

# **DEVELOPING A MODEL FOR COMMUNITY INVOLVEMENT IN POST-DISASTER HOUSING PROGRAMMES**

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## **Abstract**

The problems related to post-disaster housing process have been continuing for years in Turkey and the victims of the disasters have been complaining about these problems. The diverse problems can be categorized such as design problems, construction problems, environmental problems, socio-cultural problems, etc. Community involvement in housing recovery process after disasters is seen as one of the major problems. In this study, the post-disaster housing process or housing recovery process in Turkey is examined very briefly under the illumination of two examples, a rural post-disaster housing settlement of Senirkent (constructed after 1995 Senirkent flood disaster) and an urban post-disaster housing settlement of İkitelli (constructed after the Marmara Earthquake of 1999). The households have been complaining about the housing recovery process and the complaints are seen as the important indicators for the failure of the projects. The aim of this study is to develop a discussion related to constructing a model for development and enhancement of the community involvement in housing recovery process post disasters. So, the post-occupancy evaluation examples are used to illuminate the aim of the study. The study could be also beneficial in constructing a sustainable model for housing recovery programmes post disasters especially among vulnerable communities.

*Keywords: Community Involvement, Disaster, Housing Recovery Process, Post-disaster Housing, Sustainability*

## **INTRODUCTION**

Disasters are hazardous events which effect communities in such adverse ways that essential social structures and functions are disrupted (Disaster Terminology, 2005). In all countries, but especially in developing and undeveloped countries, the communities are more vulnerable to disasters if they are not resilient enough. Coping with disasters and enhancing the coping

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capacity of the community are the prior targets of governments in vulnerable countries such as Turkey. The most important disaster risk for Turkey is the earthquake risk because the country is located in one of the most seismically active regions of the world. However, beside the earthquake risk, there are some other natural disaster risks such as the landslides, floods, drought, rockfalls, and avalanches.

In order to cope with disasters, most of the governments have been using a model which is called "disaster management". Disaster management is a collective term encompassing all aspects of planning for and responding to disaster including both pre and post disaster activities. It refers to the management of both the risks and the consequences of disasters (JICA, 2004a). There are four main phases of this system which are seen as a cycle, a series of interlinked activities; Mitigation, Preparedness, Response, Recovery and Development. These activities do not start and stop with each disaster occurrence (JICA, 2004b). It can be also asserted that they are the activities between the occurrence time of two following disasters. The destructive effects of disasters on economy, and social and physical structures have been forcing the governments to take serious measures in Turkey. So, the governments have been studying on the construction and strengthen of a holistic disaster management system in order to cope with disasters and reduce the effects of the disasters on the social, economical, and physical structures of the community.

The recovery and development phases or in other words rehabilitation and reconstruction phases post disasters have important roles in success of the current disaster management strategy in Turkey. In a holistic disaster management approach, the four phases are needed to be used effectively before, during, and after a disaster. However, the mitigation and preparedness phases are generally not given much importance in vulnerable countries, and usually the management system begins with the response step and finishes with the recovery and/or rehabilitation step. This situation is criticized and it is pointed out as the primary reason of the vulnerability of a community in a disaster situation. Moreover, it is seriously asserted that the efforts which are done before a disaster occurrence are more important and beneficial than the response and recovery efforts. This point of view does not mean that the search and rescue, and rehabilitation phases are less important, but it means that if the mitigation and preparedness steps are constructed well, during the emergency situation and the reconstruction phases post disasters, the coping capacity and the resilience of the affected community will be constituted much better. On the other hand, in developing countries such as Turkey, planning and developing a holistic disaster management system is a long term effort. However, the occurrence periods of disasters have been becoming frequently because of some reasons such as the effects of environmental degradation, global warming etc. Adding to this, the effects of disasters have been widening which can be bounded to the

rapidly growing urbanization, consumption and destruction of the nature, side effects of rapidly industrialization, and so on. So in short and long term, it is inevitable that Turkey will be effected by the predictable and unpredictable disastrous events.

