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Gender and Disaster Risk Reduction:

Perspective from Japan

The report describes gender perspective of disaster risk reduction in Japan from field survey, policy analysis, and two case studies of Hiroshima and Kobe.

Yukiko Takeuchi and Rajib Shaw
Kyoto University
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Yukiko Takeuchi & Rajib Shaw
International Environment and Disaster Management,
Graduate School of Global Environmental Studies,
KYOTO UNIVERSITY

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Contact Address:

Yukiko Takeuchi, D. Sc.
Lecturer
International Environment and Disaster Management Laboratory
Graduate School of Global Environmental Studies KYOTO UNIVERSITY
Yoshida Honmachi, Sakyo-ku, Kyoto 606-8501, JAPAN
Tel/ Fax: 81-75-753-5634 (Direct)
Fax: 81-75-753-5708
E-mail: y.takeuchi@fw7.ecs.kyoto-u.ac.jp
Web: http://www.iedm.ges.kyoto-u.ac.jp/

"As pivotal managers of natural and environmental resources, and key frontline implementers of development, women have the experience and knowledge to build the resilience of their communities to the intensifying natural hazards to come".

UN ISDR Publication 2008

1. Background

1.1 Gender and Disaster

Natural disasters amount to a serious disruption in the functioning of a community or a society by natural phenomena occurring in the biosphere, causing widespread human, economic or environmental losses. The scale of these losses is typically such that often the affected community cannot cope using its own resources.[1] The frequency of natural disasters has been rising markedly, and at our current state of knowledge there is every reason to think that climate change will only exacerbate this trend (UNISDR 2007)[2].

Disasters pose a major challenge to development. Natural disasters take place throughout the world: three of the ten deadliest disasters in 2006 occurred in Europe, two of which were heat waves striking wealthy Western countries: Belgium and the Netherlands (UNISDR 2007). The loss of lives is equally tragic in the developed and in the developing world, but the capacity of developing countries to recover from disaster and to mitigate its economic and social impacts is far more limited. The estimated $5 billion worth of damage caused in Pakistan by the Kashmir earthquake of October 2005 roughly equalled the total official development assistance received nationally in the preceding three years, and was equivalent to total World Bank lending to the country over the preceding decade. Bank lending financed the construction of 487 schools in Mozambique over the span of 20 years – a single recent disaster, the 2000 floods, damaged or destroyed around 500 primary schools and 7 secondary schools (IEG 2006)[3].

Despite the very clear need to incorporate a disaster perspective into development efforts in disaster hotspots, most development assistance still does not account for this even where the likelihood that disasters will occur again is predictable. Nevertheless, the Independent Evaluation Group found that the

[1] Definition adopted from the International Strategy for Disaster Reduction (2004)

[2] UNISDR: United Nations International Strategy for Disaster Reduction (2007) Trends of Natural Disaster Reduction.

[3] Independent Evaluation Group Report on Bank's Role on Disaster Related Activities, 2006

World Bank demonstrated considerable flexibility in natural disaster assistance on the ground, including in cases where the active project frameworks had been silent on the topic. The World Bank's new operational policy on Rapid Response to Crises and Emergencies (OP 8.00, March 2007[4]) is perhaps indicative of a larger shift in international awareness of the importance of consciously mainstreaming a disaster perspective into development where this is warranted.

Disasters are emergencies, or actualised hazards, whose scale is not matched by a society's own resources to recover. Disaster risk is created by the interaction of natural hazard – a potentially damaging natural phenomenon – and vulnerability: that is, the conditions and processes that define the susceptibility of a community to natural hazard. Natural risk mitigation can target either of these risk components. For instance, the likelihood of the occurrence of certain types of natural hazards, such as floods, can be influenced by human activity, such as the maintenance of natural drainage courses or the construction of levees. Reducing vulnerability to natural hazards, in turn, is in many cases easier to achieve than targeting hazards themselves, and in some cases it is the only available option for disaster risk mitigation.

The efforts to mitigate the impact of natural disasters can be divided into three distinct analytic categories:

- risk mitigation and preparedness in the pre-disaster phase,
- disaster relief immediately after the event,
- longer-term post-disaster recovery and reconstruction.

Disasters recur periodically in many regions of the world. While the exact timing and extent of future disasters can rarely be predicted, the expectation of their occurrence in the form of future risk can and should be incorporated into development efforts in disaster-prone areas. Reconstruction and recovery itself can therefore be construed as risk mitigation in preparation for the next expected disaster event. In addition, activities during any of these phases shape the circumstances and the available policy options during the next. For these

[4] World Bank Operational Policy on Rapid Response to Crises and Emergencies, 2007

reasons, the scope of this study will extend to cover risk mitigation alongside our main focus of recovery and reconstruction, and its appendix addresses gender concerns in the disaster relief phase.

Gender[5] is a central organizing principle in many of the disaster-prone societies. While the experiences of individual women and of individual men in a disaster environment are heterogeneous, social, economic and political factors join biological differences (such as average physical strength) to shape the respective experiences and needs of women and of men as a group **(see box 1).**

Gender: The term "gender", in contrast with biological sex, refers to "…culturally based expectations of the roles and behaviours of males and females. The term distinguishes the socially constructed from the biologically determined aspects of being male and female" (World Bank 2002). Hence, many of the differences in the needs and capacities of women, men and other gender groups that are gender-related are ultimately contingent. To the extent that political institutions and policies – or their absence – contribute to shaping the experiences and opportunities of men and women, gender issues themselves become a valid policy concern.

Mainstreaming: Mainstreaming gender into disaster recovery and reconstruction (DRR) is the process of taking into account the needs, concerns and capacities of women, men and other gender groups in disaster planning and in disaster response (United Nations Economic and Security Council, E.1997.L.30.Para.4). Effective mainstreaming spans analysis, policy and operational considerations, and institutional arrangements that extend to monitoring disaster recovery practice. Because gender issues are cross-cutting, gender mainstreaming is a cross-cutting approach.

Box 1. Gender and Mainstreaming definition

Men as a group and women as a group often have different needs, priorities and capacities in a disaster setting, and experience different levels of disaster resilience. For instance, women died in considerably larger numbers in many different cases from the 1991 Bangladesh cyclone through the 1993 Maharasthra earthquake and the 1995 Kobe earthquake to the 2004 Indian Ocean tsunami

[5] "Mainstreaming Gender into Disaster Recovery and Reconstruction, SF/CDD Handbook, World Bank Internal Document.

(Asian Development Bank, United Nations and World Bank 2005)[6]. Some of the reasons for this included higher rates of malnutrition among women which made them physically weaker, lower rates of survival skills such as swimming and tree climbing, and lower mobility that was partly a consequence of restrictive cultural norms.

The poor also often have little choice but to build on unsafe ground, and to erect structures which do not meet the currently binding building codes. This heightens the relative vulnerability of those who tend to spend more time indoors and around the house. Traditional patterns of gender division of labour, as well as the general overrepresentation of men among migrant labour, mean that it is women and children who are therefore most exposed to disaster in these conditions.

Gender concerns in disaster management are emphatically not limited to women. Men as a group are also affected if a large proportion of the victims are women, as many male survivors need to take on unfamiliar tasks such as childcare and household chores, in addition to having to cope with the trauma of losing family members. Men can be more likely to suffer injuries, and they typically lack access to much needed psychosocial counselling designed specifically for their needs, including alcoholism treatment. Such considerations are not typically accounted for in disaster preparedness, relief or recovery policies, but they have a great impact on the lives of individuals and communities affected by disaster.

Finally, to the extent that some of the needs of men and women are similar, they are not always taken into account equally in disaster response. One example is the necessity of compensating for assets and revitalising livelihoods. Men's livelihoods are often more visible, while a larger proportion of women's labour typically takes place in the household and in other sectors of the informal economy. Women's assets such as jewellery and the tools of their labour are also less likely to be covered in risk and recovery assessments. Women's paid and unpaid labour, however, is a significant contribution to local and national

[6] Asian Development Bank, United Nations and World Bank Joint Assessment Report of the 2004 Indian Ocean Tsunami

economies. In El Salvador, a nationwide study found that women's contribution to the household was equal to or greater than men's in 49% of urban homes, and in 56.6% of rural households (ECLAC 2003)[7]. It is therefore essential for the development of disaster affected communities and regions that women's livelihood assets and activities are directly accounted for in disaster management plans and policies.

In many ways, timing is a crucial factor in the success of mainstreaming gender. The ability to take advantage of opportunities that present an unusual degree of openness to changes in policy and in practice, of course, depends on a host of preconditions: capable actors, supporting norms and adequate institutions. Good timing is certainly not sufficient for successful reforms, but it is, nevertheless, indispensable.

Timing is generally favorable for policy change when the possibilities of existing arrangements are exhausted, when these arrangements consume too many resources, or when the system suffers large external shocks. Path dependence theory suggests that institutions are sticky: institutional change, including changes in rules and policy frameworks, is generally bound by previous outcomes and the historical path of development that any given institution has followed. Accordingly, large and lasting changes in policy and institutional practice, signaling a significant break with previous frameworks and practices, is likely only to take place as a reaction to a considerable external stimulus.

The shock of a major disaster may provide exactly the kind of stimulus that opens up the possibility of changing policy and practice towards gender sensitive disaster management. The impact of a disaster shock on natural hazard management is not necessarily causal: disasters have been occurring for millennia without any change in attitudes towards affected women and affected men. On this scale, disaster management itself, as well as concepts such as human rights, is very recent developments. However, what this shows is not that disaster shocks are irrelevant, but that the existing preconditions limit the

[7] ECLAC Methodology for damage and need assessment, 2003.

scope of achievable policy change at any one time. Where norms of gender equity or psychological welfare are less well developed, the range of feasible change is likely to centre on making progress on a few of the issues and on strengthening gender-sensitive norms that could later support further change, rather than an immediate move to incorporating the full range of gender-specific concerns into disaster management.

1.2 Organization of the Report

The content of the report is prepared through literature review, field visits, interviews, focus group discussion, hearing survey and analysis. The report has three main components:

- Review of national policy of disaster risk reduction of Japan with specific focus on gender issues
- Case study of Hiroshima (for landslide and water related disasters)
- Case study of Kobe (for earthquake)

Based on these observations, concluding chapter is developed with specific recommended policy actions. There are supplemented by a set of appendices.

