

BUILDING THE URBAN ORGANIZATIONAL CAPABILITY FOR RESILIENCE AS A MATTER OF UPDATING SECURITY EDUCATION OF COMMUNITY

Dorel BADEA*, Elisabeta-Emilia HALMAGHI*, Andra-Teodora GORSKI,
Olga-Maria-Cristina BUCOVETCHI*****

***“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania**

****“Lucian Blaga” University of Sibiu, Romania**

*****University POLITEHNICA of Bucharest, Romania**

**dorel.badea@yahoo.com, emmahalmaghi@gmail.com,
andra.teodora.gorski@gmail.com, olga.bucovetchi@upb.ro**

Abstract: *This article intends to emphasize the role that education has in strengthening resilience in the urban environment. It is highlighted how, starting from quantitative and qualitative aspects of some work tools dedicated to resilience, weak points of the materialization stage of the security culture to support a mature level of resilience can be identified. In practice, we can talk about a mutually supportive relationship between the two concepts: a high level of security culture allows, facilitates and augments an organizational behavior that favors resilience in the face of contemporary adversities, and the lessons learned as a result of an experience aimed at resilience adjust and provide feed-back to the security culture. Both macroconcepts have a common vein of support given by the educational component of the characteristic processes. Wanting to be as resilient as possible, against a backdrop of a robust security culture, therefore becomes a matter of preparation and training first and foremost. The research method is exploratory, accompanied by examples of known cases. The convergence of the approach has the purpose of bringing to the attention of stakeholders the usefulness of table top exercises, as a necessary training method for risk awareness and emergency management.*

Keywords: urban resilience, education, security, culture

1. Identifying Urban Resilience Deficiencies

Deficiencies in terms of urban resilience can be found both practically, concretely, when adverse events (meteorological, pandemics, war, industrial technological accidents, etc.) highlight the city's level of vulnerability (systemically seen) but also through dedicated studies undertaken by specialized organizations or by academic environment. The second category also includes various resilience indices, which try to aggregate as many of its facets as possible in order to provide a useful

integrative image (especially the public agenda) for analyzes and decisions. Concern for urban resilience indices has gained momentum in parallel with the desire to provide tools for urban resilience management. There is no perfect index, nor can there be because the field is very vast, in other words to summarize all the urban complexity in a quantitative expression is impossible. We consider that a model, generically speaking, is a representation of something from reality, something that happens through simplification and essentialization.

An example in this regard is the Disaster Resilience Scorecard for Cities /UNDRR [1] which contains ten essential areas considered to provide, by noting the fulfillment of specific sub-indicators, a point of view on the state of resilience of a

city. Although the subject matter of the ten fields is distinctly grouped and detailed, it is also obvious and normal that there are elements of interdisciplinarity between the ten essentials.