The aim of this study is to develop a debate on the ways of constituting a community involvement approach in rehabilitation and reconstruction phases post disasters. It seems as an urgent need and necessity in order to construct a sustainable and disaster resilience community in short and long term. Two case studies which were conducted by the researcher in different times are used to catch the important views and problems related to the community involvement in the reconstruction phase. So, firstly the case studies are presented very briefly with the findings. Following to this part, a debate is constituted on the findings and how to use these findings in developing a community involvement model for rehabilitation and reconstruction programmes post disasters in Turkey. A conclusion part is going to be the final part of the study.

## **THE CASE STUDIES AND RESEARCH METHODS**

The two case studies were conducted in different times and places in Turkey. On the other hand, the case study instruments (survey instruments) and methods were very similar to each other. However, both of the case studies investigated the post-occupancy problems of the post-disaster housing in Turkey. The problems were investigated mainly under the items of design, construction, management, and socio-cultural problems. The investigations of post-occupancy evaluation of the two cases were conducted in different regions of Turkey. One of the regions is a district of Ikitelli in the metropolis of Istanbul in Marmara Region and the other is a small town of Senirkent in Central Anatolia (Özden, 2004).

The earthquakes which hit the Turkish towns of Izmit and Duzce in 1999, known collectively as the Marmara earthquakes, not only took a terrible human toll, they also cost the country around US\$20 billion in damage alone, equivalent to over 10 per cent of annual gross domestic product (GDP). Two earthquakes of 1999 left up to 20.000 people dead and 50.000 injured in north-western Turkey (World Disaster Report, 2002). Ikitelli district, located on European side of Istanbul, was one of the case study areas. An area in the borders of the district was chosen to construct the post-disaster housing settlement by the Ministry of Public Works and Settlement.

In June 2000, the construction started under the control of The Ministry of Public Works and Settlement. The project was composed of 810 dwellings (Figure 1). Both the project and the construction were entrusted to the contractor firms by The Ministry. The selected firms finished the first 650 dwellings in September

2001; and the rest, 160 dwellings, were finished at the end of year 2002 (Özden et al, 2003).



Figure 1: Exterior views of the Ikitelli Post-disaster Housing settlement

At the end of year 2002, in October and November, a case study was conducted in the Ikitelli post-disaster housing area related to the post-occupancy evaluation of the new settlement. The methodology of the study was based on site observations and application of the household survey, consisting of 50 questions, addressing, among other things, (1) demographic characteristics of the household; (2) sequence, duration, and number of household movements post-disaster; (3) satisfaction levels with former houses (pre-disaster housing) and satisfaction levels with post-disaster housing; (4) satisfaction levels with pre-environment and current environment (Özden, 2005).

Another case study was conducted in an Central Anatolian town, Senirkent, in 2003. The area on which the town is located, is neighbouring the Mediterranean region. The town is 1010 meters high from the sea level and the population is 10.738 (Özden, 2004).

On 13th of July, 1995, soon after a heavy rain at the evening hours, a huge and destructive mud flood destroyed a total number of 320 dwellings, of which 195 were completely destroyed, 18 moderately destroyed, and 107 lightly destroyed in Senirkent. The disaster killed 74 people and injured 46 people. Dwellings that were constructed with mud-brick could not resist to the flood, also called as cold lava by the authorities (Özden, 2004).

Soon after the disaster, The Ministry of Public Works and Settlement started to look for an area for constructing post-disaster housing. The general approach in the preference of a new area for the new houses was depending on the resettlement of victims far from the affected area. The main criterion which was used by the government in determining the new area was the geographical position of the place, that means the new place was far enough to the risky area.

The methodology and approach for the post-disaster housing project and construction were the same as in the Ikitelli example. The ministry entrusted the reconstruction of the post-disaster housings to a private firm. In fact the projects had been designed for another post-disaster housing area previously, so the revision and application to the new area would not take the authorities of the ministry too long. They could finish the projects nearly in 10 or 15 days, and send to the contractor firm. The construction started in August 1995 and finished in December 1995. 188 dwellings were constructed which were composed of 16 blocks, 15 of which were three-storey blocks and one of which was two-storey (Figure 2).



