

Spatial Planning Principles in Disaster Mitigation Targeting Individuals with Special Needs

ABSTRACT

This study highlights the need to develop spatial planning principles in order to increase the resilience of vulnerable groups within the social structure. The social groups that show heterogeneity in the urban area due to demographic, economic, cultural and similar reasons also differ in terms of their vulnerability against disasters. In the literature, vulnerable groups show disparities with respect to their location choices in urban areas, physical conditions of individuals and their participation in social life. Although planning discipline has general expressions and approaches for risk reduction of the groups showing vulnerability based on their location choices, the issue of developing concrete solutions in planning principles and spatial decisions remains uncertain for groups that are vulnerable due to their physical conditions and social divergence. Therefore, the aim of the study is to present a holistic planning framework that takes into account the vulnerable groups challenged by physical conditions such as elderly, children, those with special medical needs and of the disabled individuals, and the groups confronting with social distances such as migrants, tourists and homeless people. The focus of the study is on spatial strategies concerning the disaster mitigation of the vulnerable groups showing special needs, rather than dealing with the post-disaster situations of the targeted individuals and groups. Keywords: disaster mitigation, urban vulnerability, spatial planning and disasters, vulnerable social groups.

1. INTRODUCTION

The vulnerability levels of the social structure, which shows heterogeneity in the urban area for demographic, economic, cultural and similar reasons, to disasters are also differentiating. This variable demographic and social landscape leads to the differentiation of the effects of disasters according to individuals.

Similarly, the resilience of social systems to disasters and policies for developing measures also vary. In particular, disasters that are basically local events (Quarantelli, 2003) may have a quality that changes and determines the population composition. In particular, the effects of disasters on the most vulnerable groups are quite severe and inevitable compared to other groups. Therefore, the level of resilience of fragile social groups to disasters and how they will be affected by disasters are becoming one of the main problem areas that scientists and practitioners should consider together. In this context, the place of these groups in the urban area we point out that the selection should be evaluated within the planning discipline in terms of access to urban services and participation in urban life. In order to make these groups visible within the framework of planning, to develop policies for the vulnerabilities of users and to create standards it is important. This study is shaped by the question of how a planning framework should be presented for disaster prevention of vulnerable individuals and groups. In addition to the summer screening, which allows to understand the fragile groups in a broader scope, the legislation and practices that constitute the disaster planning framework in Turkey have been compiled in the study.

According to the information collected in both clusters, it will reduce the effects of disasters on individuals/segments whose sensitivity to disasters increases even more for a long time and a discussion was held on the need to develop medium-term spatial development strategies.

2. URBAN FRAGILE GROUPS

In particular, the participation of the United Nations in international disaster risk reduction studies in the 1990s marked a turning point in disaster policies, and disasters began to be seen as a development problem facing countries. With the developed perspective on disasters, the understanding of assistance after disasters has been replaced by risk reduction studies before disasters (Balamir and Orhan, 2012). Such an understanding is based on pre-disaster planning studies. The other one is in other words, the concept of avoidance will enter the planning literature. This perspective, which is being tried to be established, was supported by the Hyogo Declaration, which was also gathered under the roof of the UN and published in 2005.

The declaration states that "States bear the responsibility for the protection of people and property within their borders from disasters, and therefore, in accordance with their existing capacities and resources, they should give priority to disaster risk reduction in their national policies," it is said, and the view is reinforced by the idea that policies developed for states to ensure the security of their peoples in the face of disasters and disaster risk reduction will be investments with great returns in the future (UN/ISDR, 2005, 2). According to this developed perspective on disasters, central and local governments will either undertake the risk reduction measures required by international policies and ensure the continuity of urban development by making investments in this direction; or they will bear the cost of the losses that will occur after the disaster and cause the interruption of urban development. Urban vulnerabilities can be defined as accumulations of potential damage to social, physical, and economic systems formed by historical processes. Urban vulnerabilities can be related to the structure of society (class, gender, age, language, race, ethnicity, literacy, civil society, rights, political culture) and historical and structural factors (economic model, income distribution, demographic structure, environmental values, level of technological development) (Bolin and Stanford, 1998; Smith and Petley, 2009). Factors increasing urban vulnerabilities, urban population growth, industrial density, unplanned urbanization, insufficient institutional capacities, lack of information and resources and limited preparation it can be sorted as a level (Orhan 2016). Together with disasters, these factors deepen the impact that cities will be exposed to, turning natural hazards into development problems.

