User involvement in housing recovery

Cases from Haiyan affected areas in the Philippines

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Regarding approaches to housing reconstruction, different types of partnerships, components of the reconstruction approach, housing solutions, and types of user involvement, have been discussed. Concerning explanations for unexpected housing outcomes, the study uses a realist laminated ontology to explain how multiple causal mechanisms triggered unexpected outcomes in the housing recovery programme in the province of Leyte. The Resolution Redescription Retrodiction Elimination Identification and Correction (RRREIC) method, a critical realist model of scientific discovery for applied research, was applied to the empirical data and complemented with policy analysis. Six plausible causal mechanisms have been discussed. Regarding user involvement, the study proposes two tools for user involvement from a capability perspective. The Model for user involvement in evolutionary housing recovery has been used to analyse and assess housing reconstruction carried out by two non-governmental organizations a) We Effect, and b) Gawad Kalinga. The study also proposes Freedom to Rebuild, a post-disaster housing evaluation framework, as a tool addressed to disaster survivors for self-assessing their pre-disaster vulnerabilities, their involvement in housing recovery, and their resilience after occupancy.

The case studies on We Effect and Gawad Kalinga draw attention to how active involvement of prospective users in different stages of housing recovery has contributed to expand their capabilities. Active involvement denotes medium, high or very high levels of user involvement. The findings from the GK-Village in Tanauan show that non-involvement in the first two stages of housing recovery has been compensated to a certain extent because users had high involvement during the post-occupancy stage. However, the enhancement of capacities is limited in comparison with the We Effect project, in which users have attained medium, high and very high levels of involvement. The findings from the We Effect project in Ormoc show that multiplicity of opportunities, purposive choices and a combination of medium, high and very high levels of involvement in the different stages of housing recovery have led to disaster survivors with enhanced capacities at the individual and collective level. These users are confident in their resilience towards future natural hazards in terms of having attained safer housing solutions, experience regarding partnerships with other organizations for accessing funding, and skills for repairing their own houses.

Unfreedoms for resilient resettlement should be transformed through enacting procurement and housing recovery policies that are consistent with counteracting pre-disaster vulnerabilities. Such policies should foster multiple reconstruction approaches, spatio-material conditions that allow for a multiplicity of housing solutions and tenures in-city, and involvement of prospective users in housing recovery. Hence, policies and regulations for resilient housing recovery would create conditions for building both resilient communities and resettlements.

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THESIS

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Keywords

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Capability space	Evolutionary housing	Critical Realism
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Opportunities	Choices	Capacities
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National Housing Authority	Gawad Kalinga	We Effect
	Types of involvement	Levels of involvement

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Key words: user involvement, housing recovery, capability approach, capability space, evolutionary housing, critical realism, vulnerability, resilience, causal mechanisms, the Philippines, typhoon Haiyan.

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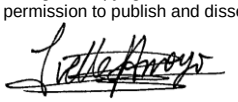
Signature:  Date: 2019-04-15

To my parents Jorge and Delia

To Cristian, Juan José and Ana Lucía

for all their love and support

"The major force in relief and reconstruction is that of the families themselves"

(Davis, 1978, p. 40)

"To strengthen their capabilities to cope, survivors should play key roles in decision-making and resource management. Forty years ago, John Turner concluded that the process of housing matters as much as its end product, as it empowers people."

(Schilderman and Lyons, 2011, p. 218)

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"Todo lo puedo con Aquel que me da fuerzas" (Filipenses 4:13).

Abbreviations

ACHR	Asian Coalition for Housing Rights
AFCCO	Abuyog St. Francis Xavier Credit Cooperative
CBOs	Community Based Organizations
CR	Critical Realism
CRS	Catholic Relief Services
CRRP	Comprehensive Recovery and Rehabilitation Plan
FBOs	Faith Based Organizations
GK	Gawad Kalinga
GMA	Global Media Arts
HFHP	Habitat for Humanity Philippines
I-NGOs	International Non-Governmental Organizations
ISFs	Informal Settler Families
LGU	Local Government Unit
NATCCO	National Confederation of Cooperatives
NEDC	NATCCO Enterprise Development Center
NGOs	Non-Governmental Organizations
NHA	National Housing Authority
OCHA	UN Office for the Coordination of Humanitarian Affairs
OCCCI	Metro Ormoc Community Cooperative
OPARR	Office of the Presidential Assistant for Rehabilitation and Recovery
OSHH	Organized Self-Help Housing
RAY 1	Reconstruction Assistance for Yolanda: Build Back Better
RAY 2	Reconstruction Assistance for Yolanda: Implementation for results
RRREI (C) model	Resolution Redescription Retrodiction Elimitation Identification Correction model
RRU-AP	Relief and Rehabilitation Unit from the Archdiocese of Palo – Caritas/NASSA
UNISDR	United Nations Office for Disaster Risk Reduction
UPA	Urban Poor Associates

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1 Introduction

1.1 Background of the thesis

> *"The best results are obtained by the user who is in full control of the design, construction and management of his own home. It is of secondary importance whether or not he builds it with his own hands, unless he is very poor" (Turner and Fitcher, 1972, p. 158).*

In June 2013, I defended my licentiate thesis *Organized self-help housing as an enabling shelter & development strategy. Lessons from current practice, institutional approaches and projects in developing countries*. In that first research work, I attempted to discuss Organized Self-Help Housing[1] (OSHH) from three different perspectives: the current practice in developing countries; institutional approaches and the project level. There are four main conclusions from that work. Regarding the current practice, it was possible to identify a tendency towards incorporating organized self-help housing for medium-rise buildings up to four or five storeys for in-situ slum upgrading, relocation or new housing projects –two to three floors in the Philippines and up to five floors in Brazil. Regarding institutional approaches, the thesis studied the approaches of the Non-Governmental Organizations Fundacion Promotora de Vivienda (FUPROVI)[2] and the Swedish Association for Development of Low-cost Housing (SADEL)[3]. The focus of the two case studies was on actors and their roles and issues of the Habitat Agenda incorporated in their approaches to OSHH for low-income households. However, in those case studies I was not able to do observations of social settings or interview residents to get deeper understanding of the OSHH process because the projects were already finished when I implemented field study in Costa Rica in 2008. In the case of SADEL, I had only been able to rely on desk research because the project was implemented in the late 1980s and I did not carry out fieldwork in Tunisia.

At the project level, I tried to explain how a high degree of dweller-control over the organized self-help housing process contributes to enhancing the capabilities of the poor. I also tried to describe the OSHH

[1] Organized Self-Help Housing: "a process that involves the community's active participation and decision making in planning, design, self-construction and post-project activities with technical assistance of a facilitating organization" (Arroyo, 2013, p.4).

[2] FUPROVI is a non-governmental organization based in Costa Rica working with organized self-help housing projects since 1987. See http://www.fuprovi.org

[3] For SADEL publications see http://www.hdm.lth.se/publications/sadel-publications/?L=2

process, but the case study Hogar de Nazareth was implemented during the 1990s in Guayaquil-Ecuador, whereas my fieldwork was done from 2008 to 2011. Therefore, I was not able to have first-hand empirical experience on how residents were involved in the OSHH process. At that time, I started questioning myself if the concept of OSHH was limiting my research to projects in which users self-build housing themselves with technical assistance of a facilitating organization. Hence, my research interest shifted to how the poor could be involved in the broader housing process cycle – before, during and after the self-construction or construction stage.

The international survey[4] of my licentiate thesis concluded that non-governmental and community-based organizations working with an organized self-help housing approach were concentrated in countries such as the Philippines, Indonesia and India. Regarding future studies from my licentiate thesis, I had an interest in a) understanding if communities affected by natural hazards that participated in organized self-help housing processes had enhanced their capabilities; b) what capabilities the poor enhanced during the organized self-help housing process; c) the importance of evaluation of organized self-help reconstruction projects (Arroyo, 2013).

Feedback during the defence of my licentiate thesis, discussion with my tutors, and my own critical reflection, led to question the focus of the next part of my doctoral studies. First, I considered the appropriateness of focusing on *user involvement*[5] in the whole housing project cycle rather than only on organized self-help housing. This would allow me to engage in a more holistic discussion of different ways of involving the poor in the planning, construction and post-occupancy stages of their future houses – even if people have not self-built their houses. Secondly, I wanted to implement fieldwork in projects where I could observe and interact with poor people involved in housing processes to be able to gain in-depth knowledge about how they were involved in such processes. Thirdly, I was inclined to focus on two types of housing projects, relocation of slum dwellers and reconstruction after natural hazards. Finally, my research curiosity was oriented towards understanding how people's involvement in housing processes contributed or not to the development of their capabilities.

On November 8th 2013 typhoon Haiyan hit the Philippines severely and about one million houses were damaged or destroyed. The huge destruction required that international humanitarian aid organizations deployed huge efforts for shelter relief in the emergency phase. Right after the typhoon, I

[4] More details about the international survey that was implemented between October 2008 and January 2010 as part of the Licentiate thesis can be seen in Arroyo (2013, p. 93).
[5] This thesis uses the notion of user involvement to specify that disaster survivors who will own or occupy the houses would be the ones directly and actively engaged in post-disaster housing processes.

found out in the media that a building implemented by We Effect[6] and Abuyog St. Francis Xavier Credit Cooperative (AFCCO) had resisted the damage of typhoon Haiyan in Abuyog, Leyte. In Latin America, We Effect is known for involving the users in self-construction of their own housing with technical assistance. Although that was not exactly the case of the building in Abuyog, my research curiosity was triggered. Hence, a preliminary research question was framed as follows: To what extent have prospective users been involved in housing reconstruction? It was in this context that my supervisors and I decided that my doctoral thesis would focus on post-disaster housing in areas affected by typhoon Haiyan, in the Philippines.

1.2 Situating the research

> *"It has been recognized for nearly 30 years that a clear link exists between development, vulnerability and disasters" (Schilderman and Lyons, 2011, p.219).*

Since the adoption of the Hyogo Framework for Action[7], it has been estimated that around 700,000 people have lost their lives, more than 1.4 million have been injured and nearly 23 million people have become homeless from 2005 to 2015 as a consequence of disasters globally (United Nations Office of Disaster Risk Reduction, 2015). The impact of hazards on the built environment in developing countries is more than 20 times in magnitude than in developed countries (Ahmed, 2011). In the context of developing countries, dynamic pressures such as rapid urbanization[8], informal construction, and lack of knowledge about safe building techniques cause unsafe conditions in the built environment. These unsafe conditions include low quality construction and building settlements in dangerous locations (Davis, 1978[9]; Lizarralde, et al., 2010), known as precarious human settlements or slums. It has been estimated that over 880 million people lived in slums in year 2014. Over 1.5 billion urban households will lack decent housing by 2030 (UN-Habitat, 2016). Natural hazards affect people living in slums strongly because "disaster marks the interface between an extreme physical phenomenon and a vulnerable human population" (O'Keefe, et al., 1976, p.566). Considering that disasters have more socio-economic causes than natural ones, the same authors argue for

[6] We Effect is the former Swedish Cooperative Centre. See http://www.weeffect.org

[7] The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters was adopted by 168 member countries in the second World Conference on Disaster Risk Reduction held in Kobe, Japan in 2005 (DasGupta and Shaw, 2017).

[8] Rapid urbanization: "a process by which large numbers of people have become spatially concentrated in cities where they focus on non-agricultural activities" (ICF International, 2014).

[9] One of the first globally known publications on post-disaster reconstruction is *Shelter after disaster: guidelines for assistance*, written by Ian Davis in 1978.

removing the "naturalness from natural hazards". Lizarralde, et al. (2010, p.1) assert that disasters "are the result of the fragile relations between the natural and built environments".

Globally, the *Sphere handbook*[10] provides guidelines for post-disaster emergency shelter and camp management issues. However, this handbook lacks guidelines for reconstruction of permanent housing (Ahmed, 2011). Furthermore, it does not deal with how to integrate emergency/temporary shelter with long-term permanent housing. The need of producing *man-made environments*[11] after disasters has increased dramatically in the last decades. However, the *making disciplines*[12] are not engaged enough with rebuilding houses after disasters during emergency or recovery[13]. The kind of knowledge that the making professions deal with has been defined by Nilsson and Dunin-Woyseth (2013) as *knowledge-how*. Boano and Hunter (2012, p.9) argue that architecture seems to be in a deep existential crisis because of "the ambiguous role of architects and paradigms of mainstream architectural practice and the scepticism of their involvement in disaster-stricken environments". Hence, there is a need of producing *knowledge-how* from within the making disciplines to improve *housing recovery* after natural hazards in the light of new development theories.

Housing recovery "refers to the repair and reconstruction of damaged and destroyed housing following a disaster event…. [It is] a process where communities or individual households rebuild, repair, and replace their housing using personal funds, private loans, insurance pay-outs, community resources, or governmental assistance" (Mukherji, 2017). In this thesis, the notion of housing recovery is used interchangeable with post-disaster housing. "Post-disaster housing and reconstruction is a complex political process in which various state and non-state actors need to consider the availability of land, financing, multiple scales of building, and equal distribution of resources especially for the poor or landless" (Johnson and Lizarralde, 2012). Due to the complexity mentioned above, the phenomena under study requires a metatheory that allows studying different realms of reality.

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[10] The Sphere handbook is a set of minimum standards in key life-saving sectors agreed by the international humanitarian aid community. The sectors include water supply, sanitation and hygiene promotion; food security and nutrition; shelter, settlement and non-food items; and health action. For detailed information, see http://www.sphereproject.org (The Sphere Project, 2011; Sphere Association, 2018).

[11] Architecture, as part of the *making disciplines*[11], is responsible for the "design and production of remarkable variety and volume of artefacts and man-made environments" (Nilsson and Dunin-Woyseth, 2013, p.40).

[12] The making disciplines are art production, object design, industrial design, architecture, landscape architecture, spatial planning (Nilsson and Dunin-Woyseth, 2013).

[13] Recovery: "The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors" (United Nations Office of Disaster Risk Reduction, 2009, p.23).

1.3 The Philippines in context

> "The wealth of the country's richest 1% is equivalent to the combined income of the poorest 30%, showing severe inequity that reflects the control of the economy by a few [in the Philippines]. Neoliberal policies have also eroded government revenues (15.3% of GDP in 2001 to 14.5% in 2012) and the capacity of the state to meet the people's social and economic needs" (IBON Foundation, 2013).

The Asian-Pacific region[14] is the world's most disaster-prone, globally. (Jurriëns, et al., 2014). Seven of the ten most deadly global disasters hit the region in 2013; affecting a total of 85 million people in 2014 and displacing 1.38 million (United Nations Office for the Coordination of Humanitarian Affairs, 2014). Within this region, the Philippines is one of the most disaster-prone countries in the world, and among the top 10 countries most likely to be affected by climate change due to its geographic location (ICF International, 2014). The country is susceptible to earthquakes, volcanic eruptions, tsunamis, and typhoons, due to being located within the Pacific Ring of Fire and the typhoon belt on the North Pacific Basin (Global Facility for Disaster Reduction and Recovery, 2015). It is the third country in the world regarding vulnerability to tropical cyclone occurrence; and around 20 typhoons hit the country yearly (ICF International, 2014).

The economy in the Philippines has shifted from being predominantly rural and based on agriculture to more industrially diverse and service-oriented in the last decades. Rapid urbanization has accompanied this economic shift. The average annual rate of urbanization was 3.79% in the 1960s; and then it increased to 5.04% in the mid-1990s (ICF International, 2014). According to the 2010 census, the population of the Philippines was 92.34 million inhabitants (Philippine Statistics Authority, 2012). The World Bank (2015) estimated that the total population was 100.1 million in 2014; and poverty[15] headcount ratio at national poverty lines was 25.2% in 2012. Poverty incidence was registered at 26.3% in 2015 (Philippine Statistics Authority, 2016).

According to Collins (2009, p.89), "development problems provoke disasters and disasters slow up development". The same author argues that the relationship between disasters and development is a circular process.

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[14] The Asia and Pacific region comprises 45 countries and territories (including 13 Pacific Island States) across 11 time zones (United Nations Office for the Coordination of Humanitarian Affairs, 2014).

[15] To be poor means earning less than PHP 9,140 monthly for covering basic food and non-food needs for a family of five members (Philippine Statistics Authority, 2016) –equivalent to $175 USD per month.

Development problems –or underdevelopment– lead to vulnerability, especially for the poor. Quarantelli introduced the concept of vulnerability to disasters in the mid-1990s (Chang, 2012, p.23) to highlight the causal relationship between social conditions and the impact of natural events. For Jurriëns, et al., (2014, p.6), "vulnerability…is not only determined by physical factors, but also refers to social, economic and environmental conditions that 'increase the susceptibility of a community to the impacts of hazards'". In the Philippines, dangerous living conditions due to poverty, the recurrence of natural hazards, and short-term temporary housing solutions after calamities, seem to perpetuate vulnerability.

National Housing Authority estimates "the number of informal settlement families at about 1.5 million or about 15% of the Philippines' total urban population" (ICF International, 2014, p.1). Many Informal Settler Families (ISFs) live in areas located in risk-prone areas such as along shorelines or around dumpsites, under bridges, and on hillsides, that make them vulnerable to natural and man-made hazards. Moreover, ISFs live in makeshift shelter, which also increases the vulnerability of their built environment to hazards. ISFs lack formal employment, which affects their financial capacity to recover from calamities; and are excluded from social networks such as governmental bodies or Non-Governmental Organizations to access housing reconstruction projects. The nature and magnitude of disasters is influenced by social conditions (Jurriëns, et al., 2014). Eastern Visayas, Western Visayas and Central Visayas were hardest hit by Haiyan. Pre-disaster poverty levels and malnutrition rates in the three regions were already higher than the national average (United Nations Office for the Coordination of Humanitarian Affairs, 2013a). The latter explains the scope of the destruction caused by Haiyan.

1.4 Background of super typhoon Haiyan

> "While the Government is to be commended in terms of its immediate responses, its attention to ensuring sustainable durable solutions for [Internally Displaced People] IDPs remains inadequate to date" UN Special Rapporteur Chaloka Beyani, Official visit between 21 and 31 July 2015 (Office of the High Commissioner for Human Rights, 2015, p.1).

Before typhoon Haiyan hit the Philippines, Eastern Visayas lagged behind national targets for poverty, education, and health, to accomplish the Millennium Development Goals. The main sources of livelihood were agriculture, fisheries, and tourism. "Eastern Visayas contributed 4.0 percent, 2.7 percent and 1.5 percent of the national sectoral output in agriculture, industry and services, respectively" (National Economic and Development Authority, 2013). Poverty has been estimated above 60% of the population in Eastern Samar (Shelter Cluster Philippines, 2016) before the typhoon hit Eastern Visayas. Furthermore, around one-third of the population of Tacloban were informal settlers living in disaster-prone shoreline (Yamada and Galat, 2014).

Super typhoon Haiyan struck the Visayas Islands on November 8, 2013. It has been considered the strongest ever-recorded typhoon with wind speeds of more than 300 km per hour and storm surges higher than four meters (Global Facility for Disaster Reduction and Recovery, 2015). The category 5 typhoon –in the Saffir-Simpson hurricane scale– affected severely 170 cities and municipalities in 14 provinces across six regions, which are located within the 100-kilometer storm track (Office of the Presidential Assistant for Rehabilitation, 2014a). The typhoon caused 6,300 reported deaths, 28,689 were injured; and 16 million people were affected in the whole Haiyan corridor (Global Facility for Disaster Reduction and Recovery, 2015).

The super typhoon was so strong that it damaged approximately 550,000 houses and destroyed around 580,000 houses in its whole path through the Philippines (Shelter Cluster Philippines, 2014). Haiyan displaced more than four million people (Paragas, et al., 2016). The cities most affected in Leyte were Tacloban, Palo, Tanauan, Ormoc and Abuyog. The number of houses damaged has been higher than 10,000 units in these cities, as illustrated in Figure 1.1.

Typhoon Haiyan made 6 landfalls in Guiuan, Easter Samar at 4:40 am; Dulag-Tolosa, Leyte at 7 am; Daanbantayan, Cebu at 9:40 ; Bantayan Island at 10:40, Cebu; Conception, Iloilo at 12 pm and Tibiao, Antique at 3 pm (National Disaster Risk Reduction and Management Council, 2013). In San Pedro and San Pablo Bay, the storm surge that hit the area between

Tacloban and Palo was around five to six meters with inundation of 600 to 800 meters inland. The local inhabitants were not aware of the destructive power of the storm surge and the sustain wind of 200 km per hour (55 m/s) that hit Tacloban (Paciente, 2014). The path taken by typhoon Haiyan is shown in Figure 1.1.

