Similar Events, Different Disasters: A Comparative Assessment of the Aftermath of the 2004 Indian Ocean and the 2011 Japan Tsunamis

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In this paper, we discuss the relevance of the “lessons learned” from the post-tsunami reconstruction efforts in Aceh, Indonesia for Japan following the 2011 tsunami using a comparative framework. This will be done through an analysis of the following: a) differences in the impact of the disasters; b) differences in the pre-disaster context of each country (i.e. preparedness, resilience, vulnerabilities, social and economic contexts); and c) differences in the frameworks through which responses were planned, funded and carried out. This work draws upon extensive field experience in areas affected by the Indian Ocean tsunami – especially Aceh, Indonesia, as well as documentary review of the relief and reconstruction efforts in both Aceh and Japan.

Keywords: Tsunami, Aceh, Japan, Reconstruction, Governance, Finance.

1. Introduction

Dramatic real-time images of the 11 March 2011 tsunami in Japan brought immediate comparisons to the 2004 Indian Ocean tsunami, which left more than 200,000 people dead, mainly in Indonesia, India, Thailand, and Sri Lanka. In both situations, massive undersea earthquakes triggered tsunamis that topped 20 meters in height, devastated large areas and resulted in major human loss. It was only natural in the days after 11 March 2011 that the 2004 tsunami would be a prominent reference point for what to anticipate and how to respond. As we approach the first anniversary of the 2011 earthquake and tsunami, it is timely to compare the impact of and responses to the 2004 tsunami, focusing upon Aceh, Indonesia, and the
2011 tsunami in Japan. This provides a platform to comment upon the practical differences and similarities that may be of use to those involved in the long-term reconstruction in Japan; i.e. are any of the lessons learned from dealing with the Indian Ocean tsunami relevant for the steps that Japan is currently going through? Secondly, a comparative perspective allows for a detailed assessment to be made of the role that resilience and vulnerability plays in disasters. Finally, these case studies highlight the differences between post-disaster responses that are driven by national priorities (which we are seeing in Japan), versus those driven by the mandates and operational guidelines of international humanitarian NGOs, as was seen in Aceh.

2. The 2004 and 2011 Tsunami – Impacts & Costs

Table 1 sums up the damage caused and the total costs (or anticipated costs) of reconstruction in both Japan and Aceh. The comparison focuses on the affected regions of Japan (Miyagi, Fukushima, Iwate, Ibarake and Chiba prefectures), and the Indonesian province of Aceh.

From a geophysical perspective it can be argued that the 2011 tsunami was at least as powerful as 2004, and had the potential to cause as much or more damage in all categories than the 2004 tsunami. However, while both areas experienced major loss of life, the death toll in Aceh was much higher than in Japan. Aceh suffered significantly more casualties – approximately 10 times more deaths, 5 times more missing people and nearly twice the number of displaced persons. This is despite the affected areas of Japan having more than twice the population in roughly the same land area as Aceh. It is clear that the immediate direct human impact in Aceh was more severe than in Japan – with significantly higher likelihood of death, injury and/or displacement if resident within the impact zone.

Both areas experienced massive damage to infrastructure and the built environment. In the immediate aftermath of the 2004 tsunami almost all structures along coastal Aceh were destroyed. This can be seen in the early photos and satellite images showing entire towns and villages reduced to fields of rubble, with the occasional mosque standing alone amongst the debris. While the 2011 tsunami caused tremendous structural damage, there was a higher survival rate for structures in the contact zone, especially in more urban areas. This was apparent in the initial footage taken by people standing high up on buildings, bridges and overpasses as the tumultuous waters raged down below. It is easy

*The authors have extensive experience working on the post-2004 reconstruction, including both field work on the ground in tsunami affected areas in Indian, Thailand and Indonesia, and comprehensive review of academic literature and NGO documents and evaluations. Our analysis of the Japanese situation is restricted to secondary sources, and has not benefited from active field experience. Additionally, the authors have access to sources in both English and Indonesia, but not Japanese. We would like to acknowledge these limiting factors in the analysis.*
Table 1 Comparison of Damage and Costs of Reconstruction.

<table>
<thead>
<tr>
<th></th>
<th>Japan (Miyagi, Fukushima, Iwate, Ibarake and Chiba)</th>
<th>Aceh</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Area</strong></td>
<td>47,597.83 km$^2$</td>
<td>58,375.83 km$^2$</td>
</tr>
<tr>
<td><strong>Population (Pre-disaster)</strong></td>
<td>14,800,000</td>
<td>4,271,000</td>
</tr>
<tr>
<td><strong>Casualties</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td>15,822</td>
<td>167,799</td>
</tr>
<tr>
<td>Injured</td>
<td>5,942</td>
<td>n/a</td>
</tr>
<tr>
<td>Missing</td>
<td>7,837</td>
<td>37,063</td>
</tr>
<tr>
<td>Displaced</td>
<td>300,000+</td>
<td>500,000+</td>
</tr>
<tr>
<td><strong>Damages (USD billions)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>209.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Homes/Factories</td>
<td>130</td>
<td>1.4</td>
</tr>
<tr>
<td>Rivers, ports, roads</td>
<td>27</td>
<td>0.7</td>
</tr>
<tr>
<td>Farmland and fishing industries</td>
<td>24</td>
<td>0.7</td>
</tr>
<tr>
<td>Infrastructure for Utilities</td>
<td>16</td>
<td>0.5</td>
</tr>
<tr>
<td>Government Facilities</td>
<td>14</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Reconstruction Costs (USD billions)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimates</td>
<td>USD 270 billion*</td>
<td>USD 71</td>
</tr>
</tbody>
</table>