In order to ensure the sustainable development of cities, it is necessary to reduce urban vulnerabilities, strengthen social, economic and physical systems. In other words, urban gaining resilience depends on risk reduction policies and steps taken to address urban vulnerabilities. Groups with a high potential for exposure to danger in the urban area are classified according to their qualifications in summer. I am the one who has pioneering studies about fragile social groups According to Wisner (2003), cities, especially large cities, are socially diverse areas, and cities are home to quite different groups in terms of economic, religious, ethnic origin, language, and a group of illegal residents. In this context, fragile groups are divided according to their location choices in the urban area, the physical conditions of individuals and their level of participation in social life (Table 1). Urban space use, in other words, fragile groups due to spatial location selection are groups that are located in illegal living areas and use dangerous areas of the urban area. Groups that show vulnerability due to their physical conditions are the elderly, children and infants in a weak state, the disabled, special medical it covers patients in need and individuals with mental disorders.

Finally, it is possible to classify groups that show vulnerability due to social remoteness as homeless, immigrants and tourists.

Table 1. Fragile social groups

Fragile groups	Individuals with special needs
Groups showing vulnerability due to spatial location selection	<ul style="list-style-type: none"> - Those who live in the slum area - Deep valley, those who live on unfavorable slopes - People who live on old January mines - Those who live on stream beds, floodplains - Those who live near dangerous industry
Groups that show vulnerability due to their physical conditions	<ul style="list-style-type: none"> - The Elderly - Children and babies - Disabled people - Those with special medical needs - Those with mental disorders
Groups that show vulnerability due to social distance	<ul style="list-style-type: none"> - The Homeless - Immigrants - Tourists

3. THE PERSPECTIVE OF THE PLANNING FRAMEWORK ON INDIVIDUALS WITH SPECIAL NEEDS

It is necessary to evaluate fragile social groups within the planning discipline in terms of location selection in an urban area, access to urban services and participation in urban life (Table 2). Spatial policies are being developed and applications are being made to reduce the risks of groups that show vulnerability according to location choices in the urban area within the planning discipline. At the beginning of these applications, urban transformation and urban sanitation come first. The purpose of spatial policies and practices is to improve the quality of life and ensure urban security through renovation in areas that have become areas of depression in terms of infrastructure, social equipment and housing quality.

However, there is a need to develop planning principles and spatial decisions, especially for groups that show vulnerability due to their physical conditions and the problem of social distancing. The main problem areas of these groups are in terms of access to urban services and participation in urban life. For individuals who have special needs due to physical conditions, there is a need for policies that will minimize the occurrence of problems in the event of a disaster in health, access and special care issues. In groups that show vulnerability due to their social distance, communication, housing and access issues constitute the main problem area.

Table 2. Areas of measures and spatial policies for fragile social groups

Fragile groups	The Main Problem Areas	Precautionary Policies
Groups that show vulnerability due to spatial location selection.	- Accommodation - Poverty reduction	-Urban transformation -Urban sanitation and renewal
Groups that show vulnerability due to their physical conditions	- Health - Access - Special care	-Main issues of accessibility -Standards -Design principles -Urban land uses -Community participation
Groups that show vulnerability due to social distance	-communication - Access - Accommodation	-Sectoral decisions -Local backup capacity -Information in the public sphere

Spatial policies that will minimize the disaster risks of the fragile groups defined in the broad sense in the study have been put forward in terms of location selection in the urban area, access to urban services and participation in urban life. This three-legged approach, which was put forward during the creation of disaster management policies of fragile groups, constitutes the focus of the policy framework with managerial, spatial and social dimensions (Figure 1).

3.1. Managerial approach

The security of the local population in terms of disaster management is under the administration of both the governor and the municipality. On the issue of disasters, the local practitioner of the country's policy is the governor. The governor, together with the local organization of the state, is responsible for emergency management at the provincial level, the use of resources and ensuring urban security. On the other hand, local governments, which are an elected body, have powers and responsibilities related to the management of settlements, society and resources. In addition, non-governmental organizations conduct their activities at the local level and can conduct studies on urban fragile groups. October 1, 2019. According to Wisner (2003), the municipalities society of natural hazards it has the technical expertise and financial resources necessary to protect and help fragile groups develop their capacity to protect themselves, but municipalities may not have detailed information and trust about these groups that may be damaged. On the other hand, the judgment put forward by the same study about NGOs is that they have detailed information about fragile groups, but they do not have sufficient financial and technical resources (Wisner, 2003).