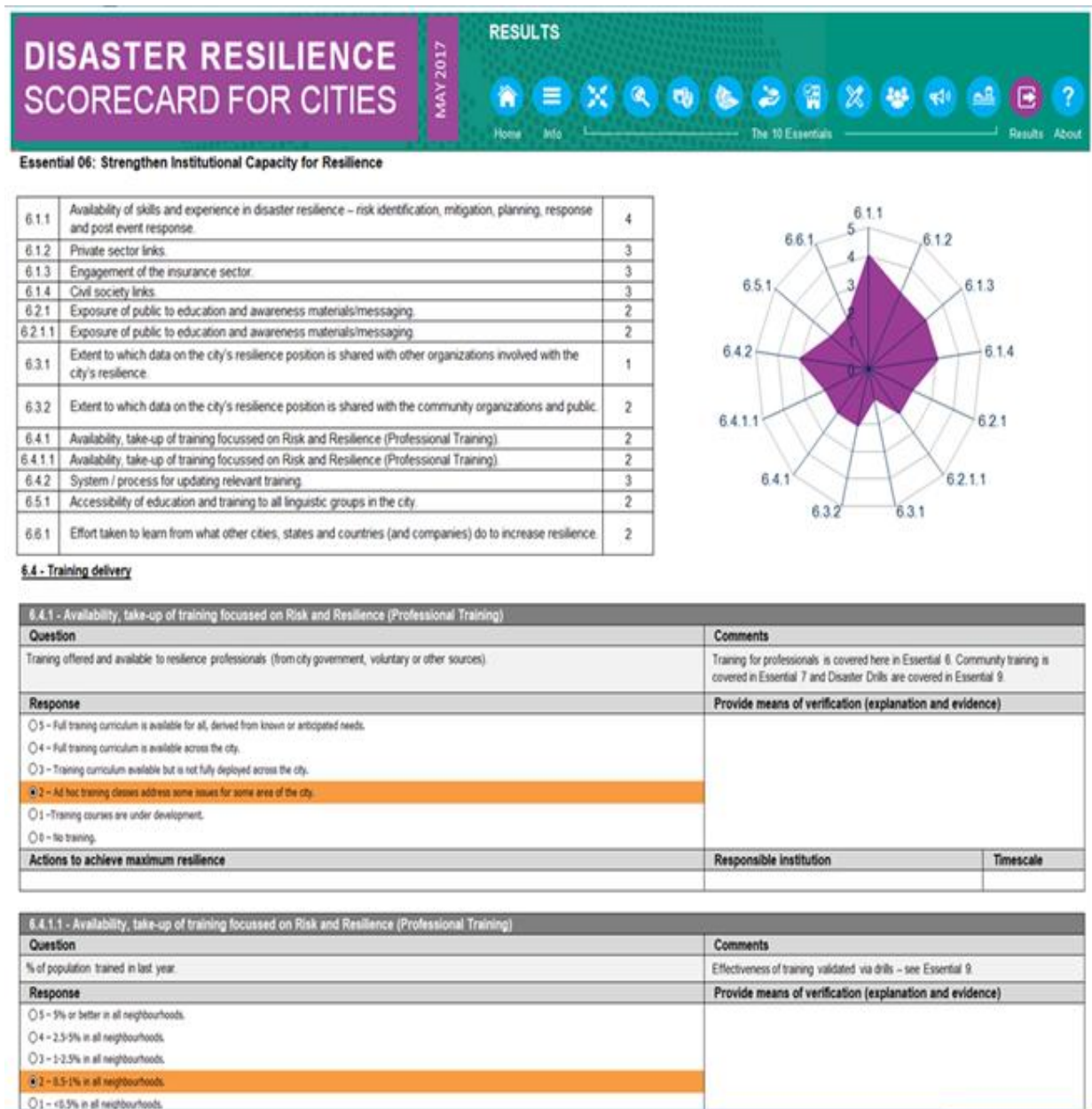


Figure 1: Content (with example calculation) of Essential 6 of the Urban Disaster Resilience Assessment Tool (Source: Authors' processing by [1])

Figure 1 shows the content of essential 6, customized as a rating for the city of Sibiu, using the assessment of the collective of authors. It is difficult to make judgments like this regarding the exposed problem, but

it is a way to identify a deficiency. It can be inferred that any deficiency found in this way denotes an area for improvement and at the same time it can also hide a gap in the training of the staff in one of the four

postures of the helix model (especially in the case of procedures). Therefore, it is useful to consider training as a way of intervention at least to improve the situation but also from a formative and informative perspective. This raises the research question – how can urban resilience be improved through education?

2. Education for Safe Urban Communities – Necessity and Relevance

The problem of education for safe urban communities is becoming more and more pressing and stressful in direct relation with the development trend of cities (it is estimated that on the horizon of the 2050s, two thirds of the world's population will live in the urban environment) and the specific risks of cities (in polycrisis contexts often), a large part of them occurring as a result of the state of vulnerability existing at a given moment. Causality and domino effects bring to attention the (in)effectiveness of public policies and implicitly, the problem of educating and preparing the population so that the impact of some threats is as small as possible. In the work *The Global Risks Report 2023* [2, p. 69] also advocates for “investing in multi-domain risk preparedness” and “strengthening preparedness and response cooperation”. The subject of resilience and education is also in the attention of the United Nations Development Program [3], within the assumed programs and especially within development objectives 11 and 4. Here also appears the perspective of the framework in which education is done for a safe society, the two big currents taking shape: top-down and vice versa (from institutions to citizens and vice versa) and low level - high level (from low level of knowledge, expertise and skills to high level, strategic, and vice versa). As situations of exposure to risk events, the city, through organizations and citizens, is much more likely to be faced with shock events in terms of resilience, the impact is also much greater, compared to the rural environment. From the simple