A review of the costs of reconstruction – actual in the case of Aceh, and anticipated in the case of Japan – shows major differences in terms of resources needed to rebuild. It has been estimated that it will cost upwards of 270 billion USD to reconstruct areas damaged by the 2011 tsunami, as compared with approximately 8 billion USD spent on reconstruction in Aceh since early 2005. This reflects the very different levels of economic development in Aceh versus Japan. The built environment in Aceh was significantly less complex than in Japan from engineering and urban planning perspectives – and the basic costs of materials and labor required to rebuild were significantly lower. Japan, on the other hand, is one of the most expensive countries in the world in which to build, given high costs for land, materials and labor, and exacting building codes and regulations (including seismic resistant engineering) that further escalate the cost. This determines the temporality of reconstruction, as rebuilding Aceh was a far simpler project conceptually, and could be carried out rather effectively within five years. If the reconstruction following the Kobe earthquake is considered, it will take the better part of a decade to realize most of the reconstruction goals in

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*The Japanese Cabinet released on 24th June 2011 that their estimate of the cost of damage to be USD 209.8 billion. These estimates do not include damage from nuclear meltdowns triggered after the earthquake.

*So far, the Diet has passed 4 supplementary budgets and the 2012 fiscal budget amounting to USD 270 billion in relief and reconstruction expenses. ([http://www.asahi.com/english/TKY2011062001.html](http://www.asahi.com/english/TKY2011062001.html))
Japan – and this time might be pushed back by the scale of the nuclear disaster, as well as major changes of land use in affected areas. The different damage profiles are important for understanding different trajectories of reconstruction in both Aceh and Japan. However, vulnerability, resilience, and costs are only part of the equation. It is critical to look at the sources of funding, and overall management of both reconstruction projects.

3. Managing Reconstruction

Of critical interest in this paper are the approaches used in both locations to manage the initial response and longer-term reconstruction. There are significant differences affecting reconstruction based upon the underlying social and political systems in both areas, and it is necessary to understand these to look at the relevance of the post-2004 lessons learned. We focus upon the processes through which funding was allocated, decisions made, and policy carried out.

3.1. Rebuilding Aceh

The post-tsunami reconstruction across the Indian Ocean world was a massive undertaking that brought together hundreds of governmental and non-governmental organizations, supported by a mix of both public and private funding. While it played out differently across the region, the response was relatively well funded, with large sums dedicated for relief and reconstruction in Aceh, Indonesia. The response was complicated by the three decade long separatist conflict between parties in Aceh and the Indonesian government. This both reduced capacity within Aceh, and limited the roles that the GoI could effectively play on the ground. This opened the way for foreign organizations to play a strong role in funding, designing and implementing reconstruction projects.

3.1.1. Financing

Funding for post-tsunami reconstruction fell into three main categories. The GoI contributed approximately 31% of the funding. Foreign governments contributed up to 33% of the cost of reconstruction largely through bilateral efforts. A multi-donor trust fund (MDTF) was established with 691 million USD from 12 nations, as well as the European Commission, the World Bank, and the Asian Development Bank, and overseen by the BRR (representing the GoI), the World Bank and the European Commission. The remaining 36% of funding came from private sources, NGOs and INGOs. This category included established organizations

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This is based upon the actual course of events from 2005 in Aceh, and the first six months of planning and discussion in Japan – which is enough time to begin to see how the two reconstruction projects were carried out in fundamentally different ways.
with extensive experience in humanitarian operations, as well as hundreds of smaller organizations with more limited experience. Early in the reconstruction process, the GoI established three main mechanisms through which international aid would be dispersed in Aceh and Nias, summarized in Table 2.

3.1.2. Organization, Coordination & Management

Within a month of the tsunami, BAPPENAS, the Indonesian organization responsible for post-disaster response, drafted a Master Plan for the reconstruction. This was influenced by a number of international organizations such as the World Bank and UN, and came after the Consultative Group on Indonesia (CGI) meetings in Jakarta to evaluate needs and priorities for the reconstruction. In April 2005, the Indonesian President Susilo Bambang Yudhoyono (SBY) established the *Badan Rehabilitasi dan Rekonstruksi di Aceh dan Nias* (BRR) to coordinate the reconstruction efforts. The BRR was a semi-autonomous ministerial level organization that answered directly to the President of Indonesia, removing decision-making from the normal mechanisms of the GoI. This reduced complex layers of government bureaucracy, allowed for flexibility regarding funding allocation and disbursement, and created room for decisions to be made closer to the situation on ground.

