Urban Resilience to Disasters: A Policy Case from Turkey

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Abstract: Due to continuous increase of world urban population and urbanization rates, cities are confronting many challenges and problems as over-consumption of the resources, the impacts of global warming, climate change and natural disasters. With the increased concentrations of people and commodities in cities, risks and vulnerabilities are also increasing. This has resulted in the development of new visions for cities to overcome the adverse impacts like achieving disaster resilience or becoming a resilient city. Resilience notion, by covering coping and adapting capacities in multiple aspects of ecological, social, economic, community and governance, also help to connect disaster risk management and envisioning sustainability within cities with several public policies and community-based movements. Disaster resilience is described as a set of actions for preventing the possible losses and reducing risks while increasing the capacity to recover when facing any disturbances like disasters. In this respect, resilience thinking in urban planning helps to understand the capacities, vulnerabilities, risks, to connect multiple aspects with each other and to build or enhance capacity in a systematic way. This paper that is based on the MSc research study seeks to identify the relationship between urban regeneration policies and disaster resilience by using the Turkish Law no.6306 "Transformation of Areas Under Disaster Risk". For this reason, the law and its regulations were analyzed by using urban resilience to disasters framework. Based on the findings of the study it could be asserted that the Turkish urban regeneration experiences reflect that the policy instruments of the Law like "risky areas, risky buildings and reserve areas" are as a way of disaster risk mitigation including protective, preventive and transformative measures which contributes to the reduction of vulnerabilities, addressing different dimension of resilience yet with several limitations and challenges.

Keywords: Resilience; Disaster Resilience; Urban Regeneration; Turkish Law no.6306

Introduction

World's urban population has been rising day by day resulting in a continuous increase in urbanization rates. Due to increased rates of urbanization cities are now facing variety of problems and challenges, like over consumption of the resources, the impacts of global warming and climate change. It is widely accepted that natural disasters are results of human activities so that the risks and vulnerabilities in cities are increasing because of increased concentration of people and commodities. In this respect along with the sustainable development goals, several universal targets are set as achieving disaster resilience or becoming a resilient city (UNISDR, 2012). In this respect, originated from the ecological studies, resilience is now a notion used across many other disciplines varying from social sciences, engineering to development studies. The principal characteristic of resilience is, it is a concept for describing the adapting, coping and transforming capacities of

complex systems when facing disturbances, shocks or changes (Brand and Jax, 2007). With the evolution of the concept, some argued that resilience thinking includes the 'learning' capacity as well as coping and adaptive capacities in systems. So, one way of defining resilience is, developing the capacities through learning to sustaining development when come up against unexpected or wonted changes and disturbances (Folke, 2016). This concept is adapted to the new challenges in cities like disaster risk management. As highlighted by Cutter (2014), resilience thinking help connecting disaster risk management, disaster risk reduction and envisioning sustainability within cities with several public policies and community-based movements. Resilience notion in disasters research stands for set of actions for preventing the possible losses and reducing risks while increasing the capacity to recover when facing any disturbances like disasters (Johnson and Blackburn, 2014; UNISDR, 2017).

On the other hand, with the economic restructure in cities beginning in 1980s, urban regeneration policies became one of the core urban policy of local governments as a solution to the challenges and problems occurred in urban areas. Even though the main purpose of the urban regeneration concept was commonly accepted as to develop new urban spaces within the deindustrialized cities, the policy and its instruments used in solving many other urban problems such as regeneration of illegal settlements (Roberts, Sykes and Granger, 2016). Lately, the policy is also used as a way of disaster risk management, a mitigation or a recovery tool in facing disaster risks in cities. A variety of urban regeneration cases from world, show that urban regeneration help addressing the urban problems in multiple dimensions in cities. Yet there is no clear description about the ways of developing urban regeneration policies in the context of disaster resilience in cities.

From this point, this research seeks for finding answers to the question of "in what ways urban regeneration policies connected to the disaster resilience?". With this aim, the Turkish Law no.6306 Transformation of Areas under Disaster Risk (hereafter the Law no.6306) is analyzed in this research.

