# ‘Build back better’ after Hurricane Yolanda

## Initial planning dialogue on land use and risk after the hurricane of November 2013

Kanako Iuchi *

***Abstract:***

Cities are facing a complex set of challenges for sustainable growth, especially when considering the balance between developmental growth and setback from disasters. Urban expansion as a result of economic and population growth is taking place at an unprecedented pace. However, amplified disaster frequency coupled with an excessively agglomerating urban population and substandard infrastructure means that the amount of people affected by environmental change, such as natural disasters or climate change, is increasing.

Yolanda (international name: Haiyan), a category five typhoon, devastated several regions in the Philippines on November 8, 2013. A ‘state of national calamity’ was declared three days later, and the central government unveiled the first recovery vision – “Reconstruction Assistance on Yolanda: Build Back Better (RAY)” – within the first month. In this vision, a “no-build zone” was identified as one of the premier strategies to minimize vulnerabilities of coastal communities from future disasters. This was also the beginning of a several-month controversy centering on the “build back better” concept.

This research focuses on Tacloban City as a case of a city that faces strong development forces, while simultaneously coping with recovery from a recent disaster. This paper captures dialogue on ‘build back better’ by policy makers and planners at the national, local, and community level at an early stage of recovery by tracing decisions/indecisions and actions/inactions around land use and livelihoods of the affected region. This research relies on data collected through various interviews with national and local government officers, community (barangay) leaders, and local residents at four months after the typhoon. Publicly available official documents collected in the field and from a distance were also used.

One of the major findings is that the space and time needed to plan ‘risk-considered’ rebuilding affects planning processes, decisions, and implementation to a great degree. While the emphasis on avoiding risk through land use decisions in rebuilding has softened as time proceeds at the national level, at the local level it remains strong. Nonetheless, limited resources and delays in carrying out risk-controlled land use have increased vulnerabilities in contrast to local desires.

***Keywords****:*

Recovery planning, disaster risk, land use, growing cities, Hurricane Yolanda

---

* Tohoku University, International Research Center for Disaster Science
E-Mail: iuchi@irides.tohoku.ac.jp

* This is an abstract peer-reviewed by the International Affairs Committee of the City Planning Institute of Japan for ISCP2014.

## Introduction: Growing cities and disasters

Cities are facing a complex set of challenges for sustainable growth, especially when considering the balance between developmental growth and setback from disasters. Urban expansion of emerging cities as a result of economic and population growth is occurring at an alarming pace; just between 2000 and 2030, the urban population is predicted to double and the built-up area of these cities is predicted to triple[1)]. However, populations affected by environmental change, such as natural disasters or climate change, are also ever-increasing due by amplified disaster frequency and magnitude as well as excessively agglomerating population in cities[2)]. For instance, in 2012 32.4 million people in 82 countries – double the number from the year previous – were displaced due to natural disasters, the majority in developing countries[3)].

A category five typhoon Yolanda (international name: Haiyan) first made landfall in Guiyan, East Samar, on November 8, 2013 and continued crossing Leyte Island and through Palawan on the same day. Regions that fell into the typhoon path were devastated with strong rain, wind, and storm surge, and accounted for a death and missing toll of more than 8,000 with an estimated direct economic loss of US$12.9 billion (PhP571.1 billion)[4)]. The typhoon damaged more than 1,240,000 buildings – 550,000 were completely damaged and 589,000 partially-damaged[5)] – and displaced more than 1.4 million families[6)]. Damage was particularly severe along the coastal areas of Tacloban City, Palo Municipality and Tanauan City, often referred as the regional hub of Eastern Visayas (located in the east-central coast of Leyte Island in Region VIII). The estimated height of the surge caused by the typhoon exceeded 5 meters and the run up heights surpassed 20 meters. As of February 25, 2014, these three cities accounted for more than 60 percent of the total lives lost and missing. In Tacloban City, where devastation was most extreme, 2,603 were counted dead or missing[5)].