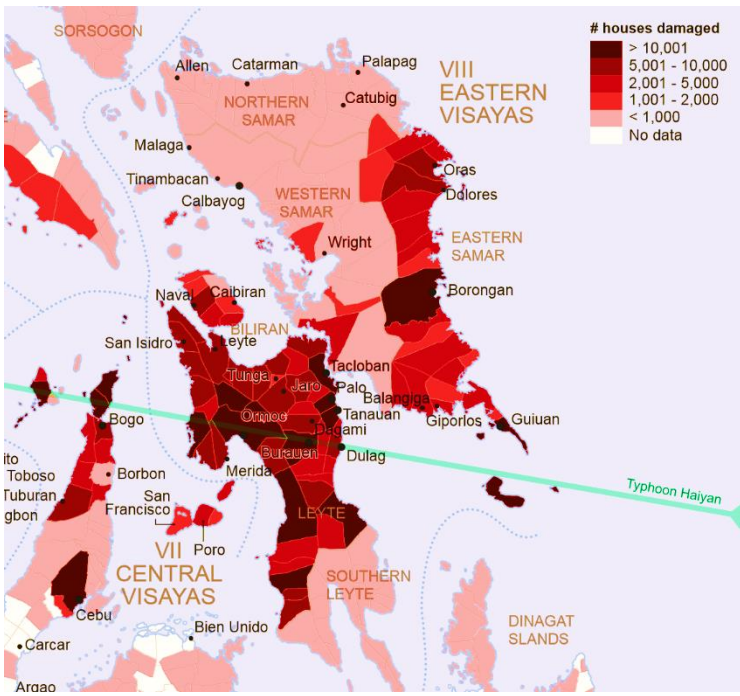

Figure 1.1 Snapshot of damaged houses by typhoon Haiyan. The image shows the cities of Tacloban, Palo, Tanauan and Ormoc were highly affected by the super typhoon the isle of Leyte in Region VIII Eastern Visayas. Source: United Nations Office for the Coordination of Humanitarian Affairs (2013b).

The image also illustrates that houses damaged by Haiyan were more than 10,000 units in Tacloban, Palo, Tanauan, and Ormoc in the province of Leyte. The super typhoon devastated Tacloban that had a population of 221,174 in 2010, causing 2,669 deaths and damaging 40,192 houses. Around 10,000 of the damaged houses were shelter from informal settler families located next to the shoreline (Paragas, et al., 2016). "An aerial survey revealed almost total destruction in the coastal areas of Leyte province" (United Nations Office for the Coordination of Humanitarian Affairs, 2013a, p.3).

"Drowning in the storm surge caused the majority of deaths…[ ]… the water came inland for hundreds of meters" (Yamada and Galat, 2014). Poor

households living in makeshift shelter next to the shoreline underestimated the warning regarding the storm surge. The latter mainly because of lack of understanding of the term storm surge[16]. During the first field trip, Haiyan survivors explained that they were not aware of the destruction that the sea waves would bring to them. They said they would have understood the danger better if the media and authorities warned the population regarding tsunami-like waves instead of storm surge.

The response from the Philippines Government

The Philippines Disaster Risk Reduction and Management (DRRM) Act of 2010 sets the institutional framework for disaster risk management in the country under the leadership of the National Disaster Risk Reduction and Management Council. According to the Global Facility for Disaster Reduction and Recovery (2015), the institutional framework includes around forty government agencies and leagues of Local Government Units (LGUs) –which in the Philippines include barangays[17], municipalities, cities and provinces– private sector and civil society organizations. The agency with the mandate of Rehabilitation and Recovery is the National Economic and Development Authority (NEDA). Due to the magnitude of typhoon Haiyan, former President Aquino created the Office of the Presidential Assistance for Rehabilitation and Recovery (OPARR), "an ad-hoc structure to focus exclusively on recovery" (Global Facility for Disaster Reduction and Recovery, 2015, p. 8). Senator Panfilo Lacson was appointed Presidential Assistant for Rehabilitation and Recovery for coordinating recovery efforts from the government and other institutions on 6th December 2013. Figure 1.2 shows the Planning System for Haiyan Recovery and Rehabilitation. Typhoon Haiyan is locally known as typhoon Yolanda. The *Reconstruction Assistance for Yolanda (RAY 1): Build Back Better* was published on 16th December 2013 (National Economic and Development Authority, 2013). RAY 1 outlines the government plans to guide recovery and reconstruction (Shelter Cluster Philippines, 2016). The government adopted a cluster framework in which the Housing and Urban Development Coordinating Council led the *Resettlement Cluster* and National Housing Authority was given the responsibility for reconstruction of 205,128 housing units in the Yolanda corridor. The policy document *Reconstruction Assistance for*

[16] A storm surge is an abnormal rise of water generated by a storm, over and above the predicted astronomical tides (National Oceanic and Atmospheric Administration, 2017). During a typhoon or hurricane, the strong winds push seawater towards the shore, which produces the surge. The destructive power of the surge is also related to the slope of the continental shelf and the type of building structures built next to the shore, considering that water weighs around 1,700 pounds per cubic yard.

[17] Barangay is "the basic political unit…[it] serves as the primary planning and implementing unit of government policies, plans, programs, projects, and activities in the community…" (The Government of the Philippines 1991, Section 384). Barangay captain is the chief executive of the Barangay government (Section 389).

Yolanda: Implementation for results (RAY 2) included the following strategies for housing and resettlement: on-site reparation or rebuilding; relocation from hazard-prone areas to safe locations; implementation of disaster-resilient mass housing in cooperation with Local Government Units and communities; owner-driven approach to housing recovery; a call for mobilization of collective capacity and resources including the private sector; and reassessment of the no-build zone (National Economic and Development Authority, 2014).

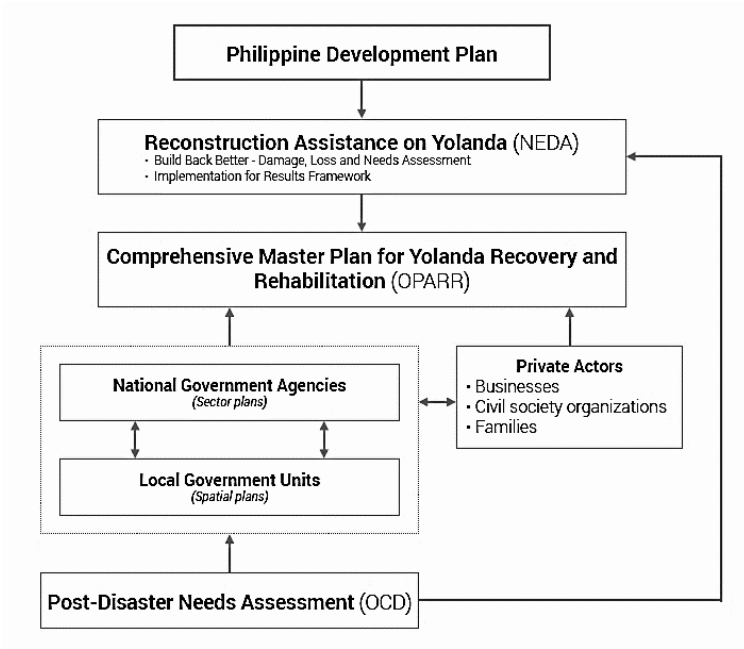

Figure 1.2 Planning system for Haiyan (Yolanda) recovery and rehabilitation. Source: National Economic and Development Authority (2014)

The international emergency shelter relief

The cluster approach[18] was adopted in 2006 following and independent Humanitarian Response Review. "The Global Shelter Cluster is an Inter-Agency Standing Committee coordination mechanism that supports people affected by natural hazards and internally displaced people affected by

[18] The UN's Inter-Agency Standing Committee (IASC) established the following nine clusters in 2005: Protection, Camp Coordination and Management, Water Sanitation and Hygiene, Health, Emergency Shelter, Nutrition, Emergency Telecommunications, Logistics, and Early Recovery (Cluster Working Group on Early Recovery, 2008).

conflict with the means to live in safe, dignified and appropriate shelter" (Global Shelter Cluster, 2015, p.1). The same organization states that the aim of the cluster approach is to "address gaps and to increase the effectiveness of humanitarian response by building partnerships"; and to assure clear leadership, division of tasks between organizations working in different areas (Inter-Agency Standing Committee, 2015). The cluster approach was established to respond to large-scale complex and natural humanitarian emergencies rather than for coordinating recovery and development. After the emergency, clusters should be adapted to structures more suitable to address both recovery and development (Global Cluster for Early Recovery, 2013).

Because super typhoon Haiyan was a category 5 typhoon, the Inter-Agency Standing Committee declared a Level 3 response –i.e. a humanitarian system-wide emergency response. The criteria for activating a Level 3 response is "when the capacity to lead, coordinate and deliver humanitarian assistance and protection on the ground does not match the scale, complexity and urgency of the crisis" (Paragas, et al., 2016, p.17). The following key humanitarian clusters were activated in areas affected by Haiyan from 10th November 2013: logistics, emergency telecommunications, water, sanitation and hygiene, health, emergency shelter, protection, early recovery, camp coordination and management, food security, education and livelihood. For detailed information of the relief efforts from international humanitarian aid organizations, see Santiago, et al. (2016).

More than 70 shelter cluster partners contributed to emergency shelter relief. Shelter relief after 100 days of the typhoon consisted of the delivery of basic emergency shelter materials such as tarps and tents to 500,000 households; building materials for walls, frames and floors to 61,000 households; roofing material such as corrugated iron sheeting to 54,000 households; and 2,000 households received transitional or core shelters (Shelter Cluster Philippines, 2014). The mandate of the Shelter Cluster is for the humanitarian and emergency phase only. Therefore, it does not coordinate permanent housing activities. The government of the Philippines declared the humanitarian phase over on 4th July 2014 and dedicated coordination of further response to the Office of the Presidential Assistance for Rehabilitation and Recovery's structures. The *Reconstruction Assistance for Yolanda* was replaced by the *Comprehensive Rehabilitation and Recovery Plan* that is dated August 2014 and made public online on November 2015 (Shelter Cluster Philippines, 2016).

1.5 Scope

"The biggest lesson is the blindingly obvious one of involving people in decisions that affect them –a thought that so often seems to elude those tasked with housing reconstruction. Those that have survived disasters may have lost everything, and then too often suffer a further indignity of being re-housed in houses that may be just wrong, on location, culture, materials or quality –and too often with a patronising sign on the front saying it is a gift" (David Sanderson, 2011 cited in Davis, 2011, p. 198).

The research field

Decision makers have failed in addressing the *social vulnerability*[19] of the poor regarding their built environment. One of the reasons is that policy makers in developing countries replicate the dominant *product approach to housing* from developed countries –by producing completed new units to be sold through mortgages (Ferguson and Navarrete, 2003). *Housing is considered as a product* of the market economy instead of understanding *housing as a verb*, emphasizing the importance of the housing process (Turner and Fichter, 1972; Turner, 1976). Around 70% of poor people in developing countries build their houses progressively over 5 to 15 years with their own savings instead of acquiring finished units (Ferguson and Navarrete, 2003).

Social and human vulnerability is related to disasters (O'Keefe, et al., 1976; Quarantelli, 1982; Alexander, 1997; Chang, 2012). The strength and frequency of natural hazards affect mostly poor people due to their social and physical vulnerability. The shelter of the poor is usually made with makeshift materials because they lack financial resources for accessing housing offered by the market. Poor people lack knowledge about safe construction techniques and settle in disaster-prone land. There is no consensus regarding the *definition of disasters*. The notion of disaster has been defined from a sociological perspective[20], from the hazard's tradition

[19] "**Social vulnerability:** "the characteristics of a person or a group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impacts of a natural hazard" (Wisner et al., 2004, p. 11). Whereas **people's physical vulnerability** refers to their susceptibility to biological changes (i.e., impacts on anatomical structures and physiological functioning), their social vulnerability refers to limitations in their physical assets (buildings, furnishings, vehicles) and psychological (knowledge, skills, and abilities), social (community integration), economic (financial savings), and political (public policy influence) resources" (Lindell, 2013) .

[20] The classical sociological approach to disasters "may be seen as beginning the end of World War II and closing with Fritz's definition in 1961". This approach defines disasters as events with negative social consequences. Fritz expands the latter definition highlighting that disaster impacts an entire society or some subdivision; and included the notion of real impact emphasizing that "essential functions of the society [are] prevented" (Fritz cited in Perry, 2007, p.6).

by geographers and others; and disasters as a social phenomenon emphasizing vulnerability as socially constructed but almost excluding physical actors. David Alexander and Susan Cutter –working in the hazard's tradition– emphasize social vulnerability and change when defining disasters (Perry, 2007). From the *disasters as a social phenomenon tradition*, anthropologist Anthony Oliver-Smith defines disaster as "an event that combines destructive actors with a vulnerable population disrupting social needs for physical survival, social order and meaning" (Perry 2007, p.11). This definition is consistent with the definition by Westgate and O'Keefe, geographer, and development scholars. These authors contend that "disaster events occur at the interface between extreme physical and natural hazards and a vulnerable human group" (Westgate and O'Keefe, 1976, p.61). The authors make a differentiation regarding the "relative ameliorative and recuperative qualities" of a human group in a developed context in relation to a human group that lacks the latter capacities in a developing context. For this thesis, based on Davis (1978), Davis and Alexander (2016) and the discussion above,

> *A disaster situation occurs at the interface between extreme natural hazards and a human group living in dangerous conditions and unsafe built environment due to their social vulnerability (Working definition for this thesis).*

Davis' (1978, p. 3) diagram on *Hazards and vulnerability* or *the Pressure and release model* (Davis and Alexander, 2016, p. 178) has been developed further in this thesis. Figure 1.3 *A critical realist*[21] *view to vulnerability to disaster* illustrates the relationship between natural hazards, vulnerability to disaster, dangerous living conditions and plausible causes. Davis (1978) contends that the vulnerability of the poor is related to the exploitation of land by the elite because of *abuse of power*. Land has become a commodity, which is not financially accessible by the poor in most developing countries. The poor place informal settlements in dangerous locations. Inequality in the distribution of wealth leads to high levels of poverty, which is aggravated by rapid urbanization. Hence, the urban poor occupy land without legal rights and self-build makeshift shelter. Lack of knowledge about safe building techniques contributes to create dangerous living conditions. Previous emergency or temporary shelter lacking permanent structure and materials add to dangerous living conditions when facing future natural hazards. *Corruption*[22] is a plausible structural cause

[21] Critical realism is one of the three dominant research paradigms in the social sciences. See Section 3.1 for a detailed account of critical realism ontology.

[22] According to Quah (2015, p. 9), corruption is "the misuse of public or private power, office or authority for private benefit". Corruption is a way of life in a country when it is systemic and becomes the norm rather than the exception.

underlying abuse of power, land exploitation, inequality and high levels of poverty.

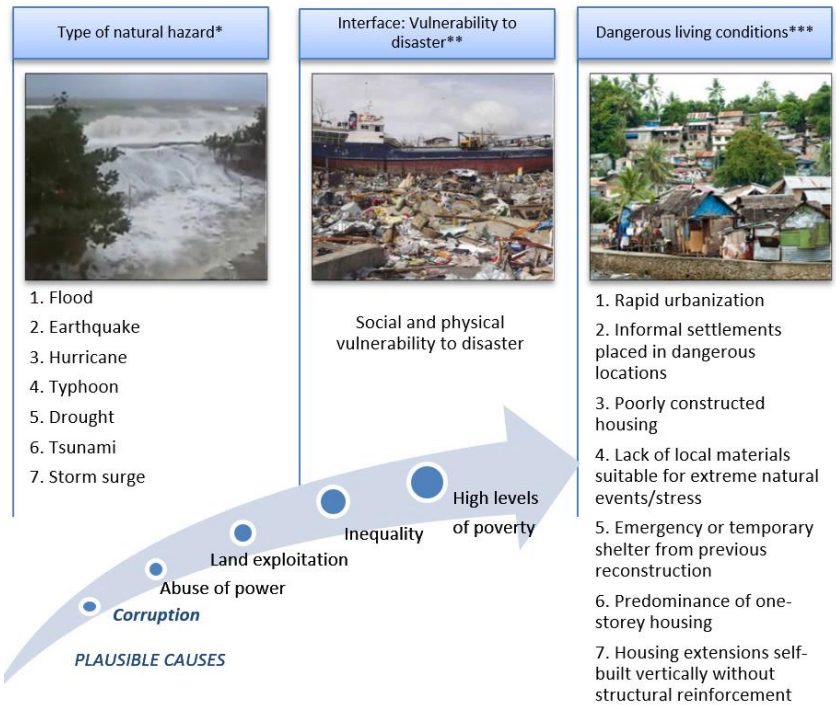

*Figure 1.3 A critical realist view on vulnerability to disaster. The figure illustrates natural hazards, vulnerability to disaster, dangerous living conditions and plausible causes. Source: Elaborated by the author based on O'Keefe, et al., (1976); Davis (1978); Lizarralde, et al., (2010); Davis and Alexander (2016). * Photography of Haiyan storm surge by AP Photo/Nelson Salting, © AP News.com.au; ** Photography of a large boat sitting on top of destroyed homes after it was washed ashore by strong waves caused by Supertyphoon "Yolanda" in Tacloban City; ***Photography of informal settlement located next to the shoreline before typhoon Haiyan hit Tacloban © The Guardian.*

International organizations such as the United Nations and most Non-Governmental Organizations sector had a low level of interest in shelter reconstruction from 1972 until the Gujarat Earthquake of 2001 (Davis, 2011). Post-disaster reconstruction is a relatively new research topic in the field of natural disaster research. Post-disaster reconstruction has received more attention during the last decade and its focus has shifted from descriptive reports to theory and model building (Yi and Yang, 2014). The same authors argue that most research on post-disaster reconstruction is produced in the United States, United Kingdom, New Zealand Japan, Canada and Australia. Researchers focus mostly on post-disaster

reconstruction in Asia –Indonesia, China, Sri Lanka and Japan– and the United States.

In post-disaster contexts, approaches and timing to housing reconstruction follow two different ways of thinking. First, the *short-term perspective* from humanitarian aid workers focuses on providing immediate shelter relief –within a six-month period. International humanitarian organizations that undertake shelter relief after a calamity –such as the International Federation of Red Cross and Red Crescent Societies– "do not usually build houses" (Lizarralde, et al., 2010, p.7); neither have housing provision among their mandate under normal conditions in developing countries. Relief efforts after the Indian Ocean tsunami of 26th December 2004 have questioned the role of architects in housing and settlement reconstruction. Humanitarian organizations target short-term emergency shelter relief, but lack the knowledge or insights to rebuild housing with a long-term development perspective that architects and planners have. Therefore, "the buildings that replace destroyed communities are frequently unsafe" (Aquilino, 2011, p.7).

Secondly, the *long-term view* of development-based professions –such as planners and architects– focuses on achieving permanent housing solutions within a period up to 10 to 15 years or more according to funding availability. A non-sequential recovery framework proposed by Quarantelli (1982) seems to have been the basis for the current division of post-disaster housing in three different types of housing –namely emergency shelters, temporary houses and permanent houses. The latter has been misunderstood as different types of buildings are needed for each type of housing (Lizarralde, et al., 2010). The emphasis in the last decades has been on disaster management instead of risk management. Few donors are willing to fund housing and urban development outside of an emergency context. Therefore, a post-disaster emergency presents one of the few opportunities available for upgrading the quality of vulnerable housing (Bauer, 2003).

Disaster losses in developing nations are equivalent to a minimum of one third of all international development aid over the past 20 years that represented a total of US$3.03 trillion. "Of this, US$106.7 billion was allocated to disasters" (Kellet and Caravani, 2013). International funding is mostly spent in emergency or temporary shelter that will last around 1 to 2 years. Hence, disaster survivors who are poor and receive these types of shelter will remain vulnerable and become victims when the next hazard strikes, perpetuating the cycle of vulnerability (Lindell, 2013). The money spent on emergency relief is three times the amount spent on reconstruction and rehabilitation; and five times when related to the amount invested for risk reduction.

Among the aims of the post-2015 agenda in the international humanitarian system, building *resilience*[23] and better alignment between humanitarian and development actors have been identified as key strategies to reduce vulnerability and dependence on humanitarian aid. "The World Humanitarian Summit in 2016 is expected to take the reform process further by integrating humanitarian and development agendas" (United Nations Office for the Coordination of Humanitarian Affairs, 2014, p.11). One of the guiding principles of the Sendai Framework for Disaster Risk Reduction 2015-2030 is to *build back better* in recovery, rehabilitation and reconstruction whilst increasing public capacities regarding disaster risk. The Sendai Framework has identified four priorities and one of them is related to housing recovery. The framework emphazises the need of public and private investment "to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets…" (United Nations Office of Disaster Risk Reduction, 2015, pp.18-19). Priority 3: Investing in disaster risk reduction for resilience, National and local levels, Section 30 points (f) and (g) can be summarised as calling for investing in disaster risk reduction for resilience:

(f) to incorporate disaster risk assesments into urban development and informal housing

(g) to incorporate building codes, rehabilitation and reconstruction practices, making the latter applicable also to informal settlements; and reinforce implementation of codes and practices

Resilience is a notion that has been used in the fields of ecology, sociology, engineering, physics and psychology (Joerin, et al., 2014). Alexander (2013) argues that the use of the term resilience in English dated to 1625. The notion of resilience was transferred from mechanics for describing the strength and ductility of steel beams in 1858 to ecology. Before the 20th century resilience meant "to bounce back" (Alexander, 2013, p. 2710). The term was used in psychology in the 1950s, in sociology and human geography at the end of the 1990s. The notion of resilience was incorporated in disaster risk reduction in the 2000s and in sustainability science in 2010. In the field of disaster research, *resilience* is defined as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions" (United Nations Office of Disaster Risk Reduction, 2009, p.24). Resilience refers also to the *coping*

[23] Resilience: a definition comes at the end of this section. For a discussion of different definitions of resilience see Cutter, et al. (2008, p. 599-600). For a historical discussion of the evolution of the term resilience see Alexander (2013, p. 2712-2714). For a historical discussion of the concept of resilience to disasters see Joerin, et al. (2014, p. 35-38).

responses and *adaptive capacity* of social systems, natural systems or the built environment; and *social learning* for improving mitigation and preparedness for the next natural event (Cutter, et al., 2008).

