

Comparison of Reconstruction System of the Queensland Flood and of the East Japan Great Earthquake

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Abstract: The natural disasters struck northeast Australia between November 2010 and February 2011. The QLD (Queensland) State Government has established the Queensland Reconstruction Authority within one month. Recovery works in QLD seem to be very smooth, and transfer phase to the normal civil works is going to start. Eastern Japan also attacked by the great earthquake and following Tsunami on March 11, 2011. Japanese Government, however, established the Reconstruction Agency almost one year after the event. The reconstruction of the disaster area is still on the half way. This paper aims to find out the differences between two countries from the viewpoints of organization, planning process and financial conditions.

Key words: Disaster, earthquake, reconstruction works, international comparison, Japan and Australia.

1. Introduction

The natural disasters attacked northeast Australia between November 2010 and February 2011. The catastrophic impacts of the flooding events devastated central and southeast QLD (Queensland), and the destruction by tropical cyclone Yasi saw more than 99% of Queensland declared as disaster affected. The QLD State Government has established the Queensland Reconstruction Authority within one month.

Eastern Japan also attacked by the great earthquake and following Tsunami on March 11, 2011. Japanese Government discussed very long time regarding the budget and organization in charge of the reconstruction works. The Reconstruction Agency has at last established on February 10, 2012. Although two years has passed from the March 11, 2011, most of municipalities have been making their effort only to construct houses for residents, and their city/town centers are still in vast lands with tall grasses.

2. Outline of Disaster

2.1 Natural Disaster in Queensland, Australia

Between November 2010 and February 2011, Queensland was struck by a series of natural disasters. Extensive flooding caused by periods of extremely heavy rainfall, and destruction caused by a number of storm cells including cyclones Tasha, Anthony and Yasi have resulted in 99% of Queensland being declared disaster affected.

37 people deceased from flood and cyclone-related events and three are still missing. 72 local government areas for disaster activated under the Natural Disaster Relief and Recovery Arrangements—more than 99% of Queensland. 59 rivers flooded with 12 breaking flood records. 19,000 kilometers of state and local roads affected. 29% of Queensland's rail network damaged. More than \$5 billion estimated for flood restoration and reconstruction costs. Tropical cyclone Yasi was a category 5 cyclone and the first of that magnitude to strike the Queensland coast. 54 coal mines affected, amounting to 15 million tons of coal or \$2.5 billion loss [1].

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2.2 East Japan Great Earthquake and Tsunami

The 2011 earthquake off the Pacific coast of Tohoku was a magnitude 9.03 undersea mega thrust earthquake that occurred at 14:46 JST (Japan Standard Time) on March 11, 2011. It was the most powerful known earthquake ever to have hit Japan, and one of the five most powerful earthquakes in the world since modern record-keeping began in 1900. The earthquake triggered powerful tsunami waves that reached heights of up to 40.5 meters in Tohoku’s Iwate Prefecture. On September 12, 2012, Japanese National Police Agency report confirmed 15,878 deaths, and 2,713 people still missing, as well as 129,225 buildings totally collapsed. The earthquake and tsunami also caused extensive and severe structural damage in northeastern Japan, including heavy damage to roads and railways as well as fires in many areas. Around 4.4 million households in northeastern Japan were left without electricity and 1.5 million without water. The tsunami caused nuclear accidents, primarily the Level 7 meltdowns at three reactors in the Fukushima Daiichi Nuclear Power Plant complex, and the associated evacuation zones affecting hundreds of thousands of residents. Residents within a 20-km radius of the

Fukushima Daiichi Nuclear Power Plant and a 10-km radius of the Fukushima Daini Nuclear Power Plant were evacuated.

Early estimates placed insured losses from the earthquake alone at 16.9 trillion yen (US \$204 billion). The World Bank’s estimated economic cost was US \$235 billion, making it the costliest natural disaster in world history [2].

3. The Queensland Reconstruction Authority

3.1 Organization

The authority (Figs. 1 and 2) was established February 21, 2011 (tropical cyclone Yasi stroke the Queensland coast on February 3, 2011). The authority’s powers will be largely consistent with those of the current coordinator general under State Development and Public Works Organization Act 1971 and Sustainable Planning Act 2009. Local governments will retain principal responsibility for local issues, including local planning policy. The authority will work with the state, the Commonwealth Government, local authorities and industry and interest groups to plan, prioritize and get Queensland’s reconstruction moving.