Besides the fact that typhoon Yolanda was one of the most powerful on record, the vulnerable state of the coastal areas pre-disaster was a root cause of the extended devastation. Region VIII, where Leyte Island is administratively bounded with Samar and Biliran Islands, is one of the poorest regions in the Philippines. According to a survey conducted by the National Statistical Coordination Board in 2012, Region VIII was the third poorest region among other regions in the country, after Autonomous Region in Muslim Mindanao (ARMM) and Region XII[7)]. Although the population growth of Region VIII has been moderate by 1.48 percent between 1990 and 2010, a highly urbanized area such as Tacloban City has a growth rate of 2.43, largely exceeding the growth rate of the national capital region[8)]. Poverty coupled with intense population growth in some areas has contributed to disorderly development.

Tacloban City must address the challenge of risk reduction in the face of urban growth in rebuilding. Being the first highly urbanized city in Region VIII (Presidential Proclamation No. 1637), the City functions as a regional economic hub, and as mentioned earlier, has some of the highest population growth rates across the nation. However, the city's geography and socio-economic conditions create vulnerability. Geographically speaking, it is located in low-lying areas with a mean elevation of 3 meters, and it is situated in Leyte Island where a funnel effect develops with strong winds[9), 10)], and the country as a whole is hit by typhoons

approximately 20 times per annum. In addition, informal settlements as well as commercial and industrial buildings had developed along the coastal areas, including areas restricted for development by the Water Code of the 1976 (PD 1067). Of the 28,734 houses completely damaged in the City, approximately 90 percent originally stood along the shore[9]. Thus, the vulnerable nature of development increased the damage due to typhoon Yolanda.

In the rebuilding process, planning strategies to reduce vulnerabilities via better use of land, including relocation to less hazardous areas, are ideally required in the face of strong development forces. Otherwise, vulnerability is often recreated in the recovery process as rebuilding largely relies on inherent characteristics of the devastated regions[11]. Identifying ways to manage sustainable growth in the face of risk by natural disasters are becoming increasingly important, as emerging cities face significant loss and damage once disaster occurs[12]. At the same time, the number of natural disasters continues to rise, together with other factors related to climate change[2].

As a first step to identify ways for a balanced urban development that incorporates mitigation of disaster risk in emerging cities, this research aims to understand how disaster-affected city processes rebuilding decisions and actions through land use and relocation in negotiation with a national planning process. It also aims to explain how initial rebuilding objectives and plans transform and recreate vulnerability in growing regions as time proceeds. The body of this paper is composed of four sections. Following this introduction, the second section explains the research framework including methodology. The third organizes narratives on initial planning dialogue on land use and risk to explain brief timeline of rebuilding, discussions and actions on coastal rebuilding by the national government, and local responses and actions on coastal rebuilding. Finally, findings are summarized and reflected to offer future research avenues.

**Research framework**

This study examines planning dialogue, decisions, and actions to ‘build back better’ by multiple levels of policy makers, national and local governmental officials, and local members at an early stage of recovery from typhoon Yolanda. The timeframe is the first seven months post-typhoon. The initial months after a significant disaster are important for in-depth observation because this period sets the stage for long-term recovery goals and objectives through defining rebuilding concepts, strategies, and programs[13]. At the same time, alternate rebuilding paths become are sometimes explored, which may or may not align with the original plans and objectives. Understanding the way in which such deviations emerge and develop is critical for identifying issues that recreate urban vulnerability after disasters. However, this point has not yet been studied in detail. To understand how rebuilding concepts and programs are developed, identified, and selected to proceed, as well as to identify how rebuilding proceeds differently from the plans creating gaps, this research focuses on land use and resettlement dialogue as well as subsequent rebuilding procedures. Through this observation, ways in which vulnerability are recreated in a negotiation between development opportunities and risk by various stakeholders are uncovered.

