HUMAN SECURITY AND RESILIENCE APPROACHES IN DISASTER MANAGEMENT

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Abstract

Since the end of the Cold War the attention of the world’s security experts has focused on less tangible and amorphous risks and uncertainties – terrorism, climate change, GMO. In the same period, complex approaches for dealing with the uncertainties and looming crises like human security and resilience have come to prominence. In fact, community (or disaster) resilience has been a prevailing approach in Disaster Management in the last decade. Both human security and resilience approaches may be complementarily used in emergency, crisis and disaster management. The paper will present the differing applications of these two concepts in disaster management process, with the focus on the similarities and differences between their basic dimensions and capacities. Different approaches of both concepts in the field of disaster management will be presented through several examples. We conclude that human security approach can figure as an important source of data for assessing system resilience, whilst resilience assessment may be used for validation of the human security concept.

**Introduction**

Human security (HS) and Resilience (RES), together with risk management, are two complex approaches for dealing with uncertainties that have figured prominently in the academic research in the past two decades. The concept of HS was formulated in 1994, in the midst of high-profile debates and discussions of humanitarian intervention and human rights. HS concept, in the security analysis relies upon the model consisting of several dimensions and respective number of indicators for each dimension, (Đorđević, 2013). According to the UNDP’s Human Development Report from 1994 the following seven dimensions are important for the determination of the security and insecurity: economic security, food security, health security, ecological security, personal security, community and political security (UNDP, 1994). Education and social dimension also occasionally figure as additional dimensions. Human security is a preventive concept as it focuses on early warning with the view to reduce, minimize or remove risks and threats (Dulić, 2010). According to this concept, security broadly encompasses ‘freedom from want’ and ‘freedom from fear’. Prevention and international development come under the rubric of ‘freedom from want’, whereas more coercive framework of humanitarian intervention, enters the rubric of ‘freedom from fear’ (Chandler 2012). The focus of human security is on fostering Government and local capacities and strengthening the resilience of both to emerging challenges in ways that are mutually reinforcing, preventive and comprehensive (UN, 2010). In this framing, human security is defined as a separate set of broader non-coercive practices defined in terms of a preventive framework of strengthening resilience at the level of both the post-conflict state and society (Chandler, 2012). Eventually, as the enthusiasm for humanitarian interventions waned, the paradigm shifted towards the community resilience, from which the HS has become almost indistinguishable. In the post-interventionist/resilience paradigm, the emphasis is on prevention rather than intervention, and work upon the vulnerable rather than upon victims, stressing the need for empowerment and capacity-building.

According to the Australian National Strategy for Disaster Resilience a disaster resilient community is one that works together to understand and manage the risks that it confronts. Disaster resilience is the collective responsibility of all sectors of society, including all levels of government, business, the non-government sector and individuals (National Strategy for Disaster Resilience, 2011). British Department for International Development (DFID) defines disaster resilience as the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses - such as earthquakes, drought or violent conflict - without compromising their long-term prospects (DFID, 2011).

In the first chapter of the paper we will start with providing more insight into the concept of resilience, and then continue with how HS and RES approaches may be combined in order to decrease vulnerability of population paramount to achieving satisfactory response to disaster events.

**Community Resilience**

The RES concept can be traced to the early 70s, when C.S. Holling in his seminal paper “Resilience and Stability of Ecological Systems” argued that the particular attractor around which a system is organized is only one of a multitude of possible states, which emerge and disappear over time (Holling, 1973). Therefore, this approach emphasizes such concepts as complexity, self-organization, functional diversity and nonlinear ways of behaving. Resilience provides complex systems with the ability to withstand and survive shocks and disturbances. It also emphasizes the capacity for renewal.

In the context of complexity and “Risk Society”, security is all about proactive policy-making, in accordance with whom preventative and precautionary policies plan futures in which the disruptive event, an emergency or a disaster, should not materialize. However, disruption cannot always be kept outside of society as not everything will go as planned. As opposed to the preventative paradigm, resilience policies act on the assumption that a disruption will take place (Kaufmann, 2013). According to C. Fjaeder from Finnish National Emergency Supply Agency: “*security is essentially preventive and proactive in nature, (…) whereas resilience, is a combination of proactive and reactive measures aiming at reducing the impact but not at preventing threats as such. On the contrary, resilience as a concept suggests that preventive measures have not had a full effect, and it consequently focuses on minimizing disruption to critical services to the society once an event has nonetheless happened*.” (Fjaeder, 2014).

