

A Study on the Relation between the Roles of “Shobodan” and Local Community in Japan

- A Case study of the Shobodan and the Local Community in Kobe City -

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Abstract

A typical organization of self-fire-fighting in Japan is called “**Shobodan**” (volunteer fire corps). During Kobe earthquake in 1995 the fire authorities noticed many limitations in the fire fighting capability. After the Kobe Earthquake community-based organizations were integrated in D.P.W.C (The Disaster Prevention Welfare Community) and the Shobodan’s activities are done at a wider scale comparing with before 1995. Some educational activities such as holding disaster drills by experts and teaching residents about firefighting have been added to the current Shobodan’s responsibilities. The main objective of D.P.W.C is disaster prevention including fire-fighting, crime prevention and improving welfare. The integration of disaster prevention and welfare is a new approach in an aging society such as Japan and has an important meaning.

1. Introduction

It is expected that a modern city undergoes much damages when a large-scale disaster occurs. The damages

such as human loss, properties destruction , and infrastructures break are expected, and city functions are paralyzed. The Great Hanshin Earthquake in 1995 is an example. In the Hanshin-Awaji (Kobe) Earthquake that occurred in January, 1995 big fires happened simultaneously in Kobe city. Lifelines were collapsed and buildings were destroyed, which caused simultaneous

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fires. However, the fire authorities noticed that many limitations in the fire fighting capability were based on parameters such as lack of fire hydrants and closed traffic in the aftermath of the earthquake. During the Kobe Earthquake citizens played an important role in the fire fighting. In other words, it was a self-fire-fighting activity.

Shobodan is an independent fire fighting organization in which civilians participate in firefighting activities. This means that civilians act the same as Firefighting Bureau members in emergency times. Before the Kobe Earthquake guarding the fire occurred site was one of the main Shobodan's tasks. After the earthquake Shobodan's role was revised and as a result simultaneous fire fighting became one of their responsibilities. The civilians who participate in the Shobodan activities are those people who have different jobs while attend in disaster prevention courses, take part in the related trainings and check up the fire fighting equipments by themselves. At present, The Shobodans in Kobe City act as bridge between fire fighting authorities and the local communities. Based on the previous earthquakes experiences these ideas have emerged that:

- Our town should be protected by ourselves
- Authorities and residents should cooperate together to protect our town.

A typical product of local cooperation is local community, which is named "The Disaster Prevention Welfare Community (D.P.W.C)". The D.P.W.C is a high-ranked organization at local level that includes all local independent organizations. Each DPWC boundary is based on elementary schools zones in regions. The main objective of D.P.W.C is disaster prevention including firefighting, crime prevention and improving welfare. The integration of disaster prevention and welfare is a new

approach in an aging society such as Japan and has an important meaning.

In the D.P.W.C, there are various community-based organizations (residents associations, P.T.A, etc) and Shobodan is included too. After the Kobe Earthquake local communities were integrated in D.P.W.C and the Shobodan's activities are done at a wider scale comparing with before 1995. Some educational activities such as holding disaster drills by experts and teaching residents about firefighting have been added to the current Shobodan's responsibilities.

In this paper, the ideal way and the associated problems of the Shobodan roles in local community are discussed.

2. History of Shobodan

Shobodan has been organized by the local people and is based on the spirit that tries to defend the local community voluntarily from the disaster impact. In other words, Shobodan is volunteer fire corp. The Shobodan is one of three fire fighting organizations (fire department, fire station, Shobodan) by which cities, towns, and villages should establish entirely (or part) Fire Defense Organization Law. The Shobodan where Akita Prefecture was a full-time organization at the end of May, 1994, which exists dissolves, and all Shobodan are part-times. While the fire fighting activity and the emergency relief for fire and flood are engaged in every one's occupation in daily life, is the duty of fire fighter in cooperation with the fire brigade. Shobodan inspects the spot where Fire Chief orders, sets area to be guarded against fire, and has the authority to do emergency measures for fire-fighting.

During the Heian era the fire fighting group is seen as fire fighting organization

according to history records. However, in Edo era it developed as an organization.

