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Financing the disaster resilient city in the Slovak Republic

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Abstract

This paper presents a framework for scaling climate change adaptation in cities in the Slovak Republic. The framework specifically focuses on the requirements of financial resources mobilizing for climate change adaptation and other urban risk reduction. An article is elaborated through the resilient city concept, an ability of urban areas and their individual assets to perform a basics service for stakeholders under a wide range of condition. The purpose of the article is to identify and analyze funding resources for disaster resilient city in the European Union.

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1. Introduction

Frequency of natural and manmade disasters occurrence have raised during last years. Reason for this negative trend possibly come from global warming/climate change on the planet. Consequences of these disasters are even bigger than it was before (economic losses, numbers of affected people, and numbers of deaths...). According to UNIDSR [1], nowadays are 9 from 10 disasters caused by climate change. Disasters have bigger impact on inhabitants, companies, communities and countries because infrastructure is still complicated and connected, population growth on planet has still growing trend and resources (water, oil, gas, food, etc.) are limited. Immediate reaction for this negative trend in the world was adoptions of several frameworks by international crisis management organizations. Crisis management organizations adopted several frameworks/action plans for dealing with this negative trend. From wide spectrum of international crisis management organizations, we focused on United Nations approach.

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UN adopted several frameworks. Namely, it was Yokohama (1994), Hyogo (2005) and Sendai (2015). In these frameworks [1,2] are stated main goals, priorities and tools for handling of the disasters consequences, respectively to change negative trend of disasters development. One of Main goals of Sendai Framework has been significantly decrease of disasters emergence risk probability and decrease numbers of affected peoples, damages on property caused by disasters. In the next chapter there will be short introduction into disaster resilient city topic (what it is). The fundamental idea of resilience comes from Ch. Darwin a research result where he declared [3]: „Not the strongest or the most intelligent will survive but a one who is the most adaptive“. According to UN terminology [4] resilience is ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. Resilience means the ability to “resist from” or “spin back from” a shock. Requirements for its application on state/regional/municipal level is high costly. The article pays attention to UNIDSR resilient city concept application and it’s financing.

2. Disaster resilient city concept

Cities are complex systems consisting from lot of parts (infrastructure, people, government bodies…). They are characterized by intense, regular interactions that are structured in identifiable activity areas such as a district, or in key resource management or mobility sub-systems, for example urban drainage or energy systems. The character of urban districts as complex place-based systems is very different to that of lower-density rural areas where activities are more spatially separated and interactions are less intense [5].

Cities are closer to citizens than countries. They can have much more impact on people behavior. In large cities, individuals feel anonymously to its surrounding. Nevertheless, individuals voluntarily become members of local communities. Cities provide several services like educations, healthcare, building and carrying about infrastructure and they provide preparation for disasters solving.

A disaster resilient city [6]:” is one where disasters are minimized (probability of disasters occurrence and disasters consequences are as low as possible) because the population lives in homes and neighborhoods with organized services and infrastructure that adhere to sensible building codes; without informal settlements built on flood plains or steep slopes because no other land is available. Resilient city has taken steps to anticipate and mitigate the consequences of disasters, incorporate monitoring and early warning technologies to protect infrastructure, community assets and individuals, include their homes and possessions, cultural heritage, environmental and economic capital, and is able to minimize physical and social losses arising from extreme weather events, earthquakes or other natural or manmade hazards. Is able to respond, implement immediate recovery strategies and quickly restore basic services to resume social, institutional and economic activity after such an event”.

Worldwide there is 3410 resilient cities according to UNIDSR [7]. This represent just a small part of all cities around the world. In the Europe, they are spread the most. There are 10 essential things, which can make cities more resilient according to UNIDSR [6]:

- Institutional and Administrative Framework (Put in place organisation and coordination to understand and reduce disaster risk, based on participation of citizen groups and civil society. Ensure that all stakeholders understand their role in disaster risk reduction and preparedness),
- Financing and Resources (Assign a budget for disaster risk reduction. Prepare resources for reaction on disasters and recovery after disasters),
- Multi-hazard Risk Assessment- Know your Risk (Maintain up to date data on hazards and vulnerabilities. Prepare risk assessments.)
- Infrastructure Protection, Upgrading and Resilience (Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change)
- Protect Vital Facilities: Education and Health (Assess the safety of all schools and health facilities and upgrade these as necessary.)
- Building Regulations and Land Use Planning (Apply and enforce realistic, risk compliant building regulations and land use planning principles.)
- Training, Education and Public Awareness (Ensure that education programmes and training on disaster risk reduction are in place in schools and local communities.)