In terms of disaster management, there is a need for intermediate-level local organizing units aimed at understanding the needs of local people directly in terms of space arrangement, standards and usage in cities, and determining the principles of participation in the functioning of these units.

The need to develop a policy on individuals with special needs in disaster management may provide opportunities for the establishment of such an organization. In a broad sense, common platforms where the needs of fragile groups will be revealed can contribute to the formation of sustainable space management.

The collaboration of these platforms, local governments, civil society, researchers and the media to identify and discuss problems specific to local fragile groups and places will allow the formation and updating of a multidimensional disaster management approach.

3.2. Spatial policies

Turkey's urbanization practice has been following a course that has been difficult to keep under discipline, especially since the 1950s, and is confronting the problems that arise in this process while trying to accommodate the rapidly increasing population. One of the biggest threats to the urban area is the high variety of disasters. The need to create policies for the threats that settlements at risk of disasters will pose on heterogeneous social groups is one of the main issues that decision makers and practitioners should take into account. The process that starts with unqualified construction in areas where there are natural threats increases the risks of urban areas with inappropriate inner-city location selection, zoning, construction and usage preferences (Balamir, 2014). It is of vital importance that fragile groups become a part of disaster management and the development of spatial policies that will reduce the vulnerability of these groups.

73 Of the municipal Law No. 5393 on Transformation / Development for groups that are fragile due to spatial location choices. Article 5104 of the Law on the Northern Ankara Entrance Urban Transformation Project, Law No. 6306 on the Transformation of Settlements at Risk of Disasters with the Law No. 5366 on the Conservation and Preservation of Worn-out Historical and Cultural Immovable Assets and their Use by Preservation, it is aimed to reduce disaster risks through urban renewal and transformation.

Measures to be applied on an urban scale for vulnerable individuals due to their physical conditions in disaster management have emerged as a new area that has not yet been discussed on the topic of which planning tools should be developed. This is, on the other hand, "the basic principles and concepts related to urban planning and the design of cities, as well as how the basic concepts of disaster planning it is related to the question of how to reconcile and develop a common framework" (Keskinok, 2014, 6).

While taking into account the needs of vulnerable groups in disaster-risk cities, it is worth discussing the measures, standards and forms to be taken into account in disaster management stages, as well as how the construction patterns should be.

It should be considered how spatial principles should be included in the zoning legislation for fragile groups due to their physical conditions. In this way, it is possible to develop policies that will minimize the disaster risks of these groups by developing standards with urban space usage in zoning plans where the conditions specific to the city and the city part are taken into account (Figure 2).

However, the zoning legislation and zoning plans indicate an arrangement established through the acceptance/assumption of healthy individuals within a homogeneous social structure. The use of urban space, access to services and the creation of urban standards and measurements create a different interpretation according to individuals with limited mobility opportunities. In this case, how do planning principles that seek public benefit in a social structure that is not homogeneous mainly for socioeconomic reasons approach, or should they approach, social groups that are heterogeneous due to their physical conditions? Planning, as an essential requirement of the legislation to which it is subject, approaches individuals from an equality perspective and adopts a singular –healthy- individual while creating its standards it creates spatial decisions through it. Since this assumption is built on a homogeneous and non-fragile social structure and remains deficient in representing the differentiation of society, the need to develop a planning framework for emergency conditions reappears has come out. In line with the mentioned requirement, the problem areas that will open a new discussion area in planning have been formed as follows;

- Can accessibility problems and mapping be removed according to vulnerability situations? Can this be converted into a study that all planning studies should be produced at the preliminary preparation/research stage? So, can the plan be included among the topics that research reports should cover?Dec.
- Can the standards be re-set for the segments that have priority in terms of vulnerabilities? Or can it be foreseen that the standards stipulated in the legal framework/regulations will be re-evaluated according to the fragility conditions in the planning works?
- Is differentiation according to fragile groups necessary in design principles?
- Can the problem of meeting the needs of vulnerable groups in emergency situations be made a priority problem in determining the distribution of urban space use?

