

Actions and Supports Needed for University during Recovery & Reconstruction of Mega-Disaster, such as 2004 Indian Ocean Tsunami

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Abstract

This paper discusses the role of university as a higher educational institute during/after mega-disasters such as the 2004 Indian Ocean Tsunami and the 1995 Great Hanshin-Awaji Earthquake. Syiah Kuala University is located in Banda Aceh where about 10,000 people lost their lives during the 2004 Tsunami, and Kobe University is located in Kobe where about 6,000 death and 100 billion US\$ direct economical damage have been resulted. Such scale of human losses and economical damages have a severe impact on the society, and reconstruction of the society affected by such mega-disasters take places over a very long time period, easily over one decade. The university can play a significant role in reconstructing the society because it can function as an academic & outreaching institution over such long-term process of reconstruction where continuous and never ending monitoring, archiving and evaluations on societal developments are necessary. In the case of reconstructions at Aceh from the 2004 Indian Ocean Tsunami, the international helps dominated the financial support for reconstructing the society and this situation affected very much the way in which the university was given the support. The role of university in reconstructing the society from mega-disaster should be the same irrespective of the disasters in developing or developed countries, and the action of and support for the university should be recognized and established with due considerations on the long-term reconstruction and rehabilitation process from mega-disasters.

Keywords : reconstruction, rehabilitation and mega-disasters.

Introduction

On December 26th 2004, vast coastal areas in countries, such as Indonesia, Thailand, Sri Lanka and India, surrounding the Indian Ocean were hit by a huge tsunami and the casualty in Aceh Province of Indonesia rose to over 220,000. The capital of Aceh province is Banda Aceh city, and nearly 100,000 lives in the city have been lost. Syiah Kuala University in Banda Aceh which is the leading institution of higher education in Aceh was heavily damaged also by losing more than 150 staffs due to tsunami.

This year of 2014 marks the 10th commemoration from the 2004 Indian Ocean Tsunami Disaster, but in many countries hit by this Mega-disaster the affected residents and societies have not fully built back better themselves to their expectations and they are still in a state of reconstructions. The reconstruction situation in Aceh is very special because the society before the 2004 Tsunami was in the midst of internal conflict that has lasted nearly thirty years. Because of this conflict war between Aceh and central government of Indonesia, there was almost no locally governing institutions properly functioning at the time of the 2004 Tsunami Disaster, and huge helping hands from international community and also from central government of Indonesia were poured into the region to start the rescue and recovery operations. After the 2004 Tsunami Disaster, the recovery and reconstruction of Banda Aceh have been progressing through collaborations among

a large number of stakeholders. As noted above, the social situations at Banda Aceh have changed dramatically from before to after, and furthermore new players such as international funding agencies and NGOs joined into the stakeholders. It is also to be noted that the reconstruction process from a Mega-disaster takes place over a very long period, well over a decade or more, because of extensiveness and complications created by Mega-disaster. The experience through the 1995 Great Hanshin-Awaji Earthquake of Kobe, Japan has demonstrated such examples. Thus the reconstruction at Banda Aceh is taking place through collaborations of international/central/local stakeholders over a very long time period during which the roles of stakeholders and even their existence are constantly changing.

In this paper, the writers aim to examine and identify the role of University in a society stricken by a Mega-disaster, and also to discuss the roles of international & external supports for the recovering and reconstruction process from a Mega-disaster.

The Role of University During/After The Mega-disaster Kobe University and the 1995 Kobe Earthquake

Discussion on the role of university during/after mega-disaster is firstly to be made by reviewing what Kobe University has experienced when the Great Hanshin-Awaji Earthquake, so called Kobe Earthquake, has hit Kobe City in January 17th 1995. This disaster has resulted human losses of more than 6,400 and direct economic loss of 100 billion US\$. Kobe University is centrally located in the epicenter of heavily damaged area, and is a leading institution of higher education with nearly 17,000 students, 1,500 teaching staff, and having more than ten comprehensive faculties and of a national public university. More than 40 students were killed by the earthquake, and the physical damages of university facilities amounted to over 100 million US\$. Because of being a national public university, the cost for recovering those physical losses has been fully supported by the ministry of education and also there were several academic schemes of supporting the recovery & reconstruction of university activities. Notable example of such supports were 1) a 3 year research grant about 0.7 million US\$ to the university for studying the effect of the disaster to society, and 2) an establishment of a new research center, RCUSS (Research Center for Urban Safety and Security), that allowed hiring of additional permanent academic staff.

