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Resilience: A Stock-Taking

Key Characteristics and Implications for Human and Societal Security Policy

Resilience has become a buzzword in today's policy agendas. Widely understood as 'bouncing back' after attacks, accidents and disruptions, the resilience concept has over time been complemented by a variety of new definitions. How should policy-makers understand the concept in formulating security policy? What are its core characteristics? And how do these characteristics relate to approaches that seek to foster resilience? This policy brief gives an overview of the different processes and properties associated with resilience, spelling out their potential implications for strategy and practice in the fields of human and societal security.

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The concept of resilience is currently shaping agendas within research, policy work and popular science, as well as humanitarian and development aid. However, the concept's broad definition prompts a need for clarification. During the past six years, the number of Google searches on 'resilience' has increased steadily, while the term 'resilience definition' ranks among the top ten queries within search categories such as 'people and society' and 'science'. Whereas some scholars and practitioners agree to abandon resilience on account of its conceptual crudeness, others continue to build theory, strategies and interventions on it. This brief asks:

- How should policy-makers understand resilience in formulating security policy today?
- What are the core characteristics of the concept?
- What are the implications for strategy and practice?

The brief gives background information on the growing popularity of resilience and explains how the concept relates to current understandings of security. The main part sets out the concept's key properties and illustrates what they could mean for strategy and practice in the fields of human and societal security.

Resilience: Why Now?

Society today is increasingly interconnected. Traffic, trade and technology have established links between individuals and societies all over the world. While digitalization has extended communication networks from face-to-face to the seemingly virtual, it has also led to an increased interconnectedness of critical infrastructure. This interconnectedness has become a central issue for security policy. European preparedness strategies, for example, emphasize the security of these connections as a condition for the continued functioning of our society.

Those who seek to understand, analyse and safeguard societal connections need to grapple with high degrees of complexity. The growing complexity of our connections complicates the assessment and control of societal environments. Through the 'domino effect', one incident in a network may cause a variety of consequences that are difficult to assess in advance. Increasing interconnectedness thus leads to a wider dispersion of threats and crises. At the same time, the effects of several disruptions may turn out to be more than just the sum of their individual parts. This means that the synergistic interactions between a number of different incidents may create effects that we have not seen before. These kinds of 'emergent disruptions' have become manifest in the language of todays' security policies, for example in the term 'emergency management'. Aiming to protect societies from disruptions, such policies have focused on the calculation of risks and policies of prevention.

However, these risk practices only work to a certain extent. Some environments and patterns of behaviour are very complex and cannot be understood well enough through calculation. In order to address unforeseeable incidents, policy approaches increasingly move from probabilistic reasoning, based on statistics and risk calculation, to scenarios that seem plausible and possible. Disruptions, which are not likely to be preventable, are met with precaution and preparedness. While precautionary policies plan for futures in which disruptions should not occur, the rising focus on abilities to mitigate damage, to respond quickly to disruption and to recover effectively takes account of the limits of prevention. Disruption cannot always be kept outside a system. Accordingly, security becomes as much a reaction as prevention. It moves from a state of protection towards an ability to deal with emergent disruption. Security has now become a process.

It is no surprise that the concept of resilience appears at this point in time. Resilience always assumes that disruption will occur or that a crisis is already taking place. Almost every definition of resilience mentions a precondition of stress, disturbance or mere change that creates a need for reaction. This need for (re)action is already reflected in the origin of the word resilience, which goes back to Latin and means literally 'to rebound'. *Resilire* describes a process of elastic return or jumping to a specific state. It does not, however, say anything about how this specific state is established.

Scholars have suggested up to five different processes that can be related to resilience: First, *preparedness*, which is planned and exercised before an emergency occurs. After a disruption has taken place, *mitigation* is the instant reaction aimed at limiting damage. *Redundancy* refers to systematic absorption of shocks and also aims at identifying information for further response plans, while *recovery* refers to the restoring of society. *Prevention* as such is seldom a part of resilience. It may be included as those efforts that are undertaken to prevent an ongoing crisis from becoming worse. Prevention can also be the *result* of a resilience process, namely when insights from one resilience process feed into the prevention of future emergencies.

Distinguishing neatly between these different processes is very difficult in practice. Not only may the terminology vary with respective policies, but some processes may also be intertwined with each other or take place simultaneously. Most importantly, resilience is not only instigated once each of the different processes has taken place. Resilience is also performed when mitigation strategies were successfully put into action or redundancies have served their purpose.

Core Characteristics of Resilience

Processes of preparedness, mitigation, redundancy, recovery and prevention are well known to policymakers who deal with security issues. Yet, what resilience logics are connected to them? How are they different from each other, and how do they integrate in one consistent concept?

