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A Framework for Analyzing Resilience In Fragile and Conflict-Affected Situations



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A Framework for Resilience in Fragile and Conflict-Affected Situations
 Columbia University SIPA 2013
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Executive Summary

Fragile and conflict-affected states are home to approximately 1.5 billion of the world's poorest people. In addition to security issues, these countries face the risk of economic, environmental, political, and social shocks and stressors. In an effort to better understand these risks and be better able to respond to them, significant attention has been placed on the concept of resilience—or “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

The following framework has been developed for the office of Conflict Management and Mitigation at the United States Agency for International Development (USAID) as a tool for analyzing resilience in fragile and conflict-afflicted situations. Poor governance, security and legitimacy issues characterize fragile states. A conflict-specific framework is necessary to better understand these dynamics and the challenges of working with fragile-state governments as implementing partners. It has been designed to identify the resilience gaps in societies vis-à-vis the shocks and stressors they are most exposed to. This framework aims to help policymakers, development practitioners, and governments identify ways to strengthen the resilience of communities to both natural and man-made shocks and stressors.

This framework looks at resilience in terms of the institutions, resources, and adaptive facilitators in five different subsystems that can experience shocks and stressors: the economic, environmental, political, security, and social subsystems. The unit of analysis is the community, a group of individuals that share similar characteristics and levels of exposure to certain shocks and stressors. Shocks are sudden events that impact a community, and stressors are long-term pressures that undermine stability and increase vulnerability. The framework takes a complex system approach to analyzing and assessing a country's resilience, as an aggregate of its communities. A complex system can be defined as having multiple parts that are interdependent and produce outcomes that are not necessarily predictable based on any one part's function, but how the parts interact within the system.²

There are three critical steps to assessing resilience: contextual, factor and resilience analyses. A contextual analysis examines a country's history, key actors, structures, and communities, to determine their different exposures to various shocks and stressors and to identify the areas of research for the subsequent factor analysis. The factor analysis examines the mechanisms available to a community to mitigate, adapt or recover from shocks and stressors. It is an analysis of institutional performance and legitimacy; resource availability, performance, diversity and redundancy; as well as adaptive facilitators comprised of networks, values and behaviors, innovation, and institutional memory. The resilience analysis is a synthesis of the contextual and factor analyses. It evaluates how exposed a community is to certain shocks, and how capable it is to mitigate, adapt, and recover from them.

This assessment should help practitioners design programming that strengthens institutions, resources, and adaptive facilitators, in order to make communities better able to mitigate, adapt to and recover from shocks and stressors; to become more resilient.

Introduction

All countries face economic, environment, political, social and security risks. Many of these challenges are complex, politically sensitive and their root causes cannot be easily addressed. In an effort to better understand these risks and be better able to respond to them, significant attention has been placed on the concept of resilience—or “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.”³ This increasingly popular concept has offered an alternative to the traditional root cause approaches by looking into strengthening communal, societal or institutional abilities to withstand or better cope with different stresses that they experience. Such a strategy is intended to integrate development and humanitarian approaches, offsetting the need for emergency response, with greater focus on crisis prevention and preparedness.

Resilience is 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

The United States Agency for International Development (USAID) has prioritized “helping communities build resilience”;⁴ however, there has been less emphasis on understanding resilience in conflict-affected and fragile situations. These countries do not have stable governance structures or functioning institutions, and activities to foster community resilience will require a different approach. The concept of resilience provides a strong foundation for analyzing the effects of conflict on states. While conflict erodes resilience by weakening institutions, the natural environment, and markets, resilient societies are better able to withstand the effects of conflict.⁵

The following framework was created for USAID’s Office of Conflict Management and Mitigation to develop a tool for analyzing resilience in fragile and conflict-afflicted situations. Among other shocks and stressors, this multidisciplinary approach will help to identify the root-causes and drivers of conflict, and the ability of institutions, resources, and adaptive facilitators to mitigate, adapt and recover from their effects.

Approximately sixty percent of the countries in which USAID operates are fragile or have recently experienced conflict.⁶ This framework will contribute to a common understanding of how to approach and design interventions in these situations to make communities better able to withstand shocks. This long-term proactive approach will ideally lower economic losses and human suffering in the face of emergencies, such as natural disasters, conflict, and fragility. While man-made or natural shocks cannot always be anticipated or prevented, translating the concept of resilience into an actionable framework can equip communities with the tools to respond to them, and ultimately, reduce vulnerabilities over time. By helping communities manage risk, they will be better able to effectively manage the challenges they face.⁷

Resilience in Fragile and Conflict-Affected Situations

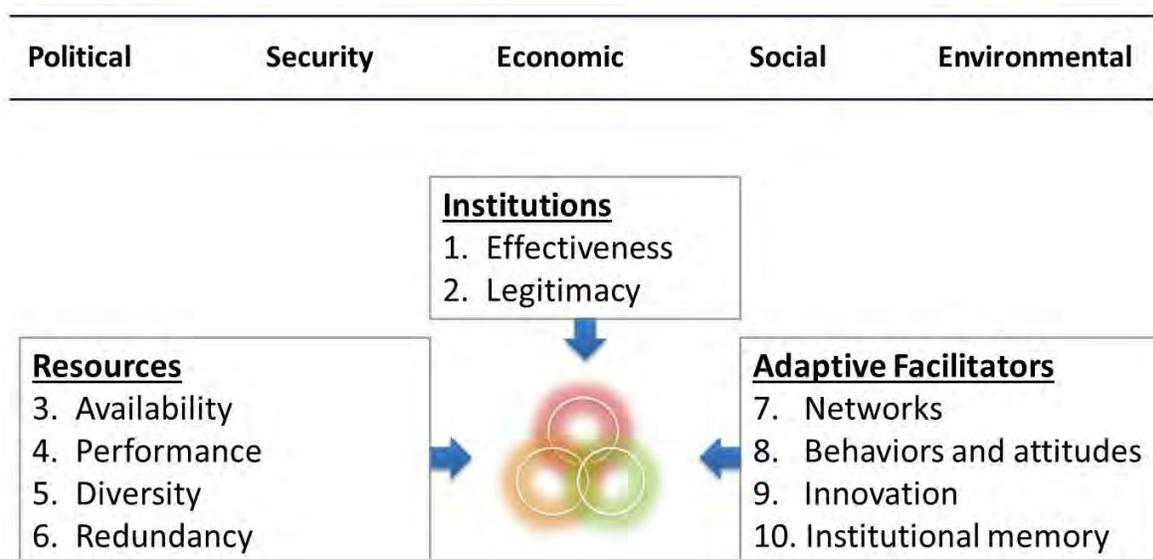
USAID defines resilience as the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.

The system as a whole can be divided into five subsystems: the political, security, economic, social and environmental

Shocks are sudden events that impact a system and its components. There are many different environment-related and man-made types of shocks that can strike at different levels. These include disease outbreaks, floods, landslides, droughts, earthquakes, armed conflict, or shocks related to economic volatility. Stresses are long-term pressures that undermine the stability of a given subsystem and increase the vulnerability of actors within it. These can include natural resource degradation, urbanization, demographic changes, climate change, political instability and economic decline. The system as a whole can be viewed as country that is divided into five subsystems: the political, security, economic, social and environmental. Shocks and stressors can arise in each of these subsystems and diffuse as shocks and stressors into other subsystems.

To analyze a community's resilience, it is critical to look at ten factors of resilience within three broad categories: institutions, resources and adaptive facilitators. The ten factors are the *legitimacy* and *effectiveness* of institutions; the *availability*, *performance*, *diversity* and *redundancy* of resources; and the *networks*, *values and behaviors*, *innovation*, and *institutional memory*, which comprise the adaptive facilitators. Institutions provide the rules and regulations that govern communities; resources are the tangible assets available to them; and adaptive facilitators are intangible elements of social capital and patterns. Institutions, resources and adaptive facilitators are critical because together they constitute the means by which all actors are able to mitigate, adapt and recover from shocks and stressors.

Figure 1. Overview of factor analysis



Communities are defined in this framework in a non-geographical sense. While geography is important, it is not the defining factor. For this purpose, a community is a group of individuals that share similar characteristics and levels of exposure to certain shocks and stressors.

Communities will often face multiple shocks and stresses in different subsystems that can interact with each other. Similarly, institutions and resources are interconnected, and often interact through other factors such as social networks and behaviors, termed as adaptive facilitators, to create positive and negative feedback loops among each other in response to different shocks and stresses. The goal is to understand the way that these factors of resilience interact and evolve as a system to adapt to new conditions induced by shocks and stresses. Such interaction and adaptation determines how well institutions and resources are able to deal with, recover and potentially “bounce back better” after a shock or stress.

A community is a group of individuals that share similar characteristics and levels of exposure to certain shocks and stressors

There is negative and positive resilience. Negative resilience can perpetuate stable structures that are repressive, violent, or predatory and create negative feedback loops. For instance, violence can be decreased through abusive informal policing that instills a sense of fear within a community. This can mitigate the stress of crime and add to the resilience of a community; however, this occurs in an illegitimate manner and at the expense of rule of law. Although the understanding of negative resilience is important, this framework analyzes positive resilience. Positive resilience is the ability of communities to mitigate, adapt and recover from shocks and stressors, while simultaneously maintaining or enhancing institutional legitimacy. The ultimate goal of this framework is to enhance positive resilience to better equip societies to handle shocks and stressors in the long-term.

A Complex Systems Approach

The complex system approach is an integrated analysis of the various subsystems and the manner in which processes within each of them interact. A complex system can be defined as having multiple parts that are interdependent and produce outcomes that are not necessarily predictable based on any one part’s function, but by how the parts interact within the system. That is to say, the outcome cannot be explained or predicted by simply specifying the roles of the various

independent parts.⁸ Instead of detailing a linear cause and effect relationship, the complex systems approach examines the behavior of interacting factors in response to a shock or stress. “The aggregate nature of the system is not predictable from isolated components but occurs through the interaction through multiple components.”⁹

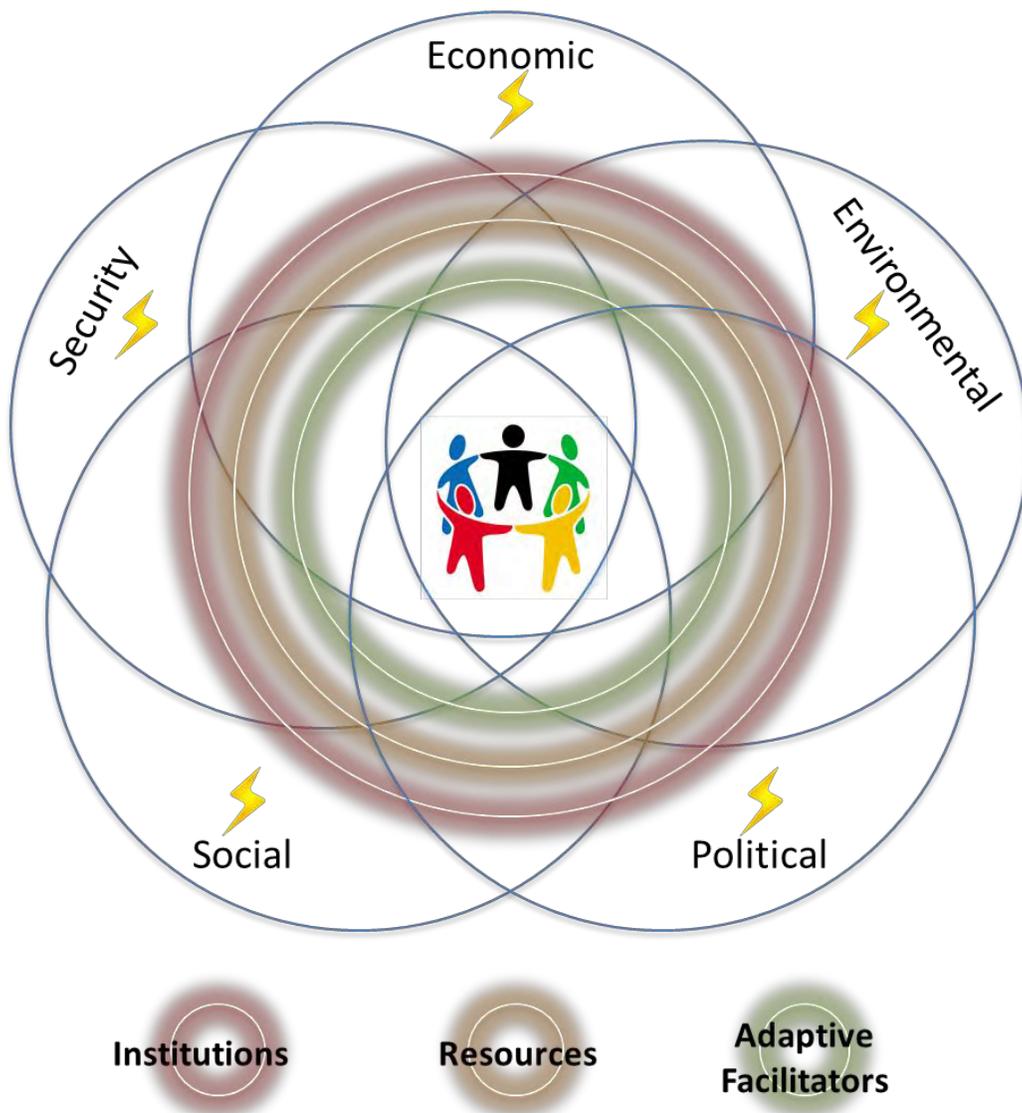
A complex system can be defined as having multiple parts that are interdependent and produce outcomes that are not necessarily predictable based on any one part’s function, but by how the parts interact within the system

In a complex system, the political, security, economic, social, and environmental subsystems are interconnected and interdependent. Shocks in one sub-system interact with all others. The subsystems then mutually adapt to each other in a non-linear manner.¹⁰ Specifically, our framework looks at how institutions, resources and adaptive facilitators contribute to resilience through influencing positive and negative feedback loops caused by shocks to the system.

Feedback loops are a feature of complex systems in which an output affects the input. Negative feedback loops exist when an input creates a detrimental loop of negative consequences. Conflict can create violence that can lead to destruction of economic resources that can then exacerbate the initial conflict. Positive feedback loops are the opposite. Cooperation can alleviate economic suffering that in turn fosters relationships and furthers cooperation. This framework examines these interactions and how they affect resilience through a complex systems lens.

Figure 2, below, illustrates how shocks and stressors affect a complex system and the communities with it. At the center of the illustration is a community, defined previously in this paper as a group of individuals that share similar characteristics and levels of exposure to certain shocks and stressors. This community functions within each of the five subsystems. Within each of the subsystems are unique shocks and stressors, explained and detailed further in this paper.

Figure 2: A shock-driven, community-centric approach



The circular overlap of the subsystems represents the fact that they are intimately connected in a complex non-linear manner. A shock within each subsystem may cause shocks in other subsystems that in turn may feedback into the original. A typical example is an environmental shock, which if not mitigated, may or may not cause an economic shock for those reliant on environmental resources for their livelihoods. If communities are not able to withstand the economic shock, it may cause a shock in the security system through an outbreak of crime or violent conflict.

