

Lessons Learned on Resilience

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Executive Summary

This paper sets out a number of lessons to be learned about the policy challenges associated with the resilience concept. In fact, these are more accurately described as lessons observed because they are not lessons learned until they are implemented. Consequently, this paper identifies a number of challenges for policy makers and it does so by setting those issues within the conceptual framework of a resilience continuum whereby individual nation states and civil-societies can be at different stages of resilience at any given time. Resilience is part of a complex integrated dynamic system influenced by a range of different actors and variables at any given time. The first challenge for policy makers is to understand the way policy issues are framed and, correspondingly, the way resilience is framed as part of any response mechanism to address a given policy problem.

A critical lesson is the importance of determining whom or what needs to be made resilient against what threat or risk as part of a resilience continuum. This presents a number of significant and complex decisions regarding the allocation of finite resources. Associated with this issue is the recognition that some parts of the system of a nation state or its civil society may fail or, indeed, be allowed to fail. This holds a number of ethical challenges for policy-makers. A key lesson to be learned is that by ascribing resilience as a desirable goal, there need to be clear milestones to indicate stages of achievement. Currently this is a significant omission in policy papers and implementation strategies.

This paper also highlights that by adopting the resilience concept, a greater number of actors will be involved and co-opted as part of a wider shared responsibility for its implementation. Particular attention is given to the roles of organisations, as part of the critical infrastructure sector, as potential enablers or inhibitors of resilience. This is an area that requires further research.

Policy Recommendations

- For resilience to be effective and achievable it needs to be determined who or what needs to be resilient against what threat or risk. Different levels and types of resilience may be necessary to suit different circumstances.
- Establish clear guidelines regarding the achievement of resilience milestones for civil society and the nation state.
- Map the relationship between critical infrastructure and the non-critical organisations on which it relies; and research enablers or inhibitors of organisational resilience.

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Lessons Learned on Resilience

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1. Introduction

The nature of some policy responses has been shaped by the concept of resilience and the way resilience is understood affects the way the concept is put into effect. It has been argued that policy positions rest on underlying structures of belief, perception, and appreciation. As a result, policy positions by different and contenting actors can hold conflicting frames which reflect what each count as 'fact', and which arguments are taken to be relevant and compelling (Schön/Rein 1994:23). For the purposes of this paper, policy is considered to comprise three parts: problem, participants (actors/stakeholders), and progress (response measures and implementation). Policy itself is part of a complex system: it does not exist in a vacuum but is influenced and framed by a number of internal and external variables and actors. Consequently, there is a cascading policy effect when events which occur in one policy or geographic area influence policy responses in another. This has been underscored by globalization which affects government processes and in turn, is affected by them.

The way an issue is framed, together with the influence of actors, sets the terms for policy debate, subsequent policy formulation, and its implementation. Indeed, policy framing needs to be thought of in terms of the dynamic variables of processes and the people involved as part of an integrated system. The nature of policy responses has been further complicated because resilience itself is framed and presented not only as an organising principle, but also as a desirable policy goal by the nation-state for its civil-society.

Like charisma, resilience is generally considered and promoted as an elusive yet admirable quality but one which is hard to define. Outside the disciplines of engineering and ecology, and to some extent psychology, the concept of resilience is essentially a contested one with no authoritative agreed definition. There is a tension between the concept of resilience defined in ecological science and engineering disciplines and other definitions and notions of resilience used by other disciplines and by different nation-states. For example, when used in areas of international relations and security studies, resilience is a flexible and ambiguous concept, like the concept of security itself. The concept of resilience has also been linked to Responsibility to Protect (R2P) and it has emerged in some literature associated with risk and vulnerability. Within medical literature it has been defined as "referring to positive adaptation, or the ability to maintain or regain mental health, despite experiencing

adversity” (Herrman et al. 2011:258).