Figure 2: Exterior views of the Ikitelli Post-disaster Housing settlement

In July and August in 2003, the author conducted a survey in the region. The methodology of the survey was very similar to the one employed in the Ikitelli example. A similar type of questionnaire with the Ikitelli survey, consisted of 31 questions was used. However, site observations were also used in forming the survey results.

## THE RESEARCH RESULTS

The results which were found out from the both surveys are carrying similarities in terms of problems related to the post-disaster reconstruction process. These problems could be set in order under the following titles; socio-cultural, economic, infrastructure and planning, construction quality, and decision taking process (Özden, 2005);

- *Socio-cultural*; the new settlements were constructed far from the affected areas, that it was seen as a risk reduction policy by the government. On the other hand, it was really a long period and process for the victims in terms of adaptation to resettlement. They were generally emphasizing that they were missing the pre-disaster environments. It was pointed out that they left lots of things behind such as neighbours, friends, shops and outlet places, streets, natural and built environment covering the pre-disaster housings, memories, social interaction and gathering places etc. which were all have very

important places in their lives. This dramatic view was growing in the adaptation period to the new settlements. The new areas were seen as full of unknowns with the new natural and built environments. The victims had been trying to reconstruct the neighbouring relations and socio-cultural structure of the new settlements. So, the adaptation process had been taking a long time which had been also causing more unhappiness and despair. Some of the victims asserted that they were sometimes feeling themselves as refugees, migrants. The pre-disaster areas had the structures of the social and cultural interaction spaces such as mosques, coffee shops, green areas, parks etc. which the new settlements had any or very few. These problems are indicating some strong clues related to the insufficient socio-cultural structures and mechanisms in the post-disaster reconstruction process.

- *Economic*; the main problem which was complained related to the economic difficulties facing in the post-disaster settlement areas was the distance of new settlements to the working places. Most of the working population in the settlements had jobs and working places in or near the pre-disaster areas. So, the transportation had become a serious problem. However, people did not prefer to move their working places to the new area and also most of the workers did not have much chance to find a new job near to the post-disaster housing settlement. The transportation and proximity to the working places had seen most important economic difficulties. In addition to these, especially in Senirkent, the valuable productive agricultural areas were used in reconstruction of the new settlement. The economic losses and the degradation of agricultural land could cause some serious problems in the future which could not be exactly estimated from now.
- *Infrastructure and Planning*; the most important problems were seen as the insufficient infrastructures such as uncompleted roads, unconstructed natural gas pipe lines which were needed for heating, cooking etc., and the insufficient telephone lines. Also in both settlements, the landscape design had not been developed. Especially in the Ikitelli settlement, the main road which was linking the area to the neighbouring areas had not been finished. Moreover, the nearest school and shopping center were a few kilometers away and there were very few transportation vehicles which were passing through the new settlement rarely. So, the transportation to the social, cultural, education, health centers was very difficult, especially for the disabled and elderly people, and children.
- *Construction quality*; the households were usually complaining about the low quality of construction. The water installation systems (such as bathroom installations) were causing some serious problems in most of the dwellings. The exterior walls, facades were not water-resistant and there was always water leakage from the exterior walls of the dwellings. The building materials were of low quality (installations, windows, doors, paintings etc.). Water leakage and humidity were some of the problems faced in the basement

floors. There were serious problems with the roofs of the blocks, especially the water leakage from the roofs were causing important problems.

- *Decision taking process*; the findings presented above and some other ones are all indicating that the victims could not find any chance to participate in the reconstruction process. In fact, the formal administrative strategy of the government is to take all the responsibility both in the planning and construction phases of the post-disaster reconstruction. So, in the decision taking process, generally the community could not take place. The problems presented above titles have in fact very strong relations with the lack of community involvement during the planning and construction steps.