The three colored rings in the diagram represent the institutions, resources and adaptive facilitators. It is these three categories, and the ten factors within them, that insulate the community from the various shocks and stressors in each of the subsystems. Just like insulation in a house, these factors help communities withstand shocks and stressors, and help them return to their pre-shock state. The circles also help restrict the overlap of the subsystems, such that shocks do not easily transfer over to other subsystems and cause shocks there. These factors of resilience interfere with the negative feedback loops caused by shocks in the complex system and desirably initiate and perpetuate positive feedback loops to enhance adaptability and recovery.

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Three Steps to Analyzing Resilience

Three steps are critical for the analysis of community, and in aggregate, a country's resilience. The first step is a *contextual analysis*. As resilience is context specific, a contextual analysis examines a country's history, key actors, structures, and communities, to determine their different exposures to various shocks and stressors and to identify the areas of research for the subsequent factor analysis.

Exposure is defined as “an assessment of the magnitude and frequency of shocks or the degree of stress. For example, exposure to conflicts could be measured by the size and frequency of violent events caused by conflict or fragility, or the extent of political instability in other factors such as rule of law or human rights.”¹¹ A community does not need to be resilient to every shock or stressor but it should have mechanisms in place to address the shocks and stressors it is most likely exposed to.

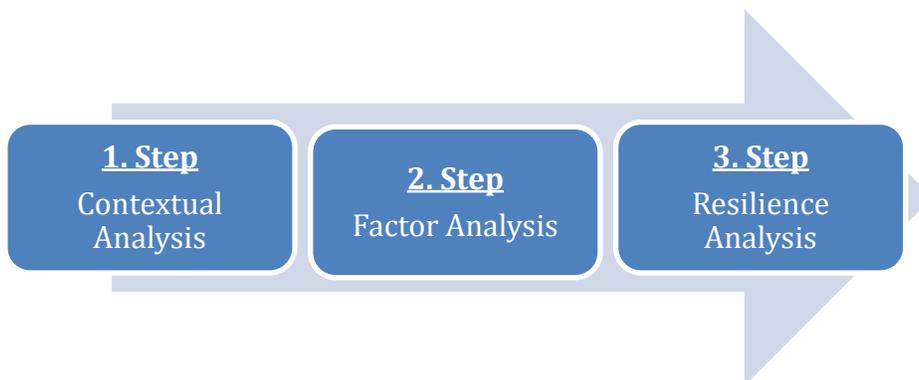
The second step is a *factor analysis* of institutional performance and legitimacy; resource availability, performance, diversity and redundancy; as well as adaptive facilitators defined as networks, values, norms and behaviors, innovation, and institutional memory. The ten factors of resilience are detailed in the following section of the framework.

The resilience analysis synthesizes both the contextual and factor analyses. It evaluates how exposed a community is to certain shocks, and its ability to mitigate, adapt, and recover

Once all the information is collected in the first and second steps, the third step seeks to bring clarity to what the information means for resilience. The *resilience analysis* synthesizes both the contextual and factor analyses. It evaluates how exposed a community is to certain shocks, and its ability to mitigate, adapt, and recover.

The diagram below outlines the three steps of the application of the framework, detailed in the Application Guide (see Annex 1). This framework also provides a vision of how a potential resilience measurement tool could be developed (see recommendation section).

Figure 3. Three steps to analyze resilience



Factors Influencing Resilience

Institutions

In every country, formal and informal institutions govern the lives of people and shape human interactions. Institutions can be formal and comprised of governmental bodies that form the rules and regulations that manage a society. Institutions can also be informal and comprise of the rules and structures that regulate a society outside the government. Informal institutions are especially important in fragile countries, as they often replace or coexist with formal institutions.¹²

Effectiveness

Effectiveness is measured by looking at the degree to which the institutions fulfill their respective functions. Ineffective institutions often expose populations to risks that the institutions were supposed to mitigate. If the institutions are ineffective, the overall system weakens and is less resilient to shocks. At the national level, ineffective institutions can also decrease the citizens' willingness to engage with the government.¹³

Legitimacy

Institutional legitimacy reflects to what extent the population accepts the institutions to set the rules and regulations for them. An institution's legitimacy is often related to its inclusiveness of different groups.¹⁴ Legitimacy is critical to the ability of the institution to be effective; populations may resist institutions that they perceive as illegitimate, which consequently weakens institutions and can result in institutional failure, especially during shocks.

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Resources

Resources are defined as “objects, conditions, characteristics, and energies that people value.”¹⁵ There are several components to measuring the strength of resources.

Availability

Resource availability measures the existence and accessibility of resources to the government and communities.

Performance

Performance is the ability of the resource to operate at a certain level of capacity and quality. Performance is measured by how well the resource functions in the job that it is designed to achieve. High capacity and quality performance of a resource contributes to resilience and strengthens a community against shocks and stressors.¹⁶

Diversity

Diversity is a measure of the different types of resources that perform a specific function. A community that has a diversity of resources will have a diversity of options in order to fulfill specific functions.¹⁷

Redundancy

Redundancy measures the amount of resources available that perform a specific function. If one resource can no longer perform its function, multiplicity ensures that there is another resource to perform that function. Redundancy contributes to resilience because a community or nation that has many resources dedicated to one function can rely on several options for that function in case a shock or stressor diminishes the capacity of one resource.¹⁸

The difference between diversity and redundancy is important, but not always clear. While redundancies do not function until failure of the primary resource, diverse resources continue to perform the same essential function as the primary resource at all times. Diverse resources, unlike redundancies, are also inherently of a different nature so as to not generally be affected in the same way by the same shocks and stressors. For example, a redundant crop might be the planting of more seeds than can actually be harvested or used, in case some of the crop is destroyed, whereas diversity in this example would refer to planting different crops that perform a similar function to the primary crop, but are different enough in nature so as not to be affected in the same way to the same shocks and stressors.

Adaptive Facilitators

Adaptive Facilitators are intangible elements of social capital and patterns that create an enabling environment for institutions and resources to mitigate shocks, recover from them and potentially “bounce back better” after a shock occurs. The importance and strength of each of these facilitators varies according to different contexts, but each is important in creating an environment that is adaptable, collaborative, innovative, and responsive. They are essential for creating resilient institutions and resources.¹⁹

Adaptive Facilitators are intangible elements of social capital and patterns that create an enabling environment for institutions and resources to mitigate shocks

Networks/Connectivity

Networks and connectedness reflect the ties within and among communities and between government institutions and communities. The more a community and its individuals are interconnected and the more communities are connected among each other, they can better resist shocks, recover after shocks and find new ways to adapt to their circumstances.²⁰

Attitudes/Behaviors/Values/Norms

Attitudes and behaviors of populations and organizations can influence institutions, resources as well as the system’s overall adaptive capacity. For instance, risk-taking behaviors and certain attitudes and cultures may lower the adaptive capacity of individuals, their institutions and in

result the overall system.²¹ Certain values, attitudes and norms can also create path-dependencies making a system resist change.²²

Innovation

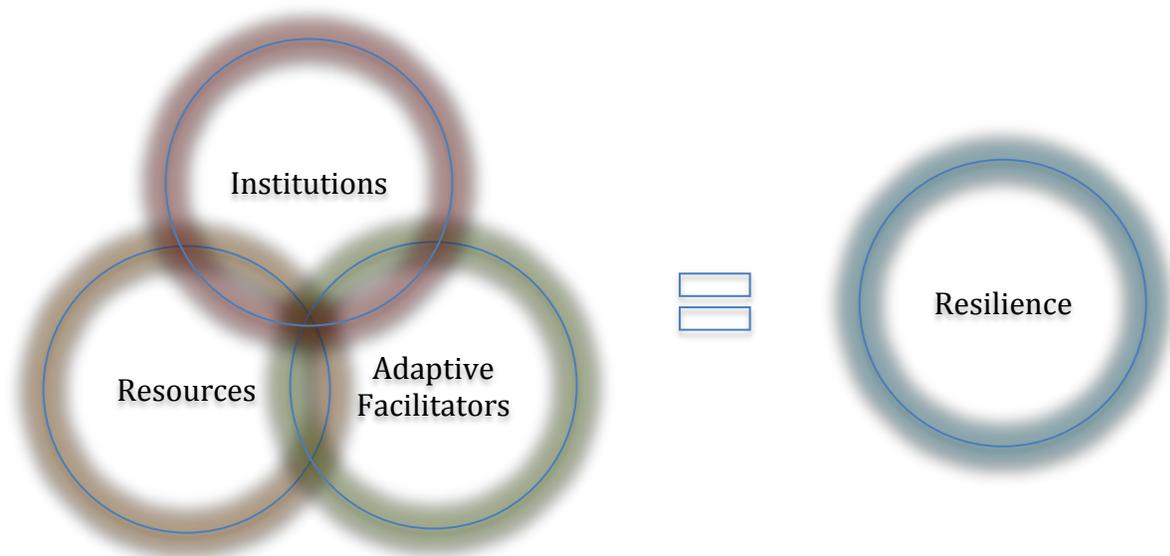
Innovation measures the ability of a group to learn from its experiences and adapt its behavior in order to better respond to shocks and stressors in the future. Innovation allows institutions, communities, and individuals the opportunity to think critically and to challenge existing structures that are in place and create new ideas in order to “bounce back better.”²³

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Institutional Memory

Institutional memory is the accumulated experiences and local knowledge shared by a group of people. Institutional memory can appear in the form of education programs, rituals, ceremonies, and remembrance days. Institutional memory enables institutions to form, adapt and change in light of previous events and to account for the important lessons learned from them.²⁴

Figure 4. Understanding resilience



Subsystem-Factor Analysis

Political Subsystem

The political subsystem is primarily composed of the public administration, its apparatus and informal governance structures. At the national level this includes the three branches of government (political, legislative, and judicial) that contribute to the administration of the state as well as the bureaucracy, civil servants and political parties which also play important roles in other subsystems. In the political subsystem, state authority is exercised through a monopoly on the use of violence and ideological hegemony embodied in the concept of power. The political sub-system also captures the relationship between the citizens and governing structures and it sets the “parameters for ordered rule, cooperative action decision making, and power sharing.”²⁵ The concept of governance is directly linked to the political sub-system. Poor governance within the political sub-system can be very detrimental to the resilience of a country. According to Kaplan, “It detaches the state from their environments, government from their societies and elites from their citizens.”²⁶

The political subsystem is important because it provides the necessary governing structures for a well-functioning state. However, in fragile and conflict affected states, weak national institutions and fragmented political identities undermine the formation of a robust governance system, which may favor a small cadre in power able to manipulate the state on their behalf. As a result, the majority of citizens will either not trust or will become ambivalent towards their government. In such a scenario the political system will be highly vulnerable to any stressors or shocks, ranging from civil unrest and protests to a coup d’état in more extreme cases, which would negatively impact its ability to mitigate, adapt and recover. In the absence of formal national and subnational institutions that are able to win the respect and support of the population as a whole, the state may depend on tribal leadership and informal local governance structures to maintain political stability, promote security and foster economic progress.

Resilience in the Political Subsystem

Resilience in the political subsystem is defined by the ability of the state to maintain a functioning government apparatus that provides quality public services, and formulates and implements policies that are perceived to be credible and legitimate. For the political subsystem to be resilient it needs to be able to plan for typical shocks and stressors, mitigate risk and address the root cause of these shocks and stressors and adapt accordingly. In order to develop a resilient political subsystem, a reciprocal relationship between “a state that delivers services for its people and social and political groups who constructively engage with their state”²⁷ needs to be fostered.

Resilience in the political subsystem is defined by the ability of the state to maintain a functioning government apparatus that provides quality public services, and formulates and implements policies that are perceived to be credible and legitimate

The contrary is also true; if the political subsystem is not resilient and is unstable, shocks and stressors will inevitably undermine the legitimacy of the governing system and negatively impact state-society relations. As a result, the tension that brews from the unstable relationship between

the ruling apparatus and its communities can diffuse and impact other subsystems. This could cause a shock in the security subsystem, leading to instances of violence and conflict.

Shocks within the political subsystem are occurrences that may lead to a partial or complete collapse of the political order. Shocks within the political subsystem may originate from the national institutions and affect the communities (top-down approach) or they may originate at the grassroots level and impact the stability of the state (bottom-up). Typical shocks within a political subsystem include: revolts, revolution, civil unrest, international disputes, political scandal, disputed elections, or coup d'états. Shocks originating in the political subsystem may also trigger shocks in other subsystems causing a ripple effect. For instance, a power vacuum may result in unrest, armed conflict and even regime change. A concrete example of a political shock occurred following the disputed 2007 Kenyan elections where violent conflict broke out resulting in over 1,100 people killed and between 300,000–600,000 displaced.²⁸ Political collapse may also disrupt service delivery in the social subsystem resulting in a potential humanitarian crisis. Economically, political instability contributes to a lack of trust from foreign investors that may result in decreased trade and foreign direct investment. In extreme cases, political disputes may prompt international sanctions and/or embargos. For the environment subsystem a deterioration of the rule of law may result in lack of enforcement of environmental regulations, which may lead to degradation and/or pollution.

Shocks within the political subsystem are occurrences that may lead to a partial or complete collapse of the political order

The stressors within a political subsystem are long-term pressures that may lead to a political shock. Typical stressors within a political subsystem include: corruption, patronage, clientelism,²⁹ and the marginalization of certain communities. Consistent minority exclusion, or the perception of it, from decision-making or power sharing, could result in a problematic conflict of loyalty between communities and the state. Within this context, conflict could result in an outbreak of violence and clashes between the two.

As discussed above, stressors and shocks can contribute to a lack of trust between the citizens and the state. In such a case the collapse of political order and rule of law poses a serious threat for the stability and resilience of the country. This is particularly true when the state is seen to favor a specific cadre in their private interest. The legitimacy of the state will come into question, which may result in strained state-society relations in cases where “states interfere with locally led initiatives, constrain markets and deliver services in partisan ways. Where states extract resources from the population without providing services, where they abuse or terrify the populace, or where they persecute or discriminate against one or more ethnic or religious groups, states are also an important cause of war.”³⁰

Institutions

The institutions within a political subsystem provide the “rules of the game”. Institutions are critical to ensure respect for the rule of law and manage potential for conflict. In a political subsystem the institutions may include: government organizations, political parties, religious institutions, civil society organizations, and the media. All institutions that have a direct or indirect influence on the political process, the sharing of power and

The institutions within a political subsystem provide the “rules of the game”

decision-making are considered to be within the political subsystem. Although informal institutions such as tribal leadership structures may contribute to political stability by providing services (e.g. managing disputes locally or mediation) where the government doesn't have the capacity to govern, if they are not politically included or they do not participate in formal decision-making processes they may foster fragmentation and undermine the formal political structures.

Institutions in the political subsystem contribute to positive resilience if they are both effective and legitimate. Effective political institutions are able to respond in a timely manner to citizen and community concerns. This is important to minimize grievances and to foster political stability. The legitimacy of political institutions refers to communities' perception and respect toward the institutions which govern their social, political and economic interactions. That perception can be positive or negative and may refer to whether or not institutions are capable of promoting consensus-building; if they consult and include stakeholders in the political process; if they are transparent and accountable to the population; and if their policies are perceived to be equitable.³¹

However, a fragile or conflict-affected state is often characterized by a lack of effective political processes. In such states, governing entities can compete and undermine the system. Post-conflict communities often suffer from "diverse governing structures (tribal, national and intervening structures) all operating at once."³² In the absence of formal governing structures, informal governing institutions may develop and have more legitimacy as they may precede the formal structures that are newly put in place.

