

FORMER OCCUPANTS BUILDING RECONSTRUCTION TENDANCY
AFTER THE GREAT HANSHIN-AWAJI EARTHQUAKE.

- A case study on Misuga west district with Reconstruct Land Readjustment Project, Nagata ward, Kobe City –
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Abstract Now (16 years later after Great Hanshin-Awaji Earthquake), the Land readjustment project is finished. Along with Infrastructure was completed. The rate of population recovery is 51%-124%. But damaged areas (especially low rise area, Nagata and Ward) now have a lot of vacant space.

This study aims to evaluate the building reconstruction in the readjustment area and clearly which groups returned based on building use and tenure. All occupants were surveyed in Misuga West district, which had experienced land readjustment. The main points results as follows: 1. 27.4% of former residents and shop and factory which buildings were damaged were able to return. When the earthquake happened, 80.0% of them wanted to come back. 2. Tenant occupants can't rebuild without support from some other organization. 3. 79.7% of occupants who returned town built private temporary houses. 4. After earthquake 16 years, 47.9% of people are former occupants, which means 52.1% came into the area after the earthquake.

Community make-up and the pattern of roads and blocks changed at high speed. For the community, the population recovery is important but who is returning is more important. For a community to recover, it is important that residents are not displaced during reconstruction.

Keywords *Great Hanshin-Awaji Earthquake, Reconstruct Land Readjustment Project, Life Back in Order, Ttenure Types, Building usages, former occupants*

1 Introduction

1-1 Research purpose and background

The Hanshin Awaji earthquake of 1995 heavily damaged a dense urban area¹. Kobe City carried out 11 land readjustment project² in damaged area to create parks, widen roads, standardize infrastructure, and clarify building lots, for the purpose of creating a safe and beautiful city helping the residents recovery their lives earlier. 16 years later, on March 28, all land readjustment projects were completed.

Walking in the area, parks and roads, and housing lots look clean and new. The population has recovered 51-90%³ of the pre-earthquake population, with large differences depending on the area. Yet even now, there are many empty lots⁴.

Misuga east area has the lowest population recovery rate (51%), with few buildings and many empty lots. Shinnagata area with the highest population recovery (120%)⁵ has blocks with high rise buildings, but also includes surrounding blocks that have many vacant lots. The area has changed. People have moved out and new people have moved into the area. In addition, before the earthquake people lived in dense low rise areas; these have been replaced with a combination of high rise buildings and areas with many vacant lots.

In the recovery plan, the disaster survivors wished to return to their previous lifestyle. However in the land readjustment project, there is no system for them to return.

With former occupants⁵ leaving and new people moving in, it's hard for stores and restaurants to stay in business, and hard for neighborhood associations to do activities⁶. This makes it difficult to achieve the goals of land readjustment for quick lifestyle recovery and a safe and beautiful town. These problems can't be resolved by merely redeveloping the area and increasing the population, but it's important the former residents return to their neighborhood.

Within the land readjustment area, there is no research that tracks the pattern of each household: those who left, those who rebuilt on their former lots, and those who rebuilt after land readjustment.

This research examines the rebuilding process of former residents, focusing on land rights and building usage. It also considers the effect on the local area according to the rate of newcomers to former residents after land readjustment.

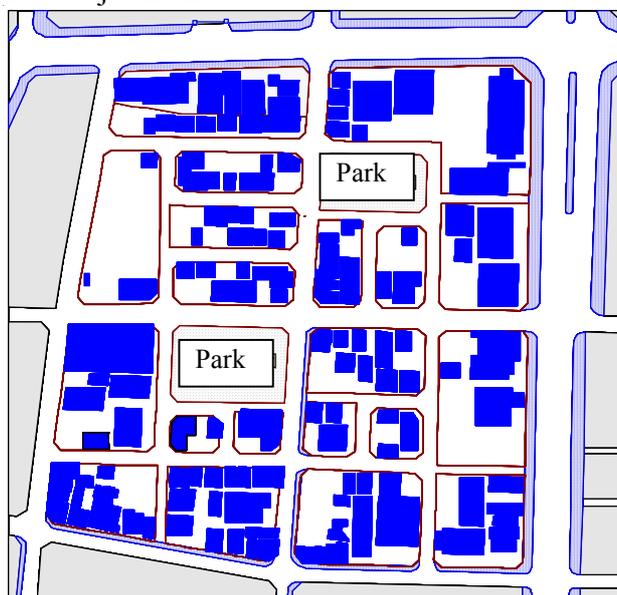


Figure 1 Reconstruct situation map (2010.9)