Resilience is not a unitary construct but a multifaceted and diverse perspective which has been employed by scholars in both the natural and social sciences (Duit et al. 2010:363-368) and increasingly by policy-makers and political elites. A way to understand its relevance and application to a nation state and its civil society is through the notion of a resilience continuum, that is, where individual nation states and civil societies can be at different points on it at any stage. This reflects that resilience is multi dimensional and variable across time and circumstance and so should be explicit in future policies. An important lesson from this way of thinking is that different levels and types of resilience may be necessary at different times due to changing circumstances associated with different types of risks and threats. That a nation state or civil society can move along the resilience continuum adds to the challenges for political elites to determine when a state of resilience has been reached and importantly, to identify the indicators of it being achieved. Policy makers promote the active engagement of an extended set of actors including organisations, communities and individuals to achieve resilience. However, a flaw in a number of policy areas is the failure to define a point where it has been achieved. Therefore, there is an unsolved intellectual and policy issue concerning how much resilience is enough.

While there are several definitions of resilience from the science disciplines, the common characteristics of adaptability, transformation and flexibility appear generally consistent and accepted more broadly in other disciplines, within the policy arena, and by the private sector. Resilience has been described as ‘the capacity for complex systems to survive, adapt, evolve and grow in the face of turbulent change’ (US Council of Competitiveness 2006:11), and by extending this description, it is possible to extrapolate that resilience is a counter to insecurity. In this extended context, resilience addresses unknown future challenges and uncertainty, that is, the inability to know what combination of conditions will occur in the future. If the future were predictable, resilience would lose its importance because all planning would be based on a known set of conditions. But because the future is unpredictable, it is necessary to plan for a wide range of possible conditions and outcomes, including some which may be unlikely but which could result in significant harm if they are not anticipated.

2. Risk and uncertainty

There is an inevitable link between risk and uncertainty, and uncertainty can arise from exogenous shocks, unforeseeable behavioural choices, or combinations of the two. An example of this could be an unexpected natural hazard which leads to sudden unregulated population movement resulting in risk and uncertainty for the affected population. In some cases this may lead to border tensions resulting in increased risk, uncertainty, and insecurity.

The way risk is perceived and framed provides indicators for the way policy responses are framed in response to particular issues, such as in the example above.

This includes the way the notion of resilience is modified and adopted for implementation as part of policy response measures. Framing and perceptions of risk, together with its implied uncertainty and association with threat, are influencing factors which shape public policy across a spectrum of issues. For example, within the policy arena, certain risks are sometimes downplayed by influencing actors in preference to emphasising other types of risks as a means of influencing policy outcomes and, sometimes, as a form of exerting or maintaining control.

One of the challenges for policy-makers is that conceptually, resilience can be both general and specific. While general resilience refers to shocks to the system as a whole, it does not apply to a particular kind of shock or a particular aspect of the system that might be affected. Assessments of specified resilience can be focused on desirable or undesirable attributes, whereas assessments of general resilience are independent of normative judgements of desirability because it is not possible to determine all the potential disturbances or changes (Grigg et al. 2012: 54-92). General resilience also means the ability of a system, such as a nation state, to adapt to shocks while retaining its internal structure, function, feedbacks and therefore identity. In other words, as an inherent quality of all complex systems, resilience is a state of dynamic equilibrium which enables systems to grow and evolve while keeping their coherence. This is particularly relevant for a nation-state and its civil society when affected by, and dealing with, a threat arising from non-state actors or a risk from a non human source, such as climate change.

3. Resilience of who or what?

From a policy perspective it could be argued that resilience must be considered in a specific context: that is who/what to whom/what? This requires defining what functions or elements of a system are resilient to what changes (Carpenter et al. 2001). A trap for policy makers is that a system such as a nation-state and its civil society is composed of elements forming different system levels, so it can be resilient at some of the levels but not necessarily at others. In the context of a nation state this leads to consideration of who or what is to be made resilient as part of a resilience continuum.