Resources

Resources are tools available for the informal and formal institutions to exercise power and provide governance. They are also the tools available for the political subsystem to manage the stress of conflict. Public administration resources include the government apparatus, civil service, and availability of a budget, information gathering networks, media (state-owned and private), and reach and delivery mechanisms.

Resources are tools available for the informal and formal institutions to exercise power and provide governance

Resource availability within the political subsystem is often "limited to a performance assessment in terms of the governing entity itself because competing governing entities undermine the system."³³ Performance of resources may be measured in multiple ways. This may include measuring the quality of service delivery in relation to revenues collected from citizens. The capacity of civil servants, quality of the bureaucracy, availability of training programs, processes of recruitment, and the legitimacy and efficiency of the "government's mandate to act on citizens' behalf."³⁴ Diversity in the political subsystem refers to alternative resources for governing. In order to measure resource diversity in the political sphere, it is necessary to question what alternative resources are at the government's disposal to ensure that it is able to complete its functions. Alternative resources that provide citizens with multiple feedback mechanisms help governments ensure that their institutions are functioning correctly and providing citizens with wanted and needed services. Resource redundancy refers to the amount of resources available to ensure political stability when one resource that performs a

specific function fails or is inadequate. This might include mechanisms to ensure checks and balances, replace leaders, and plans in place to respond to emergencies.

Adaptive Facilitators

Adaptive facilitators in the political subsystem refers to actions, behaviors, and linkages that promote or hinder the ability of communities and institutions to actively engage with each other and positively contribute to the stability of the political order, processes, decision-making and transfer of power.

Networks are the mechanisms at the disposal of public administration to promote political inclusion and to foster a dialogue between government, community, citizens and media

Networks and connectivity refers to the channels and linkages between and within the community and the state. It includes mechanisms for citizens to voice their grievances. It promotes government accountability to its communities and serves as a feedback loop for the public administration. It is the mechanisms at the disposal of public administration to promote political inclusion and to foster a dialogue between government, community, citizens and media. In addition, networks and connectivity also refers to the reach of the government to enforce its authority. In fragile situations the government is not always able to effectively control and promote the rule of law within its domestic boundaries. A classic example is the Democratic Republic of Congo (DRC) where a vast domestic territory and lack of infrastructure makes state management highly challenging. In the DRC, the public administration in Kinshasa is unable to ensure the rule of law in the Kivu province and provision of public services is much higher in the capital than in other territories.

Attitudes, behaviors, values and norms influence how shocks are absorbed and how stressors develop within a society. Within the political subsystem those attitudes might include public trust in politicians and in government, their tolerance or lack thereof with regard to corruption, and a belief on the part of communities that citizens are treated fairly and equally or if a group feels unjustly targeted. These are all important factors that determine whether a community feels included in the political process and the nature of the relationship between the political order and the citizens. If formal structures are viewed as a hindrance or as a foreign imposition, informal structures may develop or have greater historical legitimacy, which may challenge the status quo and cause a political shock.

Innovation refers to the ability of governing institutions to be analytical and think critically; to reform and implement change; and to develop coping strategies when political orders collapse. In order to measure innovation it is important to analyze if the governing structures are open to new ideas.

Institutional memory refers to the degree to which institutions are able to record and commemorate political events that may contribute to the formation of a national narrative. For example, how the media communicates information regarding the history of the nation, its leaders and political institutions is important to institutional memory and the formation of a nation resistant to shocks. It can also include documents such as national constitutions that incorporate lessons from the past and guide state-society relations.

Security Subsystem

The security sub-system relates broadly to the system responsible for personal safety, the rule of law and state protection. Management of the subsystem is commonly seen as a core government responsibility, necessary for both economic and social development and vital for the protection of human rights. The security sub-system has an internal and external component; however in fragile states such distinctions are often blurred. Personal safety and maintenance of the rule of law are both typically internal functions of the state, whereas fighting inter-state armed conflict is an external function. The subsystem is commonly described as including the core statutory security forces such the police and military; non-statutory forces such as community militias and rebel groups; management and oversight bodies such as a ministry of internal affairs and public complaints commission; as well as justice and law enforcement institutions such as the judiciary, prisons and traditional justice arrangements.³⁵

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Key actors within the security subsystem are primarily individuals or groups that have the means and motivation to threaten the use of force as well as to mobilize resources in order to carry out organized violence. These individuals or groups carry out their work through a medium of social networks, institutions or organizations and are typically political or religious leaders, members of political parties, as well as national security forces and non-state armed groups.³⁶

Resilience in the Security Subsystem

In the context of security, resilience is primarily the ability of the state and society to redress grievances, resolve conflict where possible, use force to mitigate its effects where necessary, and recover to the original or a more secure state. Perhaps the greatest potential for the mitigation of internal conflict, and to recover from violent conflict, lies in the performance and effectiveness of social networks and political institutions that are able to identify and respond constructively to address the underlying stress factors.³⁷ Once violent conflict has erupted, the ability of the state and communities to mitigate its effects may rely on the nature of the resources available at both the national and community level, and the legitimacy of those forces to use violence as a means of subduing other violence.

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One of the key characteristics of effective states is their ability to maintain control over their population; they have a monopoly on the legitimate use of force.³⁸ In post-conflict and fragile states, this is typically not the case and government security forces lack either capability or legitimacy, or both. This makes fragile states more susceptible to internal conflict, violent challenges of authority as well as outside interferences. Nearly 80% of conflict-affected countries in the world have above average levels of state fragility,³⁹ demonstrating the relationship between low levels of institutional capacity and low level of security.

Conflict as a stressor exists naturally in almost all societies in the form of competition for scarce resources and contradictory or incompatible beliefs and practices.⁴⁰ Resilience is not only the

means of reducing such conflict through institutional mechanisms, resources and adaptive facilitators, but also to mitigate, adapt to and recover from conflict when it takes the form of a violent shock.

In many fragile states, breakdown of the state-run security apparatus provides lucrative opportunities for organized criminal networks to infiltrate society. Drug and human trafficking, money laundering, illegal exploitation of natural resources, and counterfeiting are both used to fund violence and enhance the wealth of criminal organizations. These organizations then develop a strong incentive to further weaken any institutions, resources and adaptive facilitators that serve to increase security and threaten their activities. A direct effect of such criminal activity is a reduction in the resilience of certain communities and the country as a whole to security shocks. Any resilience efforts will therefore need to take into account the interests of criminal networks. There is however one important exception to this, apparent when certain incentives align such that organized criminal networks see it in their interest to maintain security and prevent violence. Such a practice fosters ‘negative’ resilience; while it contributes to preventing armed conflict, it can come at the expense of other elements such as rule of law. Negative resilience may be present in examples of authoritarian rule or in some forms of community policing, where security can be equated with suppression, and punishment is delivered without due process.

Institutions

Most of the definitions of statehood include the notion that the state has a monopoly on legitimate violence. Having said that, however, in many fragile countries this is not the case. Therefore, it is critical to look into the functionality of formal and informal institutions on both the national and community level.

The government, based on its formal institutions, should administer the security apparatus to manage conflict and mitigate the effects of violence. Examining security institutions and their effectiveness is central to the resilience of the security subsystem. Several areas can be analyzed to investigate institutional effectiveness in the security realm. Resilience against traditional interstate violence can be seen as a function of armed forces capability, of which substantial information is often available. Where a peace treaty or cease fire has been agreed to, either between internal or international parties, the number of violations and means of implementation and monitoring of the treaty conditions will provide a good basis for the treaty’s effectiveness in mitigating armed conflict.

There may also be a number of informal national and community based dispute resolution institutions that work to mitigate conflict, such as those run by tribal elders and religious organizations. These are more likely to be institutionalized at the community level. Whether these institutions complement or undermine formal institutions will require local analysis. Additionally, the effectiveness of institutions that manage the resolution of existing grievances through legitimate justice arrangements will be decisive in preventing cycles of violence and the outbreak of security shocks from conflict stressors.

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Legitimacy reflects the perception of how accepted the institutions governing security are and the public confidence in security institutions as effective and accountable

Legitimacy reflects the perception of how accepted the institutions governing security are and the public confidence in security institutions as effective and accountable. In post-conflict and fragile states establishing legitimacy often means overcoming a long legacy of human rights violations.⁴¹ The legitimacy of security institutions is tenuous. The actions of a small number of individuals, if not dealt with correctly, can often cause substantial rifts in the legitimacy of security institutions and lead to subsequent deterioration of the resilience that they help provide. Many security institutions rely on their legitimacy to foster positive resilience. For example, a police force can only effectively contribute to resilience if the population embraces it as a measure to resolve disputes before the outbreak of violence. If the security apparatus is viewed as illegitimate, communities may resort to alternative measures to provide security, such as the blood feud, which generally decrease resilience to conflict. A blood feud mechanism, where households or tribal communities swear credible retribution for violence against them, may increase fragility and instability, when actions are misinterpreted or retribution for an act spirals out of control. For example, thousands of men in Albania are under the threat of revenge killings. For any act of murder, families of the victims frequently feel compelled to murder a male relative of the murderer to ensure vengeance.⁴²

Legitimacy of security institutions often grows unevenly and is fostered through what the public deems as effective provision of security and accountability.⁴³ There are numerous ways to measure legitimacy that are dependent on the security arrangements. From community perceptions, to the number of citizens reporting crimes to the security forces, an overall sense of legitimacy can be gleaned from simply observing the way the population interacts with security forces combined with independent media reporting where available. The existence of community policing and informal security institutions is often a sign that formal security institutions are either ineffective, illegitimate, or both.

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Resources

Security resources are needed to provide physical security and protect livelihoods. They are used to enforce the rule of law and perpetuate a perception that social relationships, structures or processes are in place and able to provide for dispute resolution and to meet security needs. Resources may include physical resources such as weaponry, other equipment, buildings and offices, other infrastructure and transportation; human resources such as man-power and training; monetary resources such as that derived from the government budget, international aid, or local sources; as well as intelligence gathering networks.

The availability of security resources refers to factors such as strength in numbers, the quantity of security equipment, prisons, police stations and military facilities. A robust security apparatus and presence helps provide resilience to violent conflict as it helps to create an effective deterrent measure through both perception and credible ability. Without available equipment and facilities, the security apparatus will have significant functional challenges. Observation and local

perception of security resources, as well as published figures can provide a reasonable indication of security resource availability.

The performance of the security apparatus refers largely to the quality of security operations and the ability to carry out stated and intended objectives. Performance of the security apparatus is evident in the adherence to the rule of law and the training received. The performance of the security apparatus is also influenced by the institutionalized incentive structure, affected by pay and civilian oversight mechanisms.

Lethal weaponry and training in warfare are fairly effective resources for conventional warfare, but may not be effective in fostering resilience to civil disturbances

The range of different types of security resources that take different approaches to achieving a similar function, determine the diversity of resources available. Lethal weaponry and training in warfare are fairly effective resources for conventional warfare, but may

not be effective in fostering resilience to civil disturbances. A security system that is able to employ a diverse range of resources to confront particular security shocks will be more beneficial than a one size fits all approach. An effective internal intelligence apparatus can help to identify security threats before they transpire and also identify the most effective approach to tackling them.

Adaptive Facilitators

Adaptive facilitators in the security subsystem are the networks, attitudes, behaviors, values and norms, that along with innovation and institutional memory, function to ensure the ability of the country, communities, and households to respond, adapt, and recover from violent conflict without major disruption to everyday life. They help foster trust in the state and community security institutions to protect them from perpetrators of violence and mediate conflict fairly and equally. Networks help enable communities to interact with each other and with the state to mitigate and recover from shocks as they occur in the most effective and rapid manner. Innovation allows for effective reform policies such that they increase resilience and take into account lessons learned from previous episodes of violence and conflict. At a basic level, they facilitate the means by which communities become resilient to security related shocks and stressors.

Horizontal networks within and between communities help mitigate the effects of violence by cooperating to resolve disputes and cope with the effects of conflict. The more interconnected communities are, the less likely they are to resort to violence in order to solve disputes and the more the incentive they will have to stop conflict from festering. “Creating social cohesion allows communities to work together to overcome fragmentation between groups (e.g. ethnic, religious groups) and to speak with a more united voice.”⁴⁴ In the absence or failure of formal security institutions, networks and the extent of connectivity between conflicting groups may be the last measure available to help communities enhance resilience to conflict.

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Attitudes toward conflict, behavioral practices, and the values and norms toward conflict that communities and nations hold will deeply affect their resilience to security shocks and stressors. If the norm is to attempt to resolve conflict through nonviolent means, it will likely be the first approach tried in many circumstances, and at least given a chance to succeed. In post-conflict and fragile states however, a history of violence often promulgates a relative tolerance to conflict and violence as a means to solving violence. When security institutions are seen as ineffective or illegitimate, communities tend to develop attitudes and behaviors contrary to those associated with positive resilience and adherence to the rule of law. For this reason, an analysis of the existing attitudes, behaviors, values and norms is critical to determining whether communities support or detract from resilience to conflict. These will often be observable within communities over time and might also be assessed through discussion with community or group leaders. In closely connected communities, these attributes will often be fairly well shared among the community and will more than likely reflect those held and practiced by such leaders and their respective affiliations; religious, political or tribal. It is also often the case that women are

Many community values and norms, and in some cases national laws, discriminate against women, increasing the challenges they face when attempting to adapt and recover from security related shocks

uniquely and disproportionately affected by violent conflict.⁴⁵ Many community values and norms, and in some cases national laws, discriminate against women, increasing the challenges they face when attempting to adapt and recover from security related shocks.

The ability for communities and countries to innovate provides a mechanism for security institutions to analyze and reform policies that have not worked in the past and to create new policies that take into account changing dynamics and new security shocks and stressors. Where a peace treaty or ceasefire might be required among warring factions, innovation will be vital to reaching an arrangement to mitigate the conflict. The ability of communities to innovate can be evident in the rigidity of current arrangements and the prevalence of alternative solutions put forward to deal with shocks and stressors.

As post-conflict and fragile states often suffer from recurrent periods of conflict, and knowledge about effective ways to restore effectiveness and confidence in security institutions is limited,⁴⁶ institutional memory is one of few means available for leaders and security actors over long periods of time to correct their methods, practices and arrangements to take into account prior security success and failures, of which the latter there is probably many. Documentation, records, education programs and cultural practices serve to maintain institutional memory to remember the horrors of violent conflict and the institutional arrangements of prior more peaceful periods; not to forget the cause behind many of the security shocks and to potentially forecast repeating episodes of violence and prevent such circumstances from transpiring, or on the contrary institutional memory can foster a tolerance for violence.

Economic Subsystem

The economic subsystem concerns the wealth and resources of a country, or region, especially in terms of the consumption and production of goods and services.⁴⁷ It includes those actors and institutions key to both the micro- and macro-economy, from farmers and retailers, to regulatory bodies and central banks. The economic subsystem is primarily concerned with factors that affect

sustainable livelihoods; defined as their means of securing the necessities of life in a manner that is supportable over the long term. In a market economy, the livelihoods of most people, especially the poor, is directly dependent on their involvement in markets as private agents or as employees, and indirectly on the wider economy for the supply and demand of goods and services.⁴⁸ It is intricately linked to all other subsystems and by nature sensitive to many of their shocks. For example, while armed conflict and drought are shocks in the security and environmental subsystems, depending on the resilience of those subsystems, there is a chance that they will cause a range of shocks in the economic subsystem relating to the ability of markets to function and the loss of economic resources.