1-2. Subject area

The subject area is Mitsuga district in Nagata Ward, Kobe City. The rate of population recovery was 82.2% (532 people, in June, 2010; compared to 647 people as of December 1994), number 7 out of 11 areas. The reorganization of vacant land, an increase in public¹⁰ use is 17.5% (8th out of 11 areas). Before the disaster, 86% of buildings were 1 or 2 stories, in September 2010, 51.8% were 3 stories¹¹.

During the 1870s, Kobe City was included in road repair projects that were put into effect, increasing urban density. At the time of World War I, temporary match factories increased, after that there was a change to rubber manufacturing. During the 1910s, row houses for workers housing were supplied, and by the early 1920s, the majority of the area had become densely urban. After World War II, with the exception of areas that survived without war damage, land readjustment projects for war damaged land were carried out, based on the 1870s roads, 6 meter wide roads were provided, and a mixed residential/commercial area of about 4.6 hectares was formed.

After the Hanshin Awaji Earthquake, which struck on January 17, 1995, 80 percent of the area was destroyed. On March 17th 1995, a Disaster Recovery Land Readjustment Program was designated for the area. On January 14th, 1997, the Program Plan was decided, and on November 27th of the same year, the area plan was decided. On January 8th, 1998, temporary land exchanges started. On March 24th, 2005, the exchanged land was dealt with, and the land readjustment project was complete.

As for local organizations, the “Mikura Dori 5 and 6 chome Machizukkuri committee” was established on April 23, 1995, and submitted a town-building plan to Kobe City September 13, 1996. Subsequently, this organization dissolved in December 2006.

Government housing policies to support residents returning to the area was the construction of Disaster Recovery Public Housing (rental housing). These 2 buildings were: Misuga 2 Housing: 28 units: inhabited October 1999 and Misuga 3: 66 units, inhabited Sept. 1999 (including some units with priority for former residents.) and the construction of cooperative housing built together (10 units, construction completed in December 1999) was planned¹².

In this area, there were no government plans supporting rebuilding of former factories and shops¹³ so the only way for these owners to rebuild was through their own efforts.

1-3. Precedent research

The following papers have been written about the process of disaster recovery land readjustment project areas after the Great Hanshin Awaji Earthquake, and the impact on communities.

Ando (2004) did a survey related to land readjustment, residential area improvement cooperation measures in the Tsukiji district of Amagasaki City, focusing on housing, and the issue of differences related to land rights.

Tanaka, Shiozaki, Horita (2007), focused on Misuga area, Nagata Ward, and former residents who were able to return to the former area after the earthquake (remaining households), and analyzed what was the effect and outcome of the vacant land reorganization system of land readjustment on the and neighborhood relationships. This system varied between groups who experienced a large or small change in area of residential space. The group that had a small change in the size of the size of their houses preserved the neighborhood relationships on the one hand, on the other hand, there were suggestions that those who experienced a large change in housing area had weakened neighborhood connections.

Tanaka, Shiozaki (2008) focused on Misuga area, Nagata Ward and households who and relocated without returning to former areas. They did oral interviews and surveyed these households about their real situation, and what effect land readjustment had had on them

From both papers and by analyzing the data from respondents of both questionnaire surveys, shows that 2 categories of housing emerge: remaining households and relocated households. These were clarified based on the surrounding condition the process.

