

IMPACT OF POST-DISASTER RELOCATION ON THE COMMUNITY

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Keywords

Relocation, Post Disaster Housing, Socio-spatial, Adaptation

Abstract

This study examines the socio-spatial impact of the post disaster relocation on the affected community. Concept of relocation is examined by using case studies in Duzce, Kocaeli, Sakarya and Yalova provinces that are heavily damaged by the Marmara Earthquake of 17 August 1999 and latter Duzce Earthquake 12 November 1999 in Turkey. Firstly, the relocation of the community to another region after the provision of permanent housing described and then the housing sites are evaluated. The adaptation of the disaster victim's and the affect of relocation on the community were analysed in four different post disaster permanent housing settlements. The results of the study clearly shows the social and psychological adaptation of the disaster affected community to the new settlement, give cues about the designing-planning strategies for post disaster settlements and clarify the role of the participation of the disaster victim's to the post disaster housing issues. The new and old environs are evaluated from the victim's point of view as well.

Introduction

Disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to life and property. The damage caused by disasters is immeasurable and varies with the geographical location, climate and the type of the earth surface/degree of vulnerability. This influences the mental, socio-economic, political and cultural state of the affected area. Generally, disaster has the following effects in the concerned areas,

- It completely disrupts the normal day to day life,
- It negatively influences the emergency systems,
- Normal needs and processes like food, shelter, health, etc. are affected and deteriorate depending on the intensity and severity of the disaster (www.karimganj.gov.in).

After the disaster the main aim is to return back to normal life. A series of relief activities are realized at three stages. These are described as the following:

- Emergency: In this phase the primary concerns are the saving of lives and support of immediate human needs.

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- Rehabilitation: This phase is characterized by the establishment of temporary social structure. It extends for a considerable period of time until permanent reconstruction is completed.
- Reconstruction: This phase is generally a return to normalcy. The ultimate goal is self-subsistence at least equal to that of the pre-disaster situation (Sey Y., 1999).

Post Disaster Housing Problem

The loss of shelter and livelihoods increase vulnerability of communities leading to greater poverty. There is confusion regarding reconstruction, as people often do not know how to build better and safer for the future (www.devalt.org). Shelter problem after the disasters are generally followed by four overlapping phases;

- Spontaneous Shelter (first 72 hours) - to provide an interim, safe haven while the situation stabilizes.
- Emergency Shelter (first 60 days) - to provide emergency shelter and feeding to displaced population requiring shelter.
- Interim Housing (first year and beyond) - to provide temporary housing - safe and secure shelter, water, power, and heating - to displaced disaster victims while efforts are underway to make permanent repairs to dwellings, or to find other suitable permanent housing.
- Permanent Housing - to provide long-term, permanent housing solutions for disaster victims (HRWG, 1998).

The challenges of housing reconstruction projects in the post-disaster situation are similar to those challenges met in many low-cost housing projects in developing countries. However, in the post-disaster situation, there are some added challenges:

- The scene is generally very chaotic and resources are in scarce supply, with simultaneous projects being launched by numerous local and international organisations for housing and infrastructure repairs, for livelihoods creation, and for a range of other social programmes,
- Projects must be completed as quickly as possible to foster recovery and to satisfy donors who want to see results
- The post-disaster period is generally seen as good opportunity to engage in activities that will increase the level of development and reduce vulnerability to future disasters, implying that projects must be implemented with sustainability in mind.

According to the 4th article of the regulation about ‘Assessment of Holder of a Right’ of Law. No.7269, one is eligible to own a new, government built permanent residence after a disaster if his/her house is demolished or heavily damaged in such a way that it cannot be accommodated anymore. Moreover, owners of houses, which are located on the land that is going to be expropriated for the relocation of people, are also classified as beneficiaries. In other words there were three main principles that underlined the government’s schemes of solving housing deficiency that has increased tremendously after the disaster with the criteria of; being house owner, houses should be badly damaged or collapsed capable of paying the credit fees which were relatively small (Demirel S., 2005).

