

**Study on Public Supporting System for Housing Reconstruction  
after Seismic Damage in Japan**

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In order to supporting livelihood revival in the damaged area by the Great Hanshin-Awaji Earthquake "Act on Support for Reconstructing Livelihoods of Disaster Victims" was introduced in 1998. Since then the Act was revised two times about supporting the housing reconstruction.

About the reconstruction of damaged houses that was a key theme of the livelihoods revival from the disaster damage, introduction of the institutions for rebuilding of damaged houses preceded the act revision by the central government. The local government that happened to get a serious seismic damage introduced a new original system, and based on this system implemented public support for reconstruction of damaged houses. Then, the supporting system for rebuilding the damaged houses by the local government stated in 2000. This preceded institutions encouraged the central government to introduce housing reconstruction assistance by the amendment of the Act in 2007.

This study clarifies the transition process of the public support system for livelihoods revival and reconstruction of damaged houses in seismic damaged areas. In order to study those themes, first, this paper shows the time series list of relating institutions of public supporting system for disaster damaged areas and analyzes their contents and relations between them. Next, every measure introduced by the central government and the local governments for supporting disaster restoration is compared and points out their similarities and differences. Finally, the actual case of the NOTO Peninsula Earthquake is studied in details. Based on the above described studies, some findings and proposals are concluded for promoting the disaster restoration.

*Keywords: Disaster reconstruction, Public Supporting System, Reconstruction of damaged house, Livelihoods revival*

## **1. Introduction**

### **(1) Background and objectives of the study**

The Act concerning Support for Reconstructing Livelihoods of Disaster Victims (herein after referred to as the "Act") was enacted in 1995 after the Han-shin Awaji Earthquake disaster to support the victims of natural disasters to reconstruct their livelihood. The Act has been revised twice expanding the contents of the support, particularly so as to enable the grants to be used for reconstructing houses. As of January 31, 2011, 23,688 million yen has been provided to 18,036 households affected by 40 natural disasters <sup>1)</sup>.

This study tries to clarify the following points focusing on "housing reconstruction support". 1) Clarifying the introduction and its development of "Act on Support for Reconstructing Livelihoods of Disaster Victims" in chronological order, and the history and factors of the establishment of the support system for private housing reconstruction as one of national institutions.

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2) Clarifying the structure of the supporting system by the Central Government and Prefecture Governments, and their actual conditions, their roles for housing reconstruction and their problems to be solved. First, the processes of forming and expanding the systems based on the Act are described (Chapter 2). Then support systems other than the Act are outlined, and issues for housing reconstruction are organized (Chapter 3). In Chapter 4, the characteristics of the prefectural systems and their roles on housing reconstruction are compared. Finally, public housing construction in an earthquake-stricken area in Noto Peninsula is investigated as an example (Chapter 5).

### (2) Value of the study

The former is the following studies. Yamasaki (2003) clarified actual at the time of enactment in 1998 and proposed revisions for 2004<sup>2)</sup> and Shigekawa (2008) clarified the backgrounds and courses of the revision in 2007 so as to enable the grants to be used for “houses” via interviews with responsible persons of the national and municipal governments<sup>3)</sup>. The latter is the following studies. Yamasaki(2005) classified and characterized the prefectural supports for reconstructing the livelihood of disaster victims<sup>4)</sup>, Aota (2010) analyzed and characterized the uses of the recovery foundations for livelihood reconstruction that have been established in the past<sup>5)</sup>. Also Tanaka(2008) clarified actual conditions and problems of surveys on seismic damaged buildings and proposed a self-examination system in order to be more effective and standardize surveyed contents<sup>6)</sup>.

Although above studies include useful findings, they study on individual cases relating Act on Support for Reconstructing Livelihoods of Disaster Victims and its supporting projects. individual supporting projects by the Prefectures and the foundations for disaster recovery projects and do not review the public supporting systems as a whole. This study is characterized by clarifying the role of “housing reconstruction supporting systems” in totally, and by making clear their problems to be solved.