From a normative perspective, resilience is viewed as those qualities that enable an individual, community, or organisation to cope with, adapt to, and recover from, a disastrous event. Consequently, from a policy perspective resilience implies that individuals, communities and organisations are able to reduce their exposure to risks and at the same time, enhance their ability to recover. However, a fundamental issue for policy-makers is to define who or what needs to be made resilient against who or what threat or risk, and to address the associated resource and ethical issues. While such decisions are relatively easy to address where there are tangible or inanimate objects and assets, for example, making a building resilient against fire, it is more complex when dealing with people and communities or intangible notions, such as security. To some extent this may be because policy-makers have blended two different aspects in their interpretation of the concept of resilience, namely

descriptive aspects, that is specifications of what is the case, and normative aspects, that is prescriptions regarding what ought to be the case or is desirable.

4. Resilience as part of a system

As noted at the beginning of this paper, resilience is promoted by policy-makers as a desirable state to achieve. For example, in reference to the United Kingdom's national resilience, Omand (2005:15) declared, 'resilience is therefore an undoubted public good'. However, such sweeping claims can be challenged at a number of levels, such as that resilience can also be a form of resistance. For example, dictatorships, disease outbreaks, and collapsed states can also be very resilient, that is resistant. Consequently, resilience can be a form of resistance and interpretations of it being desirable or undesirable are dependent on subjective perspectives of time and circumstances by different actors and stakeholders. As such, it can be used to promote a particular set of policy outcomes over other policy objectives, as well as influencing resource allocations. As an example, during the Cold War the Federal Emergency Management Agency (FEMA) in the United States spent seventy-five percent of its financial and human resources on preparing for nuclear war, to the detriment of state and local capacity to respond to natural and other disasters (Bullock/Haddow 2004:19-24).

A further consideration relevant for policy makers is the view that 'resilience occurs when the system continues to operate despite failures in some of its parts' (Weick/Sutcliffe: 2007:69). This raises a number of interesting points. For example, within a policy context, it implicitly suggests that decision-makers expect there to be failures of the system and that the notion of resilience is intended to contain the impact of such failures. A related consideration within the policy framework is whether some parts of civil-society will, or will be permitted, to 'fail' when faced by a threat or risk. This reflects that policy responses by a nation-state reflect the values of its civil society regarding who, or what, is to be made resilient. To a large extent the notion of identity referred to earlier, is linked to the values of a nation state and its civil society and these are also reflected in its policy approaches. In other words, the use of resilience as an organising principle as part of policy responses is driven by the values of the nation state and its civil society and, consequently, those values implicitly and explicitly drive decisions about who or what is made resilient and, those that are not. This raises a range of ethical issues which also need to be considered. For example, during an epidemic or pandemic, ethical decisions are made about who is given anti-virals and who is not.

The changing application of resilience in widely divergent policy areas has extended different perspectives on, and interpretations of, the concept of resilience and its implementation. For example, the language of resilience has been adopted within a range of operational areas such as noted earlier, in critical infrastructure, climate change, disaster management and emergency responses. Implicitly, if not explicitly, those areas are generally interconnected as part of an overall systemic framework

of which the resilience concept itself is a property and upon which the nation state and its civil society rely. Therefore, to understand the relevance of the concept of resilience in a policy environment, it is imperative to recognise that resilience is part of a complex interactive system and that resilience at one level in a system will interact with levels above and below that level and, importantly, with other influencing variables and actors which interact as part of that system.

A number of policy responses are flawed by the non-systemic assumption that a policy response will leave untouched the environment with which it interacts: 'an actor sees that an action will be in his interest, all other things being equal, and neglects the fact that the adversary is likely to react, and so things are not likely to remain equal' (Jervis 1997:584). While this implicitly refers to the security environment, it is equally relevant to all policy areas and highlights that change occurs in an interlinked way, so deliberate actions that aim to bring about a change in a specific area often lead to unanticipated, and potentially unwanted, consequences elsewhere. The Fukushima Daiichi nuclear disaster in Japan in March 2011 following the Tohoku earthquake and tsunami is an example of where the Government's decision to close all its nuclear reactors did not take into account the implications for the state's energy security. Japan has almost no indigenous energy resources and relies heavily on imported energy to support its economy and civil society. In 2010, Japan imported about ninety six per cent of its energy requirements. Almost half of Japan's energy consumption is oil and in that same year, Japan imported almost ninety per cent of its oil from one of the most politically unstable regions in the world - the Middle East. Before the Fukushima disaster, thirty percent of the country's electricity needs was supplied by nuclear power, a number which was reduced in the fiscal year 2012 to 1.7 per cent as all of the forty-eight nuclear reactors were taken offline due to safety concerns. However, in March 2014, Japan's Prime Minister Shinzo Abe announced his government's intention to reopen the nuclear plants, citing the need for an energy policy which would ensure the economy and livelihood of the people. Deforestation is another such example where the social, economic and environmental costs of deforestation were not considered as part of the initiating imperatives of economic development by different governments. Mining, advanced agriculture, and hydroelectric projects have been given priority as part of strategies to implement economic development and to increase the global position of nation states in the world economy.

