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IMPACTS OF 17TH AUGUST KOCAELI EARTHQUAKE ON THE DEVELOPMENT OF RURAL SETTLEMENTS

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ABSTRACT

After the Kocaeli Earthquake, the rural settlements of Golcuk and Karamursel have faced many unexpected pressures of physical, economic and natural sense. Although they have not had as much destruction as Golcuk, Adapazari or other settlements in the region, but they had to fulfil the needs of the people who were living in the disaster area.

In this paper, there are two main sections; firstly the situation of the rural settlements of Golcuk and Karamursel after the disaster is presented and later the planning strategies according to these realities is discussed.

1. INTRODUCTION

In the last fifty years, the population dynamics faced in Turkey has been the result of changes lived in economic sense. The structure of agriculture in Turkey has changed from the limited production for subsistence or local market to the specialised production for the national or international market levels. The developed production technologies in agriculture sector caused large amounts of migration from rural areas gradually while increasing the productivity until 1980's (Report of National Action Plan, 1996).

Undoubtedly, one of the main reasons of the migration movements from rural to urban areas was the absence of the adequate employment opportunities in agriculture. The rate of urban population has been increasing steadily and reached to 65% in 1997 Population Census (SIS, 1997). According to the 1990 population census, the average population increase rate was -5.56% in rural areas while it was 43.16% in urban and in 37 of 80 provinces, the population has been decreasing in rural sub-districts and villages (SIS, 1990). The age characteristic of the migrants shows that, mainly the active population and the labour force have been moving (71%) from rural to urban areas. The regions having better employment opportunities constitute population increase like in Marmara, Aegean and Southeast Anatolian Regions; the rest Black Sea, Eastern Anatolia and Inner Anatolia have population decrease in general.

State Planning Organisation points out in the VIIth Five-Year Development Plan that, the industrial and service sectors which will assimilate the increased population in urban areas have not been developed sufficiently and the main reason of migration and inadequate employment situation is caused by rural areas (SPO, 1997). The planning strategies and decisions taken in the national level show that, unfortunately the precautions to control migration and to decrease inequalities among different regions remain below of the objectives and the national plan targets.

Another common situation in Turkey's case is the urban settlers having agricultural land in the countryside and investing more in urban area but at the same time continuing the agricultural activity. Because of the income obtained by agriculture is not enough for subsistence, families look forward better options in the environs of their actual lands. Especially, the outskirts of major metropolitan settlements like Istanbul and Kocaeli serve in this meaning to the rural population. According to a research which has been done by Tarakli in Bolu province (adjacent to Sakarya and Kocaeli, in the earthquake zone), the rate of urban settlers having agricultural land in countryside has increased to 2000% in between the years of 1966 and 1981. On the other hand, the rate of landless farmers has decreased 40% in the same period of comparison (Tarakli, 1990). Settlements in the southern part of Izmit Gulf is very similar to the study area of Tarakli's research. In both cases, most of the settlements are defined as forest villages and the rate of urban settlers having agricultural land in countryside is very high. These characteristics created special impacts after the 17th August Kocaeli Earthquake.

On the other hand, the reverse direction of movement of population is getting more important to be dealt with. In the case of Southeast Anatolian Project, the primary objectives were to enhance the productivity of the rural land and to create new employment opportunities (SAP Development Project, 1997). The impact of the project is very obvious with the population increase rate in the region after it brought into alive, and the rate is above the average rate of the country's population increase.

Besides the new employment opportunities created in countryside, another type of the reverse direction of population movement has been emerged by urban-originated families who want to spent leisure time in these regions (like weekend houses) or to have a house

in lower prices. But the uncontrolled planning applications may cause more damage on natural and social environment of rural life together without integrating the existed components. As Allanson points out that, similar development occurs in Britain in recent years and the outflow of labour from agriculture denudes villages from their working force and replaces them by new inhabitants who work in urban areas. Therefore social change in the rural area accompanies the upheavals in the nature of the agricultural activity itself (Allanson et al, 1995). Decentralisation of the facilities through countryside and creating the improved life-style opportunities have also caused new comers from urban to rural areas.