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Resilience in the Economic Subsystem

Resilience in the economic subsystem refers to the ability of people to mitigate, adapt to and recover from economic shocks and stressors that affect their livelihoods. Common economic shocks include international and domestic price fluctuations, caused for example by changes in commodity demand or domestic market price bubbles; and market disruptions stemming from the imposition of new regulation, tariffs or international sanctions and embargoes. Aside from shocks, there are also a number of economic stressors. Ranging from widespread poverty, the threat of conflict, reliance on natural resources and foreign aid, such stressors undermine the resilience of the economic subsystem and can also increase the exposure to certain shocks.

Fragile and conflict-affected states typically have low domestic production, either as a result of recent or current conflict, or simply due to technological constraints and low human and physical capital. As such, there is typically a great reliance on trade and foreign economic aid. This leads to a greater exposure to exogenous shocks from changes in international prices and demand for their export commodities. A reliance on humanitarian and development aid makes recipient communities and governments susceptible to frequent changes in quantity and distribution of aid. It is also the case in most fragile and conflict-affected states that the poor lack alternative income

sources, savings or assets that they can fall back on if their main source of income is reduced or eliminated. As a result of economic shocks, some individuals sell their productive assets to survive, meaning that they become less productive in subsequent periods and even more vulnerable to future economic shocks.

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As opposed to developed countries, with already proven resilience techniques, the economic subsystem of fragile and post-conflict states is more vulnerable to a wider range of shocks and stressors. For instance, developed markets contain numerous financial instruments and commercial insurance options that if adapted for developing markets could help individuals mitigate some of their risks to economic shocks. The introduction of microfinance to many poor communities is an example of the extension of an economic resilience technique prevalent in developed countries – access to credit - being adapted to increase the economic resilience of the poor in numerous fragile situations.

When assessing the resilience of the economic subsystem, there are certain institutions, resources and adaptive facilitators that should be analyzed to determine the level of resilience to economic shocks and to identify important economic stressors that underlie the system.

Institutions

Institutions are key to the resilience of the economic subsystem. Without functioning institutions, market economies suffer from a lack of rules and practices that they fundamentally rely on. Not only is the existence of the institutions of great importance, their effectiveness and legitimacy are key to the resilience of the subsystem. Due to the lack of effective, or legitimate formal institutions, it is common for a range of informal institutions to spring up. A country may also rely on informal institutions because of their longer institutional histories or histories of legitimacy. While often less efficient than their ideal formal counterparts, they may be more efficient than the existing formal ones.

The effectiveness of economic institutions is determined by their ability to carry out the economically beneficial role that they are ideally supposed to serve. An initial analysis should be done to determine what the important institutions are for the livelihoods of the communities in question. It should then be understood what the ideal role of these institutions in the economy is, how they are supposed to contribute to increasing resilience, and what they actually provide. For example, financial institutions not only serve a basic economic function, but also play a key role in resilience against economic shocks. Certain economic shocks, such as foreign food aid dumping, or for that matter shocks in other systems such as an environmental shock blocking access to the marketplace, may cause farmers to be unable to sell their cash crop that they rely on for their livelihood. Should there be functioning formal or informal credit institutions, this would allow the affected farmer to either finance an alternative means of selling their crop, or to invest in another business opportunity to maintain an income.

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The legitimacy of economic institutions is key and intimately linked to their effectiveness. Not only are illegitimate economic institutions ignored, and hence fail to function as intended, but they can also serve to decrease community resilience. Illegitimate economic institutions cause communities to attempt to bypass them and can create dependencies on less efficient informal institutions that can reduce resilience, such as those prevalent in the black market. An institution commonly seen by communities as illegitimate in post-conflict and fragile states is the collection of government revenue in the form of taxes. If the government in power is seen as illegitimate, attempts to bypass formal institutions such as those required to register a business, may lead to less effective property rights and subsequently the ability of the owner to use the asset to counter economic shocks. In looking at economic institutional legitimacy, both community perception of the institution and the community's actual practice should be taken into account.

Resources

Resources for economic resilience include government financial safety nets, information, infrastructure, local and national government budgets, and training and education. Critical to resilience is examining how economic resources withstand shocks, their performance in

mitigating, adapting or recovering from them, the diversity of economic resources available to the community, as well as redundant backup resources available in times of need.

The availability of an economic resource measures the extent of its presence in communities. Crops are a key economic resource for many farmers in developing economies. Certain staple crops may be more readily available than others, and a price analysis over time will help determine how much they can be relied upon when market shocks hit, or stressors such as conflict create an atmosphere of tension in the market.

The performance of economic resources is, like availability, an important factor in how it contributes to resilience. The better an economic resource performs its task, the more it will contribute to resilience. Certain information infrastructure is a valuable resource for farmers, merchants and market traders. In the face of significant price volatility, the performance of informational resources, like mobile phones and software to determine market prices will greatly affect a farmer's ability to make the best of the volatile and perhaps regionally segmented market.

The diversity of economic resources takes into account the range of different resources available that can be used for a similar function. For example, if this function is income generation, a measure of diversity might be the range of alternative livelihoods available to a household or community should one livelihood arrangement become no longer viable as a result of a shock or stress. A household or community growing a diverse range of crops may be less vulnerable to price shocks unique to a certain type of crop, and thus more resilient. Diversity may also refer to

the range of means available to farmers to transport their crops to markets. A diverse range of routes, or alternative forms of transport would provide resilience against shocks that affect the ability to transfer the crop to domestic or international markets.

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Often very much related to economic resource diversity, is the concept of economic resource redundancy. Economic resource redundancy means having redundant amounts of the same resource that fulfills the same function. In the case of a spike in the cost of oil that would significantly affect domestic market conditions, if the government maintains a reserve capacity of fuel, or has already purchased a significant amount of fuel at the current market price going into the future, they have an effective redundancy of oil as an economic resource that increases their resilience to a spike in international prices.

Adaptive Facilitators

Economic adaptive facilitators are the networks, behaviors, norms, innovation and institutional memory of the community or country that assist in making them resilient to economic shocks and stressors.

Networks and connectivity are the horizontal and vertical economic ties within society that relate to resilience. Economically resilient communities are normally typified by strong horizontal inter-communities relationships that enable individuals and households to assist each other in times of hardship due to economic shocks and stressors. Inter-community relationships will normally be fairly clear from the outset by the existence of active community economic

organizations such as credit cooperatives. Vertical economic ties linking communities to governments are generally reflected by the prevalence and use of legitimate government institutions within communities. Vertical relationships can be fostered by trust, which in turn helps create more trust and closer links between government and citizens. Resilience is enhanced by such relationships that enable more efficient and rapid response mechanisms to economic shocks.

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Attitudes, behaviors, values and norms are economic adaptive facilitators that influence the way in which a community copes with economic shocks and stressors. Corruption is a common example of a type of behavior that detracts from resilience, whereas a sense of community is a value that can enhance resilience. Attitudes toward the role of women in the economy also play a key factor in determining the means by which women can contribute to resilience by partaking in the work force. “Approaches that systematically and visibly reduce key gender gaps and ensure that women are given the tools, resources, and opportunities to lead and participate are critical ... to achieve sustainable change.”⁴⁹ Such adaptive facilitators will be specific to certain societies and may be best analyzed by observing attitudes, behaviors, values and norms that prohibit

Typically, those attitudes, behaviors, values and norms that inhibit change will not be as conducive to fostering resilience as those that embrace innovation

effective economic activity and how they relate to managing change. Typically, those attitudes, behaviors, values and norms that inhibit change will not be as conducive to fostering resilience as those that embrace innovation.

Innovation as an economic adaptive facilitator refers to the incentive and ability of households, communities and governments to innovate as a means of increasing their resilience to economic shocks and stressors. Every country, and for that matter community, faces subtly different economic shocks and stressors and have a different range of institutions, resources and adaptive facilitators at their disposal. As countries and communities often face repetitive shocks and long lasting stressors there is considerable space for them to develop innovative coping and recovery methods. Their ability to innovate will depend largely on the historical factors and the rigidity of existing practices and will often be reflected by the variation of community programs and practices attempting at economic practices. A major innovation of recent years was the use of mobile phone technology to fill the information divide between rural farmers and the markets that they supply.

Institutional memory in terms of the economic system relates to certain practices, perhaps instilled in custom, or more formally kept in records, that serve to remind future generation of the benefits and perils of certain economic practices in light of major historical shocks, and to remind them of the lessons they once learned as a result. It is disheartening when communities choose avoidable economic options that serve only to repeat previous errors and make them less resilient to historically repeated shocks and stressors. Institutional memory is important for learning from past errors and successes in mitigating, adapting to, and recovering from major shocks. An analysis of institutional memory would take the form of looking at archival methods

and content, the basis for current unique economic practices, as well as messages passed through traditions and education.

Social Subsystem

The social subsystem is composed of public services, defined as the delivery of healthcare, education, electricity, sanitation, and water, as well as public space for arts, culture, and recreation. This subsystem encompasses these services, how they reach those who need them, and what spaces are available for social interaction and cultural development.

The social subsystem is important for several reasons. First, access to public services provides individuals and households with the tools to prevent, mitigate, and recover from system shocks. Without public services, individuals and communities are increasingly left malnourished, sick, and uneducated which makes them vulnerable in the face of natural and man-made disasters. Conflict or war may prevent children from leading healthy and productive lives, as during wartime it is difficult to provide uninterrupted service provision. This could lead to “lost generations” who do not have the tools to lead healthy and productive lifestyles, which stunts economic growth and relates to higher adult mortality rates.⁵⁰ Additionally, the social subsystem is unique in that it structures the ways in which individuals in the community interact with each other, their local leaders, their governments, and the external world. For example, the quality and content of education in community frames social interaction and understanding of an individual’s place in the community, country, and system. This knowledge is reproduced and perpetuates social differentiation in public spaces and influences interactions in the other subsystems.⁵¹ Public spaces, which include physical spaces where individuals interact as well as cultural spaces where music and art are produced, are important in fostering social cohesion. These public spaces are a shared resource in which experiences, interactions, and value are created.⁵² By bringing individuals and communities together, public spaces have the potential to foster a shared sense of belonging, trust, and awareness of community. Finally, the government’s efficient, effective, and impartial provision of services can legitimize its role in communal and household life.

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While public services and space have immense added value to a society, fragile states encounter challenges in the delivery of services and the allocation of public space. First, public spending on social services often does not reach the poor or marginalized sectors of society. For example, in Nepal, forty-six percent of education spending accrues to the richest fifth, and only eleven percent goes to the poorest.⁵³ With low service delivery to the poor, these citizens are unable to lead healthy and productive lives, which can cause them to fall into a poverty trap. Second, the money that is allocated to the marginalized sectors of the society often does not reach the frontline provider, and becomes lost in government bureaucracy or other channels. Third, the personnel responsible for delivery services – teachers, education administrators, doctors, and nurses – often are not properly incentivized to come to work or receive further training, further weakening the ability to provide services to the poor. Finally, the ability or desire to access public services in fragile states is low, due to a myriad of factors including distance to facilities, migration to different areas due to conflict, cost of services, or the perception of gender, ethnic, racial, or religious discrimination at the facilities. Challenges in service delivery with respect to

gender deserve particular mention. A common obstacle in public service delivery is that socially disadvantaged groups, such as women, are excluded from accessing public services. This could be due to their own perception that they cannot access these services, how they are treated at facilities such as hospitals and schools, or due to their overt exclusion by more powerful groups. Analyses should understand how gender aware and responsive public services and resource allocation are in post-conflict settings.⁵⁴ Overall, these challenges affect the strength of the

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subsystem to effectively mitigate, adapt and recover from shocks that emanate from within the subsystem, as well as shocks in others that diffuse into the social subsystem.

The social subsystem is interconnected and dependent on the four other subsystems, and a shock to the social subsystem can affect the political, economic, security, and environmental subsystems. A health or education system shock triggered when governmental services are not delivered due to corruption, has the potential to erode public trust in the government to effectively and legitimately deliver services, which could lead to civil unrest. Additionally, during a health shock, such as an outbreak of disease, those infected might not be able to work, which could lead to economic stagnation and a draining of state resources. If proper sanitation services are not in place, garbage and waste accumulation could degrade the environment and its resources. Finally, a shock in the form of differential delivery of public services to communities could fuel ethnic tensions and lead to a security shock. Thus, it is critical that the social subsystem has the mechanisms in place to counter shocks and stressors so that the system as a whole can prevent, mitigate, and recover from them.

Governments and communities use a variety of methods to deliver services and provide spaces of interaction: central government provision, decentralized local governments, contracts to the private sector and non-governmental organizations, and direct community participation.⁵⁵ Broadly, stakeholders within this system are those who provide and attempt to access public services and spaces; they may include government institutions that are responsible for providing services, local government, informal mechanisms of provision, private contractors or consultants, local businesses who provide or design services, international organizations, non-governmental organizations, frontline providers and administrators, and religious institutions.

Resilience in the Social Subsystem

Resilience in the social subsystem is defined as the ability to consistently provide quality services and access to public spaces with limited interruption imposed by shocks and stressors. This entails planning for typical shocks and stressors in order to strengthen the subsystem, recovering from a shock or stressor, and ideally improving the provision of public services in light of a shock or stressor.⁵⁶

Resilience in the social subsystem is defined as the ability to consistently provide quality services and access to public spaces with limited interruption imposed by shocks and stressors

Typical shocks to the social subsystem include health shocks related to the outbreak of disease, education shocks such as the banning of a particular group or gender from accessing education, shocks leading to the inability or unwillingness to provide or distribute clean water, electricity, or sanitation services, or cultural shocks such as the banning of certain cultural or religious

Typical shocks to the social subsystem include health shocks related to the outbreak of disease, and education shocks such as the banning of a particular group or gender from accessing education

practices, or the banning of “foreign influences” such as international, or in some cases national, media.

Typical stressors include gender inequalities that prevent women from accessing public services, marginalization of certain communities or groups that prevent them from accessing public services which could lead to ethnic tensions or conflict, malnourishment, demographic changes such as rapid population growth, inability of services to be extended to remote or distant communities, hygienic conditions or practices, and the perception that values or behaviors are being imposed on communities from the central government, outside governments, international organizations, or non-governmental organizations.

The effective and consistent provision of quality public services can be undermined by violent conflict. Violent conflict can leave public service infrastructure in ruins, which disrupts the delivery of critical healthcare to individuals, households, and communities. A fragile state involved in or recovering from violent conflict will be preoccupied and may not have the resource and institutional capacity to fund or provide services.⁵⁷ This can cause fragile states to rely on communities or outside organizations to provide these types of services.⁵⁸ Additionally, citizens in conflict-afflicted states may support leaders who take a particular stance in the conflict; these politicians are no longer accountable to constituents in terms of service delivery, but to the stance they take in a conflict.

