



UNITED NATIONS  
UNIVERSITY

**UNU-CPR**

United Nations University Centre for Policy Research  
Background Paper  
October 2016



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# Fragility, Risk, and Resilience: A Review of Existing Frameworks

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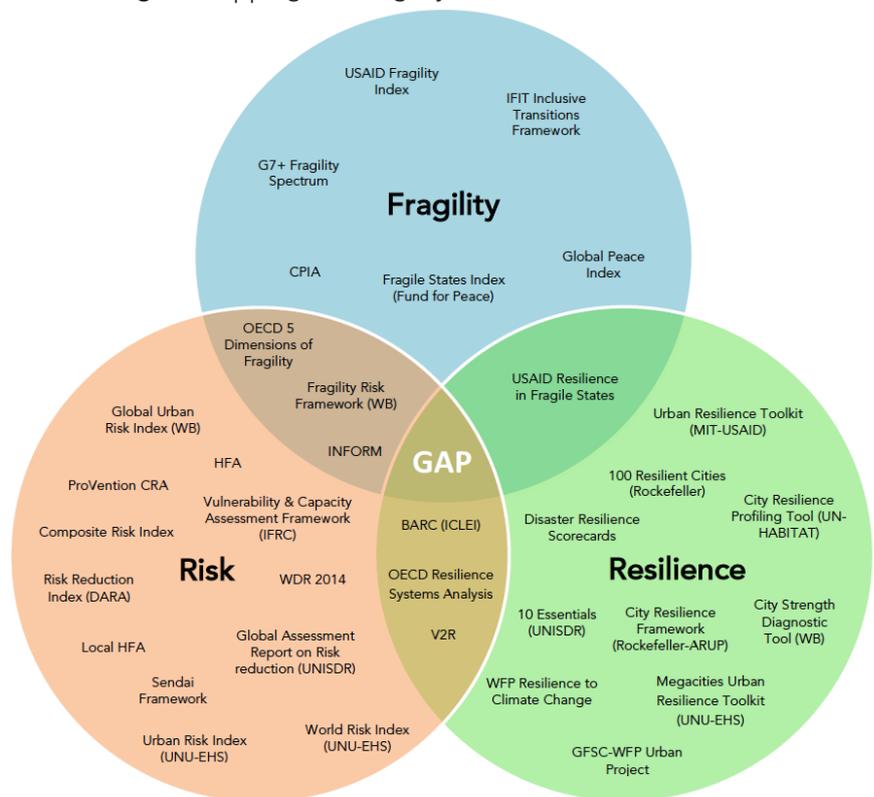
This background paper presents the findings of a review of 35 frameworks that are increasingly being used by the international community to assess fragility, risk, and resilience. It was produced to support the development of a conceptual framework to assess the extent of fragility and resilience in cities, as part of a broader project initiated by UNU-CPR in 2015. Our review finds an important gap in existing approaches. Fragility continues to be analyzed predominantly from a state-centric perspective, with a focus on state institutions, while resilience is largely viewed through the prism of disaster risk reduction with little emphasis on the political and institutional dimensions of risk. This suggests the need for frameworks that re-conceptualize resilience and fragility in an integrated way to help policy-makers better assess political, economic, social and environmental risks at the city level.

**INTRODUCTION**

Today, over half of the world’s population lives in cities and by 2050 city-dwellers are expected to account for two-thirds of the global population, or an estimated 6.4 billion people.<sup>1</sup> As the world continues to urbanize, natural disasters, economic shocks, and outbreaks of violence will increasingly affect populations in cities, potentially making cities more fragile.<sup>2</sup> Sitting on the frontline of global emergencies, cities are actively searching for ways to cope, adapt, and bounce back. Recognizing the mounting challenges facing cities around the world, a large number of frameworks proposing ways to measure, manage, and mitigate risks have emerged. This paper reviews 35 such frameworks with the objective of identifying key lessons that will enable cities to have a better sense of the dynamic risks and protective factors they face, based on existing evidence and data.<sup>3</sup>

The review included *frameworks* (conceptualizing fragility, resilience, and risk, with a view to integrating these concepts into project planning and assessment exercises), *indices* (which are geared towards measuring quantitatively these concepts through the use of metrics and indicators), and *tools* (designed to help practitioners and policy makers assess vulnerability and build resilience through a series of practical instruments). The frameworks, indices, and tools reviewed here were developed by a range of actors including international organizations, national and local governments, non-governmental organizations (NGOs), research organizations, foundations, and the private sector (see Annex 1 for a full list). They are produced for a wide range of actors, from local governments to international organizations and humanitarian aid organizations involved in crisis response, as well as the general public. While our review examined frameworks, tools and indices, in this paper we are using the

Fig. 1: Mapping risk, fragility, and resilience frameworks



word “framework” to encompass all these categories. Each framework was analyzed from the following perspectives: purpose, audience, scope, unit of analysis, methodology, key indicators, strengths, and limitations. They were specifically assessed for their applicability to the city level, and relevance to assessing risks and protective factors in fragile and conflict-affected settings.

Figure 1 groups the 35 frameworks reviewed according to their primary area of emphasis (i.e. fragility, risk, and/or resilience). It should be noted that each of these frameworks were developed for different purposes and as such are not easily comparable.