The following discussion is based on a comparison of over 40 definitions of resilience. It identifies the recurring characteristics of the concept, relates them to the processes described above and discusses their implications for policy.

Withstanding Shocks

Being resilient can mean many things and involve different series of action. First and foremost, it is important to acknowledge that resilience does not only apply to desirable processes *per se*. In each case, it is necessary to understand and contextualize who and what is resilient and for whom this resilience is going to create positive or negative effects. This overview can be read as a general characterization of resilience, but it will illustrate and discuss the different resilience processes and logics with regard to policies for societal and human security.

Through processes of mitigation and redundancy, for example, systems and societies seek

to *withstand* disruption in order to keep their core functions as intact as possible. This means that they are left largely unaffected by disruption. In engineering science, for example, the resilience of a system is expressed through the quantity of stress it can absorb without suffering damage. The ultimate aim is thus to maintain the status quo and improve sustainability of systems and communities over time.

One solution to enhance the mitigating effects of resilience is to increase those mechanisms in systems and communities that absorb pressure. Physical infrastructure, for example, would then include redundancies by design: dams and drainage systems raise the resilience to flooding and aim to minimize potential damage. Other approaches include the strengthening of local infrastructure solutions, as well as the maintenance and renovation of existing infrastructure. Accordingly, mitigation activities and redundancies are often *prepared* and rehearsed in advance and become active during disruption.

Community training through exercises and information campaigns is another preparedness approach aimed at withstanding and mitigating disruption when it appears. Such campaigns need careful planning so as to avoid the opposite effect, namely the creation of fear and insecurity about the future.

Developing resilience strategies of preparedness and mitigation requires an in-depth understanding of societal and systematic vulnerabilities. Devising and applying such strategies also yields potential problems. Resilience mechanisms of mitigation and systemic redundancies can reach their natural limits. The approach of *withstanding* is in itself relatively static, lacking openness and spontaneity. One can illustrate this kind of resilience with an elastic spring, which absorbs certain shocks but may break or disappear if overstrained and actual damage appears.

Recovering from Disruption

Once damage has occurred, another aspect of resilience comes into play. Resilience here means recovering from disruption. This process describes a smooth return to normality. One indicator for measuring this aspect is time. How quickly a system re-establishes itself is often used as a reference to assess its resilience. Such indicators, however, say nothing about how a system or community re-established itself, what it means to re-establish a system, and what the quality of the newly established system is.

Nonetheless, return and recover constitute the most common understanding of resilience, and refer to early recovery as well as to long-term investments. They include a wide range of activities and adjustments, such as the reconstruction of infrastructure or interrupted connections. Other examples are medication, rehabilitation and psychological recovery programmes in the health sector, reforestation after fires, floods or attacks, but also the reassessment of preparedness and disaster-reduction strategies for long-term reform. Beyond those types of activities, which are planned before and are put into action after disruption, resilience also includes *spontaneous responses* to emergencies, leaving room for creative solutions, an aspect to which we now turn.

Resilience is not just about survival and more than the return to a pre-disruption state. It includes aspects of future progress. This aspect of resilience is more likely to apply to systems and communities that are characterized by openness and dynamism. Addressing their own underlying vulnerabilities and finding creative solutions, these communities and systems in fact harness instabilities and use them as a vantage point for further development. They do not *re*bound or *re*turn, but establish *new normalities*. A simple but illustrative example could be the learning experience of communities exposed to extreme weather, who use drainage systems in times of flooding and store the water in wells for the sake of releasing it during droughts.

Accordingly, open systems and communities do not return to pre-disruption states, but rather adjust to change. They learn where to tackle vulnerabilities and reorganize while undergoing change. Resilience then becomes the degree to which a capacity for learning is expressed.

The ability to learn and adapt to new circumstances does not only apply to members of local communities. In order to strengthen emergency response, thorough knowledge about vulnerabilities and human capacities also needs to be collected and understood by governmental security stakeholders. To further a progression in the entire field of resilience practices, resilience has to be made into a political topic. Official commitment might include research programmes, financial investments, and long-term community projects, which need to be designed carefully in order to avoid the alienation of targeted groups.

From Resilience to Prevention

Monitoring ongoing emergency-management activities and learning from previous resilience processes also enables anticipation. It is thus instructive to bring together local and governmental experience to use insights from former resilience processes for the planning of prevention measures. It needs to be taken into account, however, that this is the most complicated and sophisticated aspect of resilience. It presumes a thorough multilevel analysis of vulnerabilities and their causes, which are often obscure.