Nishi (2009) took discrepancies between the national census and information from the basic residents register, and considered effect of disaster recovery land readjustment on population change an the impace of disaster victims' life recovery in the case of Ashiya City

However, there is no research that considered the entire area, and the overall tendency of former residents to return, and rebuild, considered on the basis of land rights, and building use (including shops, factories.)

1-4 Research Method

(1) Survey Data for Rebuilding within the area

Through surveys of former owners and buildings in the areas, the real condition of former owners and rebuilding in the area can be understood from the data.

(A) Before the Earthquake

To understand the situation of pre-earthquake owners and land rights, Housing Map (May 4th, 1995), and data based on the land and housing registration documents, supplemented with verbal interviews with residents of the area at the time of the earthquake.

(B) Housing damage at the time of the earthquake

Housing damage at the time of the earthquake understood based on verbal interview with residents.

(C) Self-built temporary housing

In order to understand the existence or lack of self –built temporary housing, the rebuilding condition was observed and in November 1997, in a fixed point observation survey¹⁴, supplemented by interviews with residents.

(D) After dealing with the exchanged land

About former residents' tendency to rebuild within the area after land substitution, the real situation was understood through local area rebuilding survey (Sept 2010), land and building registration, and interviews with residents.

Table1 Occupants' relationship to the building before the earthquake

Type	total		Residents			Commercial			Factory		
	No	Rate of property rights	No			No			No		
AAA	129	30.80%	80	61.50%	28.30%	29	23.10%	39.50%	19	14.60%	31.10%
ABB	62	14.70%	39	63.00%	13.80%	13	30.00%	17.10%	11	16.10%	16.40%
AAC	121	28.70%	76	62.80%	26.90%	21	17.40%	27.60%	24	19.80%	39.30%
ABC	108	25.60%	88	81.50%	31.10%	12	11.10%	15.80%	8	7.40%	13.10%
合計	420	100.00%	283	67.40%	100.00%	75	18.00%	100.00%	62	14.50%	100.00%

*1 :Rate of building usage category within property rights category

*2 :Rate of property rights category within building usage category

Within rebuilding, there are also cases with different land rights, which have been divided into 2 groups: 1. Building rebuilt independently “residents who rebuilt buildings independently with the area (detached, cooperatively built replacement housing)” 2. Residents of a building that landlords rebuilt within the area, “rental housing in the area (private rental units, public rental units”.

(2) Rebuilding tendency interview survey data

Through interview surveys with residents, found 54 cases.

(3) Classification of property rights relationships

The occupants' relationship to property rights are divided into 4 categories, shown in figure 3. AAA is “own land and building”, AAB is “rent the land, own the building”, AAC is “renting from a building owned by the land owner,” ABC is “renting a building from a different landlord than the land owner.”

(4) Building use categorization.

Sorted into 3 categories: residential, commercial (restaurants, retail shops, offices, etc.) factories¹⁵.

Type	Land owner	bldg owner	user
AAA	A		
ABB	A	B	
AAC	A		C
ABC	A	B	C

Figure 3 Schematic diagram of relationship to property rights

2. Residents' situation before the earthquake

Occupants' relationship to the building before the earthquake; number of buildings and their uses displayed (Table 1.) The subject of this paper are building users of the Mitsuga district at the time of the earthquake, 420 occupants total.

2-1. Different categories for relationships to property rights (Figure 4, Table 1.)

There are the following: 129(30.8%) building users cases of AAA, 62(14.7%) of ABB, 121(28.7%) of AAC, 108 (25.6%) of ABC. There are 229 buildings (54.3%) in the area that are rented by the occupants.

2-2. Building use (Figure 6, Table 1)

There are 283 (67.4%) residential, 75 (18.0%) commercial, 62 factory (14.5%). The area is not just residential, but a mix of residential, commercial and industrial uses.

In a comparison of categories of housing and the relationships to property rights, ABC (81.5%), when compared to AAA (61.5%), ABB (63.0%), and AAC (62.5%), is relatively large.

For the percentage of renting in land use categories (AAC + ABC rate) 164 houses (58.0%), 33 stores (43.4%), 32 (52.4%) factory, of all the building uses, about more than half are comprised of rentals.