Our key finding reveals an important gap in existing approaches: no framework covers risk, fragility and resilience in an encompassing way. This suggests the need for

frameworks that re-conceptualize resilience and fragility in an integrated manner to help policy-makers better assess political, economic, social and environmental risks at the city level.

Fragility continues to be analyzed predominantly from a state-centric perspective, with a focus on state institutions, while resilience is largely viewed through the prism of disaster risk reduction, with little emphasis on the political and institutional dimensions of risk. The result is an inability to understand the multidimensional risks facing cities today and a lack of guidance on how fragility, risk, and resilience interact to shape the realities in which the majority of the global population lives today.

The sections below further analyze these frameworks, indices, and tools according to their **definitions** of fragility, risk, and resilience; the **dimensions** and key variables that they use; the **strengths and limitations** of each approach; and their **implications** for addressing the interlocking and multidimensional threats facing populations today.

## Fragility Frameworks

While a wide range of frameworks that assess fragility have emerged over the past decade, by and large they have been focused at the state level and are biased towards analyzing the capacity of the state to deal with threats that are largely political, social, and economic in nature.

### A. Definition

There is no set definition of a 'fragile state'. However, most common approaches refer to the *ability and willingness of a state to carry out its basic or core functions<sup>4</sup> to meet the needs and expectations of its citizens.*<sup>5</sup> Most scholars have focused on assessing the volatility of state institutions to political shocks.<sup>6</sup> Nevertheless, there is an increasing tendency to examine the vulnerability and susceptibility of states to shocks induced by economic and environmental factors.<sup>7</sup> One major development in recent analyses includes the shift from focusing on 'fragile states' (examining the state itself) to looking at the state-society relationship and developing a more nuanced analysis that talks about 'situations of fragility'.<sup>8</sup> This approach recognizes that pockets of fragility can exist even where state capacity is largely considered solid.<sup>9</sup> Despite this evolution in thinking, the various dimensions of fragility remain largely state-centric with a primary focus on assessing the failure of institutional mechanisms to deliver core functions.<sup>10</sup>

### B. Dimensions

Scholars have identified a number of dimensions of fragility as well as a variety of ways to map them.<sup>11</sup> Early analysis focused on two dimensions to assess the extent of a state's fragility: the *legitimacy* and *effectiveness* (capacity) of a state.

Some frameworks continue to use this approach to measure fragility.<sup>12</sup> More recently *authority*, *capacity*, and *legitimacy* have been considered as the main dimensions of fragility,<sup>13</sup> although definitions vary in terms of their specificity. For example, *authority* has been defined as the control of violence by the state<sup>14</sup> and more specifically as the state's ability to enact binding legislation, exercise coercive force over its sovereign territory, provide core public goods, and provide a stable and secure environment for its citizens.<sup>15</sup> *Capacity* has been defined as the state's ability – or failure - to provide basic services to all citizens,<sup>16</sup> and its potential to mobilize and employ resources towards productive ends.<sup>17</sup> *Legitimacy* has been narrowly defined as the state's claim to be the only legitimate actor and to enforce generally binding rules,<sup>18</sup> to a broader interpretation in which legitimacy extends to electoral democracy, as well as civic and human rights protections.<sup>19</sup> In addition to these more common dimensions, other scholars have added *security*<sup>20</sup> and *welfare* (as a measure of economic and social development<sup>21</sup>) as important characteristics of fragility.<sup>22</sup>

There has also been a shift from examining fragility as a static and institution-based condition to one that considers the *social cohesiveness of society* or the dynamics of how individuals and groups interact with each other and the relationships that form out of these interactions that lead to fragility.<sup>23</sup> This approach considers fragility on a continuum with societies experiencing "extreme state failure and violent conflict at one end and varying degrees of fragility at other points along the continuum."<sup>24</sup> This implies that pockets of fragility can exist even in non-fragile states. Most recently, in an effort to overcome the one dimensionality of defining a 'status' of fragility, fragility has been examined through a risk lens in an effort to understand the nature of risks affecting fragile situations (as noted below in the section on Risk Frameworks).<sup>25</sup>

Other methods map the varieties of fragility in terms of degree and duration.<sup>26</sup> The degree considers a country's fragility overall and across each dimension, while duration considers whether a state is chronically fragile, or is only temporarily fragile as a consequence of certain shocks such as a terrorist attack. The ability to identify the degree and/or duration of fragility can help shape interventions, priorities and opportunities for sequencing. This lens may also be useful for assessing fragility in cities.

### C. Strengths and Limitations

One key development in the literature is the shift from understanding fragility as a static condition to one that considers it across a spectrum of conditions. Examples include the multi-dimensional approaches of the OECD's 5 Dimensions of Fragility, the G7's Fragility Spectrum and the World Bank's Fragility Risk Framework.<sup>27</sup> Such approaches move away from focusing on the political, social and economic dimensions of fragility to consider other risks and

threats. Nevertheless, they are still dominated by institutional and state-centric analysis.

A major limitation of the fragility frameworks reviewed is the seemingly growing and all-encompassing range of dimensions of fragility, which now extend from legitimacy, authority, and capacity, to include effectiveness, security, welfare, and social cohesiveness among others. Assessing fragility based on such an extensive list of dimensions risks diluting the meaning of fragility to the point where it cannot be effectively measured or applied. Another limitation is the tendency (with a number of exceptions) to overlook the roles that informal and sub-national institutions can have in addressing/exacerbating fragility.<sup>28</sup> Furthermore, while some frameworks include both quantitative and qualitative data, there is a general lack of transparency in terms of the methodology and metrics used in defining a fragile state. The lack of robust and available data is another key challenge.