## 2. History of systems in Japan for supporting rehabilitation from disasters

Major large earthquakes in Japan after the Han-shin Awaji Earthquake and public support systems are summarized in Table 1, which was prepared based mainly on the references of the national government<sup>7), 8), 9)</sup>. The history of the formulation and expansion of the systems for supporting housing reconstruction is described below.

### (1) The perspective of the public supporting system for housing reconstruction

In Japan, the main stream of housing reconstruction in disaster-stricken areas has been that houses, which are private assets, should be reconstructed by the owners themselves and should not to be funded by public funds<sup>10)</sup>. Therefore, the national government provides temporary houses or supports for temporary repair to people who lost or get their houses severely damaged, and the people are to obtain permanent residences by themselves in principle. On the other hand it was gradually recognized that housing reconstruction is key factor to regenerate the damaged area and some Prefectures institutionalized the precedent supporting systems. Then the Central Government introduced such system and revised it two times intending to be effective. But the system has still some limitations to be revised and complementary measures for Prefecture Government.

### (2) Formulation of the Act concerning Support for Reconstructing Livelihoods of Disaster Victims and development of discussions on supports for housing reconstruction

The Han-shin Awaji Earthquake disaster in January 1995 led to the enactment of the Act concerning Support for Reconstructing Livelihoods of Disaster Victims in May 1998. According to the Act, a grant of 1 million yen the maximum was to be provided to victims of natural disasters for them to

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**Table-1 History of supports for livelihood reconstruction of disaster victims after the Han-shin Awaji Earthquake disaster**

Year/month	Class	Contents		
1995.01	Disaster	Han-shin Awaji Earthquake (M 7.3). Totally destroyed: 186,175 households, partially destroyed: 274,181 households, damaged: 390,506 buildings		
1995.04	Rehabilitation fund	Han-shin Awaji Earthquake Rehabilitation Fund established	*34 projects out of 116 were related to housing reconstruction.	* Reconstruction support mainly for paying interest
1998.05	Expanded support	Act concerning Support for Reconstructing Livelihoods of Disaster Victims enacted	To totally destroyed houses Sum: 1 million the maximum	Limitation on use: household goods Limitation on income and age
2000.10	Disaster	*Additional clause: Comprehensive investigation on supports to totally or partially destroyed houses Western Tottori Prefecture Earthquake (M 7.3). Totally destroyed: 435 buildings, partially destroyed: 3,101 buildings, damaged: 18,544 buildings		
2000.10	Original support	The nation's first support for rebuilding houses by Tottori prefectural government	Grants Rebuild: ≤ 3 million yen Repair: ≤ 1.5 million yen	To any degree of damage No age or income limitation Reconstruction in the same area
2000.12	Opinion Report	National Land Agency: report by the investigatory committee on housing reconstruction support	*The committee mentioned the public nature of housing reconstruction and the appropriateness of giving public supports.	
2002.7	Opinion Report	The Central Disaster Prevention Council gave an opinion on enhancing disaster prevention system.	* The council mentioned the need of supports for reconstructing and repairing houses, moving to rented houses, and securing stable residences.	
2003.07	Disaster	Northern Miyagi Earthquakes (M 5.3 ~ 6.2). Totally destroyed: 1,276 buildings, partially destroyed: 3,809 buildings, damaged: 10,976 buildings		
2003.07	Original support	Original system of Miyagi Prefectural government to support housing reconstruction	Grants Rebuild: ≤ 1 million yen Repair: ≤ 500 thousand yen	To totally and partially destroyed houses No age or income limitation
2004.04	Expanded support	Partial revision of the Act * Support for stable residence was newly created.	Life-related expenses To totally destroyed houses ≤ 1 million yen Limitation on usage (for household goods, moving expenses, etc.) Income and age limitation	Residence-related expenses To totally or severely destroyed houses Totally destroyed: ≤ 2 million yen Severely destroyed: ≤ 1 million yen Limitation on usage (demolishing, paying interest, deposit, etc.) Income and age limitation
		* The amount of grant increased (totally destroyed: ≤ 3 million yen, severely destroyed: ≤ 1 million yen) * Use for reconstructing the house not allowed		
2004.10	Disaster	Mid Niigata Prefecture Earthquake (M 6.8). Totally destroyed: 3,175 buildings, partially destroyed: 13,810 buildings, damaged: 105,68 buildings		
2005.03	Rehabilitation fund	Chuetsu Earthquake Rehabilitation Fund established	*17 projects out of 139 were related to housing reconstruction. * Five for direct support of reconstruction and repair	Example of housing reconstruction support To houses of damages bigger than a certain level For reconstruction 1.8 million yen
2007.03	Disaster	Noto Hanto Earthquake (M 6.9). Totally destroyed: 686 buildings, partially destroyed: 1,740 buildings, damaged: 26,958 buildings		
2007.08	Rehabilitation fund	Noto Hanto Earthquake Rehabilitation Fund established	*7 projects out of 25 were related to housing reconstruction. * One for direct support of reconstruction and repair	To totally or severely destroyed houses To reconstruct or repair the house Totally destroyed: ≤ 2 million yen Severely destroyed: ≤ 1.2 million yen
2007.07	Disaster	Niigata-ken Chuetsu-oki Earthquake (M 6.8). Totally destroyed: 1,331, partially destroyed: 5,709, damaged: 37,301 buildings		
2007.10	Rehabilitation fund	Chuetsu Earthquake Rehabilitation Fund established	*18 projects out of 75 were related to housing reconstruction. * Six for direct support of reconstruction and repair	Example of housing reconstruction support To houses of damages bigger than a certain level For reconstruction 1.8 million yen
2007.11	Expanded support	Partial revision of the Act *Basic grant and additional support established	Basic grant To totally or severely destroyed houses To totally destroyed: 1 million yen To severely destroyed: 500 thousand yen	Additional support To totally or severely destroyed houses For reconstruction: 2 million yen For repair: 1 million yen
		* Limitation on usage was dropped enabling the grants to be used for rebuilding houses. *Limitation on age and income was dropped to equally support victims of severe or total destruction.		
2010.9	Expanded support	Scale of damage to be supported was revised.	* Supports are to be given to disasters affecting a large area but the number of houses affected in each municipality is small.	