The paper utilizes observations and interviews with national government officials, local government officials and local community (*barangay*) officials and residents conducted during a two week period between March 4 and 13, 2014 (approximately four months after the typhoon). Fieldwork took place in Metropolitan Manila – where the majority of central government departments and agencies are located – and Tacloban City – which experienced severe loss and damage from the typhoon. Additional resources include real-time government documents collected during the fieldwork, as well as publicly available governmental documents, newspaper articles, and other published documents collected remotely.

## Initial planning dialogue on land use and risk

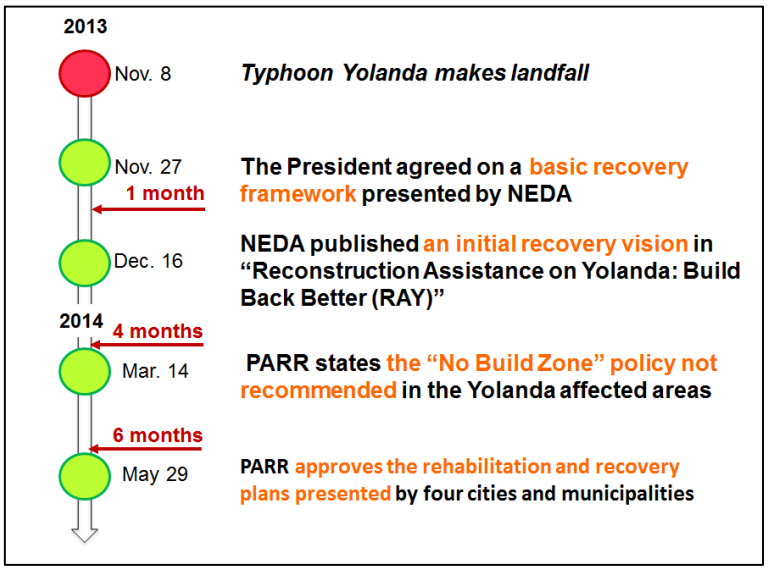
President Benigno Aquino III declared a state of national calamity on November 11. With this declaration, Samar provinces, Leyte, Cebu, Iloilo, Capiz, Aklan, and Palawan were confirmed as regions needing special assistance from the government, private sector, and internationally active organizations for rescue, relief, and rehabilitation[14)]. Additionally, relevant government agencies and institutions were mandated to be part of the activities in cooperation with the affected local governments units. It also stated that needed funds for relief and recovery will be secured. On November 14, the head of the Department of Finance was appointed by the President as an overall coordinator for preparing and providing relief goods to the affected regions[15)]. Planning for rebuilding was also initiated around this time. Planning dialogue, particularly on land use within the typhoon-affected coastal areas and inland relocation of the affected communities, has become a main controversy in proceeding with rebuilding. This section details the dialogue and actions relevant to this topic at the national and local levels, including how vulnerability of the affected areas is beginning to be recreated. For this purpose, this section begins with a brief rebuilding timeline as well as relevant information to explain overall status of rebuilding progress, discusses status of coastal land use and relocation by the central government, and concludes with local dialogue and responses.

### *Timeline on rebuilding*

In the first seven months, four major decisions and actions took place relevant to recovery planning: i) the president agreed on a major rebuilding framework; ii) a rebuilding principle was nationally publicized; iii) Presidential Assistance for Rehabilitation and Recovery (PARR) discouraged a ‘no building zone’ in a rebuilding controversy; and iv) PARR approved local recovery and rehabilitation plans prepared by five heavily affected cities and municipalities (see Figure 1).

On the 27$^{th}$ of November, three weeks after the typhoon, President Aquino III agreed on a recovery framework presented by the National Economic Development Authority (NEDA) – a national governmental body responsible for coordinating economic and social planning and policy – that outlined a three-stage recovery process. Although the budgets for rebuilding were not yet identified, NEDA’s Socio Economic Planning Secretary explained that the three stages would include: i) short-term – providing immediate assistance to the affected regions; ii) mid-term – promoting recovery through programs and initiatives; and iii) long-term – targeting to reach a full recovery[16)].