Table 2: International aid flow.

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Description</th>
<th>Funding amounts</th>
<th>Level of control by GoI</th>
</tr>
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<tbody>
<tr>
<td>On Budget/On Treasury</td>
<td>Funding allocated directly to the GoI and dispersed as part of Indonesia budgetary procedures.</td>
<td>2.1 bil USD from GoI, and .9 bil USD from bilateral donors like the MDF, WB, ADB, IDB, etc.</td>
<td>Considerable. All funding went through established GoI infrastructure, and managed as part of the federal budget. Some funding was limited under agreements through debt relief programs.</td>
</tr>
<tr>
<td>On Budget/Off Treasury</td>
<td>Funding from bilateral donors to the GoI, usually earmarked for sector specific work, and implemented by donors’ organizations</td>
<td>.32 bil USD</td>
<td>Moderate. Funding went through the GoI budget, but went to implementers determined by the donors. The GoI budget served as a conduit for the funding, but retained little direct control over how it was used.</td>
</tr>
<tr>
<td>Off Budget/Off Treasury</td>
<td>Mainly funding from private sources and NGOs that were never part of the GoI budget or treasury process</td>
<td>3.38 bil USD</td>
<td>Very Limited. NGOs and donors were able to sidestep any involvement with the GoI budgetary process and treasury, and effectively from any form of GoI control, aside from the oversight of the BRR.</td>
</tr>
</tbody>
</table>
Additionally, this greatly reduced the potential for funds to be misdirected or otherwise abused, as it had to pass through fewer channels. However, it meant that much of the funding used in the reconstruction was not managed through usual GoI budgetary process, which reduced the full involvement of elected Indonesian politicians at all levels of government.

The BRR was originally conceived as a coordinating organization, but their mandate extended to implementation by 2006, when they assumed responsibility for spending the funding allocated by the GoI. This began a complicated set of relationships between the BRR, other GoI institutions, local and international NGOs, private and public donors, foreign governments, and beneficiaries. In their capacity as overseers, the BRR was charged with ensuring that all funding – regardless of origin – was put to good use, in a way that conformed to the GoI Master Plan, and reflected the principals of good aid governance. A major part of this was providing accountability to donors. Given the sheer amounts of funding coming into Aceh, and the wide range of organizations wanting to participate within the reconstruction, a second major role of the BRR was to coordinate the entire reconstruction effort. Central to this was making sure that aid was relatively well distributed in terms of sector and location, using funds to address real needs, reducing overlaps and redundancies in projects, and providing a level of quality control over NGOs. All in, it is estimated that more than 12,500 individual reconstruction projects were carried out in Aceh between 2005 – 2010. However, for the most part, planning, implementing and monitoring projects were left to individual aid organizations.

3.2. Summary of the Aceh Reconstruction

The vast amounts of outside funding, and the strong roles that members of the international community played in rebuilding Aceh made it a distinctly international humanitarian operation. The end result was that some of the key underlying principles guiding the reconstruction efforts were based upon the mandates, approaches and standards of members of the international humanitarian community, rather than being directed by Indonesian national concerns. A review of the GoI Master Plan, as well as BRR plans and evaluations, emphasizes the influences of the international community in framing the overall response. The only explicit statement of national interest in terms of policy found within the Master Plan is the point that stresses the territorial integrity.

*This was an implicit recognition of the importance of international funding, and also of Jakarta’s strained relationship with Aceh. The international community was concerned about transferring large amounts of funding given Indonesia’s reputation for lack of accountability and corruption, and so transparency and other anti-corruption measures were put into place as part of the BRR to assure international donors that their funding would be well used to assist beneficiaries. In particular, SBY handpicked Kuntoro Mangkusubroto to run the BRR because of his extensive experience working with major international institutions and companies, and his personal reputation for integrity.*
of the Republic of Indonesia; all parties had to recognize that Aceh was a part of Indonesia. In summary, the response to the 2004 tsunami in Aceh can be summarized as:

- Largely funded by sources from outside of Indonesia;
- The product of hundreds of international organizations operating with significant autonomy;
- Heavily shaped from the onset by major INGOs such as the World Bank, UN, Asian Development Bank, etc.;
- Almost none of the decisions made in the reconstruction of Aceh were subject to normal national level GoI administrative processes and oversight.