citizen to public and private organizations, in the event of adverse events affecting normal functionality, a mature level of urban resilience must highlight a good interoperability of systemic, technical and operational urban architectures, in other words a procedural and decisional harmony that forms over time, conditioned by the understanding and functionality of the roles exercised in society. This urban organizational capability is educated and practiced (and educated through training), both the increased level of awareness and understanding of risk situations and a short reaction time being success factors in urban resilience management. The awareness of the importance of education in this framework is also correlated to the experience of an urban society or community in the field of resilience (it is assumed that any real event that endangered urban security also constitutes a learning experience). Likewise, the cultural particularities existing in the respective region regarding the attitude towards risk are undeniable (see here also the comparative management studies of the type undertaken by G. Hofstede and F. Trompenaars). The main idea to follow is to generate a mindset suitable for crisis situations, which is proactively formed over time through a multidimensional joint effort (public-private, civil-military, children-adults, etc.). Pre-university educational systems play an essential role by including in the curriculum and the interdisciplinary approach some topics from the spectrum of resilience. From topics related to first aid to emergency role-playing, combined with the use of VR/AR technologies, all contribute to the formation of a resilient civic spirit in teenagers. Information campaigns (by posters or media) for the general public must go beyond the formal area and be designed to meet relevant content requirements to create a robust intended effect in the plan to improve a certain type of behavior. Sub-indicators such as 6.2.1 and 6.4.1 reinforce what is stated in this section. For the essential 6 (Strengthen

institutional capacity for resilience) invoked previously, as information required for assessing the level of the indicator, the following [1]:

- “awareness raising campaign, education program on disaster risk reduction”;
- “survey and research data on disaster resilience and effectiveness, and data sharing methods”;
- “documents related to pre-disaster training and delivery and city-to-city experience sharing and learning”.

3. Education for Urban Resilience Using TTX

TTX is part of the category of discussion-based simulation exercises, along with orientation, games and workshops, their main characteristics being highlighted in Table 1. [4, p. 38]. Although appeared and

formalized more recently compared to other forms of training TTX is “an efficient method for gaining competencies relevant to work roles and tasks centered around analysis, decision making, and communication with various parties” [5].

Their use and applicability, as fields of activity, is diverse: security, management, marketing, etc. It is emphasized [6, p. v] that: “Exercises play a vital role in preparedness. A well-designed exercise provides a low-risk environment to familiarize personnel with roles and responsibilities; foster meaningful interaction and communication across jurisdictions/organizations; assess and validate plans, policies, procedures, and capabilities; and identify strengths and areas for improvement.”

Table 1 Characteristics of TTX compared to other types of discussion-based exercises (Source: [4, p. 38])

	Orientation	Workshop	Tabletop Exercise	Game
Characteristics	Participants receive information in a classroom or briefing format. Generally, no expectation for the participants to provide input other than asking clarifying questions.	A low-stress, facilitated discussion for the purpose of developing or refining some type of plan, procedure, or other product. Often scenario-based to place discussions in a context. Participants are generally not evaluated on their performance as these are intended to use the participants' knowledge and experience to develop a product that might not have existed before or strengthen an already existing one	A tabletop exercise (TTX) is a structured, scenario-based discussion used to evaluate capabilities. This differs from a workshop in that it is evaluating existing plans and procedures, so there is typically a minor to moderate level of stress on participants. Requires structured methodology for facilitation and evaluation of discussions. Can range from simple question and answer sessions to elaborate discussions driven by pre-scripted exercise messages called injects.	Usually conducted at the individual or small team level, in an interactive environment. Similar to playing a sport or board game at home, there is a “right” and “wrong” way to perform tasks, and there are rules for how the individual or team should operate in the game. Constructive feedback should be provided at the end of the game on how to improve individual or team performance.

An elegant and efficient way of managing TTX-type exercises that can be carried out with the involvement of different urban stakeholders is offered by the existing EU-level Poseidon platform, designed to be

a dedicated tool for the management of crisis exercises (Figure 2), an advantage of this being also represented by the fact that it can be used online without gathering the participants in the same location.

