Regional Transition of the Transitional House Construction and Livelihood Problem in Sri Lanka affected by 2004 Sumatra Tsunami

H., Nakazato[1], O., Murao[2], and K., Sugiyasu[1]

[1] *Graduate School Student, Graduate School of Systems and Information Engineering, University of Tsukuba, Ibaraki, Japan*

[2] *Associate Professor, Graduate School of Systems and Information Engineering, University of Tsukuba, Ibaraki, Japan*

Email: nakaza20@sk.tsukuba.ac.jp, murao@risk.tsukuba.ac.jp, sugiya30@sk.tsukuba.ac.jp

ABSTRACT :

On the 26th of December 2004 tidal waves struck the coastal areas in Sri Lanka, as well as other Indian Ocean rim countries. The Tsunami damaged five provinces in Sri Lanka and more than forty thousand disappeared or were killed within a short time. After the tsunami, the government of Sri Lanka provided three types of houses (emergency shelters, temporary houses, and permanent houses) for the victims according to their recovery stage. While the reconstruction of affected houses was regulated in coastal areas called "Buffer Zones", the relocation of housing was implemented in housing reconstruction projects. This became a controversial issue because it was one of the reasons for the delay of housing reconstruction projects in some areas where affected victims were forced to remain living in temporary houses.

The authors, who have studied the recovery process in Sri Lanka since the 2004 tsunami disaster, conducted field surveys in Trincomalee, a northern area of the country, in March 2006. The goal was to understand the recovery conditions and to obtain a data set of the construction status of the temporary houses for the RADA (Rebuilding and Development Agency). This paper presents the various regional differences in the temporary house construction transition and the livelihood problems of the victims, based on interviews as follows. First of all, it describes the process of the housing reconstruction project and the data status by the RADA. Secondly, it shows the regional differences, clarified by the data. Finally, it presents the livelihood problems of victims living in the temporary houses.

KEYWORDS: 2004 Sumatra Tsunami, Sri Lanka, reconstruction process, livelihood problem, Temporary house, regional differences

1. Background

The Indian Ocean Tsunami, which originated in Northern Sumatra on December 26, 2004, struck many countries in South and Southeast Asia, including Indonesia, Sri Lanka, India, and Thailand. In Sri Lanka, the Sri Lankan Government implemented following framework to rebuilding affected houses: 1) Emergency shelters, 2) Temporary houses, and 3) Permanent houses. There were some problems in building the permanent houses, such as less land for houses, less fund for projects, and political issues in northern area. According to the authors' previous research, these problems caused delay and regional differences in housing projects, and many affected people had to stay in temporary houses. Temporary houses are accommodation for a few months before people move to permanent house, and it is difficult to provide high standard in temporary houses just like as life before disaster. Temporary houses should meet the minimum standards so that affected people would be able to live with lesser problems. According to Ministry of Finance and Planning and the Reconstruction & Department Agency, livelihood problems in temporary houses are reported.

Maki et al. (2003) observed that some victims were able to return to their original homes several years after the tsunami on Flores Island in Indonesia. Furthermore, Murao et al. (2008) suggested the way to examine the recovery process focused on the permanent house and temporary house in affected area in Sri Lanka using the recovery curves.

The authors had been conducting the field survey to grasp the recovery condition and problems in housing projects in affected area after tsunami, and we conducted field survey in March 2007. This paper reports the recovery process and regional differences in temporary housing building projects, based on the data we got from government and interview result with people who live in temporary houses in Trincomalee, Sri Lanka.

2. Project for providing Temporary house

2.1. Organization arrangement

The Government had plans to regulate and manage illegal development in coastal area. In order to accomplish the projects, the Government established Task Force to Rebuild the Nation (TAFREN) 1 month after the Tsunami, which manages and monitors all recovery projects including housing reconstruction, rebuilding the infrastructures. Based on government idea, Ministry of Financed and Planning and TAFREN decided to implement the settlement of affected people from coastal area to new sites inland. In November 2005, TAFREN was re-organized as Rebuilding and Development Agency (RADA), and housing reconstruction projects were managed by RADA, on national level, and Tsunami Hosing Reconstruction Unit (THRU), on local level.