Note: The contents of the national act were organized based on References 7), 8) and 9). The contents of prefectural support systems and rehabilitation funds were added.

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purchase household goods and necessities of life. However, the grants were to be provided only to those who live in totally destroyed houses, have eligibility conditions of income level and age class. The support was likely to not meet the needs of victims as Yamazaki (2003) mentioned that the support had a narrow scope and was inconvenient<sup>2)</sup>. Supports for housing reconstruction were not included in the Act. Only there was an additional clause stating the need of comprehensive discussion on supports to households that have the houses partially or totally destroyed, postponing the discussion.

In January 1999, an investigatory committee was established in the National Land Agency to discuss about housing reconstruction supports and held 17 meetings. The committee report prepared in December 2000 stated that although houses are private assets, destruction of houses over a large area affects the rehabilitation of the local community and thus the reconstruction is somehow public<sup>1)</sup>. However as Otsuka and Ozawa (2004) stated, the committee recognized the public nature of housing reconstruction but did not make any clear conclusion on actual supporting method<sup>7)</sup>. The report of the committee, which opposed the national government persisting in the belief that public funds must not be used for formulation of private assets and admitted the public nature of houses by regarding them as a group, is significant and can be highly evaluated. In July 2002, the Central Disaster Prevention Council (Expert Committee on Disaster Prevention Basic Plan) offered an opinion on enhancing disaster prevention systems and mentioned the need of supporting victims to reconstruct or repair houses based on the self-reconstruction principle and setting limitation<sup>12)</sup>.