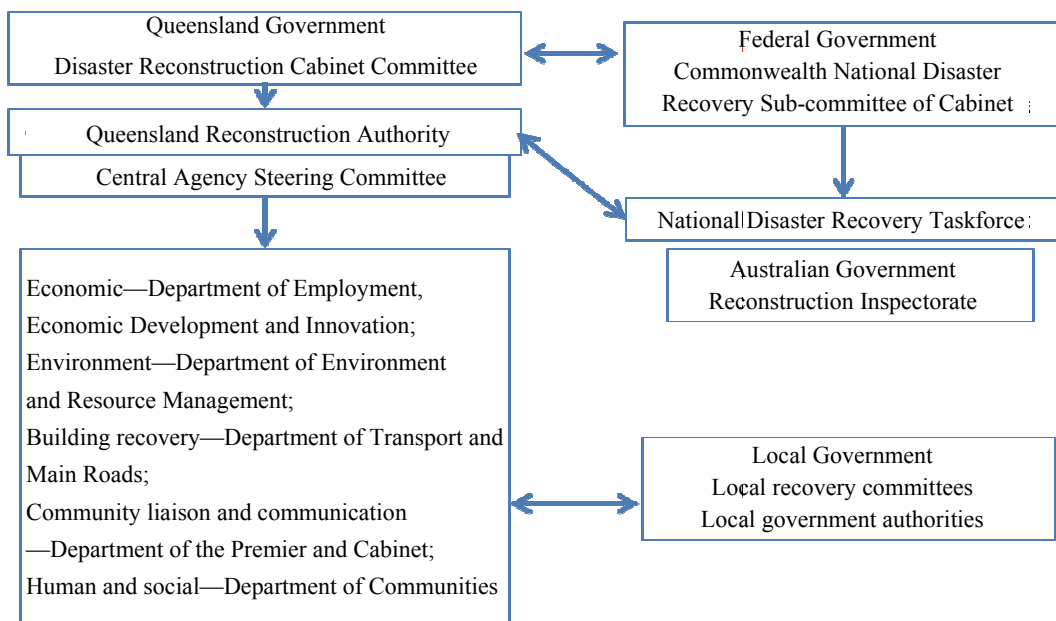


Fig. 1 Queensland Reconstruction Authority governance map. Source: the state plan of Operation Queensland, page 9 [1].

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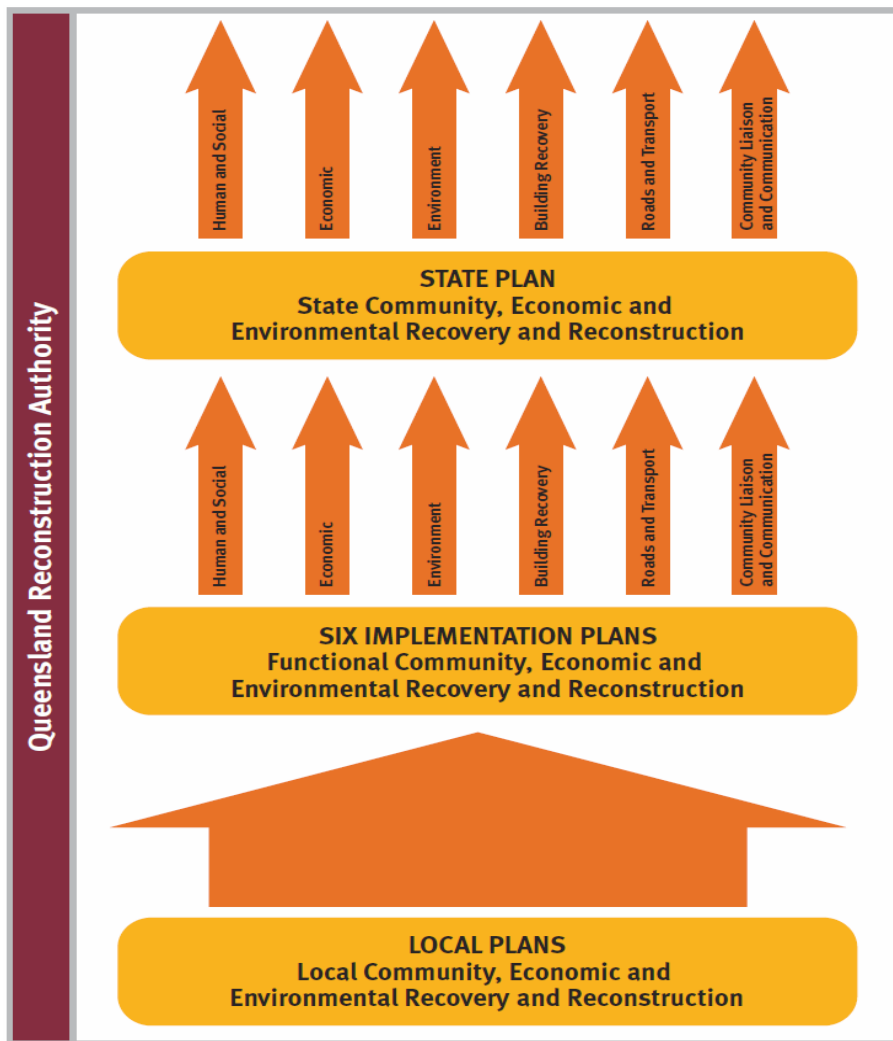