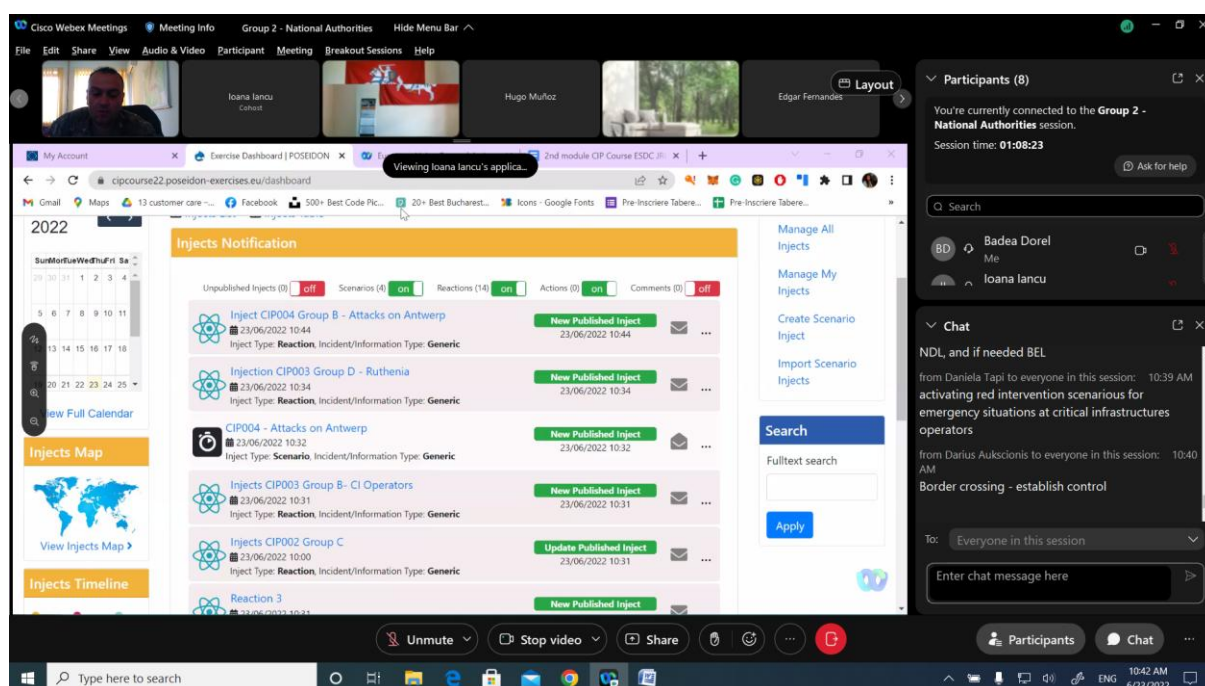


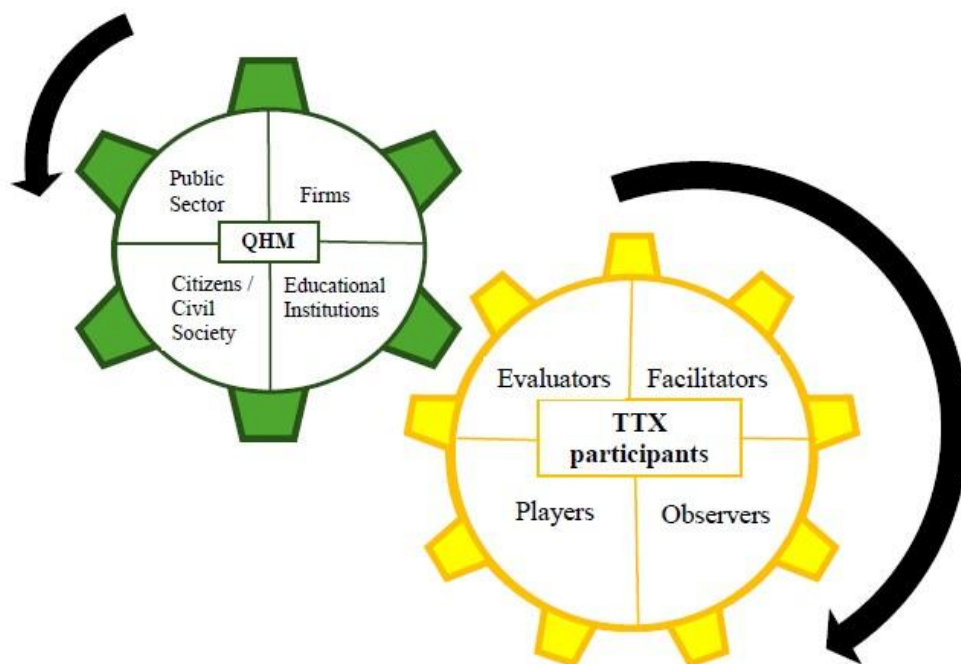
Figure 2: Content of the POSEIDON platform for TTX management
(Source: First-author participation in a TTX on the POSEIDON platform)