3.2.1. Lessons Learned from the 2004 Tsunami Response

We reviewed numerous post-tsunami evaluation reports and academic articles to look at the ‘lessons learned’ by NGOs and others organizations during the five years re-building Aceh. In this section, we summarize the key findings shared by the main evaluations, and contextualize them to examine their applicability to the on-going reconstruction in Japan. The main findings fall within four categories:

**The Need for Flexibility with Regards to Funding and Management**

The importance of flexible funding processes was commonly pointed out in post-tsunami evaluations, as needs in the aftermath of the tsunami did not fit neatly within established management systems and budgetary structures. Rigid procedures for dispersing funding, and fixed line items in national and regional annual budgets made it difficult to respond to unforeseen problems that evolved during the course of the reconstruction. It was noted that highly centralized systems for decision-making and budget allocation were removed from actors on the ground, whom often had much more intimate and immediate information. This left aid workers and beneficiaries frustrated by their inability to address pressing needs because of structural issues. It has been suggested that funding would have been more efficiently and effectively administered using more flexible budgetary systems. Additionally, post-disaster situations need to be viewed with a long-term perspective. A common critique was the pressure to spend resources rapidly. There was an over-emphasis upon spending funding either within certain sectors, or on a particular time frame – irrespective of real need.

**The Need for Accountability to both Beneficiaries and Donors**

The second main critique was the need for heightened accountability. In Aceh, there were far less problems with corruption and misuse of aid monies than initially anticipated. In large part this was the result of measures put in place during the initial phases of the reconstruction to limit opportunities and incentives
A key part of accountability is the free and open flow of information in both directions between beneficiaries and donors. This is an area where the reconstruction efforts in Aceh were lacking. It was commonly noted that there were problems of information flow, and that many beneficiaries were left in the dark about aid processes, and had limited recourse to communicate their needs, suggestions and complaints directly to those funding projects in their communities.

The Need for Coordination and Cooperation Between Different Agencies Providing Aid

Almost all of the evaluations that we reviewed pointed out that the influx of hundreds of organizations and thousands of aid workers created problems of coordination. Problems were caused by the myriad of different aid agencies involved, including major areas of overlap, vastly different approaches to aid, inter-agency competition and territoriality, and beneficiaries receiving different sets of information. The end result was a patchwork reconstruction, which was carried out differently village by village, more because of the randomness of the NGOs and donors who worked in each village than the desires of residents. This came in spite of the creation of an agency specifically to coordinate the reconstruction. While there are mechanisms within the humanitarian sector to prevent such occurrences, and much effort went into trying to best coordinate efforts, it was a constant struggle throughout the period of reconstruction.

The Need for Communities to be Directly Involved in Participatory Reconstruction Efforts

Finally, it was widely noted that reconstruction efforts should have been more grounded at the community level. While many programs actively involved members of local communities, and were ostensibly ‘participatory,’ there was a major gap in the practice. This is in part the result of the extensive use of contractors, and sub-contractors in the reconstruction. Many of the problems carrying out reconstruction projects in Aceh were attributed to failures of aid organizations to effectively partner with local organizations and communities to make sure that resources were deployed in a manner that best matched their needs and aspirations.

All of the above were stated as key lessons learned from the 2004 tsunami reconstruction efforts in Aceh, and are broad enough to be of relevance to the recovery in Japan. However, it is important to note that the nature of the reconstruction in Aceh was far different from what is unfolding in Japan – largely because rebuilding Aceh was a massive international humanitarian operation, whereas Japan is a nationally driven initiative. Therefore it is important to look at some of the main differences between how the reconstruction was funded.
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and managed in Aceh, verse what is happening in Japan, to contextualize the lessons learned. We do so in the following sections by looking at the funding and organizational mechanisms through which both reconstruction efforts were/are being carried out. Additionally, we postulate that while some of the lessons learned from Aceh are bound to be important considerations in Japan over the coming years, the differences between a humanitarian and national agenda will result in different sets of tensions and transformations.

3.3. Japanese Response

Coming to twenty-four months after the Japanese tsunami, the trajectory of the response has become more firmly defined. It is clear that the response in Japan will be fundamentally different from Aceh, as both of the key areas outlined above – financing and management – are largely carried out internally through the GoJ.

3.4. Financing

The World Bank initially estimated reconstruction costs in Japan at USD 122–235 billion. The Japanese government has already passed four extra-budget reconstruction bills and allocated USD 270 billion. In contrast, the amount that foreign assistance provided is a mere 1% of what the Japanese government anticipates spending. Almost all of the assistance given to Japan, monetary or not, was directed towards humanitarian causes and immediate relief such as debris removal, medical support, food, and temporary evacuation centers. Very little external funding has been allocated to longer-term reconstruction, and therefore will have only marginal impact on the regions long-term future.

The overwhelming amount of funding for the relief and reconstruction has and will continue to come from the Japanese government, and thus public, taxpayer funds, or from the private sectors (including affected persons). The public funds are largely allocated through GoJ parliamentary procedures, and therefore are subject to a wide range of local and national level political forces. The reconstruction bills are largely allocated towards rebuilding housing, infrastructure, job creation, and revitalization as well as compensating victims for the nuclear crisis at the Fukushima No.1 plant, all of which are much longer-term forms of support for the affected regions in Japan.