Fig. 2 Operation Queensland.
 Source: the state plan of Operation Queensland, page 16 [1].

3.2 Resourcing

It is estimated the reconstruction of flood affected areas will cost in the order of \$5 billion, with damage sustained from tropical cyclone Yasi estimated to exceed \$800 million. The funds to implement this state plan will be drawn from a variety of sources:

- The Commonwealth Government will contribute up to 75% of funds allocated under the NDRRA (Natural Disaster Relief and Recovery Arrangements). The Commonwealth Government will provide its contribution to the reconstruction of QLD by means of National Partnership Agreement;
- The QLD Government will contribute the balance

of the funds allocated under the NDRRA, as well as additional funds that are provided outside those arrangements, through the state budget process;

- Contributions by corporate and private interests, not-for-profit organizations or by foreign governments—including donor matching, that are outside the premier’s Disaster Relief Fund;
- The Disaster Management Act 2003 provides the legal framework for response to disasters.

3.3 Operation Queensland

The state plan: The state plan is the strategic guidance provided to ensure that milestones across all lines of reconstruction are met. It provides the

overarching reconstruction plan, the governance framework and assigns key tasks to state level agencies and stakeholders.

Implementation plans: Implementation plans are produced by the six lines of reconstruction sub-committees. They provide specific details regarding how the achievement of key tasks assigned by the state plan will occur. They direct the reconstruction activities to be undertaken and initiate the development and implementation of projects.

Local plans: Developed by each local community, these plans help the authority to understand the recovery needs and priorities of the community. They will provide a local roadmap to assist the community to reconnect, rebuild and improve.

3.4 Cross-Cutting Planning

The authority has identified that there are a number of inter-relationships between industries, business, the environment and communities that have been adversely affected by the disasters, where the relaxation of these impacts cuts across implementation or local plans. The authority and the DEEDI (Department of Employment, Economic Development and Innovation) will initiate specific planning and actions to resolve these issues. To take this forward, DEEDI and the authority will co-chair reconstruction control groups designed to bring together government, related bodies and other significant participants as required to clarify emerging issues across lines of reconstruction and prepare coordinated decisions and implementation.

3.5 Local Plan Template

The local plan template has quite precise explanations and detailed structure. A local government may be able to make their planning report very easily if they just follow the instructions.

For example, the instruction of the background of a local plan is as follows:

(1) Background:

- inserts map of locality;
- describes the location/nature of the population (socio-economic, culturally and linguistically diverse groups) affected;
- describes any key towns or communities within the local government area;
- summaries the industry or infrastructure in the locality;
- summaries the damage to the community, environment, infrastructure and local economy of the disaster;

Sample contents shown in the instruction are:

(2) Initial response: summaries the actions undertaken during the immediate response;

(3) Current situation: summaries impact assessments that have been conducted and recovery completed/undertaken to date;

(4) Overview of the local plan may include:

- scope;
- intent;
- goals;
- guiding principles;
- key themes and priorities;
- sub-plans;
- risks.

A local government will write their local plan stated above, and be asked to attach a project list as shown in the Table 1.

4. Reconstruction Agency in Japan

Reconstruction Agency was established on February 10, 2012, almost one year after the March 11, 2011, based on the act on establishment of Reconstruction Agency, and headed by the prime minister (Fig. 3). The Great East Japan Earthquake, which took place on March 11, 2011, was indeed an unprecedented national crisis. It was also a compound disaster of earthquakes, tsunami and a nuclear accident and had a broad impact all over the nation.

The agency was expected to lead the nation in the reconstruction process by promoting and coordinating

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Table 1 Local plan template.