There has been hearing survey and field visits from seven groups:

- Disaster Management Section of Cabinet Office of Government of Japan, 24th of October 2008
- Gender Section of Cabinet Office of Government of Japan, 24th of October 2008
- Japan International Cooperation Agency (JICA), 24th of October 2008
- Hiroshima City Government, 1-3 October 2008
- Kobe City Government
- NPO Women Net Kobe, 27th of October, 2008
- The Young Women Christian Association (YWCA) of Kobe, Japan, 27th October, 2008

2. Review of National Policy of Disaster Risk Reduction and Gender

2.1 Generic Aspects of National Disaster Management Policy

2.1.1 General Disaster Situation in Japan[8]

Japan is an island arc which belongs to the monsoon region, and is under the influence of warm and moist air masses in summer and cool air masses in winter. The moisture which is taken in the lower leaves of the air masses over the sea is poured on the country by typhoon in summer, by snowfall in winter, by the 'Bai-u Front'(in Japanese) in June and July, and by depressions and fronts in all seasons. The average amount of precipitation is 1,800 millimeters (70 inches) a year. This is two or three times the amount received in other areas of the some latitude. In the southern Pacific coast areas it amounts to 4,000 millimeters (160 inches). Owing to Japan's slender shape and complicated landform, aerial differences climate are great.

Three-quarters of the land is mountains with generally high relief. Chains of spinal mountains, some reaching 3,000 meters (1,000 feet) above sea level, run through the center of the narrow and long country. Consequently, the rivers are generally short with steep gradient. Erosion and devastation in the mountain areas are very rapid. Rivers are flooded soon after a heavy rain.

Japan is also situated in the circum-Pacific seismic zone, and suffers from severe seismic and volcanic activities. Active volcanoes in Japan make up one-tenth of the worlds total. The greater part of the population of more than 100 million lives in narrow plains with exceedingly high densities. As a result of rapid and disordered urbanization, inappropriate land use prevails. Artificial changes of natural environments are rapid and large, accompanying the great increase in economic activity and exploitation (Nakano et al. 1974). Most Japanese cities are concentrated on coastal plains. While, the country's 10% of land area is flood prone, about 50% of the population lives in flood plain, and almost 75% of the

[8] T.Nakano, H.Kadomura, T.Mizutani, M.Okuda, T.Sekiguchi. Natural hazards: report from Japan, In White, G. and Burton, I. (eds.), Natural Hazards: local, national, global, Oxford Univ .Press, 231-245, 1974.

property is concentrated in the flood plains (JWF, 2006)[9].

For the reason, in Japan there is much damage to lives and property due to natural disaster every year. Up until the 1950's, there were numerous large typhoons or large-scale earthquakes which claimed the lives of more than 1,000 people. However, due to the progress of countermeasures such as promotion of national land conservation projects, improvement in weather forecasting technologies, completion of disaster management system, the number of deaths and missing due to natural disaster shows a declining tendency. But in 1995 more than 6,400 lives were lost in the Great Hanshin-Awaji earthquake, and there is concern that and enormous ocean trench earthquake will occur in the Tokai region. So the menacing threat of natural disasters still lingers (Cabinet Office Government of Japan. 2002)[10].

2.1.2 Legal System and Structure of Disaster Management in Japan

The immense damage caused by the Typhoon Ise-wan in 1959 was a turning point for disaster management, giving rise to a movement to plan and prepare a comprehensive disaster management system, and in 1961, the Disaster Countermeasures Basic Act was enacted. Therefore, the disaster management system has been improved and strengthened following the occurrence of large natural disaster and accidents.

The Disaster Countermeasures Basic Act is the basis for disaster management in Japan. Following is main contents of the act;

1. Definition of jurisdictions and responsibility for disaster management
2. Disaster management system
3. Disaster management plan
4. Disaster preparedness
5. Disaster emergency response
6. Disaster recovery
7. Financial measures
8. State of emergency

[9] Japan Water Forum (JWF). Flood Fighting in Japan, pp15, 2006.

[10] Disaster General for Disaster management, Cabinet Office Government of Japan. Disaster Management in Japan, pp37, 2002.

For effective disaster management, the government, the local government and designated public corporation are expected to work out disaster management plans and carry them out appropriately, according to the Disaster Countermeasures Basic Act.

The Central Disaster Management Council was established for the purpose of promoting comprehensive countermeasures in which the Prime Minister takes the chair and other Ministers of State are members. Following is duties of Central Disaster Management Council;

- Prepare and promote implementation of the Basic Disaster Management plan and draft the Earthquake Disaster Management plan.
- Prepare and promote implementation of the urgent measures plan for major disasters.
- Deliberate important matters pertinent to disaster management according to requests from the Prime Minster and/ or Minister of State the disaster management.
- Offer opinions regarding important matters to disaster management to the Prime Minister and Minister of State for Disaster Management.

Central Disaster Management Council's member is Prime Minister, all cabinet minister, chief of designated public corporations(Governor of the Bank of Japan, President of Japan Red Cross Society, President of Japan Broadcasting Corporation and President on Nippon Telegram and Telephone Corporation) and People of experience or academic standing (4 person).

Level	Organizations	Contents
National	• Prime Minister • Central Disaster Management Council • Designated Administrative Organs • Designated Public Corporations	•Formulation and execution of disaster management plan, comprehensive coordination •Formulation and promoting execution of the Basic Disaster Management plan •Formation and execution of the disaster management operation plan
Prefectural Government	• Prefectural Disaster Management Council • Designated Local Administrative Organs • Designated Local Public Corporations	•Formulation and execution of Disaster Management plan, comprehensive coordination •Formulation and promoting execution of Disaster Management Local Plan
Municipal	• Mayors of Cities, Towns and Villages • Municipal Disaster Management Council	•Formulation and execution of disaster management plan •Formulation and promoting execution of disaster management Local plan
Residents	•Local Voluntary Disaster Management Organizations	•Prepare materials and machinery in the region, and practice disaster management drills etc.

Fig, 2.1 Disaster Management Organizations and Activities in Japan
(Based by Cabinet Office Government of Japan. 2002)

2.1.3 Disaster Management Planning in Japan

The Basic Disaster Management Plan was revised entirely in 1995 based on the experiences incurred at the time of the Great Hanshin-Awaji Earthquake. The plan clarifies the duties assigned to the Government, public corporations and the local government in implementing measures. For easy reference to countermeasures, the plan also describes the sequence of disaster countermeasures such as preparation, emergency response, recovery and reconstruction according to the type of disaster.

Following is the system for Disaster Management planning;

- The Basic Disaster Management Plan; This plan sets forth the basic activities for each type of disaster management plan, which is the foundation of the nation's disaster management measures. In the discipline of disaster management, it is the master plan prepared by the Central Disaster Management Council in accordance with Article 34 of the Disaster Countermeasures Basic Act. This plan was established at 1963. This plan was revised afterwards in 1971, 1995, 2000, 2002, 2004, 2005, 2007 and 2008.
- The Disaster Management Operation Plan; This is a plan made by the respective Designated Administrative Organizations and Designated Public

Corporations according to the Basic Disaster Management Plan.

- The Local Disaster Management Plan; This is a plan made by respective prefectural and municipal disaster management councils according to local circumstances and the Basic Disaster Management Plan.

2.2 Overview and timeline of gender inclusion in Disaster Management Plan

Gender item was included to the Basic Disaster Management Plan at 2005 and 2008. Following is new or revised part of the plan (Bold and Italic);

- Revised at 2005
  - Vol.2/ Chapter 1: Preparedness/ Section 3: Promotion of preparedness activity by nation/ 2: Spread knowledge of disaster management and training

    Before: When they spread knowledge of disaster management and training, they consider senior citizen, handicap people, foreigner, child and etc. And they try to get support them system in community.

    After: When they spread knowledge of disaster management and training, they consider senior citizen, handicap people, foreigner, child, ***pregnant woman*** and etc. And they try to get them support system in community. ***What's more, they consider a difference of the needs of the man and woman and both viewpoints at the time of the disaster.***
  - Vol.2/ Chapter 2: Disaster emergency response/ Section 5: Management of evacuation shelter/ 2: Evacuation shelter

    Before: The local government pays attention to the living environment of the evacuation shelter and tries to keep a good condition and privacy.

    After: The local government pays attention to the living environment of the evacuation shelter and tries to keep a good condition, privacy and ***consider a difference of the needs of the man and woman and both viewpoints***.
- Revised at 2008
  - Vol.1 (General)/ Chapter 3: Change and receive of General society for disaster management

    Before: Nothing

    After: ***For disaster management to consider a difference of the needs of the man and woman and both viewpoints, need to increase the***

appointment rate of the woman to the important post at general society. As the result, increase the woman's decision maker.

Revised at 2005 was added item about emergency term in disaster cycle. And revised at 2008 was added item about usual term. A background of the revision is research of Chuetsu Earthquakes at 2004 in Niigata prefecture by woman's sector of Cabinet Office Government of Japan. 2004 happened many disaster in Japan. Evacuation shelter was established by local government each disaster. Residents' people and government learned some woman's issue by the Great Hanshin-Awaji Earthquake. But those issues did not reflection to Disaster Management Plan still 2004. For correct woman's issue, Woman's sector of Cabinet Office Government of Japan dispatched stuff to evacuation shelter in Chuetsu Earthquake at 2004. It is a first experience that those research by government of Japan. Woman's sector of Cabinet Office Government of Japan cleared following issue by the research;

- Lot of men gone to work. Evacuation shelter's stakeholder at daytime is woman, child and high age person.
- Many volunteer helped recovery. But, the majority of the volunteer was a man. Volunteer's work was two types. One is a help of the dismantling construction of the house. Another one is help of management of evacuation shelter. The woman was difficult to say some request to a male volunteer. As the result, the needs of the woman were difficult to be understood by a male volunteer.
- In relief supplies, there were few articles for women (ex, Sanitary Napkin).