Figure 4 Land and Building tenure map (1995.1) *detail of Mitsuga district is on Figure 5

As for factories, within the 24 AAC building (39.3%), 5 (??) 14 buildings, open space held by cooperative rental housing (Figure 5 and 6).

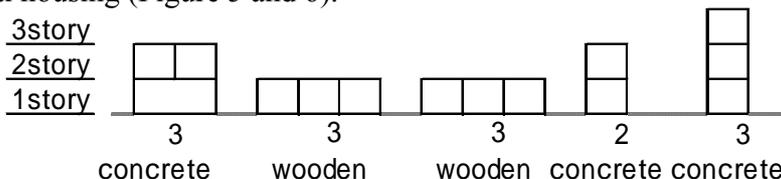


Figure 5. Building type summary diagram



Figure 6 Building usage map (1995.1)

3. Condition of occupants' building damage due to the disaster.

Numbers and categories of building damage due to the earthquake (Table 2). In total, 347 (82.6 %) of buildings were not useable¹⁶.

3-1 Different relationships to property rights

Property damage: AAA 93 units total (72.1%), ABB 56 units total (90.3%), AAC 97 units total (80.2%), ABC 101 units total (93.5%). The disaster damage of ABB and ABC is relatively large.

3-2 Different building uses

In comparing building damage, there were 246 housing units (86.9%), 57 stores (76.0%), 44 factories (71.0%). The disaster damage to housing units was comparatively large.

Table 2 Building damage and reconstruction rate.

tenure type	bldg use	Before E,Q		Damage		Self built temporary building		reconstruction in former area		reconstruction / damage
		No	No	Rate	independent rental	Rate	independent rental	Rate		
AAA	R	80	68	85.0%	19 0	27.9% 0.0%	28 3	41.2% 4.4%	45.6%	
	C	30	17	56.7%	7 0	41.2% 0.0%	7 0	41.2% 0.0%		
	F	19	8	42.1%	8 0	100.0% 0.0%	8 0	100.0% 0.0%		
	total	129	93	72.1%	34 0	36.6% 0.0%	43 3	46.2% 3.2%		
ABB	R	39	35	89.7%	9 0	25.7% 0.0%	15 3	42.9% 8.6%	51.4%	
	C	13	13	100.0%	7 0	53.8% 0.0%	7 0	53.8% 0.0%		
	F	10	8	80.0%	3 0	37.5% 0.0%	3 0	37.5% 0.0%		
	total	62	56	90.3%	19 0	33.9% 0.0%	25 3	44.6% 5.4%		
AAC	R	76	60	78.9%	0 0	0.0% 0.0%	1 7	1.7% 11.7%	13.3%	
	C	21	16	76.2%	1 2	6.3% 12.5%	1 2	6.3% 12.5%		
	F	24	21	87.5%	0 1	0.0% 4.8%	0 1	0.0% 4.8%		
	total	121	97	80.2%	1 3	1.0% 3.1%	2 10	2.1% 10.3%		
ABC	R	88	83	94.3%	1 0	1.2% 0.0%	2 6	2.4% 7.2%	9.6%	
	C	12	11	91.7%	1 0	9.1% 0.0%	1 0	9.1% 0.0%		
	F	8	7	87.5%	0 0	0.0% 0.0%	0 0	0.0% 0.0%		
	total	108	101	93.5%	2 0	2.0% 0.0%	3 6	3.0% 5.9%		
total	R	283	246	86.9%	29 0	11.8% 0.0%	46 19	18.7% 7.7%	26.4%	
	C	75	57	76.0%	16 2	28.1% 3.5%	16 2	28.1% 3.5%		
	F	62	44	71.0%	11 1	25.0% 2.3%	11 1	25.0% 2.3%		
total		420	347	82.6%	56 3	16.1% 0.9%	73 22	21.0% 6.3%	27.4%	

*1 R:residence C:Commercial F:Factory

*2 temporary building reseach date is 1997.11

*3 reconstruction reseach date is 2010.9

4. Situation of independently rebuilt temporary housing

Total Temporary building were 59 units(17.9%)(table.2).