2.2. Outline of Transitional Accommodation Project

The project to build temporary houses was named as Transitional Accommodation Project (TAP). The houses were built in affected area where houses were destroyed, or land possessed by the Government with grants that was supported by donor such as companies, NGOs, and individuals. According to RADA, 57,057 temporary houses were built, and people were still living in 14,961 houses out of 57,057 by December 2006. The rest 42,096 houses were removed after people moved to permanent houses.

According to Ministry of Finance and Planning and the Reconstruction & Department Agency, there are many livelihood problems reported, such as the lack of toilet and water, and electricity. These problems were discussed by government and NGOs in the Steering Committee held in September 2005. The government invested 24 million dollars, maintained to solve issues such as housing repair and lack of sanitary.

First of all, this paper shows the building status of temporary houses and regional differences based on the data we got from RADA, and secondary, this paper shows the livelihood problems based on the interviews with inhabitants living in temporary houses in Trincomalee.

3. Transition of Transitional Accommodation Project

3.1. Data

In this section we show the building status of TAP based on the data we got from RADA. The duration of the data is between March 31st 2005 and February 28th 2006, and the data were corrected every week by RADA and TAFREN (before 2005 November). This data includes the number of temporary houses that is needed in the DSD (Divisional Secretariat Division) [1], houses pledged to donors, houses under construction, and houses completed. The authors totaled 4 weeks data into 1, and made figures about 10 districts which show the transition of the number of houses completed. Following are the consideration about the regional differences.

3.2. The building status in Transitional Accommodation Project

Table.1 shows the number of houses needed in each district and the number of houses completed as of February 2006. As total, more than 100% houses are completed. In 6 areas, Ampara, Batticaloa, Hambantota, Jaffna, Matara, and Trincomalee, the number of houses constructed is in fact greater than the number needed. This situation originates the governmental plan that says they should be flexible to change the number of houses according to the each situation in each area. On the other hand, in big cities, such as Colombo and Gampaha, the number of houses completed is less than the number needed. This originates the fact that these two cities are urbanized and very populated area[2], and it is clarified in the author's previous research that there are not enough lands for building the temporary houses.

Fig.1 shows the transition of number of houses constructed against number of houses needed in each district. The number of houses as of March 2006 is set 100%. As shown in Fig.1, about 80% houses are completed by

June 2005 in Hambantota. On the other hand, construction of temporary house started in August 2005. The speed of process is slower than other districts in northern area, Trincomalee, Batticaloa, Killinochchi, and western district, Gampaha. It appears that the reason for the slow procession in these areas is interruption by LTTE (the Liberation Tigers of Tamil Eelam). A proportion of Tamil people from smaller ethnic groups are active in the anti-government organization. Some LTTE obstructed local reconstruction projects. In other areas, the construction of temporary houses is almost completed by December 2005, 1 year after tsunami.

Districts	a. Houses needed	b. Houses completed	balance (b / a)
Ampara	10,566	18,491	175%
Batticaloa	10,055	12,437	124%
Colombo	3,397	1,363	40%
Galle	6,169	5,561	90%
Gampaha	206	52	25%
Hambantota	1,290	1,780	138%
Jaffna	3,395	3,574	105%
Kaluthara	2,671	1,661	62%
Kilinochchi	576	473	82%
Matara	2,401	3,234	135%
Mullaitivu	2,124	2,124	100%
Trincomalee	4,643	6,307	136%
Total	47,493	57,057	120%

Table.1 Number of houses needed and completed

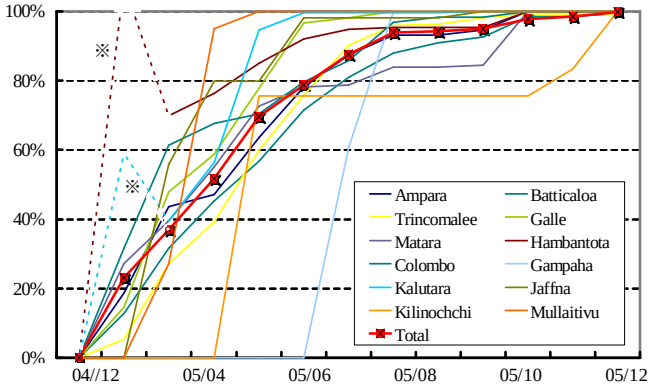

Fig.1 Transition of number of houses constructed against number of houses needed
* shown as a dottled line as it seems to be wrong

