthquake

Following the 2015 Gorkha Earthquake in Nepal, Mercy Corps conducted research that looked at the extent to which four types of capacities were employed post-shock. The study found that although 55% of households in the study area had access to either formal or informal lines of credit, only 13% of households drew from formal credit lines post-earthquake and 24% from informal credit sources. The study identifies several potential reasons why so few households sought to employ these capacities but these require further study. First, local savings and credit groups may have been rendered inoperative by the Earthquake. Second, households may have not attempted to withdraw their savings because either they knew the financial services were inoperative or they used existing sources of or donated cash instead. Alternatively, households could have leveraged savings or drawn on the relationships within savings groups (bonding capital) to receive community assistance. Yes, this type of research can help practitioners understand which type of financial resources are important to target populations and the factors that can make them useable under difficult conditions. If applied to an adaptive management paradigm, these findings might clarify program changes that could help sources of credit function better under duress.

3.3.2. Changes in Resilience

Resilience capacity data can also be used to test whether access to resilience capacities is related to changes in resilience, which (when feasible) can be further disaggregated by different types of populations, groups, communities and locations. This necessitates using resilience capacity data in combination with other types of data on shocks, stresses, responses and well-being outcomes. Potential research questions include:

1. How are resilience capacities connected to household or community well-being? Is there any evidence of complex interactions?
2. With access to different types of capacities, how are households able to respond to different combinations of shocks and stresses?
3. What capacities make households more or less resilient to the major shocks? Do these vary over time or by type of household?

One way to respond to these types of questions is through regression analysis, which is designed to model the relationship between capacities, shocks and well-being outcomes of interest. The relationships of interest should be defined by research questions relevant to the context. Dependent variables are typically related to important well-being development outcomes, like food security, economic status, or child malnutrition. There are many potential independent variables, but typically these include a measure of shock exposure, like those discussed in Guidance Note No. 02, and household and community resilience capacities.²⁵

²⁵ TANGO International. (2016). [USAID/Bangladesh Comprehensive Risk and Resilience Assessment. Final Report.](#)

2014 Northern Bangladesh Flooding

Following the 2014 flooding in Northern Bangladesh, TANGO International investigated whether or not the ability of households to maintain food security in its wake was boosted by their resilience capacities prior to its onset, and which types of capacities are likely to matter the most in future shocks of this type. The study constructed resilience capacity indices using factor analysis, compiled from multiple indicators of the three capacities: absorptive capacity, adaptive capacity and transformative capacity. The team conducted regression analyses including both shock exposure and resilience capacities as independent variables, while controlling for other important household and village characteristics. The results suggested that resilience capacity served to increase the number of months of adequate food and reduce the likelihood that a household would experience hunger. The individual types of resilience capacities that the analysis showed the strongest evidence for increasing resilience to shocks, were bonding social capital, bridging social capital, access to services, exposure to information, women's empowerment, village governance, and informal safety nets.

4. Conclusion

This guidance note introduced key terms and concepts to describe, measure, and understand resilience capacities. Existing literature indicates several types of capacities that have shown to be generally important factors for resilience. However, any resilience measurement effort should identify and define its own unique set of capacities. The most important considerations are to:

- Have a well-defined vision of the context, population, shocks, stresses and relevant systems;
- Collect varied indicators at different temporal and spatial scales depending on with whom capacities are expected to found; and
- Use objective/subjective and primary/secondary measures in order to track changes in capacity over time.

At a minimum, resilience capacities should be measured in connection with baseline and endline evaluations. However, there can be important reasons for collecting data more frequently. One reason is to understand the utility of particular types of capacities related to specific shocks or stresses, which cannot be achieved through standalone resilience research. A second reason is to support adaptive management, which is important in resilience programming because capacities, contexts and system dynamics change over time. This can be done through either routine or recurrent post-shock monitoring surveys, which capture changes in resilience through a sequence of repeated measurements that are triggered by the occurrence of shocks or stresses. Methods for resilience analysis are explored further in the Guidance Note No. 04 of this series.

Helpful Resources

USAID. (forthcoming). *Resilience Measurement Practical Guidance Note Series: Key Terminology Companion Guide*.

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USAID's Resilience Measurement Practical Guidance Note Series synthesizes existing technical documents into pragmatic guidance to assist practitioners in integrating core aspects of resilience measurement into their program assessments, design, monitoring, evaluation, and learning.

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