The history of Japanese fire fighting originates until Heian era (8thC). The main activity of the fire fighting was royal palace protection. However, later in Edo era that fire fighting was organized and developed. Then, in the Meiji era and fire fighting was incorporated into the governmental organization while it was a pure autonomy organization in Edo era.

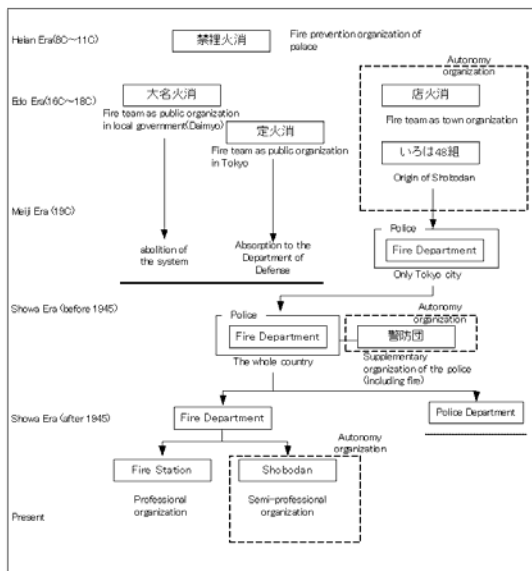


Figure 1. History of Fire Fighting Organization in Tokyo

Figure 1 shows that the history of the fire fighting in Japan. Today the fire fighting organization is based to the Fire Defense Organization Law in 1945.

3. Activity of Shobodan at the Great Hanshin Earthquake in 1995

The Hanshin earthquake in January, 1995 damages are 6,430 dead, 43,792

injured persons, and the property damage had arrived at 84 billion US dollars.

Simultaneous fires were one of the Earthquake consequences, which about 175 fires during ten days occurred after the earthquake in Kobe City. 89.7% of these fire breaks were building fires. Too many fires which were related to the earthquake occurred after several days after the Hanshin earthquake though it was thought that the fire occurrence rate would decrease by the passage of time. Fire breaks were due to the heating apparatus and cooking utensils that mixed with the gas and oil during the earthquake. 54 fires occurred during 15 minutes after the Earthquake. This includes 31% of all broken fires and the other 121 fires happened from January 17 6:00 a.m. until ten days later (Kobe Fire Department special report).

Table 1. Number of fire occurrence during ten days after the Earthquake

Category	Until 06:00	Until 09:00	The 17th	10 days
Total	54	79	109	175
Building fire	51	75	103	157
Vehicle fire	n.a	n.a	n.a	5
Etc	3	4	6	13

(from Kobe F.D)

Mainly the fires happened in the built-up areas while fire break in all regions of Kobe City. Numbers of fire occurrences in regions are as: Higashi-Nada Ward (28 fires), Nagata Ward (27 fires), Nada Ward (22 fires), and Suma Ward (20 fires). The fire occurrences cover 91% of whole residential areas (Figure 2).

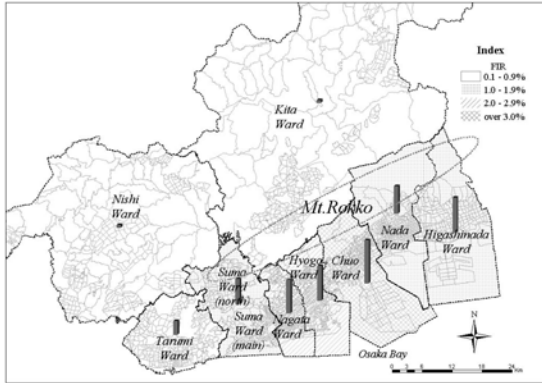


Figure 2. Fires and FIR in Kobe for 10 days after the earthquake (from data of Kobe FD)

If FIR (Fire Incidence Rate) that is the number of a fire for each 10,000 population is calculated, Chuo Ward has the highest rate as 3.3. Next is Hyogo Ward(2.5), Nagata Ward(2.2), the southern part of Suma(2.4), Nada Ward(1.9), and Higashi-Nada Ward(1.6). Average FIR of Kobe City is about 0.1.