Research Methodology

This study was designed based on the major research question and finding answers and evidences from Turkish Case with analyzing the Law No. 6306 Regeneration of Areas Under Disaster Risks in Turkey. Although the research covers 3 steps of analysis which were policy, institutional and sample implementation project analysis, within the theme and track of the AESOP 2019 Conference, the focus of this paper is policy analysis based on the Turkish Case.

Main reason for selecting this case from Turkey is because the author herself has experience in the practice of decision-making and implementations of this law. Even so, the literature was reviewed to identify other cases to study where urban regeneration policies and/or projects were developed in the context of disaster risk management. However, there is very limited information about other examples in the literature.

On the other hand, the Turkish Case of Law no. 6306, was used as an evidence because the law is enforced since 2012, which provide six years of practice experience to be analyzed. And also, this law is covering the whole country and is implemented in many different cities which provides the wide range of implementations for analysis and discussion rather than a project-based analysis.

To allow a comprehensive analysis of the law with the policies defined this study includes a secondary data collection. The statistical data about the implementations of the law, urban development plans were collected from the Ministry of Environment and Urbanization. The secondary data resources that were used in this research were mainly the academic articles and researches, theses and official reports both about the theoretical background of the study and for the analysis of the urban regeneration policy case of Law no.6306.

Disaster Resilience and Urban Regeneration

This section would like to draw theoretical framework of this research which is about the urban regeneration policies in the context of disaster resilience. For this purpose, firstly the resilience concept is evaluated with respect to the evolution of the concept, the components and its system. It is emphasized by several researches that the main elements of resilience are adaptive, coping and transformative capacity of complex systems (Figure-1) (Brand and Jax, 2007; Béné *et al.*, 2012; Eraydin and Taşan-Kok, 2013). And the resilience is "a way of thinking" which aims to not only have the capacities but also improve these capacities by learning while facing sudden or expected disturbances (Folke, 2016).

Figure-1: Resilience Framework (Bene et al., 2012)

Based on this research about resilience, before drawing the connections between resilience and disasters, first, it is essential to explain the urban resilience concept and its four dimensions about metabolic flows, governance networks, social dynamics and built environment (Figure-2) (Resilience Alliance, 2007; Chelleri, 2012). In this respect, urban resilience is defined as the capabilities in all dimensions within the urban system to keep up or restore the functions after facing any kind of disturbances for providing adaptation to change and building transformation capacity to enhancing future adaptive capacity (Resilience Alliance, 2007; Chelleri, 2012; Meerow, Newell and Stults, 2016).

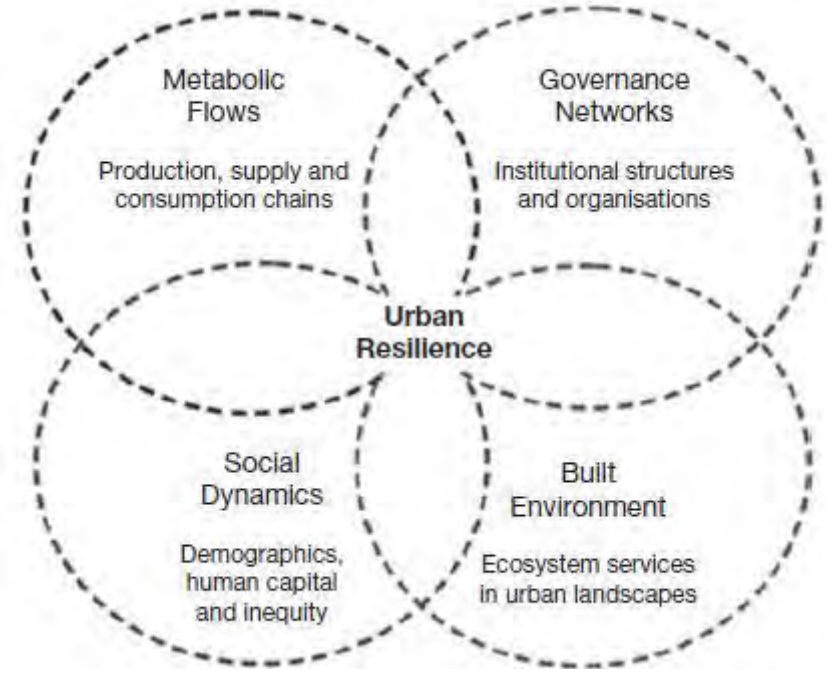

Figure-2: Conceptualizing Urban Resilience (Chelleri, 2012; Resilience Alliance, 2007)