Resilience has been defined as the ‘capacity of a system to absorb disturbance, undergo change, and retain the same essential functions, structure, identity, and feedbacks’, whereas the systems in question ‘reorganize in the absence of direction’ (Longstaff et al, 2010). The World Resources Institute defines resilience as ‘the capacity of a system to tolerate shocks or disturbances and recover’ and argues that this depends on the ability of people to ‘adapt to changing conditions through learning, planning, or reorganization’ (World Resources Institute, 2008). Resilience, therefore, can be related to the way that societies adapt to externally imposed change. Taking that into account, presenting resilience as simply something that is reciprocal to vulnerability would impoverish the meaning of this complex concept.

It should be beneficial for this work to make difference between organizational and community (including disaster) resilience – two most common approaches in the security literature. There are many papers trying to discern dimensions and capacities pertaining to those organizations and communities deemed resilient. The main difference is in the dimensions, i.e. the constitutive elements of the system, whereas it can be argued that resilience capacities are equal for any type of a system – be it a human body, an ecosystem, an organization or a community. Organizational resilience, according to some European authors (e.g. Bologna 2016), consists of following dimensions: organizational, personal, technical and cooperative. Generally three capacities are mentioned – absorptive, adaptive and restorative, whilst some also add the predictive capacity.[[2]](#footnote-2)

Absorptive capacity is the degree to which a system can automatically absorb the impact of system perturbations and minimize consequences with little effort. Adaptive capacity is the degree to which the system is capable of self-organization for recovery of system performance levels. Finally, the restorative capacity is the ability of a system to be repaired easily – either to its original, pre-event state, or to a completely new state that anticipates future system requirements (Keković et al, 2014).

The promotion of resilience related strategies in the field of emergency and disaster management has been premised on a re-evaluation of the referents of security governance. In particular, the ‘myth-busting’ of panic in emergency situations, together with the notion that human populations actually possess significant adaptive and self-organizational capacities in emergencies have been instrumental in the advent of the notion that government should not look to direct, but to supplement and encourage the natural tendencies of those in emergency events to help themselves. Rather than withholding information, for fear of inciting of panic, populations in emergency should be provided with all the information they require to self-organize an evacuation or response (Zebrowski, 2013:2). Thus, for instance, the acknowledgement that panic is a ‘myth’ has caused a profound reorganization of UK emergency governance at the turn of the century (Zebrowski, 2013:3). Indeed, in the last fifteen years or so, the resilience strategies of UK Civil Contingencies are instead oriented towards facilitating and optimizing the natural, self-organizational capacities, or ‘resilience’ of populations in emergency (Zebrowski, 2009).

**Using Human Security and Resilience Approaches in Disaster Management**

A large part of disaster management efforts is dedicated to the managing consequences of natural disasters, as many of them are directly related to the environmental degradation and climate change. HS highlights the linkage between vulnerability and change in human and environmental conditions and interactions of hazards and exposures at different levels of place, region, and world. HS focuses on analyzing who is vulnerable, how does action by local people in particular place and condition affect vulnerability, and what actions could be taken to reduce or mitigate vulnerability. However, the main shortcoming of the HS approach in the instances of operative emergency response are the data – availability, credibility, subjectivity, inconsistency, different definitions of basic and aggregate indicators, slow intervals of collection (no real time), and unidentified sources (public institutions, flawed statistics etc).

Simply speaking, enhancing human security for environment and disaster management consists in enhancing people’s choices, and increasing their resilience to cope with the adverse impacts of the events (Shaw, 2006). In their research Vaux and Lund (2003), analyzed the impacts of drought and earthquake in the Indian state of Gujarat on the human security of rural women. The key option, in their opinion, was to improve their livelihood options, enhanced through institutional development and asset creation. Another study performed in Vietnam in 2001 was focused on the effect of environmental degradation on individual livelihoods and on broader prospects for sustainable economic growth. The way to achieve the limitation of those adverse effects on both rural and urban population of Vietnam was “to reduce vulnerability, enhance resilience, and promote adaptive strategies” (Adger, Kelley, and Nguyen 2001).