#### D. Implications

The recent adoption of a more nuanced and spectrum-based approach to understanding fragility beyond a static condition is a positive development. The recognition that pockets of fragility can exist in otherwise non-fragile countries is also useful. In terms of measurement, the dimensions of legitimacy, authority and capacity of institutions may be adaptable to the city level, but more work will have to be done to determine whether social cohesiveness and cross-group collaboration can and should be considered meaningful attributes of fragility. Consideration should also be given to the difficulties in measuring all of these dimensions at the local level.

#### Risk Frameworks

While risk reduction and management frameworks have been mainly developed in the areas of natural hazards and disaster,<sup>29</sup> they are increasingly being used in other spheres. In recent years, a wide array of development, humanitarian, and security actors have integrated a risk perspective into their conceptual frameworks and practices.<sup>30</sup> More recently, a number of studies have taken risk management as an entry point for operationalizing and measuring resilience,<sup>31</sup> as well as for assessing the multidimensional aspects of fragility.<sup>32</sup>

#### A. Definition

The concept of risk is usually defined as “the combination of the probability of an event and its negative consequences”.<sup>33</sup> The frameworks reviewed differentiated between *risks* (the likelihood of suffering harm or loss from an event), *shocks* (the negative materialization of risk), and *stresses* (longer term trends that increase vulnerability to shocks). In addition, some frameworks such as the 2014 World Development Report (WDR), differentiate between “systemic risks” which impact large groups of people (e.g., natural disasters, pandemics,

financial crises) and “idiosyncratic risks” which affect specific individuals and households (e.g., losing a job or experiencing illness). The OECD Resilience System Analysis focuses on shocks and takes into account long-term trends (“stressors”) such as climate and demographic change, economic marginalization, and insecurity.

#### B. Dimensions

These frameworks usually identify several dimensions of risk. While they do not all include the same variables, they tend to conceptualize risk as a combination of: 1) *exposure* to certain hazards, shocks, and stresses; 2) *vulnerability* of populations to these shocks and stresses; and 3) the *capacity* of a system<sup>34</sup> to prevent, react, and adapt to these risks.

The *exposure* component refers to the probability of physical exposure to specific hazards (which can include natural hazards but also man-made ones such as conflict and violence, or long-term stresses such as urbanization, pollution, market fluctuations, electoral cycles, etc.<sup>35</sup>). While most risk assessment frameworks focus on large-scale natural hazards (such as earthquakes, tsunamis, floods, and cyclones), [research](#) has shown that cities are also exposed to local slow-onset and small-scale disasters (such as droughts).

*Vulnerability* refers to the unequal ways in which individuals, communities, and groups are affected by shocks and hazards. Some are more likely to be impacted than others, depending on the social, economic, environmental, and political conditions that determine the intensity and damage likely to be caused by a particular hazard.<sup>36</sup> Indicators of vulnerability at a city level usually include measures of economic development, the distribution of resources, and the degree of inequality within a particular location. Other indicators typically include measures of service delivery, the geographical distribution of the city population (including factors such as housing in vulnerable locations such as coastal areas, populations living in slums, and informal settlements) and the presence of vulnerable groups (e.g., refugees, internally displaced persons, elderly, children, or ethnic or political minorities).<sup>37</sup>

Most risk management frameworks also refer to the *capacity* of a system to *withstand*, *respond* to, and *prevent* these shocks and their likelihood of turning into disasters or large-scale humanitarian crises. They usually assess the capacity to prepare for risk (e.g., through protection and insurance mechanisms<sup>38</sup>) and the ability to cope afterwards (e.g., by mobilizing resources and savings and developing knowledge).<sup>39</sup> “Capacity” usually refers to the strengths and resources available within a community, society, or organization that can mitigate the level of risk or the effects of a particular shock. This includes actions taken to minimize exposure to shocks and stresses and can include both preventive measures and coping capacities (also sometimes referred to as “absorptive capacity”<sup>40</sup>).

Some frameworks add another dimension: the ability to adapt and/or transform.<sup>41</sup> These tend to focus on longer-term efforts in areas such as education, gender equity, and environmental management,<sup>42</sup> as opposed to short-term coping and preventative mechanisms, including disaster preparedness and early warning systems.<sup>43</sup> This adaptive/transformational capacity is often used interchangeably with the term “resilience” and its outcomes can be either positive or negative.

### C. Strengths and Limitations

A risk-based perspective provides a systematic approach to identifying and assessing the nature, scope, and impact of a wide range of threats. Risk frameworks focus not only on one-off events but also increasingly look at deeper, longer-term problems (including “stresses”) that must be planned for. This creates opportunities to bring together humanitarian (usually focused on short-term, post-disaster relief and emergency response) and development responses, which tend to occur over the longer term. Recent approaches of risk management have also moved beyond reactive efforts to include more preventive approaches – in essence steps that enhance resilience before a shock happens.<sup>44</sup> Another strength of the risk based approach is its application to different levels of response and “governance” of risk. The [2014 WDR](#), for example, argues that different types of risks are best managed at different levels.<sup>45</sup> For example, while households might be able to deal with small-scale risks relatively independently, when faced with large-scale systemic risks, other actors need to step in. These other actors can include local and national governments, the private sector, and sometimes – especially in fragile and conflict-affected settings – the international community. This is an important take-away when considering how resilience is also a product of collaborative relationships among actors responding to a risk/disaster.