Immediately after the earthquake, the university campus became a temporary refugee place for neighboring residents and one of campus has been used for this nearly 6 months. Emergency response of the university was to check the safety of all students and university staff, and also to plan for restarting its function as a higher education. Additionally, academic staff have served for the society at his/her own capacity to support the disaster affected society, for example, by setting up an emergency medical treatment center at medical school, and by helping many overseas students who cannot get & comprehend available public supports, and by conducting damage survey of housing and infrastructures and reporting its results to the public. As the recovery progresses, many of academic staff were involved in consulting with the local governments to help creating the reconstruction plans through their expertise. Also a number of staffs and students are involved in volunteer works to help residents as many volunteers, nearly 1.5 million volunteers equivalent to the population of Kobe City, have gathered from all over Japan to help the disaster affected residents. This Kobe Earthquake is said to be a starting year of volunteerism in Japan.

Role of University during Long Term Reconstruction

The importance of university to support the disaster affected society for recovery & reconstruction is however not limited only during initial few years after the disaster, but more importantly its role to sustain the reconstruction and to build better plans for reconstruction and future in a very long term becomes a major and unique task of university. The university located in any region or city never moves out from the place it was founded, and its function to serve the society where the university is located is the fundamental importance for recovery & reconstruction from a mega-disaster. Another example of major functional differences between university and local government is the duration of staffs in each organization working for a specific task or subject in his/her work. In local government offices, the staffs are usually mandatorily rotated to other sections or departments in every 3 years or so to avoid collusions, while the university academic staffs are assigned to specific field of research and activity for his/her entire career. It is utmost importance to recognize that the reconstructions from a mega-disaster does require a very long and continuous attention to the societal changes over a time span of well over 10 years, and therefore local government staffs can only take part in a short-segment of long reconstruction management process.

This recognition of a very long time span well over 10 years required for the reconstruction from mega-disasters is therefore essential to define the role of university with respect to functions and outcomes that the university should provide towards a goal of building back better. University staffs serve usually 20 to

40 years for the same institution unless the individual seeks his/her promotion by being transferred to other institution. Therefore, a continuous monitoring and gathering data of mega-disaster affected society is possible over a 10 year period of reconstruction. Over such a long period, the society constantly changes politically and economically and also peoples' thinking and memories over the mega-disaster changes. The meaning of reconstruction would change from physical & economical betterments to more psychological comforts and satisfactions over such a long reconstruction process. In Kobe, a museum to commemorate the Great Hanshin–Awaji Earthquake was built and its main function is to pass the experience of the 1995 Kobe Earthquake to the next generation. At Kobe University, a library to archive all relevant data and articles with respect to the disaster recovery and reconstruction was setup. By having a good archive of all items & publications over a long period of such, academic research studies in terms of sociological and technological studies of a mega-disaster become possible. Also based on such archives, academic staffs at university can conduct trainings or seminars on the lessons learnt from the megadisaster. At Kobe University, a two-month training on urban disaster has been conducted for the overseas participants over 8 years from 2004 to 2011 in collaboration with JICA (Japanese International Cooperation Agency), and in total over 100 overseas participants have joined the training. It was emphasized in the training that DRR (Disaster Risk Reduction) for such mega-disaster requires a concerted effort among multi-disciplinary stakeholders and the overseas participants who are specialists in their fields of expertise have realized the importance of holistic & proactive approach for DRR.