Public services can also become politicized, especially in times of conflict. The government and communities may restrict access to services to other populations that stand on opposing sides of the conflict. Relatedly, private service providers’ conflict with a politician may lead to the provider withholding service to that politician’s district. In addition, services like education can be undermined during a conflict when a certain group controls how and what subjects are being taught in schools.

Institutions

The institutions in the social subsystem are the organizations responsible for designing and providing services and public space to a community as well as the informal and formal rules that govern the interactions between the state, service providers, communities, and individuals. The institutions cut across the public sector and may include the health and education infrastructure, social protection mechanisms, the formal and informal organizations responsible for public service and public space provision, international organizations that influence service and public space provision, the media, the laws and regulations regarding freedom of expression, religious institutions, and formal laws and informal rules governing health, education, sanitation, clean water, and electricity.

Social subsystem institutions are considered effective if they plan for shocks, if they are able to respond to these shocks in a timely manner, and if they are able to recover or bounce back better from these shocks with minimal loss and disruption in service delivery. This means examining the role of the central government and how it accumulates or decentralizes its obligation to deliver public services. Decentralization can assist or obstruct the delivery of services, and it is

important to examine the roles it plays in the effective delivery of public services to communities and households. The institutions are also judged as effective if they are independent from outside influence and corruption. Social subsystem institutions are considered legitimate if households perceive them as reliable, fair, and equitable distributors of services and public spaces, especially in times when there is a shock to the system. In addition to perception surveys, the legitimacy of institutions can be measured by examining whether services are distributed evenly to all members of society. For example, in India, girls are thirty to fifty percent more likely to die between the age of one and five than boys due to inequitable public service provision.⁵⁹ Other ways in which institutional effectiveness and legitimacy can be measured are through additional indicators, perception surveys, and interviews.⁶⁰

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The legitimacy and effectiveness of institutions governing the social subsystem are influenced by the extent to which formal and informal institutions complement or contradict each other. In fragile states particularly, informality exists when formal institutions are not present or when incentives encourage individuals to circumvent formal rules, rewards, and procedures.⁶¹ This formality gap can result in the lack of accountability of institutions and subsequently erode their legitimacy and effectiveness. If a community does not believe that a formal institution is an effective and legitimate provider of a public service, it will turn to informal organizations or circumvent formal laws and regulation to obtain that service.

Resources

Resources are the tools available to the formal and informal institutions to provide services and public space. In terms of education, resources include schools, teachers and administrators, textbooks, curricula, and technology. Healthcare resources include funding, hospitals and clinics, doctors and healthcare professionals, insurance structure, technology, medicines, and vaccinations. Electricity and sanitation resources include funding, human resources and capacity, technology, and infrastructure. Public space resources include funding for the arts and culture, city planners, and geographic space.

The availability of the social subsystem resources measures the presence and accessibility of service delivery and infrastructure. The performance of social subsystem resources measures how well service delivery personnel and facilities translate their function into quality services to the community and individual. For example, teacher absentee rate is a good indicator that measures how well schools are educating their students; in Uttar Pradesh, India, a survey found that one-third of all teachers were absent.⁶² The diversity of social subsystem resources measures the different types of resources that provide service delivery and public space. For example, in addition to HIV/AIDS testing and education, Thailand broadcasts messages on television that inform viewers how HIV is transmitted.⁶³ The redundancy of social subsystem resources measures the amount of resources available to perform service delivery if another resource fails. For example, in addition to relying on traditional source of electricity, a community can rely on wind-powered, solar, or tidal energy as a backup in case electricity sources fail.⁶⁴

Adaptive Facilitators

Adaptive facilitators in the social system are actions, behaviors, and linkages that promote or hinder the ability of communities and countries to provide and individuals to receive optimal services. The most effective ways of measuring adaptive facilitators are through selective indicators and interviews with local communities.

Networks and connectivity are important measures of how the state reaches its citizens and how communities interact. For example, in fragile states, it is often difficult for the central government to provide all public services directly, and thus relies more heavily on community organizations, private providers, or non-governmental organizations. This category measures the ability of the state and communities, through their networks, to provide consistent services in times of a shock.

Attitudes, behaviors, values, and norms in the social subsystem are crucial to understanding how shocks are absorbed and recovered from in a system. They will also determine the existence of social hierarchies that could be based on gender, ethnicity, race, or religion. This could lead to social marginalization, a stressor that could affect other subsystems. Examples of attitudes, behaviors, values, and norms include hygienic practices, sexual behavior, use of sports as a social mobilizer, the extent to which education is considered an added value, the “social distance” between service providers and provides, and the extent to which the society is tolerant and open

Social distance is defined as the extent to which customers perceive that providers do not effectively tend to local needs due to a lack of understanding of local realities

to new and existing ideas and beliefs. Social distance is defined as the extent to which customers perceive that providers do not effectively tend to local needs due to a lack of understanding of local realities.⁶⁵

Innovation measures the ability of the country and its communities to think critically, develop new technology, and identify and implement coping strategies when service delivery is absent. If a country and its communities are able to effectively learn from past experiences and find new ways to approach problems in service delivery and public space provision, they will be more resilient to future shocks and stressors to the social subsystem. Indicators that can measure innovation are formal restrictions on research and development, the approach of city planners, the overall teaching approach of school curriculum, and how communities deal with inconsistent service delivery.

Institutional memory measures the degree to which communities and the state incorporate historical lessons through songs, art, religious practices, public ceremonies, education, and archiving. For example, states use schooling to disseminate historical narratives of the state and inculcate ideas about the proper organization of society.⁶⁶ Institutional memory can be instrumental in fostering national and cultural narratives that create social cohesion or exclusion, which can in turn contribute to resilience.

Environmental Subsystem

The environmental subsystem, including flora and fauna, climate, weather and natural resources, is critical in understanding the underlying circumstances for the life and livelihoods of

communities and societies. Natural hazards and changes in the environment require communities to cope and possibly adapt to new environments. In reverse, the environmental subsystem is very sensitive to human action and influences.⁶⁷ Through the exploitation of natural resources, human interaction with ecological systems can change and affect the system's resilience. As a result, human and ecological systems undergo interdependent change over time.⁶⁸

The environmental subsystem is defined by the resilience to withstand environmental shocks. The latter is comprised of natural hazards such as droughts, floods, cyclones, earthquakes, and tsunamis. However, they can also extend to man-made disasters such as mudslides or dam breaks. Such environmental shocks can destroy property and livelihoods, lead to assets depletion and especially in poor populations induce severe coping strategies, such as drastic food intake reduction.

Most environmental shocks are influenced and reinforced by underlying stressors that result in a constant pressure on communities.⁶⁹ Pollution may make the environmental system less resilient by degrading the quality of natural resources. Climate change increases weather pattern volatility by inducing more erratic rainfalls, intensifying storms and changing biodiversity through an average temperature increase.⁷⁰ Environmental degradation and resource depletion are most commonly man-induced stressors that are a result of unsustainable practices. Environmental degradation can be caused by many factors including bad farming practices and wind and water erosion⁷¹. Depletion refers to the overutilization of natural resources that lead to their scarcity.⁷² Together, these stressors impose difficulties on humans as they directly affect their livelihood alternatives and may require new coping and adaptation mechanisms. At the same time, stressors can strengthen the impact of shocks. In China, large-scale deforestation increased the extent and duration of flooding in 1998. Fourteen million people had to abandon their houses.⁷³ The understanding of stressors and potential shocks to the environment is hence critical to build up resilience.

Most environmental shocks are influenced and reinforced by underlying stressors that result in a constant pressure on communities

Farming and pastoralist communities are highly reliant on natural resources for their livelihoods and are especially vulnerable to environmental shocks

Stakeholders in the environmental subsystem are diverse. Farming and pastoralist communities are highly reliant on natural resources for their livelihoods and are especially vulnerable to environmental shocks; however, urban communities also face difficulties in withstanding shocks in the subsystem.⁷⁴ For instance, variable weather patterns can lead to flooding and droughts that can reduce markets supplies and water in urban areas. Business processes are based on certain environmental conditions; changes or shocks to these hence affect the private sector. The government and in particular the ministries related to the environment should aim to mitigate and regulate ecological systems in a sustainable way. With the recent rise in climate change adaptation programs and disaster risk reduction, different donors, NGOs and international organizations have become major players in the field, influencing the capacity and environmental policy of the government and to a certain extent communities.

Resilience in the Environmental Subsystem

The environment has fundamental effects on communities. Due to its cross-cutting function, the subsystem is critical to understanding the potential root causes of conflict, which invariably affect all other systems. In the Horn of Africa, natural resource scarcity as a result of climate change and environmental degradation has often triggered armed conflict and crime when communities have low resilience to environmental shocks and stresses and are unable to adequately cope.⁷⁵

There are various interactions between conflict, fragility and the environmental subsystem. Due partly to climate change, natural degradation or depletion, many societies face the obstacle of natural resource scarcity. For instance, with lower rains and warming temperatures, communities in arid and semi-arid regions are ever more exposed to drought. For farmers and pastoralists, less rain may cause a breakdown in their livelihoods due to the lack of water and arable land. The Horn of Africa crisis illustrated how erratic weather patterns can lead to a massive loss of life in vulnerable countries. By destroying property and assets, such shocks can also lead to conflict over resources.⁷⁶

Weak institutions and government capacity in fragile and post-conflict states further contribute to conflict and violence, since the government often struggles to deliver services and provide emergency aid to affected communities. Conflict or fragility might also facilitate environmental destruction by inhibiting the enforcement of necessary regulation and monitoring mechanisms. To cope with challenging environments, communities are prone to using environmentally destructive practices such as expanding their farming lands into non-arable areas that then become prone to erosion. In the absence of rule of law, violent conflict over remaining resources can ensue. Examples include different tribes in South Sudan who rob cattle to survive changing environmental conditions as well as the crime and violence that occurred in the aftermath of Haiti's earthquake.

Conflict or fragility might also facilitate environmental destruction by inhibiting the enforcement of necessary regulation and monitoring mechanisms

In a post-conflict environment with refugees or internally displaced persons (IDPs), environmental stresses and shocks can also inhibit IDP and refugee reintegration and create tensions among communities. Similarly, environmental stressors and shocks can cause populations to leave their lands behind due to the lack of natural resources and become IDPs or refugees.

Institutions

Institutions in the environmental subsystem refer to those that perpetuate, preserve, and monitor environmental practices as well as manage environmental resources in a country. They oversee the environment and make sure that populations use it in a sustainable and equitable way. At the same time, institutions help to provide possibilities for populations to mitigate or cope with new and recurring environmental shocks and stressors.

Formal institutions in the subsystem are comprised of government organizations related to the environment and emergency management as well as environmental laws and regulations that

relate to practices affecting the environment. On the informal level, institutions reflect customary environmental practices and informal community arrangements. Together, formal and informal institutions can be most effective in making the environmental subsystem more resilient if they are aligned, creating a more sustainable environment and mitigating disaster risk.

In addition to the formal regulations, it is vital to analyze customary practices, their effects on the environment and how they are aligned with the government's approach

To measure effectiveness, laws and regulations and their enforcement have to be examined. Without enforced regulations to protect the environment, actors are incentivized to engage in environmentally destructive practices. In addition

to the formal regulations, it is vital to analyze customary practices, their effects on the environment and how they are aligned with the government's approach. For instance, communities might establish institutions that reinforce 'bad practices' such as extensive deforestation and cutting of the vegetation. Informal institutions, however, can also ensure sustainable practices that complement national regulations. One example is water management where communities commonly administer and equally distribute water resources among them. International organizations and NGOs often help to foster sustainable practices and can be a good source of information on resilient practices.

Effective institutions assist communities to reduce their exposure and vulnerability to environmental shocks and stressors. Formal institutions can help provide financial incentives for environmentally friendly practices, build infrastructure, establish early warning system and promote better farming practices through education. Informal institutions can provide communal risk sharing mechanisms and early warning measures.

The legitimacy of formal institutions refers to the acceptance and respect attributed to them by the population. For example, formal institutions can lose legitimacy if they prohibit communities from conducting customary practices that are central to their livelihoods. In such cases, certain formal environmental rules and regulations may not be followed.

Resources

Resources in the environmental subsystem help to maintain or increase sustainability, and build resilience of communities to natural disasters and environmental stressors. Resources include mechanisms for the dissemination of information with and among communities such as the news media, early warning systems for natural hazards and physical infrastructure. One example of the latter is mobile phone networks.

Technology is a key resource to enhance environmental resilience. Human resources, such as extension workers, usually complement technology by training and assisting farmers to become more resilient and environmentally sustainable, for instance by distributing improved seeds and fertilizer.⁷⁷ Extension workers are people usually employed by governments who work with communities to address some problems in areas such as agriculture, water and health and spread new technology, research and sustainable practices within the communities. Government and community supplies and equipment for sustainable practices, ranging from simple tools, emergency kits, and different technologies, are critical resources for environmental resilience.

When analyzing resources and how they contribute to environmental resilience, resource availability, performance, diversity and redundancy have to be investigated. Resource availability describes the basic existence and accessibility of resources. Aspect such as access to water, land, environmental infrastructure, technology, environmental education, early warning systems and information sharing arrangements on environmental shocks and stressors should be examined.

Resource performance reflects the ability of resources to improve sustainable practices and reduce disaster risk and impact. Effective infrastructure contributes to the ability of emergency management institutions to deliver emergency supplies after a natural disaster.

The diversity of resources in the environmental subsystem is also central. If certain resources fail, other mechanisms can be in place to maintain a functioning system. For example, several governmental agencies can be mandated to intervene in emergency situations. Resource redundancy fosters resilience by providing the same resources multiple times. Water supplies can be kept in different areas to ensure water supply for the population and if a dam overflows, a subsequent dam can help prevent further flooding downstream.

Adaptive Facilitators

Adaptive facilitators in the environmental subsystem help to mitigate or in the worst case can exasperate stresses and shocks. Vertical and horizontal ties are central to ensure sustainable practices, information dissemination and the ability to cope with as well as recover from shocks. Horizontal ties are particularly important as they enable communities to share information, monitor environmental developments and reduce individual exposure to stressors and shocks by sharing risks and coordinating responses. As women may be excluded from certain networks, they may not have access to environmental information such as inclement weather, and as such may be disproportionately affected by shocks stressors.

Horizontal ties are particularly important as they enable communities to share information, monitor environmental developments and reduce individual exposure to stressors and shocks by sharing risks and coordinating responses

Similarly, networks exist vertically between governments and communities and will be important to consider when assessing their contribution to environmental resilience. In some cases, due to weak governance structures in fragile and conflict-affected states, informal networks may replace or complement formal ones. Educational networks can help spread sustainable practices and coping mechanisms for stresses and shocks. These can be delivered by extension workers to communities, or can be shared among communities in an informal manner.

In many societies, different values, attitudes and behaviors shape community practices, including agricultural practices and other actions that relate to the environment. Certain behaviors and norms can also decrease resilience. When farmers burn fields after harvesting their crops, they deplete the soil of resources, which leads to degradation and erosion.

Innovation and learning in the environmental subsystem reflects the ability to adapt to changing environmental pattern. A common example here is the adoption of early warning systems to mitigate disasters or better respond to shocks. Education channels can be used to diffuse learning

and innovative processes, and further build knowledge on how to approach stresses and shocks to be better able to withstand them.