### **(3) Prefectural and municipal systems for supporting housing reconstruction**

During the Western Tottori Prefecture Earthquake in October 2000, the prefectural government of Tottori provided the Japan's first supports for housing reconstruction by judging that housing reconstruction is essential for the rehabilitation of the affected area. The sum was decided based not on the degree of damage but on whether it was reconstructed or repaired. Although the national government persisted that public funds must not be used for forming private assets and opposed the aid, the prefectural government of Tottori decided to provide the support on the basis that there are no laws or regulations banning housing reconstruction supports<sup>13)</sup>. After the Northern Miyagi Earthquakes in July 2003, the prefectural government of Miyagi formulated an original system for early rehabilitation of the affected area and provided supports for housing reconstruction.

The decision of the prefectural government of Tottori, which opposed the national government's opinion that public funds must not be used for private assets, was epoch-making and has led to the spread of housing reconstruction supports as that in Miyagi Prefecture.

### **(4) Revision of the Act in 2004 and formulation of the support system for stable residence**

In April 2004, the Act was revised including the system for supporting stable residence. Grants were decided to be provided for "living" and "residence" related expenses. For living, a grant of 1 million yen the maximum was to be provided to households of totally destroyed houses as in before the revision. The grant of residence expenses was 2 million yen the maximum for totally destroyed houses and 1 million yen the maximum for partially but severely destroyed houses, enabling the victims to dismantle, remove and clear the destroyed houses, pay interests and make deposits. However, the grant could not be used for reconstructing the house itself. There were also limits on age and income, and it was still imperfect as a housing reconstruction support.

In October 2004, the Mid Niigata Prefecture Earthquake occurred, and the Act was applied for the first time after the revision. The grant, which could not be used for reconstructing houses and had limitations of age and income, was mentioned inconvenient<sup>8)</sup>. The prefectural government of Niigata formulated an original system to provide grants that could be used for any purpose including

reconstructing and repairing houses to victims of all ages and income, including 500 thousand yen to residents of partially destroyed houses, which were not covered by the Act.

In March 2005, Niigata Chuetsu Earthquake Recovery Foundation was established, in which housing reconstruction is included. For example, a grant of 1.8 million yen was provided to victims who lived in partially or totally destroyed houses to build a house that meets a certain criteria (Housing support in mountainous region).

#### **(5) Revision of the Act in 2007 and direct support for housing reconstruction**

The Act was entirely revised in November 2007. The major revisions included 1) dropping the income and age limitation, 2) creating “basic grants”, which are paid depending on the degree of damage (no limitation on use), and 3) creating “additional support” for rebuilding or repairing houses. A fixed amount is provided depending on whether the partially but severely or totally destroyed house is to be rebuilt or repaired and can be used for the house itself. For example, 3 million yen is provided to rebuild a totally destroyed house. However, no support is given to partially and not severely destroyed houses, which needs to be included in the future by expanding the support. It is also needed to increase the amount of the grant to encourage victims to rebuild houses, and an accessory resolution was made stating the need of revising the sum.

The revision was made when prefectural governments promoted housing reconstruction and rehabilitation of the areas hit by the Noto Hanto Earthquake in March 2007 and the Niigata-ken Chuetsu-oki Earthquake in July 2007 by using their original systems and funds as in the Chuetsu Earthquake. An additional clause was added to the revised Act stating to take special retroactive actions to four natural disasters including the two earthquakes in 2007. The actions promoted the reconstruction of houses in the areas. During the course of deliberation, an issue in the Diet was to whether or not to apply the revised Act to the areas affected by disasters in the past because there is the non-retroactive principle of laws. It was decided to not state the retroactive application in the Act but to add a clause on the special action to enable retroactive action to be taken in practice.

In September 2010, the Act was partly revised so as to include natural disasters that affect small numbers of houses in each municipality but over a large area, enabling supports to be given to small-scale damages.

### **3. Issues of the systems for promoting the reconstruction of houses**

Reconstruction of affected houses is also closely related to 1) the damage approval of the houses (damage certificate), and 2) the emergency repair system. An overview and issues of the systems are summarized below.

#### **(1) Inspection of damaged houses**

There are three kinds of inspection, which mutually differ in purpose, conducted on buildings damaged during an earthquake (Table 2): 1) post-earthquake quick inspection of damage buildings estimates the risk in order to prevent secondary damages and may not reflect the severity of the damage, 2) post-earthquake damage evaluation assesses the severity of the damage to investigate repair and reconstruction policies, and 3) damage inspection for issuing damage certificates investigates the loss in the value of the asset as a residence.