The above results are very briefly given and can be multiplied. The post-occupancy evaluation examples are indicating an important issue which can be generalized as the lack of community involvement in rehabilitation and reconstruction post disasters. The similar studies conducted in Turkey are giving the similar problems related to the post-disaster housing process (Oliver, 1987; Oliver-Smith, 1992; Enginöz, 2004). Disaster is first of all seen as a crisis in communicating within a community \_ that is, as a difficulty for someone to get informed and to inform other people (Quarantelli, 1998). The failure and success of rehabilitation and reconstruction projects are definitely depending on public involvement in the projects. The victims wait in tents and/or prefabricated temporary shelters for months, even years for a lottery which the ministry will organize in order to give the permanent houses. So, the households are unaware of their new houses and environments until the lottery is organized.

### **CONSTRUCTING THE COMMUNITY INVOLVEMENT APPROACH IN POST-DISASTER RECONSTRUCTION PROGRAMMES**

A similar finding such as the above ones was stressed by Enginöz (Enginöz, 2004) in an other example of post-disaster housing settlement of Dinar in Turkey. He said that distributing the post-disaster houses to survivors by a lottery and a new experience living in apartment life, make deep social problems. He continued that the lottery caused people to stay in different parts of the city far away from their previous neighbourhoods. Because of that, families and close neighbours were separated from each other. They were forced to live in apartment buildings with many families who never knew each other before. The socio-cultural problems caused people to adapt their new environments very late. The additional problems related to the new buildings such as low structural and construction material problems also increase the delay in adaptation to new surroundings, the psychological and physical problems began to occur among victims. During one of the conversations in the Ikitelli case study, a household said that “we did not understand that we were victims of a disaster during the emergency and temporary housing periods because we could reach everything, we were living with our relatives in rented houses in the regions where we

preferred, just when we resettled to post-disaster housing site, than we understood that we were really victims” (Özden, 2005).

Buckle stressed in his paper (Buckle, 2004) that effective management in disasters can occur without planning but it is fraught with risks, suffers delays in start up and is usually inefficient in resource use. Disaster management practitioners generally accept that effective management derives from effective planning. Effective planning needs to include all stakeholders, including voluntary agencies and community representatives. The three very significant points are given by Buckle for the reasons to the need of public involvement in the process; firstly, the government cannot do it alone. Governments are rarely able to meet all the needs of affected communities immediately. Secondly, Government resources are limited. The resources of Government, emergency services and local government are limited, even for major disasters and there is a simple, practical need to rely upon the knowledge, skills, capacities and resources of local people to meet initial needs and, in some importantly, to meet the needs of people weeks, months or years after the event when the attention of Government has been directed to other priorities. Thirdly, local engagement will occur inevitably. Local people will be involved whatever the planned arrangements. All our research shows that local people will assist each other.

Permanent housing is one of the major objectives of post-disaster surveys which is to provide the affected populations with permanent shelter (Ergünay, 1999a). This is accomplished in accordance with the guidelines contained in Law No. 7269-1051 (in Constitution of Turkey) as follows:

1. Determination of individuals to be aided,
2. Provision of new settlements,
3. Allocation of building materials,
4. Construction activity.

Reconstruction of the stricken area is the final activity. For this, one of the following methods may be chosen:

1. Construction tendered to contractors,
2. Construction by the Ministry itself,
3. Aided self-help.

According to Ergünay (Ergünay, 1999b), there are two important deficiencies in physical planning which are making the population more vulnerable to disasters: Land Use, a major deficiency which needs to be addressed is the lack of accurate Microzonation maps for a better evaluation of the natural disaster hazard on a local scale so that a more rational use of the land can be planned by local governments which have tended to overlook this component when making land use decisions within their jurisdiction. Construction, another major deficiency relates to the supervision of building construction, and the legal responsibility for substandard building practices. These deficiencies in fact continue in post-



disaster rehabilitation and reconstruction process. While the disaster management system in Turkey requires the integrated cooperation of a large number of ministries and other agencies, it does not contain instruments or mechanisms, which would force the active participation of the communities at risk.

