

**BUILDING OF SAFE AND COMFORTABLE COMMUNITY  
IN LAND READJUSTMENT PROJECT AREA FOR RECONSTRUCTION  
OF GREAT HANSHIN-AWAJI EARTHQUAKE DISASTER**

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After the 1995 Great Hanshin-Awaji Earthquake disaster, land readjustment project are planned and implementing. This project aims to reconstruct roads, parks and to improve usefulness of lots for building safe and comfortable community. But in some areas, opposition against this project and interest conflict between residents and government are occurring. In this paper, I show the situation of interest conflicts and trials to overcome this conflicts through the case study in Kobe city.

## 1. INTRODUCTION

On the first anniversary of the moment 1994 Northridge Earthquake in U.S., Kobe was struck by great earthquake. This Hyogo-ken Nambu Earthquake caused horrible damage to not only building and houses but also infrastructure such as expressway, port, rail lines and so on. Especially inner areas congested with many wooden houses, had a big damage. There were narrow and winding roads and small open space in such areas. This condition made rescue and fire fighting activity difficult and caused many death and lost of private properties. On Mar. 17, 1995, the approval of city planning was notified. The Kobe city government has decided to implement a land readjustment project in 6 areas. But, it can not be said this projects are executing smoothly. Of course, not only all residents but also all nation hope to recover and reconstruct a new city and a stable life. Though, there exists interest conflicts between residents and government.

In this paper, at first, I show the situation of interest conflicts. Then through the case study, I show the role of 3 sectors, community creation council, experts, government for solving these conflict.

## 2. INTEREST CONFLICT IN LAND READJUSTMENT PROJECT AREA

Land readjustment project has played very important role in Japanese urban development. The concept was introduced during the 19<sup>th</sup> century in Germany, and later adopted in Japan. Currently, east Asian countries, such as Philippine, Thailand and Malaysia and so on are studying or adopting this technique. Abstract of this project is as follows. First each landowner supplies a part of his/her land. Then, infrastructures such as roads and parks and so on are constructed using these gathered land. Subsequently, irregular lots are rearranged through a replotting exercise into well arranged, productive and regular shaped lots.

In general, road construction increases land price along the road. So, in case of land purchase method, landowners along the road can get development gain. It causes inequity between landowners. By contrast, in case of land readjustment project, all landowners in this area, supply their land and get development gain equally. Using this technique, more than 40% of urban areas were developed in Japan.

But this project is not so easy to implement. It is very difficult for landowners to understand this technique. They have to supply their land without compensation at first, then they can get a productive, regular and consequently more valuable lot. As most people think city planning is implemented by land purchase method, they can not imagine this land contribution system. And this project treats only land. Buildings/houses plan is separated from this project. For people who has little knowledge of city planning, they can understand a burden of their land, but can not imagine the merits from this project, for example, their life or landscape. Then they disagree to supply their lands or opposite this project.

There is another reason why residents in land readjustment project area opposite strongly. By this disaster many landowners lost their houses or their families. In addition to these sadness, land contribution of this project change their sadness to anger. City government is making all-out efforts to restore stable life among its citizens by reconstructing infrastructure adopting this projects. But for residents, it was too early to decide to implement this project. They have little time to discuss restoration of their community. They feels anger that city government's decision without enough negotiation.

Although, this interest conflicts give dissatisfaction to residents and city government. The delay of this project means the delay of residents' stable life, and delay of restoration of the city. This condition is as same as "chicken game". The pay-off matrix of this game

is Table 1. Each 2 players has 2 strategies, cooperate ( C ) or defeat ( D ). If both player select C, they can get good results. But they have a motivation to select D. If both players select D, the result was the worst. We can interpret this interest conflict on this land readjustment project as chicken game..

Table 1 Payoff matrix of Chicken Game

		Player B	
		Cooperate ( C )	Defeat( D )
Player A	C	3, 3	2, 4
	D	4, 2	1, 1

left/right figure means Player A/B's payoff

We have to overcome this conflict by all means. Now, all-out efforts are tried in these areas. Next, I will show trials in 2 areas.