The collaboration between or among the mega-disaster affected regions is also very important, and the role of university is unique and vital in bridging those disaster affected societies. When Banda Aceh was hit by the 2004 Sumatra Tsunami, a reconnaissance team from Kobe University visited Banda Aceh in March 2005 and then the collaboration between Syiah Kuala and Kobe Universities has started. In 2006, Syiah Kuala University has established TDMRC (Tsunami Disaster Mitigation Research Center) by its own initiative & fund to carry out an integrated study of such mega-disaster. Kobe University has collaborated with UNSYIAH in supporting the center and in organizing an annual international conference of AIWEST–DR (Annual International Workshop & Expo on Sumatra Tsunami and Disaster Reduction). Such collaboration was possible by understanding, mutually by both universities and academic staffs, the long term effects of mega-disaster to society and also the role of university in reconstruction. Such initiatives by UNSYIAH has attracted attention from outside organizations, such as BRR (Rehabilitation and Reconstruction Agency), and UNDP as implementing agency from Multi Donor Fund (MDF), and TDMRC was given a fund to conduct studies on DRR as will be described later.

In March 2011 when the Great East Japan Earthquake and Tsunami has stricken Tohoku region of Japan, Kobe University immediately sent an emergency support to Tohoku University which is a leading national

university in that region. As Kobe University had been supported by the Ministry of Science and Education after the 1995 Kobe Earthquake, the Ministry has granted Tohoku University to establish a large scale research centre, IRIDeS (International Research Institute of Disaster Science). The total number of research staff at this institution is more than one hundred including those holding concurrent position with their own faculties. The role that has been taken by university during and after the megadisaster and in the society affected is very similar when we compare the cases in Japan and Indonesia.

However, there are large differences among the supports given to those universities because the socioeconomic situations have been different during the time of and in the society where the disasters have stricken, as discussed below.

Outline of Recovery & Reconstruction Budgets

We first compare the impacts of the 1995 Kobe Earthquake and the 2004 Sumatra Tsunami to the national economies of Japan and Indonesia, and then examine next on how the overall supports for reconstruction were made in each country. The direct economical loss due to the Kobe Earthquake is estimated to be about 100 billion US\$ while the actual loss due to the 2004 Tsunami in Indonesia is estimated to be about 4.5 billion US\$. Based on these figures, the percentages of disaster loss against the GDP at each country are 2.3% and 1.9% for Japan and Indonesia respectively, and the economical impacts of two mega-disasters to each country were nearly the same. Figure 1 illustrates the historical changes of the GDPs at two countries, and in terms of economical damages in comparison with the GDPs are nearly the same. However, the GDP per capita is quite different for two countries and they are US\$ 32,400 and 1,200 for Japan and Indonesia respectively. Furthermore, the casualties in Kobe and Banda Aceh were vastly different.

Because the 2004 Indian Ocean Tsunami was a huge global mega-tsunami disaster in developing countries and also Aceh suffered a very large number of casualties, many developed countries including Japan have responded to support the recovery and reconstruction in Aceh, Indonesia. In Figure 2, the total cost of recovery & reconstruction including that of Nias disaster, that occurred few months after the Indian

OceanTsunami, is shown in comparison with the allocated or committed funding supports from IndonesianGovernment, International Institutions & Countries, and NGOs. The total cost of recovery & reconstruction is well over 7 billion US\$, and more than 5 billion US\$ was allocated/committed byinternational donors and NGOs. Therefore, the supports from international organizations comprise morethan 70% of reconstruction cost. The huge financial supports from foreign organizations in Aceh haveaffected the reconstruction process in a very complex manner, especially for supporting the university'sreconstruction activities as will be described later.