Priority	1	2	3	4
Issue or need	Short description of the issue or need that must be addressed			
Project or initiative to address need	Short description of the project or initiative			
	Is the project a repair or betterment activity?			
Support	Who supports the project?			
	What parts of the community and how many?			
Funding secured? Yes/no Estimated cost	Has funding been secured? Yes/no			
	If yes, what source? Estimated cost			
Who will implement the project	Who will be responsible for implementing the project			
Accessed benefits	Community	Who and how many will it benefit? What are the community benefits?		
	Economy	What are the economic benefits? How many will it help?		
	Environment	What are the environmental benefits?		
Supporting information	Other supporting information including the address/location of the project, assistance needed, work already commenced, estimated start and end dates, involved stakeholders, involved recovery subcommittees			

Source: Queensland Reconstruction Authority, Operation Queensland—local plan (website attachment with the name of Annex A—local template for councils [3]).

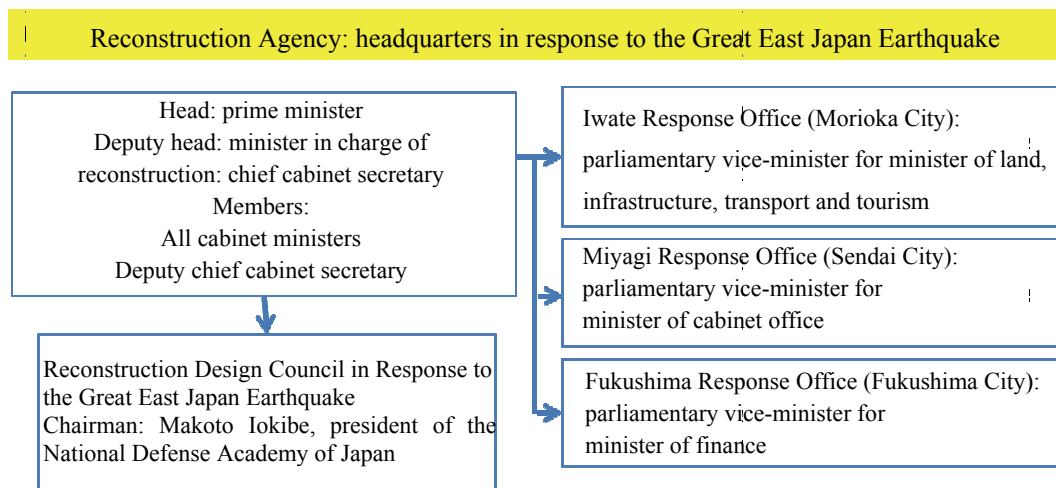


Fig. 3 Reconstruction Agency of Japan [4].

the policies and measures of the government as well as supporting reconstruction projects to be implemented by the local municipalities.

The agency, however, is too small to handle these activities. The agency has quite limited staff members who were picked up from related ministries of central government. Miyagi response office, for example, has only 24 staff members. They cannot do anything but to check budget request documents of reconstruction plan from municipalities. Local municipalities do not have enough staff, enough knowledge and experience to make a reconstruction plan. They totally relied on a

university person and/or a voluntary architect. They do not have any guideline and/or template like Queensland.

Ministry of Land, Infrastructure, and Transportation has 2,000 expert engineers and planners in their Tohoku branch in Sendai where is the center of disaster area. However, no governmental experts in the above organization helped a local government because acts and the guide for reconstruction work have limited the area of their activities in order to protect autonomy of a local government. Roles of prefectures have also been very limited. The second article of the guideline is as

follows: “The prefectures shall implement necessary measures targeting wide area and play a role of liaison and coordination among the municipalities as well as of supplement to municipalities’ administrative functions, when needed, upon capabilities of relevant municipalities in the disaster affected areas” [5]. It means that a prefecture does not need to help the municipalities under their governmental area. It was apparently wrong decision. Many disorganized plans were submitted that ignored the effects, benefits and the cost of project, even feasibility of the projects.