These aspects related with rural environment in general will be a view point while investigating the characteristics of rural settlements in the Kocaeli earthquake area. In this study, rural settlements of Golcuk and Karamursel located on the south of Izmit Gulf, is investigated to bring out the impacts of the earthquake in different ways (Figure 2).

2. IMPACTS OF THE EARTHQUAKE AND GENERAL INFORMATION ABOUT THE REGION

North Anatolian Fault Zone starts from Karliova in East Anatolia, passes through the Northern Anatolia and ends at the Northern Aegean Region (Figure 3). It has three branches in Marmara Region. This system, which is named by Marmara Graben System, takes place in the Marmara Sea and 15 km. far from the Istanbul. This situation shows that, Istanbul Metropolitan Area will live with the reality of earthquake in the future as like in the past experiences (Ural, 1999).

The impact of the Kocaeli and Bolu-Duzce earthquakes to the national economy has been great. This is not only due to the cost of rebuilding, but also due more to the loss of industrial production from the region. Approximately 20.000 people were killed and more than 70% of the buildings heavily damaged and also collapsed (Tuysuz, Genc, 1999). Istanbul and Marmara Region, the most populated and dense areas of Turkey shows that, 24% of Turkey's population lives in this region. Especially since 1980, local and foreign industrial investments condensed in this region but not by taking into account

of sustainable urbanisation and development strategies. This region was the industrial centre of the country, housing major factories, including the largest energy producing establishments. Kocaeli region enjoyed the most educated workforce of Turkey and the highest GNP per capita in Turkey in 1998. Therefore the rebuilding process is necessary to start the motion of the industrial production, creating opportunities for lost jobs.

All planning of the new settlements must first consider minimising the risks for failure, meaning maximising the safety of the people and buildings. Risk analysis studies need to performed to reach decisions to predict the possible effects of disasters to the region. This is the first step necessary in order to plan the process of recovery.

Because of the uneven geographical formation of the region, most of the urban settlements and industrial developments on the south of Izmit Gulf and Sakarya are located on agricultural land. Therefore the level of economic loss of the two latest earthquakes were very severe caused by the characteristics of the land having unsecured development for dense constructions.

2.1. Impacts of the Earthquake on the Rural Settlements in Golcuk and Karamursel

Golcuk and Karamursel consist of 41 rural settlements. Most of these settlements are located on uneven geographical land on the south of Izmit Gulf and the summits of Samanli Mountains create border of their expansion (see Figure 2).

It was natural that much of the investigations about the earthquake was on urban settlements where most destruction and economic loss were faced. But also, other small settlements where the primary needs of the sufferers were reimbursed at the beginning have to be taken into account in the short and long-run of the planning process. Therefore, this research has been prepared in the 18 of 41 rural settlements of Golcuk and Karamursel Counties (44 %).

Investigated 18 rural settlements are mainly forest villages (65 %) and they have not had major physical damage after the earthquake. In three different cases, only three villages

have building destruction, demolishment of minaret and heaping the wrekages on agricultural land. In two cases, one of the villages had dried-up spring and tent pitchment. The most important impact has occurred sequentially after the earthquake was migration through these settlements. 83 % of the investigated villages had population increase right after the earthquake (see Table 1. and Table 2. and Graph 1.).