Figure 1. Brief Timeline on Rebuilding




This framework was then fine-tuned and on December 16, about a month after the typhoon, NEDA unveiled the first recovery vision in their publication titled "Reconstruction Assistance on Yolanda: Build Back Better (RAY)". The document includes an overview of the typhoon disaster, direct economic loss, a rebuilding vision as well as budget to guide basic recovery procedures, and outlines the responsibility of PARR. With Memorandum Order No. 62, President Aquino III appointed PARR on December 6 to lead and coordinate governmental efforts with other agencies involved in the rebuilding. PARR was mandated to coordinate and oversee programs to be implemented by relevant agencies, propose budgets needed in rebuilding through programs designed, and report the President on the status of local plans and implementation[17]. One of the premier strategies addressed in this vision was a "no-build zone", to minimize vulnerabilities of coastal communities from future disasters. This led to a heated debate over the next few months.

The debate, at least officially, came to an end about four months later, on March 14 2014, when PARR stated that the "No Build Zone" policy in the Yolanda affected areas was not recommended[18]. This was the third decision that the central government made in the first seven months after the typhoon. The fourth – and final – was when PARR approved the rehabilitation and recovery plans of the provinces of Cebu (submitted April 25), Samar (submitted end of May), Leyte (submitted April 26), and Tacloban City in Leyte (submitted May 10) on May 30 for the President's approval[19].

The initial recovery and reconstruction cost presented in RAY is estimated at PhP 360.8 billion (USD 8.2 billion)[4]. Congress passed a supplementary budget for FY 2013 of PhP14.6 billion (USD 334 million) on December 26 to be used as the Calamity Fund (PhP11.2 billion (USD 256 million)) and as the Quick Response Fund (PhP3.400 billion (USD 77.8 million)[20]. In addition, other funds are being established to support the affected areas for rebuilding, in collaboration with PARR; the first multi-donor fund was committed to be established by the coalition of 9 global Filipino private firms on January 23, 2014[21]. Soon after, on February 16,

the central government announced that a multi-donor trust fund would be established with the Asian Development Bank and the World Bank[22]. The Government has divided the 171 impacted cities and municipalities into 24 regions, and recovery partners are providing funds targeting one or several of these regions[23].

***Discussions and actions on coastal rebuilding by the national government***

Presidential Decree 1067 (PD 1067) has been enacted since 1976 to govern "the ownership, appropriation, utilization, exploitation, development, conservation and protection of water resources[24]". Article 51 of this Decree is particularly relevant to the orderly use and development of surrounding lands. It states:

> *The banks or rivers and streams and the shores of the seas and lakes throughout their entire length and within a zone of three (3) meters in urban areas, twenty (20) meters in agricultural areas and forty (40) meters in forest areas, along their margins, are subject to the easement of public use in the interest of recreation, navigation, float age, fishing and salvage. No person shall be allowed to stay in this zone longer than what is necessary for recreation, navigation, floatage, fishing or salvage or to build structures of any kind.*

By definition, coastal lands across the country should have been preserved within 3 meters in urban areas, 20 meters in agricultural areas, and 40 meters in the forest areas. However, minimal regulatory land use control meant that this was not well addressed in many places across the country, including Tacloban City and its vicinities. The speed of population growth often overrides the speed of appropriating urban infrastructure, and coupled with the fact that developable space is limited, dwellers usually decide to ignore such development restrictions. Up until the typhoon, therefore, many coastal areas lawfully controlled for development were accommodating such illegal settlers in practice. Many local governments could not force illegal settlers out from lands restricted for development.

The concept of a no-build zone was simply addressed in RAY, stating: "(iii) streamline operational enforcement of 'no build zones'[4]". Although details for adopting this concept in rebuilding were not described in the document, its intention was to strictly prohibit any structures from being built within 40 meters of the coast, regardless of the type of land use, adopting a maximum setback width of easement regulated in the existing decree of PD1067. By doing so, future damage and loss from water-related disasters, including mega-typhoons like Yolanda, would be minimized.