For revealing the framework of disasters and urban resilience, the literature regarding the disaster risk management, was also reviewed. This review shows, there exist different disaster management approaches and the literature about disaster risk management evolves with the help of international conferences such as World Conferences on Disaster Reduction took place in Yokohama in 1994 and 10 years after in Kobe Hyogo Framework and the Sendai Framework for Disaster Risk Reduction (DRR) (2015-2030). The development of disaster risk management reflects the emerging concepts such as disaster risk reduction and mitigation planning and other measures targeting not only post disaster actions but also pre-disaster approaches to achieve disaster resilience and sustainable development. As can be seen in Figure-3, after 2015 with a paradigm shift from managing the disasters to management of risks, the 2030 Agenda, the Paris Agreement on climate change, the New Urban Agenda (NUA), the Addis Ababa Action Agenda (AAAA), cover Disaster Risk Reduction and resilience measures, parallel with the goals and targets of Sendai Framework and accept the Disaster Risk Management as one of the prerequisites to building resilience (UNDRR, 2019). This new approach creates window of opportunity in cities and societies to "build international coherence and foster risk-informed policy and decision-making; promote multi-hazard and cross-sectoral approaches to assessing risk; and encourage a deeper understanding of socioeconomic and environmental vulnerability across different sectors and levels of government" (UNDRR, 2019, p.30)

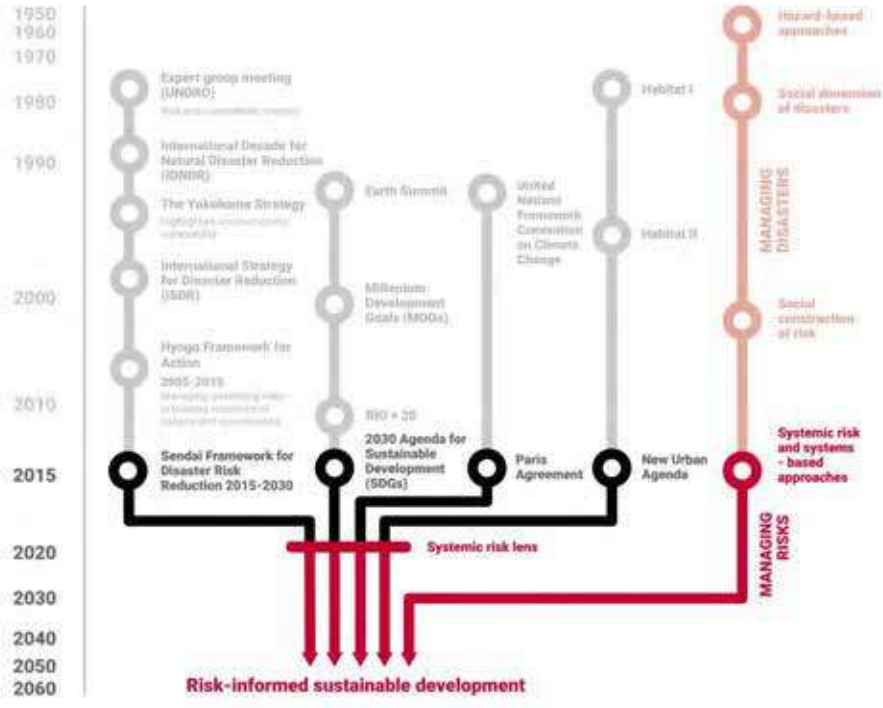

Figure-3: Timeline of Global Disaster Agenda (UNDRR, 2019, p.25)