These questions are also the questions raised about how individuals with special needs will participate in the zoning legislation, and it will be possible to answer them by supporting the zoning legislation from a point of view that takes into account fragile groups. In the light of these questions, the issues related to individuals with special needs who will guide the zoning plan studies have been discussed under the headings of accessibility, standards, design and uses;

- Accessibility: There is a need for the use of urban space to be produced with a design approach that will allow access to all individuals. The concept of accessibility should be considered in a broad sense, taking into account the need to provide access to buildings and open spaces, transportation and infrastructure, services and information at all levels.

- Standards: It is necessary to rethink the standards of social equipment located in residential units, especially health facilities, in areas with a high risk of disasters. Accordingly, health January and family medicine, which are the first legs of the health echelon, commercial centers that will meet the daily needs of urban residents, should provide services in settlements in the neighborhood unit and the area covered by them should be within walking distance. It is necessary that all social facilities are accessible by pedestrian and vehicle paths and supported by public transport stops. Similarly, the service of urban open spaces it is recommended to keep it large according to the size of the population and, if possible, to preserve and plan it in a way that has continuity between the Decouplements. In order to reduce the disaster risks, especially in densely built cities, the protection of urban open areas and the use of these areas as disaster centers should be taken into account.

In emergency situations, these areas offer the potential for alternate use and temporary housing, it can be used for collection, distribution, temporary storage purposes.

- Design: It is important to make the design of the urban built environment suitable for the use of fragile groups. For this purpose, it is necessary that structures and open spaces where universal design principles are adopted become accessible to all types of users. It is a necessity to make arrangements in the design of all social facilities and public spaces in such a way as to facilitate access, especially in case of emergency. The relations of building entrances with the street, street and sidewalk widths, road-parking connections, the hierarchical layout of the road network, island and parcel sizes, building shapes and heights, pedestrian circulation are issues that can be decided on the relevant plan scale to minimize the risks caused by urban texture and design (Balamir, 2007). Special requirements made at these points designs designed for the needs of individuals will be able to provide ease of evacuation and access.

The design approach sensitive to fragile groups to be applied in urban fabric may vary in areas with different topographic characteristics; especially in the types of disasters that may occur in settlements established in sloping areas, it is necessary to describe the construction conditions and texture standards in the plan notes.

Policies should be developed for the development and diversification of public transport opportunities as well as private vehicles within the reach of vulnerable groups. Pedestrian crossings, sidewalks, bottom and the design, marking, lighting of overpasses according to universal design principles will bring user safety with it. In particular, public transport stops should be designed according to vehicle type, service frequency, surface type, platform width suitable for passenger density should be determined and user-friendly crossings should be created. Since the standards to be applied in the stall designs will facilitate the evacuation of individuals with special needs in emergency situations, these areas should take into account all user groups. Considering the emergency access of fragile groups due to their physical conditions, it should be allowed to dissolve on the surface by avoiding underground and above-ground positions that make it difficult to access the stops. In particular, it is necessary to support underground stops in dense urban centers with non-mechanical ramp-like solutions and elements that increase their accessibility.

- Uses: Determination of urban land uses at appropriate scales according to the service level is one of the basic planning principles. Therefore, neighborhood and neighborhood starting from the unit, making location choices of urban services and accessories, distributing these uses evenly according to the size and density of the urban population, fragile the principles of fair positioning of social equipment and public uses, especially in the areas where groups are concentrated, should be determined in the plans.

In determining the types of use, attention should be paid to inter-use compatibility and especially in the living areas of fragile groups, uses that contain risk-increasing elements should be avoided (Orhan Dec, 2018). Applications with flammable, explosive, polluting content, gas stations, high voltage lines, stations and warehouses should be located away from their living environments and safety measures should be designed due to the risks they pose.

3.3. Risk communication

One of the spatial proposals that should be developed to reduce the disaster risks of groups that are fragile due to their social characteristics is to make public space accessible and to provide information services that will facilitate this. With homeless people, tourists and immigrants regarding emergency situation announcements and information that will enable communication should be made in different languages, emergency plans should be visible, informative announcements about evacuation channels should be included, especially in public space, local governments should prepare spare bed capacity for the housing needs of these groups, measures should be taken to facilitate moving with local people in emergency situations, identifying the areas where these groups are stacked spatially and ensuring that emergency officials reach these areas when necessary.