The Fire Department of Kobe City at the time of earthquake in 1995 was organized with 11 fire stations and 11 Shobodans (table 2).

Table 2. State of Shobodan at the Earthquake

No. of	Built-up area	Suburb*	Water Front**	Total
Main group	8	2	1	11
Sub group	-	15	-	15
Branches	57	97	6	160
Members	1,080	2,800	120	4,000

* Suburb: Kita ward and Nishi Ward

** Waterfront : Port Island and Rokko Island

During Kobe Earthquake the Shobodan demonstrated its ability as a fire fighting team in times of large earthquake occurrence although they had received damage, too. They took an active part in live rescue and fire fighting, etc. by January 17 morning. Because the Shobodan had been located in the damaged areas, they were well sources of regional information.

When the Shobodan's activity after the earthquake was observed, it was like an independent activity that had been done by a local team.

Before the Hanshin earthquake the characteristics of the Shobodan in Kobe City were different. It had been divided into three parts: the built-up area part, the suburb part, and waterfront part.

Because the built-up area part was in the fire department territory fire station expert staffs were able to cover the area completely, the roles of the Shobodan were trainings, and support group of the Kobe Fire Department. However, because the suburb area was wide, the fire fighting activity could not have been done by only a fire station. Therefore, the fire fighting equipments were prepared so well as the Shobodan in the suburb acted independent fire fighting group. Moreover, training and patrolling gave priority to the fire fighting, too. This means the fire fighting power of Shobodans in the suburb part is stronger than in the built-up area. However, the earthquake fires mainly occurred in the built-up area.

The Shobodan members gathered voluntarily in the center after the Hanshin earthquake. Headquarter of Kobe F.D had instructed its members by Shobodan Emergency Automatic Operation System or by the telephone. The Shobodans in the built-up area showed the average rate of 70% though their houses had damage, too. The Shobodan in the suburb used its least members, and sent the majority members to the built-up areas (table 3). The number of the mobilized of Shobodan members were 36,346 people from January 17 until the end of February.

Table 3. Active members of Shobodan after the earthquake

Time	Built-up area	Suburb	Water Front	Total
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17 th Jan.	08:00	577 (53.4%)	980 (35.0%)	13 (10.8%)	1,570 (39.3%)
	12:00	788 (73.0%)	1,403 (50.1%)	15 (12.5%)	2,206 (55.2%)
	17:00	873 (80.8%)	1,541 (55.0%)	32 (26.7%)	2,446 (61.2%)
18 th Jan.	08:00	634 (58.7%)	663 (23.7%)	14 (11.7%)	1,311 (32.58%)
	12:00	771 (71.4%)	769 (27.5%)	24 (20.0%)	1,564 (39.1%)
	17:00	835 (77.3%)	861 (30.8%)	33 (27.5%)	1,729 (43.2%)
Average		746 (69.1%)	1,036 (37.0%)	22 (18.3%)	1,804 (45.1%)

* The suburb's Shobodans contained the number of members sent to the built-up area.

The Shobodan took the field rescue while receiving the resident's cooperation, and at the same time was engaged in the life retrieving, fire extinction, the shelter guidance, and the patrolling the damaged areas etc (table 4).

Because of strong and deep relationship with the residents in the community, the Shobodan in the built-up area could do the rescue operations sufficiently. Therefore, the survival rates of the rescued persons were very high (85.4%) (Table 5).

Table 4. The main activity of Shobodan

	Built-up area	Suburb
17 th Jan.	rescue/retrieval, fight fires, escape guiding, support for FD	rescue, fight fires, patrol
18 th Jan.	rescue/retrieval, fight fires, escape guiding, support for FD	fight fires, transporting the aid supplies, patrol
19 th Jan.	rescue/retrieval, fight fires, escape guiding, support for FD	fight fires, transporting the aid supplies, patrol
20 th Jan.	rescue/retrieval, fight fires, safety confirmation, first aid, support for FD	fight fires, transporting the aid supplies, patrol
21 st Jan.	rescue/retrieval, fight fires, safety	transporting the aid supplies, patrol

	confirmation, first aid, support for FD	
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(Re-arrangement from data of Kobe Fire Department)