One of the limitations of these frameworks is that they tend to adopt a very technical approach to risk management, focus on environmental and economic risks, and pay insufficient attention to the political dimensions of risk, especially in fragile and conflict-affected settings.<sup>46</sup>

### D. Implications

Risk frameworks are valuable as they shed light on the nature of risks and stresses that populations face. Understanding risk not only as the probability of an external event but also as the negative consequences shaped by political, socio-economic, geographic and demographic factors is particularly relevant for this project. Comprehensive frameworks should integrate political risks in their assessments. Another important perspective put forward by risk frameworks is the need to be specific about what kind of risk policy-makers need to build resilience to<sup>47</sup> and who they need to focus on when building that resilience.<sup>48</sup>

## Resilience Frameworks

The concept of resilience has flourished in recent years, from its early use in engineering and material sciences to the fields of psychology, economics, ecology, and more recently in international development and even peacebuilding.<sup>49</sup> The United Nations 2030 Agenda for Sustainable Development repeatedly refers to resilience as a key concept for sustainable development.<sup>50</sup> A growing body of literature from multiple disciplines is beginning to adopt the notion of resilience.<sup>51</sup> As a result, our understanding of resilience has evolved and matured.

### A. Definition

As with fragility, there is no agreed definition of resilience among scholars and researchers. However, some key elements can be drawn from existing research and the frameworks examined.<sup>52</sup> Resilience is generally understood as the ability and capacity of individuals, organizations, and structures (including cities) to cope, adapt, and recover from shocks and stresses, in a way that reduces the overall vulnerability to similar shocks and stresses in the long term.<sup>53</sup> Yet, resilience is more than just the opposite of being vulnerable.<sup>54</sup> Rather, it is often referred to as the capacity to “bounce back better,”<sup>55</sup> which places emphasis on the capacity to learn from past experiences and improve (even transform) institutions and systems. From this perspective, resilience strategies reach beyond mere survival.

At the city level, resilience has been defined as “the capacity of cities to function, so that the people living and working in cities – particularly the poor and vulnerable – survive and thrive no matter what stresses or shocks they encounter.”<sup>56</sup> For this reason, resilience is often understood as a process-oriented, proactive (rather than reactive), and reflective method of decision-making. Resilience takes place over a long timeframe,<sup>57</sup> rather than being a short-term outcome, or an end state that can ever be fully achieved.<sup>58</sup>

### B. Dimensions

Our review found that many frameworks focused on assessing resilience to natural disasters and environmental threats, such as climate change (see for example: WFP Resilience to Climate Change, BARC ICLEI, UNISDR Disaster Resilience Scorecards and Ten Essentials). However, other frameworks<sup>59</sup> adopt a more general and multidimensional approach to resilience and assess the capacity of institutions and individuals in several sectors of society to withstand a variety of shocks. In terms of city level analysis for example, the World Bank City Strength Diagnostic Tool analyzes resilience in a wide variety of areas or sectors, including community and social protection, disaster risk management, education, energy, environment, health, information and communications technology, local economy, logistics, municipal finance, sanitation and solid waste, transport, urban development,

and water. The Rockefeller ARUP City Resilience Framework assesses the resilience of a city across four dimensions: health and well-being, economy and society, infrastructure and environment, leadership and strategy. At the state level, the USAID Framework for Resilience in Fragile and Conflict Situations considers the capacity of institutions, resources, and adaptive facilitators to withstand political, security economic, social, and environmental shocks.

In addition, there are some cross-cutting qualities of each system (whether it relates to assessing the resilience of public transport infrastructure, health systems, etc.) that make them resilient. The World Bank City Strength Diagnostic tool for example highlights the importance of robustness (i.e., the strength and reliability of a system), reflectiveness (i.e., the capacity of individuals, organizations, and structures to learn from past experiences), redundancy and diversity (i.e., planning for spare capacity and back-up mechanisms), coordination, and inclusiveness (i.e., consultation with vulnerable populations and groups). The Rockefeller ARUP framework similarly has 7 qualities of resilience.<sup>60</sup> These relatively abstract dimensions and qualities suggest that resilience is a process-oriented mechanism.

### C. Strengths and Limitations

Unlike the fragility frameworks, tools, and indices, which tend to be state centric, there has been a more concentrated effort to understand resilience at the community and city levels. This was reflected in the numerous frameworks focused on the city level as demonstrated in Figure 1. Although resilience thinking is still largely based on research in the natural sciences (with a strong focus on disaster risk reduction), a number of frameworks examined, as noted above, do recognize socio-economic and political aspects of resilience. There remains, however, limited attention to conflict, violence, and poverty at the city level in these frameworks. Therefore, there are still notable gaps in our knowledge of how resilience applies at the city level. In particular, these frameworks largely overlook the ways in which political and socio-economic risks, shocks, and stresses interact and impact cities, institutions, and communities.