The second option for housing is the Loan for the Individual Construction of Homes (EYY). Loans are provided within "Loan for the Individual Construction of Homes (EYY)" scheme. 5867 housing units had had supplied in rural areas with this method. The numbers of housing units, which have constructed for the eligible owners, are 4.252 in the rural areas and 13.065 in the urban areas adding up to a total of 17.317 units by EYY method. Eligible ones are those determined out of the families of whose home has been demolished or have been highly damaged in according to the provisions of the Law numbered 7269.

This credit is given in two ways:

- The right-owners in villages that want to build their dwellings on their own building lots, had given 3.5 Billion TL. EEY loan and these loans will be paid according to the implemented construction stage (on a "percentage" basis).
- The eligible ones in the provincial and sub-provincial centers, who want to build their dwellings in their own building lot located in provincial and sub-provincial centers or within the boundaries of neighboring districts and mukhtarhoods, had been given 6 Billion TL. EEY loans had been paid on a "percentage" basis (Tercan B., 2001).

Research Objectives

The research objective of the study is to provide a further understanding of the significant characteristics of socio physical adaptation problems to the new post disaster environment, as defined by the residents of the four relocated province (see Figure 1) in Turkey. The second objective of the study is to examine the social impact of relocation on the residents after a natural disaster. For clarifying these purposes the research questions are determined as;

- What are the effects of relocation on the community during the reconstruction phase?
- What is the level adaptation of the community to the new environment?

Research Methodology

The problem of mass-homelessness created by 17 August and 12 November 1999 earthquakes in the west of Turkey were tackled by the Turkish government in two phases, respectively involving resettlement of the survivors in temporary prefabricated houses and reconstruction of permanent housing outside the disaster affected areas. This paper firstly describes and evaluates the disaster affected provinces' permanent housing provision system that cause relocation of the community to another region. The adaptation of the disaster victim's to the new environment and the affect of relocation on the community were correlated and analysed by four different case settlements in four different (Kocaeli, Sakarya, Duzce, Yalova) provinces (see Figure 1).

Concept of Relocation

Relocation is defined as; the movement of a settlement (or portion of a settlement from an unsafe location to a safe location to re-establish a community, or it can be defined as; removal to another location with provision of land and housing. It can be voluntary or involuntary. The relocated people affected by disasters are called as: "victims of disaster" (Tercan B., 2001). 'Relocation' as; "the movement of a settlement (or portion of a settlement) from an unsafe location to a safe location to re-establish a community, or it can be defined as; removal to another location with provision of land or housing." The legal regulation of this process is bound to Law No.7269. According to the 16th article of this law, the sites to be relocated are to be decided by "a joint committee consisting of representatives of the Ministries of the Interior, Finance, Public Works and Settlement, Health, Agriculture, Forest and Rural Affairs," whereas the implementation is done by the Ministry of Public Works and Settlement (Demirel, 2005).

The relocation from publicly funded projects is both voluntary in some cases and involuntary in others. The Turkish government's strategy of solving the housing deficiency and housing need emerged after the earthquakes was to conduct a few mass housing projects and to provide housing credits with low interest rates. But these were only for those who were the owners of damaged/badly damaged/collapsed houses and/or offices. In other words people who were house owners considered as the main targets of all the projects conducted by the

state. These people as property owners were called "*Hak Sahibi*" (Holder of a Right those who have the right of making claims for the state funds, credits, etc.) (Yarar B., 2005).

Relocation of the Settlements After the Disasters

The relocation of any community poses serious problems, due to the attachment of communities to their settlement location on account of ethnic traditions, kinship ties, livelihood security and cultural/ historical associations. However, there are situations where relocation is unavoidable, and thus needs to be managed with skill and sensitivity. Relocation of settlements can be a temporary or permanent option. Relocation is temporary with their settlement land inundated and therefore they need to be relocated, with possible external assistance, until flood waters recede. However, when flood waters erode land, or landslides destroy settlements, then relocation has to become a permanent reality. Relocation after conflict can be both temporary and permanent, depending on the extent and continuation of hostilities. In some areas where there are high levels of vulnerability to natural hazards, authorities attempt permanent relocation but this is very rarely a feasible option, since it is normally opposed by residents, who resent such imposed actions and fear the economic consequences. Another objection is that the vacated unsafe land resulting from relocations is normally rapidly re-occupied by incoming families, thus re-establishing the vulnerable status-quo (Ian D., 1978).