2.3 Current Focus and Emphasis

The reason why a plan was not changed so far is because there is low participation of the woman to the Disaster Management Council. The rate of the woman member in the disaster management council of prefectural government level is an average of 3.1% (Data of March 2008). Tokushima prefecture is most high ratio (16.0%: Man is 42 persons, Woman is 8 persons). 11 prefectures is 0%. Regarding Central Disaster Management Council, Now, gender balance of member of this Council is 3 persons per 26 persons. The appointment rate of the woman to the important post is low in general society of Japan. Therefore, it is difficult for to be chosen as a member of like Central Disaster Management

Council. Important is to increase woman decision maker of general society.

On the other hand, recently woman's fire-fighter is increasing. In 1989, woman's fire- fighter was 1,605 people. But, in 2007 are 15,502 people (Disaster white paper, 2008)[11]. Fire-fighter' role is important for community disaster management. Them work is instruction of the refuge, first action, rescue, first aid, leader of disaster management. Especially, it is thought that the increase of the woman's fire-fighter acts on the early refuge and medical treatment for woman (Figure 2.3 and 2.4)

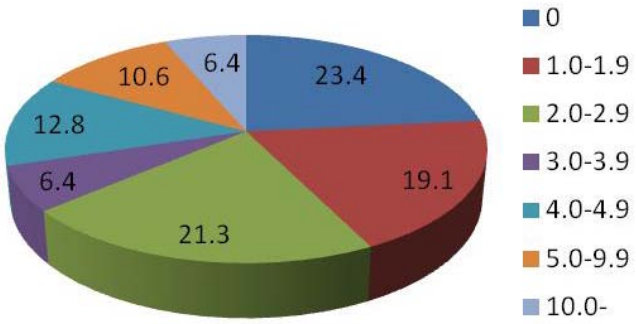


Fig. 2.2 Participation rate of the woman to the Disaster Management Council of prefectural government level (Sauced by Woman's sector of Cabinet Office Government of Japan 2008)

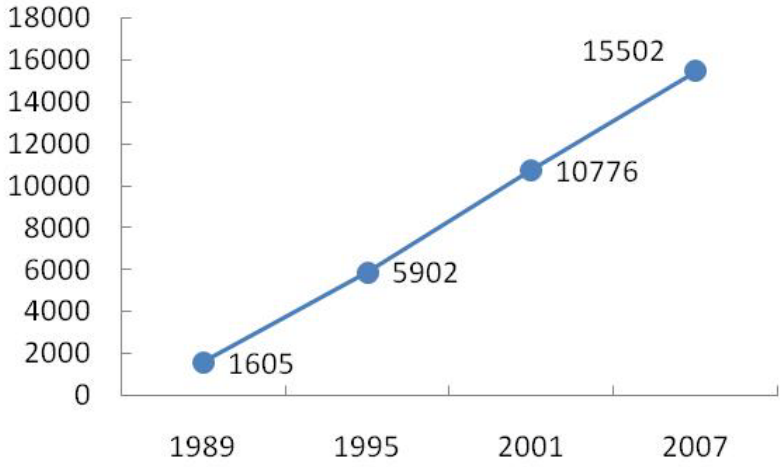


Fig2. 3 Year variation of number of woman's fire-fighter
(Sauced by Disaster white paper 2008)

[11] Cabinet Office Government of Japan. Disaster white paper, pp440, 2008.

Figure 2.4 Female woman's fire-fighter

2.4 Link to Other Sectors

2.4.1 Japan International Cooperation Agency in Disaster Relief

Japan has suffered many natural disasters, and has developed many innovative disaster countermeasures as a result of its vast experiences. Today, the country is working hard in the promotion of international cooperation in the field of disaster management.

Japan International Cooperation Agency (JICA) is having many developing program and disaster management program. JICA's concept is same it of central Japan. An evaluation of JICA's gender policy was conducted by Tanaka (2004)[12]. The evaluation studies drew similar lessons learned on the impact of gender mainstreaming strategies and their constraints as that of the World Bank

[12] Tanaka Yumiko (2004): Gender Mainstreaming and Gender Policy Evaluation in Official Development Assistance, The Japanese Journal of Evaluation Studies Vol. 4, No. 2, 1-12.

or Asian Development Bank. The application of the above evaluation studies gives future directions and suggestions for the evaluation of Japanese ODA policies, programs and projects from a comprehensive gender mainstreaming perspective. The gender evaluation methods to be applied cannot be only technical per se but more of a political process to make the gender equality as an explicit objective of ODA. Through such direction, its gender as well as overall impacts will be measurable, thus possibly indicates the increase of the overall impact and efficiency of the ODA.

2.4.2 NPO

Non-profit organization (NPO)'s activity has very important role for community disaster management. In Japan, some NPO of disaster management was established after the Great Hanshin-Awaji Earthquake (1995). Every time, general social issue was appeared by disaster. Therefore, disaster management is not only focusing to disaster, but need to focus to general social issue (ex, child care, pregnant, old man care).

Woman's net Kobe was established in 1992 at Kobe city. They established aims are to support to woman and child. They managed shelter for escape by Domestic Violence. In 1995, they had serious damage by the Great Hanshin-Awaji earthquake. After the disaster, Women's net Kobe received many phone calls from residents' woman. They told about need to help of child care, pregnant woman's care, rape, domestic violence and etc. Women's net Kobe is supporting to them still now. Women's net Kobe made proposal from an earthquake in 2005 ten years later. Following is proposal contents:

1. Human rights respect is basic for disaster prevention, and it is necessary to put the viewpoint of the woman.
2. Disaster management plan should include prevention system from domestic violence and rape.
3. Women participate in the administration of the evacuation shelter.
4. Support the woman who had infants
5. Support it so that a woman does not lose a job by disaster
6. Perform the support that accepted the needs of the woman

Now, Women's net Kobe manages the web page of disaster and woman (Fig 4).

Women's net Kobe is supplying 14 categories information regarding of disaster and woman. Following is categories:

1.	Old woman lives by herself	2.	Fatherless family
3.	Evacuation shelter	4.	Family
5.	Work	6.	Health
7.	woman who had infants/ pregnant	8.	Domestic to woman
9.	Domestic to Child	10.	PTSD
11.	Minority	12.	Media
13.	Volunteer	14.	Others

Fig, 2.5 Web page of Disaster & Woman Information Network in Japan (http://homepage2.nifty.com/bousai/)

2.4.3 Declaration from Anamizu

The Noto Hanto Earthquake in 2007(M6.9) happened at 25th March 2007 in Ishikawa prefecture and Toyama Prefecture. Anamizu Town is located in Ishikawa prefecture. 22th March 2008, Anamizu Town held a meeting. Meeting title was "Disaster management for woman". In this meeting, people report and discussed about disaster management plan should include necessary to put the viewpoint of the woman. In the meeting, a proposal of woman and disaster was adopted. Following is abstract of declaration from Anamizu;

1. Woman participates in evacuation shelter's administration and considers the needs such as women
2. Woman is main person in community activity and home. The support of the woman becomes the support of the life rebuilding and recovery. Therefore, make the environment at office and home where a woman is easy to work from usual/ normal time
3. Woman participates in a process to make social structure. We aim at the making of society which respected various senses of values and local culture.

For good Community disaster management, local government's activity and recognition is most important. The Cabinet Office Government of Japan evaluates activity of Anamizu Town.

3. Case study 1: Hiroshima (Water Related Disaster)

3.1 Background

Many sediment disasters happened in every year by Typhoon, heavy rainfall and heavy rainfall caused by depression. Sediment disaster's characteristic is different activity of each valley. Therefore, it is not possibly perfect defense by government prevention. For that, the people have to prepare by themselves; check risk area, get some information, understand environment condition, etc. People were informed about government activities and residents action after the Nagasaki Disaster in 1982. The government made hazard map to help understand disaster information. After Hiroshima Disaster (1999) and Tokai heavy rainfall disaster (2000), government is looking for intense resident activities to protect loss of lives. For those reasons, people have to understand disaster and how to prevent that.

Disaster prevention's key stakeholder is residents and government. Main countermeasure is hard type by engineering activities and soft type by evacuation and education. Soft type countermeasure is important for residents. For early evacuation and safety life, people have to do something for prevention. 1st step is getting some information about hazard and vulnerability from governments. Second is to understand that information. Third is to prepare action plan by them, and the final is to do some action.

Risk information is of three types. One is for usual time information, second is emergency time information, and third is recovery information. But, Sediment disaster's one characteristic is different activity of each valley. People have to get some information by themselves and decide some action by themselves. To make decisive actions, people have to learn some information and make action plan.

However, some people could not get some information in usual time and if they catch some information, they did not understand information means. As the result, people did not evacuate in emergency time. It is a crucial problem about soft type countermeasure of disaster prevention.

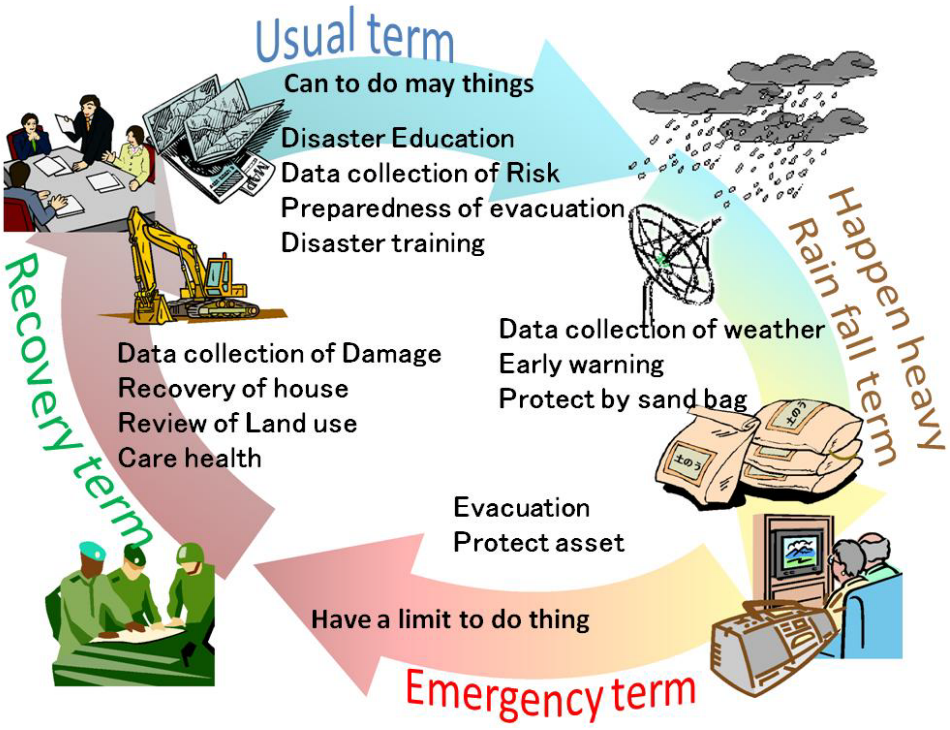


Fig. 3.1 Disaster cycle and prevention action of Rainfall Disaster

3.2 Study Area and Damage

Hiroshima city is large city, but like other coastal cities in Japan, the city also lacks enough flat area. From 1970s, there has been a steady population growth till mid 1990s, and people from different places gathered in the city. As the result, the city was spread over to mountain area. Therefore, Hiroshima city has the highest sediment disaster risk area in Japan. Old resident's knew which part and when the disaster may happen through the experiences and legacy. But, new residents did not know that information. In the new resident's area, people's average living years is 15 years. Old resident's people's average is 60 years (Takeuchi, 2004)[13]. The other issue is the geology of the areas, which is full of granite, vulnerable to erosion and one of the main causes for the sediment disaster.