Institutional memory is central in the environmental subsystem in order to not only avoid prior mistakes but also create awareness for the need to change or adapt certain structures and approaches, for instance in preparing and responding to storms. Institutional memory includes publically available records of environmental shocks that can be utilized for early warning and a more informed response. Institutional memory is also important for tracking patterns of stressors, such as the ways in which climate change impacts the environment and to understand the rate of environmental degradation and depletion.

Conclusion

Resilience goes beyond broad development approaches to reduce poverty. In essence, it aims to understand the systemic shocks and stressors that people are exposed to, and the mechanisms present in their community to withstand them. While shocks, whether man-made or natural, cannot always be anticipated or prevented, translating the concept of resilience into an actionable framework of analysis can equip governments and communities with the tools to respond to

Translating the concept of resilience into an actionable framework of analysis can equip governments and communities with the tools to respond to shocks, and eventually reduce communities' vulnerability over time

shocks, and eventually reduce communities' vulnerability over time. Over the long-term, a more resilient society will inherently survive and thrive through employing mechanisms that withstand shocks and stressors in a sustainable way that does not diminish a community's human, physical and financial resources over time.

The framework is a practical tool for analyzing resilience and prioritizing action that builds indigenous capacities to respond to shocks and stressors. It is not a quantifiable measurement tool to assess resilience but rather a qualitative analysis that examines the factors that contribute to or detract from resilience.

This framework provides a definitional and an analytical lens that is cross-cutting and multi-disciplinary to understand the capacity available for communities to respond to shocks and stressors. It is an interactive concept, cutting across economic, environmental, social, security and political sectors.

This multidisciplinary approach allows practitioners with a diverse range of expertise to collaborate and further a common understanding of community resilience, designing interventions that do no harm and reinforce each other. It will inform programing and help incorporate resilience in country strategies by identifying existing community capacity to mitigate, adapt to, and recover from natural and man-made shocks. Ultimately, it enables stakeholders to determine when, where, and how to apply resilience programing in the context of conflict affected and fragile states.

Way Forward

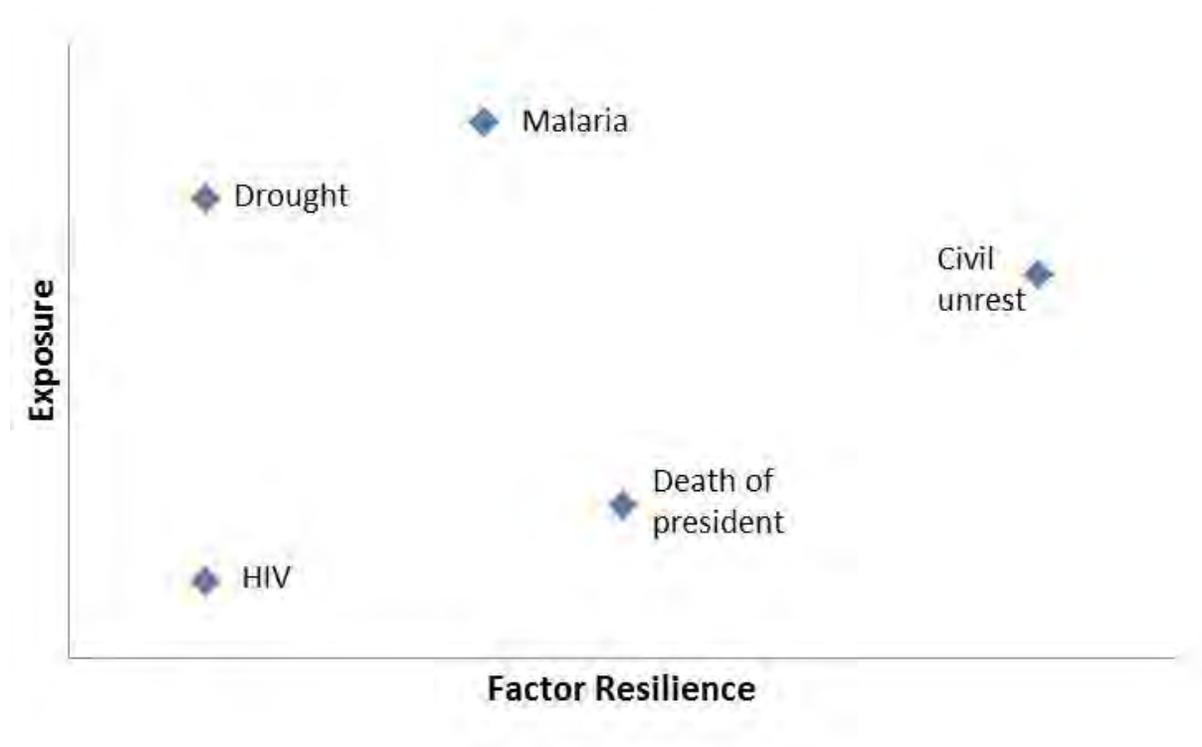
This resilience framework is a step forward in conceptualizing how resilience can be analyzed in conflict-afflicted states. In order to make this framework actionable and inform policy choices, USAID may wish to develop a measurement tool that builds on the resilience lens presented in this report. While this is an extensive and complicated task, the following is a vision of how such a measurement tool could be designed based on this framework.

The resilience measurement tool would be shock-focused and measure how resilient a country's institutions, resources, and adaptive facilitators are to particular shocks. Building on the resilience analysis, the measurement tool would first rank shocks through a scale that would measure the country's relative exposure to each shock. For example, in the case study of Angola, a shock such as drought would have a high relative exposure score, while a shock such as a coup d'état would have a low score.

The resilience measurement tool would be shock-focused and measure how resilient a country's institutions, resources, and adaptive facilitators are to particular shocks

After the shocks are ranked by exposure, the next step would be to measure the ability of the country's institutions, resources, and adaptive facilitators (the factors) to withstand these particular shocks. For each shock, questions would be designed to examine whether the factors detract from, add to, or do not affect the country's resilience to that shock. These questions would address how the shock affects the subsystem it originates in, and how it affects the other subsystems. For example, in the case of an armed uprising, questions would address the capacity

Figure 5. Example of resilience measurement graph



of the government to manage escalating violence, as well as to stop the security shock from having economic ramifications.

The qualitative data would then be coded on a scale; an answer that indicates that the factor detracts from resilience would receive a -1, an answer that adds to resilience would receive a +1, and an answer that would not affect resilience would receive a 0. These questions would be asked of each community in the country, and the average score for each community would be calculated. The communities' average scores would then be aggregated, and for that particular shock, an average resilience score would be obtained.

This type of measurement tool is useful because it would illustrate the range of shocks a country is exposed to, and its ability to handle those shocks

Once the exposure and resilience scores are obtained for each shock, they are plotted on a graph, such as the one that in figure 5 above. The shocks are graphically mapped in order to highlight the country's relative resilience to each shock. This type of measurement tool is useful because it would illustrate the range of shocks a country is exposed to, and its ability to handle those shocks. It would allow USAID to further understand the challenges facing a country and prioritize programmatic action accordingly.

Annex 1: Application

The methodology for the framework application is based on the three step analysis: The first step is a contextual analysis. It is followed by a factor analysis of the subsystems and concluded by a qualitative resilience analysis in which the context and exposure to shocks are analyzed together with the factors of resilience.

Figure 6. Three steps to analyze resilience



The three steps can be further subdivided to illustrate the process of data collection, processing and analysis.

- | | | |
|----------------------------|---|--|
| Contextual Analysis | } | <ol style="list-style-type: none"> 1. Desktop and background country research 2. Definition of communities 3. Analysis of community exposure to shocks and stressors |
| Factor Analysis | } | <ol style="list-style-type: none"> 4. Formulation of specific questions for subsystems 5. Data collection 6. Data aggregation 7. Data analysis |
| Resilience Analysis | } | <ol style="list-style-type: none"> 8. Analysis of cross-sectoral shock and stressor impact 9. Integrated analysis of exposure and factors of resilience to understand relative resilience of subsystem 10. Analysis of the extent to which subsystems are able to mitigate, adapt and recover from shocks and stressors |

Contextual Analysis

The first step of the framework application is a contextual analysis. It is mainly comprised of desktop research, interviews, and conversations with experts to better understand a country's historical, political, socio-economic and environmental background, as well as its recent developments and current trends. Preliminary research should yield a thorough understanding of different groups in a country such as ethnic and religious groups. It should also examine gender relations and population distributions, and investigate the shocks and stressors to which the country is exposed.

The second step in a contextual analysis is the definition of communities. Communities, as used in this framework, are population groups that are or can be exposed to similar shocks and stressors. These communities do not have to be based on the geographic notion of community, but can be based on ethnicity or gender. Communities can also overlap.

The third and last step in the contextual analysis is to understand the communities' exposure to shocks and stressors. For each defined community, shocks and stressors that can occur should be listed. With the help of experts, the likelihood of these shocks and stressors are estimated to grasp how 'exposed' or perceptible the respective communities are to them.

Exposure to risk can be defined as “an assessment of the magnitude and frequency of shocks or the degree of stress. For example, exposure to conflicts could be measured by the size and frequency of violent events caused by conflict or fragility, or the extent of political instability in other factors such as rule of law or human rights.”⁷⁸

In summary, the contextual analysis should answer questions such as the following examples:

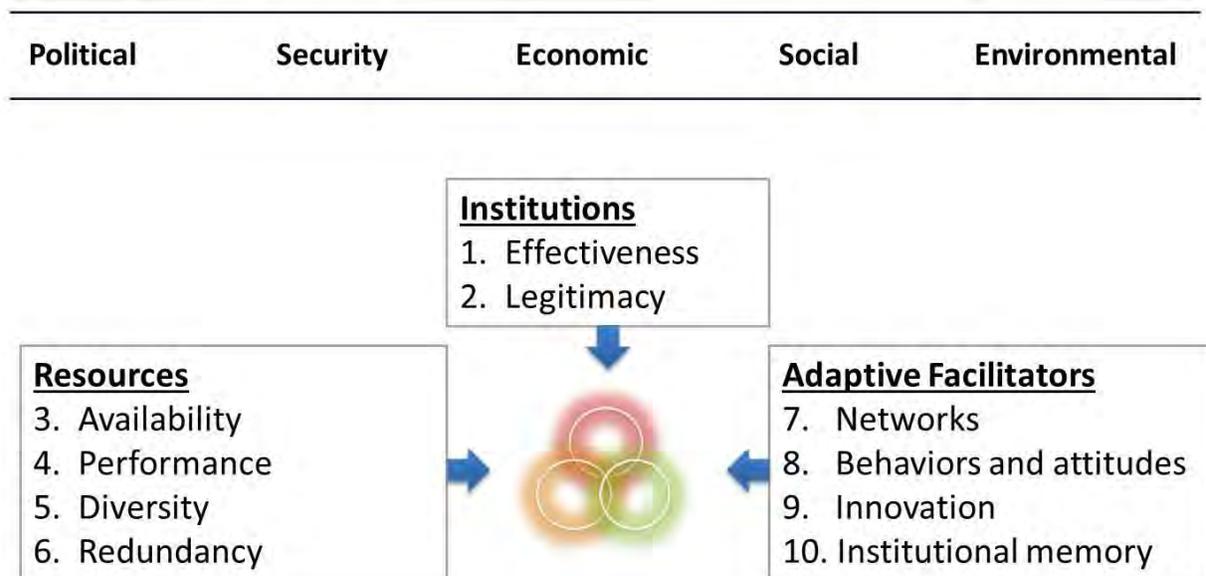
Figure 7. Exposure questions

Questions	Examples
1. <i>What shocks and stressors is the country exposed to?</i>	Droughts, civil unrest.
2. <i>What are the major communities in the country?</i>	Urban, rural
3. <i>Who are the stakeholders within the country?</i>	Government, church, civil society
4. <i>What are the history and trends of the country?</i>	Civil war, colonialism

Factor Analysis

After a contextual analysis has been undertaken, the next step in the framework application is a factor analysis. The factor analysis is essential to understand the ability of communities to mitigate, adapt to, and recover from different shocks and stressors. The factors of analysis are grouped in three categories: Institutions, resources, and adaptive facilitators.

Figure 8. Overview of factor analysis



In order to assess resilience, data will be collected on the effectiveness and legitimacy of institutions, the availability, performance, diversity, and redundancy of its resources, and the networks, behaviors, norms and values, as well as innovation, and institutional learning in its adaptive facilitators.

The main method of data collection in the field is semi-structured interviews, meaning interviews in which the main questions are defined in advance of the interview but can be slightly adjusted during the process and expanded upon throughout. For the interviews, community-specific questions should be designed for each subsystem. Since data is often highly localized, different stakeholders and communities may be only familiar with the subsystems and geographic areas they live and work in. Therefore, interview guides should be designed specifically for different stakeholders and communities in different areas.

Questions should be relevant to each subsystem, and examine the interaction of the ten factors and their ability to withstand shocks. Below are examples of questions that could be asked in each subsystem. When designing an interview guide for specific communities, these questions should be further simplified, split up and contextualized to the background of the target group.

Figure 9. Political subsystem

Resilience Factors		Sample Questions
Institutions	Effectiveness	1. Are formal and/or informal governance institutions adequately performing their functions? 2. Are political institutions able to react quickly to changing circumstances?
	Legitimacy	1. Are institutions perceived to be accountable to their citizens? 2. Are decision-makers respected and accepted by the citizens?
Resources	Availability	1. Are there political documents that provide a basis for the government's legitimate power? 2. Is there availability of free media and an engaged civil society?
	Performance	1. What is the quality and capacity of civil servants and public bureaucracy? 2. How do decentralized political structures perform?
	Diversity	1. What types of training are available for public officials? 2. Are there quotas to ensure representation in parliament?
	Redundancy	1. Are there mechanisms to ensure checks and balances? 2. Are there mechanisms to ensure peaceful succession?
Adaptive Facilitators	Networks	1. What is the reach of the government to enforce its authority? 2. What are the mechanisms of grievance reporting? Does it reach decision-makers?
	Values/Attitudes/ Behaviors/Norms	1. Are certain communities excluded from participating in the political process? 2. What are the levels of political participation?
	Innovation	1. How open is the government to criticism? Is it self-critical? 2. Is it willing to promote change?
	Institutional Memory	1. Does the government communicate a national narrative? 2. Do lessons from the past influence policies?

Figure 10. Security subsystem

Resilience Factors		Sample Questions
Institutions	Effectiveness	1. Do people know and obey the law? 2. Do security institutions respond with appropriate and proportionate measures to security incidents?
	Legitimacy	1. Are perceived human rights protected by the security apparatus? 2. Do people trust the security institutions?
Resources	Availability	1. Are sufficient resources available for protection of civilians, land and maritime borders, and law enforcement? 2. Is there adequate funding for security services?
	Performance	1. Are security resources of high quality? 2. Can security resources perform their function effectively?
	Diversity	1. Is there a diverse range of security resources to manage a range of situations appropriately? 2. Are security forces trained to manage a wide range of security incidents?
	Redundancy	1. Is there a reserve capacity (police, soldiers, detention facilities, legal support) that can be mobilized if necessary? 2. Can international support be mobilized if necessary?