Another limitation relates to the lack of empirical testing of such frameworks. For example, the World Bank City Strength Diagnostic has so far been conducted in only two locations. Similarly, data is being gathered by the Rockefeller 100 Resilient Cities Initiative,<sup>61</sup> yet to date none of it is available publicly. In general, indicators of resilience appear to be largely based on a theory of change or specific cases, while empirical data remains scarce.<sup>62</sup> Further, frameworks that incorporate city-specific analysis largely focus on upper- and middle-income countries, with little, if any, attention paid to the challenges and specific limitations that local governments face in fragile and conflict-affected settings.

As a result, the validity of the diagnosis that these frameworks

produce is difficult to determine and replicate. Applying such frameworks is largely impossible for local authorities that lack resources and operate in a fragile urban environment.

### D. Implications

Our understanding of resilience has improved significantly over the years. A growing body of literature and associated frameworks, indices and tools, has broadened our assessment of what it means to cope, adapt and learn from risks, threats and shocks across political, social, economic, and environmental spheres. Existing approaches, however, often rely on a theory of change and lack solid empirical evidence. Measuring resilience on a wide scale remains extremely difficult and resource-intensive, limiting its application in resource-constrained settings. In addition, much more needs to be done to integrate a political lens into resilience thinking. Complementary approaches are required to enable authorities, even in fragile and conflict-affected settings, to readily examine key factors for which data is available and that are proven to enhance resilience.

### Conclusions

Our review of 35 frameworks, tools and indices reached four main conclusions.

1. Few frameworks (other than a number related to resilience) are applicable at the city level. In particular, fragility assessments remain essentially state-centric and pay little attention to the sub-national dimensions of fragility.<sup>63</sup> Resilience frameworks have been applied to the city level, but have paid insufficient attention to socio-economic and political aspects of resilience building, and are often difficult to apply in resource-constrained environments.
2. Few of the resilience frameworks reviewed were found to be relevant to fragile and conflict-affected settings. Resilience frameworks and tools have largely focused on cities in upper- and middle-income countries, with an emphasis on building strong formal institutions. Many of the prescriptions made are in fact unrealistic to implement for municipal authorities in fragile and conflict-affected contexts. Furthermore, resilience and fragility frameworks largely overlook the role of informal and sub-national institutions, despite their importance as a source of resilience in fragile and conflict-affected settings.
3. Although some of the frameworks reviewed did examine multiple risks, they are generally not designed to offer a comprehensive assessment of political, social, economic and environmental risks. Risk frameworks, for example, remain focused on

natural hazards and disaster risk reduction, with little attention paid to assessing risks related to conflict, violence, or poverty.<sup>64</sup> At the same time, fragility assessment tools, frameworks, and indices are biased toward political, social, and economic risks and less sensitive to disaster or climate-related risks. Similarly to most risk assessment tools, resilience frameworks tend to overlook the risk of conflict and violence and are biased towards assessing exposure to natural hazards.

4. Many of the resilience frameworks reviewed have not yet been tested empirically. This is especially true at the urban level, where data and sources of information remain very limited. In the case of fragility indices, the weighting of indicators and dimensions remains unclear and sometimes undisclosed. In terms of methodology, our review stressed the importance of adopting a mixed method approach (quantitative and qualitative, relying often on self-assessments) was stressed.

## Annex 1

## Reviewed Fragility, Risk, and Resilience Frameworks

Short Title	Organization/Author	Category	Full Name and Link
<b>USAID Fragility Index</b>	US Agency for International Development	Fragility	<a href="#">Measuring Fragility: Indicators and Methods for Rating State Performance</a>
<b>IFIT Inclusive Transitions Framework</b>	Institute for Integrated Transitions	Fragility	<a href="#">Inclusive Transitions Framework</a>
<b>G7+ Fragility Spectrum</b>	G7+	Fragility	<a href="#">Note on the Fragility Spectrum</a>
<b>CPIA</b>	World Bank	Fragility	<a href="#">Country Policy and Institutional Assessment</a>
<b>Fragile States Index (Fund for Peace)</b>	Fund for Peace	Fragility	<a href="#">Fragile States Index</a>
<b>Global Peace Index</b>	Vision for Humanity	Fragility	<a href="#">Global Peace Index</a>
<b>USAID Resilience in Fragile States</b>	US Agency for International Development	Fragility and Resilience	<a href="#">A Framework for Analyzing Resilience in Fragile and Conflict-Affected Situations</a>
<b>OECD 5 Dimensions of Fragility</b>	Organisation for Economic Co-operation and Development	Fragility and Risk	<a href="#">States of Fragility 2015</a>
<b>Fragility Risk Framework (WB)</b>	World Bank	Fragility and Risk	"Identifying Fragility and its Impact on Development" (confidential draft paper)
<b>INFORM</b>	Inter-Agency Standing Committee Task Team for Preparedness and Resilience and the European Commission	Fragility and Risk	<a href="#">Index for Risk Management</a>
<b>Global Urban Risk Index (WB)</b>	World Bank	Risk	<a href="#">A Global Risk Index</a>
<b>ProVention CRA</b>	ProVention Consortium	Risk	<a href="#">Community Risk Assessment Toolkit</a>
<b>HFA</b>	United Nations Office for Disaster Risk Reduction	Risk	<a href="#">Hyogo Framework for Action 2005-2015</a>
<b>Local HFA</b>	United Nations Office for Disaster Risk Reduction	Risk	<a href="#">Hyogo Framework for Action 2005-2015</a>