The first and the third are conducted by the governance. For citizens, they seem similar, are thus frequently confused, and are sometimes misunderstood as an evaluation of the severity of the damage, encouraging demolition of repairable houses. The second is a voluntary investigation conducted by an architect, etc. hired by the owner of the house. Victims are unlikely to actively

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commit the investigation during post-earthquake chaos. Therefore the survey will be done more effectively if a public institution for investigation of the damaged buildings is set up and introduced a new qualification such as "Seismic Damage Surveyor". In addition, surveyed results should be consolidated and utilized as materials for determination of the Damaged Level by the municipality. Tanaka (2008) reported such case at Kashiwazaki City. If the municipality keeps this kind of data it could be offered according to the request by owner or architect who conducts the damaged building survey.

The best method for victims to reconstruct their livelihood is to promptly secure safe residences. The additional grants for reconstructing the livelihood are either 2 million yen for rebuilding and 1 million yen for repairing. Therefore a flexible system is needed such as adding complementary subsidies according to applications by a owner with sheets indicating damaged parts and levels, repaired parts and their drawings and amount money for repairs, which follows the Tanaka (2008)'s proposal of the self-examination system.

Table 2 Inspection of damaged houses after an earthquake

Item	1) Post-earthquake quick inspection of damaged buildings	2) Post-earthquake damage evaluation	3) Approval of damage to the building
Purpose	To prevent secondary damage to human life during an aftershock or by the building falling	To assess the possibility of using the damaged building and need or repair and/or reinforcement	Inspection to determine the degree of damage to the building (and issue a certificate)
Method	Assessing the risk of collapse, fall of the exterior wall and/or accessories, and landslide during an aftershock	Investigating the seismic performance of the damaged building via thorough investigation to help decide the repair policy	Calculating the damage ratio of the house and the loss in the value of the asset
Timing	Promptly after the earthquake	Voluntary inspection after the quick inspection	After the earthquake as soon as possible
Responsible body	Municipal government (supported by prefectural government and expert organizations)	Owner of the building (voluntary)	Municipal government
Inspector	Emergency safety inspector (governance, architect, etc.)	Private architect, etc.	Mainly administrative officer
Scoring	3 grades (dangerous, caution needed, inspected)	5 grades (collapse, serious damage, medium damage, slight damage, very slight damage)	5 grades (total destruction, severe destruction, semi-destruction, partial damage, no damage)
Notes	Citizens may confuse with the damage certificate.	Victims themselves need to commit to an architect. It requires cost.	It determines the supports provided by the Act and tax reduction and exemption.

### (2) Temporary repair system for damaged houses based on the Disaster Relief Act

The temporary repair system for damaged houses of the Disaster Relief Act also plays a role in the repair of damaged houses. The system pays the expenses for temporary repairing the necessary spaces for living (rooms, kitchen, toilet, etc.) of partially destroyed houses or houses destroyed but can be repaired (limitation on income) to the contractor via municipal government. The maximum sum per household is 520 thousand yen as of 2011.

According to the Disaster Relief Act, the work should be completed in one month after the disaster in principle, but the period was extended to 5 months for the Noto Hanto Earthquake and 8 months for the Chuetsu-oki Earthquake. This was because it took time to issue the damage certificate, the house owners could not make decisions quickly<sup>14)</sup>, and carpenters and contractors were busy repairing so many houses and could not complete all works within the period<sup>14)</sup>. The system itself has imposed extra works on the carpenters and contractors. Because the grants are to be paid not to house owners but to the contractors, the system requires the contractors to prepare and submit records of works in the past to the municipal government, which may involve unfamiliar works for them. After the Noto Hanto Earthquake, there were contractors who repaired houses free

because they did not or could not submit the necessary documents.