Problem statement

According to Jha, et al. (2010), reconstruction approaches for post-disaster housing vary from owner or community-driven approaches to agency-driven according to different ways of involving the affected people and their degree of control over the process. Johnson and Lizarralde (2012) argue that reductionist approaches to housing recovery fail in problematizing it as just a technical problem. Technocratic and centralized planning and decision-making are reflected in projects in which disaster survivors are not directly involved in the planning, design, and financing of their future housing solutions. The latter leads to "lower levels of users' satisfaction" (Johnson and Lizarralde, 2012, p.343). Reconstruction is not considered a "long-term process integrated into an overall framework of community development and resilience building" (Ahmed, 2011, p.153).

Community participation in post-disaster housing has been widely promoted by international humanitarian aid organizations, scholars and policy makers (Davidson, et al., 2007; Ahmed, 2011; Daly and Brassard, 2011). Conversely, community participation practice in post-disaster reconstruction has lagged behind policy rhetoric (Mulligan, 2018). The concept community participation "has not been defined in terms of what it means in a project environment" (Davidson, et al., 2007, p. 102), which has probably affected its application on the ground. According to Daly and Brassard (2011), community participation in housing reconstruction was part of the rhetoric by International Non-Governmental Organizations after the 2004 Indian Ocean tsunami in Aceh, Indonesia. However, affected people were not involved in decision-making or during the design and construction phases. "The outcome was a proliferation of *generic housing* that suffered serious problems in terms of quality, suitability and cost-effectiveness" (Daly and Brassard, 2011, p. 530, own emphasis added).

Ahmed (2011) argues that consequences of cultural inappropriateness include that users abandon the houses, attempt to modify the units, dismantle units and sell their components. Moreover, the relationship between housing recovery and user involvement needs to be studied in the light of a multidimensional approach to poverty reduction. The research problem that will be addressed in this thesis can be summarized as the knowledge gap regarding: *types* and *levels of involving* deprived users in housing recovery to contribute to reduce their vulnerability. In addition, the researcher found a related angle that emerged while the study was being

implemented: *explanation for unexpected outcomes* of the housing recovery program in Leyte.

Aim and research questions

The overall purpose of the study is to develop a better understanding of the relation between housing recovery and user involvement from a capability approach perspective. The thesis aims at discussing different *types* and *levels* of *user involvement* in housing recovery in areas affected by typhoon Haiyan in Leyte. Thus, the study attempts to address two main research questions as illustrated in Figure 1.4.

1. How have users been involved in housing recovery?
2. How can unexpected outcomes of the housing recovery programme be explained?

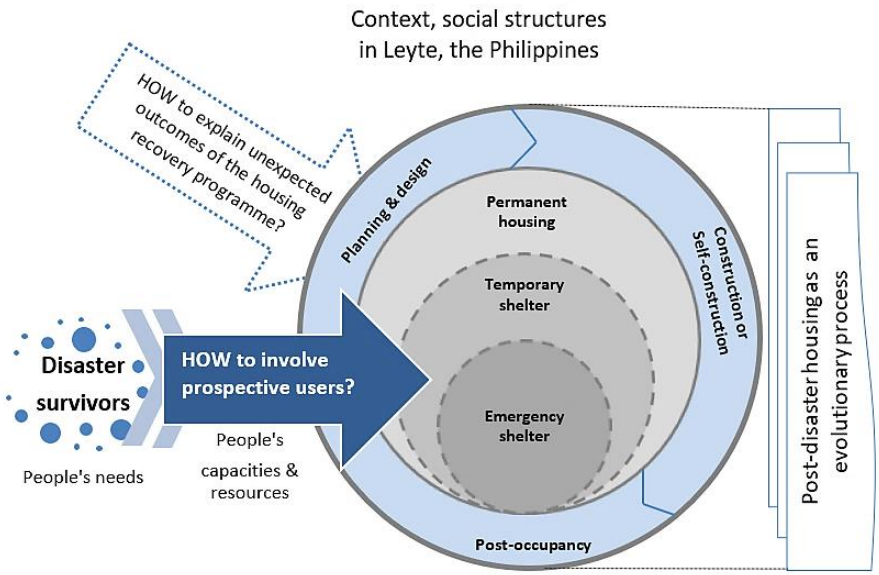

Figure 1.4 Post-disaster housing as an evolutionary process and research questions of the thesis. Elaborated by the author

This thesis has been done through studying housing recovery in areas affected by typhoon Haiyan in Leyte from three different perspectives: a) approaches to housing reconstruction; b) explanation for unexpected housing outcomes; and c) user involvement. First, the approaches to housing reconstruction will be addressed by analyzing whether or not

different types of organizations involved prospective users and how this was done. Secondly, the unexpected housing outcomes in Leyte will be studied through building explanation regarding causes that might have affected massive reconstruction negatively. Thirdly, the study addresses user involvement from a capability approach perspective at project level focusing on the work of two Non-Governmental Organizations a) We Effect[24], and b) Gawad Kalinga[25]. In order to achieve the purpose, aims and perspectives of the study, the following specific research questions should be answered:

Table 1.1 Research questions to study housing recovery in areas affected by typhoon Haiyan in Leyte, the Philippines

Perspective	***Research questions***	***Addressed in***
a) approaches to housing reconstruction	*How have prospective users been involved through different approaches to housing reconstruction?*	*Paper 1* *Ch. 4, Section 4.1*
b) explanation for unexpected housing outcomes	*What are the outcomes of the housing recovery programme?* *Why is the output of permanent post-disaster housing low?* *How can the outcomes of the housing recovery programme be explained?*	*Paper 2* *Ch. 4, Section 4.2*
c) user involvement *types and levels of involvement*	*How have prospective users been involved in housing recovery?* *What **opportunities** and **choices** have the projects offered to prospective users?* *What **capacities** have users developed?*	*Paper 3* *Ch. 4, Sections 4.3, 4.4 and 4.5*

In this thesis, the *users* are defined as Haiyan survivors involved in reconstruction of permanent housing who will be the future residents of the houses. For this study, *housing recovery* is *an evolutionary process* in which: a) emergency or temporary shelter evolves into permanent housing, *or* when an early housing recovery approach is implemented; b) users are actively involved in the whole process cycle –i.e. planning & design,

[24] We Effect –former Swedish Cooperative Centre– has a country office in the Philippines that works with fostering housing cooperatives for the poor. See https://weeffect.org/contact-us/asia/philippines/
[25] Gawad Kalinga: Gawad Kalinga Community Development Foundation Inc. is a Philippine-based movement –Non-Governmental Organization– working with housing and poverty alleviation. See http://www.gk1world.com/home

construction or self-construction, and post-occupancy (See Figure 1.4). The process cycle and how users are involved in housing recovery can be enabled or constrained due to the intentions of human actors within social structures acting in a given context. The thesis draws on both theoretical propositions and empirical data and attempts to propose tools to facilitate the involvement of users in housing recovery at project level.

Limitations

The thesis focuses mostly on reconstruction of permanent housing during recovery in areas affected by typhoon Haiyan. Geographically the study is limited to the island of Leyte. Two different periods were researched through fieldwork; the first period, three months after typhoon Haiyan; and the second one, sixteen months after the typhoon. Therefore, this thesis is limited to housing recovery during the period December 16th 2013 to August 31st 2015.

The study does not include emergency shelter relief, which aimed to respond to the immediate emergency need. The latter was mainly implemented by humanitarian agencies and its scope is too broad to be covered in this research. Paper 1, *Building Resilience through housing reconstruction in areas affected by typhoon Haiyan in the Philippines: Users involvement and incremental growth for medium-rise buildings,* addresses some reconstruction approaches of temporary housing implemented by different organizations because Haiyan survivors have been involved, to a certain extent, and to provide a wider overview of housing reconstruction.

Due to time and budget limitations, the study focuses more in-depth in two projects implemented by the Non-Governmental Organizations (NGOs) We Effect, and Gawad Kalinga. The work of National Housing Authority regarding permanent housing in Leyte is also considered, in order to discuss the government response in recovery and rehabilitation. The study has not included projects with a community-driven reconstruction approach that the Office of the Presidential Assistant for Rehabilitation and Recovery has proposed as part of the Comprehensive master plan for Yolanda Recovery and Rehabilitation. The main reason is that these projects were planned to be implemented after the second fieldwork.

Research process

My doctoral studies include two research works with their own composite thesis:

1. The *licentiate thesis* "Organized self-help housing as an enabling shelter & development strategy. Lessons from current practice, institutional approaches and projects in developing countries", from 2008-2013.
2. The *doctoral thesis*, "User involvement in housing recovery. Cases from Haiyan affected areas in the Philippines", from 2014-2019.

My licentiate thesis was empirically driven because knowledge regarding self-help housing was produced mostly from the late 1950s to the late 1990s. Since the year 2000, the focus of housing in developing countries shifted from self-help housing to enabling shelter strategies until around 2006 (Arroyo, 2013). Therefore, when I started my doctoral studies in 2008, my first task was to carry out an international survey to stablish the state of the art of Organized Self-Help Housing (OSHH). I implemented that survey from October 2008 to March 2010, addressing housing experts and practitioners through the extensive alumni network of Housing Development & Management (See Licentiate thesis Paper 1).

I carried out fieldwork in San Jose, Costa Rica and in Managua, Nicaragua in March 2008 to learn about institutional approaches to self-help housing with technical assistance implemented by the NGOs FUPROVI, HABITAR, and PRODEL. That fieldwork helped me to start focusing on the *organized-self-help housing process* and how different actors contributed with different types of resources. I also carried out desk research for learning about the approach of the NGO SADEL when implementing an organized self-help housing project in Tunisia (See Licentiate thesis, Paper 2).

As part of my licentiate thesis, I carried out fieldwork in Guayaquil, Ecuador, from 2009 to 2011. First, I implemented a survey to 100 households with the assistance of architectural students in the project Hogar de Nazareth. Then I carried out semi-structured interviews and a focus group discussion with community members. During the fieldwork in Guayaquil, I was still working as director of the Institute for Urban and Regional Planning at Universidad Catolica de Santiago de Guayaquil. Therefore, fieldwork was implemented between 2009 and 2011. From that study, I proposed a Model for the Organized Self-Help Housing process including different project stages –preparation, implementation and post OSHH process in Hogar de Nazareth (See Licentiate thesis, Paper 3). I also tried to understand the link between involvement in the OSHH process with the capacities developed by the residents. I tried to apply different

theoretical concepts and frameworks such as social capital, Caroline Moser's assets framework[26] and Amartya Sen's capability approach[27] to make sense of the empirical data from Hogar de Nazareth. In that first research work, I attempted to use critical realism as a research paradigm. I consider the importance of paradigmatic assumptions as "lenses for viewing the world, revealing phenomena and generating insights that would be difficult to obtain with other lenses" (Maxwell and Mittapalli, 2010, p.147). My licentiate thesis helped me to narrow down the object of study for this thesis –housing recovery; finding a focus –user involvement; and a theoretical framework –Amartya Sen's capability approach (Sen, 2001).

For my doctoral thesis, I carried out fieldwork[28] in Leyte three months and fifteen months after typhoon Haiyan hit the Philippines. The fieldwork is explained in Section 3.4. While writing Paper 1, *Building Resilience through Housing Reconstruction in Areas Affected by Typhoon Haiyan in the Philippines: Users Involvement and Incremental Growth for Medium-rise Buildings* in 2014, the development of *a post-disaster housing evaluation framework* emerged as a key theme. A first attempt to explore the suitability of applying the capability approach in a post-disaster framework for evaluating user involvement in housing reconstruction is discussed in Paper 1, Figure 13. The framework was discussed with colleagues from the Asian Coalition for Housing Right[29]s in Bangkok, Thailand in March 2015, before implementing the second fieldwork in Leyte. I applied an improved version of the evaluation framework in a workshop with members of the O-Balay housing co-operative (See Section 4.4).

Paper 2, *Housing recovery outcomes after typhoon Haiyan in the Philippines: a critical realist perspective,* attempts to apply a critical realist model for applied research for building plausible causal explanation for the unexpected outcomes of the housing recovery programme (See also Section 4.2). Building theoretically on Sen (2001), Frediani and Boano (2012), I have focused on the *capability space* and proposed the neologism *capability space of post-disaster housing* to develop a model for user involvement in evolutionary housing recovery in Paper 3, *User involvement in housing recovery after typhoon Haiyan from a capability perspective*. The model was applied to analyze the empirical data from the case studies of housing

[26] Moser's assets framework includes human capital, physical capital, financial capital, etc. See Moser (2009).
[27] The capability approach (Sen, 2001) is explained in Section 2.5 and Paper 3.
[28] The first fieldwork was carried out three months after Haiyan hit the Philippines, from 15 February to 24 March 2014. The second fieldwork was carried out sixteen months after the calamity, from 4 to 28 March 2015.
[29] Asian Coalition for Housing Rights is a regional network of grassroots community organizations, NGO's and professionals actively involved with urban poor development processes in Asian cities. See http://www.achr.net/

recovery carried out by Gawad Kalinga and We Effect in Tanauan and Ormoc respectively (See Paper 3 and Section 4.3).

The papers presented in this thesis are the result of a process of a multi-level, interactive and transdisciplinary research[30]. Haiyan survivors, professionals and staff from Governmental bodies, Non-Governmental Organizations, Faith Based Organizations, Housing Cooperatives, among others, have been key to getting different perspectives regarding housing recovery such as:

a) observable housing outcomes at the empirical level;
b) types and levels of user involvement;
c) partnerships for post-disaster housing;
d) opportunities offered by housing recovery projects, choices made by the users; and
e) the users' perspective on how *being involved* has contributed to enhance their capacities.

Strucure of the thesis

This thesis contains five chapters and three appended papers. *Chapter 1 Introduction* presents the background of the research, the Philippines context, the damage produced by typhoon Haiyan, and the scope of the research. *Chapter 2 Theoretical framework* situates the research among different fields of research, past and contemporary housing recovery, user involvement and the capability approach. Chapter 3 Methodology discusses basic critical realism, case study research, research procedure and data analysis. *Chapter 4 Findings and discussion* focuses on different approaches to housing reconstruction, the outcomes of the housing recovery programme, user involvement in housing recovery at project level, and proposes two tools for user involvement from a capability perspective. *Chapter 5 Conclusions and propositions* presents the conclusions of the thesis, recommendations and identifies future studies. The papers appended to this doctoral thesis, the role of the researcher and the status of each paper are detailed in Table 1.2.

[30] "Transdisciplinary research is research that includes cooperation within the scientific community and a debate between research and the society at large. Transdisciplinary research therefore transgresses boundaries between scientific disciplines, science, and other societal fields and includes deliberation about facts, practices and values" (Wiesmann, et al., 2008, p.435).

Table 1.2 Appended papers. Source: Ellaborated by the author

Paper	Title	Role of the researcher	Status
Paper 1	Building Resilience through Housing Reconstruction in Areas Affected by Typhoon Haiyan in the Philippines: User Involvement and Incremental Growth for Medium-rise Buildings	Ivette Arroyo designed tools for collecting qualitative data, implemented the first field study, analyzed and interpreted data; and wrote the paper.	Originally published in A. M. Garland, ed., 2015, Urban Opportunities: Perspectives on Climate Change, Resilience, Inclusion, and the Informal Economy. A New Generation of Ideas. © Wilson Center
Paper 2	Housing recovery outcomes after typhoon Haiyan in the Philippines: a critical realist perspective	Ivette Arroyo improved tools for collecting qualitative data, implemented the second field study, analyzed and interpreted data; and wrote the first draft of the paper. Ivette Arroyo revised the paper in collaboration with the second author.	Originally published in the Journal of Critical Realism, 2019, Vol. 18 (2) http://dx.doi.org/ 10.1080/14767430.2019.1605667 © Taylor & Francis
Paper 3	User Involvement in housing recovery after typhoon Haiyan from a capability perspective	Ivette Arroyo collected data during the second field study, analyzed and interpreted data; developed the model for user involvement and wrote the first draft of the paper. Ivette Arroyo revised the paper in collaboration with the second author.	Paper submitted to the International Journal of Disaster Risk Reduction. Last minor corrections have been addressed.

2 Theoretical framework

> *"Evidence shows that existing approaches do not really tackle the main problems of reconstruction. Instead, attention has been misplaced onto aspects that guarantee neither better performance of post-disaster housing projects nor long-term development for the beneficiaries. For example, the emphasis on providing the three distinct types of housing (emergency shelter, temporary housing and permanent reconstruction) has resulted in redundancy, lack of coordination, fragmented distribution of aid and wasteful use of resources" (Lizarralde, et al., 2010, p.19).*

This thesis is situated in the intersection of the following fields of research: the making disciplines, critical housing studies, housing recovery, people-environment studies, and development studies. Regarding the making disciplines, it is focused on housing –a man-made environment– and the researcher's background is architecture. From critical housing studies, drawing on (Lawson, 2006), the thesis addresses causal mechanisms and human agency for studying housing recovery outcomes. From people-environment studies, the thesis deals with user involvement and has a qualitative approach as its organizing framework.

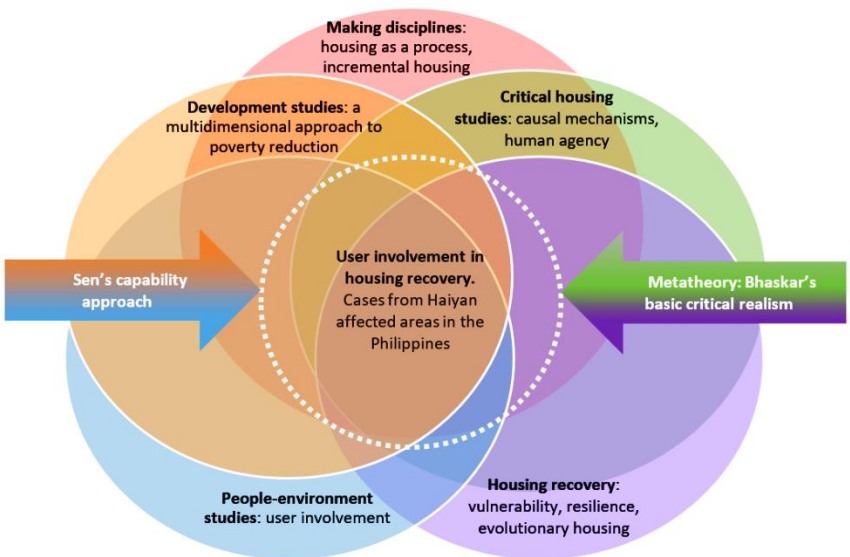

Figure 2.1 Situating the study within different fields of research, concepts, theory and metatheory. Elaborated by the author

Finally, from development studies, I have borrowed Amartya Sen's capability approach[31] (Sen, 2001) and the capability space (Frediani and Boano, 2012) as the lens to analyze and interpret the empirical data related to user involvement in housing recovery. Moreover, the metatheory of this thesis is basic critical realism as illustrated in Figure 2.1.

In the theoretical framework, the first section summarizes briefly recovery frameworks and early approaches to shelter reconstruction. The second section discusses contemporary reconstruction approaches. The third section summarizes pros and cons of participation and argues for a shift to the notion of user involvement. The fourth section addresses incremental housing. Finally, the last section discusses the theoretical basis for studying user involvement in housing recovery from a capability perspective.

2.1 Shelter after disasters –pioneer studies

"If we ask the question, 'Is it necessary to send goods half way round the world?' the answer has to be in two parts. In terms of shelter provision the answer is almost certainly, 'No, it isn't –at least as far as the needs of the homeless families are concerned. But the needs of the relief agency or government may result in an opposite response. In addition to the problem of vested interests there is the problem, faced by all donor agencies, of the 'culture gap'; all too often they have entered a post-disaster situation with a blythe self-confidence which may be wholly misplaced" (Davis, 1978, p. 46).

Recovery frameworks

Haas, et al. (1977) studied macro-urban processes during the reconstruction processes after four major disasters: the 1906 earthquake in San Francisco, the 1964 earthquake in Alaska, the 1972 flash flood in Rapid City-South Dakota-United States; and the 1972 earthquake in Managua-Nicaragua. Drawing on these case studies, Kates and Pijawka (1977) proposed the *Model of disaster recovery cctivity* or *recovery continuum* (See Figure 2.2).

The recovery continuum model focuses on the recovery of different sectors and not only on shelter. Haas, et al. (1977, p. 25) argue that "reconstruction issues can be better understood when viewed within two relevant perspectives … [ ]… the macro or community level … [ ] … and the

[31] For an account of Sen's view of poverty, his definition of the capability approach, and the notions of agency and empowerment see Paper 3 and Section 2.5.

micro or family level". The model proposes four overlapping periods according to the dominant activities required:

1. **Emergency period:** those coping actions derived from destruction of the built environment; number of deaths, injured and homeless or missing. It finishes with cessation of search and rescue, reduction in mass feeding and housing, and debris removal from main streets. *Duration:* only days or a few weeks. The emergency period after the Nicaragua 1972 earthquake which left 283 500 people homeless (70% of the population), and caused more than 4,000 deaths lasted four weeks.
2. **Restoration period**: reparation of utility, housing, commercial and industrial structures; return to relatively normal functioning of social and economic activities. *Duration:* some months, or beyond a year. The restoration period after the Nicaragua 1972 earthquake lasted 7 months.
3. **Replacement reconstruction period**: the built environment is rebuilt to pre-disaster levels. Functioning of people's needs in homes, jobs, capital stock and urban activities. Duration: The replacement reconstruction period after the Nicaragua 1972 earthquake lasted around 3 years.
4. **Commemorative, betterment and developmental reconstruction**: big scale projects to commemorate the disaster, or to serve the city's future development. Duration: Twice the period required for replacement reconstruction. This period lasted 8 years after the Nicaragua 1972 earthquake.