### 3. CASE STUDY

#### 3.1 Moriminami Area (about 16.7 ha)

##### 1) Outline of this area and circumstances

This area locates south of the JR Sanyo Line and east side of Kobe City. About 60% of this buildings were damaged. Residents formed "Community Creation Council" just after this earthquake, and started opposition activities against land readjustment project. Most residents did not know this project. In Kobe government's plan, trunk road with 17m width, and traffic square were planed and average land contribution rate was about 9%. Community creation council requested to city government not to implement this project. They need not roads and squares. They want to keep their environment. As new JR station is planned in this area, city government want to improve this area suitable to this new station. The negotiation was very difficult. Both player did not give way more than half a year.



At last, city government gave up to construct 17m width roads. Change of city planning is very rare case. Local citizens accept to implement land readjustment project and average land contribution rate changes just 2.5%. But still discussion are continuing.

## 2) Draft implementation plan

Figure 1 and 2 show the change of draft implementation plan. First city government have an idea to construct horizontal and vertical road, and traffic square (black parts in Figure 1). After negotiation with community creation council, the draft plan changed to almost same before earthquake. Only community road and a small traffic square are planned. Perhaps many city planner think this plan is not enough from the global and long term view. But this is caused by interest conflict on city government activity without enough negotiation of local citizens and complicated system of land readjustment project.

### 3.2 Takatori-Higashi Area (about 8.5 ha)

#### 1) Outline of this area and circumstances

This area also locates south of the JR Sanyo Line and west side of Kobe City. Almost all buildings in this areas were burned. In the wake of the earthquake, local volunteers, mainly those of community organizations, made an active contribution to reconstruction of the city. Spurred by their activities, leaders of eight towns gathered at Chitose Elementary School on July 2 to form "Community Creation Council". For the purpose of community building geared for all the citizens, the association sought opinions from experts on community building and attended explanation meetings sponsored by the Kobe city government to study problems over community building and worked out concepts on urban development. Following the study of the association, land readjustment project was adopted. Under this project, a draft implementation plan was prepared for an outline of design on the basis of interest adjustment on Nov. 30. Local citizens studied this project under cooperation with experts, and opinions and requests of them were reflected. This is the first areas which prepared a draft plan of 6 areas.

#### 2) Draft implementation plan

Figure 3 shows the draft implementation plan of this area. From the view point of experts of land readjustment, this plan is not good. Access roads do not pass to trunk roads, and parks are small and not characteristic compared with Okuni-Park located on west side of this area. This plan was made by community creation council and one architecture. He started to discuss with each landowners. He explained and pursued landowners who can not understand or opposite this project in community creation council. He showed them the future life after this project. In this process, he negotiated with city government to



Figure 1 Roads and Square Determined by City Planning on March 1995

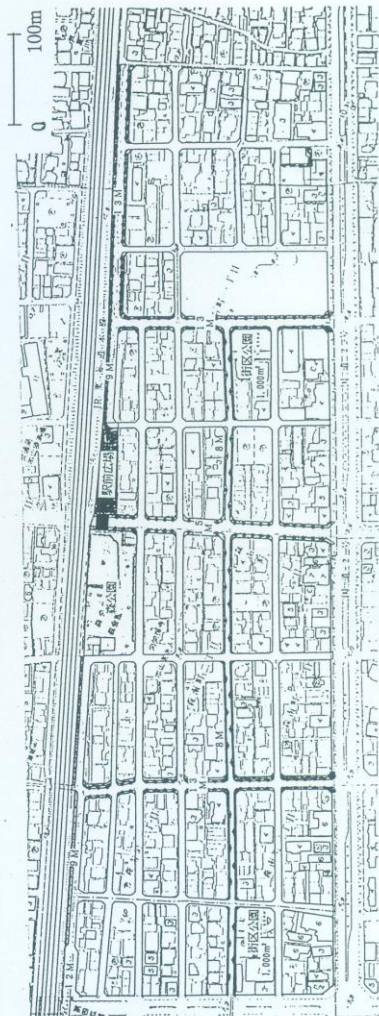


Figure 2 Draft Implementation Plan on May 1996

receive community creation council's idea. As a result, this draft plan based on individual interest was completed.

They start to make building/housing plan. Landowners who have a small lot, have to build cooperate house. Now he negotiated with community creation council about district building plan.