The rural settlers can be taught to build their homes with using the traditional materials and techniques. The local government or the rural architects could be the leading project managers in the affected areas such as Istanbul and Senirkent. Especially, the rural areas such as Senirkent have great potentials for this kind of approaches post disasters. This effort will be also a part of community involvement approach. So, an education strategy could be developed which will be used in disaster prone areas. According to this strategy the local governments, architects, contractors, community representatives, and other stakeholders will attend courses. It will be more beneficial if the courses could be organized all over the country, in every region, but for the short time strategies, they could be organized in the regions which are seen more risky and given precedence. In the future, the system could be enhanced and expanded to the all regions, that means the courses could be the important parts of national disaster risk reduction strategy. After the disaster, the educated architects and engineers can go to the stricken area and in a few week-courses, seminars, and meetings they can teach the techniques to the victims. So, the victims do not need to wait in their temporary shelters for the post-disaster housing lottery. It seems better than waiting the development of unknown future projects related to their lives. In this process, the mukhtars (or muhtars) have important roles. Mukhtar is the elected person as the head of a village or of a neighbourhood within a town or city (Ingilizce Sözlük, 2006). Mukhtar is the closest governor in the community in which he or she is the representative. So, the ministry and municipalities could be in contact with them both pre-disasters and post-disasters in order to develop a sustainable and efficient disaster management programme. Mukhtars can easily orient and organize the communities of their region. In the emergency times and rehabilitation process, the central and local governors cannot easily communicate with the victims of the stricken areas. In those times, mukhtars could be the mediators and communicators between the community and government. But, they should be trained about the disaster management strategies before. The education and training of them could be developed by again another civil initiative, non-governmental organizations (NGOs).

NGOs can also be able to reach the stricken area before the government many times, and they can have more possibilities for relief works. The representatives of the community, mukhtars and NGOs can construct the public involvement in the rehabilitation and reconstruction projects. They can be the managers, supervisors of the projects which have been including the community and user participation. It is seen clearly from the case studies that the households had

important difficulties in informing the responsible institutions about their problems. If a management system can be constructed among the users post disasters, the representatives in this system will settle the communication with the responsible institutions.

As Prof. Alexander stressed that (Alexander, 2004), it is axiomatic that reconstruction would be more effective and less onerous if it were well planned. Planning need to be holistic, in that it is not merely a question of replacing damaged building stock and infrastructure, but also one of reconstructing communities, ensuring equity, access to resources and equality of opportunity for the most disadvantaged members of those communities, and reducing community vulnerability to hazards. The user participation, the involvement of people who are benefiting from the projects are needed to be taken into consideration by the authorities. It seems a necessity to be given priorities to the awareness of vulnerable communities in order to construct a sustainable disaster management strategy, disaster resilient communities and sustainable living environments. The only way in reaching such an awareness is seem to ensure the education and training of the communities. Again, the local people of vulnerable communities, such as mukhtars, local NGOs are seem to be the leading mediators in this education process. So the primary objective of such a strategy could be oriented to the education of educators (or mediators). The lackness of the communication is seen as, said before, one of the main reasons of most disasters.

One of the most stricken cities in 1999 earthquake of Marmara was Kocaeli city. The ministry of Public Works and Settlement constructed by the help of World Bank some permanent work-places in a district of Kocaeli, Gündoğdu. But the half of the victims have not preferred to relocate to the new work places because they are too far to the city center and the victims think that they can not use the new places efficiently and economic. On the other hand the other half have relocated to the new places and have began to use their shops (Cumhuriyet Newspaper, 2006). However, the local government has not given them building licence because there have been some problems between the Ministry and local government. The victims have been complaining about the issue. This event is also another common example which has been faced, related to the lack of the community involvement in post-disaster reconstruction process. If a commision could have been developed before the reconstruction phase and the representatives of all sides in the region could have been worked on the projects and desicion taking process, probably the problems such as mentioned above could be overcomed easily.