Therefore, completing temporary repair in one month, which is required by the Disaster Relief Act, is impractical and may lead to increased works of carpenters and contractors, who are demanded to engage in reconstruction and repair of houses. There also may be cases in which it is difficult to separate necessary spaces for living from the other spaces. In order to smoothly connect temporary repair (to be paid by the Disaster Relief Act) and more full-scale repair works (to be supported by the Act concerning Support for Reconstructing Livelihoods of Disaster Victims), the two systems should be integrated into one, and a new support system for housing reconstruction should be created.

#### 4. Characteristics and issues of prefectural support systems

As outlined in Chapter 2, prefectural governments created systems for supporting the livelihood reconstruction of victims earlier than the national government. The characteristics and issues of their original systems and the supports based on the Rehabilitation Fund are described below.

##### (I) Original systems of prefectural governments for supporting the livelihood reconstruction

There is a national reference<sup>15)</sup> available on the original support systems of prefectural governments. Table 3 summarizes the systems based on a table in the reference on prefectural support systems.

As of December 31, 2010, 25 prefectures have their own support systems. Nine have ex-gratia payment systems for victims of general natural disasters. Nine have support systems for reconstructing houses damaged by a general natural disaster (those without limitation on use in the table can be used for rebuilding houses). Seven have support systems for specific disasters in the past (only those that occurred in or after 2007 are shown in the table).

Table 3 Original systems for supporting the livelihood reconstruction of victims of prefectures (as of December 31, 2010)

Prefecture	Disaster covered	Gift	Limitation on usage	Support given even when not covered by the Act	No limitation on age or income	Joint supply with the Act	Support (10 thousand yen)			
							Totally destroyed	Severely destroyed	Partially destroyed	
Hokkaido	General	○	None	○	○	○	20	-	10	
Akita	General	○	None	○	○	○	60	-	20	
Ibaraki	General	○	None	○	○	○	5	3	3	
Gunma	General	○	None	○	○	○	10	-	5	
Aichi	General	○	None	○	○	○	10	-	5	
Saga	General	○	None	○	○	○	6	6	6	
Miyazaki	General	○	None	○	○	○	20	15	15	
Kagoshima	General	○	None	○	○	○	20	20	20	
Okinawa	General	○	None	○	○	○	5	-	3	
Fukushima	General	-	None	○	○	-	300	250	-	
Gifu	General	-	None	-	-	-	100	100	50	
Shizuoka	General	-	None	○	○	-	300	250	-	
Tottori	General	-	Depend on damage	○	○	-	300	250	100	
Shimane	General	-	None	○	○	-	300	250	-	
Hiroshima	General	-	None	○	○	-	300	250	-	
Yamaguchi	General	-	None	○	○	-	300	250	-	
Tokushima	General	-	Reconstruction of houses	○	○	○	225	112.5	112.5	
Ohita	General	-	None	○	○	-	300	130	130	
Iwate	Specific	-	Reconstruction of houses	○	○	-	300	-	-	
Yamagata	Specific	-	Reconstruction of houses	○	○	-	300	-	-	
Niigata	Specific	-	None	-	○	○	100	100	50	
Toyoma	Specific	-	None	○	○	-	300	250	-	
Ishikawa	Specific	-	None	-	○	○	100	100	200	
Hyogo	Specific	-	None	○	○	-	-	-	25	
Okayama	Specific	-	Reconstruction of houses	○	○	-	300	150	150	
25 prefectures	General	18	Limitation	5	22	23	10	24	17	17
	Specific	7	None	20						

\*1 Specific denotes giving supports for damages caused by the specific earthquake in the past (stated only in the systems in and after 2007).

\*2 Reconstruction of houses denotes expenses for building, purchasing and repairing houses.

Note: Prepared based on a table on original systems for supporting the livelihood reconstruction of prefectural governments in Reference 15)

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Of the 9 that have support systems for reconstructing houses, 8 provide grants also to disasters not covered by the national Act so that the victims can receive an equivalent support. On the other hand, only four prefectures have systems for supporting partially destroyed houses because prefecture systems are based on the national Act, which does not cover those houses. The difference in grant is a topic, and there is strong demand for the national Act to cover such damages and for national support systems to be further expanded. Prefectural governments should also formulate their original systems so as to complement the national Act, provide supports appropriate to the damages in the region, and not result in difference among prefectures.