Source: RADA, Progress Report (2005), RADA, Progress Report (2006)

3.3. Transition of the number of houses completed in each district

According to TAFREN, approximately 51,000 temporary houses, 90% of houses needed were completed by November 2005, and then it is considered that the number of temporary houses, 57,057, as of March 2006 would be practical number needed. Based on this point of view, as shown in Fig.1, the number does not shift after end of 2006. The authors examine the transition of the number of houses completed in each district in next section.

1) East and North East area (Fig.2 (a) - (e))

Ampara and Batticaloa, the most affected area by tsunami, the number of damaged houses amounted to 21,201, and 17,405 respectively. As shown in Fig.2, in Ampara, the number of houses completed is going up from March 2005, 3 months after tsunami, and the number reached up to 175% against the number of houses needed. In Batticaloa, construction of temporary houses started in March 2005, as same period of time as in Ampara, and approximately 12,000 houses were completed by November 2005. This number needs the practical number needed in Batticaloa. In Trincomalee and Jaffna where lesser houses were damaged than Ampara and Batticaloa, the construction of temporary houses started and increased between April and August 2005. The number did not increase after July 2005, and it appears that the construction of temporary houses is finished.

2) West and South West area (Fig.2 (f) – (j))

In urban area with high population and less open land such as Colombo and Khaluthara, housing reconstruction projects delayed compare with another area. The ratio of number of houses provided was 40% and 62% respectively, and the number completed did not reached the number needed. The construction of temporary housing did not enhance after June 2005, and, the construction of temporary house did not increase after May 2005 in Khaluthara. On the other hand, the ratio of completed house against needed house reached 138% in Hambantota. As seen this number, 138%, it is clear that the construction of temporary house progressed earlier than other area. This tendency was also seen in construction of permanent house. It is clear that there is big difference in housing reconstruction projects in districts. In Galle, the construction of temporary house started in March 2005, and almost 100% of houses were provided after 6 months. In Matara construction of temporary houses did not progress as fast as Hambantota, but more houses than needed were constructed by March 2006.

As conclusion, there are some districts where construction of temporary house was finished in half year after tsunami like Hambantota, on the other hand, there are some districts where construction of temporary house kept