On 29th June 1999, heavy rain fall (over 150mm/3 hours) happened in Hiroshima city due to depression. Before this rain fall, similar heavy rain fall occurred in the same region two times (23-24th June and 26-27th June). Several

[13] Yukiko Takeuchi, 2004, Hazard map: Respondents' perception and requests in the case of Hiroshima, Japan, JSNDS 23-3, 349-361.

debris flows occurred in the region due to heavy rainfall. This disaster damage was as follow: debris flow occurred in 139 sites, collapse was 186, death toll was 31 persons, the missing people was 1 person and house damage was 154 (Fujiwara, 2000)[14]. After the disaster, Hiroshima prefecture and Hiroshima city performed many various soft and hard countermeasures.

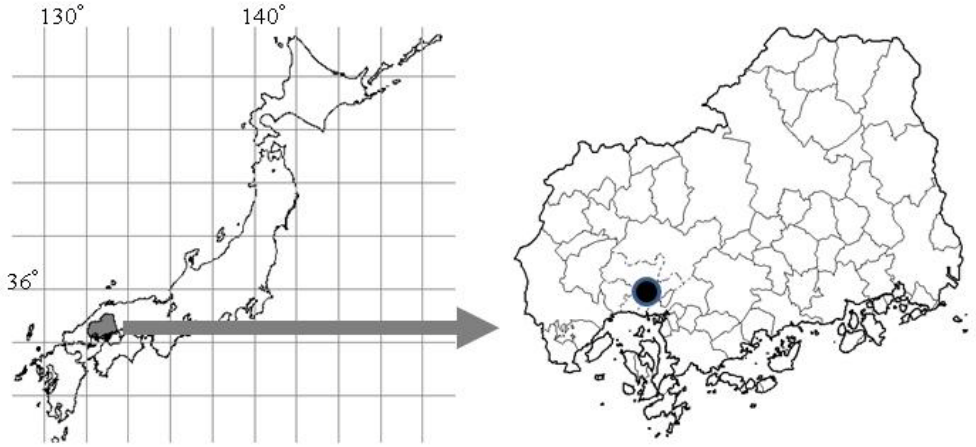


Fig. 3.2 Study area

Figure 3.3 Mt. Aratani and Study area's situation (Photo by Kotake)

[14] Kenzo Fujiwara, 2000, Analysis of sediment disaster at Hiroshima city on June 1999, Hiroshima University of economics, Vol.22, No.4, 3-37.

Figure 3.4 Situation of sediment disaster at Hiroshima, 1999(Photo by Ootani)

Figure 3.5 Hazard map by Hiroshima city (2000)

3.3 Gender perspective

In Hiroshima city, 32 people died in 1999 disaster, 16 male and 16 female. But, old man and child's victim was 71.8%. This number plus woman's victim was 84.3%. The place of casualty was different for man and woman. Place of Man's death was outside and on the way house to working place. Woman, old person and babies victim place was inside house.

One example, 29 years old woman died inside house. This place is land slide high risk area. In 1970's this area was paddy field. Especially, 29 years old woman's house place was pond to supply water to paddy field before. After 1970's this area changed its land use to residential area, and developed new transport system in 1990's. This area grew to large residential area. In the end of 1990's, pond was reclaimed for residential area. 10 houses were buildup on this reclaimed area. Also, it is located at the entrance of the valley, and prone to debris flow. Many new people live in this area from outside.

The family of 29 years old woman's started living in this area 1year before 1999 disaster. Her family member was husband and two children (1 years old and 3years old). In disaster day, husband went to work, 29 years old woman stayed with children in house. This family just started living in this area; and they did not have contact in this community. On the day of the disaster, official announcement inform to residents through TV, radio and community network at 10 o'clock (Figure 3.6). But, this family did not have community network. Around 12 o'clock, the same community member chatted some prelude information like:

- Changed of River water color (clear to brown),
- Rumble of the ground from mountain,
- Smell of burnt and etc.

For the 29 years old woman, it was the first experience to live near mountain area. She did not understand that information was prelude debris flow. Many debris flows occurred at 13-15 o'clock. In this area's community have Local Voluntary Disaster Management Organizations. Every year, community held evacuation training program. However, the training participants are male in many cases. Husband got some risk information and local information, but did not share other family member and go out from community at daytime. She did

not know about the evacuation place in this community. She was staying house. When debris flow happened, she stayed in the first floor. Her two children stayed in the second floor. One debris flow attacked her house (Figure 3.7). Her house was flowed about 30m (Figure 3.8). She was included debris flow. But, her family did not have community network. Other community persons did not know who lived in this house. Only the husband (who was outside for work) knew this information. He did not understand this disaster situation. Children were rescued from second floor. But, the 29 years old woman was rescued from the debris after 6 hours, but she was already dead. After the disaster, this place established large SABO dam (Figure 3.9 and 3.10) and build memorial house (Figure 3.11).

Lesson from this disaster is woman (not only woman, but also in house worker) need to learn living place's disaster/risk information. After the disaster, Hiroshima city government focused to need community disaster management. But not include Gender (House worker) issue.

At 2005, The Basic Disaster Management Plan (National level) included gender item. But, the Local Disaster Management Plan need time and trigger to change. In Hiroshima city's The Local Disaster Management Plan changed at 2008. Most strong trigger was NPO's activity. In 2007, Japan woman's meeting held in Hiroshima. This meeting's organizer was Women's net KOBE. Ms. Reiko Masai of Women's net KOBE had a presented of Disaster and Gender in this meeting. She appealed Gender issue in disaster time. It was very strong trigger for Hiroshima city.

The Local Disaster Management Plan of Hiroshima city include following things;

- Pays attention to the living environment of the evacuation shelter and tries to keep a good condition, privacy and consider a difference of the needs of the man and woman and both viewpoints.
- Regarding the manual of evacuation shelter management (Figure 3.12), for disaster management to consider a difference of the needs of the man and woman and both viewpoints, need to increase the appointment rate of the woman.

Evacuation training was held based by the manual of evacuation shelter management in September 2008 (Figure 3.13).