Table 5. Rescues by Shobodan only

	Built-up area	Suburb	Water front	Total
rescues	953	4	1	958
living	814 (85.4%)	4	1	819 (85.5%)
death	139 (14.6%)	-	-	139 (14.5%)

(Re-arrangement from data of Kobe Fire Department)

Although Shobodan is a semi-public organization, essentially depends on the community participation. The members of the Shobodan are civilians who think at higher level can become a semi-public organization at times of disaster occurrence.

In the Hanshin Great Earthquake, citizens' roles were significant.

The citizen's roles in rescue and relief efforts are very important immediately after earthquake. There is a limit in the correspondence of fire fighting in case of the frequent and simultaneous occurrence disasters. Also, in Hanshin earthquake the volunteer's arriving from outside to the stricken region, was late. So, local volunteers' solidarity was strong, and the fire fighting and rescue operations were done by the local residents after the earthquake.

4. Background of D.P.W.C

The D.P.W.C (The Disaster Prevention Welfare Community) is one of the community-based organizations that its establishment is according to the Kobe city F.D. policies. This organization is being promoting according to the lessons of the Hanshin earthquake.

When a disaster occurs, the community that has local preparedness knows how to

start rescue, relief, evacuation, and so on. For the citizens who act to develop appropriate disaster prevention and welfare activities in normal circumstances are called D.P.W.C which is in the strong solidarity with region.

D.P.W.C district-based model was started in 11 areas in 1995 after Hanshin earthquake, and now it is organized in 182 districts. D.P.W.C is an effective policy that has integrated autonomous organizations at a community level into one at an elementary school district. D.P.W.C consists of a block-based organization that acts as a basic unit in disaster time under the D.P.W.C headquarters organization that already assumes the elementary school district to be an activity area. 149 D.P.W.Cs are organized in the elementary school districts.

In 2002, D.P.W.Cs were established in all regions of Kobe City. However, the reconstruction in the areas that went under lots of damages had not completed yet. Also in these areas still D.W.P.C had not established yet. (table 6).

Table 6. Current state of D.P.W.C formation
(As of 2002.12)

No. Of	Built-up area	Suburb	Water front	Total
community	127	63	2	192
Established	117	63	2	182
Not-established	10	-	-	10

Since DPWC has integrated the disaster prevention part and the welfare part, receives supports from both fire authorities and the ward office. The fire station supports disaster drill and disaster prevention workshops, which are held by D.P.W.C, and offers equipments for aftermath activities. Moreover, the ward office has improved the welfare center, which is used as D.P.W.C office, and made arrangements for center activities (figure 3).

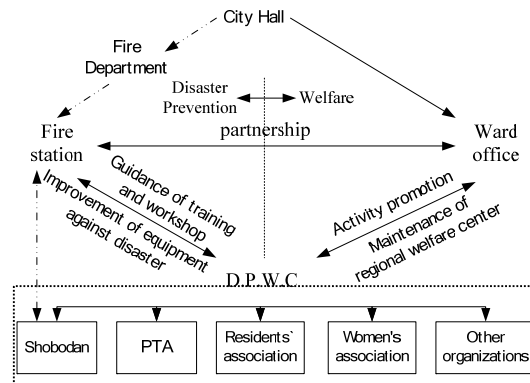


Figure 3. Outline of D.P.W.C

The D.P.W.C organization is composed of the headquarters that integrates the local independent organizations in the region and the sub organizations at every block. The information team, the extinction team, the rescue & relief team, the shelter guidance team, and the water & food supply team have been set up in each block.

D.P.W.C's purpose in a small region (community) is managing daily life to improve the relationship between residents. D.P.W.C tries to act with the disaster prevention activity and regional welfare in each area such as lunch service for the elders and the friendship visit, etc. Also, D.P.W.C tries to improve the disaster of initial extinction, the rescue, and the shelter guidance to correspond to the disaster.