4-1. Different relationships to property rights

Temporary building (Different relationships to property rights) were AAA34(36.6%), ABB19(33.9%), ACC4(4.1%), ABC2(2.0%).

About the tare of temporary building, compared with AAA(36.6%) and ABB(33.9%), AAC(4.1%) and ABC(2.0%) is small.

The reason is that AAC and ABC occupants with damage can not remove debris by themselves without building owner. Even if debris was removed, rental owner can not decide whether or not to build without the land owner. After an earthquake, there is law that rental occupants have priority

to build on their former land, However rental occupants can not build because rental occupants (especially ABC) do not have a direct relationship to the land owner. Land owner can not immediately decide to plan land use because their land might be exchanged through the land adjustment program. So it is hard for rental occupants to build temporary buildings. There are 2 occupants with AAC and ABC whom interviewed tried to build temporary buildings. But they needed to rebuild quickly and they needed to choose their location quickly, so occupants chose to move out alternative building to keep business connection.

Even if some AAA and ABB with housing rights can not build temporary buildings, because they can not know what they get will get in compensation for exchanging their land in the Land Readjustment Project.

4-2. Different building uses

Temporary building (Different building uses) were Residents 32(13.0%), Commercial 18(31.6%), Factory 12(27.3%). Temporary building to housing units was comparatively small(table 2).

The first reason is that Commercial and Factory owner can not go anywhere to keep business connection. Residents can refuge in shelter and relative and friends house.

The second reason is that for Residents, Government help official temporary houses (not former area), and money to stay private rental housing. So they can get choice to stay housing in not former area. When the earthquake, Commercial and Factory owner can not decide business plan to reconstruct and build self temporary buildings to pull down them when exchanged land occur through the land adjustment program, because they can not know when exchanged land occur. So Most of Commercial and Factory owner chose to move out to keep business connection.

5. Reconstruction Situation in Former area

Who is Reconstruction in Former area¹⁷ is that one have a damage due to the disaster and can not use former building, one stay self temporary building in former area or move out, Finally, now, one use rebuilding in former area.95(27.4%) users reconstructed building in former area within 347 having damage. I explain to follow that.

5-1. Different relationships to property rights

5-1-1. Occupants rebuilding independently

Occupants rebuilding independently were 73 occupants. Rebuilt: AAA43 (46.2%), ABB25 (44.6%), AAC 2 (2.1%), ABC3 (3.0%) .Rate of rebuilt of AAA compared with AAC is 23 times. It is clear that it is difficult for AAC and ABC to build in former area.

5-2-1. Occupants of a building that land loads rebuild

Occupants of a building that land loads rebuild were AAA2,ABB3,AAC10,ABC6. That detail is that expect for 2 occupants (AAC Commercial and AAC Factory) others get the construction of Disaster Recovery Public Housing with priority for former residents.

5-2. Different building uses

Reconstruction in Former area were Residents 65, Commercial 18, Factory 12.

5-2-1. Commercial and Factory

About Commercial and Factory, all building temporary building can rebuild in former area (table 2).

5-2-2. Residents

Residents have several processes for reconstruction. So I will analyze process former occupants

reconstruction, noting in detail points about different relationships to property rights and whether they built temporary housing or not (table 3).

In the subject area, rental residents moving out can not reconstruct unless either they their shop or factory is rebuilt temporarily, or they enter public housing.

Table 3 Process to housing reconstruction for Residents

	independent		cooperative		other		public		計		
AAA		16	2	3	3	0	4	3	0	22	9
		18		6		4		3		31	
ABB		7	1	2	1	0	4	0	3	9	9
		8		3		4		3		18	
AAC		0	0	0	0	0	1	0	7	0	8
		0		0		1		7		8	
ABC		1	0	0	0	0	1	0	6	1	7
		1		0		1		6		8	
total		24	3	5	4	0	10	3	16	32	33
	計	28		9		10		19		65	

*1 : occupants built temporary bldg : occupants not built temporary b

*2 other : house attached their other use buildig (Commercial and factory)

5-2-3 . Situation of occupants moving out

This chapter analyzed the situation of occupants moving out about different building uses with interview data.