When one is forcibly moved from one place to another because of a natural disaster, refugees have to face many problems in adjusting to their new surroundings. The environmental transition of relocation to restoration housing is conceptualized as consisting of two major elements which are essential for understanding environment-behavior transactions (Kobayashi, M. and Miura K., 2000). Post-disaster behavior in securing shelter and housing is "influenced and constrained by social, cultural, ecological, historical and political-economic conditions". Finally, the issue of relocation is directly tied to pre-event social location. Most research indicates that victims resist any type of relocation, even to temporary shelters, in order to stay as close to their homes as possible (Oliver-Smith A., 1991).

The Impact of Relocation on The Community

Relocation can result in significant adverse impacts on the resettled population (particularly the most vulnerable members of society) due to a number of factors, including:

- The loss of shelter and land, and inadequate sanitation (leading to malnutrition and other health problems)
- An often precipitous decline in the quality of education and employment opportunities
- (displaced individuals may no longer have access to agricultural lands and commercial enterprises)
- A disruption in social support networks (social activities may never be restored and dispersed individuals may have trouble adjusting to life away from family and friends);
- and the loss of cultural assets (Cernea M., 1996).

Turkey as Case Study

The 1999 earthquakes had a huge social impact on the affected community. The fatality rate from the earthquake is in the range of 14,3 per thousand depending on the affected province. This is more than five times Turkey's natural annual crude death rate. Injury rates are also very high and many of the survivors are traumatized by their ordeal. An estimated 400,000–600,000 people have been left homeless. (www.worldbank.org). This Study analyses four provinces of Turkey (see Figure 1) according to the relocation of the disaster victims to the new permanent housing settlements. The number of housing units constructed in the studied provinces can be seen in Table 1.

Table 1. The Distribution of Post Disaster Permanent Housing Settlements According to Cases (Karaduman N., 2003)

PROVINCES	WORLD BANK	THE EUROPEAN INVESTMENT BANK	HOUSE (DONATION)	MINISTRY OF PUBLIC WORKS AND SETTLEMENTS		TOTAL HOUSING UNIT
				EXTERNAL CREDIT	INTERNAL CREDIT	
Duzce	1004	-	-	-	7000	8004
Kocaeli	8432	1250	656	7522	-	17860
Yalova	-	-	358	5120	-	5478
Sakarya	2608	1000	1560	3167	-	8335

The permanent houses constructed by the World Bank's credits were totally 12048 and distributed as 1004 in Düzce City, 8432 in Kocaeli City and 2608 in Sakarya City. The permanent houses constructed by the the European Investment Bank's credits were totally 2250 and distributed as 1250 in Kocaeli City and 1000 in Sakarya City. The permanent houses constructed by the donations were totally 2574 and distributed as 656 in Kocaeli City, 358 in Yalova City and 1560 in Sakarya City. The permanent houses constructed by the Ministry of Public Works and Settlements were totally 22804 and distributed as 7000 in Düzce City, 7522 in Kocaeli City, 5120 in Yalova City and 3167 in Sakarya City.