5. The Relationship between D.P.W.C and Shobodan

The Shobodan has a different standpoint from other organizations in DPWC structure. This is base on Model District Outline that Shobodan acts its ordinary activities. Although Shobodan acts disaster drill guidance in normal circumstances, Shobodan does not participate in the activity team in stricken block when

disaster occurs. This is considered as a problem now. However, it seems that DPWC's Shobodan does not any important problem from disaster prevention point of view.

DPWC's Shobodan acts as one of the main members of the disaster drill for community safety. Besides, the equipments for disaster response are offered from Kobe city to each local community after the earthquake. These equipments have increased after Hanshin earthquake.

The voluntary organization for disaster prevention had established in Kobe City before the Hanshin earthquake (Table7). However, there were limits because of the voluntary organization that had been active as parts of regions.

Table 7. Voluntary organization for disaster prevention before the Hanshin earthquake

Region	No. of Org	Characteristics
Sparsely populated district (suburbs)	10	The core activity of initial extinction by setting up fire-plug box. By resident's association
Earthquake prepared district	21	The citizen's extinction corps.
promoted fire prevention district	26	Drilling for fire with a street fire extinguisher is main activity.
Suma ward district	209	Voluntary organization for disaster prevention. By resident's association
Etc	2	The fire extinguisher use training is main activity.

In the voluntary organization for disaster prevention, the main aim was enlightenment of the disaster prevention idea. There was no consideration for large-scale disasters. Also, because of the organization dependency on resident's association, their cooperation with other local organizations was weak. For example, if a part of voluntary organizations(disaster prevention) was excluded for any reason;

there would be lack of coordination, correspondence with senior citizen, and damages to other organizations etc.; So, such lessons are based on the Hanshin earthquake.

The questionnaire for the disaster drill situation was investigated for the leaders of D.P.W.Cs in December, 2002.

The outline of the questionnaire investigation is about D.P.W.C organization, the disaster drill, and D.P.W.S activity. 182 questionnaires were distributed and 120 ones (65.9%) were responded.

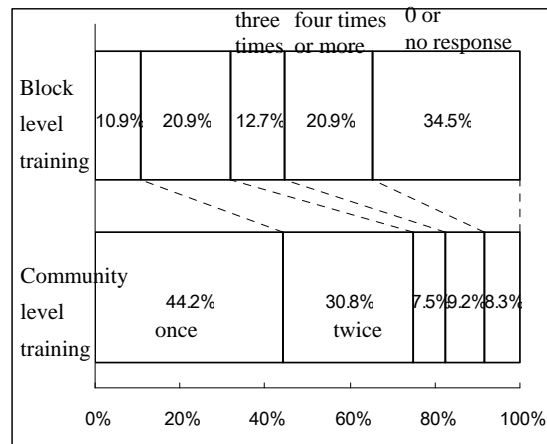


Figure 4. D.P.W.Cs disaster drills percentage

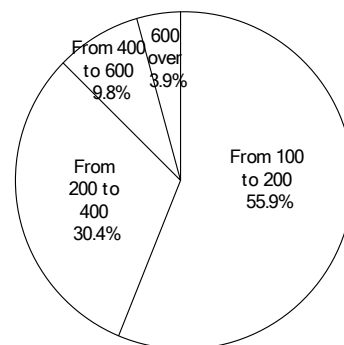


Figure 5. Disaster drill participant percentage

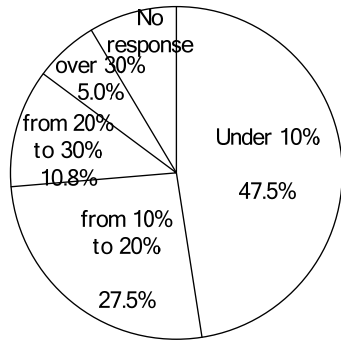


Figure 6. Young people Participation rate in disaster drill

D.P.W.C is educated through both community level training and the block level training. The community level training is held once or more per a year is 91.7% of total communities. Besides, block level training coverage is 60.0% of total communities. The communities that hold block level training three times or more per a year consist 33.6% of total communities (figure 4).