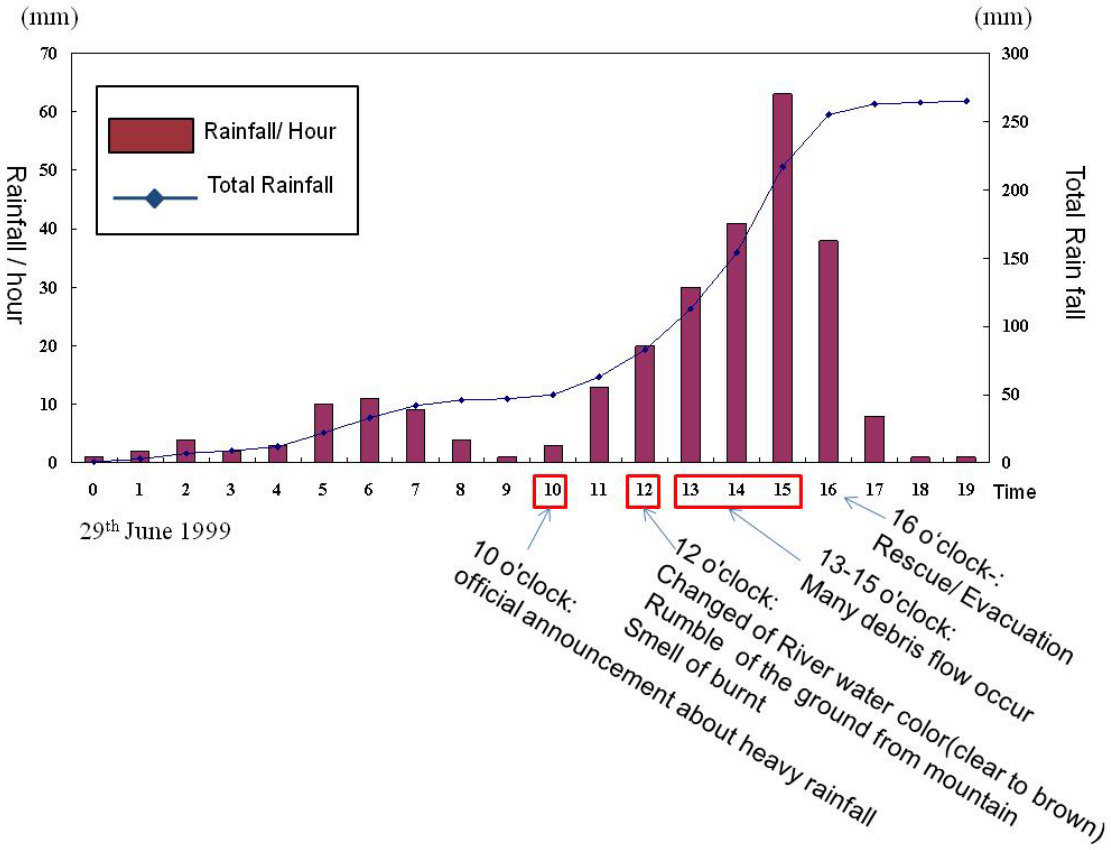
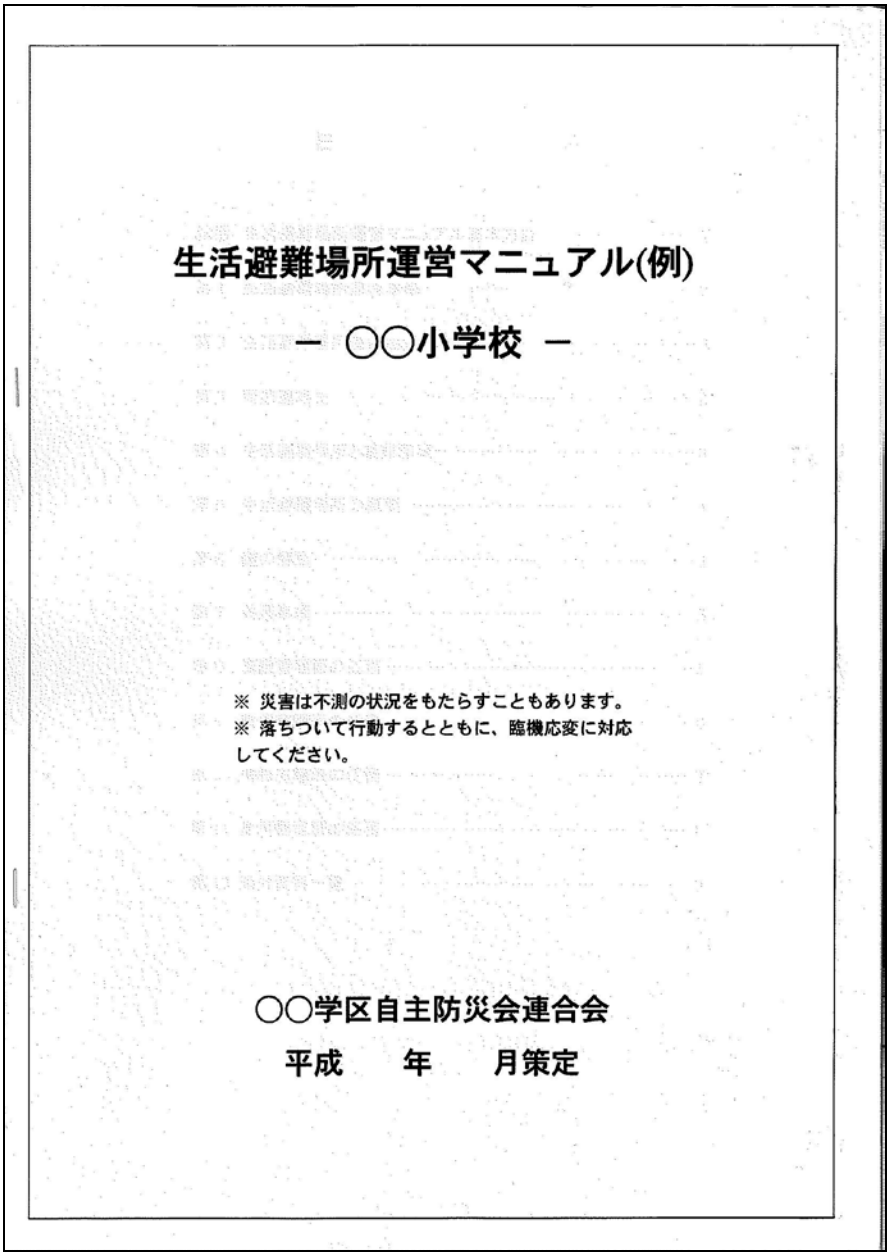


Figure 3.6 Situation of rainfall and disaster at 29th June 1999 (Takeuchi, 2005)

Figure 3.7 and 3.8 Situation of disaster at 29th June 1999
(Photo by Asia Air Survey Co., Ltd.)

Figure 3.9 and 3.10 Situation of devastated area at 2008

Figure 3.11 Memorial house



生活避難場所運営マニュアル(例)

－ ○○小学校 －

※ 災害は不測の状況をもたらすこともあります。
※ 落ちついて行動するとともに、臨機応変に対応してください。

○○学区自主防災会連合会

平成　　年　　月策定

Figure 3.12 The manual of evacuation shelter management in community

Figure 3.13 Satiation of Evacuation training in Hiroshima on September 2008

4. Case study II: Kobe (Earthquake)

4.1 Background

An earthquake with a magnitude of 7.2 on the Richter scale and a depth of 16km, hit the city of Kobe and surrounding areas in the Hyogo Prefecture on 17 January 1995 at 5:46 in the morning (Figure 4.1). The earthquake is named as the Great Hanshin Awaji Earthquake, and is popularly known as Kobe Earthquake. The total number of casualties rose above 6,400, with numerous injuries and victims of other collateral damages. Buildings and infrastructure were severely damaged, and more than 200,000 people had to find temporary shelter in different parts of the city. Within the Kobe city administrative area, 70,000 buildings collapsed completely, with 55,000 seriously damaged. Public facilities like offices, schools and hospitals were also damaged extensively, which paralyzed city services for several days. Utility services were also interrupted: electricity service was out throughout the entire metropolitan area, 25 per cent of telephone services did not work, water and gas services were disrupted throughout the town. At several locations, severe fires broke out, and 7,000 buildings were completely consumed, resulting more than 800,000m2 of burnt areas. The direct financial loss was estimated at 7 trillion yen within Kobe city. Secondary and tertiary losses in the city and other parts of the province were much higher[15].

Immediately after the earthquake, most affected people were helped or rescued by friends, families and neighbors. A case study in the Nishi Suma area by the authors pointed out that 60 per cent of residents were evacuated by their own efforts, and approximately 20 per cent were rescued by neighbors. These data indicate the importance of communities and neighbors in the immediate rescue operation. The main reasons local people are so effective in rescue activities, as reported from the interviews are: information and knowledge of the community; leadership within informal and formal community-based organizations; availability of small tools for rescue operation such as saws and crowbars. Wegner (1978) [16] discussed the importance of the community

[15] Shaw R. and Goda K. (2004): From disaster to sustainable community planning and development: the Kobe Experiences, *In Disaster, 28 (1), 16-40.*

[16] Wegner, D.E. (1978) Community Response to Disaster: Functional and Structural Alternations. In E.L. Quarantelli (ed.)

response to disaster. Similar observations were also made after the Marmara earthquake of 1999 in Turkey and the Gujarat earthquake of 2001 in India (Jalali, 2002; Shaw, 2003)[17].

After the rescue operation, the relief-and-rehabilitation phase began. In this, hundreds of volunteers gathered from different parts of Japan. Different voluntary groups had coordination centers focused on different parts of affected areas. Needless to say, the prefecture, city and local governments had their coordination centers as well. In some places, there was cooperation with the NGO networks, in some places they acted independently. Figure 1 shows the gradual change in a volunteer's role in post- disaster scenario. It is observed that while the role of outside volunteers gradually decreased in the temporary shelters, the local volunteer activities continued into the permanent housing phase. Changes were also noted in the nature of the volunteers. While non-technical activities continued until the move to permanent housing, technical and networking work emerged at later stages of the reconstruction process.

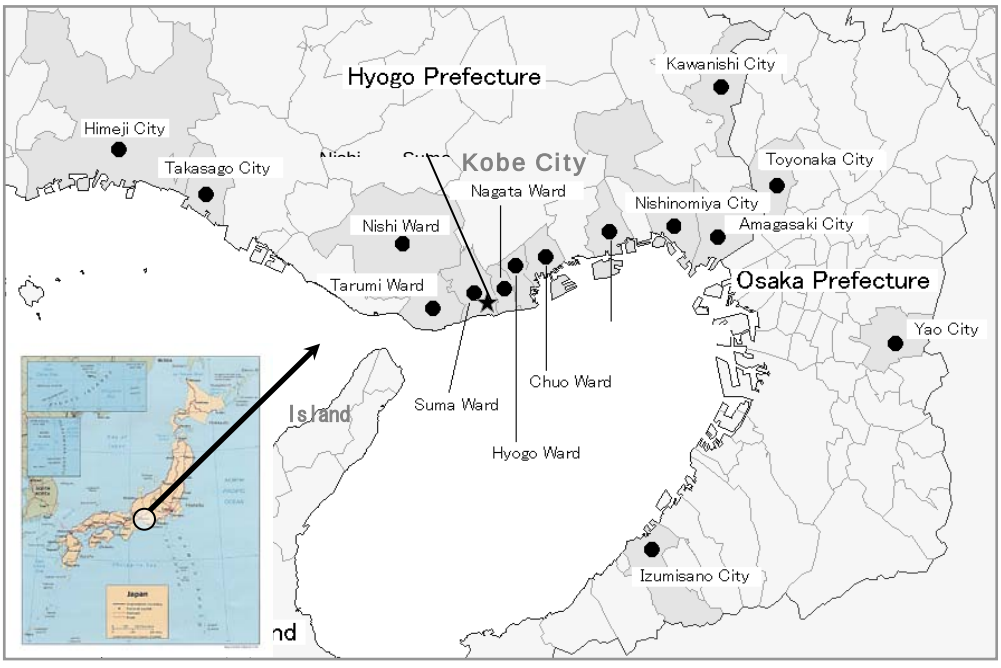


Figure 4.1 Map showing the locations of temporary shelters in Kobe and

Disasters: Theory and Research. Sage, Thousand Oaks.

[17] Jalali, R. (2002) Civil Society and the State: Turkey After the Earthquake. *Disasters* 26(2): 120–39.
Shaw, R. (2003) The Role of Non-governmental Organizations in Earthquake Disaster Management: An Asian Perspective. *Regional Development Dialogue* 24(1): 117–29.

adjoining cities of Hyogo prefecture in Japan

The effectiveness of the coordinated NGO network has been observed in other countries like Turkey, where a rescue NGO called AKUT was turned into the coordination centre for relief distribution by the government. The same pattern was observed after the Gujarat earthquake of 2001 in India, where an NGO network called Abhiyan played a significant role in information dissemination among the government, NGOs and international organizations (Shaw, 2003).