Table 1. The Ratio of Major Impacts of the Earthquake on Physical and Social Environments in the 18 Rural Settlements of Golcuk and Karamursel

IMPACTS	%
Population increased	83
Houses demolished	17
Wrekages heaped on agricultural lands	17
Minaret of mosque demolished	17
People migrated outwards	5
Spring water dried-up	5
Tents pitched-up	5

Table 2. Population Differences and Increase Rates of 18 Villages Before and After Earthquake

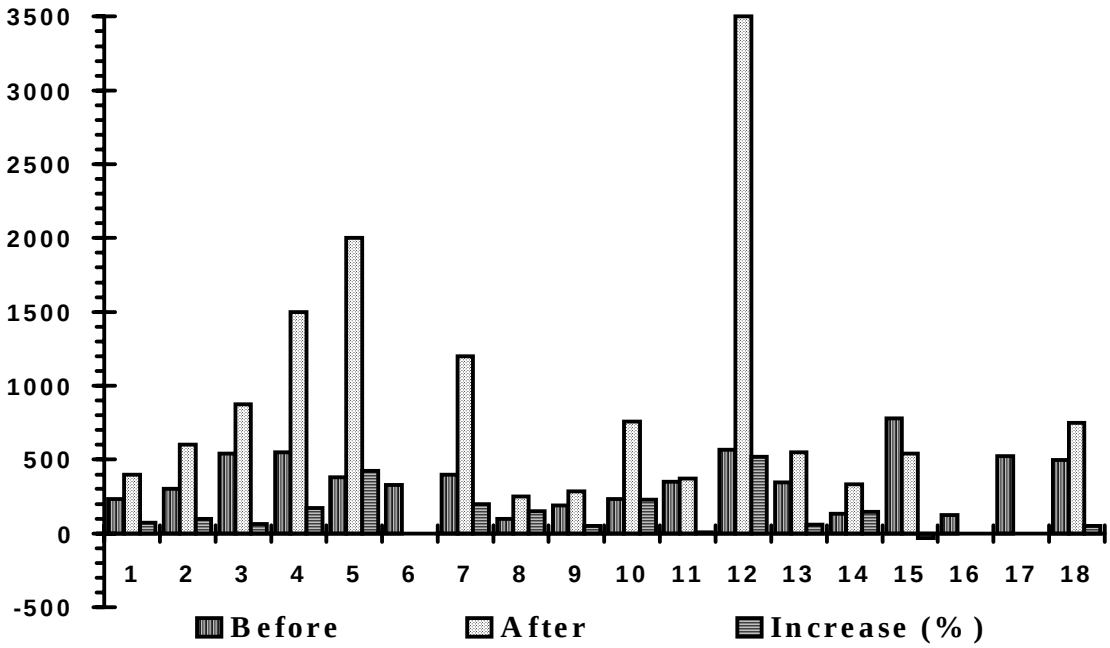
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
BEFORE	234	300	541	550	380	328	400	99	191	231	350	565	348	135	780	123	523	497
AFTER	400	600	875	1500	2000	-	1200	250	285	760	370	3500	550	335	542	-	-	750
INCREASE %)	71	100	62	172	426	-	200	152	49	229	6	519	58	148	-30	-	-	51

According to the information obtained by the deputy head of Degirmendere Municipality (Sub-County of Golcuk), rural population and rural resources have reimbursed and fulfilled the primary needs of victims of the disaster until the first-aids were received to the area. The urban settlers having agricultural land in the area moved back, because of the less risk to the earthquake. Thus, household numbers living in one unit rised up and in some cases the increase were obtained up to 6 families.

Nearly one year after the earthquake, these impacts are more settled down and the urban settler population tended to move back to urban areas again when the government policies to recover the losses were more clear and defined. However, although the reverse direction of population has been occurring in the area, it is obvious that these rural settlements will burden the needs of people and the pressures of new developments

because of having less risked land. Already, nearly 30% of the investigated villages have secondary house (weekend houses) developments. This shows that the amount of new constructions may rise up in future. But unless these developments meet with regional development plans and strategies which overlap with national planning system, the sustainable rural environment and planning objectives will be questionable.

Graph 1. Population Differences and Increase Rates of 18 Villages Before and After Earthquake



2.WHAT HAS BEEN DONE AND WHAT COULD BE?