However, various issues exist upon adopting the proposed 40-meter setback. First, Section 108 of the Philippines Fisheries Code of 1998 (Republic Act No. 8550), which provides rules on managing and conserving fisheries and aquaculture in the Philippines, secures fishermen's right to establish settlement near the coast for their activities[25]. The 40-meter setback therefore would conflict with the right of fishermen to inhabit the coast. Second, livelihoods for fishing communities as well as those involved in the tourism industry would be adversely impacted as many coastal communities rely on oceanic resources. Third, a blanket application of the "no build zone" has no supporting scientific evidence showing vulnerabilities and risk; for example,

no topographic and geographic conditions are considered in this proposal. At the same time, no detailed guidelines had been developed in applying the 40-meter setback for the Local Government Units (LGUs). Lastly, LGU's past inability to control illegal settlements calls into question the realistic feasibility of implementing this regulation at the local level.


Photo 1. Various messages regarding "no-build zone"

With these significant issues identified, the central government decided to scientifically develop a more adaptable land regulation. For this, the Department of Environment and Natural Resources (DENR) – responsible for land use – and the Department of Science and Technology (DOST) in charge of hazard mapping – are mandated to lead an assessment that classifies "safe" and "unsafe" zones via a modeling exercise that considers landslide and flooding potential. On March 14, PARR announced that the central government would not recommend a "no building zone" policy, largely due to impracticality. Instead, they would identify "safe zones" and "unsafe zones", and specify "no dwelling zones". Based on DENR-DOST's assessment, PARR will recommend no structure being built on defined "unsafe zones", and for the LGUs to enforce this in their land use ordinances. Some facilities – for example the fishermen's wharf or buildings for commercial use – will be allowed in regions identified "no dwelling zones", even if the area is designated "unsafe"[26]. To date, however, official announcement on land use has not been publicized.

***Local responses and actions on coastal rebuilding***

Tacloban City and their communities (*barangays*) have continued to call for adoption of the 40-meter coastal setback and designating it a "no dwelling zone", even though the national stance on land use has softened from "no building" to "no dwelling" (coupled with the central government's assessment of "safe" and "unsafe" zones). Other initial proposed measures for mitigation and protection include: i) reclamation of east-facing coastline of the hardest-hit bay

by 100 to 300 meters; ii) planting mangroves for disaster mitigation; and iii) other engineering measures including levee construction. Additionally, incorporating relocation of the affected population into the on-going resettlement project was a key measure for reducing risk.

Initial responses and plans on the ground

Tacloban City's planning recovery process emphasized relocation of the devastated coastal communities to minimize future risk, aligning with the on-going development of the Eastern Visayas Regional Growth Center (EVRGC). By doing so, the City hopes that future vulnerabilities, particularly related to water-disasters, will be alleviated. Historically, the City acquired a 237 hectares of land located in the north to cope with the high population growth and economic development (established as an Economic Zone in 1998) (Presidential Proclamation No. 1210). In the City's most recent comprehensive land use (2012-2021), EVRGC had planned to accommodate population spillover from the city center and from the Cebu region. Planning to relocate unprivileged populations along the restricted zones by the Water Code (PD 1067) into the EVRGC area had therefore already broke ground when the typhoon hit. The National Housing Authority's (NHA) Slum Improvement Resettlement Program provided funding, and as a result, the City post-Yolanda decided to merge the relocation of the typhoon-affected population with this on-going project to speed up housing construction.

*Barangay* leaders act as de facto community managers and traditionally play a mediating role in solving various conflicts that arise. Members are often careful with their choices, as selecting a capable person means good governance and outcomes. In response, selected leaders often bear a sense of responsibility to incorporate and reflect constituents' voices when managing their community. This was especially evident in coastal communities after Yolanda; early on, leaders opened their offices/homes day and night so that their members could report damage and loss, as well as urgent needs and requests for rebuilding. In this situation, *barangay* leaders have seen former coastal residents seek opportunities to relocate inland, due to horrifying experiences of the storm surge. This is particularly the case for *Barangay* 88, a fishermen's community, located on a peninsula east of the City. With its vulnerable low lying geography and exposure to the ocean, the death toll was over 1,000 and the majority of buildings washed away. *Barangay* members, particularly those that resided along the coast, are willing to relocate regardless of their land title formality, and the Mayor of the Tacloban City is also supporting the idea of *barangay* collective relocation. Furthermore, commuting to the city center and city hall had been inconvenient and time consuming. This is added incentive for *barangay* members wishing to relocate inland.