<b>Composite Risk Index</b>	University of Hamburg and International Alert	Risk	<a href="#">On exposure, vulnerability and violence: Spatial distribution of risk factors for climate change and violent conflict across Kenya and Uganda, 2014</a>
<b>WDR 2014</b>	World Bank	Risk	<a href="#">World Development Report 2014</a>
<b>Risk Reduction Index (DARA)</b>	DARA	Risk	<a href="#">Risk Reduction Index</a>
<b>Vulnerability and Capacity Assessment Framework (IFRC)</b>	International Federation of Red Cross and Red Crescent Societies	Risk	<a href="#">Vulnerability and Capacity Assessment Toolbox</a>
<b>Sendai Framework</b>	United Nations Office for Disaster Risk Reduction	Risk	<a href="#">Sendai Framework for Disaster Risk Reduction 2015-2030</a>
<b>Global Assessment Report on Risk Reduction</b>	United Nations Office for Disaster Risk Reduction	Risk	<a href="#">Global Assessment Report on Disaster Risk Reduction 2015</a>
<b>Urban Risk Index (UNU-EHS)</b>	United Nations University Institute for Environment and Human Security	Risk	<a href="#">World Risk Report 2014</a>
<b>World Risk Index (UNU-EHS)</b>	United Nations University Institute for Environment and Human Security	Risk	<a href="#">World Risk Report 2014</a>
<b>BARC (ICLEI)</b>	ICLEI - Local Governments for Sustainability	Risk and Resilience	<a href="#">Building Adaptive and Resilient Communities Program</a>
<b>V2R</b>	Pasteur, Katherine, A framework for analysis and action to build community resilience, 2011	Risk and Resilience	<a href="#">From Vulnerability to Resilience (V2R)</a>
<b>OECD Resilience Systems Analytics</b>	Organisation for Economic Co-operation and Development	Risk and Resilience	<a href="#">Guidelines for Resilience Systems Analytics</a>
<b>Urban Resilience Toolkit (MIT-USAID)</b>	Massachusetts Institute of Technology and US Agency for International Development	Resilience	<a href="#">A Toolkit for Urban Resilience in Situations of Chronic Violence</a>
<b>100 Resilient Cities (Rockefeller)</b>	Rockefeller Foundation	Resilience	<a href="#">100 Resilient Cities</a>
<b>City Resilience Profiling Tool (UN-HABITAT)</b>	UN Habitat	Resilience	<a href="#">City Resilience Profiling Tool</a>

<b>City Strength Diagnostic Tool (WB)</b>	World Bank	Resilience	<a href="#">The CityStrength Diagnostic – Resilient Cities Program</a>
<b>Disaster Resilience Scorecards</b>	United Nations Office for Disaster Risk Reduction	Resilience	<a href="#">Disaster Resilience Scorecard for Cities</a>
<b>10 Essentials (UNIDSR)</b>	United Nations Office for Disaster Risk Reduction	Resilience	<a href="#">The Ten Essentials for Making Cities Resilient</a>
<b>WFP Resilience to Climate Change</b>	World Food Programme	Resilience	<a href="#">Food Security Climate Change Resilience Facility</a>
<b>City Resilience Framework (Rockefeller-ARUP)</b>	ARUP and Rockefeller Foundation	Resilience	<a href="#">City Resilience Framework</a>
<b>Megacities Urban Resilience Toolkit (UNU-EHS)</b>	United Nations University Institute for Environment and Human Security	Resilience	<a href="#">Megacities Resilience and Social Vulnerability</a>
<b>GFSC-WFP Urban Project</b>	World Food Programme and Food Security Cluster	Resilience	<a href="#">Adapting to an Urban World</a>

## ENDNOTES

- 1 United Nations, Department of Economic and Social Affairs, Population Division. *World Urbanization Prospects: The 2014 Revision, Highlights*. 2014.
- 2 De Boer, John. [“Resilience and the Fragile City.”](#) *Stability: International Journal of Security and Development*, vol. 4, no. 1, 2015.
- 3 We have also reviewed a number of key documents and databases (Including the [Global City Indicator Facility](#), the [World Council on City Data](#), the [World Population Prospects](#) and the [UN-Habitat Urban Data](#)) which have all contributed to nurture our analysis.
- 4 According to Charles T. Call, these functions are usually defence, law and order, public health, macroeconomic management and disaster relief. See Call, Charles T. “Beyond the ‘failed state: Toward conceptual alternatives.” *European Journal of International Relations*, vol. 17, June 2011, pp. 303-326, at p. 306
- 5 For example, the Centre for Research on Inequality and Social Exclusion defines a fragile state as a state “failing, or at risk of failing, with respect to authority, comprehensive service entitlements or legitimacy” (See McLoughlin, Claire. *Topic Guide on Fragile States*. Governance and Social Development Resource Centre (GSDRC), University of Birmingham, 2012); USAID defines “vulnerable states” as those “unable or unwilling to adequately assure the provision of security and basic services and where the legitimacy of the government is in question” (See: USAID. *Fragile States Strategy*. 2009); and DfID as “those where the government cannot or will not deliver core functions to the majority of its people...” (UK Department for International Development. *Global Issues: Fragile States*. 2010).
- 6 Andersen and Engberg-Pedersen, 2008 described fragility as the ‘institutional instability undermining the predictability, transparency and accountability of public-decision making processes and the provision of security and social services to the population’, in McLoughlin, Claire. *Topic Guide on Fragile States*. GSDRC, University of Birmingham, 2012, p. 9.
- 7 A fragile state is one that is “significantly susceptible to crisis in one or more of its sub-systems” and “particularly vulnerable to internal and external shocks and domestic and international conflicts” (Crisis State Research Centre, Workshop, London, May 2006); “A fragile region or state has weak capacity to carry out basic governance functions,... lacks the ability to develop mutually constructive relations with society .... are also more vulnerable to internal or external shocks such as economic crises or natural disasters.” (OECD. *Fragile States 2013: Resource Flows and Trends in a Shifting World*. 2013, p.15).
- 8 McLoughlin, Claire. *Topic Guide on Fragile States*. GSDRC, University of Birmingham, 2012, p.10.
- 9 World Bank. *World Development Report: Conflict, Security and Development*. Washington, D.C., 2011.
- 10 Some of the frameworks, such as the IFIT Inclusive Transitions Framework do go beyond the state-society relationships to emphasize society-society relationships.