(A) Residents

Government housing policies helps Residents to get official temporary housing. So Residents have to move many times by Government housing policies. So their housing and community situation changed many times. It is hard for old person to adapt to their situation, and pay moving cost. They tried to adapt neighborhood friend in out side, so if they come former area after 5 years. They tried to adapt neighborhood friend in former area that former occupants have not returned yet. For Family having children, it is hard to get smooth chance to make friend. So it is hard for occupants moving out to return former area. Some of occupants keeping their land to return former area sometime, they sold their land as a time passes.

About the construction of Disaster Recovery Public Housing with priority for former residents, Association for Promotion of Regional Development demanded 200 units public housing grounded on former Residents. They were built 100 units on 1999s(after 4years), then Residents got already Public housing in suburb area built early than former area public housing. For public housing system, Residents having public housing can not move other public housing. Furthermore, they can not get information about the construction of Disaster Recovery Public Housing with priority for former residents earlier than they have public housing in suburb¹⁸.

About cooperative housing, about 50 occupants started meeting in 1997.2. But It took many periods to construction completion. It was complete in 1999.12. The long time removed land with occupants. Because occupants owned land in former area have to cost double burden on outside and inside site.

(B) Commercial

Some of commercial owner move out and keep business connection in other area. They get new customer there. If they return former area having small customer during readjustment project, they will have a risk. Furthermore, they have loan to rebuild shop in other area, so they can not endure to have more loan to rebuild in former area.

(C) Factory

Factory users got temporary building in other area to keep business connection. If they try to return former area, they may lose some of business connection. They remain depreciation about building and equipment, furthermore they have to pay moving cost and new equipment cost. About physical problem, their land will be smaller after Land Readjustment Project, so they can not rebuilt same scale building former earthquake, so in the former area some factory can not get same work before earthquake.

5-3. The role of self built temporary building about reconstruction in former area

About Commercial and Factory, all building temporary building can rebuild in former area. About Residents, 29 residents built temporary buildings within 46 residents reconstructed (Table 2). Within other 17 residents not built temporary buildings, 10 residents their shop or factory is rebuilt temporarily, so they can reconstruction. Other 3 can build independently, 4 built cooperative housing (Table 3). So within 73 residents built building independently, 66(90.4%) were helped by temporary buildings. According to this process and situation that it is difficult for occupants moving out to return former area, it seem great that temporary buildings help occupants to return former area.

6. Change rate of new comer and former occupants between before earthquake and after Land Readjustment Project

According to occupants between before earthquake and after Land Readjustment Project¹⁹, Rate of building usage changed. Rate of Commercial and Factory occupants is small (table 5).

Table 5 building usage change between before earthquake and after Land Readjustment Project

	before earthquake		after Land Readjustment Project(2010.9)	
	No	Rate	No	Rate
Residence	283	67.4%	287	81.8%
Commercial	75	17.9%	46	13.1%
Factory	62	14.8%	18	5.1%
Total	420	100.0%	351	100.0%

7. Conclusion

This paper focuses on ‘land use’ and ‘relationship to property rights,’ to consider how former occupants rebuilt within the former area, and the make-up of occupants of the area after Land Readjustment Projects were carried out. I would like to offer a conclusion of the points considered up to now.

1. the rate at which former occupants (including both independently-constructed and rental occupants) rebuilt within the area was 27.4% (95 out of 347 total).

According to a questionnaire survey immediately after the earthquake²⁰, former occupants (71% of residents, 86% of shop or factory owners) said they “want to rebuild within the area.” Therefore there is a difference between the response immediately after the earthquake and how the residents really rebuilt their lives.

In the subject area for this study, it can be understood that it was difficult to rebuild within this area, in the context of the policies for recovery projects.