If the percentage of participants who take part in training is considered, about 55.9% of them include 100-200 participants, and 30.4% include 200-300 participants. In community based training under 20% of participants is young people, which is low. This situation is seen in 75.5% of all communities (figure 5, 6).

Table 8. Contents of training of D.P.W.Cs

Kind of training	No.&% of DPWC	Type of training
Bucket brigade	77(64.2%)	Fire drill
stretcher	45(37.5%)	Rescue training
Fire extinguishers	105(87.5%)	Fire drill
First aid	76(63.3%)	Rescue training
Portable power pump training	73(60.8%)	Fire drill
etc	-Checking of emergency networking -Evacuation drill -Simulation training for disaster (Tarumi ward) -etc	

About disaster drill content, the fire drill has been mainly done, and the immediate response training that can positively correspond to disaster has also been done (Table 8). About holding training contents, 69.2% of communities hold three different kinds of disaster drill and 55.8% hold trainings such as portable power pump, fire extinguishers and so on. In Addition, checking of emergency networking, and evacuation drill, and others are done according to the regional characteristics. Especially, Suma ward regularly executes simulation training for disaster.

71% of the D.P.W.C leaders have expressed their satisfaction with more cooperation with Shobodan. Especially, disaster prevention education subgroups ask for as much as cooperation with Shobodan.

Table 9. Percentage of demand of Shobodan cooperation

Demand for Shobodan	Percentage
as a leader of DPWC	26.4%
as a manager of fire-fighting drill	40.3%
DPWC & Shobodan cooperation is necessary	4.2%
DPWC & Shobodan cooperation is unnecessary	5.6%
etc	23.5%

It is obvious that the frequency of the disaster drill increases the city all areas comparing with before Hanshin earthquake. When D.P.W.C emerged the local disaster prevention ability improved.

6. Conclusion

There is no doubt that Shobodan has contributed to the improvement of disaster prevention ability in the communities. In general, the local communities have upgraded their disaster prevention

educational level. Residents of the community areas got to handling methods such as fire extinguisher, fire-plugs, and portable power pumps and have learned basic techniques for the fire fighting.

However, the presence of leaders is a great help for initial response that may correspond by themselves in times of disasters like big fire occurrence. Because Shobodan is semi-professional fire fighting team, can take an active part as leaders in the community. However, there is a limit as mentioned before. There is a possibility of sending the community Shobodan to the other community by the order from H.Q of the Fire Department. But, this is unavoidable as long as Shobodan is an organization that has established by the law.

In this study, the hint of the law is going to be used as a suggestion. Operation is done by Kobe city bylaw though a basic organization and positions are decided according to the national law for Shobodan. The role of Shobodan in the emergency situation is not clear, although it has been mentioned in the D.P.W.C guidelines article 21.

Three-step method has been considered in this study. Shobodan is intersection of the authorities and local communities.

It is necessary to act as leaders of the local disaster prevention in the emergency time then the role as educators in ordinary situation. It should be written officially so that the Shobodan may act by the Kobe city bylaw as leaders of the local community.

This will ensure the actual power of D.P.W.C in times of disaster.

The citizens' fire fighting awareness is an indispensable matter. Especially, it seems that the education of each community is the most preferable on the educational effect side. It is evaluated that the Shobodan in Kobe City improved the fire fighting power of local communities. Of course, it seems that the positive aspect

comes to the surface more when the current results are seen while there are problem to. Moreover, there is a meaning in the relation between the fire fighting group and the community. D.P.W.C is established to some degree and the disaster prevention power in the Kobe city has improved comparing with before Hanshin earthquake. For future new ideas about disaster response and power are needed though an educational side has been emphasized so far.

In a large city, it is assumed that the community activity is weak. So, when natural hazard occurs, the anxiety regarding damages increases. Because of lack of familiarity with neighborhood people cooperation is difficult. The local community can give an important sense of security and safety. The activation of the local community is an important to provide safety and security in a big city.

Safety is not achieved by physical improvement. It is preferable that the local community uses the safety concept to improve the local disaster prevention power in big cities.

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