The key focus of HS is vulnerability reduction, through reducing environmental degradation and enhancing disaster resilience (Shaw, 2006). According to this framework, resilience and vulnerability are seen as counterpart of one another (Moser and Norton 2001). Therefore, the higher the resilience is, the higher the human security and smaller the vulnerability. In other words, the greater the community resilience is, the greater the opportunities for absorbing external shocks and adapting successfully to rapid social and environmental change. And vice versa: the less resilient and developed the social system, the greater the vulnerability of social groups or institutions at all levels to externally imposed change (Adger et al, 2005). Thus, community resilience to disaster enhances human security.

Some studies have shown that different framings (HS and RES) of the same topic may reach different, albeit complementary results of vulnerability assessment. For instance, in a study about rural population in Burkina Faso the following results were reached. From a human security perspective, the results indicated that poverty alleviation through increased access to financial and human capital was vital for lowering the dependency on forest and water resources and subsequently increased the adaptive capacity to climate change. From a resilience perspective, maintaining the parkland system was a precondition for successful adaptation to climate change. This is as almost all of the households in the study, especially the poor, depended on trees for their livelihoods and that trees provided essential regulatory services. Both framings pointed at the importance of diversification of livelihood strategies in order to increase adaptive capacity (Knutson and Friman, 2014).

HS emphasizes the role of social, political and economic relations for availability of, and entitlement to resources and in shaping the responses to and outcomes of environmental change. According to the HS standpoint, adaptation policies should address constraints to local response, reduce inequalities, and propose alternative development pathways (based on Füssel 2007 and O’Brien et al. 2007). On the other hand, in the Resilience framing, vulnerability represents the tendency and sensitivity of social and ecological systems to suffer harm from exposure to external stresses and shocks. Community resilience refers to the internal adaptive capacity to absorb external disturbance and reorganize while undergoing change and it emphasizes the role and value of local and traditional knowledge for resilience (Knutson and Friman, 2014).

For the purpose of emergency management the combination of HS dimensions and RES capacities could be beneficial. HS dimensions may be used for the assessment of community resilience in particular phases of the emergency response. In addition, a lower layer of resilience assessment – resilience capacity features (such as redundancy, robustness, segregation etc) may be used for reaching more precise conclusions about the state of the HS in accordance with its dimensions and indicators, (Figure 1).

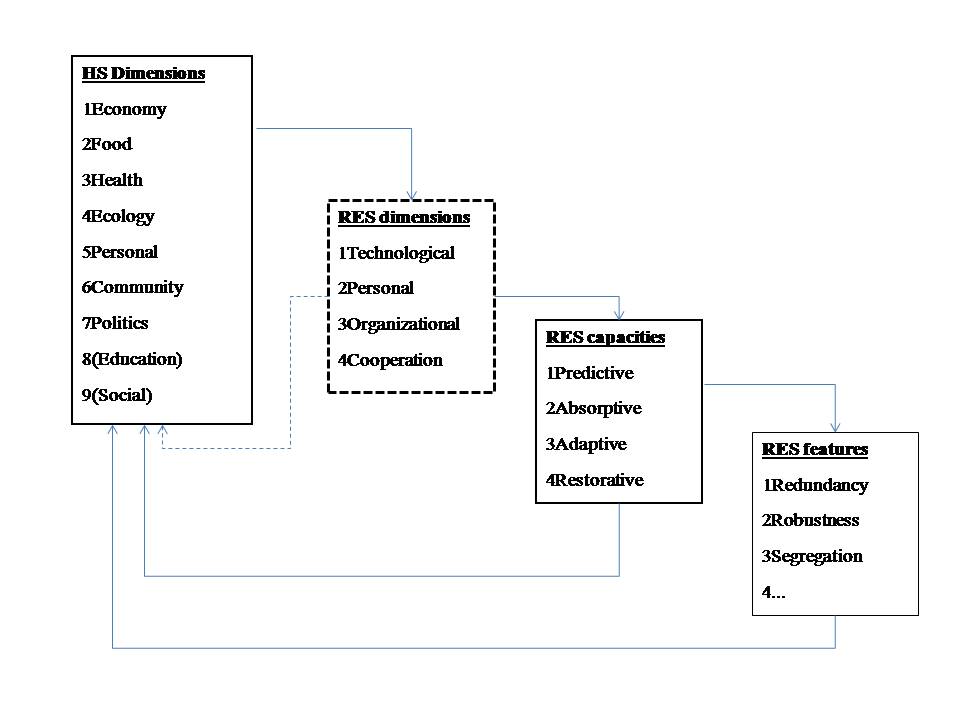


Figure 1. Relationship between HS Dimensions and RES Dimensions, Capacities and Features