2. The relationships to property rights affected the rate of rebuilding within the area. Land owners or those not leasing land, had a lower rate of independently rebuilding in the area. The rebuilding

rate of AAA, and ABB, is 5 times larger, compared to the rebuilding rate of AAC and ABC.

3. Relationships to property rights also influenced independent temporary construction. Land owners and those without leases, had a low rated of independent temporary construction. Comparing the number of independently built temporary construction of AAA, ABB, AAC, and ACB, they are 34:19:4:2, respectively.

4. For stores and factories, only those who had self-built temporary buildings were able to rebuild in the area.

5. One group of residential occupants, among the 65 who rebuilt within the area, did so without self-built temporary buildings, and moved out at one time, but 33 (50.8%) rebuilt within the area. Of them, approximately half, 16, received priority entrance into public housing.

6. As of the 73 self-built buildings in the area, 66 (90.4%) were built as self-built temporary houses, it can be considered that they are useful.

7. There was a change in the occupants of the area from before the earthquake and after land readjustment. As of September 2010, out of the 351 buildings in the area, there were 73 that did not suffer disaster damage. 95 others are occupied by former occupants. 47.9 % of the 351 total current building users are former occupants (95 rebuilt in the area + 73 undamaged). About half are new occupants who moved into the area after the earthquake.

8. In regards to land readjustment projects, basic provisions were provided. However, renters and shops or factory owners who did not self-build temporary units did not rebuilt in the area. The result is that the occupants who rebuilt in the area are all one type, which is uneven. For all former residents to be able to rebuild in the area, land readjustment on its own is not sufficient, and it can be said that the implementation was not considered in full detail.

Finally, this topic also has a relationship to the local community after disaster, and the following comments are suggestions and challenges related to this topic.

In relation to stores and factories, in order to establish steps to form livelihood, rebuilding in the local area is also related to the customers, etc. Regardless of rebuilding in a different place, restarting commercial enterprises quickly is important. Even after land substitution, it can be understood that self-built temporary buildings were an important step for businesses to continue their commercial activity. It is important from now to do a detailed survey on the finished conditions of the self-built temporary buildings.

Related to housing, even without self-built temporary buildings, there is a chance to return. In order for even a few more former residents to return, a commitment of priority public housing (entry requirements, at the time of completion) is very important. In actuality, to improve the outcome, it is important to build priority public housing quickly, and to keep a registration of names and unbroken communication with the target beneficiaries²¹.

In any case, after disaster, it's difficult to community to former residents who have evacuated. Therefore it is important to have community-building organizations established before disaster occurs. Then after a disaster, they can involved the residents' opinion of what to do, and do surveys about land rights and desires. According tot he time, special laws or measures for dealing with disaster stricken building renters and land renters are important.

Notes

1. Kobe City "progress and measure of the revival for ten years after an earthquake disaster"2005.1.14<http://www.city.kobe.lg.jp/safety/hanshinawaji/revival/promote/img/10nenkan.pdf>
2. Kobe City website "earthquake disaster revival land readjustment project"