The above examples underscore a policy trap and the potential lesson where the effect of a decision can have far reaching and often unintended, consequences. It highlights the importance of understanding that changes to a system occur in an interlinked way and can have unexpected results, but that attempts to change a specific area of a system can directly affect the overall resilience of a system such as a nation state, or even globally.

The importance of recognising that actions in one area have implications for another, also reflects a bureaucratic phenomenon that government departments and agencies often operate in policy silos as determined by legislative or regulatory parameters – such as health, defence, climate and energy - rather than functioning as part of a whole-of-government integrated system. The exceptions tend to be central coordinating agencies. Therefore, it is reasonable to propose that all policy development and decisions need to be considered in the broader strategic context of the

system in which they will interact and take effect.

The notion of 'building resilience' has been promoted as an organising principle by the United Nations, non-governmental organisations, and nation-states as a way to counter a range of issues from climatic events, natural disasters', and threats by non-state actors. This has led to a shift of focus onto the responsive capacities of civil-societies as part of social systems. This is where the concept of shared responsibility is relevant. This presents particular policy challenges because an increased number of actors need to be involved or co opted.

Organisations such as international institutions, can contribute directly to global resilience as well as organisations within a nation-state. An example of the latter is those organisations responsible for critical infrastructure and essential services. While the policy arena includes a large number of policies and strategies established to increase critical infrastructure resilience, they do not always extend to associated entities upon which critical infrastructure organisations rely. It also highlights that deliberate actions that alter a specific area can have unexpected or unwanted consequences in another. These points reflect that for resilience to be effective within a nation state, it needs to be a shared responsibility and to include all levels of, and actors within, its civil society.

In the context of critical infrastructure, there has been a shift from infrastructure protection to critical infrastructure resilience as an organising principle. This in turn has altered the range and number of actors and relationships which form part of the resilience continuum. This change of emphasis has occurred over the past several decades. In the 1980s, the focus was generally on the public sector, with a strong focus on transportation such as highways, air and seaports, bridges, and public transport. Then in 2001, the United States through the Uniting and Strengthening America by Providing Appropriate Tools Required to Interrupt and Obstruct Terrorism Act (known as the USA PATRIOT Act), defined critical infrastructure as 'physical or virtual systems and assets'. Their destruction or incapacity would have a debilitating impact on security, national economic security, public health or safety, or any combination of those matters. By 2006, the United States had identified seventeen critical sectors with over 77,000 individual assets listed in the Department of Homeland Security National Asset Database. In 2010, the US National Infrastructure Advisory Council produced its final report and recommendations setting out a framework for establishing critical infrastructure resilience goals. It used a definition it developed in its 2009 study where infrastructure resilience is the ability to reduce the magnitude and/or duration of disruptive events.

Although nation states have different interpretations of what critical infrastructure means, broadly they refer to the essential services on which civil society relies for its well being, particularly during times of adversity – whether caused by an intentional act, a natural event or hazard. Communities and nation states also rely wholly or in part, on organisations for non essential as well as essential goods and services which contribute to daily operations, and to a sense of security and normality. The degree and complexity of interdependency of these links form part of the overall complex system of each nation state. A number of critical infrastructure facilities and systems are dependent on organisations which are not classed as critical but which are necessary, to varying degrees, for their operational effectiveness and reli-

ability, for example food delivery. Therefore, in adverse situations, potential vulnerabilities and risks may arise unexpectedly from organisations which provide non essential goods or services, because critical infrastructure assets and systems rely on them to some extent. In effect, such a situation could affect a nation state's level of security and its resilience.