5. Current Situation of Reconstruction Works in Both Countries

5.1 Queensland

The reconstruction works of Queensland are shown as follows:

(1) State-wide pipeline of works:

The state-wide reconciliation indicates that:

- \$951 million of works is in “works under assessment”;
 - \$3.5 billion of works is in “works in market”;
 - \$6.1 billion of works is in “works in progress or delivered”.
- It means that more than 90% of works have been finished or are going to be finish;

(2) Progress of lines of reconstruction:

Status of progress to complete on for all key tasks activated as a result of the 2010~2011 and 2011~2012 events for the six lines of reconstruction are demonstrated in Fig. 4. It shows the disaster events in year 2010~2011 and 2011~2012. Regarding the events in year 2010~2011, almost all key tasks have been finished or are going to be finish. The slowest recovery can be seen in environment line. However, it even shows 86% of completion rate;

(3) Road and railway:

Department of TMR (Transport and Main Roads) recovered 8,482 km of main road out of affected 9,170 km. And 4,596 km of railway has been recovered out of 4,748 km in one year;

(4) Ports:

11 ports were affected. All ports were recovered by December 2011;

(5) Private houses:

Small numbers of houses were washed out. Some 28,000 houses were submerged;

(5) Insurance:

Because insurance includes various kinds of claims, it is very difficult to identify the personal houses related. According to various reports, however, about 60% of disaster insurance was private property related. In a report in April 2012, a total of 131,935 insurance claimed had been made as a result of the floods and cyclone Yasi. The updated total estimated reserved value was \$3.78 billion. On March 28, 2012, an estimated \$2.81 billion had been paid.

5.2 Japan

The reconstruction works of Japan are shown below:

(1) Debris:

Total amount of debris produced by disaster was 27.58 million tons, 27% or 7.45 tons has treated and remaining by November 2012;

(2) Coast embankment:

471 coastal embankments were damaged. 26% or 121 sites have started recovery works;

(3) National highway:

1,126.6 km of national highway was damaged. 97% or 1,161 km of highway have already reconstructed by July 2012. Some 862 km of new highway for reconstruction of disaster region has planned. 56% or 553 km of highway has completed or under construction by mid November 2012;

(4) Railway:

2,309.8 km of railway was damaged. 89% or 2,046.6 km have already reopened by July 2012;

(5) Ports:

101 important port facilities were damaged. 78% or 79 facilities have started recovery works by August 2012;

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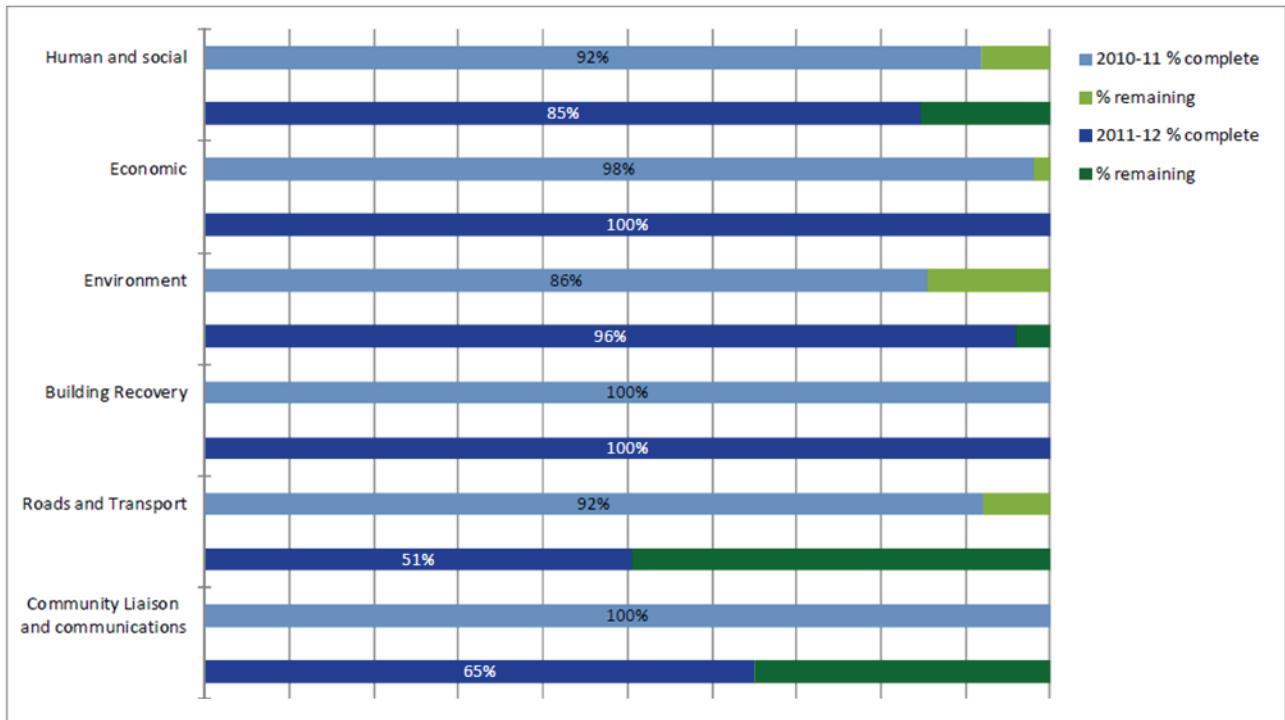


Fig. 4 Status of progress to complete on for all key tasks activated for the six lines of reconstruction.