In national level, Five Year Development Plans direct the basic strategies and define the national development tendencies. Unfortunately the insufficiency of regional development plans and strategies, the local development plans are generally in physical terms and exclude rural land developments. In national level, there has to be more alternatives for rural planning decisions and strategies. There are very few rules and inadequate laws for rural planning concept. The Minister of Agriculture explained that agricultural reform is very crucial and necessary. New agricultural reform is oriented to direct the farmers and the planning of productions. According to this suggestion, the new

institutional co-ordination and management will be leaded by Agricultural Support and Orientation Committee under the authority of Ministry (Hurriyet, 1999; Sabah, 1999). However this reform is far from to deal with general development problems in rural areas and rural populations. As a result of the unaware planning policies related with rural areas, other land uses (industrial, commercial, residential etc.) create encroachment on the agricultural land and entice labour away from agriculture.

The general outlook of rural settlements in Golcuk and Karamursel is not differ from the country's case explained above. The uneven formation of the land and the encroachments of residential, industrial developments on 1st and 2nd grade qualified agricultural land have brought out limited agricultural activities. More common farming is orchards (hazelnut and fruit orchards). Because the most of the villages are in or around the forests, another important activity is forestry. But these areas are under pressure of new developments and there is not effective and directive control to overcome unintended and unexpected developments. In developed countries, prosperous farming industries has an efective role for preserving both rural landscape and rural communities (Allanson et al, 1995; Lovejoy, ?)

Especially after the Kocaeli Earthquake, rural areas of Golcuk and Karamursel have been under pressures of new developments for mainly residential and other uses in three ways. Firstly from Government application for homeless people. Secondly, private developers projects and the last is individual applications. Unfortunately none of these has been implemented without regarding to regional impacts to the area. It is obvious that general development strategies for the area have to be defined before developments occur for controlling the unexpected results and achieving sustainable rural development.

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REFERENCES

1. **Allanson, P., Murdoch, J., Garrod, G., Lowe, P.** (1995), "Sustainability and the Rural Economy: an Evolutionary Perspective", Environment and Planning-A, vol.27, pp. 1797-1814.
2. **Hurriyet (Newspaper)** (1999), Product Insurance Era Starts in Agriculture, 27 December, 1999, pp.11 (in Turkish).
3. **Lovejoy, D.** (.....), Land Use and Landscape Planning.

4. **Report of National Action Plan** (1996), United Nations Human Settlements Conference, HABITAT II, City Summit, Istanbul, Turkey.
5. **Sabah (Newsletter)** (1999), EU Standards in Agriculture, 28 December, 1999, Economy Page (in Turkish).
6. **SAP** (Southeast Anatolian Project) (1997), SAP Sustainable Development Programme, UNDP, TC, Prime Minister Office, Head of SAP Regional Development Division (in Turkish).
7. **SIS** (State Institute of Statistics) (1990), Population Census Results, Ankara, Turkey (in Turkish).
8. **SIS** (State Institute of Statistics) (1997), Population Census Results, Ankara, Turkey (in Turkish).
9. **SPO** (State Planning Organisation) (1997), VIIth Five-Year Development Plan Report, Ankara, Turkey (in Turkish).
10. **Tarakli, D.** (1990), Our Forests and Settlements, ODTU, Ankara, Turkey (in Turkish).
11. **Tuysuz, O., Genc, C.S.** (1999), "Tectonic Features of the Surface Rupture of August 17, 1999 Earthquake and Its Effects on the Engineering Structures", ITU-IAHS International Conference on the Kocaeli Earthquake, Scientific Assessments and Recommendations for Re-building, 2-5 December, ITU, Istanbul, Turkey.

12. **Ural, O.** (1999), “What Went Wrong?”, ITU-IAHS International Conference on the Kocaeli Earthquake, Scientific Assessments and Recommendations for Re-building, 2-5 December, ITU, Istanbul, Turkey.