According to Chang (2012) and Mukherji (2017), the recovery continuum model was replaced with *a non-sequential recovery framework* proposed by Quarantelli[32] (1982). Quarantelli developed a conceptualisation of *sheltering* and *housing* in post-disaster contexts from a sociological and behavioural perspective through observations of social settings after disasters –mainly in the United States[33]. Quarantelli's non-sequential recovery framework considers the following, four phases:

[32] Professors E. L. Quarantelly, Russel Dynes and J. Eugene Haas founded the Disaster Research Center (DRC) –the first social science research center in the world devoted to the study of disasters – first at the Ohio State University in 1963. The DRC moved to the University of Delaware in 1985 and currently has over 50 years of experience in disaster research (Disaster Research Center, 2014).
[33] Quarantelli's case studies when proposing his recovery model were the 1972 flooding in Wilkes-Barre, Pennsylvania; a massive tornado that struck Xenia, Ohio; and the 1980 tornado in Grand Island, Nebraska (Quarantelli, 1982).

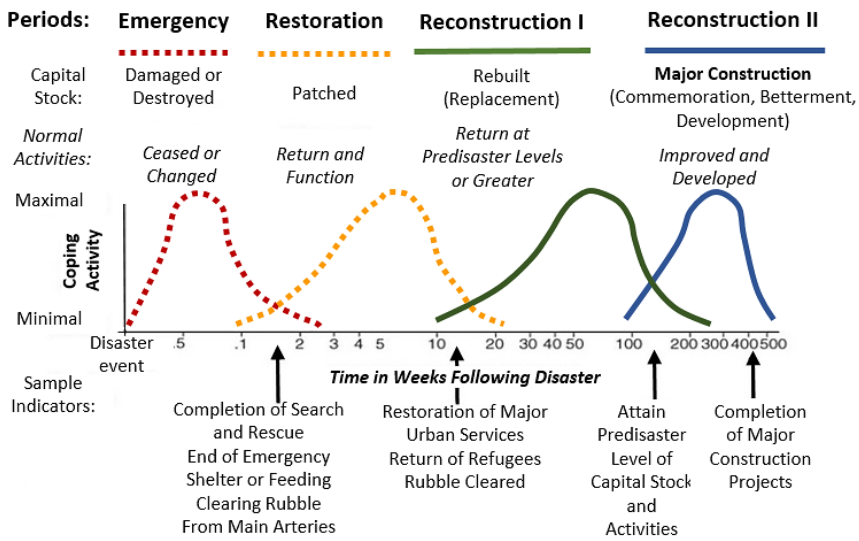

Figure 2.2 A model of recovery activity. Source: Kates and Pijawka (1977)

1. **Emergency sheltering**: housing impacted populations living temporarily in schools or other existing facilities;
2. **Temporary sheltering**: disaster survivors living in tents;
3. **Temporary housing**: disaster survivors living in trailers or manufactured units located on temporary housing sites; and
4. **Permanent housing**: new housing built or existing units repaired.

Lizarralde, et al., (2010) argue that the division of post-disaster housing in "three distinct types of housing: emergency shelters[34], temporary houses and permanent houses" has been misunderstood as different types of buildings are needed for each phase. The same authors claim that consequences of the three differentiated product approach to post-disaster housing have been waste of financial resources, limited short-term emergency shelter solutions, mass-provision of prefabricated and expensive temporary housing that become permanent without adequate planning. Another consequence is mass-provision of temporary housing with

[34] "*Emergency sheltering* and *temporary sheltering* correspond to the immediate protection of the survivors against natural elements during the emergency and for the first few days after the disaster. This type of sheltering often includes tents, plastics, corrugated iron sheets, etc. provided to affected families by international agencies of disaster aid such as the Red Cross" (Quarantelli cited in Lizarralde, et al., 2010, p.7).

traditional local materials that reproduce pre-disaster vulnerability (Lizarralde, et al., 2010; Davis & Alexander, 2016).

Issues affecting shelter reconstruction

Resettlement areas after disasters usually have a "typical regimental barrack-type layout" (Ahmed, 2011, p.152). The barrack-type layout has both immediate and long-term effects in the community. Immediate consequences include overcrowding in a small space that lacks privacy between parents and children[35], lack of common areas to support family-based and community activities, lack of semi-public or public spaces to support outdoor activities –such as playgrounds, sports, cultural events. Long-term consequences imply that the barrack-type post-disaster settlement becomes permanent following the same spatial layout, which might turn in slum like conditions in the long term.

Turner's (1967) progressive development approach foresees that public ownership of certain proportion of land in a settlement would derive in flexibility to achieve higher densities in the long term. "Cheap one-storey rental tenements, municipally owned and administered, could be later replaced by multi-storey apartments. Land values, in any case, are likely to rise as metropolitan expansion leaves the neighbourhood closer to the city" (Turner, 1967, p.178). Turner's approach to planning should be revisited by humanitarian aid organizations and local governments for planning resettlement and housing after disasters.

There are several studies on *the myths* related to shelter relief and reconstruction of permanent housing that are relevant to this thesis (Wenger, et al., 1975; Quarantelli, 1982; Davis, 1978). One of such myth is that *disaster survivors* are in shock and *unable to cope* with the aftermath of a disaster –which justifies the work of relief organizations. Wenger, et al., (1975, p.36) have found that "the initial search and rescue activity, casualty care, and restoration of essential services are accomplished by the victims themselves with the assistance of those in the immediate, filter area". The second myth is the *lack of accuracy* from the mass media regarding the scope of human loss and physical damage, and needs of survivors. Another myth is *shelter utilization*, which states that disaster survivors use formally established shelters or evacuation centres provided by aid organizations or governmental agencies. Conversely, it has been found that disaster survivors search for accommodation with friends, relatives or

[35] The bunkhouses built in Tacloban after typhoon Haiyan are an example of overcrowding in a "barrack-type layout". These bunkhouses provide one single space unit with an area of 8.3 to 8.64 m^2 for a family of five members. They share common facilities such as toilets, common outdoor facility for cooking with charcoal and sinks for washing clothing are located at one of the ends of the barrack, which sometimes cannot be used by mothers who are taking care of small children in their unit.

neighbours (Wenger, et al., 1975, p.37). The same authors contend that the massive relief in terms of *human and material convergence* has been questioned because food, clothing and materials a) are provided in volumes larger than needed; b) can be unneeded or unusable; c) require larger logistic of staff and storage for handling them; d) may be disruptive to local economy.

Davis (1978) contends that the provision of *universal solutions* for the emergency relief should be avoided when construction materials, labour and local professional capacity for technical assitance is available locally and can be mobilized. Drawbacks from universal solutions include:

a) cultural unacceptability of alien forms of housing;
b) longer time of deployment in the affected communities36;
c) profit-oriented interest from international companies active in the aid industry;
d) lack of climate sensitive design; and
e) cost four or five times more than locally built shelter.

Examples of cultural inappropriateness of universal solutions in the 1970s include the 1,400 polyurethane igloos produced by West German Red Cross/Bayer for use in Peru, Nicaragua and Turkey; and the 453 polyurethane hexagonal igloos provided by Oxfam and used in Lice, Turkey. Moreover, empirical data shows that the timing for producing and delivering universal solutions ranges between 60 to 148 days (Davis, 1978, p. 51). Conversely, a more efficient approach is to recognize cultural patterns and values whilst modifying only unsafe aspects of the original housing solution (See Davis, 1978, p.17).

Current universal solutions for temporary shelter since 2016 include the 17.5 m^2 *better shelter* produced by the IKEA Foundation for a family of five members, whose weight is 80 kg with a cost of around 1,165 USD without shipping. A C-130 Hercules aircraft can carry 64 units; a IL76 aircraft can carry 100 units; and a ship up to 14,000 containers with 672,000 units (Better Shelter, 2015). Conversely, the 13.5 m^2 temporary shelter provided by the Municipality of Javier cost USD 310. The Municipality hired skilled operators to produce coco lumber from fallen palm trees and built the houses. The users were involved in assisting self-construction of their own houses. After occupation, one of the users built an extension for the kitchen. The IKEA better Shelter costs USD 1,165 without shipping costs. This universal solution costs around four times more than the local solution

[36] Universal solutions were occupied 60 days after the 1970 disaster in Peru; and 148 days after the 1972 earthquake in Managua; and 60 days after the 1975 earthquake in Turkey (Davis, 1978, p.51).

offered by the Municipality of Javier. Neither of these shelters can be extended vertically.

Early approaches to shelter reconstruction

Krimgold (1974) and Davis (1978) argue for three approaches to shelter after disasters: 1) housing survival; 2) filling the gap; and 3) accelerated reconstruction.

1) **Housing survival:** the provision of housing that withstads hazards – which addresses national planning policies, political aspects such as land reform serviced land, improvement of traditional construction techniques, dissemination of information on safe housing construction through the mass media, and popular publictions at grass roots level;

2) **Filling the gap**: through social and physical solutions. Social solutions include living with extended families and or at provisional evacuation centers in schools or other facilities. Physical solutions can be a) *local ad-hoc* response such as squatter settlements or makeshift shelter –"the major force in relief and reconstruction is that of the families themselves" (Davis, 1978, p.40). Another type of physical solution is b) *donor provision* where the aid comes from external organizations –national government or international humanitarian aid organizations, e.g. universal solutions mentioned in the previous section;

3) **Accelerated reconstruction:** aims to achieve rapid reconstruction to "close the gap, but in a far more effective way than the two-stage approach of strategy 2 b), which is very wasteful of money, scarce materials and of manpower". Based on Fred Cuny[37]'s process approach, Davis (1978, p.63) argues that rapid reconstruction should be based on an *evolutionary housing process* instead of a view of housing as a static and finished product.

Cuny's *evolutionary housing process* emphasizes that the structure of emergency shelter should be thought from a long-term perspective because the users would change the wall materials and add more levels to the original house (Davis, 1978, p.63). Changing light weight materials –such as bamboo walls– to more robust materials –such as concrete hollow blocks– will increase the weight that the structure needs to bear in the long term.

[37] Frederick C. Cuny, 1944-1995, was an American engineer and disaster relief specialist who disappeared in Chechnya in 1995 (Online Ethics Center for Engineering, 2016).

Cuny's (1983) evolutionary process approach to post-disaster housing is consistent with Turner's *housing as a process* paradigm (Turner and Fichter, 1972; Turner, 1976). Cuny's *evolutionary housing approach* was based on his empirical experience as an engineer working with humanitarian relief. Turner's *housing as a process* paradigm was developed due to his empirical experience as an architect learning from how the people themselves built informal settlements in Lima in the late 1960s. This thesis builds on both authors *evolutionary process approach to housing*, considering that their *knowledge-how* was developed from within the making disciplines with a strong emphasis on the involvement of the users in the context of developing countries. Furthermore, shifting to *housing recovery as an evolutionary process* would contribute to bridge the current gap between emergency shelter, temporary shelter and permanent housing.

2.2 Housing recovery

> *"Recovery is now linked to the concepts of resilience and community renewal, with social, economic, institutional, infrastructural, ecological, and community dimensions … [ ]… Housing recovery (and recovery in general) is often a combination of a proactive government role in the reconstruction process, funding, community participation, and resilient improvements in infrastructure and planning" (Comerio, 2014, pp.51-55).*

Comerio (1997) argues that the common denominator in urban disasters in developed and developing countries is *housing economic loss*. In the 1994 Northridge (US) earthquake, 60,000 housing units with a cost of 20 billion USD had major damage or were lost. The 1985 Mexico City earthquake destroyed 76,000 units with a cost of 12 billion. The best way of reducing the costs of post-disaster rebuilding is through reducing damages by means of considering mitigation as a component of recovery (Comerio, 1997, p.177). Wamsler (cited in Davis, 2011, p.199) contends the need to address housing/settlement recovery in connection to their social, environmental, economic, political and institutional aspects instead of only focusing on location and construction quality.

"Housing is important because what it does for people" over its physical characteristics (Turner and Fichter, 1972; Turner, 1976). Housing recovery after natural hazards seems to follow the product approach to housing. Turner's *housing as a process paradigm* challenges the dominant *housing as a product* paradigm. The latter focuses on mass production of housing while serving the interests of the market rather than addressing the needs of the poor. In the context of housing recovery, understanding housing as a process in which prospective users are involved in the whole process cycle is relevant to housing reconstruction due to the empowering dimension of the housing process. Schilderman and Lyons (2011) argue that Turner's theory on how the housing process empowers people is relevant to housing recovery after disasters because such an approach can strengthen disaster survivors' capabilities and resilience. The same authors claim that reducing people's vulnerability requires not only stronger housing but also rebuilding their livelihoods because the root cause of vulnerability is poverty. Moreover, "to strengthen their capabilities to cope, survivors should play key roles in decision-making and resource management" (Schilderman and Lyons, 2011, p.218).

Contemporary reconstruction approaches

Bottom-up and top-down approaches

According to Duyne Barenstein (2006) and Jha, et al. (2010, p.93), contemporary reconstruction approaches are classified according to the level of household's degree of control over the post-disaster housing process. Advantages and disadvantages of the different reconstruction approaches while linking each approach to specific reconstruction programmes are illustrated in Table 2.1.

1) **Bottom-up approaches include** a) cash approach; b) owner-driven reconstruction; and c) community-driven reconstruction. *Bottom-up approaches* build on the resources and skills of the affected people while emphasizing a high degree of user control over the post-disaster housing process. The drawbacks of these bottom-up approaches, if technical assistance is not thoroughly implemented, are that pre-disaster vulnerabilities can be reproduced when rebuilding housing with the same local techniques and materials; the users might not improve their building, oversight skills or other skills; and housing units would have limited opportunities for incremental vertical expansion.

2) **Top-down approaches include:** d) agency-driven reconstruction in-situ; and e) agency-driven reconstruction in relocated site. *Top-down approaches* are implemented by governmental agencies or non-governmental organizations that hire a construction company to design and rebuild houses. The difference between agency-driven reconstruction in-situ and agency-driven reconstruction in relocated site is that the first rebuilds housing in the same plot where the affected family lived before the calamity; the latter refers to projects in which families are relocated to a different site, usually located in the outskirts of the city. Conversely, these top-down reconstruction approaches derive similar weaknesses when comparing them with the bottom-up approaches mentioned before. If the oversight over the construction company is weak, some drawbacks are low quality of construction reproducing pre-disaster vulnerabilities; the users are not involved in the post-disaster housing process and the housing outcome might not address their cultural or spatial needs. On the other hand, the users will not improve their building, oversight skills or other skills with consequent impacts on low mainteance of the state. Moreover, the dominant market-oriented view of housing as a finished product would limit the opportunities for incremental vertical extension in a long term perspective.

Table 2.1. Advantages and disadvantages of different reconstruction approaches for post-disaster reconstruction and examples of their application. Source: Arroyo (2015)

Reconstruction Approaches	Advantages	Disadvantages	Examples and references
The Cash Approach (CA)	Most cost-effective, rapid delivery of aid to households. Simple delivery mechanisms.	Without technical assistance CA might reproduce pre-disaster vulnerabilities, no improvement of building skills	Cash for Repair and Reconstruction (CfRR) after 2004 tsunami in Sri Lanka (See Belgian Red Cross 2009; Aysan, et al. 2007).
Owner-Driven Reconstruction (ODR)	Most empowering and dignified approach for households. Speeds up recovery; technical assistance is key and adjusts to household needs. Viable for houses or medium rise buildings.	Poor standards and poor technical assistance can lead to poor construction quality. Too rigid building codes or alien housing technologies increase difficulty for households to self-build or oversight.	ODR Housing Reconstruction and Retrofitting after 2005 North Pakistan Earthquake (See Aysan, et al. 2007).
Community-Driven Reconstruction (CDR)	Fast approach, houses respond better to family needs; process fosters community cohesion. Combines financial assistance, technical assitance, subsidized construction materials, organized self-help reconstruction or self-management of labour.	The application of local building technologies may be constrained by inadequate building capacity.	CDR following the 2001 earthquake in Gujarat, India (See Duyne 2010); and CDR in relocated site after 1998 Hurricane Mitch in Nicaragua (See Aysan, et al. 2007).
Agency-Driven Reconstruction in Situ (ADRIS)	No land acquisition required, communities are not displaced. It can introduce new building technologies.	In Tamil Nadu: agencies demolishing houses built by other agencies, fishing communities' house culture was not considered in designing new houses. Lack of possibilities for expansion, and poor construction quality due to lack of supervision and control over profit-oriented contractors	ADRIS in Tamil Nadu after the tsunami in 2004 (See Duyne 2010; Jha et al. 2010).
Agency-Driven Reconstruction in Relocated Site (ADRRS)	Appropriate where pre-disaster settlements are located in hazardous sites; may be faster and cost-effective; appropriate for dense urban settlements and complex building technologies.	In Maharashtra: poor construction quality, inappropriateness of construction materials to climatic conditions, techniques that complicate maintenance; which have resulted in houses being gradually abandoned	ADRRS in Maharashtra implemented after the earthquake in 1993 (See Duyne 2010; Jha et al. 2010).

Agency-driven reconstruction in relocated site was the approach implemented in Maharashtra, India, after the earthquake in 1993. People abandoned the houses gradually due to poor construction quality, inappropriateness of construction materials to climatic conditions, and techniques that complicate maintenance (Jha, et al., 2010). Moreover, Duyne Barenstein (2012, p.3) contends that Agency-Driven Reconstruction in relocated sites in Gujarat lead to high dissatisfaction (96,5%) regarding "the quality of materials and construction". Furthermore, housing and settlement design were not culturally appropiate for women's privacy neither to support families' livelihood such as cattle raising and agricultural activities.

The reconstruction approach after the 2001 earthquake in Gujarat, India, was mostly owner-driven because affected communities refused the agency-driven approach proposed by the government (Duyne Barenstein, 2010). Some projects were supported by the government and others by local NGOs. The local NGO Abhiyan played a key role in facilitating negotiations between the government and communities and provided the technical assistance. The owner-driven approach provided financial assistance according to the damage and type of house, technical assistance and subsidized construction materials. Users made decisions regarding choosing materials, housing design and location of the house. The same author asserts that both the quality of construction and the level of satisfaction of users that chose owner-driven reconstruction was higher than people whose houses were rebuilt by contractors.

According to Aysan, et al. (2007), owner-driven approaches after the 2004 Indean Ocean tsunami in Sri Lanka were a mixture of cash and building materials support to suit to the needs of the users to rebuild on their on plots –with a buffer zone restriction of 35 m in Matara district. Most beneficiaries of the programme preferred owner-driven approach because the cash assistance allowed them to make decisions regarding procurement of material and labour. They were able to control the quality of their houses –e.g. producing their own stronger cement blocks. Another positive aspect was that these projects started earlier than agency-driven reconstruction projects carried out by contractors in relocated sites, which were delayed due to rigorous tender procedures. In some cases in Weligama –Matara district– the house owner was given the materials to build a two storey house prototype and cash to cover the costs of the organization providing the technical assistance The user coordinated the construction work and supervised the project, assisted by an engineer (Aysan, et al., 2007, p.29).

The build back better approach

The notion of build back better was introduced during the recovery after the 2004 Indian Ocean Tsunami. This notion implies a set of ten principles that should guide a holistic approach to community-driven reconstruction oriented towards promote equity; diminishing vulnerability whilst increasing community agency and resilience (Clinton, 2006).

Fan (2013) argues that build back better becomes meaningful and useful when it contributes to transform pre-disaster social vulnerabilities or political relations among stakeholders –e.g. post-Indian Ocean tsunami reconstruction in Aceh in 2004 and post-Nargis Myanmar cyclone in 2008. However, build back better becomes a technocratic approach whilst reproducing pre-disaster inequalities if socio-political transformations are avoided –e.g. post-earthquake reconstruction in Haiti in 2010.

The early recovery approach

> *Early recovery "is an integrated, inclusive, and coordinated approach to gradually turn the dividends of humanitarian action into sustainable crisis recovery, resilience building and development opportunities. Just as emergency relief activities are crucial to saving lives by addressing the most urgent human needs, using an early recovery approach within humanitarian operations is crucial to the first efforts of a community to recover and build their resilience" (Global Cluster for Early Recovery, 2013, p.10) .*

Early recovery encourages "meaningful participation throughout all phases of the early recovery process" –needs assessment, planning, programming, and monitoring and evaluation– as a means to "build capacities for empowering communities". The latter would ensure that local initiatives build on local resources and capacities (Cluster Working Group on Early Recovery, 2008). The same reference states that another fundamental principle for the implementation of early recovery initiatives is monitoring, evaluation and learning through participatory methods. It is also important to review ongoing development initiatives to avoid replication of pre-existing vulnerability, whilst ensuring that initiatives build resilience and capacity in affected communities.