Source: Queensland Reconstruction Authority, monthly report [6].

(6) Private houses:

397,390 private houses were completely destroyed or non-livable, and another 731,680 houses were partially destroyed. Some 21,000 houses have planned to construct by local government. 27% or 5,651 houses have started construction works by November 2012. 253 residential sites have newly planned to develop. Only 3% or seven sites have started to develop.

6. Conclusions

First, the head of reconstruction organization—Reconstruction Authority, in Japan, is the prime minister—Noda Y., while the chair of Queensland Reconstruction Authority is the major general of QLD—Mick Slater. An organization must be near-by the disaster area which can easily understand the situation of the area and be well understood by the people in the affected area.

Second, the Queensland Reconstruction Authority drives forward reconstruction plans and the

implementation of the six lines of reconstruction, while Japanese Government asks municipalities to plan and implement reconstruction works, and the authority only takes a role of valuation and adjustment of projects. The six lines of reconstruction are fully supported by each related department of the state government, then adjustment of projects and allocation of budgets seems to be very smooth.

Third, the Department of Local Government and Planning will support local governments to prepare and implement local plans. However, Japan does not have such a system. The authority is working with regionally based informal planning assistance teams established to provide assistance to local governments for the development of their local plan. This assistance team is just the same as a system in Japan. However, the local plan of QLD stated that these teams are composed of regional staff from the DLGP (Department of Local Government and Planning), DoC (Department of Communities), DEEDI (Department of Employment, Economic Development and Innovation) and DERM

(Department of Environment and Resource Management). This point is quite different from Japan.

The basic guidelines for reconstruction of Japan stated below: In principle, the main administrative actors accountable for reconstruction shall be municipalities, as the municipalities are closest to local residents and best understand characteristics of the regions. It means that the upper organization such as a prefecture and branches of the central government cannot officially help the municipalities' work (the central government worries about an excess guidance to force policies of the upper organization). Municipalities, therefore, have to do everything by themselves. There is no direct help from other organization as well as prefectures' government. A municipality often visits the local branch of central government such as the Tohoku Regional Bureau of MLIT (Ministry of Land, Infrastructure, Transport and Tourism) and consults some related projects with them. It is very inefficient manner.

Fourth, cross-cutting planning stated the above. The DEEDI and the authority will co-chair reconstruction control groups to clarify emerging issues across lines of reconstruction and prepare coordinated decisions and implementation. There is no such an adjustment or coordination system among adversely affected reconstruction projects.

Fifth, the state plan stated that the authority will finish their reconstruction works by 2013 and the remaining tasks will be transferred to normal government business. The resident believed the ordinal staffs of QLD Government will take over everything after the operation end. The reconstruction agency in Japan does not have such a regulation, then, no one knows who will be in charge of after projects.

Sixth, the biggest difference can be observed in the instructions to formulate various reconstruction projects by local government. The QLD authority prepared a set of instruction of project formulation including a very precise template. The table of contents seems to be brief and complete, easily accessed, clear

and able to be revised if necessary. The guidelines for reconstruction of Japan and other related documents do not have any such a guide at all. The local plans of municipalities are completely different one by one even in style of document. The plans do not mention about priority of a project, effects/benefits of a project and rationality of the budget.

Postscript

It is very obvious the organization and system of reconstruction from the disaster in QLD is much better than those of Japan. It does not mean Japanese is inferior to Australian in this aspect. The reasons behind were pointed out as follows:

Different administration system: Australia has six states and two major mainland territories. A state has the power to have own laws, has enough staffs with their specialties. The prefectures in Japan are deeply depended on the central government who do not have enough staffs to build the plans, to design facilities and to implement the reconstruction projects.

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We have got most of information in this paper through the internet. The Queensland Reconstruction Authority, in particular, provides very precise and detailed information on their web pages which includes more than 1,000 pages of documents, figures, and tables. We still had many questions and wanted to get additional information about it. The authors made a trip to Brisbane and Cairns in Queensland, and talked with the officers in concern. They were very friendly and gave us further information and documents. They are as follows:

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