- (<http://www.city.kobe.lg.jp/information/project/urban/adjustment/index3.html>)
3. 124%:Shin Nagata north,102%:Moriminami-2, 99%: Moriminami-1,87%: Moriminami-3, 87%:Takatori higashi 2, 82%:Takjatori higashi 1, 81%:Misuga west, 80%:Rokkouchi Nishi, 70%:rokkouchi Nishi, 61%:Matsumoto, 51%: Misuga east (basic resident register 2010.9)
 4. vacant lots、 Nagata ward 240,000sqm, Hyogo ward 150,000sqm. Total of Kobe City 790,000sqm (News paper of Kobe 2007.10.9)
 5. Former occupants is user (Residents and Commercial, Factory) just before Hanshin Awaji Earthquake (1995.1.17)
 6. Reference 2)
 7. Reference 5). Selfbuilt temporary buildings are buildings which the occupied building suffered damage, such as an earthquake and a subsequent fire, and were built on the old background by temporary replotting (start in January, 1998), such as a prefab, a container, and wooden.
 8. even if business plan determination has required building restrictions -- "1. -- they were 59 houses as of [when a basement was not prepared] November, 2.1997.
 9. The investigation about building reconstruction or hearing to moving out occupants once a year by NPO machi-communication. "The situation of the reconstruction from the Great Hanshin-Awaji Earthquake in Misuga west area"
<http://machicomi.blog42.fc2.com/blog-entry-594.html>
 10. The increase in the rate of land for public utilization 1. Matsumoto (26.9%), 2. Rokkomichi eki Nishi (24.4%), 3. Misuga east (24.0%) 4. new Nagata north (22.4%), 5. Takatori east second (19.9%), 6. Takatori east first (18.7%), and 7. Rokkomichi eki kita (18.1%), 8. Misuga Nishi (17.5%), 9. Moriminami (4.8%). 5.0% of Misuga west and 2.5% of Moriminami, and the others of average rate reject land are 9.0%. (Kobe city planning head office)
 11. In front of the earthquake disaster, three buildings of 8 or more stories which did not exist were built. Although 86% was fastened by 1-2 stories before the earthquake disaster, 3 stories fastens 51.8% after an earthquake disaster.(Monthly paper published by NPO Machi-communication 2010.8)
 12. Kobe earthquake disaster revival housing maintenance urgent three-year plan
<http://www.city.kobe.lg.jp/information/project/urban/policy/seisaku/p03.html>
 13. In a local town planning conference, although the temporary factory was demanded in the area, it did not suit. About the factory, the public measure of a "reconstruction assistance factory", "a temporary lease factory", etc was devised, and it played the fixed role in Kobe. a "reconstruction assistance factory" -- May, 1998 -- access -- a start. A location is Wadayama-dori, Hyogo-ku, Kobe-shi. "A temporary lease factory" is a lease factory of the temporary construction lent by a provisionally cheap rental rate until small and medium-sized enterprises secure a manufacture factory themselves. An enterprising body is the Kobe city maintenance public corporation. 52 southern Nagata 3 housing complexes, 118 Nishi God area 3 housing complexes, a total of six 170 housing complex construction.
 14. Misuga Nishi area town planning conference, various organization officers, neighboring residents, a transfer person, and the city planning aid agency that establishes an office in an area -- "-- it waited and has complemented with the information by the NPO Machi-communication" staff etc.
 15. Buildings of two or more uses, such as a residence, a store, and a factory, are located with

the one same household denominated in a here division. Suppose that one use is counted as one house in that case in this paper. For example, when you have a use of both a residence and a store, suppose that it counts as one residence and one store in one building. It is because only one use may be rebuilt.

16. In this paper, with building damage, if the building which was before the earthquake disaster is damaged and another building etc. are not built, continuous occupancy cannot be carried out but it will be considered as the case where it must move. When a building can live by repair in analyzing reconstruction an area inland division outside, naturally it is because it is not necessary to come outside an area in case of an earthquake disaster (except for the time of aftershock continuation). Therefore, the building which can be used is treated as a thing without damage by repair and repair. There is damage of a building and an old building is targeted at the occupant whose use became improper. However, in practice, at the time of suffering a calamity, since there are no infrastructures, such as gas and electricity, there is also an occupant of the rented house left out of the area.
17. The reconstruction at the time of a non-damage building occupant's temporary replotting is not included.
18. Since an enforcement person is Kobe, the disaster victim of the Kobe whole region is an object, and all of public housing are not saucer residences.
19. 287 residences (August 31, 2010 basic resident register), Misuga Nishi area reconstruction situation (Monthly paper published by NPO Mahi-communication 2010.8)
20. Mikuradoori 5-6-chome city planning news "Hikobae" -- No. 3 (December 15, 1995)
21. A city planning conference and an NPO organization actually in Misuga Nishi area At the time of collection. On list of names, it checked having leaked, and the old occupant stayed in touch also with the old occupant of AAC and ABC who has moved out, moved into the public housing of other areas, also contacted the old occupant who does not suit the housing poor's conditions, and both negotiated on them.

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