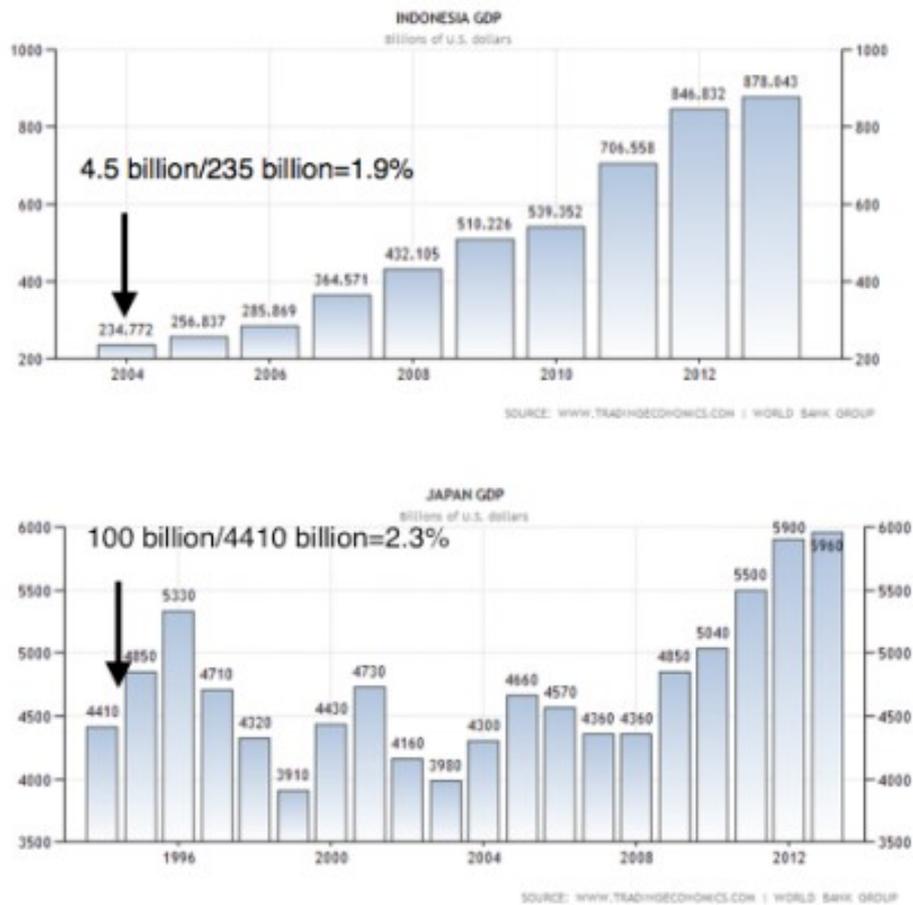


Figure 1 Comparison of Economical Damages to GDPs of Indonesia and Japan.



Figure 2. Reconstruction Budget and Supporting Organizations (Masyrafah, H. and McKeon, J. 2008)

It may be also noted here that the financial contributions of not only central government but also of local governments played a huge role for the reconstruction from the Kobe Earthquake disaster. In this case, the contributions from central and local governments are about 50% and 40% respectively, out of total expenditure of 163 billion US\$. In contrast to this, in Aceh there were no properly functioning local governments due to the prolonged conflict war, and therefore no financial contribution from local

governments on reconstruction budget could be mobilized. To act as an interim local government and also to implement the financial aids from Indonesian Government and International Institutions, BRR (Rehabilitation and Reconstruction Agency) was established in Aceh for the recovery and reconstruction of Aceh and Nias earthquake disasters. Thus the post disaster management of Aceh was performed by involving a complex chain of stakeholders, such as local residents who are represented by leaders of various backgrounds, representatives of international NGOs and institutions, and BRR staffs who are mostly sent from the various offices of central government in Jakarta. Recovery and reconstruction plans have to be built and implemented through such a mixture of different stakeholders, and it would be easily understood that how difficult to utilize the available funds for effective reconstructions by satisfying the local needs.