Proceeding with rebuilding on the ground

Progress on rebuilding is different from the debate held nationally and locally. Although there are a total of three proposed strategies for inland relocation in Tacloban City – the development of permanent housing in the EVRGC, the community mortgage program to be used in the central-inner city, and the acquisition of additional lands – construction in the EVRGC is the only one proceeding with tangible plans.

According to the City's long-term goal, 20,000 housing units are planned for inland relocation targeting the least privileged population group. Total housing units planned is based on two figures of 14,000 and 5,600 units; the first 14,000 units are calculated from properties that were informally built along the coast pre-typhoon and are devastated by the storm surge. These properties pre-typhoon were located on lands where the prospective 40-meter setback will be enforced, thus rebuilding in place may technically be prohibited. The other 5,600 units are located inland and may still be standing (yet with less damage compared to other units), though they are on development controlled lands regulated by PD 1067, such as in the river banks. As a result, 20,000 units are targeted in the long-term plan. In reality, however, 10,000 units are considered the maximum construction possible in the EVRGC relocation site. According to the City's schedule, 4,000 units are planned for construction in 2014, another 4,000 in 2015, and continues until reaching 10,000 without any further construction plan. Even limiting construction to 10,000 units, the City has so far acquired only 92 hectares, including a 7-hectare donation and 10 hectares of the on-going development of the NHA's relocation program. Lack of land inland for building the minimum number of units planned is becoming a huge challenge.

Construction of relocation site requires concerted efforts between the NHA, the City, the private sector, and other donors. The NHA is responsible for developing settlement sites, the City is required to prepare lands, and the private sector and other donors – including Red Cross, international and local NGOs, religious organizations and philanthropies – are proving shelters to be built on land to transfer to the disaster-affected population. Implementing this plan and program in a timely manner, however, has been challenging. First, although the donors have pledged more than 10,000 units for permanent houses, land needed for housing constructing have not yet been obtained. Second, delay is evident; construction is not yet finished even for the 10 hectares of the preceding development that aimed to be finished by February 2014.

Throughout, affected populations have been publicly supported with emergency and temporary shelter and housing. In the first several months following the typhoon, many lived in temporary shelter including tents, schools, and other evacuation centers including *barangay* halls and the Astrodome; at three months after the typhoon, about 6,000 were still in such shelters[10)]. Initial temporary housing became available after a month, with people having privilege beginning to move in temporarily. Two types of temporary housing, bunk houses and transitional shelters were available; bunk houses were provided by the national government through the Department of Public Works and Highways (DPWH) to prepare and Department of Social Welfare and Development (DSWD) to locate in places near urban centers. So-called transitional shelters, a form of temporary housing, have also been committed and began construction at the end of the fourth month; these are funded by bilateral donors, international and domestic NGOs, and private corporations in the EVRGC site.

Yolanda-affected *barangay* residents continue hoping to relocate inland to avoid catastrophic experience in the future. Nevertheless, limited resources available to accommodate inland relocation coupled with lags in procuring temporary and permanent housing have pushed many affected residents to start returning to their original land. And as residents consider this return temporary, construction materials used for rebuilding (ex: recycled wood and galvanized iron sheets) reflect this intent. Additionally, in a contradiction to their stated intent of returning

only temporarily, various pre-disaster *barangay* activities have been reinitiating. For example, a *barangay* in the outskirts of an urban area has reinitiated a century-old mangrove planting tradition to alleviate water-disaster damage. This is an initial sign of a return to normalcy, implying future change – including relocation of *barangay* members inland – will likely become harder once their lives get back to a familiar routine.