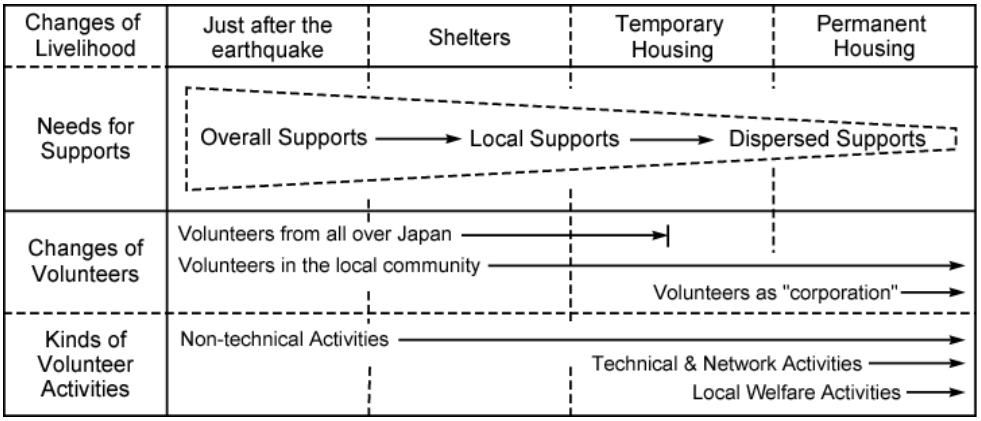


Figure 4.2 Changing roles of voluntary organizations as evidenced from the Kobe Earthquake (Source: Shaw and Goda 2004)

The relief phase was followed by the reconstruction phase, in which government took the leadership (Figure 4.2). Roles of voluntary organizations became minimized in certain areas, which was attributed to: lack of sustained resources; lack of motivation to continue the efforts; changes in the organizational mandates (some organizations focused on rescue and relief only); and lack of technical skills to contribute to the reconstruction process. Among different activities, the creation of temporary shelters, identifying special zoning areas, restoring lifelines and infrastructures were the priority issues. From the government perspective, the reconstruction phase lasted for three to five years, until the housing and infrastructures were fully reconstructed. However, according to the people's perspective, the reconstruction phase is still continuing (PRP, 1998)[18].

[18] KAP (2001) The Kobe Action Plan (in Japanese: Shimin Sakai o Tsukuru). International Forum of Disaster Management of Citizens and NGO, Kobe.

Figure 4.3 Damages of Kobe earthquake (RC buildings)

Figure 4.4 Damages of Kobe earthquake (Old wooden buildings)

Figure 4.5 Damages of Kobe earthquake (Lifelines)

Figure 4.6 Damages of Kobe earthquake (highways)

Figure 4.7 Community activities by women volunteers

Figure 4.8 Community activities by women volunteers
(left: community bonding, right, activities)

4.2 Gender Perspective

4.2.1 Major Gender Issues in Kobe

"There is no social class in Japan?" That's not true![19]

Anyone can go to universities depending on how hard he or she works. Anyone can climb the social ladder and rise to the top. There are 100 million people in the middle class in Japan. After the disaster, we came to realize that they were all lies. The earthquake shook all of us equally but it left us in different situations. Older and wooden houses were destroyed. More elderly women died in the quake than anyone else.

People who worked in large companies were the first to recover from the disaster. Land-owners were able to reconstruct their lives quickly. The rest of us without any assets are still struggling to put our lives back together. Full-time employees and regular workers received more support than those without decent employment status. People with savings were relieved. In the post-quake devastation, age, gender and dependency on a husband often determined victims' destiny.

The most obvious gender discrepancy in Japan is the difference between men's and women's paychecks. This has not improved for more than several decades. Women's salaries are less than half of that of men's. Women's wages could not afford to build a concrete house. Once she leaves her job for marriage or child-raring, she can only find a part-time job when she next decides to work. If she is divorced and has no children, she can't even qualify for government subsidized housing. This is why so many senior women live alone in old houses and apartments.

And this is why they became the most tormented victims of the earthquake. A woman either works for low pay all her life or works for free at home only to have nobody taking care of her near the end of her life. Even if she is lucky enough to survive the disaster, it is not easy for her to rebuild her life. In short, the earthquake made people realize that the worst form of discrimination in Japan's social system lies in the difference between "a class of men" and "a class

[19] Women's Net Kobe (http://homepage2.nifty.com/bousai/pdf/Introduction.pdf)

of women." Female part-time workers were the first to be laid off when businesses were affected by the quake.

Devastated by the tremor, companies cut female part-timer soon after the catastrophe. Since big businesses sent relief goods and provided their workers housing, people began saying, "Big businesses are best after all." There were people who moved to Osaka because their children had to study for college entrance exams. The government forced families to take in their elderly parents since many senior citizens were left out on the streets. A lack of social services was compensated by "family love." Major gender related issues are summarized in Table 4.1.

4.2.2 A 10 year evaluation of Reconstruction after Kobe Earthquake[20]

4.2.2. 1. Women's Poverty

Few Japanese know the fact that 1,000 more women were killed in the Great Hanshin Earthquake. As of May 8, 1995, the death toll of women (3,294) was higher than that of men (2,199). Women in their 70s were the highest, followed by women in their 60s, women in their 80s, and 50s, in this order. Eighty percent of those killed were either crushed to death or suffocated in the collapse of their houses. Moreover, many victims who were trapped under collapsed houses were burned to death. These people would have been safe if only their houses had been more resistant to seismic forces. Since most collapsed houses comprised aged housing in the inner city, damage from the earthquake was deeply related to the problem of poverty.

This fact eventually spotlighted socially vulnerable people, including the elderly, challenged, foreign workers and women. The average wage of women was (and still is) about half what it is for men. In addition to impoverishing women, the low wage made many women, particularly elderly women, extremely vulnerable to the disaster. Specifically, many such poor women lived in old wooden apartments with only a shared toilet. According to a report from the Ministry of Welfare at that time in 1995, the average income of fatherless families was only 30% of the national average, while that of motherless families was 70% of the national average. Even in non-disaster situations, fatherless

[20] Epilogue: 10 years after the Great Hanshin Earthquake ~ By Reiko Masai, Women's Net Kobe

families are extremely unstable and vulnerable, economically, socially and psychologically. In addition to elderly women, many mothers and children of fatherless families also became victims of the disaster since they also lived in aged, fragile apartments or houses. This is partly because many such mothers were unable to pay the high rent. It was also because many real estate brokers refused renting decent apartments to fatherless families. I learned that after the disaster some such mothers were obliged to remarry just so they could sustain their livelihood. Of the various post-disaster reconstruction programs, therefore, priority should be placed on helping mothers of fatherless families find houses and jobs, to replace the ones lost due to the disaster.

Three and half years after the earthquake, the Japanese government began providing victims with subsidies to help them regain economic independence. Since these subsidies were provided for victimized households, or more precisely given to the head of such households, who were generally men rather than women, the majority of women victims who married (remarried) were not eligible. Demanding a remedy for the subsidy system, which was, allegedly, based on gender discrimination, some women filed a lawsuit and won the case. In Japan, many subsidy systems consider households rather than individuals as the benefit recipients. This in turn has had a negative impact on women in the field of disaster-relief service.

4.2.2.2. Mass Dismissal of Part-timers

Immediately after the Great Hanshin Earthquake, roughly 100,000 workers, many of whom were female part-timers, were dismissed in the affected areas. These dismissed workers included many mothers of fatherless families; women who had to support their elderly parents and pregnant women. Many dismissed part-timers were not covered by employment insurance, which was a violation of relevant laws. This situation was not revealed until the mass dismissals after the earthquake.

According to the Kobe Workers Union, which provided labor-related consultation services, the number of cases it handled, reached over 1,700 in the six months after the disaster (until June 1995). Amid the ongoing prolonged recession, enterprises dismissed many employees with the excuse that the

company's performance declined due to the disaster. Some enterprises fired full-time employees and replaced them with part-timers. Immediately after the earthquake, Hyogo Prefecture Women and Youth Office; Hyogo Prefecture Women's Center and the Labor Standards Bureau of the Ministry of
Welfare opened consultation counters for workers in the affected area. In the half month after opening, more than 1,000 cases of workers' complaints, according to the Sankei Shimbun of February 9, 1995 were handled at these counters. Among fired women workers were mothers with young children, who were unable to go to work partly because of the closure of childcare centers.

This was also partly because they were unable to leave small children at home for fear of another accident. As a result, many mothers were fired. To sustain women's economic stability even in the event of disasters, it is therefore essential to establish a legal system that bans dismissal in the event of disaster. A system which allows victimized workers to take disaster leave is also necessary. Moreover, the Japanese government should promptly take initiatives to redress the wage gap between men and women- a gap which is being exceptionally wide for advanced countries. At the same time, the government should also establish a financial support system to reinforce the seismic resistance of aged housing.

4.2.2.3. Health and the Prevention of Domestic/Sexual Violence

A 1990 report reviewed the impact of the Loma Prieta Earthquake in California on Women. This report entitled "Influence of the Earthquake on Violence against Women" concluded that violence against women can worsen after any large disaster. It also concluded that any relief and restoration programs should include measures to prevent and control violent acts against women and children. Regrettably, Japanese organizations did not have a copy of this report by the time of the Great Hanshin Earthquake.

4.2.2.4. Impact of Shelter Life on Women's Health

According to the results of a survey conducted in December 1995 by the Earthquake Victims' Association 11 months after the Great Hanshin Earthquake, more women than men experienced worsened health problems. While staying

in shelters, where no privacy was secured, women victims had to do most of the household chores and take care of their children and sick/elderly family members. In the post-disaster situation, greater burdens were imposed on women than on men, due to persistent stereotypes about gender roles.

There were many women complain about the absence of privacy at shelters. In one meeting, one victim said: "Whenever I came back to the shelter at night, I felt anger at seeing so many male strangers in the same room with me." At that shelter, both men and women had to use the same toilet. There was nowhere to change clothing, free from men's eyes. Depriving women of the right to privacy is an infringement of human rights. Long-term stays in surroundings without any privacy were extremely stressful, particularly, for women.

Moreover, many women experienced great anxiety and fear. Mothers were forced to soothe their crying babies in the cold outdoors to prevent their crying children from disturbing other victims. As there were no nursing rooms, mothers also breastfed their babies outdoors. Moreover, many mothers decided not to live in shelters because of such a harsh environment. Since many women were suffering from menstrual disorders, cystitis and vaginitis, there needs to have clinics for women, preferably with midwives.