3.4.1. Organization, management & coordination

With a long history of frequently occurring natural hazards, Japan has developed a comprehensive disaster response system, spanning from the central to local tiers...
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of government. Disaster management has been typically the responsibility of local governments. Nevertheless, disaster management has a strong institutional presence at the central level including the Ministry of Disaster Management, the Central Disaster Management Council (CDMC) and the Cabinet Security and Crisis Management Office to name a few, although the functions of most central government disaster manage bodies rarely involve implementation – instead they revolve around disaster management planning, coordination and information. However, if the crisis entails a “major disaster,” the Prime Minister has the discretion to establish a Headquarters for Major Disaster Counter-Measures, as in the Tohoku Earthquake as well as the Great Hanshin-Awaji Earthquake. Headed directly by the Prime Minister, the Emergency Disaster Response Headquarters essentially utilizes the CDMC structure and its existing ties with the relevant ministries and agencies, and is able to activate all the related departments and agencies at a national level. This was adopted in response to the Great Hanshin Earthquake in 1995. Notably, the Self Defense Force which falls under the direct command of the Prime Minister, was immediately sent in to help with the immediate response on a national level. the GoJ also set up advisory panels to make recommendations for the long-term reconstruction plans of the affected regions both in 1995 (Hanshin-Awaji Reconstruction Committee) and 2011 (Reconstruction Design Council). In both the Great Hanshin-Awaji and Tohoku Earthquake, both advisory panels and coordination centers report(ed) directly to the Prime Minister’s Office, hence placing these ad-hoc structures firmly under the highest level of government control. As of February 2012, the Cabinet has launched a Reconstruction Agency headed by the Prime Minister to oversee reconstruction, who has expressed a shift to a more centralized control of efforts, “I am the head of the agency and I intend to firmly execute leadership.” The Reconstruction Agency is expected to speed up the reconstruction process by doing the following:

- Draw up reconstruction policies for the disaster-hit areas and develop laws necessary to implement them;
- Manage a special account for post-disaster reconstruction and allocate funds to other government organizations and subsidies to municipalities;
- Supervise and coordinate reconstruction projects undertaken by various ministries, such as the Land, Infrastructure, Transport and Tourism Ministry; the Agriculture, Forestry and Fisheries Ministry; and the Health, Labor and Welfare Ministries;
- Be a consultant and aid municipalities draw up plans for post-disaster reconstruction;
- Approve applications for special reconstruction zones.

The Reconstruction Minister will have a higher status than other ministries, similar to the Cabinet Office despite the agency being a provisional organization scheduled to be dismantled at the end of fiscal year 2021, the period the
government has estimated for completing reconstruction of disaster-hit areas in its reconstruction plan. Moreover, with a total staff of 250, the agency consists of officials from almost every ministry and agency. This demonstrates the national government’s long-term commitment to the affected regions, and its intention to play the lead coordinating role in the reconstruction. The response to the 2011 earthquake and tsunami is largely a national one, controlled by the GoJ.

3.4.2. Summary of the Japan Reconstruction

Following the Kobe earthquake there was significant discussion about the role of the Japanese government following natural disasters, as traditionally their role has been limited to rebuilding larger scale infrastructure, and providing basic emergency aid. The main burden of rebuilding has historically fallen to individuals, relying upon private sources of funds (savings, insurance, etc.). This was challenged by the Kobe earthquake, with vast need for housing, especially in the short term. Additionally, the government of Kobe pushed the national government hard for support for a number of projects, such as the airport, that were not directly related to the earthquake, but rather intended to help Kobe develop economically in the long term. Some of these projects raised concerns in other cities in Japan, as they were seen as attempts by the Kobe government to build its infrastructure so that it could be more economically competitive both nationally and internationally.

There has been considerable discussion about what expenses the GoJ should be liable for following the 2011 tsunami. The language used goes beyond just rebuilding. There have been prominent discussions about whether it would be in the best interests of Japan to use the pre-tsunami situation as the benchmark to aim for. In particular, a number of sources have commented upon both the longer-term demographic decline in many of the affected areas and shifting industries. These regions have a disproportionate amount of elderly citizens, for whom waiting five years for new housing is going to be a challenge. Additionally, the falling economic value of these areas over the past two decades have raised questions about what kind of investment the GoJ should be making in such circumstances. This is further complicated by the still largely uncertain future of the nuclear power plants in the area, as there are longer-term fears of radiation leaks, uncertainty about how the damaged reactors will be dealt with, and no clear plans for possible replacement.