Adaptive Facilitators	Networks	1. Are their close links between citizens and security institutions? 2. Do communities cooperate to manage security informally?
	Values/Attitudes/ Behaviors/Norms	1. Do norms/values/attitudes and behaviors contribute to a secure environment? 2. Are similar values shared among the population?
	Innovation	1. How rigid are current security arrangements? 2. Are security institutions constructively criticized?
	Institutional Memory	1. Are security incidents recorded and remembered in the institutional arrangements? 2. Is awareness of security incidents raised and maintained?

Figure 11. Economic subsystem

Resilience Factors		Sample Questions
Institutions	Effectiveness	1. Do economic institutions provide safety nets to vulnerable communities? 2. Are economic institutions responsive to community needs?
	Legitimacy	1. Are institutions perceived to provide economic services in an equitable manner? 2. Do individuals perceive that they have equitable access to economic opportunities?
Resources	Availability	1. To what extent is there sufficient commercial infrastructure? 2. Do people have access to credit?
	Performance	1. Is there adequate workforce training? 2. Do crops produce sufficient yields?
	Diversity	1. Is there a diverse range of economic opportunities? 2. Do communities have multiple sources of income?
	Redundancy	1. Do individuals have financial savings? 2. Are surplus economic resources maintained?
Adaptive Facilitators	Networks	1. How cooperative are communities on economic issues? 2. Is economic information disseminated?
	Values/Attitudes/ Behaviors/Norms	1. Are there norms, values and attitudes that produce economic inefficiencies? 2. Are their risky economic behaviors?
	Innovation	1. Are economic institutions analyzed and critiqued? 2. Is technology used to improve market access?
	Institutional Memory	1. Are economic shocks recorded and remembered in institutional arrangements? 2. Is public awareness of economic shocks and stressors raised and maintained?

Figure 12. Social subsystem

Resilience Factors		Sample Questions
Institutions	Effectiveness	1. Do institutions deliver consistent, relevant and timely public services? 2. Do institutions responsible for service delivery allocate resources efficiently?
	Legitimacy	1. Are institutions perceived to deliver services equitably and impartially? 2. Are citizens satisfied with public service delivery?

Resources	Availability	1. Do institutions have the necessary resources for service delivery? 2. Do front-line providers have access to the necessary resources to provide their service?
	Performance	1. Is the quality of public services that are delivered to the community sufficient? 2. Are front-line providers adequately trained and incentivized?
	Diversity	1. Are there multiple sources of funding for service delivery? 2. Are there multiple providers of service delivery?
	Redundancy	1. Are there multiple ways in which citizens can access public services? 2. If there is a void in the delivery of public services, do citizens have access to other means to get these services?
Adaptive Facilitators	Networks	1. Are there mechanisms through which institutions reach citizens? 2. Do communities cooperate with each other and help each other access services?
	Values/Attitudes/ Behaviors/Norms	1. Do a community's behaviors or beliefs make them more vulnerable to a health shock? 2. Do social hierarchies affect service delivery and access?
	Innovation	1. Is the community open to new ideas and practices? 2. Are there restrictions on research and development?
	Institutional Memory	1. Is the national narrative, if present, communicated through education curricula? 2. Does the national narrative foster social cohesion?

Figure 13. Environmental subsystem

Resilience Factors		Sample Questions
Institutions	Effectiveness	1. Do people know, follow and/or obey the environmental laws and rules? 2. Do institutions serve to preemptively address the effects of environmental shocks?
	Legitimacy	1. Are environmental laws applied equally? 2. Do environmental laws conflict with informal institutions and community preferences?
	Availability	1. Are sufficient resources available for enforcing environmental rules and regulations? 2. Are sufficient resources available for emergency prevention, response and assistance to environmental shocks?
Resources	Performance	1. Does environmental infrastructure (dams and levees, etc.) adequately perform its role? 2. Is the community trained in environmental protection and emergency response?
	Diversity	1. Is there a diverse range of emergency environmental resources available? 2. Is there a variety of funding sources for emergency responses to environmental shocks?
	Redundancy	1. Is there an adequate reserve capacity, in terms of staff and emergency supplies? 2. Is adequate international assistance available?
	Networks	1. Are environmental organizations present in the communities? 2. How cooperative are communities on environmental issues?
Adaptive Facilitators	Values/Attitudes/ Behaviors/Norms	1. Do community share similar values/attitudes and behaviors with each other and formal environmental institutions? 2. Do norms/values/attitudes and behaviors contribute to emergency prevention, response and assistance to environmental shocks?
	Innovation	1. How rigid are current environmental prevention, response and assistance arrangements? 2. Is technology used to introduce more environmentally sustainable practices and enhance emergency prevention and response?
	Institutional Memory	1. Are environmental shocks recorded and remembered in the institutional arrangements? 2. Are environmental stressors tracked and monitored?

While semi-structured interviews offer an effective way to collect data, there are times when interviewees provide information that is incomplete, unreliable, or contradictory. For example, during an application of this framework in Angola, governmental officials were present during some community interviews, which appeared to influence interviewees' answers. There were also times when different members of communities provided conflicting information. This underscores the importance of supporting information received from interviews with other methods of data collection, such as observations, focus groups and perception surveys. Focus groups are planned group discussions that seek to understand perceptions of a defined interest area. Focus groups would be useful to understand the feelings, perceptions, and manner of thinking of participants regarding government and social services, programs, and political and economic issues. Perception surveys are a series of structured questions with a limited range of responses for the purpose of producing information in a forum that can be handled quantitatively.⁷⁹ This form of data collection would be useful in gathering information about perceptions of government legitimacy and effectiveness anonymously. Together, these methods would triangulate the data to enhance the validity of the factor analysis.

For each subsystem within each community, the ten factors should be analyzed. This analysis should lead to an understanding how the institutions, resources, and adaptive facilitators add to, detract from, or do not affect a communities' ability to handle the shocks to which it is exposed. Once this is complete, this information should be combined and aggregated to provide a factor analysis for the country as a whole. Below is a matrix that will assist in organizing the factor analysis for the communities and the country.

Figure 14. Factor analysis

		Political	Economic	Social	Security	Environment
Institutions	<i>Effectiveness</i>					
	<i>Legitimacy</i>					
Resources	<i>Availability</i>					
	<i>Performance</i>					
	<i>Diversity</i>					
	<i>Redundancy</i>					
Adaptive Facilitators	<i>Networks</i>					
	<i>Values, Norms...</i>					
	<i>Innovation</i>					
	<i>Institutional Memory</i>					

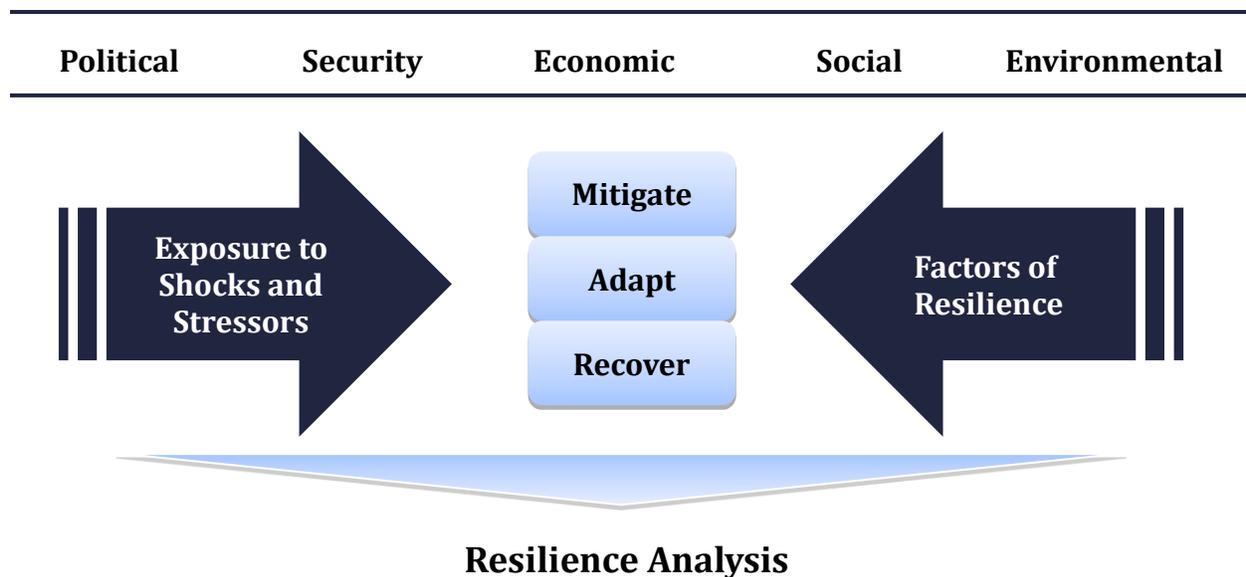
Resilience Analysis

The third and final step in the framework application is the resilience analysis, which is a synthesis of the contextual analysis and the factor analysis. A resilience analysis evaluates how exposed the communities, and as an aggregate the country, are to certain shocks, and how capable they are to mitigate, adapt, and recover from these shocks. Through an exposure and factor analysis, a resilience analysis can be achieved for each subsystem. The resilience analysis begins by examining how exposed the subsystems are to shocks and stressors.

The exposure, garnered from the contextual analysis, is integrated with the factor analysis to identify the relative strength and weaknesses of the factors within each subsystem to the shocks and stressors to which they are exposed. The analysis identifies major gaps in institutions, resources, and adaptive facilitators that make the subsystem vulnerable to shocks to which it is exposed. The analysis also identifies the factors that make the country relatively resilient when it is exposed to a shock. The analysis concludes with an understanding of the subsystem's relative resilience.

The evaluation is finalized by consensus among the assessment team. The degree of formality, the style of facilitation, and the general structure of the proceedings will depend on the assessment team.

Figure 15. Resilience assessment



This analysis will have several implications. It will allow development practitioners to understand which subsystems are relatively more or less resilient within the country and why. It will also identify which shocks have the most impact across the system as a whole. The final assessment will help practitioners prioritize interventions to address specific capacity gaps in institutional, resource, and adaptive facilitators' to manage shocks.

Annex II: Case Study Angola

Angola was selected as the location for a case study to apply the resilience analysis framework. Angola was selected for several reasons. First, it is a post-conflict state that experienced a thirty-year civil war. Angola is seeking to rebuild its political, economic, and social infrastructure and move forward from its conflict-afflicted past. Conflict has affected the population across all sectors of society. Second, Angola provides a stable political and security environment for a resilience assessment to be undertaken. Third, the USAID Mission in Angola offered to provide substantial support for the application of the resilience framework, allowing the assessment team to travel to different communities within Angola.

Introduction to Angola

Angola is a post-conflict country, having emerged from a thirty year-long civil war in 2002. The war began after a coup in 1974 that overthrew the Portuguese colonial dictatorship. Two main political parties, the MPLA and UNITA, engaged in a power struggle for leadership. While the MPLA was supported by the Soviet Union and Cuba, UNITA acquired support from the United States and its ally South Africa. Short-lived peace agreements were reached in 1991 and 1994 between the two parties but failed to reinstall peace. The civil war continued and lasted until 2002, when the leader of UNITA was killed. After a successful peace process, Angola held legislative elections in 2008, and the MPLA won a sweeping majority of the seats. The MPLA-led legislature subsequently amended the constitution and removed the direct election of the President. President Jose Eduardo dos Santos has effectively been in power since 1979. President dos Santos has increasingly centralized power and control in Angola.

Angola's GDP per capita amounted to USD \$5,312 in 2011, classifying it as a middle income country.⁸⁰ However, most Angolans live in poverty. The country ranks 148th out of 187 countries on the human development index.⁸¹ Literacy levels are at 67%; access to school is often not available in rural communities and is usually restricted to primary school only.⁸² Access to health care and clean drinking water remains problematic. Inequalities in the society are wide-ranging. Angola has a Gini coefficient of 58.6 indicating a large gap between poor and rich.⁸³

In recent years, Angola has experienced strong economic growth amounting to 7.9% of GDP in 2012.⁸⁴ Oil continues to be the major backbone of the Angolan economy. In 2012, 33.3% of the GDP was generated through oil extraction, mostly on off-shore platforms close to the capital Luanda.⁸⁵ Oil contributes around 80% of government tax revenue.⁸⁶ As oil extraction is a capital but not labor intensive activity, less than 0.24% of the population benefit from direct employment in this segment of the economy. A significant share of foreign workers is also found working in the oil sector to provide the required expertise for extraction. Unemployment remains very high, at an estimated 27%. Approximately 26 % of the working population is employed in agriculture; a sector defined by low productivity, high income volatility and dominated by subsistence farming.⁸⁷

Limitations

This case study was produced through a combination of literature review and interviews which were conducted over a period of two weeks, and in three of Angola's provinces: Luanda, Huambo and Benguela. Interviews were conducted with representatives from local communities, international non-governmental organizations, local civil society, the United Nations, donors, and the government of Angola. Interviews were structured in a semi-formal style. The goal of the interviews was to capture the perceptions of individuals in order to contrast them with official policies and positions. This allowed for free and open discussions. However, given time constraints, the interview sample size was limited and not representative of the country. Thus, data collection was narrowed and restricted to two communities of focus: urban and rural. Rural communities were analyzed in the central highlands only and the findings might thus not be applicable to other parts of the country. The urban community was restricted to the capital of Luanda. For the purpose of the framework application, broad assumptions were made that these communities generally shared similar constraints and characteristics.

Expert views sometimes differed and contradicted each other. On such occasions, the team relied on personal observations to build consensus regarding its interpretation of these remarks. The case study is an application of the resilience framework which sought to identify the factors of resilience in place to mitigate, adapt and recover from shocks and stressors. While it provides an understanding of how the resilience framework could be applied in a conflict affected country, such as Angola, this particular case study is not a comprehensive analysis of the Angolan state and society.

Political Subsystem

1. Exposure

The political subsystem in Angola has relatively low exposure to shocks but there are long-term stressors that could potentially trigger political shocks. In terms of shocks, the death of the current president could cause a power vacuum resulting in a potential conflict over his succession and the transfer of power. There is also a risk of loyalties being split between the president's current entourage and an opposing faction backed by the military.

Angola is also exposed to a range of stressors. Overall, perceptions of corruption in all levels of government undermine the legitimacy of the administration. The youth population, who did not experience the war, is less weary of the consequences of conflict than older generations and they are more vocal in calling for change and demonstrating it through civil unrest. Finally, Angola is experiencing demographic changes through a burgeoning youth population, who is increasingly dissatisfied with the government's inability to curb rising inequality, patronage and corruption. This could potentially escalate political unrest.

2. Factors of Resilience

The government has strong institutions that are able to enforce its authority throughout the country. The MPLA as a political party is active and well organized. For the most part, government and local authorities are accepted as legitimate. The government has been able to carry out elections on a national level, which apart from isolated events, have been generally accepted by the population. The government is highly centralized around the president who effectively rules by decree. There is no effective system of checks and balance. There are no local elections and administrators are appointed centrally. Representatives are accountable to the national government, not to the communities. There is a recently approved constitution that guides state-society relations but is not yet in full effect. The constitution in theory outlines the procedure of the presidential succession. However, a worrisome factor is the perception that approval of the constitution was achieved through co-optation and in extreme cases under duress.