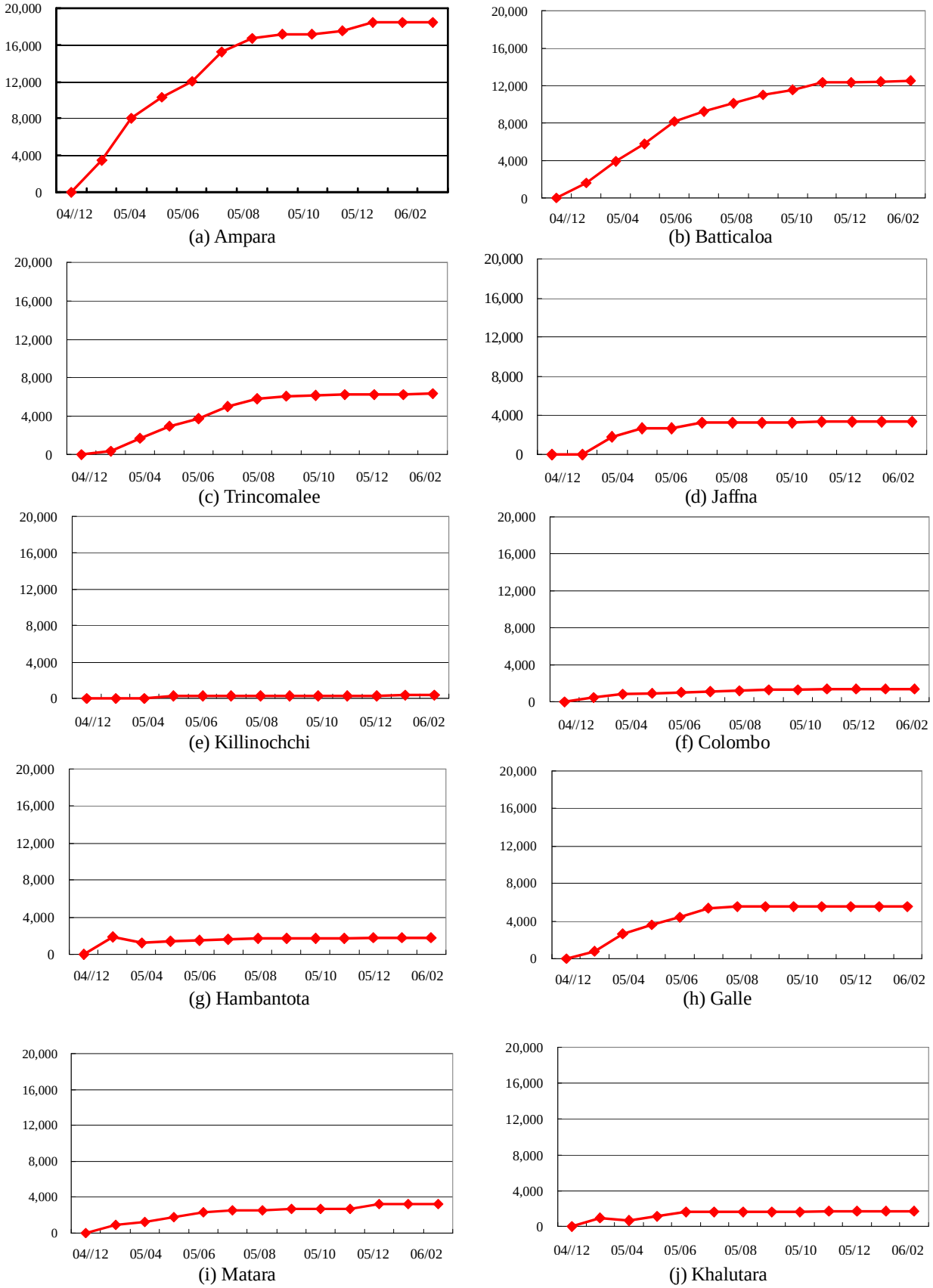

Fig.2 Transition of the number of transitional house built
Source: RADA, Progress Report (2005), RADA, Progress Report (2006)

going even in December 2005.

4. Interview with affected people in Temporary house

4.1. Outline of survey

The authors conducted field survey in Trincomalee, Northern East District in Sri Lanka, shown in Fig.3, between March 8 and 19 March 2006 with purpose of grasping the recovery condition and livelihood problems in temporary house. As shown in Fig.4, the subjected areas for survey were Kuchchaweli DS Division, north of Trincomalee, Kinniya DS Division located north of Trincomalee, and Town & Gravets DS Division, downtown. The reason for selecting these area are, firstly, the number of houses damaged amounted up to 7,531, and 52% of them were fishery families, and secondary, the housing reconstruction projects delayed because of obstruction by LTTE. In these areas, the confliction between government and LTTE has been intensifying since 1983. After 2004 tsunami, tsunami recovery process has been under process peacefully, however, between December 2005 and January 2006, a cease-fire agreement was sometimes neglected, and many government armies were killed by LTTE. These conflictions caused bad effect to tsunami recovery projects.

The object of the filed survey was to grasp the recovery condition and problems recovery process with resettlement. In order to achieve the object, the authors prepared interview sheet, and interviewed people living in temporary house in 4 areas mentioned above. The main point of the interview are following, the number of houses in the site, the donor which built the temporary houses, facilities in the housing such as electricity, water, gas, occupation before and after the tsunami, and problems in evacuation. The 17 subjected areas were constructed between January 2005 and September 2005, and just after temporary houses are built, affected people started to live.