In summary, the response to the 2011 tsunami to date in Japan can be seen as:

- Largely funded by the GoJ;
- Shaped through national planning from the highest levels;
- Involving an unprecedented number of local organizations and NGOs;
- Highly politicized, and the focus point for major critiques of the government;
- Plagued by significant uncertainties about the overall direction of reconstruction, and the potential for transformation.
4. Comparative Discussion

4.1. Resilience & Vulnerabilities

Aceh was less prepared to withstand an event of the same magnitude as Japan. This should come as no surprise given the vast differences between the areas affected by the Japanese tsunami and Aceh. The contrasts between highly developed rural and urban spaces in Japan, complete with sophisticated infrastructure and robust buildings, and the “underdeveloped” rural and urban spaces in Aceh could not have been more pronounced. Additionally, Japan is a world leader in seismic resistant structures and disaster risk reduction planning, and has extensive experience responding to large-scale disasters, such as the 1995 Kobe earthquake. In terms of vulnerability and resilience, on a number of levels Aceh was more vulnerable to disaster than Japan. Somewhat ironically, the strengths of the built environment in Japan saved lives, but have posed significant problems with regards to post-disaster reconstruction. In contrast, the very factors that led to such destruction and loss of life in Aceh – the poverty, types of housing, infrastructure and services – made it relatively easy and cost-effective to rebuild – especially when compared to Japan. The same could be said for livelihood rehabilitation efforts. The affected areas in Japan had extensive industrial sites damaged by the tsunami. There was massive damage to transportation infrastructure, power plants, and manufacturing centers. The entire industrial base of northern Japan was affected indirectly as there was a major cut in the supply of electricity. It seems likely that the reconstruction of areas affected by the Japanese tsunami will take considerably more time and resources than in Aceh. Rather than the five or so years that it took to rebuild Aceh, it is far more reasonable to look at the ten years needed to rebuild Kobe as the starting point – and this could extend even further given the uncertainties about the nuclear plants, and Japan’s longer-term economic situation. As has been shown above, discussions of resilience and vulnerability need to be nuanced, as there can be multiple and often contradictory layers of each – as a combination of heightened resilience and reduced vulnerability using the conventional criteria can lead to less loss of lives and other forms of human damage. However, sophisticated and highly resilient areas like in Japan can also pose significant problems in terms of longer-term recovery and reconstruction. The opposite is true of rural and less ‘developed’ areas such as Aceh, where low levels of resilience and high vulnerability led to massive initial human losses. However, it was far cheaper and easier to rebuild in such areas, resulting in a return to relative normalcy much quicker than might be anticipated in Japan.

4.2. Applying Lessons Learned

Some of the main challenges rebuilding Aceh mentioned earlier came from the almost contradictory combination of the lack of central vision and authority, and
the distance between the givers and receivers of aid. It was difficult to reconcile being well coordinated and involving local communities, and it seems the end results fell somewhere in between. Because the reconstruction was predominantly carried out as an international humanitarian operation, there were a range of problems regarding coordination and management. Even with organizations such as UN OCHA and the BRR to coordinate, autonomous funding sources and individual organizational plans gave NGOs and donors significant room to operate as they saw best. Additionally, the wide range of different aid actors from all over the world made it difficult to enforce a cohesive vision for how the reconstruction should be carried out – aside from the broader level generic mission statements such as “build back better”. This resulted in a highly variable aid landscape, lacking consistent and reliable contacts between donors, NGOs, government, and affected beneficiaries. This caused significant tension during the course of the reconstruction, which was often centered around the relationship between NGOs and international donors, and affected beneficiaries. A defining part of the relationship between donors and beneficiaries was the often poor flow of information about funding and projects. It was common for people in Aceh to feel excluded from decision-making, and to claim ignorance about broader reconstruction priorities. This occurred in spite of substantial stated interest by both governmental and non-governmental organizations in ensuring that the reconstruction was community driven, and responsive to the needs of beneficiaries.

The much more centralized control of the reconstruction efforts in Japan, and the amounts of funding coming from national level public funds should in theory make the reconstruction in Japan easier to coordinate than in Aceh, as the stakeholders are largely Japanese nationals, and Japan is equipped with fairly sophisticated disaster response frameworks. While there are clear differences between these stakeholders, it is a very different dynamic than managing hundreds of aid organizations from all over the world, jockeying for position, and left largely to their own devices. In spite of the decentralization that has occurred in Japan since the Kobe earthquake, it is clear from both the funding sources and governance mechanisms being used that the reconstruction in Japan is and will most likely continue to be far more centralized than the reconstruction in Aceh. The stronger ability to choreograph will most likely aid in the coordination of overall efforts. However, it might reduce the amount of different voices contributing towards the final outcome, which has implications for beneficiary participation.