Currently, Camp Coordination and Management (led by International Organization for Migration/UNHCR), Emergency Shelter (headed by IFRC/UNHCR) and Early Recovery (ruled by UNDP) are three separated clusters in humanitarian relief operations that are led by different international organizations. Lizarralde, et al. (2010) argue that decision-makers have the challenge to integrate and balance the needs of short-term

emergency relief with long-term sustainable urban development. Post-disaster human settlements should be considered a crosscutting issue[38] with the potential of achieving such integration and balance. Addressing post-disaster human settlements as a crosscutting issue from an early recovery approach, might integrate the three clusters mentioned before with permanent housing recovery –which is not included in the cluster setting of humanitarians.

Several scholars and practitioners are scheptical regarding *temporary shelter* because:

1) "many people have to stay much longer in temporary houses" after the Indian Ocean tsunami 2004 and "transition shelter or temporary shelter can become the need of outsiders more than the victims" (Bhatt cited in Davis 2011, p.200);

2) "[intermediate shelters] serve the purpose of sustaining vulnerability of the affected families and the business of the aid related industry" (Sharma cited in Davis 2011, p.201);

3) transitional shelter is not needed if vernacular housing can be easily built with few materials and little investment. Regarding the balance between investing in transitional or permanent housing, "concentrating on one of these issues would tend to restrict the other" (Alexander cited in Davis 2011, p.201).

[38] Crosscutting issues are "areas of concern that for institutional or societal reasons need to be tackled across sectors in a coherent and integrated way" (Cluster Working Group on Early Recovery, 2008, p.28).

2.3 Critical view on participation

"The practical problems of citizen participation, therefore, in housing or in any other complex activity, is to answer the above mentioned basic question in ways that fit particular circumstances: ***Whose participation*** *in* ***whose decisions*** *and* ***whose actions?"*** *(Turner, 1976, p.139).*

Participation: consensus, tyranny or transformation?

Wulz (1986) tracks the origin of *participation*[39] or the involvement of citizens in local authority planning to the 1870s in the United States. The *notion of participation* has a multidimensional and complex nature, which is further complicated by "divergent contexts of participation and differing ideological stances" (Penderis, 2012, p.3). Participation in development theory and practice has nearly 80 years of history. There are different ways in which participation "can be characterized and compared: the locus and level of engagement, ideological/political project, conception of citizenship, and links to development theory" (Hickey and Mohan, 2004, p.9). The same authors discuss the following approaches to participation:

1. **Political participation, in the 1960s**: political development dimension of modernization theory, participation as a right and an obligation to citizenship, focused on political system and citizens;

2. **Emancipatory participation, in the 1960s and 1970s**: analyze and confront 'structures of oppression'; participatory citizenship as a means of challenging subordination and marginalization;

3. **Alternative development, in the 1970s and 1990s**: criticising mainstream development and proposing alternatives "based on territorialism, cultural pluralism and sustainability", participation as a right of citizenship, focused on communities, civic society, the state;

4. **Populist/participation, in development in the 1980s-present**: little direct engagement, implicit critique of modernization, focusing on participation in projects rather than in broader political communities, e.g. Participatory: rural/urban appraisal;

[39] "Participation has a number of synonyms such as citizen involvement, citizens' influence, citizens' action group, cooperation, co-decision, self-decision, etc. This implies that participation is a general concept covering different forms of decision making by a number of involved parties…[ ]…participation can be active or passive" (Wulz, 1986, p.153).

5. **Social capital, mid 1990s-present:** social capital promoted as a basis for economic growth, participation as a right and obligation of citizenship, focused on civic associations;

6. **Participatory governance and citizenship participation, late 1990s-present**: development requires liberal or social democracy, participation as primarily a right of citizenship, focus on citizens, civil society, state agencies and institutions.

Among the most referenced models on *citizen involvement in planning* is Arnstein's ladder of citizen participation. Arnstein (1969) proposes a hierarchical model of participation based on *power relationships* between the *have-nots* –powerless citizens– and the power holders. The model is represented by an eight levels ladder ranging from *manipulation* at the lowest rung up to *citizen control*, which is proposed as the highest level of participation. Meaningful participation starts at the *partnership* rung because power is redistributed through negotiation between the have-nots and the power holders due to sharing planning and decision-making responsibilities. *Delegated power* –the seventh rung– implies that citizens have achieved "dominant decision-making authority over a particular plan or program". Whereas *citizen control* –the eight rung– denotes that residents are able to govern a program or an institution, "in full charge of policy and managerial aspects" (Arnstein, 1969, p.223). Counterarguments to Arnestein's model include a) lack of complexity in the conceptualisation of the protagonists in the model; b) limitation due to focusing on a single dimension, namely power; c) its failure to consider the process as well as outcome; d) lack of consideration of methods and feedback systems; e) failing to differentiate between method, category of user and outcome; f) and lack of clarity regarding methods adopted to involve users (Tritter and McCallum, 2006). Arnstein's ladder of citizen participation has been applied to different fields and more recently to post-disaster recovery (Chandrasekhar, 2010).

Participation neologisms and their meanings vary from context to context including "*owner-driven* in the purist Indian practice, or in the proto-developmental version of *self-help*, or the derived and scaled-up as in *community-driven* or *community participation*" (Boano and Hunter, 2012). Participation of affected people in post-disaster housing is more a rhetoric discourse in reconstruction guidelines (Ahmed, 2011) than applied in practice on the ground by international non-governmental organizations (Daly and Brassard, 2011) and governmental bodies. Duyne Barenstein (2012, p.1) argues for the need of developing appropriate enabling mechanisms to level "decision-making power and control over resources" between affected communities and reconstruction organizations to achieve

truly participatory and empowering processes. Davidson, et al. (2007) argue that the notion of *community participation* has been used to describe many different situations. The notion *community* has been used to refer to "a neighbourhood, a slum, a group of local NGOs, a group of militant leaders, the residents of a small town, a worker's union, a group of women, etc." On the other hand, the notion of *participation* has been applied to "denote civil debate and communication, consultation, delegation of activities, partnership, self-help construction, communal meetings, political decentralization, etc." (Davidson, et al., 2007, p.102). The same authors argue for the importance of addressing community participation within the structure of construction project interventions –that is to say at the project level.

How to ensure the quality of participation remains an unanswered question although its importance is recognised by organizations carrying out post-disaster housing. Arguments to limit or hinder user participation in post-disaster housing are that it is time-consuming, implementing organizations lack resources for participatory approaches, and it can affect negatively housing construction quality if technical assistance is not provided efficiently (Ahmed, 2011). Conversely, Daly and Brassard (2011, p.531) argue for the need of revisiting the *building back better* strategy "to understand ways in which the continuum between relief, recovery and development can be made in a more participatory approach with local communities". Participation of disaster survivors in housing recovery needs to be studied from within the making disciplines and in the light of new development theories such as the capability approach as it will be discussed in the following sections.

The notion of user involvement

> *"There are many compelling arguments to be made for ensuring that beneficiaries are deeply involved in processes of housing reconstruction in post-disaster situations, to the extent that their capacities match with the practical needs of reconstruction. The most important aspects are allowing beneficiaries to drive the critical decision-making, such as choosing locations and designs, allocating or being aware of the allocation of funding, and personally monitoring construction" (Daly and Brassard, 2011, p.531).*

According to Davis (2011), both John Turner –in the late 1960s– and Frederick Cuny –in the late 1970s– have been influential in developing and applying a *user-build approach* to post-disaster housing in developing countries. Housing reconstruction was mainly contractor-driven during the 1980s and the 1990s. UN-Habitat and the World Bank have promoted user-build approaches to housing recovery after the 2001 Gujarat earthquake, the 2004 Indian Ocean Tsunami; and the 2005 Pakistan and 2010 Haiti earthquakes. Therefore, Davis also argues that the interest of international agencies regarding *user-build* housing reconstruction has increased considerably since 2006. Although commercial pressures for contractor-driven policies, user-build approaches in combination with training for builders have been included in reconstruction policies of international humanitarian aid organizations since 2011 (Davis, 2011).

The terms users' participation, beneficiaries' participation, and community participation are used interchangeably in post-disaster housing projects (Davidson, et al., 2007). Using the notion of participation for post-disaster housing leaves open questions regarding who is entitled to take part in housing recovery, who makes choices and who decides? The last decades of practice on the ground has shown that people who will be the future owners or renters of the new houses are normally left out the different stages of the project cycle. In the case of this research, would all Haiyan survivors be entitled to take part in housing reconstruction? Therefore, the importance of shifting to the notion of *the user as an agent of change* (Cupers, 2013) which is compatible with Sen's (2001) view of human agency as central to the capability approach as it will be discussed in Section 2.5. For this thesis, the notion *user involvement* implies that the ones who would take part in the reconstruction process are Haiyan survivors who will use or own the housing and settlement or resettlement.

This thesis argues for the suitability of the term *user involvement* in housing recovery instead of the notion of *participation* in post-disaster housing. First, the notion user involvement emphasizes the active and

meaningful engagement of the users in the whole process cycle –planning and design, construction or self-construction and post-occupancy. Secondly, focusing on the involvement of the users will highlight the need for types and levels of involvement that would contribute to develop people's capacities, which is essential to develop their resilience for facing the next natural hazard. Thirdly, housing recovery in the last decade has shown that there is a tendency for the outcomes to be generic housing that lacks possibilities to be extended horizontally or vertically over time. Hence, the need for developing frameworks to facilitate the involvement of prospective users since the planning and design stage so that they can advocate for spatial qualities in their future houses that would address their changing needs and wishes with a long-term perspective.

2.4 Incremental housing

> *"The houses start off with a very small structure of usually only one room, used as sleeping quarters for the entire family. Over a period of time, usually a long number of years, the house acquires more rooms and eventually becomes a formal home. The implications of this are that when any type of structure is introduced, be it an emergency shelter, a temporary structure or a long-term structure, it must from the very beginning be very strong because people will continue to use that house in its original form and incorporate it into the long-term structure which evolves… [ ] …The lesson, therefore, is that the emergency shelter or temporary house must be designed for its ultimate state in the evolutionary process" (Fred Cuny cited in Davis, 1978, pp.63-64).*

Since the late 1960s, *incremental housing*[40] has been recognized as an effective strategy used by the poor to house themselves in informal settlements (Turner, 1968; Lizarralde, 2011; Wakely and Riley, 2011). Incremental housing accounts for 50 to 90% of housing in developing countries, is implemented through self-help construction and informal financing and allows the urban poor to improve their housing at their own economic pace (Lizarralde, 2011). The World Bank and donor agencies supported sites and services and incremental housing projects in the 1970s and 1980s. However, criticisms regarding exclusion of the bottom 40% of households in more than seventy World Bank site and services projects led to a shift in policy –enabling shelter strategies such as urban management

[40] *Incremental housing:* "households with low or irregular incomes and no access to formally recognised collateral construct minimal basic dwellings, which they extend and improve as resources become available and as the need for bigger or better structures becomes a priority. This process of extension and modification can take decades—or may be never ending" (Wakely and Riley, 2011, p.1).

and governance (Wakely and Riley, 2011). By contrast, current studies show that user-driven incremental construction can overcome some failures of subsidized conventional housing projects. First, housing units are too small and do not respond to the users' needs because subsidies are too low. Secondly, low subsidies derive in units with poor quality construction. Thirdly, users do not have decision-making power in the delivery of conventional subsidized housing (Lizarralde, 2011).

The sequence of procurement processes for informal and formal housing are illustrated in Figure 2.3 based on Wakely and Riley (2011). The informal housing sector is based on the paradigm of housing as an evolutionary process during 10-15 years or more to achieve consolidation of housing units and the settlement. In non-disaster conditions, the poor would 1) invade governmental or privately owned land; 2) self-build shelter with makeshift materials, upgrade and extend this shelter over time; 3) achieve that local governments install infrastructure in their informal settlements through lobbying and advocacy; 4) demand formal title for the land. By contrast, the formal sector represented by the authority responsible for low-income housing would 1) obtain land title; 2) develop the land; 3) contract the housing design and construction from private developers through a public bid; 4) allow users to move to the finished housing units.

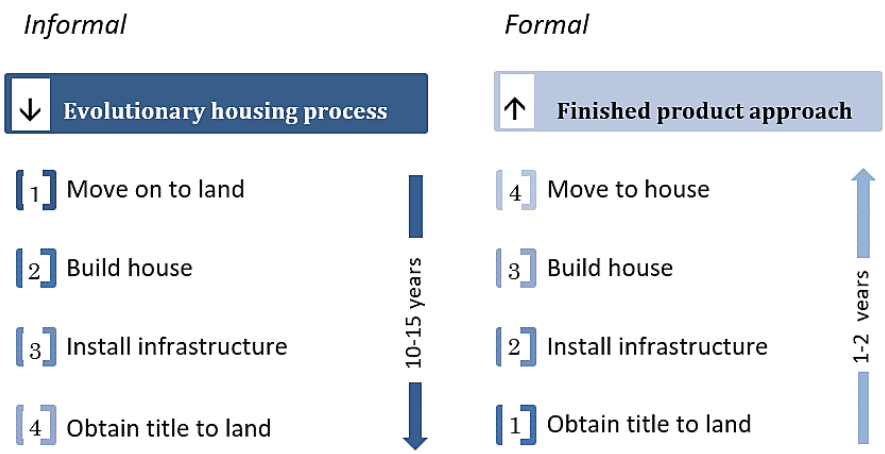

Figure 2.3 Sequence of procurement processes for formal and informal housing.
Source: Elaborated by the author based on Wakely and Riley (2011, p.2)

Incremental housing can become an early recovery strategy for bridging the gap between emergency shelter and permanent post-disaster housing. Key issues for enabling incremental housing based on Lizarralde (2008, 2011) include the following:

f) having a holistic view of the housing process –before, during, and after construction; and during occupation;
g) planning and managing the participation of stakeholders during all phases;
h) incremental design;
i) multiplicity of choices –different housing typologies, mixed use;
j) flexibility to accommodate different needs and priorities;
k) provision of space for income generating activities; and
l) technical assistance –if carrying out self-help construction.

According to Lizarralde (2008), in the project Juan Pablo II in Facativá, Colombia, partnership between the local administration, the central government and private organizations had a positive result on delivering affordable low-income housing for families living in disaster-prone areas. Lizarralde (2008) also studied the incremental growth of the housing units in the same project and demonstrated that spatial adaptation has to be linked with potential social and economic needs of the users. Although the housing units were designed to be extended by the users over time, the fact that all units were identical limited the spatial adaptation to the changing needs of different types of families.

Incremental housing allows users to break with stigmatization related to poor living conditions. The process of horizontal and vertical extensions is consistent with people's economic growth (Lizarralde, 2011). The same author shows that housing design can hinder horizontal and vertical extensions in low-income housing over time –e.g. the open area of the plots is not big enough for further additions; sharing roof trusses every two units blocks future vertical extension of semi-detached units. For this thesis, *incremental housing* implies that the design of the housing unit, its structure and roof, and the size of the plot offer possibilities for horizontal or/and vertical extensions of the housing units over time. Such an approach should start with the involvement of prospective users in the housing design of emergency/temporary shelter whilst incorporating qualities such as flexibility, and possibilities for extensions or upgrading with a long-term perspective.

2.5 Housing recovery from a capability perspective

Sen's capability approach focuses on "the expansion of the capabilities of persons to lead the kind of lives they value –and have reason to value. These capabilities can be enhanced by public policy, but also, on the other side; the direction of public policy can be influenced by the effective use of participatory capabilities by the public" (Sen, 2001, p.18).

Agency, opportunities, choices and capacity

The capability approach is a conceptual framework focused on human capabilities for evaluating development –among other topics such as justice and wellbeing. Economist Amartya Sen (2001) and philosopher Marta Nussbaum (2000) are the main proponents of this approach (Oosterlaken, 2012). According to Alkire (2011), the capability approach is an evaluative framework for evaluating social arrangements; and it is deliberately wide and incomplete for people who will implement it to particularize it to a particular context and set of problems. Alkire interprets Sen's intention behind leaving the capability approach incomplete as a way implementers can exert their "agency, their value judgement and their discussion with other groups to make this value judgement instead to make them a priory in the framework". The latter is important because the capability approach places *human agency*[41] at the centre instead of social structures such as markets or governments.

Sen emphasizes the need for "the expansion of the 'capabilities' of persons to lead the kind of lives they value –and have reason to value" (Sen 2001, p.18). Capabilities refer to the different opportunities or the freedoms available to people to achieve the lifestyle they value (Frediani, 2010). Drèze and Sen (2002) argue that a focus on inequality of opportunity – instead of income inequality– will highlight the need to promote and distribute aspects of freedom in a society. The notion of capabilities goes beyond the concept of capacity. The notion of capacity is understood as enhancing skills and abilities whilst capabilities include the dimensions of opportunity and choice (Frediani, 2007). Sen (2001) claims that "a person's 'capability' refers to the alternative combinations of functionings[42] that are

[41] "A person's 'agency freedom' refers to what the person is free to do and achieve in pursuit of whatever goals or values he or she regards as important" (Sen, 1985, p. 203).

[42] Functionings: "Living may be seen as consisting of a set of interrelated 'functionings', consisting of beings and doings. A person's achievement in this respect can be seen as the vector of his or her functionings". Some relevant functionings are such as being adequately nourished, being in good health, avoiding escapable morbidity; to more complex achievements such as being happy, having self-respect, taking part in the life of the community, etc. (Sen, 1995).

feasible for her to achieve" (Sen, 2001, p.75). Sen's concept of functionings "reflects the various things a person may value doing or being" (Sen, 2001, p.75). Functionings are achievements whereas capabilities are "freedoms or valuable options from which one can choose on the other" (Robeyns cited in Oosterlaken, 2012, p.4). Due to valuing free *choice* and *human agency,* the focus of the capability approach is on capabilities instead than on functionings. "The capability to achieve functionings will constitute the person's freedom –the real opportunities- to have well-being" (Sen, 1995, p.2).

Policies for poverty alleviation should expand the opportunities of the poor to achieve the goals or things they value (Frediani, 2007) –such as rebuilding safer housing in different ways in the context of this thesis. Moreover, "making achieved well-being itself depends on the capability to function. Choosing may itself be a valuable part of living, and a life of genuine choice with serious options may be seen to be –for that reason– richer" (Sen, 1995, p.2). Hence, applying the capability approach as an evaluative framework to post-disaster housing implies assessing people's opportunities, choices and capacity to rebuild in a way to achieve the lifestyle they value.

Hansen (2015) argues that the capability approach can elucidate how social structures enable or constrain the capacity of people to exert their agency on the built environment. For this thesis, housing recovery evaluated through the capability approach would focus on a) opportunities that different projects offer to affected people; b) choices that prospective users have during the three stages evolutionary housing recovery; and c) capacities that users develop because of *being involved* in housing recovery –both at individual and at collective level (See Paper 1, Paper 3; and Sections 4.3 and 4.4).

Frediani and Boano (2012) propose the neologism *capability space of participatory design* as a conceptual framework that articulates the complete sequence of design: process and product. In Frediani and Boano's concept of capability space, "process freedom is concerned with people's ability to shape the rules of engagement while product freedom addresses their ability to determine the design outcome" (Hansen, 2012, p.142). Building on Frediani and Boano (2012), this thesis has proposed the neologism *capability space of post-disaster housing* for developing a *Model for user involvement* (See Paper 3 and Section 4.4).

Lizarralde (2008) argues that *multiplicity of choice* –different housing typologies, mixed use, incremental design– is essential for long-term performance of low-income housing projects. In post-disaster housing, the concept of multiplicity of choice implies that housing design should incorporate qualities such as *flexibility* and *adaptability* during the

planning and design stage. Such a design approach would offer families different ways of extending and adapting their housing solutions to their changing needs and priorities over time, and possibilities to support income-generating activities. Hence, this thesis studies if post-disaster housing recovery projects in Haiyan affected areas have expanded the opportunities, choices and capacity of the prospective users because of *being involved* in the three stages of housing recovery.

Turner and Sen's views on freedom and active involvement

As mentioned before, this thesis builds up on Turner's *housing as a process* paradigm. Turner argues that the providor approach to housing –based on housing as a product or commodity– results in people becoming consumers or passive beneficiaries. Conversely, the supporter approach –based on housing as a process, as a verb, as an activity– implies that decision-making power remains in the users themselves. Turner's three laws of housing can be summarized as follows a) dwellers control over the housing process stimulate individual and social well-being; b) housing is important because of what it *does* in people's lives; c) housing imperfections are more tolerable if they are the responsibility of the users, (Colin Ward in Turner, 1976, Preface).

Turner engaged himself in discussing the notions of *dependency* and *autonomy*[43] rather than developing a theory on user involvement in housing processes. This thesis proposes that a fourth aspect can be derived from Turner's work on housing. Turner introduced the terms *user* and *freedom to choose* when describing people's involvement in housing processes.

> *"If housing is treated as a verbal entity, as a means to human ends, as an activity rather than as a manufactured and packaged product,* ***decision-making power*** *must, of necessity, remain in the hands of the* ***users*** *themselves …[ ]… households should be* ***free to choose*** *their own housing, to build or direct its construction if they wish, and to use and manage it in their own ways." (Turner and Fichter, 1972, p. 154, own emphasis added).*

[43] Autonomy: "implies a levelling out of consumption, a more uniform distribution of power, wealth, and responsibility". For the poor, autonomy signifies greater access to goods and services than is available to them at present, that this access should be determined by their individual needs, and that it should be obtainable through greater inputs of time, labour, and collective bargaining power on their part" (Turner and Fichter, 1972, p.248).