4.2. Location of subjected area

The temporary housing sites were constructed hundreds meters inland with consideration of future tsunami. While there are some people who don't have problems to go fishing as they moved to sites near sea, there are people who can't go to their work, mainly fishing because they live a few kilometers away from sea. People who can not go fishing left boats and fishing net they were given by NGOs (Photo 1). Sites of temporary house and permanent house are built in open area inland, because of this reason these site do not have enough

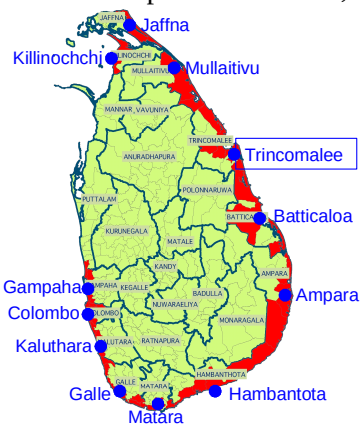

Fig.3 Place of Trincomalee

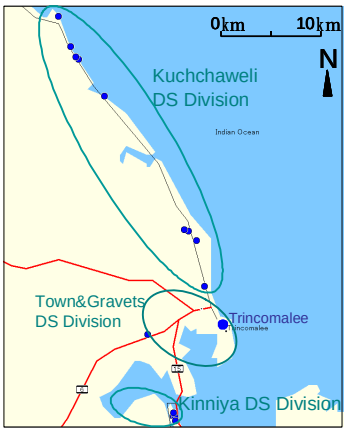

Fig.4 Subjected area

Photo 1 Boat left in sites without using

Photo 2 Transitional house

Photo 3 different type of Transitional house

Table 2 Livelihood condition in transitional houses [3]

No.	Date of interview	Area DS Division GN Division	No.of houses	Job	Donor	Date of completement of temprary house	Elcectricity ※1	Water ※1	Land oner ※2	Permanent house ※2	Problems
1	3/13/06	Kuchchaweli Konesapuri	65	fishery	CARITAS	2005/06	×	×	Government	adjacent JICA's site	・lack of drinking water
2	3/13/06	Kuchchaweli Palvakkulam	84	fishery agriculture shop	OfERR	2005/09	×	×	Government	adjacent CECB's site	・lack of drinking water ・heat in house made of galvanized iron ・many familys moved out because of bad housing condititon ・insufficient busto school ・very few incom (400 Rs. a day) ・insufficient land for agriculture Inhabitants religion: Isramic
3	3/13/06	Kuchchaweli Jayanagar	139	fishery agriculture rasing goat	OfERR	2005/05	△	×	Private	same as No.1	・people want to move to permanent house ・3 to 4 familys in one house ・people are not sure wheter they can use same land after moving to permanet house ・using electricity from power line on the road Inhabitants religion: Isramic
4	3/13/06	Kuchchaweli Kuchchaweli	91	fishery agriculuture	CARE International	2005/05	×	×	Lenting for 18 months	Salapeiyaru	・agriculutural support by Social Rehabilitation Development Organization ・4km to school ・38 familys are Tamil ・road in sites are not good condition because of big track for construction ・lack of drinking water ・people have anxiety about future, but they want to move to permanent house.
5	3/13/06	Kuchchaweli Salapieyar	288	fishery agriculuture	TRO	2005/04	×	×	Government	Salapieyaru	・fishery tools provided by NGOs. ・Using coconut leaves for roof Inhabitants religion: Tamil
6	3/13/06	Kuchchaweli Salapieyar	—	fishery	OfERR	—	×	○	Government	not decided	・children easily get sick because of heat in house ・5000Rs./month suport 3 times in 8 months ・boats provided by World Vision Inhabitants religion: Tamil
7	3/13/06	Kuchchaweli Thamaraikllam	114	fishery shop agriculuture (onion)	GERMAN AGRO ACTION	2005/03	×	×	Government	adjacent CECB's site	・no key on the front door (dangarous during night) ・family from same community moved here together ・unavailable 3 wells ・children fears to live near coast, so people want to move inland ・life without electricity ・anxiety about living with Tamil people Inhabitants religion: Tamil &Isramic
8	3/14/06	Kinniya Kinniya	101	fishery	OfERR	2005/06	○	×	Private/ Government	same place	・OfERR built just temporary houses, but not road and infrastructure ・some people will rebuild permanent house with support by government (250,000 Rs.) Inhabitants religion: Isramic
9	3/14/06	Kinniya Annal Nagar	190-200	fishery/shop	TRO	2005/03	×	×	—	not decided	Inhabitants religion: Isramic
10	3/14/06	Kinniya Kanthale	20	fishery/shop	politician	2005/06	○	×	—	not decided	・temporary houses were built by politician from Kanthale
11	3/14/06	Kinniya Faizal Nagal	35	fishery/shop	KINNIYA VISION	2005/03	×	×	—	not decided	Based on the interview in No.11 site ・people in this area work in fishery or agriculture ・lack of boats and fishing nets ・people will rebuild permanet house in a place 200m away from site with support by government (250,000 Rs.) ・it is difficult to move another area because of job (fishery)
12	3/14/06	Kinniya Faizal Nagal	40	fishery/shop	CARE International	2005/03	×	×	—	not decided	
13	3/14/06	Kinniya Faizal Nagal	35	fishery/shop	World Vision	2005/03	×	×	—	not decided	
14	3/14/06	Kinniya Faizal Nagal	35	fishery/shop	OXFAM	2005/03	×	×	—	not decided	
15	3/14/06	Kinniya Faizal Nagal	75	fishery/shop	LEADDS	2005/03	×	×	—	not decided	
16	3/15/06	Fort&Gravets Abayapura	100	fishery	Sewa Lanka & The Japan Center for Conflict Prevention	2005/01	×	×	Government	not decided	・lack of drinking water ・Sewa Lanka doesn't support anything except houses ・insufficient buses to go to job in downtown ・no response from government office about support ・just 40 family live now
17	3/15/06	Fort & Gravets Abayapura	14	fishery	EHED Caritas Network	2005/01	×	×	Government	—	Base on the interview in No.16 site ・14 temporary houses were builit in January 2005, but nobody lives becaue it is far away from sea