Available political resources include high revenues from extractive industries, publicly owned media outlets and decentralized governance mechanisms such as communal, municipal, and provincial administrations. On national level, the government has access to immense revenues from extractive industries at its disposal to implement its public policies. It also has the means to disseminate political messages and propaganda to the population through several publicly owned media outlets. Decentralized governance structures include local councils both in rural and urban areas that meet on a regular basis and provide a means for a feedback mechanism. In addition, the government has been successful in integrating traditional leaders (Soba) into the formal government structure. On the community level, the Soba's authority is generally uncontested and he serves as a liaison for the government locally.

Performance and capacity of civil service is generally considered low. Although the government employs foreign consultants and advisors to provide technical and capacity training to civil servants, there is still limited capacity in the civil service to formulate and develop effective

public policy. While ministries in Luanda attract more capable civil servants, capacity is significantly lower in provincial and municipal administrations.

Government is perceived both in rural and in urban areas to make many promises but it is ineffective in delivering them. The government is open to hearing and possibly incorporating new ideas from civil society as long as they are not direct criticisms of the political structure. However, there is a perception that there is no government accountability to its citizens and transparency at all levels is low. Although the government is attempting reform, such as decentralization, it is inhibited by endemic corruption.

Ultimately, given the collective trauma of the civil war, Angolans are weary of discussing politics. Generally people are hesitant to publicly address politics; however, in urban areas, citizens are more politically engaged and willing to discuss their political views. The more educated urban youth, too young to have suffered the traumas war, are more vocal and ready to call for change. The government is aware of the consequences of potential conflict and has promoted an active campaign to highlight and raise the value of peace. A political narrative regarding the importance of peace is disseminated as a precursor to any and all development and is incorporated in the national dialogue.

3. Resilience Assessment

The initial analysis suggests that while there is relatively low exposure to severe political shocks, the political subsystem is exposed to on-going stressors such as corruption and the future ability to successfully transfer power in case of power vacuum. The future resilience of the political subsystem will depend on whether political institutions, resources, and adaptive facilitators in the subsystem are able to mitigate such stressors. That said, the political subsystem is currently relatively resilient because institutions are strong and significant financial resources are available.

Security Subsystem

1. Exposure

The security subsystem in Angola is exposed to relatively few shocks and stressors and has been considerably stable since the 2002 peace treaty. It is possible that competing political loyalties and rivalries within the security forces could become more divisive should political competition become more intense, for example in the case of a power vacuum. In addition, there is a risk of violent protest given the country's burgeoning youth population, poverty and dissatisfaction over wealth distribution. The country also sits geographically in a historically unstable region with porous borders and a risk of spillover violence from the Democratic Republic of the Congo. Security stressors such as crime, black market activity, and domestic violence are present within Angola and are particularly serious in Luanda.

2. Factors of Resilience

The security institutions in Angola primarily concern the police forces and judicial institutions. The military have a low public presence and involvement in communities.

Police are mostly present in urban areas and absent in rural communities. They are perceived as fairly legitimate and generally called upon to manage security issues. There is no informal policing; however conflict is often managed through informal means within rural communities. There is a notable lack of judicial capacity and the official judicial system is largely inaccessible to most Angolans. The judicial system is not independent of political influence and is perceived to be biased toward Angola's elite. This lack of judicial effectiveness is counterbalanced by informal institutions and a stronger desire for stability over effective judicial resolution.

Angola has an adequate level of security infrastructure, maintaining well-equipped and functioning police and military forces. Noticeable, however, is a lack of training and human capacity to manage more specialized and complex security issues such as those relating to black market operations, smuggling, and domestic violence.

Horizontal networks to manage conflict are mostly present in rural communities, but vary in effectiveness due to a deficit of trust resulting from Angola's long civil war. Rural communities are effective in restraining violent conflict through informal institutions but less so in resolving the underlying conflict. This mechanism results largely from a strong fear of violence and a return to civil war. The civil war is not discussed with the younger generation who have little knowledge of it, and is not included within the country's education syllabus. Maintaining peace is a priority for the government and for the security institutions.

3. Resilience Assessment

Our initial analysis suggests that a combination of low exposure to severe security shocks and stressors, and relatively adequate security institutions, resources and adaptive facilitators to confront them, make the subsystem reasonably resilient and a current low priority for resilience building.

Economic Subsystem

1. Exposure

The economic subsystem in Angola is exposed to various shocks and stressors. Government revenue is primarily derived from extractive industries; the economy relies heavily on imports; and a large portion of the population works in agriculture to sustain their livelihoods. Thus fluctuations in international oil prices, exchange rates, crop failure, and supply chain issues are severe potential shocks for the Angolan economy. Stressors include a lack of market information, poor market access, price volatility, inflation and poverty, particularly in rural areas.

2. Factors of Resilience

Formal economic institutions in Angola are typified by a lack of capacity, although the Ministry of Finance is recognized as one of the most efficient ministries. In the rural economy, formal

institutions are largely absent and non-responsive to community needs and informal structures dominate. The formal institutions are perceived as corrupt and suffer from bureaucratic delays.

There are few economic resources among the majority of the population who rely heavily on subsistence farming and informal micro-businesses. In contrast, the Angolan government has substantial economic resources at its disposal in the form of Chinese loans and natural resources, such as oil and diamonds. This revenue has been used to improve the country's infrastructure to a degree, however significant revenues have been funneled into white elephant projects such as sports stadiums and uninhabited cities. A large proportion of the state's revenue is also channeled into the state run operations with significant private interest. The IMF noted that between 2007 and 2010, as much as \$32 billion dollars of the state's money was not accounted for correctly,⁸⁸ and the state has long been accused of mismanaging the oil revenues.⁸⁹

There is very little diversification in economic resources, with little opportunity for employment outside of agriculture and informal microenterprises. Microenterprises are mostly informal small roadside vendors who typically sell low-value, non-perishable, and often imported products such as confectionary, mobile recharge cards and other trinkets. Micro-businesses and agricultural workers have very little economic knowledge and the production and commercial sectors suffer from a deficit of human capital. There is an overall absence of formal regulation regarding land distribution. In rural communities, the Soba manages land allocations, with some households having access to more favorable land in dry seasons than others. In addition, the absence of property deeds impedes rural communities from using land as a source of collateral for banks when applying for credit.

The adaptive facilitators in the economic subsystem vary among communities. Both the rural and urban sectors suffer from weak horizontal networks outside of familial relationships, largely through a lack of trust and communication as a result of the civil war. There is less cooperation and sharing of economic resources among communities and their members. Numerous traditional cultural practices and behaviors incur a significant economic burden on communities, including those related to marriage and funerals. There are rigid expectations of gender roles that lead to a heavy economic burden placed on women.

3. Resilience Assessment

Initial analysis suggests that there is relatively high exposure to shocks and stressors, such as crop failure, extreme poverty, and supply chain issues, in the economic subsystem. The lack of effective and responsive formal economic institutions, human capital, and diversity in economic resources provides few mechanisms for communities to mitigate, adapt to, and recover from economic shocks. As a result, the economic subsystem is a high priority for resilience

Social Subsystem

1. Exposure

The social subsystem in Angola is exposed to several shocks and stressors that could potentially disrupt the delivery of public services. Inadequate preventative measures or hygienic practices

could lead to a disease outbreak in one or more areas of Angola. There is also a risk of water sources becoming unavailable, either due to drought or a sudden malfunction in water distribution networks. It is possible that certain communities could lose access to education; for example, a natural disaster could disrupt a community's access to school buildings.

Angola is also exposed to a range of stressors. Overall, communities experience unpredictable service delivery. They have difficulties in accessing consistent and quality education, as well as clean water and electricity. Certain communities lack access to food distribution networks, and experience malnutrition and food insecurity. Finally, Angola is experiencing population growth, which has the potential to further strain the government's ability to provide services for its population.

2. Factors of Resilience

The public service delivery institutions in central and urban Angola concern the Ministries of Health and Education, as well the provincial governments, municipal governments, and local administrations. The national government is said to lack a vision for an overall provision of services. This can in part be attributed to the challenges the government faces in building a state after conflict; the civil war left public infrastructure in ruins. The government provides the municipalities with funding for services, and depends on the local administration to implement delivery. There is little oversight over the local administration's distribution of funding and services, which has led to inconsistent service delivery. Overall, there is a lack of capacity within governmental institutions to identify community needs and provide for them with consistent and timely service provision. While the government is viewed as the primary legitimate provider of services, communities are becoming frustrated with inconsistent service delivery. This frustration is exasperated in urban communities, where disparities in wealth throughout the city are severe.

While physical infrastructure for service delivery is available, including school buildings and health posts, the facilities lack the supplies and human resources necessary to fulfill their functions. For example, in rural areas there are health posts that lack medicines, vaccinations, technology, and doctors. The lack of medical supplies has been attributed to logistical problems and weak distribution networks. When villagers need urgent medical attention, they are forced to travel long distances to the municipality. While schooling is available, in most rural areas, children attend schools until approximately sixth grade. A national curriculum is present but the quality of education, particularly in rural areas, is perceived to be lacking. Instructors often teach multiple subjects in which they do not have the expertise due to a lack of teaching staff. Access to clean water is also inconsistent. In rural areas, the government does not provide water pumps in every village, resulting in competition between communities for proximate water sources. In Luanda, water infrastructure is available, but malfunctions regularly. The water distribution system in Luanda is over-tapped due to excessive population growth. This has led the population to establish parallel structures, such as private water distribution networks, which are expensive and potentially unsafe to drink. Overall, resources are allocated to service delivery, but these resources are not distributed effectively or efficiently.

Family networks are relatively strong in Angola and information and practices are passed down through generations. This is particularly true for women, who are responsible for the bulk of

household responsibilities. The practices passed down from mother to daughter can impact the health and growth of a community. For example, there is a perception that women should have children early in life, and family planning education is not accepted in many communities. Additionally, some women do not breast-feed for more than two weeks after giving birth and feed their infants solid food. In terms of education, the government consults teachers, students, and traditional authorities every few years in order to improve the national school curriculum. Schooling is seen as an added value in most communities, however male education is prioritized in certain situations.

3. Resilience Assessment

Initial analysis suggests that the social subsystem is exposed to frequent health shocks and is highly exposed to on-going stressors. The social institutions, resources, and adaptive facilitators in the subsystem are inadequately prepared to help mitigate, adapt, and recover from shocks and stressors. This creates a social subsystem that is relatively not resilient and a high priority for resilience building.

Environmental Subsystem

1. Shocks and Stressors

Angola is prone to several natural hazards, including erratic rains leading to droughts and floods, severe storms, and mudslides. The main agricultural area, the central plateau, has been particularly exposed and affected by drought. In terms of man-made shocks, offshore oil spills have occurred several times, and contributed to pollution and degradation.

Deforestation and environmental degradation are major stressors for communities in Angola. During the conflict, significant deforestation occurred, and until today, logging is an alternative livelihood source in many rural areas. With climate change leading to more frequent droughts, floods and a hotter climate, water scarcity has become a major issue. The groundwater levels in Angola are naturally very low, making it more difficult for communities to access them. In terms of fauna, most wild animals were killed during the war, and overfishing remains a serious issue.

2. Factors of Resilience

The main environmental institutions in Angola relate to its relevant ministry. The ministry of environment has been very active in pushing through a broad spectrum of environmental legislation. However, the institution lacks capacity and high-level political support due to the fact that environmental issues are not perceived to be a current governmental priority. Environmental rules and regulations are not promoted in public and are rarely enforced. There are no informal institutions for environmental protection and sustainability. The ministry and communities have not developed early warning or emergency response mechanisms to environmental shocks.

Angola has ample and diverse natural resources in terms of land, vegetation and water. Although population is relatively small when compared to the size of the territory, resource scarcity is a problem because resources are not allocated efficiently or managed well. Most of the population lives in Luanda and the central highlands region. In Luanda, many natural resources have been

significantly depleted. Despite being designed for a small population, the city has rapidly expanded, posing major environmental challenges such as soil degradation, waste and pollution. Water supply is also a major problem.

Rural communities usually have access to more environmental resources, however there is an overall lack of knowledge and awareness about environmental sustainability and protection. Experts and extension workers who help to spread environmentally friendly agricultural practices and technologies are not present.

In terms of adaptive facilitators, communities appear to have only little innovative capacity to deal with environmental shocks and stressors over time. For example, in certain communities, houses are frequently damaged by strong winds, yet it is apparent that there is little innovation in their repairs. At the same time, communities usually do not record details of environmental shocks, leaving them rather unprepared for future shocks.

3. Resilience Assessment

The environmental subsystem in Angola is exposed to many shocks, with drought being the most prevalent. In addition to shocks, there is also high exposure to environmental stressors such as land degradation. There is very little capacity to mitigate, adapt and recover from shocks and stressors, making the environmental subsystem relatively not resilient. Its shocks and stressors should be addressed cross-sectorally since they often trigger shocks in other subsystems.

Conclusion: Case Study Angola

Angola was selected as a case study to apply the resilience framework because it is a post-conflict state that is seeking to rebuild its political, economic, and social infrastructure, and move forward from its conflict-afflicted past. Since 2002, Angola has been successful in ensuring peace, building governance structures and fostering economic growth; however, its subsystems remain highly exposed and vulnerable to shocks and stressors that are in part due to the conflict. The application of our framework sought to field test our approach, identify local response mechanisms, and analyze their capacity to add to or detract from resilience.

A significant finding while applying the approach was the critical importance of adaptive facilitators within communities to respond to shocks. Adaptive facilitators such as norms and networks can significantly add to or diminish the capacity of a community to respond to a shock. For example, if a community has a network such as an association that enables it to apply for micro-credit to buy seeds or fertilizers to survive a drought, then that community will be able to withstand the shock better than a community whose response mechanisms are left largely to the isolated actions of individuals. A thorough analysis of the adaptive facilitators is important to determine the intervention, if any, necessary to build resilience. In some instances communities can mitigate shocks without the need for outside intervention. For example, due to a community's innovative capacity in Benguela, it was able to treat malnutrition by producing its own version of a nutritional substance "plumpynut" with local resources.

Ultimately, the initial analysis suggests that the political and security subsystems are currently relatively resilient. Both these subsystems have relatively stronger and more legitimate institutions, extensive resources, and networks, values and behaviors that enhance their resilience. The economic, social and environmental sub-systems are exposed frequently to shocks and stressors and are relatively less resilient. The economic subsystem suffers from few and less-diverse resources and weak market institutions in key industries such as agriculture. In the social subsystem, the public service institutions are only marginally effective, there are few resources available to communities, and certain adaptive facilitators, such as customary nutrition practices further detract from resilience. The environmental subsystem is exposed to frequent shocks and stressors that its institutions are unable to manage. Although there are various programs that could potentially help mitigate shocks within the environmental subsystem, such as early warning systems, priority should be given to both the economic and social subsystems where environmental shocks are most likely to diffuse into and cause greater impact on communities. For example drought, as an environmental shock, can have the most effect on communities by causing economic and social shocks such as crop destruction and disease. The economic and social subsystems in Angola are therefore a high priority for resilience building.

While helping to increase institutional capacity and resource availability, the importance of adaptive facilitators highlights the value for USAID to continue to strengthen community networks through programs that address trust broken by conflict and promote values and behaviors that enhance resilience.

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