Hence, the notions of *user*, *choice* and *decision-making power* can be understood as constitutive elements of *housing as a process.* In the latter quote, the notion of *opportunities* offered to the users through housing processes is also implied because users should be free to choose among different options –self-building or direct construction, to use and manage their housing. Turner's existential definition of *freedom* in terms of "the opportunity to do for one's self what one is able to do" (Turner and Fichter, 1972, p.245) situates *opportunity* among other constitutive elements of housing as a process. Moreover, Turner's view of freedom in terms of opportunity and choice is compatible with Sen's view of *development as freedom* in which exerting *human agency* through *active involvement* is essential for poverty alleviation.

> *"The ends and means of development call for placing the* ***perspective of freedom*** *at the center of the stage. The people have to be seen, in this perspective, as* ***being actively involved*** *–given the opportunity– in shaping their own destiny, and not just as passive recipients of the fruits of cunning development programs" (Sen, 2001, p.53, own emphasis added).*

Conversely, Lizarralde's comparison of four cases of reconstruction in Colombia, Honduras and El Salvador from 1999 to 2004 provide evidence that the success of housing projects does not only depend on user involvement but on a good organizational design. There is a tendency that users are only involved in self-construction activities whilst they lack decision-making over "design, planning, management and financing" (Lizarralde, et al., 2010, p.12). In other cases, the users are only given a booklet that included detailed guidelines on how to extend the original units (Lizarralde, 2011, p.182). One drawback of high level user involvement in post-disaster housing can be loss of control over project outcomes by humanitarian aid organizations and other actors, "which can be untenable to major donor organizations who need to be accountable to their funders, whether governments, corporations, or private citizens" (Daly and Brassard, 2011, p.516).

Concluding remarks

This section recapitulates the concepts and theoretical principles that have been discussed in this chapter and that will be applied in the following chapters of this thesis:

m) a critical view of *evolutionary housing recovery* instead of considering post-disaster housing as three different and finished products – namely emergency shelter, temporary shelter and permanent housing;
n) agency-driven, owner and community-driven reconstruction approaches fostering different *types* and *levels* of involvement;
o) incremental housing as an early recovery strategy for bridging the gap between emergency/temporary shelter and permanent post-disaster housing;
p) a *build back better approach* that aims to address pre-disaster socio-economical vulnerabilities;
q) the notion of *user involvement* to emphasize the active and effective engagement of prospective users of the houses in the whole process, instead of using participation as a broader notion that leaves the affected people outside housing recovery;
r) housing recovery from a capability approach perspective that offers opportunities and choices to prospective users whilst enhancing their capacities during the different stages;
s) a view of housing recovery in which opportunities, multiplicity of choices, the agency of users and decision-making are understood as constitutive elements of evolutionary housing recovery.

3 Methodology

The first section presents the ontological and epistemological assumptions underlying the research leading to the methodological choices. The second section describes the research approach. The third section introduces case study research and the design of the case studies. The fourth section details the research procedure. The fifth section addresses data collection and different sources of data. Finally, the sixth section focuses on the selection of cases and data analysis.

3.1 Critical realism: a metatheory to transform practice

> *"Buildings and physical infrastructure normally do not actively trigger things to occur, but they can (usually in interaction with other causal powers) enable, amplify, facilitate, restrain, supress or prevent the occurrence of events and situations. They do not in this regard diverge from individuals, non-material social structures or non-human nature. Applying the critical realist notion of causes as tendencies, built environment characteristics must be considered to have causal effects on human actions and social phenomena, although not in a deterministic way" (Naess 2016, p. 61).*

Discussion and debate on research paradigms[44], the nature of reality and knowledge have been ongoing for more than two centuries or more (Neuman, 2014; Patton, 2015). "A paradigm is a worldview – a way of thinking about and making sense of the complexities of the real world" (Patton, 2015, p.89). Each approach to social science has a stance on philosophical assumptions regarding ontology[45], epistemology[46] and methodology (Neuman, 2014). Critical realism is an alternative

[44] Paradigm: "A general organizing framework for theory and research that includes basic assumptions, key issues, models of quality research, and methods for seeking answers (Neuman, 2014, p.96). The same author identifies three main paradigms for doing social science research, namely positivist social science, interpretative social science and critical social science.

[45] *Ontology* is "the philosophical study of being" (Bhaskar, 2016, p.23). Ontology deals with "assumptions of the intrinsic nature of reality, 'what exists' and of the 'essence of things', are ontological questions and must necessarily form the foundation for every other assumption we make" (Danermark, et al., 2002, p.18).

[46] *Epistemology* is "the philosophical study of knowledge" (Bhaskar, 2016, p.23). Epistemology is concerned with "assumptions of the nature of knowledge, of how we acquire knowledge and how we 'can know that we know', are epistemological questions" (Danermark, et al., 2002, p.18).

metatheory[47] both to *positivist social science*[48]–that is concerned with regression-based variable models and causal laws– and to interpretive social science[49]–that focuses on interpretation and description whilst denying explanation and causation (Archer, et al., 2016). Critical realism embraces "the compatibility of ontological realism, epistemological relativism and judgemental rationalism" (Bhaskar, 2016, p.14). This thesis is informed by basic critical realism as a metatheory.

According to Danermark, et al. (2002, p.5), "critical realism involves a switch from epistemology to ontology, and within ontology a switch from events to mechanisms…[ ]…the point of departure of critical realism is that the world is structured, differentiated, stratified and changing". For critical realism, reality consists of three domains –*the real, the actual and the empirical*. The *real* is the realm where mechanisms exist irrespectively of "whether they produce an event or not. When the mechanisms produce a factual event, it comes under the domain of *the actual*, whether we observe it or not. When such an event is experienced, it becomes an empirical fact and comes under the domain of *the empirical*" (Danermark, et al., 2002, p.199). The same authors highlight that the data we collect at the empirical domain –that we experience directly or indirectly– are theory-laden. This is to say that empirical data are mediated by theoretical concepts; and, therefore, events are not experienced in any direct way by the researchers. Bhaskar has named the latter *the epistemic fallacy*, due to reducing the three domains of reality to only what we experience from it –that is to say to what we can *know about it* or in other words reducing ontology to epistemology. Hence, from a critical realist perspective, the task of science is to reconstruct the preconditions for events to be possible, shifting from description of events in *the empirical domain* towards identifying generative mechanisms in *the real domain* and building plausible causal explanation.

One of the main differences between positivism and critical realism is their divergent views of causality. Hume's view of causality is based on observed regularities in associations of events (Maxwell, 2012). The Humean view of causality has been criticised by critical realists due to reducing "the concept of causality to universal correlation" (Danermark, et al., 2002, p.7). On the other hand, qualitative researchers from a

[47] A metatheory "is a set of presuppositions about the nature of the world and knowledge, respectively. These presuppositions are of two kinds, namely about the objects of knowledge (ontology) and about the conditions for knowledge (epistemology)... [ ]… Implicitly or explicitly, metatheory informs you as to what you can/cannot do (and even see) and what kind of knowledge you can/cannot obtain –if you want to do science (Bhaskar and Danermark, 2006, p.295).

[48] Positivist social science "emphasizes discovering causal laws, careful empirical observations, and value-free research" (Neuman, 2014, p.97).

[49] Interpretative social science "emphasizes meaningful social action, socially constructed meaning and value relativism" (Neuman, 2014, p.103).

constructivist stance not only react to the Humean regularity approach but also question the validity of the concept of causality in the social sciences (Maxwell, 2012). According to the interpretative or hermeneutic tradition "there are no causes of human action (but there are motives, intentions, meanings, for example)" (Naes, 2016, p.55). By contrast, critical realists contend that people are "conscious, intentional, reflective and self-changing" (Danermark et al., 2002, p.43). The interpretative tradition also argues for a dichotomy between interpretative understanding (verstehen) and causal explanation (erklären), claiming that explanation is limited to the natural sciences (Naes, 2016, p.54). Critical realism follows neither the positivist nor the interpretative views of causation. The critical realist view of causality is that objects and social structures have causal powers that can be explained independently if they produce or not regularities. These mechanisms are situationally contingent –they can happen or not– whereas their context is inseparably part of the causal process (Maxwell, 2012).

For Danermark, et al. (2002, p.52, own emphasis added), "causal analysis deals with explaining why *what happens* actually does happen". For Sayer (2000), social structures operating in the realm of the real have causal powers –whether these are activated or not. When causal powers are activated, the outcomes they trigger will also depend on the context that will enable or constrain such outcomes in the actual or empirical level. For critical realists, "explanation depends instead on identifying causal mechanisms and how they work, and discovering if they have been activated and under what conditions" (Sayer, 2000, p.14). Qualitative methods, such as observation of social settings and interviews with participants, can shed light for tracing causal processes (Maxwell, 2012).

From a critical realist perspective, "we have to see the natural and social dimensions of existence as in continuous dynamic *causal interaction*" Maxwell (2012, p.16). Hence*, mental* phenomena are in interaction with *physical* phenomena because they are parts of a single real world. One basic assumption of critical realism is that *concepts, meanings* and *intentions* are real. Although we cannot observe them directly, we can make claims about them based on indirect data. The actions of individuals are influenced by their beliefs, reasons and motives (Maxwell, 2012). Hence, critical realism recognises "the concept-dependence of social phenomena and the need to interpret meaningful actions, though since *reasons can be causes*, this is not something separate from or alternative to causal explanation" (Sayer, 2000, p.27).

Critical realism sheds light on the concept of *ideological distortion*[50] while highlighting "the causal interaction between the physical and social environment and cultural forms" (Maxwell, 2012, p.28). Due to ideological distortion, cultural forms can contradict aspects of social structure while serving ideological functions such as class domination. Davis (1978) argues that abuse of power by the elite affects negatively or impedes post-disaster housing reconstruction. Abuse of power relates to exploitation of land and corruption regarding relief and reconstruction funding. Corruption is a way of life in a country when it is systemic and becomes the norm rather than the exception. Normalisation of corruption is a world phenomenon affecting many countries. It results from the combination of "low salaries of civil servants, red tape, the low probability of detecting and punishing corrupt offenders, cultural values and practices which encourage corruption, and their difficult governance environment of systemic corruption, political instability, government ineffectiveness, and low degree of rule of law" (Quah, 2015, p. 31). Hence, critical realism provides an inquiry framework that can shed light on the interaction of plausible *causal mechanisms* acting in recovery programmes; and therefore, contribute to explain sociocultural phenomena within a geo-historical context.

Critical realism and qualitative research

This research has been informed by basic critical realism as a metatheory, explicitly the theory and philosophy behind the theories of housing recovery and the capability approach used in the thesis. Hence, critical realism frames the ontological and epistemological assumptions for this thesis. The research process is seen as "a constant digging in the ontological depth of reality" (Alvesson and Sköldberg, 2009, p.43). For critical realist researchers it is important to understand how events arise from "the workings of mechanisms which derive from the structures of objects, and they take place within geo-historical contexts" (Sayer, 2000, p.15). Justification for adopting a critical realist perspective in studying housing recovery is grounded in several aspects. First, the research deals with the relationship between man-made environments –reconstruction of permanent housing; human actors –the users, staff of national organizations and international humanitarian aid organizations, etc.; and structures –social and political structures. A critical realist ontology favours digging deeper within the three domains of reality –from *the empirical,* through *the actual,* to *the real*– which allows the researcher not only to observe events or gain knowledge through her own empirical experience, but also to infer plausible underlying mechanisms that might have caused

[50] *Ideological distortion* refers to cultural forms that may misrepresent aspects of the economic or social system or the physical environment (Maxwell, 2012).

specific events –i.e. low output of permanent post-disaster housing. Secondly, critical realism emphasizes questions of *how* and *why* a particular phenomenon came into being" and engages with building plausible causal explanations. These types of questions are also suitable to be answered through case study research, as it will be discussed in Section 3.3. Thirdly, critical realism is suitable to study user involvement in housing recovery because it might help to find out causal mechanisms supporting or hindering active involvement. This research is based on the following ontological and epistemological assumptions, and methodological choices.

1. **Ontological assumptions**:
   - an **ontological realism** (there is a real world that exists independently of our perceptions, theories, and constructions) (Maxwell, 2012);
   - the world is structured, differentiated, stratified and changing Danermark, et al. (2002, p.5);
   - the notion of **real possibility**: "the possible is a more basic category than the actual" (Bhaskar, et al., 2018, p.56),;
   - reality is **stratified**, consisting of three domains –the empirical, the actual and the real (Sayer, 2000; Danermark, et al., 2002);
   - a **laminated system-approach** to reality: LS5, the irreducible and necessary components in a complex whole (Bhaskar 2016, p.85);
   - **reasons can be causes**; "the concept-dependence of social phenomena and the need to interpret meaningful actions, though since reasons can be causes" (Sayer, 2000, p.27).

2. **Epistemological assumptions**:
   - "a form of **epistemological constructivism and relativism** (our *understanding* of this world is inevitably a construction from our own perspectives and standpoint)" (Maxwell, 2012, p.5);
   - **shift from events to causal mechanisms:** "it now becomes important to see science as a creative activity, essentially moving from descriptions of events and other phenomena to their causal explanation in terms of the structures and mechanisms that produce them" (Bhaskar 2016, p.7).
   - **causation:** "the actual causal mechanisms and processes that are involved in particular events and situations" (Maxwell, 2012, p.36);
   - **social structures** have causal powers that can be explained. These mechanisms are situationally contingent whereas their context is inseparably part of the causal process (Maxwell, 2012).

theoretical generalisation: critical realism is "interested in theoretical or transfactual rather than empirical generalisations" (Bhaskar 2016, p.79).

3. **Methodological choices**:
   - a more systematic and rigorous use of **narrative for causal explanation** (Maxwell, 2012). **Causal claims** require appropriate sorts of support data (Maxwell, 2012);
   - **qualitative methods** such as observation of social settings and interviews with participants can shed light for tracing causal processes (Maxwell, 2012);
   - **the Resolution, Redescription, Retrodiction, Elimination, Identification and Correction (RRREI-C) method**: a model of scientific discovery for applied research is appropriate "when scientists want to explain why events happen in the open systemic world –characterized as it is by a conjunctive multiplicity, rather than a disjunctive plurality of causes" (Bhaskar, et al., 2018, p.45). The modes of inference[52] used in this model are abductive redescription[53] and retrodiction[54].
   - **retroduction[55]:** "involves imagining a model of a mechanism that, if it were real, would account for the phenomenon in question" (Bhaskar 2016, p.79);

[52] Modes of inference –or thought operations– are complementary ways of reasoning and arguing to relate the particular to the general. The four modes of inference are deduction, induction, abduction and retroduction (Danermark, et al., 2002).

[53] Abduction: "involves redescription or recontextualisation, most usually (in critical realist research) in terms of a causal mechanism or process that serves to explain the state, condition or happening referred to (Bhaskar 2016, p.79).

[54] Retrodiction: "we investigate what mix of causal powers interacted in what way to produce any particular event" (Elder-Vass, 2015, p.81).

[55] Retroduction is a way of reasoning "from a description and analysis of concrete phenomena to reconstruct the basic conditions for these phenomena to be what they are" (Danermark, et al., 2002, p.80). In retroduction "we identify individual causal powers and the mechanisms that produce them" (Elder-Vass, 2015, p.81).

The study has a qualitative approach considering that there is little knowledge (Hancock and Algozzine, 2006) regarding post-disaster housing. For qualitative researchers the research design is not a fixed plan or protocol as it is for positivists researchers. The main reason for the latter is that qualitative research focus on studying human beings interacting in their natural setting –open systems. The researcher's actual conceptions of and plans for research are parts of people's meanings, motives, and understandings which affect the way the research is conducted. Moreover, the in-situ implementation of the research constitutes a real phenomenon that can be different from the researcher's planning, and "from what the researcher *thinks* is happening" (Maxwell, 2012). For this study, the focus is on studying how prospective users have been involved in housing recovery implemented by different types of organizations. The researcher has neither control over the reconstruction approaches nor on how users are involved or not. Hence, housing recovery projects are the natural setting for studying user involvement in this research.

A critical realist model for applied research

Bhaskar et al. (2018) argue that the Resolution, Redescription, Retrodiction, Elimination, Identification and Correction (RRREI-C) model is suitable to explain events that happen in the open systemic world that are characterized by a conjunctive multiplicity of mechanisms. Critical realism argues for the need to move from empirical descriptions of observable outcomes to identify plausible causal mechanisms, how they have interacted with each other, triggered emergent outcomes and the social structures producing them. The social phenomenon that is the object of study of this paper –the housing recovery programme in Leyte– happened in open systems characterized by emergence and complexity. For Bhaskar (2016, p.82), "ontologically, the social world is an emergent, concept- and activity-dependent, value-drenched and politically contested part of the natural world. In it, social structures pre-exist and enable or constrain human activities, which are in turn (through the intentional causality of reasons) causally efficacious in the material world".

When the different causal mechanisms described by different sciences are producing a novel situation, there is an emergent outcome. Bhaskarian applied critical realism seeks to understand how the different mechanisms combine with each other in such a way as to produce a unique or different outcome and proposes that the RRREI (C) model is suitable for scientific discovery for applied research. This model has been applied in Paper 2, *Housing Recovery Outcomes after typhoon Haiyan in the Philippines: A Critical Realist perspective.* According to Bhaskar, et al. (2018) and Price and Martin (2018), the RRREI (C) model implies the following steps:

Resolution: to resolve the complex phenomenon into its significant component parts based on an already existing theory that suggests what is important;

Redescription: abductive redescription of these components in terms of the selected theories or a set of ideas;

Retrodiction: based on the redescription, retrodict back to antecedent conditions that might have caused the outcomes;

Elimination: eliminate alternative competing causes;

Identification: identify an efficacious picture of the causes underlying the phenomenon;

Correction: correct the initial findings in the light of the fuller explanation;

3.2 Reflexion of the research approach

The research process has a multi-level approach because it engages with the macro level through identifying plausible causal mechanisms that affected the Haiyan housing recovery programme in Leyte. Then, it deals with the mezzo level represented by several approaches to housing reconstruction implemented by different types of organizations. Lastly, the study focuses on the micro level –at the project level– specifically on how prospective users were involved in housing recovery. Such a multi-level approach has contributed to drawing a holistic account of housing recovery in areas affected by typhoon Haiyan in Leyte.

The design of this research is interactive, based on Maxwell (2005). First, it follows an interactive model of research design in which each component affects the other components (See Figure 3.1). The core of the hub is the research questions. The emergence of a research question before implementing the second fieldwork and how this affected the other components of the research design is briefly summarized in Box 3.1.

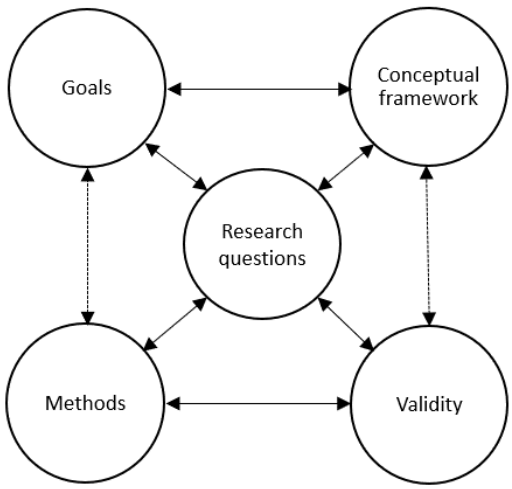

Figure 3.1 An interactive model of research design. Source: Maxwell (2005, p.5)

Box 3.1. Emergence of a research question

Before implementing the second fieldwork in Leyte, the following research question emerged, *why is the output of permanent post-disaster housing low?* This question was triggered while analyzing documents and media updates before going back to the field. The fact that National Housing Authority (NHA) had turned over only 205 housing units to Haiyan survivors sixteen months after the typhoon –official data up to March 23/2015– was confirmed in an interview to a staff member from NHA Eastern Visayas Office. The total turnover of 205 houses included 98 units implemented in partnership with the NGO Gawad Kalinga in Tanauan. The reconstruction approach of NHA is mainly agency-driven reconstruction implemented by contractors to achieve mass production of housing. Conversely, the NGOs Habitat for Humanity, NASSA/Caritas and We Effect had achieved 391 occupied houses through processes in which users were involved in different ways. The research questions of the study were redefined as shown in Table 1.1. Another perspective was added to the thesis, i.e. explanation for unexpected housing outcomes in Leyte. This implied a stronger influence by critical realism as a metatheory, which affected both the theoretical framework and the methods.

Furthermore, this research is interactive because its design changed due to the circumstances under implementation. The research design of a qualitative study "should be a *reflexive process* operating through every stage of a project" (Maxwell, 2005, p.2). The latter implies maintaining a critical reflection stance when collecting and analyzing data, which leads to refocusing research questions, incorporating theoretical frameworks, and identifying validity threats simultaneously. For this study, an example of the interactive process of changing design under implementation is described in Box 3.2.