※1: ○: with facility but not availavle, △: available but not equiped , ×: not equiped. ※2: — is not cralified in the interview

infrastructure such as road. Furthermore, there are not enough buses which go to downtown. This causes inconveniences to inhabitants who go to school or work in downtown.

4.3. Lifeline

As shown in the Table.2, just 1 site out of 17 had water facility, and 2 out of 17 had electricity. The biggest

livelihood problem in the temporary housing sites heard through interview was lack of drinking water. Even if some sites had a few wells, water includes salt as these sites are located near sea, and it was not available as drinking water. In order to deal with water problems, water providing car, called bowser, was provided at all sites. On the other hand, just 2 sites of 17 had electricity. In sites where electricity is not available, people used lamp, or battery. There was a case that people use electricity from power line on the road. And there were no sites where gas was available, and most of the case, people used firewood for cooking.

4.4. Housing condition

Besides problems of water, big issue people claimed was housing condition. Almost all temporary houses were built using galvanized iron and some wood, as shown photo.2 and photo.3. Because of it, it could be easily hot inside house during daytime, and the heat caused many health problems, especially with children. Some people put coconut leaves to moderate the heat inside house. While almost all temporary houses were detached one, there was different type of temporary house that 20 family live in in Kanthale as shown in Photo.3.

4.5. Religious situation

According to Ministry of Foreign Affairs of Japan, Religious ratio in Sri Lanka is composed of 70.0% Buddhism, 10.0% Hindu, 8.5% Islam, and 8.5% roman catholic. It was required to make proper zoning at the stage of distribution of affected people by the difference of religion. There are more Islamic people around Trincomalee than other area, and authority for housing reconstruction made consideration about the distribution planning. From the interview with people, it appears that some prejudice case such as GN Division office, which is responsible for the housing reconstruction at local level, did not deal with the problems claimed by people on account of religion.