Table 1 List of MDF Donors (based on MDF Final Report 2012)

MDF Donors	Contribution (million, US\$)
European Union	271.30
Government of the Netherlands	146.20
Government of United Kingdom	68.50
World Bank	25.00
Government of Sweden	20.72
Government of Canada	20.22
Government of Norway	19.57
Government of Denmark	18.03
Government of Germany	13.39
Government of Belgium	11.05
Government of Finland	10.13
Asian Development Bank	10.00
Government of United State	10.00
Government of New Zealand	8.80
Government of Ireland	1.20
Total Contribution	654.66

Multi Donor Fund (MDF) Support for Recovery & Reconstruction

Among the many international supports provided to Indonesia, the MDF played the most significant role to support the university's role in reconstructing Aceh by allocating TDMRC a large sum of money. The function of MDF was unique as compared with other international supports because 1) the total sum of fund, more than 650 billion US\$ committed, was the largest, nearly 10% of entire reconstruction cost for Indonesia, and 2) the duration of support, ending its financing in 2011, was very long, enough to cover various stages of reconstruction. MDF, which consisted of 15 countries & organizations mostly of Europeans, has celebrated its completion of its task in 31 December 2012. Table 1 shows the amounts of contributions by the countries and organizations that formed MDF. It may be noted that the countries participated or not participated in MDF have also made significant contributions. For example, USA and Germany as a member of MDF have also contributed separately large sums to Indonesia through their international agencies, while UK, Japan, and Australia have contributed similarly large sums without participating to MDF. The exact amounts of funds given by international countries and organizations are not listed here because the tracking of these is said to be very difficult & inaccurate according to the World Bank report, which states that "In Aceh and Nias, the DAD (Development Assistance Database) system has run into a multitude of problems and has rarely been able to deliver credible data and analysis".

According to MDF report, the fund implemented reconstruction activities by carrying out twenty-three projects under the following six different categories of programs;

Table 2. Reconstruction Projects Completed Under MDF (based on MDF Final Report 2012)

Category	Number of Projects	Amount used (US\$ million)
1. Recovery of Communities	5	208.2
2. Recovery of Large Infrastructure and Transport	7	207.5
3. Sustaining the Environment	2	56.9
4. Strengthening Governance and Capacity Building	3	45.5
5. Enhancing the Recovery Process	4	56.2
6. Economic Development and Livelihoods	2	58.2
Total	23	632.5

It may be noted that the most of implementing project are of physical recoveries and reconstructions, such as roads and housings, and the fund used for non-physical items are those two programs, 5&6, listed in the last. The support for university was included in the 5 th program “Enhancing the Recovery Process” and the project name was “Making Aceh Safer Through Disaster Risk Reduction in Development (DRR-A)” as shown in the second of the list below with its details.

As can be seen from the list above, the three out of four projects with budgets nearly 80% of the program are of an indirect assistance for DRR. The direct support for building DRR in Aceh was nearly 10 million US\$ (about 1.6% of MDF 632 million US\$) to be spent over 3.5 years. The planning of how to use this DRR support fund was made public in 2008 (Report “Project Appraisal Document” by Provincial Government of NAD, BRR, and UNDP) by listing five expected outputs for the organizations including TDMRC, Aceh provincial government, and communities. A budget of 4.5 million US\$ for TDMRC was allocated, but there were specifications on the use of fund, such as hiring outside consultants and contractual service companies, besides the fund that can be used to enhance the DRR activities of TDMRC. The breakdown of 4.5 million US\$ budget is shown in the following list according the announced specifications.

Table 3. Budget Details of MDF Program No.5 (Enhancing the Recovery Process)

Enhancing the Recovery Process (Total US\$ 56.2 million)		
Technical Assistance (TA) to BRR and Bappenas		
1	Grant Amount	US\$24.78 million
2	Implementation	Period July 2005–December 2012
3	Partner Agency	United Nations Development Programme
4	Implementing Agency	BRR (to April 2009), Bappenas (since April 2009)
Making Aceh Safer Through Disaster Risk Reduction in Development (DRR-A)		
1	Grant Amount	US\$9.87 million
2	Implementation Period	November 2008–May 2012
3	Partner Agency	United Nations Development Programme
4	Implementing Agency	Ministry of Home Affairs and Provincial Government of Aceh
Aceh Government Transformation Programme (AGTP)		
1	Grant Amount	US\$16.98 million
2	Implementation Period	July 2008-June 2012
3	Partner Agency	United Nations Development Programme
4	Implementing Agency	Ministry of Home Affairs and Provincial Government of Aceh
Nias Island Transformation Programme (NITP)		
1	Grant Amount	US\$4.59 million
2	Implementation Period	April 2009-June 2012
3	Partner Agency	United Nations Development Programme
4	Implementing Agency	Ministry of Home Affairs, Provincial Government of North Sumatra and District Governments in Nias