### *Findings and reflections*

One of the major initial findings is that the space and time needed to plan risk-considered rebuilding impacts planning processes, decisions, and implementation to a great degree. At the national level, a "no build zone" was initially suggested to be a 40-meter setback from the coast prohibiting any construction, invoking Article 51 of the Water Code of the Philippines (P.D. 1067 of 1976). This idea soon encountered objections among relevant agencies horizontally and vertically as well as some localities in reflection of its practicality with respect to livelihoods and businesses. As a result, central governments have softened the idea from a "no build zone" to a "no dwelling zone" to be accompanied by scientific assessment. At the local level, however, Tacloban City has developed a recovery and rehabilitation plan, revising their land use plan, and implementing a relocation program by incorporating the original idea of a "40 meter no-build zone" presented in the building back better principle by the NEDA. At the same time, affected *barangay* members continue to relocate inland to reduce future risk. Nonetheless, the number of temporary housing units and prospective permanent housing units to be prepared in the city is much smaller than the demand for them, prompting residents to rebuild homes 'temporarily' on their original land along the shore.

Although local governments and communities were willing to reconsider land use to reduce risk in the initial phase of recovery, particularly for the first seven months when this paper was written, speculation is that risk-averse land use will become more complicated as time passes. Tacloban City was already facing hastened population and economic growth. Without concrete decisions and investments on ways to incorporate future risk in rebuilding, the same vulnerabilities will likely be recreated just as the space formed prior to disasters, as it is the most realistic rebuilding path. In reality, limiting land use to avoid future risks is not necessarily the right approach. Risk could mean different things from one community to another, in the short- and long-term. If reducing vulnerability is the priority for localities, then taking early actions to support the idea is crucial for long-term risk reduction.

Disaster is often considered an opportunity for change. At the same time, identifying the right timing for decisions and actions is extremely important for turning disastrous events into positive catalysts for improvement[27]. Although this study has only captured an aspect of planning at an early stage of long-term recovery, gathering knowledge on their rebuilding processes longitudinally is essential for understanding how disaster risk, planning processes, and timing play out in cities facing rapid growth.

**Acknowledgements and disclaimer**

Funding provided by the President of Tohoku University supported this work. The author

appreciates all those who shared their time and knowledge, especially Dr. Renato Solidum of PHIVOLCS; Maj. Ray Balido Jr. of NDRRMC; Lea Tamayo, UNDP consultant for PARR; information office and housing office of Tacloban City, Jane Salomon of Help direct initiative, *barangay* captains of 68, 64, 59-B, 88, 31 and 61 of Tacloban City, *barangay* captain of Uban, Tacloban City temporary housing residents, and planners from Oriental Consultants. The author is solely responsible for any inaccuracies and omissions.

## References

1) Angel S, Parent J, Civco DL, Blei AM. *Making Room for a Planet of Cities.* Cambridge, MA: Lincoln Institute of Land Policy; 2011.

2) Correa E, Ramirez F, Sanahuja H. *Populations at Risk of Disaster: A Resettlement Guide.* Washington DC: The World Bank; 2011.

3) Yonetani M, Holladay S. *Global Estimates 2012: People Displaced by Disasters.* Geneva: Norwegian refugee council; 2013.

4) National Economic and Development Authority. Reconstruction Assistance on Yolanda: Build Back Better. Manila: National Economic and Development Authority; 2013.

5) International Research Institute of Disaster Science. HFA IRIDeS Review Preliminary Report: Focusing on 2011 Great East Japan Earthquake. Sendai: Tohoku University; 2013.

6) Presidential Assistance for Rehabilitation and Recovery. Yolanda Rehabilitation and Recovery Efforts. Manila: PARR; 2014; Consolidated as of 28 July 2014.

7) Torres T. Poverty level in Phl unchanged since '06. Available at: http://www.philstar.com/headlines/2013/04/24/934243/poverty-level-phl-unchanged-06. Accessed August 18, 2014.