5. Conclusion

This paper focused on the temporary housing building project, called TAP, and reported the recovery condition and livelihood problems in temporary houses based on the data the authors got from RADA, and the interview with people living in temporary houses. And we examined and made comparison about the difference in the TAP between the Districts. And following points were clarified.

The housing condition of temporary house does not need the enough standards, as they are mainly built with galvanized iron. It should be under consideration that some people have to live more than 2 yeas until they move to permanent house, and condition in temporary house should meet minimum standard so that people can live at ease. And temporary housing sites are built in inland that is far away from place people lived before tsunami. Especially for fisherman, it would be very difficult to continue their jobs, and it is also difficult for children to go school from temporary house. In TAP, while there were some districts, like Colombo, Khalutara, and Trincomalee, where TAP delayed because of lack of land[4] or political issues in, there was district, like Hambantota, where TAP progressed quickly. Thus there are differences between districts.

Now some problems are revealed, but it is important to make consideration how temporary houses should be provided and maintained, and how projects should be managed not to cause difference between regions. It should be next step to put what come up with recovery process in Sri Lanka to good account so that we can be prepared to next possible disaster. The authors have been focused on the hosing reconstruction projects and effects by the governmental revised guideline for construction regulation in coastal area since May 2006. It would be significant to keep observing how recovery is going in the span of some years. Besides, the authors are expecting to examine and make comparison about recovery process in Sri Lanka, Indonesia, and Thailand.

Acknowledgements

This paper was supported by the “Restoration Program from Giant Earthquakes and Tsunamis, Granted by the Special Coordination Funds for Promoting Science and Technology, Ministry of Education, Culture, Sports, Science and Technology. We are grateful for the assistance of Nihal Rpasinghe, (Central Engineering Consultancy Bureau), Dr. Srikantha Herath, (United Nations University), and Navindra De Silva , (Senior Japanese Interpreter of JICA).

Note

[1] Sri Lanka is divided into, Province, District, Divisional Secretariat Division, and Grama Niadhari Division.

[2] Based on an interview with an anonymous official at the Central Engineering Consultancy Bureau in December 2005.

[3] Rs. 100 is approximately 0.9275 USD as of July 17, 2008. And According to Department of Census and Statistics, average salary in Sri Lanka is approximately Rs. 22,000 in urban area, Rs. 7,000 in rural area, and Rs. 13,000 in national.

[4] Based on an interview with various government employees, construction site workers, and residents in affected area (Trincomalee) in March 2006

References

Department of Census & Statistics, 2005. Census of Persons, Housing Units and other Building affected by Tsunami, 26th December 2004

Maki, N., Miura, K., Kobayashi, M., and Hayashi, H., 2003. Relocation process at resettlement site after the 1992 Flores Earthquake and Tsunami Disaster, 1-8, Journal of architecture and planning, Architectural Institute of Japan (in Japanese)

Ministry of Finance and Planning the Reconstruction & Development Agency (RADA), 2006. Post-Tsunami Recovery and Reconstruction

Ministry of Foreign Affairs of Japan, 2008. Foreign Affairs Democratic Socialist Republic of Sri Lanka, http://www.mofa.go.jp/MOFAJ/area/srilanka/index.html (in Japanese)

Murao, O., Nakazato, H., 2008, Post-Tsunami Reconstruction Process in Sri Lanka affected by 2004 Sumatra Tsunami, -Part6- : Recovery Curves for Buildings in Sri Lanka after the 2004 Indian Ocean Tsunami, Report of the City Planning Institute of Japan, No 6, 130-135, City Planning Institute of Japan (in Japanese)

Nakazato, H., Murao, O., 2006. The regional comparison of the permanent housing reconstruction process in Sri Lanka after the 2004 Sumatra Tsunami, 689-694, Journal of the City Planning Institute of Japan No. 41-3 (in Japanese)

RADA, 2005. Progress Report (2005)

RADA, 2006. Progress Report (2006)

Steering Committee (Ministry of Finance and Planning), 2005. Joint Report of the Government of Sri Lanka and Development Partners

The Presidential Secretariat, 2006. Acceleration of Tsunami Housing Program