Using the emergency (accident) response diagram and Resilience Evaluation Curve (Figure 2), it is possible to connect RES response phases with relevant HS dimension and indicators. Arguably, not all HS dimensions will be equally important in each RES capacity phase, so they should be prioritized for each phase. For instance, for *Predictive resilience phase* (Figure 2), Community and Politics HS dimensions are crucial. For *Absorptive resilience phase,* the major importance would have Health and Food HS dimensions. We can link *Adaptive resilience phase* with, for instance, Personal HS dimension. And finally, for *Restorative resilience phase*, most important HS dimensions would be Economy and Ecology. It should be always kept in mind, nevertheless, that HS Dimensions, HS indicators and RES Capacities and Features are highly location and situation specific concepts.

High resilient system

1

F

E

A

B

Low resilient system

Operational Efficiency

t5

t4

t3

t2

t0

t1

t

-1

0

D

C

Figure. 2. Resilience Evaluation Curve

Resilience aspect of the system's response to accident:

**t0 –** accident start, **t5 -** end of the system's response to accident

**A-B** *Predictive resilience phase*

**B-C** *Absorptive resilience phase*

**C-D** *Adaptive resilience phase*

**D-E-F** *Restorative resilience phase*

**Polygon P0 (t0-A-F-t5-t0) –** *ideal resilient system*

**Polygon P1 (t0-A-B-C-D-E-F-t5-t0) –** *real resilient system*

**Resilience measure (**ratio of the polygons surface area**)**  **R = P1/P0**

As implied throughout the paper, vulnerability is perhaps the key variable that connects RES and HS approaches in emergency situations. The Figure 3 conceptually represents how HS and RES can with mutual activities as dynamic systems impact stability and damage reduction of systems in emergency situations. The main impact on the behavior of the system is done through the key variable *vulnerability change.* The system stability is influenced also by the baseline values of the following variables: *Vulnerability*, *Resistance,* as well as the HS dimensions and RES capacities and features.

This is a causal loop system dynamic diagram based on stocks and flows. The model was built using the modeling tool, [VENSIM](http://vensim.com/). This is a modified extension based of the *Resilience in Civil Conflict* [*model*](http://www.runthemodel.com/models/229/), originally done by Hayden (2014).