It is clear that the indirect cost for managing the DRR fund (i.e., consultants and contractual service) amounted nearly 67% of total budget and the direct support for TDMRC to achieve DRR output was about only 1.5 million US\$ (about 0.2% of MDF 632 million US\$) over 3.5 years. TDMRC was conducting its DRR activities by employing 20 to 30 researchers over this period of 3.5 year. By examining the detail plans for the DRR-A budget, about 10 million US\$, the total indirect cost such as consultants and contractual service was 55% of the DRR-A project. Such high proportion of indirect cost was necessary probably due to extremely severe international demands for the accountability and the transparency on the use of fund in Indonesia.

As discussed earlier about the role of university in recovery & reconstruction from mega-disaster, its role as a higher education to sustain the reconstruction and to build better plans for reconstruction and future is vital. This role becomes more important after say 10 years when the mega-disaster affected area starts to build a culture of DRR. Presently, the financial support for TDMRC and UNSYIAH for conducting DRR activities is very limited after the MDF completed, and even to maintain its DRR related facilities is severely

restrained. The support given from MDF to TDMRC of UNSYIAH was limited to 3.5 years, and other experiences in Japan at universities in areas of mega-disasters indicate that long-term supports had great values for such situations.

Table 4 Budget Details of MDF Support for TDMRC Activities

	Local Consultants	Travel	Contractual Services-Companies	Grants	Communications and audio visual equipments	ALD Employment cost	Miscellaneous Expenses	Total
3.1	110,000	65,000	75,000	675,275			15,000	940,275
3.2	75,000	45,000	835,000	150,000	30,000		15,000	1,150,000
3.3	65,000	50,000	1,670,000				15,000	1,800,000
3.4	55,000	30,000	30,000				12,000	127,000
3.5	35,000	25,000	80,700	75,000		284,420	15,564	515,684
Sum	340,000	215,000	2,690,700	900,275	30,000	284,420	72,564	4,532,959
	7.50%	4.74%	59.36%	19.86%	0.66%	6.27%	1.60%	

The pie chart illustrates the distribution of the total budget of 4,532,959. The segments are: Contractual service companies (59.36%, green), Grants (19.86%, purple), Employment (6.27%, blue), Local consultants (7.50%, orange), Travel (4.74%, red), and Miscellaneous expenses (1.60%, light green). A legend on the right indicates the colors for categories 1 through 5, which correspond to the categories in the table above.

A study conducted by ADB (Asia Development Bank) after the completion of Indian Ocean Tsunami supports concludes, among a number of findings, that “much greater priority needs to be given to predisaster programs in developing countries in Asia”. Such pre-disaster programs are only possible by creating and sustaining local cultures of DRR at the disaster affected areas over a long-term plan. Again the role of university in this aspect should be carefully considered.

Concluding Remarks

In this paper, the role of university in a mega-disaster affected area was analyzed by evaluating the casehistories in Banda Aceh of the 2004 Indian Ocean Tsunami and Kobe of the 1995 Kobe Earthquake. It is clear that the situations in which the universities are placed during/after the mega-disaster are vastly different between developed country and developing country. However, the function that the university has to provide to the local society should be the same, and therefore the action of and support for the university needs to have a common framework.

Examining of the case in Aceh, Indonesia shows that the international aids & supports dominated the recovery and reconstruction activities in this region. The fund management of such international supports was conducted by applying a very severe rule on accountability and transparency that has reduced the amount of fund to be directly used for DRR activities.

Building the DRR capacity of the society and community in disaster prone area is vital for fast and better recovery & reconstruction from a mega-disaster, and the role of university in developing such capacity in the society and community should be carefully considered. Since the reconstruction process from megadisaster is a very long-term task, the action of and support for the university should be recognized and established with due considerations on the same long-term activities.

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