Self-Organization and Flexibility as the Key to Resilience

If resilience is understood as withstanding shocks or recovering from disruption, self-organization and flexibility shape up as the foundations of resilient activity. While the complexity of a system or society necessitates the ability to organize and react locally, self-organization also means that systems and communities can take action in the absence of external direction and find individual solutions for emergency management.

There are two forms of self-organization: It can be spontaneous and creative, as observable in crowd dynamics, but it can also be trained in exercises and governed, as for example through internal disaster laws. Allowing for and fostering both kinds of self-organization, however, always requires a focus on the local community and a considered pedagogy of responsibilization. Through direct participation, local communities can develop ownership of practical tasks and develop expertise in emergency response. The local is not only a source of information on vulnerabilities and impacts. It can also be the starting point for individualized approaches to tackle disruptions.

Yet, teaching this kind of grassroots disaster management needs to be planned thoroughly. While discovering their potential for self-organization and future progress, community members may also get the impression that they will be left to their own resources in times of crisis. It is thus a challenge to com-

municate how communities can develop ownership of recovery processes over a long period of time. So, rather than being held responsible for establishing security, communities should realize that they can contribute to it with creative solutions.

This exchange between local communities and political institutions is a mutual learning experience. Teaching communities how to assess problems, consulting local knowledge and fostering resilience expertise should be a long-term goal of resilience policies. This inclusion of diverse actors in local emergency management is believed to enhance flexibility. Whether this holds true is dependent on the way communities are included into and taught about resilience processes.

Flexibility can be implemented and further described through a number of concrete characteristics:

Diversity allows for different solutions to one problem. *Plurality* promotes the idea of investing at different ends and levels of a system or community. Allowing for a multiplicity of solutions to one problem also builds capacity to sidestep if one solution fails. Fostering *creativity* urges emergency-management institutions to find the creative potential in local communities. *Connectivity* entails the establishment of connections and relationships both internally, within the community, and externally so that communities and policy-makers can support and learn from each other.

Understanding how self-organization and flexibility can be facilitated requires comprehensive assessments not only of interrelated problems and vulnerabilities, but also of human and systematic capacities and potential collaborations between different societal stakeholders.

Resilience: A Consistent Concept?

The broad definitional scope of resilience makes it an attractive overarching concept for a wide range of policies. Its richness, however, is at the same time its weakness. Gathering too broad a variety of activities and approaches under resilience not only complicates its operationalization and measurement, but would finally lead to an inflation of the concept.

In order to avoid abandoning the concept, this brief has described how the different resilience processes may relate to one another and can form a consistent whole. Resilience processes alternate between retaining and developing with change, between stability and openness. The different processes are likely to apply to specific kinds of systems and communities, an aspect the following short summary should clarify:

On the one hand, resilience can be understood as a process or ability aimed at retaining a status quo and withstanding disruption. This absorption of disruptions through systematic redundancies is likely to apply to stable, well-controlled systems and communities, but it can also reach its elastic limits. Similarly, retaining and withstanding can be viewed as the first steps for handling emergencies. If disruption persists, attempts to recover, return and develop new normalities are the necessary steps. These approaches, however, often require the ability to adapt. This ability, again, rather applies to communities and systems marked by openness: these may be unstable, but they adapt more easily to disruptions.

Resilience may thus embrace policies that are established pre-disruption, as well as solutions that are generated spontaneously after disruption. Yet, the resilience of a system or community is always realized in relation to a crisis or disruption that cannot be averted or is already taking place. This is why resilience does not include prevention policies *per se*. Learning from resilience processes, however, can create valuable insights for prevention approaches.

To achieve an appropriate operationalization and implementation of resilience, it is crucial to conduct comprehensive analysis of local vulnerabilities and capacities. This can only be done in close exchange with local communities, but needs to be guided by careful resilience pedagogics. Such resilience programmes need to be conducted in ways that avoid the alienation of specific communities or the creation of fear. They should support communities to become self-confident actors without making them alone responsible for recovery.

Policy Recommendations

When integrating the concept of resilience into human and societal security policies, it is important to:

- **critically evaluate international approaches to resilience** to inform the concept's application in the national, regional or respective thematic context;
- **explore and utilize local perspectives, expertise and competences** when devising new and individual resilience programmes;
- **invest in conceptual and practical consistency** when discussing and applying resilience;
- **develop laws, programmes and a political environment** that encourages a holistic and long-term focus on resilience; and
- **acknowledge that resilience can be both positive and negative**, depending on the context or circumstances in which it is sought, developed or encouraged.

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THE PROJECT

The brief draws on the EU-funded research project 'Mastering the Value Function of Security Measures (VALUESEC)', which investigates societal costs and benefits of security measures, as well as the author's doctoral project on 'Rationales and Modalities of Resilience in Interconnected Societies'.

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