### (2) Characteristics of the housing reconstruction support systems based on the Rehabilitation Funds

Disaster Rehabilitation Funds use investment profits of the funds to support rehabilitation. The first fund in Japan was the Unzen-dake Disaster Rehabilitation Fund (1991) established to support rehabilitation from the damages of volcanic eruption. Four funds shown in Table 4 have been established for large earthquakes. The funds are characterized by providing “support complementing administrative actions”, “continuous support”, “flexible support” and “support for self-reliance”<sup>(16)</sup> and can provide supports that meet the needs and the situations of the affected area.

Table 4 shows the number of projects for each category, which was calculated based on the websites of the Rehabilitation Funds<sup>(1)</sup>. The Rehabilitation Fund for the Han-shin Awaji Earthquake which hit urban districts, consisted of 30% livelihood reconstruction, 30% housing reconstruction, and 30% industry rehabilitation. On the other hand, the Fund for the Chuetsu Earthquake, which damaged mountainous regions, had high ratios of projects for rehabilitating the livelihood and agriculture, forestry and fisheries. Because many of the districts damaged by the Chuetsu Earthquake were hit again by the Chuetsu-oki Earthquake, additional support projects were implemented for the double damage. The Fund for the Noto Hanto Earthquake had a larger percentage of regional rehabilitation than the other funds, showing that the supports have been provided according to the states and needs of the damaged areas.

Table-4. Rehabilitation Funds and projects based on them<sup>(1)</sup>

Fund	Number of temporary houses (k)	Working assets (100 million yen)	Field	Total	Number of projects (as of December 2010)									
					Reconstruction of livelihood	Reconstruction of houses	Increasing employment	Restoring industries	Related to agriculture, forestry and fisheries	Promoting tourism	Related to education and culture	Recording and publishing	Rehabilitation of the region	Double damage
Han-shin Awaji Earthquake Rehabilitation Fund	48,300	8,800	5	116	32 (27.6)	34 (29.3)	—	34 (29.3)	—	—	11 (9.5)	—	—	—
Chuetsu Earthquake Rehabilitation Fund	3,450	3,000	10	139	35 (25.2)	17 (12.2)	6 (4.3)	16 (12.9)	32 (23.0)	2 (1.4)	7 (5.0)	4 (2.9)	11 (7.9)	7 (5.0)
Noto Hanto Earthquake Rehabilitation Fund	334	500	5	25	6 (24.0)	7 (28.0)	—	2 (8.0)	5 (20.0)	—	—	—	5 (20.0)	—
Chuetsu-oki Earthquake Rehabilitation Fund	1,222	1,200	7	75	20 (26.7)	18 (24.0)	2 (2.7)	12 (16.0)	17 (22.7)	1 (1.3)	5 (6.7)	—	—	—

\* Double damage denotes projects for supporting victims of the Chuetsu-oki Earthquake who were also affected by the Chuetsu Earthquake.

Table 5 was also prepared based on the publicized information of the Rehabilitation Funds<sup>(1)</sup> and shows the projects related to housing reconstruction. All included projects for housing reconstruction, restoring housing land, moving into rented house, consultation about residence and supporting contractors. The Fund for the Han-shin Awaji Earthquake, after which many victims moved into temporary houses, included projects for supporting them to move out from the temporary houses. Projects for revitalizing the regional economy by the residents themselves were also executed after the Han-shin Awaji Earthquake and the Noto Hanto Earthquake.



The Rehabilitation Funds can implement various support projects. However, they involve a number of projects and may end up in providing only similar supports. They may require complicated application procedure, discouraging the victims from using the funds. Methods are needed to be devised to clarify available supports and requirements and to simplify the application procedure. In order to help quick establishment of the fund after a disaster, it is effective to organize the necessary and common list of supports and prepare a framework of funds and a standard scheme for establishing a fund.