Post disasters, a commision is needed in order to ensure the involvement of all actors in the stricken area to develop a rehabilitation and reconstruction plan. Such a commision has developed in New Orleans after the cyclone of 2005

(Gökbayrak, 2006). The commission, Bring New Orleans Back Commission, has started to study firstly for developing sub-commissions related to the city planning, education, culture, infrastructure, management, health and social services. The most important objective of this commission has been declared as to mobilized all of the sectors and actors in the region by using internet and all public communication channels in order to ensure the involvement of the city residents to the reconstruction process.

The World Bank has important policies targetting the community participation in resettlement activities (The World Bank, 2001);

- A description of the strategy for consultation and participation of resettlers and hosts in the design and implementation of the resettlement activities,
- A summary of the views expressed and how these views were taken into account in preparing the resettlement plan,
- A review of the resettlement alternatives presented and the choices made by displaced persons regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individuals, families or as parts of preexisting communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, pilgrimage centers, cemeteries) and,
- Institutionalized arrangements by which displaced people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that such vulnerable groups as indigenous people, ethnic minorities, the landless, and women are adequately represented.

## **CONCLUSION**

There are lots of efforts to develop community participation in every step of disaster management process. The reconstruction phase is one of the four main steps of disaster management, and it is the most known part especially for the vulnerable communities. Mitigation and preparedness policies generally have not been taken into consideration by the vulnerable countries. A holistic disaster management approach can be developed with a long term strategy and planning, on the other hand the devastating disasters are continuing to occur, and even the occurrence frequency and affects have been growing time by time. This is because of some specific, estimated and unestimated reasons such as rapidly growing population, insufficient and vulnerable construction, lack of building supervision, lack of educated manpower, global warming etc. In order to cope with disasters, it seems a certainty that every actor in the community is needed to share the responsibility of the risks, and communities are needed to involve the risk management pre-disasters, rehabilitation and reconstruction phases post disasters. The governments cannot cope with disasters lonely, the community is needed to assist the government. However the government is needed to take

into consideration the potentials of community involvement and develop strategies for improving the community participation in the process. It is important to see that the disasters are infact local events and the better solutions can be developed from the local environment and users via the local capabilities.

One of the most important steps for local holistic recovery is the involvement of the public (Natural Hazards Informer, 2002). Participatory processes are the essential aspects of the sustainability involving the inclusion of all the stakeholders in recovery and in creating the vision of what the community should be like after the recovery is complete. A community that seeks sustainabilitiy need to be committed to such involvement and, at this point, the community begins to design public participation into all phases of its recovery. The opportunities for participation could be publicized through a variety of media, including flyers, posters, local newspapers, local television stations, and the internet.

The local governments, the local community representatives (such as Mukhtars, NGOs), and the local architects and engineers could be the important people in the disaster management cycle. If these people could be educated for the aim of constructing a disaster resilience community, they will have very important roles in both pre and post disasters. As it is learnt from the findings of the case studies, the victims need to be convinced in resettlement activities. The convincing process is a serious and long period activity but it is a necessity because this process could be the first step of the community involvement in the post-disaster reconstruction process. So, the stakeholders given above have important roles in this process. A convincing commission could be formed in which all the stakeholders will attend post disasters. This commision will also work with the affected community on the planning and the construction period of the post-disaster projects. If the community will be convinced on the resettlement projects, the success of these projects will be much greater than the current situation. However, the future problems (post-occupancy problems) could be reduced and also this commission will be also helpful in organizing a management system in the resettlement area among the users. So, this management group could have important roles in developing a communication link related to their problems between the affected community and the institutions. The local professionals such as architects will be the important mediators in the communication process. In order to achieve the community involvement approach in disaster issue, the government urgently needs a national education strategy related to disaster risk reduction. The first step seems to be formed an expanding education and awareness approach among the community.

As the last words, the lessons from the past events have not been used by the decisionmakers efficiently. So, after every new event, the same approaches are tried to be implemented and the same failures are occuring. The decisionmakers are not aware of the potentials of the community involvement in the rehabilitation

and reconstruction process, however the public is not aware of the same potentials too. To develop an awareness in order to cope with disasters and reconstruct the affected community as a disaster resilience community, the strategy and models could be developed by the involvement of all the stakeholders.

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