- 11 Gisselquist identifies 3 ways to map the varieties of fragility dimensions: component dimensions, the degree of fragility, the duration (history) of fragility. See Gisselquist, Rachel M. "Varieties of fragility: implications for aid." *Third World Quarterly*, vol. 36, no. 7, 2015, pp. 1269-1280.
- 12 Call, Charles T. "Beyond the 'failed state': Toward conceptual alternative." *European Journal of International Relations*, vol. 17, June 2011, pp. 303-326. See also: USAID. *Fragile States Assessment Framework*. 2005. For example, the USAID Fragility Index and Indicators uses effectiveness and legitimacy across four outcomes: social, security, economic and political to measure fragility.
- 13 Gravingholt, Jörn, et al. "Disaggregating state fragility: a method to establish a multidimensional empirical typology." *Third World Quarterly*, vol. 36, no. 7, 2015, pp. 1281-1298; Carment, David, et al. "Towards a theory of fragile state transitions: evidence from Yemen, Bangladesh and Laos." *Third World Quarterly*, vol. 36, no. 7, 2015, pp. 1316-1332.
- 14 Gravingholt et al., 2015
- 15 Carment et al., 2015. Stewart and Brown also define authority negatively when the state lacks the authority to protect its citizens from violence of various kinds. See: Stewart, Frances, and Graham Brown. "Fragile States." *Overview No.3*, Centre for Research on Inequality, Human Security and Ethnicity, June 2010.
- 16 Gravingholt et al, 2015; Stewart and Brown, 2010.
- 17 Carment et al., 2015
- 18 Gravingholt et al., 2015, noting that this more narrow definition is intended to be more useful empirically and less normative.
- 19 Milliken, Jennifer, and Keith Krause. "State failure, state collapse, and state reconstruction: concepts, lessons and strategies." *Development and change*, vol. 33, no. 5, 2002, pp. 753-774. Others also argue legitimacy includes the extent to which a government commands public loyalty to govern a region and support for its legislation and policies (Carment et al 2015).
- 20 Charles T. Call examines gaps in capacity, legitimacy and security. He considers security gaps exist where states do not provide minimal levels of security in the face of organized armed groups (Call, 2010). Milliken and Krause consider security measured in conflict and personal insecurity (Milliken and Krause, 2002).
- 21 Milliken and Krause, 2002.
- 22 Others have also included: uneven economic opportunities across social groups, elite factionalization, weakness in the security sector, and injustice and inequality as factors to be considered in fragility dimensions.
- 23 Marc, Alexander, et al. *Societal Dynamics and Fragility, Engaging Societies in Responding to Fragile Situations*. The World Bank, Washington D.C., 2013.
- 24 Marc et al, 2015, p. 2.
- 25 World Development Report, 2011 describes the 'risk of fragility' as resulting from exposure to internal and external stresses of social, economic, environmental, political and security nature and the capacity of institutions and society to manage or mitigate those stresses, while the OECD States of Fragility, 2015, identifies fragility through five dimensions (justice, violence, institutions, economic foundations and resilience) of risk and vulnerability.
- 26 Gisselquist, 2015 pp. 1273-1274.
- 27 OECD's 5 Dimensions of Fragility: OECD. *States of Fragility 2015: Meeting Post-2015 Ambitions*. OECD Publishing, Paris, 2015; The G7's Fragility Spectrum: g7+, *Note on the Fragility Spectrum*. 2013; The World Bank's Fragility Risk Framework
- 28 See Muggah, Robert. *Defining Fragile Cities*. UNU-CPR, December 2015, a discussion paper prepared for UNU-CPR's "Resilience and the Fragile City" project, where he notes that both the 2016 OECD States of Fragility Report and the World Bank's new approach to fragility focus on regional and subnational aspects of fragility.
- 29 See: International Institute for Sustainable Development (IISD) and International Strategy for Disaster Reduction (ISDR). "A Summary Report of the first session of the Global Platform for Disaster Risk Reduction (Global Platform)." *Global Platform for Disaster Risk Reduction Bulletin*, vol. 141, no.1, 11 June 2007, <http://www.iisd.ca/download/pdf/sd/yimbvol141num1e.pdf>
- 30 See for example: The World Bank, [World Development Report 2014, Risk and Opportunity: Managing Risk for Development](#), 2014.
- 31 See for example the [Index for Risk Management](#) developed by the Inter-Agency Standing Committee Task Team for Preparedness and Resilience and the European Commission; and the adoption of "early warning" systems for conflict prevention by regional and international actors such as the [European Union](#), the [OSCE](#) and the [UN](#).
- 32 Twigg, John. [Characteristics of a Disaster-Resilient Community: A Guidance Note](#). 2014; The World Bank, "Identifying Fragility and Its Impact on Development," Interim Report, Preliminary draft for internal consultation, 28 October 2015.
- 33 See UNISDR terminology at: <http://www.unisdr.org/we/inform/terminology>
- 34 A "system" is usually defined as the relationships between different elements (individuals, sectors etc.) and parts of a unit of analysis. This can refer to an infrastructure system network (e.g. a hospital), a unity of society (e.g. a city) or a unity of the natural environment (e.g. a forest).
- 35 OECD defines stresses as "long term trends weakening the potential of a system and deepening the vulnerability of its actors". OECD. [Guidelines for Resilience Systems Analysis: How to analyse risk and build a roadmap to resilience](#). 2014.
- 36 UNISDR. [2015 Global Assessment Report on Disaster Risk Reduction](#), 2015.
- 37 This is based on a review of approximately 14 indexes covering disaster risk reduction, fragility and resilience.
- 38 The literature on risk applied to disaster management and other types of shocks has been heavily influenced by financial risk management and market insurance in the 1980s and 1990s.