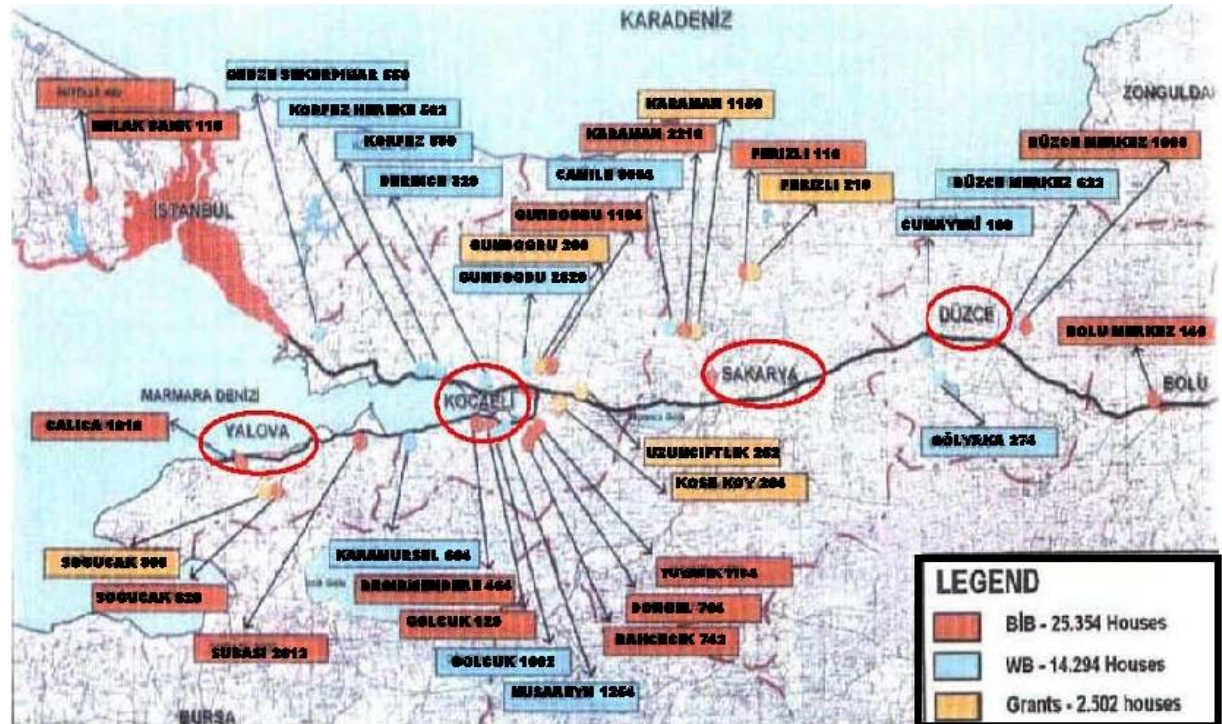


Figure 1. Permanent Housing Areas in Marmara Region four different post disaster housing settlements (MPWS, 2001)

The Evaluation of the Post Disaster Settlements in Turkey

The results of the evaluation of Duzce, Kocaeli, Yalova and Sakarya provinces post disaster housing settlements can be summarised as;

Düzce; According to the survey conducted from 100 residents in permanent housing site (Yıldırım T. and Arslan H., 2003). The user's expectations can be determined as;

- Permanent houses are generally constructed 3–5 storey but the residents expectation was to live in 2 storey houses with garden.

- The new settlements are 6 km far away from the city center. Residents do not have the mass transportation culture. They lived very close to their works and they did not use mass transportation in the city center before the disaster.
- The typology of the land has high slopes and the roads are also very straight. The typology creates new housing units. But the new units are under the ground level and they had insulation problems. The residents did not want live in this units.
- Because the coincidence (they take a kind of a lottery for housing) in distribution of the houses, different social groups come together as neighbors. They had social problems. Residents want to sustain their pre disaster neighborhood relations.
- The lack of social centers cause residents to go frequently to the city center that takes nearly 45 minutes.

Kocaeli:

- The lottery system during the selection of the housing units cause a social conflict that different people with different social and economic conditions live together. The tendency of high income people is not to live in this sites. They generally give the houses to renters.
- The houses only meet the needs of the user's in a minimum level.
- Kitchens are found insufficient by the user's.
- The tunnel mould system restricted the construction in limited modules that prevent for flexible design.
- One type facade design found monotonous.
- The housing settlement is far away from the city center.
- Generally the finished infrastructure and the childrener parcs found sufficient (Öztekin K., Demirarslan D. and Bilgiç D. E., 2003).

Öztürk's (2004) study conducted from 100 family also shows that only 37 % of the residents are pleased about the shopping needs and had to go to the center in Kocaeli province.

Sakarya:

According to the survey conducted from 500 family in permanent housing site (Özdemir, A., 2005). The user's expectations can be determined as;

- Nearly 60 % of the residents in the permanent housing site lived there because they have no other choice.
- Although 5 year passed from the relocation period and it is difficult to turn back to the city centre over 10 % of the residents want to turn back to the city centre. Over 40 % go to city center every day.
- 80 %of the residents do not want to turn back to the city center because they have traumatic memories, big physical ve moral damages.
- 66 % of the people think that the shopping centers are insufficient. They want more social infrastructure. They had to go frequently to the city center.
- The relocation cause 50 % of the residents to see their old neighbors rarely. Residents who can meet with the old neighbors more than two times a week is nearly 15 % of the residents.
- The people who feel that they had been removed are from their old environments, ties, the city center, etc. think that the construction of the post disaster housing must be in the old city or a place close to the city center.
- The new settlements are inadequate to meet the peoples predisaster habits and life.
- The people are socially dependent to the city center. The residents go to cinema, theater and education to the city center.