If this was impossible, at least, a woman leader should have been appointed in each shelter. It is felt that in post-disaster situations women should participate in the operation of shelters and layout of living spaces within shelters. In preparing relief plans for disaster victims, gender-sensitive viewpoints should be incorporated in both shelter operation and designs as well the stockpiling of relief materials.

4.2.2.5. Insufficient Support for Pregnant Women and Mothers with Infants

Because of the shattered transport infrastructure, many companies accommodated their workers in nearby hotels, while their wives had to remain in the affected areas. As a result, many wives were left alone, some with their infants and others with their elderly parents, while their husbands moved to hotels near their workplaces. Reportedly, due to their fear of aftershocks that frequently hit the affected area, many panicked women abused their children.

Pregnant women and women immediately after delivery who continued stay in their own houses were particularly vulnerable. Without easy access to professional help, daily necessities and information, many women developed fatigue, anxiety and a sense of loneliness, particularly, when their husbands were either far away or not cooperative. It is truly deplorable that women who absolutely needed care were regarded and treated as care providers instead of care recipients.

4.2.2.6. Disasters and Violent Actions against Women

Women's Net Kobe established a women's hotline immediately after the earthquake. Of the consultations we offered to women victims, 60% concerned domestic violence against women. One woman caller stated "My house collapsed completely, yet we have to continue paying the housing loan for ten more years. My husband beat me even in the presence of our three-year-old daughter." Another woman said, "I am eight months pregnant. Yet, my husband beats me, shouting that he doesn't want any more children."

For several months after the earthquake, Kobe's streets had no electricity. On dark streets with so many empty, collapsed buildings, many women were raped. In July 1995, Women Net held an assembly with the slogan "We will never forgive sexual violence." To this assembly, several women lawyers and public nurses who served at many shelters were invited. Many women victims were forced to stay silent because they had no other option but to remain where they were (such as shelters or temporary housing). Given such an emergency situation, many communities tended to pretend that there were no rapes or any other sexual crimes.

During the High-Level Intergovernmental Meeting on Beijing+10 held in New York, February 2005, participants sought solutions to infringements of women's human rights, particularly sexual violence, in areas hit by disaster or involved in conflict. In Japan, it is required to seek effective solutions by incorporating post-disaster programs gender-sensitive viewpoints, especially measures to prevent violence against women. At the same time in non-emergencies, one should work to develop measures for the prevention of domestic violence and the creation of systems to support women victims. Above all, one must foster

an environment where the victims of sexual violence can easily report the criminal acts without risk.

Table 4.1 Kobe Earthquake Gender Issues

	Issues after Kobe Earthquake
Economic Impacts	Women's Poverty
	Mass Dismissal of Part-timers
Health and Social Impacts	Health and prevention of domestic/sexual violence
	Impact of shelter life on women's health
	Insufficient support for pregnant women and mothers with infants

5. Conclusion and Way Forward

5.1 Generic observations

5.1.1. Women's Participation in Disaster Reduction and Post-Disaster Reconstruction

At the United Nations World Conference on Disaster Reduction (WCDR), held in Kobe in January 2005, the Japanese government announced its Initiatives for Disaster Reduction. The Initiatives' basic policies are to promote gender-sensitive perspectives. Specifically, the Initiative stipulates as follows: "Women are more vulnerable to disasters than men are because of existing gender-related imbalance in various aspects, including the levels of participation in policymaking and economic activities, along with access to information. It is therefore essential to support women in every aspect of disaster reduction from gender-sensitive perspectives." In July 2005, the Japanese government revised the Basic Disaster Prevention Planning to incorporate gender-sensitive perspectives. A Cabinet Office taskforce to study the "Basic Plan for Gender Equality" will also initiate studies of gender equality within the context of disaster reduction and post-disaster reconstruction.

5.1.2. Operation of Shelters immediately after the Great Hanshin-Awaji Earthquake

Of the 310,000 victims, whose houses collapsed or were damaged by the earthquake, 180,000 took shelter at school buildings. Although various surveys have been conducted regarding the roles of shelter leaders. Few of these surveys reported on the gender ratio of the same leaders.

According to the only extant record, which was prepared by Ashiya, only two female leaders out of a total of 25 leaders for 25 shelters in Ashiya. This kind of gender imbalance is partly attributable to the automatic selection of men, who are community and or local volunteer group leaders, as shelter representatives. Another factor involves the majority of women not being able to fulfill a leader's responsibilities due to their family obligations.

Although many study reports were prepared on disaster and post-disaster situations, few such reports contain gender-based data or analyses. Although natural disasters hit everyone at the same time, the damage men and women

they receive and the speed at which they recover respectively is different.
When a tsunami attacked the coast of Indian Ocean on December 26, 2004, it again proved this point.

5.1.3 Participation of Women in Disaster Reduction and Post-disaster Reconstruction Planning

The image of women as only victims or vulnerable people is also biased. Immediately after the Great Hanshin Earthquake, I saw many women running to collapsed houses with hand saws to rescue victims trapped under the houses; exerting leadership by cooking hot meals to share with other victims; and organizing volunteer groups dedicated to washing laundry. Such women were amazingly powerful and energetic.

They knew exactly what other victims needed and allocated limited resources adequately by organizing groups and networks with great flexibility. Women's knowledge and abilities are essential for various post-disaster programs.
The earthquake destroyed a lot of communities. This situation still impacts heavily on our daily lives and discourages recovery from mental stress. Presently, mostly women support daily life in these local communities. However, men in their prime engage in reconstruction programs which emphasize the rebirth of big cities above local communities. If women participated in local reconstruction programs, how important the rebirth of local communities is would be emphasized.

5.2 Policy Implication and its Implementation

The theme of women in disaster situations was not taken up in Japan until some ten years after the Great Hanshin Earthquake of 1995, with the occurrence of the Niigata Chuetsu Earthquakes of 2004. It was with these earthquakes that the government for the first time stationed workers on site specifically charged with dealing with matters from a "women's perspective" and it was announced that excavation sites and the like would be greatly improved. As it happened, it was just around this time that the government was preparing its second basic Gender Equality plan, and the category of "disaster prevention and disaster revival" was incorporated into this second plan. Thus, little by little, the understanding of women's needs in an emergency has begun to spread

throughout the country.

There is still no attention being paid, however, to women's situations after the initial emergency has passed and work begins on reconstruction[21]. Disaster damage containment is still perceived as the work of men, and there have been no studies made of trends as seen from a woman's perspective during and after a disaster, even though a women's perspective is actually essential in the recovery and reconstruction stages. If we are to learn from the past and create a society that can cope with and reduce the effects of a disaster, a multidimensional and flexible approach that includes the encouragement of women's participation is needed.

In a disaster-stricken area, the gap of wealth and poverty widens in the process of restoration and revival. As traditional sex roles are revived, women are exposed to the stress of human relations. Yet violence and discrimination towards women tend to be denied and ignored.

The problems of disaster and gender are explored from two viewpoints. One is the viewpoint of protecting women from violence and illness after a disaster, and the other is the viewpoint of utilizing female power. Women are effective agents for revival and can contribute to community disaster prevention. But if too much attention is paid to the long hours put in by men who work without rest, such "heartwarming stories" tend to relegate women's activities to the sidelines. Putting an emphasis on the women's viewpoint in achieving recovery, makes for greater diversity of approaches and the realization of a safer society. This has already been confirmed through the experiences of disaster in the international community.

In this context, it is suggested that the national and local governments must execute the following measures[22]:

- Select women as members responsible for decision-making regarding disaster reduction and post-disaster reconstruction planning; employ

[21] Analysis of the Gender Structure of Disaster and Post-Disaster Revival: In the Case of the Great Hanshin-Awaji Earthquake, Aikawa Yasuko

[22] Epilogue: 10 years after the Great Hanshin Earthquake ~ By Reiko Masai, Women's Net Kobe

women as leaders of reconstruction programs,
- Adopt concrete measures to ensure women's participation in decision-making by clearly publicizing numerical targets and the target period,
- Seek and use women's knowledge and expertise accumulated through their participation in community and NPO activities,
- Provide training on gender issues for staff members who will be dispatched for rescue and relief activities as well as to post-disaster reconstruction; and
- Dispatch women to disaster sites when this is deemed as appropriate.

Disaster reduction is deeply related to daily efforts. Residents should constantly review whether or not the town they live in has advanced welfare programs; whether or not the town authority is actively promoting gender-equality; and people in their society respect human rights. A society where women are overly "protected" in the name of "respect of femininity" is a society where inequality between men and women is deeply embedded. Moreover, such a society is extremely vulnerable to disasters.

Although in Japan most social services are currently provided to households, rather than to individuals, this system should also be revised so that both single and married women can access such services. Every woman has a right to lead an independent and secure life even if she is not married or does not have children.

The policy map[23] presented below is intended to serve as a template that could be applied to any polity, at all main levels of jurisdiction. It is a tool that identifies the policies which impact on specific areas with gender implications in a disaster context, and which, when taken together, imply an advanced level of gender mainstreaming. Its systematic application has the double benefit of clearly identifying those areas where progress has already been made, and providing guidance towards policy reform where it is needed.

The policy map has the following features:

[23] "Mainstreaming Gender into Disaster Recovery and Reconstruction, SF/CDD Handbook, World Bank Internal Document.

- Policy areas are *categorised according to the administrative level* responsible for enacting the relevant policy provisions. These range from the central government level to the local authority, with a separate range of responsibilities suggested for disaster management institutions. Given the variation among national administrative systems, the number of institutional categories considered and the exact distribution of policy areas across these levels will vary within limits from case to case. It is, however, very important to determine the locus of responsibility for each policy area in every case, in order to avoid inaction due to ambiguities and to facilitate a timely response.

- At each institutional level, policies are grouped into those that are *disaster-specific*, and those that are *general policies* which mediate the impact that disasters have on those affected. As an example, putting houses built as part of a post-disaster reconstruction effort jointly in the names of both spouses is disaster-specific policy. Legislation to acknowledge the general and equal right of women to own and inherit property is general policy, whose existence or absence when a disaster strikes makes an enormous difference to the ability of those affected to recover.