Highly interconnected and mutually dependent entities can create their own vulnerabilities and this single point of potential failure can impact the entire resilience continuum if not remedied. This point reflects the distinction between general and specific resilience noted earlier, where general resilience refers to the system as a whole and does not apply to a particular kind of shock or a particular aspect of the system that might be affected. It also highlights that concentrating exclusively on a specific resilience carries the risk of becoming less resilient in other ways. The above example underscores that strengthening or 'hardening' critical infrastructure but not doing the same for non essential but necessary goods and services on which they rely, may reduce resilience and potentially a nation-state's security and the well being of its civil-society.

Organisations are part of a wider system and have the potential to contribute to a holistic resilience continuum. Consequently, organisations have the potential to be shapers of both resilience and of security, and this role is not limited to the public sector or to those organisations which own or operate critical infrastructure (Parker 2012: 278). However, not all organisations are resilient or enablers of resilience. An example of an unforeseen vulnerability with equally unforeseen consequences is the earthquake which struck the Japanese city of Kobe in January 1995, with one of its indirect consequences being the collapse of the British Barings Bank. One of the bank's derivative futures traders in Singapore, Nick Leeson, was engaged in risky trading that relied on stability in the Japanese stock market to avoid major losses. However the Kobe earthquake caused the Nikkei Index to drop by seven percent in one week. Barings' losses escalated rapidly, in the end reaching GBP 1.3 billion. This resulted in bankruptcy for the oldest merchant bank in Britain which had financed the Napoleonic wars, the Louisiana Purchase, and the Suez Canal. This case highlights the vulnerability of the banking system's control measures, the low level of resilience of Barings Bank, and that the bank as an organisation inhibited development of the broader resilience continuum. As a result of the Barings Bank collapse, a number of changes were introduced to the financial and banking sector in Britain and elsewhere in an attempt to prevent recurrences, and to increase the resilience of the sector.

Other examples of systems failure involving organisations which are inhibitors of resilience include the 1949 Mann Gulch disaster in Montana (Weick 1993: 628-653), the 1984 chemical disaster at Bhopal in India (Shrivastava 1987), the 1986 nuclear power plant disaster in Chernobyl, Ukraine (Pidgeon/O'Leary 2000), and the Exxon Valdez oil spill in the Prince William Sound, Alaska in 1989 (Grabowski/Roberts 1996).

Where resilience is a desirable goal for an organisation, civil society, or nation state, it is necessary for it to be flexible and self organising, with the capabilities of learning and adapting as integral parts of its system. Information sharing is a component of learning and adaptability. A US government report released in 2013 fo-

cused on information sharing to help ensure that efforts to share terrorism related suspicious activity reports were effective (Government Accountability Office 2013). Greater emphasis has been placed on sharing information including with areas of the private sector as part of broader public private partnership (PPP) arrangements. For example, in Australia, PPP has been extended to sharing information. The Trusted Information Sharing Network (TISN) was reportedly established to provide an environment where business and government can share vital information on security issues relevant to the protection of critical infrastructure and the continuity of essential services in the face of all hazards. The TISN is made up of seven Sector Groups, two Expert Advisory Groups, an Oil and Gas Security Forum, and Communities of Interest. The TISN is overseen by the Critical Infrastructure Advisory Council.

In the UK, risk information is shared based on the Chatham House Rule, where information is shared on the understanding that participants refrain from discussing who gave the information and instead focus on how to address or mitigate the risk. This approach has been adopted in an attempt to dispel concerns that the information revealed will be leveraged against the entity that revealed it and enable select information on threats, risks, and vulnerabilities to be shared between the private sector and government agencies. Information sharing, the extended range of actors, and shared responsibility all contribute to resilience as an organising principle where resilience is framed as a desirable goal. However, as noted earlier, there is a repeated policy issue which is not addressed – that is, identification of when a resilient state has been achieved and the associated indicators. This omission contributes to criticism of the resilience concept, namely, that it is difficult to measure.