TTX is a way of education for the perception of risks and the effects of disruptive events that can affect society. Through the participation of the representatives of all the stakeholders of the QHM/Quadruple Helix Model (Figure 3), coverage of all areas of knowledge and urban activity and the possibility of practicing specific decision-making processes is ensured. The problem in the management of urban resilience is related not so much to the actual action of an institution but to the activity, decisional and action-related, of an inter-organizational type. The four functionalities in the exercise can be played differently, with the participation of representatives from different categories of the four contained in the helix model (QHM) invoked but the most important configuration, related to training objectives (for example decision-making in case of a heavy flood in the city), is the one in which representatives of the business environment, the public sector and the academic sector are included in the category of players. Of course, it is possible to combine the TTX variant with a real simulation, with effects on the exposure of

scenarios and incidents. A distinct stage of TTX is that of scenario development which sets the framework of knowledge and action for the participants. The scenario and the list of the main events and incidents constitute SMART indicators of the way of understanding the urban reality (in terms of transition from the state of normality to the state of crisis through which resilience is tested) being also the components that dynamize the activity of the participants. An unrealistic scenario, accompanied by incidents that are far from everyday reality (for example, unlikely to occur), have an insignificant power to convince and cause participants to enter roles and subsequently act, similar to a real situation. The projected scenarios must take into account the urban specificity in question (activities and places critical from the point of view of the possibility of a threat) but also the history of cases when urban security was endangered, thus proving resilience. Within the TTXs, media can be used to broadcast pre-prepared recordings to support the materialization of the scenario and incidents. Also very important are the maps of the areas that are the subject of the

scenarios. Sukhodolia O. [8, p. 121] highlights the usefulness of TTX in the field of conceptual understanding and creating the correct perception of the specific processes of critical, active infrastructures that are otherwise frequently found in the urban environment: “is intended to generate discussion and can be used to enhance general awareness, validate plans and procedures, assess the types of systems needed to guide the prevention of, protection from, mitigation of, response to, and recovery from a defined incident as

well as to facilitate conceptual understanding, identifying strengths and areas for improvement, and/or achieving changes in perceptions.” Improving urban resilience through solutions based on educational preparedness of the population can also be seen through the potential for change in decision-making in times of crisis: “Flexibility in decision-making, adaptation to change, changing rules and consultation should be new rules to guide the decision-making process” [9, p. 118].



*Figure 3: Possibilities of addressing functionalities within TTX by QHM components
(Source: Authors)*

4. Conclusions

The research team made of Angafor, Yevseyeva and He [10, p.1] emphasizes the important role of TTX as an educational method and its potential for learning: “TTX training augments traditional methods like classroom lectures by providing opportunities for experiential learning and practice-based approaches in dealing with real-life problems.”

Education for urban resilience starts with each community member, differentiated by age, profession and role in society. Considering the production trend (quantity

and intensity) of events that affect urban resilience, it becomes a social necessity to rethink education for the security of urban communities, with multistakeholder involvement, as a condition for sustainable social success. Rethinking the models in which security education is designed and subsequently managed (with the previously expressed link to urban resilience) must consider the optimal relationship between general competences and concrete skills and between security theory and practice. Basically, it is about the appropriation of procedural frameworks for different

dangerous situations, but formed on the basis of adequate knowledge and a balanced reporting polarized, by way of consequence, to what security means and is. Risk events that affect urban communities are felt most quickly at the individual level, primarily by affecting individuals at the level of providing essential services. From the point of view of public organizations, the pressure to restore normalcy in the event of a risk event is proportional to the level of urban development (the quality of the services to be provided, the number of inhabitants, the type of existing industries, etc.). TTX-type exercises therefore remain, primarily due to the flexibility of the

format, a viable alternative for updating the knowledge necessary for the management of urban crisis situations. The effectiveness of this type of training is given by the involvement of all urban stakeholders and the awareness of the usefulness and necessity of cooperation. The feedback given (especially in the *hot wash* stage) and the lessons identified as a result of the TTX implementation become a learning resource for the participants and, at the same time, a source for improving or even augmenting the organizational capability, especially on the decision-making mechanisms specific to the management of urban resilience.

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