The centralization already demonstrated in Japan is most likely going to be the source of other problems raised in the Aceh lessons learned. While numerous evaluations suggested that flexible budgets are necessary, funding the Japanese reconstruction will be a complicated process, and most likely lack some of the flexibility cited in post-2004 evaluations as necessary unless attention is paid to establishing funding processes specifically tailored to the unique dynamics of a post-disaster reconstruction effort. This is going to be difficult to achieve because
Public funds used for the reconstruction are allocated by acts of the Diet, and much of the coordination structure is headed by the Prime Minister’s office, through the Reconstruction Agency, where local governments must apply to obtain funding. Therefore, decisions related to funding structures and priorities will be subject to both regional and national level politics, which was also seen after the Kobe earthquake. In Aceh, the funding allocated for reconstruction could not be used for other purposes elsewhere within Indonesia, and therefore was limited only to competition from interests within Aceh. Over the next decade, the massive amounts of funding for reconstructing affected areas of Japan will have to compete with unaffected regions, and is further complicated by high levels of Japanese national debt. It will be a difficult political operation to ensure that funding for reconstruction continues to be adequate, and unaffected regions continue to support the reconstruction efforts both financially and politically.

In Japan there is far less worry about corruption than in Indonesia. Japan has an excellent reputation for financial accounting, and to date reports from Japan have emphasized high levels of accountability with regards to the distribution of aid resources. However, there have been major complaints post-tsunami in Japan about the flow of information from the government. As significant amounts of public funds are being used in the reconstruction, all citizens in Japan are stakeholders. It will be critical for the GoJ to provide timely and open flows of information regarding the problems associated both with the disaster and the reconstruction. To date, there are numerous indications that this is an area that the GoJ has failed to address, and it will continue to be a source of tension over the next decade if it is not better addressed.

Even more so than Aceh, it is likely that ensuring community and beneficiary participation is going to be problematic in Japan. While there have been rhetorical pushes for the aspirations of local communities to be met, it is likely that overall efforts are going to fall short. In large part, this is a product of the large scale of the reconstruction, and the tensions between the needs and aspirations of local communities, and the longer-term priorities of national level government – in short, what is best for or desired by affected communities might not be seen as best for Japan as a nation. In post-earthquake Kobe, state-society tensions were strained by existing national plans for Kobe’s reconstruction and transformation without much consideration for local communities that resulted in protests, delays and mutually dissatisfactory outcomes. The central government opted to decentralize reconstruction plans to Kobe City and Hyogo Prefecture government structures. However, this proved problematic as intergovernmental relations continued to follow traditional bureaucratic procedures in Japan with the local government submitting year-on-year budgets, having the national government play the lead coordinating role between ministries and maintaining jurisdiction over the final reconstruction plans for the area.
These tensions are likely to resurface in the ongoing disaster-response in Japan with new political dimensions given the break of the LDP’s rule in parliament. While it is too early to provide a comprehensive account of these tensions in Tohoku, there appears to be plenty of anecdotal evidence to support this. For example, the Reconstruction Design Council has proposed the creation of Special Fisheries Zones, which makes it easier for external companies to obtain fishing rights, putting local fisheries at a disadvantage. Naturally, the local fisherman’s cooperative association vehemently opposes this. The intent of the Special Fisheries Zone is to revitalize the fishing industries in the affected areas, which was damaged by the tsunami and has an ageing population as well as increasing population outflow as victims look elsewhere to settle instead of waiting for the reconstruction to begin.58–59 Another example is then Prime Minister Naoto Kan’s suggestion that fishermen move further inland, although most survivors appear to prefer not to relocate, given their attachment to culture, history and social networks of the place.60–61 Fisker-Nielsen notes that as though symptomatic of Japan’s larger strained central-local ties, Ryu Matsumoto, the Minister of State of Disaster Management at the time of the Tohoku earthquake and the initial Reconstruction Minister, resigned because of remarks he made towards the governors in the Tohoku prefectures62 and three Fukushima mayors boycotted a meeting with the Environment minister and Reconstruction minister protesting that the government had informed the media of the details of the meeting agenda prior to informing them.63–64 Also, unlike 1995, the national government has decided to institute a Reconstruction Agency with a Reconstruction Minister, a decision that the Diet ruled against in 1995, representing a reversal in the larger trend of decentralization. Moreover, after being criticized for its poor and slow response to the Great Hanshin-Awaji Earthquake, the GoJ has introduced public administration reforms designed to centralize disaster management even further. Likely also, given the central government’s decidedness to be directly involved with the reconstruction plans, the tensions between state and society are likely to reappear as national goals of economic revitalization, environmental friendliness, and concerns of and about Japan’s ageing population might come into conflict with the more on-the-ground concerns of conservation and community building in some of the most tightly knit communities in Japan. In particular, the needs and aspirations of rural communities could be neglected in the overall reconstruction as their continuation might contradict other regional or national priorities competing for the same funding.

This is very different from post-tsunami Aceh, where tensions were largely related to donor-beneficiary relations, as the Government of Indonesia’s role in the reconstruction was largely one of facilitator. While there were many cited problems involving failed participatory approaches to the Aceh reconstruction, there was constant pressure on NGOs to include locals within their planning and
projects. Additionally, many of the NGOs involved in the reconstruction in Aceh did not have to factor in wider regional or national priorities – and thus could concentrate mainly on the task at hand – rebuilding the villages and towns of the Aceh province. The mandate for and terms of the reconstruction in Aceh were far different from what is currently unfolding in Japan.