Table-5. Supporting system for housing by Rehabilitation Funds<sup>1)</sup>

Fund	Total	House reconstruction		Restoring land	Moving to rent house	Moving from temporary houses	Consultation on residence	Supporting contractors	Revitalizing region	Others
		Direct support	Loaning interest							
Hanshin-Awaji Earthquake Rehabilitation Fund	34	2	10	4	1	6	2	6	1	2
Chubu Earthquake Rehabilitation Fund	17	5	4	2	2	—	1	3	—	—
Noto Hanto Earthquake Rehabilitation Fund	7	1	2	1	1	—	1	—	1	—
Chubu Earthquake Rehabilitation Fund	18	6	3	3	2	—	1	3	—	—

Legend

- \* Direct support: Supporting rebuilding the house
- \* Restoring land: Supporting land restoration
- \* Moving from temporary houses: Supporting residents to move out from temporary houses
- \* Supporting contractors: Supporting bodies supporting house reconstruction and contractors
- \* Revitalizing region: Supporting revitalization activities of citizens by sending advisors, etc.
- \* Loaning interest: Support for paying the interest for the loan for building the house
- \* Moving to rent houses: Support for moving into a rent house
- \* Consultation on residence: Support for establishing consultation centers and sending counselors

### 5. New housing reconstruction support by providing disaster-recovery public housing

As one of supporting systems public housing has been supplied for households who do not afford to rebuild their own houses by themselves. Based on reviewing deficiencies of the large scale supply of public housing after the Great Hanshin-Awaji Earthquake the small or medium sized public housing has been supplied in the near site from the damaged area for Niigata Prefecture. Furthermore the municipal government of Wajima City, Ishikawa Prefecture, where the Noto Hanto Earthquake hit, has built 49 houses for those who could not afford building houses by themselves. Of these, four were built as land-donated disaster-recovery public housing. This is also an effective method to supporting damaged people especially for aged people in a local area.

The scheme involves: 1) the land owner donates the land to the government of Wajima City, 2) the government builds a public housing, 3) the ex-land owner and the family continue living on the land, and 4) the resident can purchase the house after a certain time (at least 10 years after the construction in principle) at a reasonable price. The system enables earthquake-hit residents to continue living in their familiar district, prevents people from moving out from destroyed areas, which leads to vacancy of land, and help rehabilitation of the region. The sales of the asset after 10 or more years conforms to the Public Housing Law, which approves the sales of public housings under certain conditions (older than 1/4 of the service life (30 years for a wooden house) and fair price). The system makes clever use of the law and is effective for enabling victims, who cannot rebuild their houses by themselves, to reconstruct their livelihood in their familiar environment.

### 6. Summary

This study clarifies the transition process of the public support system for livelihoods revival focusing on reconstruction of damaged houses in seismic damaged areas. Concluding remarks are as follows. The direct subsidy system to housing recovery is preceded by prefecture governments and the national institution is gradually prepared. But it needs some improvement to be more effectively such as increase of the subsidy amount and application procedure. The original supporting systems

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by prefecture governments are still important to be a complementary with the central government system. However they need some improvements. The housing reconstruction support system based on the Rehabilitation Fund is effective method because it could create varied institutions according to characteristics of the damaged area. The disaster-recovery public housing which was introduced at Noto Hanto Earthquake is also effectual way to support housing recovery and maintenance of damaged area livelihood.

At last, we'd like to express our sympathy to the victims of the Tohoku Earthquake and pray for the souls of the departed. We pray for the speedy recovery and restoration of the areas.

### Notes:

(1) The homepage address that referred to as follows.

Han-shin Awaji Earthquake Rehabilitation Fund : <http://www.sinsaikikin.jp/>, Chuetsu Earthquake Rehabilitation Fund : <http://www.chuetsu-fukkoukikin.jp/>, Noto Hanto Earthquake Rehabilitation Fund: <http://noto-fukkoukikin.jp/>, Chuetsu-oki Earthquake Rehabilitation Fund : <http://www.chuetsu-oki-kikin.jp/>, (accessed on 2011.03)

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