Taking into account natural hazards in the determination of tourism centers, avoiding investments that will encourage mass tourism in areas exposed to danger, creating disaster and emergency management plans in areas where tourism is concentrated, building quality in buildings and facilities to be built in tourism areas, and to provide services that control its robustness, to develop an infrastructure presentation that responds to the need for infrastructure and social equipment created by the increasing user demand during tourist seasons and offers backup capacity, to determine emergency gathering areas and evacuation channels, to prepare warning documents showing what tourists should do in case of emergency, and to taking measures to eliminate possible communication problems, especially foreigners, due to the problem will help minimize the risks of tourists in their location.

4. ASSESSMENT: DISASTER PREVENTION AND INDIVIDUALS WITH SPECIAL NEEDS

This study has pointed out the necessity of determining spatial planning and design principles in order to ensure that fragile groups within the social structure are made resistant to disasters.

With this study, an extended planning framework is presented that takes into account groups that show spatial fragility by choosing places in risky areas, groups that are fragile due to the physical conditions created by the elderly, children, those with special medical needs and disabled individuals, as well as fragile groups with social distance such as immigrants, tourists and homeless people.

The study brings a criticism to the perspectives and established approaches that do not take into account the conditions of vulnerability in the face of disasters and assume that all segments are in the same conditions in the face of disasters, emphasizing that the planning and design frameworks for before and after disasters should be rethought according to the criterion of vulnerability. For this purpose, study planning and in terms of design principles, he draws attention to the development of spatial decisions for fragile groups; he also advocates the need to produce and diversify concrete answers to what these spatial decisions are with further studies. Cities and people in the design and planning of their settlements, the important thing is not to design separate spaces for individuals with special needs, but to design a common space where individuals with special needs will also take place; instead of creating a space for individuals with special needs, all spaces are designed for individuals with special needs it should be essential to design by assumption. Pointing out the necessity of taking into account fragile groups in disaster management, in every concrete situation and event that may occur, the general as a principled approach, it indicates what kind of planning principles will be observed. When designing and planning spaces, developing multiple options and continuity will be a meaningful choice for all people, especially individuals with special needs in disaster conditions, as well as disaster prevention.

Groups that show vulnerability for spatial, physical and social reasons remain limited in developing mechanisms for disaster resilience; this limited coping ability increases the disaster risks of social groups and the problems they face during and after a disaster. Therefore, comprehensive risk reduction policies to be developed for vulnerable groups are urban it will contribute to the heterogeneous population's resilience to disasters. The study gathers the planning principles to be developed for fragile groups in three focuses; location selection decisions in urban areas, accessibility to urban services and opportunities for participation in urban life. Through this tripod, a planning approach in which individuals with special needs are taken into account in disaster management the basic principles have been revealed. Accordingly, it is necessary to create a participatory decision-making and implementation mechanism by creating intermediate-level local organizational units in terms of Decadence. On the other hand, in the legislation containing urbanization and zoning conditions, decisions regulating the location choices of urban fragile groups are made taking into account individuals with special needs the need for reconsideration has emerged. It is clear that the standards for access to public services and information to urban areas, especially in emergency situations, need to be re-established. Place-specific conditions and fragile groups should be taken into account in the design of built and open spaces and land use decisions. The principles mentioned in the article are mainly related to the dense building stock it is expected to be applied in cities with a high risk of built-up disasters. At the same time, in the light of this information, urban parts sensitive to the risks of fragile groups should be produced in new development areas. Finally, the entire society and all individuals participating in urban life should be informed about disaster risks and emergency situations, and measures should be taken to facilitate risk communication to all environments.

In order to conceptually advance the study, it is necessary to review the zoning legislation and think about how the concept of "vulnerability" can be placed in the relevant legislation as a legal concept. On the other hand, in the following studies, it should be investigated how fragile groups are affected by disasters, the needs of the damaged groups after disasters should be determined and recovery their processes should be monitored, however, the main problem areas in the recovery process should be identified. Thus, it will be possible to contribute to the separation of groups that show vulnerability for different reasons and for local and central governments to come up with concrete policies in disaster management according to the conditions of vulnerability.

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