5. Conclusion

The above policy challenges identify a number of associated potential lessons to be learned about resilience.

A key point made in this paper is that resilience in social systems introduces the added capacity of humans to anticipate and plan for the future. This capability is particularly apposite when dealing with unexpected risks or threats, and it is in contrast to traditional responses which place a high degree of emphasis on known past strategies and responses which are largely reactive rather than anticipatory.

Within a policy context, the resilience concept is a relatively recent phenomenon and is linked to the shift from a threat based approach to the risk based one which has become the preferred approach of nation states as they have transitioned from the Cold War period. Since that time, the concept of resilience has increasingly been framed and adopted as part of a suite of policy responses which are more flexible than in the past. While resilience has been promoted by political elites as a desirable goal, examination of a number of policy documents has found that while the term resilience is used often, it is equally often not defined or explained. This

has generated a degree of confusion because of a lack of clarity about what the term means and which this paper has sought to clarify.

This paper introduced the notion of a resilience continuum whereby individual nation states and civil societies can be at different points on it at any stage. This reflects that resilience is multi dimensional and variable across time and circumstance and should be explicit in future policies. That is, different levels and types of resilience may be necessary at different times due to changing circumstances.

That a nation state or civil society can move along the resilience continuum adds to the challenges for political elites to determine when a state of resilience has been reached. Policy makers promote the active engagement of an extended set of actors including organisations, communities and individuals to achieve resilience but fail to define a point where it has been achieved. In this context, there is an unsolved intellectual and policy issue concerning how much resilience is enough.

The extent to which resilience is promoted raises a number of contentious issues which have been examined in this paper. First, resilience itself is not a normative concept but a property of a system such as a nation state. Consequently, whether resilience is desirable or not is a subjective judgement. From a normative perspective, resilience is viewed as those qualities that enable an individual, community, or organisation to cope with, adapt to, and recover from, a disastrous event. Consequently within a policy context, resilience implies that individuals, communities, and organisations are able to reduce their exposure to risks and at the same time, enhance their ability to recover.

A second contentious point relates to the issue of how much resilience is enough. Policy strategies identified to develop resilience are often presented as lists which are not explicit about whom or what is being made resilient and against what threat or risk; nor do they identify when an adequate level of resilience has been reached. This affects all levels of civil society as well as having ethical and resource implications. Resilience is promoted as desirable and good, with the implication that nation states and all elements of civil society can reduce their exposure to risks and, at the same time, enhance their ability to recover. However, the mobilizing discourse of resilience places a greater responsibility on local actors and communities. The extended range of actors also holds further challenges. While some organisations have been included in the promotion of resilience by the nation state, others appear to be overlooked. The role of organisations as enablers or inhibitors of resilience is a relatively unresearched area resulting in a further gap and vulnerability within a strategic policy framework.

Application of the resilience concept presents a range of ethical and moral issues which reflect a tension and dilemma influenced by the resilience of civil societies and their place in the global system which, in turn, is subject to change. There is a policy trap when resilience is not recognised as part of a system. This was demonstrated by the example of the closure of Japan's nuclear reactors with insufficient consideration of the wider socio-economic implications.

Overall and notwithstanding criticism of the concept of resilience as it has been adopted by policy makers and political elites, it is generally framed, perceived, and

accepted as a desirable, if elusive, quality to achieve. Its role as a foil to the vulnerabilities presented by threats and risk has also increasingly been accepted by policy makers and within civil society. Further, resilience has been used as a tool to enhance social inclusiveness through the engagement and inclusion of an expanded number of actors and organisations. It has also been linked to identity and the values of civil society which influence policy decision making to respond to non traditional challenges to security.

The way in which resilience has been interpreted and implemented has been shaped by the way different issues have been framed and, this bears directly on the question of the resilience of who or what to whom or what? Understanding the resilience concept helps answer that question and inform the way policy issues are addressed.

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