Before its application to a particular case, the policy map therefore takes the form of a structured list similar to that provided below. This example assumes a decentralised system such as a federal polity, where the component states constitute an administrative category of their own. In the case of centralised systems, most of the policies listed under the state level in this example would be assumed as the responsibility of the central government.

5.3 Risk Communication and Gender Inclusion

Disaster prevention's key stakeholder is residents and government. While significant focus has been given to the hard measures through infrastructure building and improvements, little has done for the soft measures with education and communication. Disaster education has to make a balance of "grown local leader" and "understanding risk information". Target of "grown

local leader" is local leader and person having interest about disaster prevention and mitigation. Those education's contents is support to grown decision thinking at emergency situation. Target of "understanding risk information" is person who stays in the home for a long time and person who care handicap people. Takeuchi (2008)[24] pointed out that the, best target person is male of 50-70 years old and female of 30-60 years old.

Risk, risk perception and risk communication have been dealt with by many authors in different perspectives. Risk can be seen in different ways[25]:

- As a hazard;
- As a probability;
- As a consequence; and
- As a threat (Slovic and Weber, 2002)[26].

Slovic (1987)[27] has described risk perception from different sources: geography, sociology, political science, anthropology and psychology. While geographical research focused on understanding human behavior for natural hazards, sociological and anthropological studies have shown that perception and acceptance of risk have their roots in social and cultural factors. Psychological researches include fear level prior to the event as well as confidence in one's available resources. Slovic *et al*. (1981)[28] observed that risk perception is related to three major factors: dread, familiarity and exposure. Lindell (1994)[29] relates perceived risk with characteristic of a hazard agent and perceived personal consequences, which, in turn, is related to available physical and psychological coping capacities. Lindell (1994) also stressed that factors affecting risk perception are usually not independent, and vary across different hazard types and people.

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[24] Takeuchi Y. (2008): The education of sediment disaster generation process including sediment transport to resident's action in Hiroshima City, In World Landslide Forum, Tokyo.

[25] Shaw R. et al. (2004): Linking experience, education, perception and earthquake experiences. In Disaster Prevention and Management, Vol. 23, No. 1, 39-49.

[26] Slovic, P. and Weber, E. (2002), ``Perception of risk posed by extreme events'', paper presented at the Conference on Risk Management Strategies in an Uncertain World, New York, NY.

[27] Slovic, P. (1987), ``Perception of risk'', *Science*, Vol. 236 pp. 280-5.

[28] Slovic, P., Fishhoff, B. and Lichtenstein, S. (1981), ``Perceived risk: psychological factors and social implications'', *Proceedings of the Royal Society of London*, Vol. A376, pp. 17-34.

[29] Lindell, M.K. (1994), ``Perceived characteristics of environmental hazards'', *International Journal of Mass Emergencies and Disasters*, Vol. 12 No. 3, pp. 303-26.

However, a clear difference should be noted in the concept and definition of existing knowledge, perceived risk and actions to reduce risk. A survey after the 1989 Loma Prieta earthquake of Los Angeles showed that residents acknowledged the threat, but the level of personal risk perception was found lower (Burger and Palmer, 1992)[30]. Similarly, studies from Turkey (Fisek *et al*., 2002; Onculer, 2002)[31] showed that willingness of house owners to pay for the strengthening of buildings depends much on their perceived risk at family and community level. Thus, there are three distinct issues:

- Knowledge on hazard and risk (which can be provided through education, awareness-raising campaign);
- Perceived risk at individual, family and community level (which can be done through participatory approach in different levels); and
- Willingness to take action to reduce risk (which can be done through developing a culture of disaster preparedness).

At each of these steps gender issues play important role. For pre-disaster preparedness risk perception is different from different gender group. A study in drought prone areas shows that while male is more interested to have the system dependency on water resource management, female groups are more interested to be self-dependent on the water resources, due to uncertainty of the system.

Risk communication is another factor which needs attention. Bhatti (2001)[32] argued that three basic actors are involved in risk communication: originating, communicating, and receiving certain information. Different stakeholders play important roles as the actors in the communication process. Bhatti (2001) also argued that culture plays a crucial role in risk communication process, and traditional risk knowledge should be merged with the modern risk knowledge to create a better risk management and preparedness regime.

[30] Burger, J.M. and Palmer, M.I. (1992), ``Changes in and generalization of unrealistic optimism following experiences with stressful events: reaction to the 2.9.89 California earthquake'', *Journal of Personality and Social Psychology*, Vol. 18 No. 1, pp. 39-43.

[31] Fisek, G., Yeniceri, N., Muderrisoglu, S. and Ozkarar, G. (2002), ``Risk perception and attitudes towards mitigation'', paper presented at the IIASA-DPRI Meeting on Integrated Risk Management, Luxemburg.
Onculer, A. (2002), ``Turkish homeowner's willingness to pay for earthquake mitigation measures'', paper presented at the IIASA-DPRI Meeting on Integrated Risk Management, Luxemburg.

[32] Bhatti, A. (2001), ``Risk perception, culture and communication: a south Asian experience'', paper presented at the Fifth Conference of European Sociological Association, Helsinki

Rohrmann (1998)[33] proposed a model of risk communication process, which acknowledged that risk reduction behavior was not just delivering the information or message, but a complex factor of personal evaluation process including prior attitudes. Thus, as argued by Enders (2001)[34], the risk communication process is very much depending on the socio-economic and cultural issues. Johnston *et al*. (1999)[35] relates several factors to preparedness: perceived risk; .amount of relevant information; level of past damages; salience of hazard; and level of knowledge about the threat.

Russell *et al*. (1995)[36] referred to socio-economic factors, personality and hazard related variables as important elements for preparedness. Reviewing the model of Rohrmann (1996)[37], Enders (2001) proposed a model for behavioral change, which has the following steps:

- Attention;
- Comprehension;
- Interpretation;
- Confirmation;
- Acceptance;
- Retention; and
- Behavioral change

The model illustrates that awareness and preparedness are only part of a continuum from information attainment to behavioral change. Again, gender issues are very much linked to different levels of behavior change in the risk communication model. While gender groups need specific attention on specific issues of privacy, health and sanitation issues, comprehension and acceptance of risk information to the women group may be different from that of male group. This issue should be properly recognized in a risk communication framework.

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33 Rohrmann, B. (1998), ``Assessing hazard information/ communication programs'', *Australian Psychologist*, Vol. 33 No. 2, pp. 105-12.

34 Rohrmann, B. (1998), ``Assessing hazard information/ communication programs'', *Australian Psychologist*, Vol. 33 No. 2, pp. 105-12.

35 Johnston, D.M., Bebbington, M.S., Lai, C.D., Houghton, B.F. and Paton, D. (1999), ``Volcanic hazard perceptions: comparative shifts in knowledge and risk'', *Disaster Prevention and Management*, Vol. 8 No. 2, pp. 118-26.

36 Russell, L.A., Goltz, J.D. and Bourque, L.B. (1995), ``Preparedness and hazard mitigation actions before and after two earthquakes'', *Environment and Behavior*, Vol. 27 No. 6, pp. 774-70.

37 Rohrmann, B. (1998), ``Assessing hazard information/ communication programs'', *Australian Psychologist*, Vol. 33 No. 2, pp. 105-12.

In summary, risk perception and risk communication are very much related to an individual's social, cultural, economic and personal background, which very much depends on the gender group. From perceived risk to action for risk reduction is a long way, and is influenced by different factors, which vary according to hazards.

5.4 Way Forward

To enhance the gender inclusion in the disaster risk reduction in Japan, there are two specific interventions required in both pre-disaster and post-disaster phases. This can be summarized as follow:

- **Pre-disaster Preparedness Phase:** As evident from the case study of Hiroshima, risk communication to the women group is an absolute requirement for the preparedness. The community meetings are generally dominated by male group, and often the discussion does not percolate to the female members of the family. Therefore, the risk information is very much limited to one single group in the community. There are different ways to disseminate information to the female group: one, by encouraging more female participants in the community meetings. The other way is through participatory education through school children. Recently, town watching or neighborhood watching is found to be a very useful tool of disaster education, and through interactions with the children, and PTA (Parent Teacher Association), it is possible to encourage wider participation of the mothers group. Therefore, proactive school based community education can play a significant role in risk reduction in gender sectors.

- **Post-disaster Reconstruction and Recovery Phase:** As evident from the Kobe case study, it is of utmost importance that proper gender sensitive policy should be formulated from the very first day after the disaster. This is applicable to both evacuation areas and temporary shelters. Special provision needs to be made on the temporary shelter, since people tend to live in those areas almost 2-3 years. Special emphasis needs to be given on the social participation of the female groups. Non-government or non-profit organizations can play important roles in facilitating problem solving of women groups in these phases. Special hotline needs to be established,

which should be strongly linked to the local governments. Media can play an important role in the brining relevant issues to public attention, and can act as the pressure group for inclusion of gender issues in reconstruction policy.

Appendix 1: Interview Survey in Hiroshima

Hiroshima City Government, 1-3 October 2008

Person Interviewed: Mr. Harutoshi Nishii, Head of Hiroshima City Fire Department

Collective Community Activities by Women Group in Hiroshima City

Appendix 2: Disaster Management Section of Cabinet Office of Government of Japan

Date: 24th of October 2008

Persons Interviewed:

- Yuzuru Tachii, Deputy Director
- Tatsuya Aizawa, Project Officer

Appendix 3: Gender Equality Bureau of Cabinet Office of Government of Japan

Date: 24th of October 2008

Persons Interviewed:

- Aya Yamaguchi, Deputy Director General Affairs Division
- Junko Minami, Deputy Director General Affairs Division
- Masae Yamauchi, Deputy Director General Affairs Division

Appendix 4: Japan International Cooperation Agency (JICA)

Date: 24th of October 2008

Persons Interviewed:

- Satoru Mimura, Director, Disaster Management Division1, Global Environmental Group
- Aya Okada, Focal Person, Disaster Management Division1, Global Environmental Group

Appendix 5: NPO Women's Net KOBE

Date of Interview: 27th October 2008

Person Interviewed: Reiko Masai, Head of Women's Net Kobe

Appendix 6: Community Activities in Nagata Elementary School, Kobe

Focus Group Discussion with local communities