Yalova:

Taşpınar's (2003) study conducted from 20 family in post disaster housing settlements in Yalova shows that;

- 75 % The residents who had bigger house before find the new house small and insufficient. They want four room houses whereas the new houses had three.
- Especially in common use areas there is a problem of heating because the residents tend to find individual solutions for their problems. They do not have a collective life before. They generally lived in their own house with gardens and problems to adapt the new orders.
- The residents want to participate in permanent housing projects. This tendency could increase the level of user satisfaction in the houses and their close environment.

The Results of Post Disaster Relocation in Turkey

The consequences of relocation itself may be more harmful than the impact of the disaster. On the basis of the analysis of relocation experiences a number of conclusions can be drawn;

— Relocations appear to have caused unnecessary suffering for the people involved. It is clear that any attempt to remove people from their existing physical, social and economic environment will have far-reaching implications for their lives.

— Involuntary relocation often involves removal from an environment in which the society has evolved centuries old patterns of adaptation. This relationship to the environment may be based on economic, political or socio-cultural factors or a combination of any or all three. Economic dimensions such as soil fertility, resource availability, overall productivity or access to employment or labour resources; political factors such as territoriality, leadership structures and inter-group relations; and cultural factors such as the intimate (privacy) connections between environment and religion, cosmology, world view, and individual and cultural identity may all play significant roles in the relationships of a society to its land base and general environment.

— Some ties lie at the core of both individual and collective constructions of reality, and removal from their most basic physical situation constitutes a cultural and physical crisis of profound dimensions. From the perspective of displaced people un-participated or forced relocation becomes a new disaster. The opportunity for participation in the decision-making by the relocates was in most cases rather limited, and this partially explains the lack of success.

— The identification of several possible relocation sites and the demarcation of selected sites is a critical step for both rural and urban resettlement. Acceptability of relocation by a community depends on the provision of social and technical services.

— For urban resettles, the new site should ensure comparable access to employment, infrastructure, services, and production opportunities.

— Design of the houses also plays a very important role on occupancy. Housing design and construction are often blamed for the reaction towards or failure of post-disaster resettlement projects. Faulty construction and inferior materials in houses become quickly evident with use and create difficult living conditions, particularly regarding thermal protection in different seasons. Houses are cited as being too small for large rural extended families (Tercan B., 2001).

Conclusion

The pre disaster social and physical environments are very crucial in site selection process of the new housing settlements. The relocation of the people to a new site which is safe but far

away from the city center causes the residents to be displeased. So the possibility to construct and rebuild in the same area (if technically possible) can give to sustain the predisaster daily lives and social ties. But in case of necessity the new housing site could be constructed to a safe and closer part of the city in order to overcome the problem of social and physical integration problem of the new settlers to the disaster affected city/region. Because Although it provides safe environments, to relocate faraway from the city center also costs too much to the government and it prevent the other reconstruction activities.

The participation of the residents to the design process of the housing could increase their level of satisfaction and adaptation of the disaster victims to the new environment. The flexible design could enable the users different alternatives in the interior design of the houses and they could easily adapted to their daily lives which is the part of their psycho-social reconstruction. This approach will also create more humanistic solutions in post-disaster housing design.

Post disaster relocation processes are important in reducing future hazard risk in earthquake prone areas. Within these processes, site selection studies relying on geological criteria are one of the most important steps. However, it is not going to be effective unless other criteria such as socio-cultural, traditional, economic, psychological, legal and institutional are not taken into consideration systematically (Tercan B., 2001). The new environment could not be designed with a rigid and repeated geometrical forms but also could reflects the social and physical patterns of the old environs. The special characteristic of the disaster affected sites could be defined with detailed socio-spatial analyses and researchs in order to find different solutions for different residents and regions.

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