Mode 2 and transdisciplinarity

Regarding 'meta-debates' on knowledge production in the *making disciplines* –in which architecture is included– this study is located within the so-called Mode 2 of knowledge production. According to Gibson, et al., (cited in Nilsson and Dunin-Woyseth, 2011, p.89):

> *"Mode 2: Knowledge production carried out in the context of application and marked by its: transdisciplinarity; heterogeneity; organizational hierarchy and transience; social accountability and reflexivity; and quality control, which emphasizes context and use-dependence. Results from the parallel expansion of knowledge producers and users in society".*

This new mode of knowledge production reintroduced the notion of transdisciplinarity[56] coined by Jean Piaget, Edgar Morin and Erich Jantsch four decades ago. Transdisciplinarity has been recognized as a new form of gaining knowledge that not only transgresses disciplinary boundaries, but also incorporates the knowledge of different stakeholders in society (FORMAS, 2006). Nilsson and Dunin-Woyseth (2008) argue that in this new mode of knowledge production, problems are set within a transdisciplinary framework. The goal of the transdisciplinary approach is to seek deeper understanding of current world problems. The same authors state that Mode 2 focuses in following research problems as they emerge in contexts of application; incorporating heterogeneity of knowledge producers that include lay people.

This research is transdisciplinary due to several aspects. First, the phenomena under study –user involvement in housing recovery– is located between several disciplines as discussed in Chapter 2, which required the author to transgress boundaries between scientific disciplines. Secondly, focus group discussions with the users, and interviews with aid and development professionals from NGOs and public officers from governmental bodies allowed for "a fusion of academic and non-academic knowledge, theory and practice, discipline and profession" (Doucet and Janssens, 2011, p.4).

[56] "*Transdisciplinarity* concerns that which is at once between the disciplines, across the different disciplines, and beyond all disciplines. Its goal is the understanding of the present world" (Nilsson & Dunin-Woyseth, 2011).
Multidisciplinarity relates to studying a research topic through the lenses of several disciplines at the same time. *Interdisciplinarity* "concerns the transfer of methods from one discipline to another" (Nilsson & Dunin-Woyseth, 2011).

Box 3.2. Changing design under implementation

During the second fieldwork, a local community organizer (CO) in Barangay Dolores, Ormoc, assisted the researcher. The CO was very interested in the researcher's post-disaster housing evaluation framework. This led to a collaborative definition of concepts using terms easily understandable for local people, translation of the evaluation framework to Bisaya language –a colloquial way to refer to Cebuano language– and preparation of the evaluation workshop for the O-Balay Housing Cooperative.

The researcher's initial plan was to apply the evaluation framework in English, through presenting the framework in written English to the participants, and having a translator while implementing the workshop. The latter could have implied a validity threat of the results of the workshop due to depending completely on the translation and interpretations of the translator – both for clarifying concepts, doing questions and translating answers.

The engagement of the CO led to carrying out the evaluation workshop in Bisaya/English simultaneously. This change was key to make the voice of the users louder and learn from their lived experience in the post-disaster housing process. The framework was written in Bisaya in two A0 format sheets of paper so that the participants could read the headings and subheadings in different rows and columns. Cards with short and easy to understand description of the main concepts were translated to Bisaya before the workshop e.g. vulnerabilities, capabilities, resilience.

First, the researcher made the questions in English; and then, the respective question was translated to Bisaya. Participants answered in Bisaya and the CO translated the answer to English. The researcher asked participants if the translation of the answer in English was correct or if they wanted to add anything else. The latter was done to reduce bias from the interpretation of the CO due to the translation. The participants added any missed information in English or clarified any argument further in Bisaya. Finally, the summary of the answer in English was done collaboratively by the researcher, the participants and CO. The summary of each answer was written in a card and placed in the evaluation framework (See Table 4.1). The whole discussion for each question/answer was recorded digitally to facilitate the qualitative analysis and to avoid missing important data.

3.3 Case study research

Case study is a research strategy that can be exploratory, descriptive or explanatory (Yin, 2003) and evaluative (Yin, 2014). For Gillham (2000, p.13), "case study is a *main* method that uses different sub-methods such as interviews, observations, document and record analysis, work samples, and so on". The strength of case study method "is its ability to deal with a full variety of evidence –documents, artefacts, interviews, and observations" (Yi and Yang, 2014). A *case* is a real-life phenomenon (Gillham, 2000), bounded to its context, time and space. "The case is an integrated system" (Stake, 1995, p.2) and can have different units of analysis. An individual, some event or entity (Yin, 2003), a group, an institution, a community (Gillham, 2000) are examples of cases. In case study research, *the case* can be processes, programmes, neighbourhoods, and even events –such as decisions– and other entities (Yin, 2014).

This thesis is based on Yin's (2014, pp.16-17) definition of case study as a research method that:

a) studies a contemporary phenomenon in depth in its real context, which is not controlled by the researcher;
b) relies on different sources of data and uses triangulation of data to achieve validity;
c) uses initial theoretical propositions for data collection and analysis;
d) embraces different epistemological orientations;
e) includes both single- and multiple- case studies
f) can be used to develop or test theoretical propositions

Case study is the main research strategy for this thesis. Based on Blatter and Haverland (2012), this study has a causal-process tracing approach in framing the case studies in contrast to Yin (2003) and Stake's (1995) constructivist approach to case study. Therefore, sub-methods or data collection techniques include observations of social settings (Maxwell, 2012), semi-structured interviews, focus group discussions, a workshop, field notes and document analysis.

Qualitative methods are appropriate for identifying "the qualitative nature of social objects and relations on which causal mechanisms depend" (Sayer, 1992, p.3). The context in which these mechanisms operate are part of the causal process. The intrinsic connection between mechanisms and their context makes case study methodology suitable for developing

process[57] *explanation,* which deals with specific events and the processes connecting them. The goal of case study research is to do *analytical generalizations* which implies expanding and generalizing theories instead of generalizations to "populations or universes" (Yin, 2014, p.21).

Trustworthiness –or validity– in case study research is achieved mainly through triangulation of data collection methods, data, theories or researchers. In this thesis, triangulation of data from different sources of evidence has been done to develop a coherent chain of evidence when elaborating explanatory arguments.

Designing the case studies

An iterative approach

The research design for the first fieldwork followed (Yin, 2003). The research questions when doing the first fieldwork in 2014 were the following:

a) What approaches to user involvement have been applied for housing reconstruction in the area affected by typhoon Haiyan in the Philippines?
b) What capabilities have people from the community developed during the housing reconstruction process?
c) What theoretical propositions for user involvement in housing processes can be derived from the case studies?

The research design, research procedure and the presuppositions for the present thesis have been refined over time following an *iterative*[58] *approach* to data analysis. For the first fieldwork the research procedure included the following stages: a) literature review, b) design of the tools for gathering empirical information, c) immersion in the Filipino culture, d) learning about the organizational setup, e) visits to completed housing projects, f) field notes, g) exploratory interviews with key informants, h) analysis of preliminary information, i) observation of social settings and processes in on-going housing projects, j) semi-structured interviews with key informants, k) focus group discussions with prospective users, l) data analysis, m) triangulation of data, n) writing Paper 1.

[57] *Process theory* "deals with events and the processes that connect them; it is based on an analysis of the causal processes by which some events influence others". It is not merely descriptive, but a different approach to explanation (Maxwell, 2012, p. 36).

[58] "*Iterative* refers to a systematic, repetitive, and recursive process in qualitative data analysis. An iterative approach involves a sequence of tasks carried out in exactly the same manner each time and executed multiple times" (Bassett, 2010, p.504).

The *presuppositions* during the first fieldwork were the following a) the humanitarian assistance can influence reconstruction policies at the national level; b) community-driven approach is a suitable approach due to the scope of the destruction; c) involving the users in housing reconstruction processes enhances their capacity and preparedness for future hazards. These presuppositions were based on my previous research experience and literature review before going to the field. Regarding literature, presuppositions *"a"* and *"b"* were drawn from Duyne Barenstein (2010) when comparing approaches to housing reconstruction in Gujarat and Tamil Nadu in India. Presupposition *"c"* was based on Schilderman & Lyons (2011) and further developed based on Sen (2001). During the first fieldwork, my understanding of *capabilities* was still limited. In the field, I used the term capabilities, capacities or skills as synonyms to help respondents to understand a question focused on *enhancement of capabilities* both in the semi-structured interviews and in the focus group discussions.

Study propositions

Learning from the Filipino social and political context during the first fieldwork and further literature review influenced my presuppositions for the second fieldwork. These presuppositions evolved into to the *study propositions* specified bellow. For the second field study, my notion of capabilities had developed further based on Sen (2001), Frediani (2007), and Frediani and Boano (2012). I understood capabilities in terms of *opportunities* offered by post-disaster housing projects; *choices* made by the users; and *capacities* that the users enhanced due to *being involved* before, during and after the post-disaster housing process. Hence, the second field study was *theory-focused* because I had refined the study propositions.

(1) centralized and complex administrative processes have derived in low output of permanent post-disaster housing;
(2) the relation between housing recovery and user involvement can be explained in terms of *opportunities, choices and capacities;*
(3) different types and levels of *user involvement* in housing recovery contribute to enhance people's capacities; and
(4) lack of user involvement can affect settlement location and housing qualities.

Yin (2014, p.29) argues for five components of a research design: a) research questions; b) study propositions; c) unit of analysis –the "case"; d) the logic linking the data to the propositions; and e) the criteria for interpreting the findings (See Figure 3.2). The three first components (a), (b) and (c) lead to the type of data that needs to be collected. The last two components (d) and (e) lead to anticipate case study analysis.

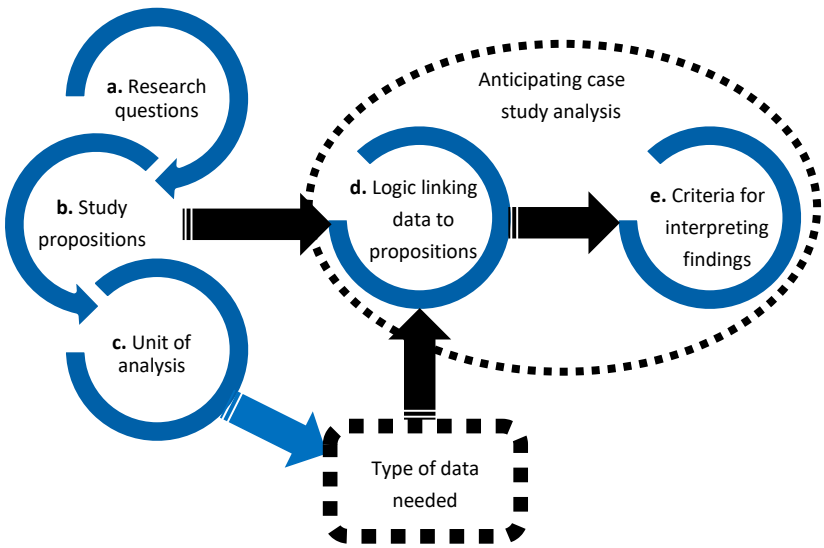

Figure 3.2 Designing case studies. The image illustrates the relationships between the five components and the type of data that needs to be collected. Source: Elaborated by the author based on (Yin, 2014).

The research design in this thesis is based on Baxter and Jack (2008), Yin (2014), Maxwell (2012), and Patton (2015). This study is informed by basic critical realism regarding ontological and epistemological assumptions when addressing the research questions. The type of case study varies due to the focus of each case (See Table 3.1). The research design is the logical connection between the research questions, theoretical propositions, inquiry framework, the unit of analysis, the type and scope of the case study, and its focus. This study has the following *units of analysis* or cases[59]:

(1) approaches to housing reconstruction
(2) the housing recovery programme in Leyte
(3) two housing recovery projects

[59] "Each unit of analysis and its related questions and propositions would call for a different case study, each having its own research design and data collection strategy" (Yin, 2014, p.32).

Criteria for interpreting the findings

In order to address the research questions of the thesis, the following criteria have been established for interpreting the findings:

a) the use of narrative analysis to keep cause-effect relations within the data (Maxwell, 2012) –instead of breaking the data in too small units as researchers with a grounded theory approach would do;
b) *identify tendencies* acting as enabling or constraining factors for the outcomes of the housing recovery programme and for involving prospective users in housing recovery, through analyzing the reasons of actors for a particular course of action in context (Bhaskar, 2016, p.67);
c) explanation building through applying the Resolution, Redescription, Retrodiction, Elimination, Identification and Correction (RRREI-C) model of scientific discovery for applied research in Paper 2 (Bhaskar, et al, 2018; Price and Martin, 2018);
d) describe types and levels of user involvement, in Paper 1 and Paper 3;
e) develop a model for user involvement based on the capability approach (Sen, 2001; Frediani and Boano, 2012) and the Sphere Handbook (Sphere Association, 2018) and apply it to analyze the emprical data in Paper 3.

Table 3.1 Research design: the research questions, propositions, unit of analysis, type and scope of case study, and the focus of each case. Elaborated by the author based on Baxter and Jack (2008), Yin (2014) and Patton (2015). Presuppositions and study propositions are detailed in page 82.

Research questions and Propositions	**Unit of analysis "the case"**	**Type & scope of case study**	**Focus**
RQ: How have prospective users been involved through different approaches to housing reconstruction? **Study presuppositions** during the first fieldwork: a, b**,** c	The case: approaches to housing reconstruction	Type: Single-case design with embedded units of analysis Scope: Descriptive	Involvement of prospective users through different reconstruction approaches
RQ: What are the outcomes of the housing recovery programme? Why is the output of permanent post-disaster housing low? How can the outcomes of the housing recovery programme be explained? **Study propositions:** 1	The case: the housing recovery programme in Leyte	Type: Single-case design with embedded units of analysis Scope: Explanatory	The interaction of causal mechanisms that have affected the outcomes of the housing recovery programme
RQ: How have prospective users been involved in housing recovery? What opportunities and choices have the projects offered to prospective users? What capacities have users developed? **Propositions:** 2, 3, 4	The cases: Two housing recovery projects a) We Effect project in Barangay Dolores, Ormoc c) Gawad Kalinga-Village in Barangay Pago, Tanauan	Type: Multiple-case design Scope: Explanatory	Opportunities and choices offered by different projects Capacities developed by users at individual and collective levels Development of a model for user involvement in housing recovery

3.4 Research procedure

Reflection on the researcher's influence on the research

The study followed housing recovery projects as they emerged while doing fieldwork three months and sixteen months after typhoon Haiyan. The context of application of these reconstruction projects are selected cities in the island of Leyte, in the Philippines. Knowledge producers include the prospective users of the projects, staff from NGOs and international organizations, key informants from governmental organizations, and donors, among others. The researcher's actions under implementation and the relationships with participants both influence and are affected by the context. Through systematic reflection and feedback from others, the researcher became aware of the "conceptualizations, and the beliefs and motives that inform them" (Maxwell, 2012, p.72). Hence, the researcher's beliefs about the phenomena under study influence his/her use of theory.

Patton (2015) argues that the researcher should reflect the situations in her/his life during the implementation of the research, which influence data collection and analysis. Moreover, Maxwell (2005, p.27) proposes to write a *researcher identity memo* as a tool for the researcher to examine the conceptualizations, beliefs and motives that have informed her/his research. Hence, the following researcher identity memo is an attempt to reflect and become aware on "those goals, experiences, and the beliefs and emotions that connect to these [goals and experiences], that are most relevant" to my research; and "reflect on *how* these have informed and influenced [my] research" (See Box 3.3).

Box 3.3. Researcher identity memo for the study "User involvement in housing recovery". Cases from Haiyan affected areas in the Philippines". Source: elaborated by the author based on Maxwell (2005, p.27)

Probably the main personal interest I hold in the topic of user involvement in housing recovery –and user involvement in housing processes in a broader sense– is a search for other ways of doing architecture that lead to more just human settlements. I was born and lived in Ecuador, in the city of Guayaquil, which was considered the third city with highest percentage of population living in informal settlements worldwide in the 1970s. As an upper-medium income citizen, I studied architecture at a private Ecuadorian university. I became aware that inequality in the distribution of wealth and corruption were among the causes of poverty in Ecuador –a country rich in natural resources– while doing an international training programme in Sweden in 2000. This was a turning point in my professional interest, which changed my view of architecture from a top-down and technocratic approach to an interest on the social role of this profession, bottom-up housing processes and the urban poor.

I grew up in a society that believes that poverty is both a problem and responsibility of the poor; and the latter is transmitted from one generation to the next one without critical reflection on these suppositions. *Ideological distortion* serves the ideological function of maintaining the status quo of a hierarchical and unequal society. A few rich and powerful families own the main means of production and services. The Ecuadorian elite accumulates physical assets while having influence or even control over public officers and politicians.

Historically, Ecuador has not been a welfare state with pro-poor policies to redistribute wealth. Capitalist thinking has obscured any other inherited cultural beliefs –such as Christian beliefs about the common good or the *minga,* a community-driven tradition based on sweat equity for achieving a common goal inherited from the pre-Hispanic inhabitants in the Andean Region. Currently, both the rich and the middle class in Ecuador justify inequalities regarding salary levels and working rights of low-income employees or sub-employed people and their working conditions. Accumulation of financial assets is the only guarantee for a secure future in a country that lacks a good welfare system. These suppositions both shape governmental bodies and influence housing policy.

In the Filipino society, I see the same struggle regarding the loss of culturally inherited religious beliefs and traditional community-driven practices such as the Filipino principle of *bayanihan* –collective cooperation. The triumph of market capitalism over people's consciousness has derived in social structures with an inability or unwillingness of building a just and equal society for fostering collective wellbeing. My culture has a common religious background that I share with the Filipino population.

As a researcher with a critical realist stance, I am aware that my beliefs might have influenced my choice of theory and the way I will interpret qualitative data. Therefore, I have collected data from different types of informants, using different techniques and tools in order to triangulate data to prevent this validity threat.

On the other hand, my cultural background helped me to connect more easily with Filipino respondents while implementing interviews, and with Haiyan survivors when doing focus group discussions or the workshop. I share their spontaneity and openness as part of my own Latin American culture. I also understand and respect how their religious beliefs constitute the basis for their coping mechanisms and self-recovery strength after calamities such as typhoon Haiyan. I also think that my cultural background has been key to elucidating how social structures operate through working mechanisms that have affected negatively housing recovery outcomes.

There are several aspects of my previous research experience that triggered my research interest in the topic of *user involvement in housing recovery*. The research for my licentiate thesis focused on cases of organized self-help housing in Costa Rica and Ecuador. I analyzed Moser's *assets accumulation theory* (2009) among the theoretical frameworks I explored while writing my licentiate thesis in the spring 2013. Moser's theory was developed through a longitudinal study implemented in Guayaquil in a period of 30 years. The strength of Moser's study was the long-term time framework of the research and the econometric narrative methodology developed for the study.

My own critical reflection on qualitative data that I gathered through interviews with several scavengers of San Ignacio de Loyola in Guayaquil made me question the suitability of the assets accumulation theory for my own research. As a community, the scavengers of this new settlement had accumulated *social capital* with technical assistance of the NGO Madre Dolorosa, which helped them to accumulate only one physical asset –their housing. However, most of them were not able to accumulate and/or manage other types of assets that would prevent them from returning to poverty. The NGO established a recycling enterprise and the scavengers worked for it as labour. A manager hired by the NGO did the planning and management of the enterprise. The enterprise closed because the machinery for transforming recycled plastic into black garden hose was stolen most presumably in complicity with the manager. The scavengers lost their work in the enterprise and were unable to reorganize the business by themselves most probably due to lack of capacity and financial assets. According to Moser, the wellbeing of the families in Indio Guayas (Moser's case study), was related not only to the existence of different types of capital but also to the *capacity* of managing those assets in order to protect the families and limit the impact of any shocks on the families. Although involved in the self-construction process of their houses, the

scavengers lacked capacities to recover from the situation mentioned above.

Hence, the case of the scavengers of San Ignacio de Loyola triggered my interest on how people might develop their *capacities* if actively involved during different stages of the housing process. A first attempt to explain what the housing process does in the life of poor people –in terms of enhancing their capabilities– is the case of the community in Hogar de Nazareth in Guayaquil-Ecuador (See Arroyo, 2013, Paper 3).

Having Haiyan survivors in the Philippines in mind, the main assumptions about user involvement in housing recovery that have resulted from my previous experiences are the following. First, what is important for the poor is *what housing does with people* (inspired by John Turner), meaning how the housing process can contribute in enhancing their capacities. Secondly, how funding is invested in the recovery phase can contribute to overcome inequality of opportunities in a society with higher income inequalities between social classes like the Philippines. Hence, international funding for housing recovery after natural hazards should aim at *reducing survivor's pre-disaster vulnerabilities* –in terms of social, economic and physical susceptibility. The latter would imply that local NGOs and international aid organizations also engage in creating awareness among the poor regarding their rights and potential for change. These two assumptions would require that communities affected by natural hazards are able to provide systematic feedback to those delivering aid and assistance in the recovery phase.

The academic goal of this research is to develop better understanding on the relationship between housing recovery and user involvement from a capability approach perspective. Another goal is to show the suitability of critical realism as a metatheory for carrying out research that allows understanding and explaining tendencies acting as enabling or constraining factors when massive reconstruction is needed in post-disaster contexts in developing countries –such as Haiyan affected areas in the Philippines.

In the long term, the scientific goal of this researcher is to develop, test and validate a model for user involvement addressed to professionals working with housing recovery (proposed in Paper 3); and post-disaster housing evaluation framework addressed to vulnerable survivors of natural hazards (proposed in Section 4.4). Both tools are based on applications of Sen's capability approach. In the long term, the practical goal of the research is to contribute to transform current housing recovery practice to contribute to develop resilient communities and built environment whilst optimizing the use of scarce resources. Another practical and more personal goal is to reorient the training of architects and professionals working for international humanitarian aid organizations; so that they can design and lead user-driven reconstruction approaches that would contribute towards rebuilding both resilient communities and safer settlements.