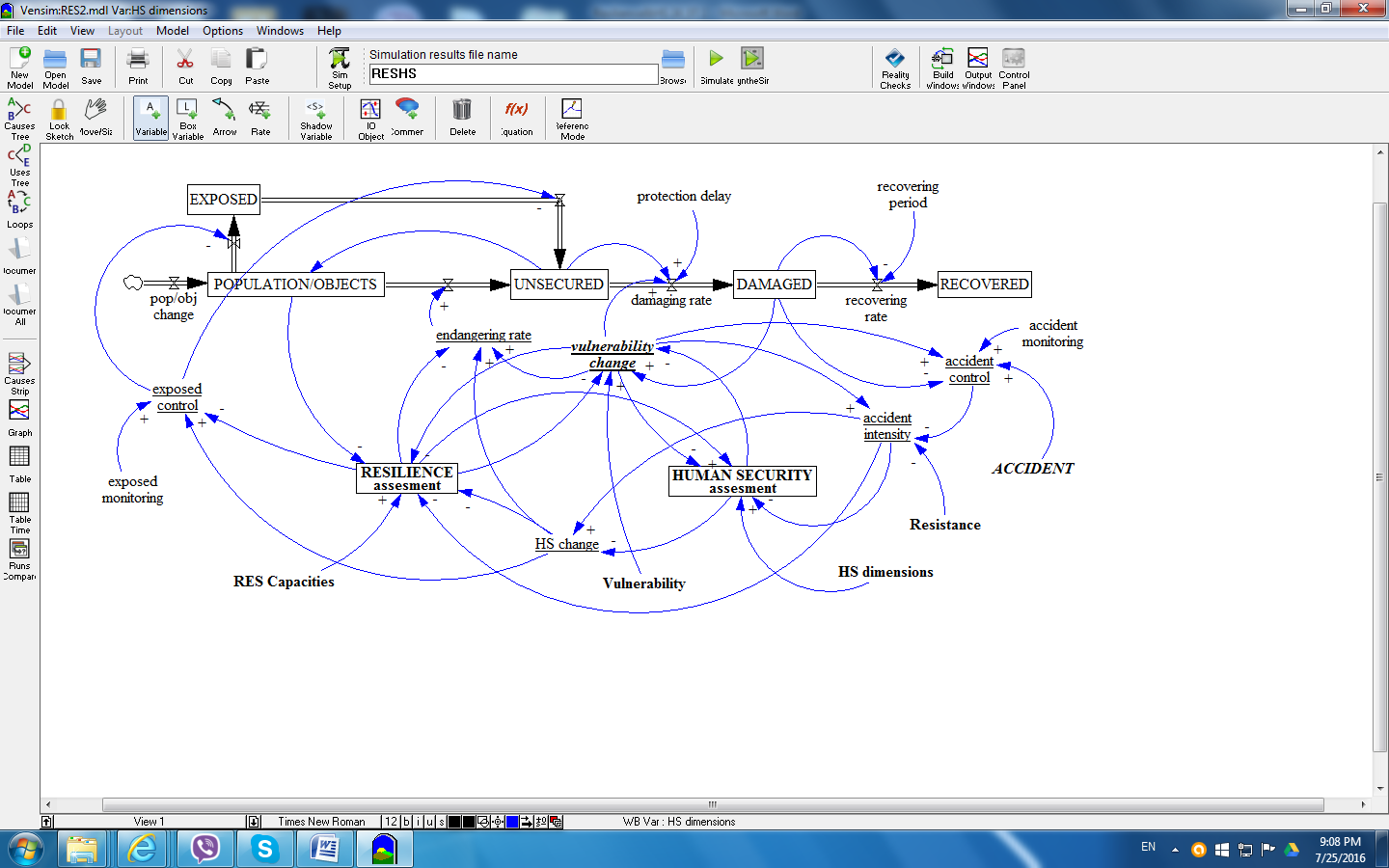


Figure 3. Integrated [System Dynamic Model](http://en.wikipedia.org/wiki/System_dynamics) of [Human Security](http://en.wikipedia.org/wiki/Human_security) and Resilience in Disaster Management.

**Conclusion**

In this paper we have compared very broad and complex approaches of Human Security and Resilience and suggested the way how they can be compatibly used in the wake of emergency situations and disasters. The idea of resilience assumes a world that is increasingly complex but also contingent. Stable and enduring social relations are believed to have given way to complex networks of actors, each with their own individual pursuits. And in order to survive the uncertainties of complex systems, people have to show their own initiative as active and reflexive agents capable of adaptive behavior.

The main shortcoming of the human security approach are the data – availability, credibility, subjectivity, inconsistency, diverse definitions of basic and aggregate indicators, slow intervals of collection (no real time), and unidentified sources (public institutions, flawed statistics etc). A small step forward, in our opinion, can be made by assessing the human security dimensions in line with their resilience capacities, or, in more detail, with the resilience features. The key difference is the approach towards vulnerability, i.e. HS is more interested in external actors who are there to provide and the local (top-down approach), whereas resilience works on strengthening the community itself. In addition, in combining these two approaches we can achieve a holistic view of emergency/crisis situation, including proactive (mainly through HS) and reactive (mainly through RES) phase/domain. Finally, HS approach can figure as an important source of data for assessing community resilience, in particular in the proactive domain, whilst resilience assessment may be used for validation of the HS concept. More detailed identification and analysis of relationships between HS Dimensions and RES Capacities may be the task for some future research, bearing in mind that HS and RES are highly location and situation specific concepts.

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2. We understand capacities as abilities of a system. Some authors (e.g. Norris et al, 2008; Sherrieb et al. 2010) use the capacities in the meaning of dimensions. According to them community resilience has the following four capacities: Economic Development, Social Capital, Information and Communication and Community Competence. [↑](#footnote-ref-2)