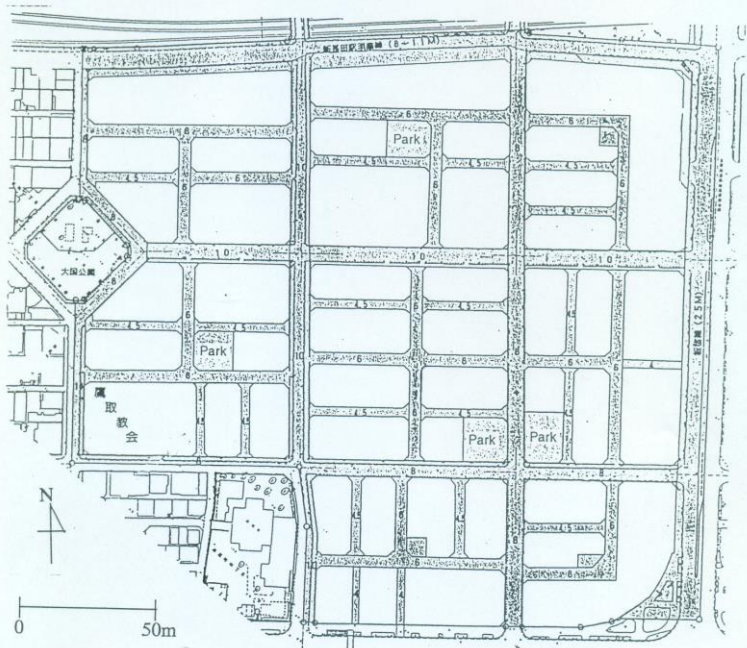


Figure 3 Draft Implementation Plan ( Takatori-Higashi )

#### 4. OVERCOMING INTEREST CONFLICTS

Then I will interpret these trials. 3 sectors, community creation council, experts and government, are playing very important role. In the following, I show the role and add some comments.



#### 4.1 Community Creation Council

City planning in Kobe is characterized by this council. The most important role of this council is to study city government idea and restoration project. Members are consisted of not only landowners but also residents who do not have a right of land. They discuss how the future of their community should be, and which project should be adopted. They exchange information and adjust interest each other. Leader and core members works as a volunteer. This council is one kind of NGO( Non Governmental Organization ) or NPO ( Non Profit Organization ).

#### 4.2 Experts

But there is a limit of community creation council. Members do not always have special knowledge, and tend to be lack of ability to communicate logically. It is possible that they decide under incomplete information (ex. Land contribution is just taken their lands for nothing ), or myopically (ex. In decision making of adopting land readjustment project or not, they have tendency to judge from just a few years term not 10-20 years.) In such case, interest conflict does not solve, on the contrary emotional conflicts occur. So we need experts, consultants, lawyers, or city planners. Experts give right information, negotiate with city government, and show the alternative plan to residents. Through experts, community creation council can recover and create their life. Experts should be neutral. They can say "NO" to both council and city government.

To get consensus of the plan, "continuing living in this area" is keyword for experts. This keyword makes residents to act on long term and calm their emotional conflict.

#### 4.3 Government

In this restoration process after this earthquake, city government was criticized because it is too early to decide to adopt land readjustment project. City governor made it clear that we will make a draft implementation plan in cooperation with community creation council. At first, interest conflict occurred, but later they supported community creation council with experts, and worked together. They prepared a fund-raising plan, are purchasing lands to set land contribution rate lower and keep the public houses.

These 3 actors are essential to restore stable life among citizens and urban infrastructure. If these balance is broken, planning process have some problems and as a result, comfortable

and earthquake-proof community is not guaranteed. Perhaps, in Moriminami area, it takes more time to get consensus compared with other area. In Takatori-Higashi area, if building plan is decided, safe community rich in urban amenities will be created.

## 5. SUMMARY AND FUTURE PROSPECTS

Through this paper, I show the importance of community creation council like NGO, and experts. They helps to overcome interest conflicts between residents and government. Not only Japan but also Philippine have to go with earthquakes. We have to study how to recover and restore the city and life. Trials in Kobe city teach us many things. I think my important role is to tell the lessons to people who live in dangerous and weak areas against disaster and to help the improvement project proposed by residents.

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