Sustainable Development Goals (SDGs) for 2030 Agenda, acknowledge the role of risk reduction and resilience in sustainable development policy giving direct reference to the Sendai Framework. In this respect, there exist several indicators and targets related to risk reduction. Another milestone agreement is Paris agreement on climate change where DRR and resilience encrypted in the Agreement's several Actions include call for actions that have direct implications for disaster risk (UNDRR, 2019). As reviewed in the latest Global Assessment Report on Disaster Risk Reduction, Paris Agreement has common objectives with Sendai Framework related with strengthening communities' resilience across the full range of environmental, technological and biological hazards. The global framework for financial aspects of development, in post-2015 period is mainly driven by the Addis Ababa Action Agenda where there exist some references to the Sendai Framework. For instance, it reinforces climate and disaster resilience measures in financing development and entails innovative ways of

financing development with allowing prevention and management of risks, enhancing the national and local actors' capacity while managing DRR (UNDRR, 2019). Further, the New Urban Agenda includes visions, principles and commitments related with DRR and resilience. According to NUA, there exist measures including the sustainable management of natural resources in cities for promoting DRR, promoting proactive risk-based, all-hazard and all-of society approaches (Habitat III Secretariat, 2017). For the resilience, there exist commitments of Member States for improving the resilience of cities to disasters with implementing approaches defined in the Sendai Framework (UNDRR, 2019)

As reflected within the global development and disaster risk management agenda, disaster risk reduction and resilience are core of the global policies. In this respect in for understanding how resilience thinking is integrated with disaster risk management the literature related with (urban) resilience to disasters were reviewed. Cutter (2014), highlighted the non-existence of a universal definition of the 'disaster resilience' concept where consensus on some parameters exists. In the majority of the definitions, besides the engineering notion, the disaster resilience concept developed for connecting disaster risk management, disaster risk reduction and envisioning sustainability of communities by adopting several top-down and community-based actions (Cutter, Burton and Emrich, 2010; Cutter, 2014; Johnson and Blackburn, 2014; Parsons *et al.*, 2016; UNISDR, 2017)

The definition adopted in this study is; resilience to disasters is about, capability of a system or a community to prevent, absorb, adapt or recover from the impacts of a disaster while ensuring to preserve, restore or improve its structures and functions (Cutter, 2014). The components of this system or community which also creates the adaptive, coping and transformative capacity are described as; resilience of ecological, social, economic, institutional and physical (built environment).

Finally, the development of the concept of urban regeneration is reviewed with respect to its contribution to and relationship with the disaster context. For these purposes also, the international cases are analyzed. Concluding from the findings of the literature, there exist an increasing emphasis on urban policies and also urban regeneration as a way of pre-disaster mitigation and risk reduction approach and post disaster recovery and reconstruction mechanisms.

Turkish Case: The Law no.6306

Starting with the review of urbanization and policy context in Turkey, the findings shows that the fast urbanization pattern starting from 1980s with taking the economic restructuring in cities into consideration created new urban forms, new production patterns, new relationships between the people and its environment (Tekeli, 2014). These increased densities of people and buildings, new production and consumption patterns, spatial development phenomenon within the urban areas also have an impact on disaster risks and vulnerabilities in cities. As explained Turkish cities are prone to many disaster risks, primarily earthquakes and floods (Şenol Balaban, 2016). But also, the urbanization experience in many cities created new types of risks such as; the reinforced structures constructed in high rates without having technical consultancy, the urban development without allocating the required amount of open spaces, construction of infrastructure without a plan, the location of emergency facilities, the location of industries and ineffectuality of central and local administrations (Balamir, 1996; Şenol Balaban, 2019)

The urbanization pattern and economic restructuring in Turkish cities resulted in the need for regenerating the areas where illegal settlements were built named as Gecekondu, and the historic centers in metropolitan cities which was mainly dominated by industrial activities. For these purposes, several urban regeneration policies were developed with laws and regulations. The first urban regeneration policies were mostly highly centralized policies adopted to the squatter settlements by the central government (Şengül, 2012; Balaban, 2013; Tekeli, 2014). This was followed by a more decentralized urban regeneration laws in 2000s focusing on redevelopment in historic sites, regeneration and development areas with the law no.5393 and no.5366 implemented by

municipalities. Lately, with the law no.6306 a new centralized urban regeneration policy was developed focusing on regeneration of areas under disaster risk with three types of implementation tool; risky buildings, risky areas and reserve area.