- 39 See 2014 World Development Report.
- 40 Food Security Information Network. [Resilience Measurement: Proceedings of the Technical Working Group Consultative Meeting](#), Rome, Italy, October 2013.
- 41 The OECD Guidelines for Resilience System Analysis include three forms of capacity: coping, adaptive and transformative (OECD, 2014)
- 42 See UNU-EHS World Risk Index and its components detailed in the [2011 World Risk Report](#).
- 43 As in the UNU-EHS World Risk Index.
- 44 Analyses undertaken in the 2014 WDR show that benefits from risk preparation exceed costs across a number of areas (such as health and natural hazards). See [2014 World Development Report](#), p.8.
- 45 The 2014 World Development Report for example identifies a continuum of 5 different systems that plays a differentiated role in risk management: the household, the community, the enterprise, the financial system, the macro-economy and the international community.
- 46 For an attempt at applying a risk management approach across key policy areas, including conflict risk, see for example Mitchell, Dr. Tom, and Katie Harris. [Resilience: A Risk Management Approach](#), ODI Background Note, January 2012.
- 47 See for example Bahadur, Aditya V., and Hilary Thornton. "Analysing Urban Resilience: A Reality Check for a Fledgling Canon." *International Journal of Urban Sustainable Development*, vol. 7, no.2, July 2015.
- 48 Bahadur and Thornton, 2015.
- 49 For a detailed analysis of the definitions and dimensions of resilience see, Patel, Ronak B., and Leah Nosal. *Defining the Resilient City*. UNU-CPR, 2016.
- 50 Patel and Nosal, 2016.
- 51 Surjan, Akhilesh, Sharma, Anshu, and Rajib Shaw. "[Chapter 2, Understanding Urban Resilience](#)" in Shaw, Rajib and Anshu Sharma (eds), *Climate and Disaster Resilience in Cities (Community, Environment and Disaster Risk Management, Volume 6)*, Emerald Group Publishing Limited, 2011, pp.17-45.
- 52 Matyas, David, and Mark Pelling, "Positioning resilience for 2015: the role of resistance, incremental adjustment and transformation in disaster risk management policy," *Disasters*, vol. 39, no. 1, 2015.
- 53 This definition is adapted from all the resilience frameworks reviewed under this category (see Figure 1 and Annex 1).
- 54 Matyas and Pelling, 2015.
- 55 Matyas and Pelling, 2015.
- 56 Definition provided in the Rockefeller ARUP City Resilience Framework.
- 57 Pendall, Rolf, Foster, Kathryn, A., and Margaret Cowell. *Resilience and Regions: Building Understanding of the Metaphor*. Working paper, Building Resilient Regions Network, 2007.
- 58 Vale, Lawrence J. "[The politics of resilient cities: whose resilience and whose city?](#)", *Building Research and Information*, vol. 42, no. 2, 2014.
- 59 Such as the USAID Framework for Resilience in Fragile and Conflict Situations, the World Bank City Strength Diagnostic Tool or the Rockefeller-ARUP City Resilience Framework.
- 60 These are: reflective, robust, redundant, flexible, resourceful, inclusive and integrated.
- 61 See: 100 Resilient Cities, 2016. <http://www.100resilientcities.org/#/-/>
- 62 Patel and Nosal, 2016.
- 63 The World Bank however is currently integrating a more dynamic and comprehensive approach adopting a fragility risk framework.
- 64 With the exception of the [Index for Risk Management](#) (INFORM) which includes the risk of natural and man-made hazards such as conflict and violence.