8) Census of Population and Housing. 2010 Census and Housing Population. Manila: National Statistic Office; 2010. Available from: http://www.census.gov.ph/old/data/census2010/p000000.pdf.

9) Tacloban City. Proposed Tacloban Recovery and Rehabilitation Plan. Tacloban: Tacloban City; 2014.

10) Tacloban City. Tacloban City Comprehensive Land Use Plan. Tacloban: Tacloban City; 2012.

11) Iuchi K. *Redefining a Place to Live: Decisions, Planning Processes, and Outcomes of Resettlement after Disasters.* [Doctor of Philosophy]. Urbana: University of Illinois at Urbana-Champaign; 2010.

12) Pelling M. *Natural Disasters and Development in a Globalizing World.* London; New York: Routledge; 2003.

13) Iuchi K, Maly E, Johnson L. Three years after a mega-disaster: Recovery policies, programs and implementation after the Great East Japan Earthquake. In: *Post-Tsunami Hazards Reconstruction and Restoration.* Springer; to be published.

14) President of the Philippines. Declaring a state of National Calamity. 2013; Proclamation No. 682.

15) Office of the President. Designating Coordinators for Relief and Recovery Efforts in Connection with the Calamity arising from Typhoon Yolanda. 2013; Memorandum Order No. 60.

16) Fernandez B. 3-stage 'Yolanda' recovery plan approved; no total cost yet. Available at: http://businessmirror.com.ph/~businfk5/index.php/en/news/top-news/23466-3-stage-yolanda-recovery-plan-approved-no-total-cost-yet. Accessed July 15, 2014.

17) President of the Philippines. Providing for the Functions of the Presidential Assistant for Rehabilitation and Recovery. 2013; Memorandum Order No. 62.

18) Presidential Assistance for Rehabilitation and Recovery. PARR: "No Build Zone" Policy not recommended in Yolanda-affected area. Available at: http://www.gov.ph/2014/03/14/parr-no-build-zone-policy-not-recommended-in-yolanda-affected-areas/. Accessed July 15, 2014.

19) Flornisa G, Pineda O. OPARR approves rehab, recovery plans. Available at: http://www.sunstar.com.ph/cebu/local-news/2014/05/30/oparr-approves-rehab-recovery-plans-345673. Accessed August 17, 2014.

20) President of the Philippines. An Act Appropriating the Sum of Fourteen Billion Six Hindered Million Pesos (P14,600,000,000.00) as supplemental appropriations for FY 2013 and for other purposes. 2013:H. No. 3423.

21) Esmaquel II P. 9 giant firms lead Yolanda rehab. Available at: http://www.rappler.com/business/economy-watch/48712-9-giant-firms-lead-yolanda-rehab. Accessed July 15, 2014.

22) Roc B. New Yolanda recovery fund set up. Available at: http://www.bworldonline.com/content.php?section=Economy&title=New-Yolanda-recovery-fund-set-up&id=83571. Accessed July 15, 2014.

23) ABS-CNN news. Gov't eyes no-dwelling zones in 'Yolanda' areas. Available at: http://www.abs-cbnnews.com/nation/01/28/14/govt-eyes-no-dwelling-zones-yolanda-areas. Accessed March 14, 2014.

24) The government of the Philippines. The Water Code of the Philippines. 1976. Available from: http://www.emb.gov.ph/portal/Portals/15/PD%201067.pdf.

25) President of the Philippines. An Act providing for the development, management and conservation of the fisheries and aquatic resources, integrating all laws pertinent thereto, and for other purposes. 1998: Tenth Congress.

26) Official Gazette. PARR: "No Building Zone" Policy not recommended in Yolanda-affected areas. Available at: http://www.gov.ph/2014/03/14/parr-no-build-zone-policy-not-recommended-in-yolanda-affected-areas/. Accessed August 18, 2014.

27) Olshansky RB, Hopkins LD, Johnson LA. Disaster and Recovery: Processes Compressed in Time. *Natural Hazards Review*. 2012; 13:173-178.