The analysis of the policies of the law no.6306 was conducted through the lens of resilience to disasters framework described in the previous section. The analysis shows that the law has protective, preventive, promotive and transformative intervention mechanisms which have an impact on coping, adapting and transforming capacities at different levels and scales. For instance, the risky building and risky area implementations aim to transform the risky building and places and create new and safe living areas for the community. This approach can be identified as a both preventive and transformative intervention mechanism for protecting the people before any disaster take place and transform the system into a more resilient one with creating or sustaining the existing coping and adapting capacity of places and people. Here, the adapting capacity is about the capacity of organizing responses while facing internal or external disturbances in favor of development and coping capacity is about balancing or safeguarding the impacts of any disturbances or shocks related with disaster risks on livelihoods and commodities. Also, it defines a requisite of negotiation in risky area and risky building implementations which also have an impact on the resilience in a community by increasing the transformative capacity with creating a room for developing a new system when the current system is indefensible. However, this analysis shows the possible impacts of the policies defined in the law, neglects the real impacts faced in implementation of these policies.

Lastly in the analysis of risky area implementations; the data about 230 risky areas were collected from the Ministry and studied for providing a comprehensive idea of the implementation principles and methods. When the risky areas studied countrywide, the majority of the risky areas are in metropolitan cities which is in high earthquake hazard zone. However, this analysis expresses limited information and needed to be developed with a multi-risk analysis. Also, when the distribution of the risky areas considered the dominance of metropolitan cities like Istanbul and Ankara proves the fact that regeneration projects were still developed with a knowledge based on previous experience about urban regeneration.

Findings and Conclusion

The analyses about the urban regeneration and disaster resilience in cities explored the connection between urban resilience to disaster concept and urban regeneration policies and show that regeneration policies like within the Law no.6306, contribute to the resilience to disasters in cities but with some limitations and shortcomings. From the analysis of the policies developed within the Law no.6306, it can be said that there exist several measures aiming disaster resilience and providing actions for disaster risk management with the help of urban regeneration. For instance, the law aims creating resilient cities with safe and liveable environments. With including the resilience in the context of a policy which is administered by a central institution as the Ministry of Environment and Urbanization, the law is contributing to the relationship between built environment, planning and disasters. However, even the law includes both building level and area-based implementation tools such as risky buildings and risky and reserve areas, the connection between these measures and regional and city level urban development policies left ambiguous within the law. More, there exist limited policies defined in terms of comprehensive disaster risk management. The instruments within the law targets primarily the regeneration of the built environment. There also exist only several financial instruments and a negotiation method defined in the law which could contribute to social and economic resilience. But as reflected in the theoretical chapter of this thesis, there need to be ecological, social, economic, institutional and physical resilience measures covering all four dimensions of urban resilience.

As a concluding remark, when the current global urban development agenda is recalled, as reflected in the SDGs and NUA, developing *risk-based, all-hazard and all-of society* approaches while setting the objectives for resilient cities and societies is essential. In this respect, the Law contributes to the proactive risk-based

approaches with including policy instruments focuses on risk concept in buildings (risk building) and urban areas (risky area) yet still have shortcoming related with the all-hazard approaches as the implementations of the policies concentrates on earthquake prone areas.

References

Balaban, O., 2013, 'Neoliberal Yeniden Yapılanmanın Türkiye Kentleşmesine Bir Diğer Armağanı: Kentsel Dönüşümde Güncelin Gerisinde Kalmak', in *İstanbul: Müstesna Şehrin Istisna Hali*.

Balamir, M., 1996, 'Türkiye'de 'Apartkent'lerin Oluşumu: Mülkiyet İlişkilerinin Dönüşümüne Dayalı Kentleşme/ Creation of "apartcities": Urbanization Based On Transformation Of Property Relations', in Sey, Y. (ed.) *Tarihten Günümüze Anadolu'da Konut ve Yerleşme*. Istanbul, pp. 335–344.