5. Conclusions: Transformations and Tensions

When framed within the broader context of post-disaster responses, the 2004 and 2011 tsunamis provide insights into a range of important issues, from vulnerability and resilience, to the nature of national versus international responses. Following the 2004 tsunami, the response in Aceh, Indonesia was largely an international humanitarian one. This was in part the result of the inability of the Indonesian government to effectively respond to the scale of the disaster (both in terms of resources available, and also the difficult political situation of the Acehnese separatist movement that was on-going at the time of the tsunami). The vacuum in Aceh was filled by major international players, and the GoI became a secondary partner in defining the overall outcome of the reconstruction efforts. While the establishment of the BRR was meant to stress Indonesian authority – especially after the signing of the Helsinki Accords that ended the Acehnese conflict – it is clear from the reports and time spent on the ground monitoring the reconstruction efforts by the authors that reconstruction efforts were not run entirely by the Indonesian government. While certainly the GoI would object to this characterization, it is impossible to ignore the obvious decision-making power and influence that the international community wielded in the relief and reconstruction efforts in Aceh.

Furthermore, the majority of the funding for the reconstruction was from some form of international aid. This funding was made available specifically for use in post-disaster reconstruction, and there was very limited ways for it to be allocated differently. Coupled with the establishment of the BRR as a ministerial level organization that did not have to follow general government bureaucracy, this meant that there was much more limited scope for the aid money to be diverted or subject to broader regional and national political forces. Additionally, there were deliberate efforts made by both the international community and the GoI to avoid using regular GoI frameworks and institutions (the BRR being a major example of this). This effectively removed decision-making about the reconstruction from the standard methods of federal governance, and layers of Indonesian bureaucracy and ministerial and parliamentary oversight. In Aceh the overall outcome was largely a product of (often strained) relationships between NGOs and local communities in affected areas, which were vetted by the GoI.

This is very different from how the situation is playing out in Japan. As detailed above, the bulk of the relief and reconstruction decision-making and resource
allocation was conducted from the highest levels of the Japanese government. The Japanese reconstruction – with almost 300 billion USD to spend over the next decade - will be a far more political process at the national level, in which investing in the future of Japan will be a dominant theme. This will include rethinking affected areas, and plans that aim not just to rebuild, but to reevaluate and ‘revitalize’ based upon economic and political issues at the national level. Most of the funding from the government for reconstruction has to be passed as a form of legislation. Given the large amounts of money in question, it is likely that this process is going to be drawn out, and hotly contested at some level, as decisions about how to rebuild affected areas will be part of broader level national debates about the distribution of resources. Even in a rich country like Japan, it is hard to spend such large amounts of money without complications and intensive politics, as has been extensively documented following the Kobe earthquake in 1995, and as we are seeing currently in Japan. The outcome of the reconstruction in Japan will be a function of the tensions between the needs and aspirations of affected communities, the regional and national government, and non-affected areas of Japan which are being asked to contribute resources towards eventual reconstruction (or have resources diverted away from them).

The comparison of the two responses to the tsunamis is not just a function of the economic and technological standing of Japan and Indonesia, or the levels of vulnerability and resilience. They highlight some of the main differences that emerge when post-disaster responses are managed within national, governmental frameworks verse international humanitarian frameworks. The use of governmental frameworks, places the bulk of the decision making within national political institutions. INGOs represent a fundamentally different agent from the state. In conclusion, it is worth elaborating upon some of the main differences between national actors and international humanitarian actors within post-disaster reconstruction situations.

• States need to manage national goals and politics in additional to the needs and aspirations of affected regions and people. INGOs are guided by a combination of internationally established humanitarian ideologies, and meeting the goals of their donors and beneficiaries.
• State-society and central-local tensions are part of long-term processes. The relationship between INGOs and beneficiaries tend to be corporate and short-term with no inherent interest to be able to represent each other in long term; i.e. in Aceh the INGOs all needed to have an exit strategy, which is not the case with the GoJ.
• State actors – especially within democratic societies – need to consider electoral pressures when dealing with reconstruction planning, which NGOs are except from.

The impact and responses to the 2004 and 2011 tsunami were different, but there is value in looking at these two events from a comparative perspective. The
size and destructive force of the two tsunamis provide a unique control variable
for investigating critical issues like vulnerability and resilience, as well as the
decision making and structures behind reconstruction. It is clear that there are
major differences between the responses, largely based upon the national verse
international nature of the funding and management. However, it is also clear that
some of the key lessons learned – those dealing with how to ensure that affected
persons and communities are kept informed about, and central to post-disaster
reconstruction – apply to both situations. It is hoped that some of the lessons
learned from around the Indian Ocean will be of use to the people and government
of Japan as they continue the long road to recovery.

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