Béné, C. *et al.*, 2012, *Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes*, *IDS Working Papers*. doi: 10.1111/j.2040-0209.2012.00405.x.

Brand, F. S. and Jax, K., 2007, 'Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object', 12(1). Available at: http://www.ecologyandsociety.org/vol12/iss1/art23/.

Chelleri, L., 2012, 'From the «Resilient City» to Urban Resilience. A review essay on understanding and integrating the resilience perspective for urban systems', *Documents d'Anàlisi Geogràfica*, 582, pp. 287–306. doi: 10.1007/978-3-642-29470-9_2.

Cutter, S. L., 2014, 'Building Disaster Resilience: Steps toward Sustainability', *Challenges in Sustainability*, 1(2), pp. 72–79. doi: 10.12924/cis2013.01020072.

Cutter, S. L., Burton, C. G. and Emrich, C. T., 2010, 'Disaster Resilience Indicators for Benchmarking Baseline Conditions', *Journal of Homeland Security and Emergency Management*, 7(1). doi: 10.2202/1547-7355.1732.

Eraydin, A. and Taşan-Kok, T. (eds), 2013, *Resilience Thinking in Urban Planning*. Dordrecht: Springer Netherlands (GeoJournal Library). doi: 10.1007/978-94-007-5476-8.

Folke, C., 2016, 'Resilience (Republished)', *Ecology and Society*, 21(4). doi: 10.1007/s11856-017-1611-y.

Habitat III Secretariat, 2017, *New Urban Agenda*. Available at: www.habitat3.org.

Johnson, C. and Blackburn, S., 2014, 'Advocacy for urban resilience: UNISDR's Making Cities Resilient Campaign', *Environment and Urbanization*, 26(1), pp. 29–52. doi: 10.1177/0956247813518684.

Meerow, S., Newell, J. P. and Stults, M., 2016, 'Defining urban resilience: A review', *Landscape and Urban Planning*. Elsevier B.V., 147, pp. 38–49. doi: 10.1016/j.landurbplan.2015.11.011.

Parsons, M. *et al.*, 2016, 'Top-down assessment of disaster resilience: A conceptual framework using coping and adaptive capacities', *International Journal of Disaster Risk Reduction*. Elsevier, 19, pp. 1–11. doi: 10.1016/j.ijdrr.2016.07.005.

Resilience Alliance, 2007, *Urban Resilience Research Prospectus*. doi: 10.1016/0031-0182(90)90136-U.

Roberts, P., Sykes, H. and Granger, R. (eds), 2016, *Urban Regeneration*. 2nd edn. London: SAGE Publications.

Şengül, H. T., 2012, 'Türkiye'nin Kentleşme Deneyiminin Dönemlemesi', in Alpkaya, F. and Duru, B. (eds) *1920'den Günümüze Türkiye'de Toplumsal Yapı ve Değişim*. Phoenix, pp. 405–451.

Şenol Balaban, M., 2016, 'An assessment of flood risk factors in riverine cities of Turkey: Lessons for resilience and urban planning', *Metu Journal of the Faculty of Architecture*, 33(2), pp. 45–71. doi: 10.4305/METU.JFA.2016.2.3.

Şenol Balaban, M., 2019, 'Hazard-prone cities and recent challenges in the case of Urban transformation experience of Turkey', in *Urban Book Series*, pp. 235–259. doi: 10.1007/978-3-030-05773-2_12.

Tekeli, İ., 2014, 'Lessons from Turkey 's Urbanization Experience'.

UNDRR, 2019, *Global Assessment Report on Disaster Risk Reduction*. Geneva, Switzerland.

UNISDR, 2012, *Making Cities Resilient Report 2012: A Snapshot of How Local Governments Reduce Disaster Risk*. doi: 10.2784/71720.

UNISDR, 2017, *Terminology on Disaster Risk Reduction*. Available at:

https://www.unisdr.org/we/inform/terminology#letter-r (Accessed: 2 October 2018).