Research implementation

The main stages for carrying out the study on housing recovery in areas affected by Haiyan were the following:

- Preparation for the first fieldwork
- First fieldwork –February 15 to March 24 in 2014
- Research seminar in Lund
- Data analysis and paper writing
- Preparation for the second fieldwork
- Second fieldwork –March 4 to 28 in 2015
- Research seminar in Lund
- Data analysis, paper and thesis writing
- Final Seminar –August 2018

Preparation for the first fieldwork

Several governmental and non-governmental organizations were identified as key actors regarding low-income housing in the Philippines when doing the international survey for the licentiate thesis (See Arroyo 2013, Section 5 Findings). National Housing Authority is the governmental agency with the mandate of implementing housing for the poor.

The decision of focusing this thesis on user involvement in housing recovery in areas affected by typhoon Haiyan was made due to the following reasons:

a) Non-governmental organizations in the Philippines such as Gawad Kalinga and Habitat for Humanity Philippines have an approach to housing in which prospective users are usually involved through sweat equity for self-construction tasks.
b) The scale of the destruction caused by Haiyan required a huge intervention regarding permanent post-disaster housing, which was a unique opportunity to study different approaches and processes having the same context and within a limited geographical area – different cities in Leyte.

First fieldwork: February 15 to March 24 in 2014

The first fieldwork was implemented between February 15th and March 24th 2014. It consisted of two weeks of orientation visiting relocation and new housing projects in Metro Manila and three weeks on own empirical work in areas affected by typhoon Haiyan in the islands of Leyte and Cebu. The first fieldwork allowed the researcher to get first-hand experience from Filipino institutions responsible for housing and urban development, and organizations active in post-disaster reconstruction. The immersion in the Filipino institutional setup included exploratory interviews with staff from

National Housing Authority (NHA) and field visits to housing relocation projects for informal settler families (ISFs) implemented in Metro Manila[60]. Field visits to housing relocation projects implemented by Quezon City Local Government were also important to understand how Local Government Units cooperate with NHA or with local NGOs –such as Gawad Kalinga or Habitat for Humanity Philippines. This first time experience in the Philippines also included visiting AMVACA Cooperative housing relocation project, a community-driven project supported by partnerships between Social Housing Finance Corporation, We Effect, and the Institute for Philippines Cooperative and Social Enterprise Development. The researcher also visited Saint Hannibal Empowerment Centre, an in-city relocation project implemented by the Rogationists of the Heart of Jesus and TAO Pilipinas.

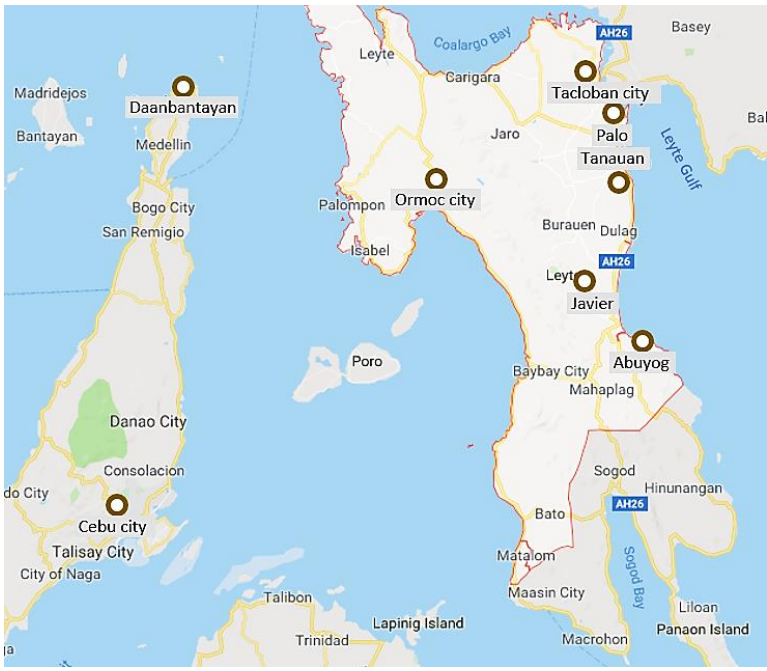

Figure 3.3 Cities covered during fieldwork in 2014: Tacloban, Palo, Tanauan, Javier, Abuyog, Ormoc, Cebu and Daanbantayan. Source: Elaborated by the author based on Google maps

[60] The division Housing Development & Management (HDM) where I do my doctoral studies carries out the course Urban Shelter. In this context, HDM has brought professionals and architectural master students to the Philippines to get knowledge of housing projects since 2009. Therefore, HDM has contacts and knowledge regarding the work of National Housing Authority, Gawad Kalinga, Habitat for Humanity Philippines, TAO Philippines, among other organizations.

The first fieldwork followed a snowball sampling Patton (2015) for identifying candidate cases carried out by these organizations and for identifying new ones. The researcher was able to explore areas affected by Haiyan in the islands of Leyte and Cebu. The route followed by the researcher when doing the fieldwork is shown in Figure 3.3. The following cities were included: Tacloban, Palo, Tanauan, Javier, Abuyog, and Ormoc in the island of Leyte; and Cebu and Daanbantayan in the island of Cebu.

Three months after the typhoon, organizations were rushing in delivering shelter relief, and secondary information, regarding which actors were doing what and where, was not available online nor published in any secondary sources. Most international humanitarian aid organizations were implementing emergency shelter or temporary housing. The researcher contacted several coordinators of the Shelter Cluster Philippines by electronic mail without success; most probably due to the high rotation of staff. We Effect was a key partner[61] for connecting the researcher with other organizations such as NATTCO Enterprise Development Center (NEDC), Ormoc Community Multi-Purpose Cooperative (OCCCI), and Abuyog St. Francis Xavier Credit Cooperative (AFCCO) in the isle of Leyte. These organizations were key in facilitating the researcher's mobility to Ormoc and Abuyog; and sharing their ideas regarding planning, housing processes, and concerns about post-disaster housing. National Housing Authority facilitated support staff and transport for visiting governmental housing projects and other projects in the cities in Tacloban, Palo and Tanauan in the island of Leyte. The religious association Servants of the Plan of God assisted the researcher to visit Cebu city and Daanbantayan in the island of Cebu. Data collection included observation of settings, field notes, semi-structured interviews, and focus group discussions.

Two projects, where permanent post-disaster housing was built, were identified during the first fieldwork. First, *GK-Village in Barangay Pago,* which was carried out by the Filipino NGO Gawad Kalinga in partnership with the Local Government of Tanauan and funding from National Housing Authority in the city of Tanauan. Secondly, the pilot project for the *O-Balay Housing Cooperative* in Barangay Dolores, carried out by We Effect in partnership with NATTCO, NEDC and OCCCI in the city of Ormoc. The reconstruction of permanent housing had not started in Tacloban three months after Haiyan hit Leyte. The design of the 22 m^2 loftable row house for typhoon Yolanda victims proposed by National Housing Authority (NHA) lacked of approval of other governmental bodies. Conversely, Gawad

[61] We Effect collaborated with the National Confederation of Co-operatives (NATCCO), NATCCO Enterprise Development Centre (NEDC) and Metro Ormoc Community Co-operative (OCCCI).

Kalinga was building the same NHA design in Tanauan when the researcher carried out the first fieldwork (See Paper 1).

During the first fieldwork, post-disaster housing projects in Tacloban North were still in the planning stage and under discussion between NHA, humanitarian organizations and implementing partners. Therefore, this fieldwork also included observations of social settings and exploratory interviews in temporary shelter. I visited informal settlements rebuilt in the coast shore in Tacloban and bunkhouses in both Tacloban and Ormoc (See Paper 1).

Data analysis and paper writing – 2014

During the first semester of 2014 qualitative data from the first fieldwork was analyzed using categories such as reconstruction approach, user involvement, and capabilities. This led to writing a paper for an international paper competition organized by the Wilson Center, Cities Alliance and the World Bank. Paper 1, *Building resilience through housing reconstruction in areas affected by typhoon Haiyan in the Philippines: users involvement and incremental growth for medium-rise buildings*, was selected first among 146 abstracts; and secondly, among 23 papers. When writing Paper 1, my reflexions on how to overcome limitations related to the scope of the first fieldwork led to start developing a *post-disaster housing evaluation framework* (See Paper 1, Guidelines for a policy for resilient reconstruction). This was a first attempt to apply the capability approach to early stage evaluation of user involvement in housing recovery.

Preparation for the second fieldwork

The decision about focusing on user involvement in permanent post-disaster housing from a capability approach perspective was done before the second fieldwork. For the second fieldwork, my understanding of capabilities had included the notions of opportunities, choices and capacities. Another important decision was including *explanation building* for unexpected outcomes of the housing recovery programme in Leyte. Next steps included drafting the research design (See Table 3.1) and refining the study propositions. For that purpose, literature review included a deeper engagement with critical realism and qualitative methods.

The preparation before the second fieldwork included contacting organizations that contributed to the first fieldwork implemented in 2014. Coordination with We Effect and National Housing Authority for undertaking research in different post-disaster housing projects was made before going to the field. Media update was done through twitter searches using key words such as *housing recovery, post-disaster Haiyan, and #haiyan*. These exploratory searches redirected the researcher to websites of organizations implementing permanent post-disaster housing. Hence, it

was possible to track post-disaster housing initiatives from Caritas/NASSA implemented by the Relief and Rehabilitation Unit from the Archdiocese of Palo, and a future project from the local NGO Urban Poor Associates (UPA) (See Section 4.1). Access to projects implemented by Gawad Kalinga and Habitat for Humanity Philippines was achieved while in the Philippines although both NGOs were contacted in advanced.

Second fieldwork: March 4 to 28 in 2015

The second fieldwork was implemented between March 4 to 28 in 2015. During the second fieldwork, the researcher focused on the isle of Leyte only. The cities that were included in this fieldwork were Tacloban, Palo, Tanauan, Mayorga, Burauen, Ormoc, Javier and Abuyog (See Figure 3.4).

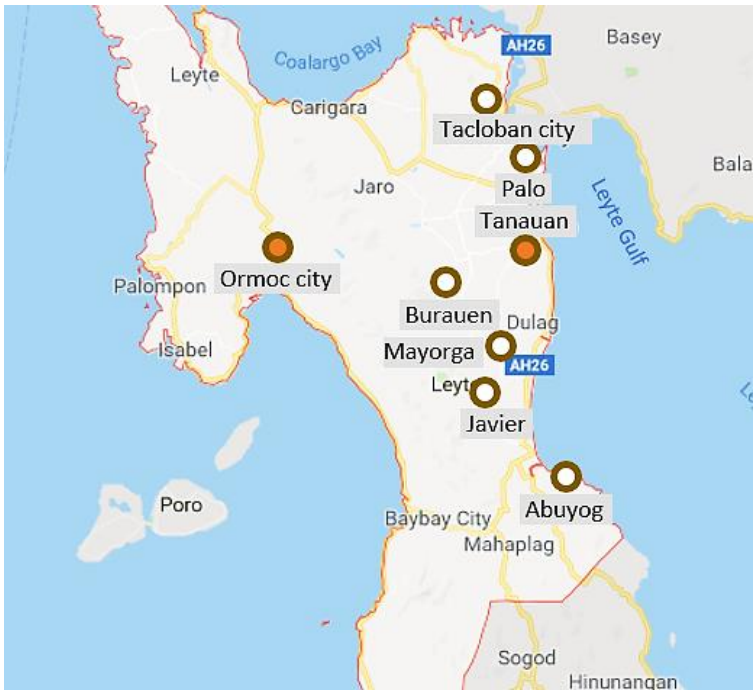

Figure 3.4 Cities covered during the second fieldwork: Tacloban, Palo, Tanauan, Mayorga, Burauen, Ormoc, Javier, and Abuyog. Source: Elaborated by the author based on Google maps

Table 3.2 Details of second fieldwork in permanent post-disaster housing projects. The table specifies the cities visited, organizations carrying out the project, name of the project, reconstruction approach and number of housing units. The cases selected for analyzing types and levels of user involvement in housing recovery are marked with an orange box in the table.

City	Agency or organization	Candidate cases- Name of project	Reconstruction approach	Number housing units
Tacloban	NHA & several NGOs GMA Kapuso Foundation	Tacloban North (several sites & several implementer partners)	Agency-Driven Reconstruction in Relocated Site, off-city	107 occupied (total 403)
	Ace Saatchi & Saatch, Gawad Kalinga	GK-Village Barangay Palanog	Agency-Driven Reconstruction in Relocated Site, through sweat equity	24
Palo	Philippine Footbal Federation (AFC), Gawad Kalinga	GK-Village Barangay Libertad	Agency-Driven Reconstruction in Relocated Site, through sweat equity	100
Tanauan	NHA, Munic. Tanauan & Gawad Kalinga	GK-Village Barangay Pago	Agency-Driven Reconstruction in Relocated Site, through sweat equity	381
Mayorga	Caritas Internationalis, NASSA, Archdiocese Palo Relief and Rehabilititation Unit	Barangay Talisay rural area	Agency Driven Reconstruction in Situ and training	28 1st year: 300 total 1000
Burauen	Standard Chartered Bank, Pfizer Philippines, Lutheran World Relief, Habitat for Humanity Philippines	Brgy. Poblacion	Agency Driven Reconstruction in Situ	SCB: 50 PP: 30 LWR: 360 total 440
Ormoc	We Effect, NATTCO, NEDC, OCCCI	O-Balay housing cooperative Barangay Dolores, pilot project	Community-Driven Reconstruction in relocated site through organized self-help housing	30
	Resorts World Manila, Habitat for Humanity Philippines	Barangay Dolores	Agency-Driven Reconstruction in Relocated Site, off-city	209
Javier	Munc Javier, Habitat for Humanity Philippines	Barangay Binulho	Agency-Driven Reconstruction in Relocated Site	322
Abuyog	We Effect, NATTCO, NEDC, AFCCO	Barangay Guintagbucan	Community-Driven Reconstruction in relocated site through organized self-help housing	30

Details of permanent post-disaster housing projects visited during the second fieldwork are shown in Table 3.2. The researcher also visited Mahusay Transitional Housing implemented by the local non-governmental organization Urban Poor Associates (UPA). However, this project has not been included in Table 3.2 because houses are not permanent. The Shelter Cluster was operative in areas affected by Haiyan until October 2014 (Shelter Cluster Philippines, 2016) because its mandate is limited to the shelter emergency phase. Senator Panfilo Lacson, Presidential Assistant for Rehabilitation and Recovery in areas affected by Haiyan, resigned in February 2015. Hence, there was uncertainty regarding which governmental agency would have the responsibility for implementing the Comprehensive Rehabilitation and Recovery Plan in the succeeding months and while implementing the second fieldwork.

The researcher gathered empirical data from ten projects of permanent post-disaster housing located in eight cities in the island of Leyte. Empirical data was collected from nine candidate cases because it was not possible to collect empirical data in the project carried out by GMA Kapuso in Tacloban. Sources of data for the nine candidate cases included semi-structured interviews with key informants, observations of social settings, focus group discussions with community members, and a workshop with the O-Balay housing cooperative.

Data analysis and paper writing

Back in Sweden, qualitative analysis of observation of settings, semi-structured interviews, focus group discussions, field notes and document analysis started in the Autumn of 2015 (See Section 3.6 Case studies: selection and data analysis). This led to writing a conference paper that was presented and discussed at the First Northern European Conference on Emergency and Disaster Studies (NEEDS) held in Copenhagen in December 2015. The paper focused on different clusters of actors carrying out housing recovery in Leyte. Some of the analysis of the conference paper is presented as Section 4.1 in this thesis.

Qualitative analysis of empirical data continued during 2016. A first draft of Paper 3 was presented at the Panel Sheltering and development at the Development Research Conference, held in Stockholm in August 2016. Further literature review, especially Lizarralde, et al. (2010), Wakely and Riley (2011), Lizarralde (2008, 2011) shed light on looking at tendencies related to user involvement and their agency regarding planning and design of their future housing solutions. Thus, the analysis focused also on identifying physical qualities that can support incremental extensions of the housing units in a long-term perspective.

A first draft of Paper 2, *Housing Recovery Outcomes after typhoon Haiyan in the Philippines: A Critical Realist perspective*, was written

during 2016. Engaging with critical realist literature took time due to its philosophical essence and considering that my background is in architecture. My own learning process can be described as iterative. I had to perform the following sequence in a systematic manner, reading CR literature, understanding main concepts, learning how other scholars have applied CR as a metatheory for their own research and finding ways of application of CR in my own research. After a first engagement with basic critical realism, Paper 2 was presented at the European Housing Network Research conference in Uppsala in June 2018.

Final seminar –August 2018

A draft of this book was discussed at my final seminar held on 24th August 2018. The opponent was Professor Emeritus Rolf Johansson, Division of Landscape Architecture, Swedish University of Agricultural Sciences (SLU). Rolf Johansson is also an expert in case study research and has been supervisor of many doctoral studies within architecture and design theory.

The draft thesis discussed at the final seminar included three appended papers. *Paper 1* was originally published by the Wilson Center in 2015. *Paper 2* had incorporated feedback from scholars at the European Housing Network Research conference and further literature review. Finally, *Paper 3* was the first version submitted to the International Journal of Disaster Risk Reduction.

Rolf Johansson provided valuable and practical feedback, focusing on how to improve the document that discusses the appended papers – Chapters 1 to 4. Feedback addressed the structure of the thesis, ways to improve readability of the document such as avoiding too many abbreviations in the text. The tools proposed in the thesis and some terms regarding critical realism were discussed. The methodology was also discussed, especially highlighting that the thesis was theoretically driven, which needed to be stressed in the data analysis.

Post-final seminar

The improved version of Paper 2 was presented at the PhD course in Critical Realism organized by the International Association of Critical Realism in Lillehammer, Norway on 27th and 28th August 2018. Participating in lectures by experts in critical realism and feedback from presenting at the PhD course were key for developing my understanding on critical realism. Reading of some of the latest critical realist literature (Danermark et al., 2002; Bhaskar and Danermark, 2006; Bhaskar, 2016; Bhaskar et al., 2018) was essential for developing my knowledge regarding critical realist ontology, causal mechanisms, structure and agency, explanation building, etc. The latter contributed to do substantial improvements to Paper 2, which was submitted to the Journal of Critical

Realism in October 2018. After incorporating the feedback from two peer reviewers, Paper 2 was resubmitted at the end of February 2019. The version included in this thesis has been published electronically by the Journal of Critical Realism and it is in press at the time of printing this doctoral thesis.

Paper 3 became a theoretical article that required that I engaged with models of citizen and community participation, Sen's capability approach (2001), Frediani and Boano's (2012) capability space of participatory design, and understanding of how the notions of the user and use have changed within the architectural field over time (Cupers, 2013). Paper 3 was submitted to the International Journal of Disaster Risk Reduction in June 2018. The paper was improved after incorporating the feedback from two peer reviewers and resubmitted in February 2019. The version included in this thesis has also incorporated the last minor corrections required by the reviewers.

3.5 Data collection

Research participants and ethical considerations

Ethical considerations in qualitative research on social phenomena should address issues related to access routes to participants, consent to participating in a study and confidentiality of participants (Miller and Bell, 2014). For this study, the access route to participants was to find gatekeepers considering the post-Haiyan context of destruction and complex organizational setup. The relation that the researcher established with participants of the study started with "establish[ing] relationships with gatekeepers for these settings and with the participants themselves" (Maxwell, 2012, p.96). Gatekeepers for We Effect projects were the director in the Philippines office, the project manager of NEDC, and the implementing partner. An initial meeting with them, in which the researcher clarified the purpose of the study, led to access to prospective users of the pilot project for the O-Balay housing cooperative in Ormoc and to prospective users of the AFCO project in Abuyog. Conversely, accessing gatekeepers at Gawad Kalinga was more difficult because it was not possible to have initial contact before doing the first fieldwork. An interview to the operations manager was done in Metro Manila in 2014 but access to the *bayani* contractor –implementing partner– was not achieved, neither for the first nor for the second fieldwork. A reason behind this might be that the operations of Gawad Kalinga in post-disaster housing is wider than the operations of We Effect, which make it more complicated to agree on place and time for meetings or interviews.

For critical realism, the relationships between researcher and participants in the research are *real phenomena*. These relationships both affect the context whilst influencing the research results (Maxwell, 2012). These relationships are complex, should be symmetric and reciprocal; they should be built on mutual trust and reciprocity because they might have unexpected and real consequences for the research. These relationships are neither *variables* controlled by the researcher nor *constructions* created or manipulated by her/him. For example, selection of participants for focus group discussions in the pilot project in Ormoc, included women involved in the preparation and weaving of bamboo for the walls, men involved in self-construction, men and women who are users of the project. An account on the relationship of the researcher with participants from the O-Balay housing cooperative in focus groups discussions in 2014 and 2015 is presented in Box 3.4. Men and women who were involved in housing recovery provided their verbal consent to participating in the current study,

in the sense of taking part in the focus group discussions in 2014 and 2015 and in the workshop in 2015.

Regarding the selection of participants, times and places of data collection, this thesis follows a *purposive sampling* (Patton, 2015), that is understanding sampling "as a series of strategic choices about with whom, where and how one does one's research […] researchers sample must be tied to their objectives" (Palys, 2008, p. 697). In other words, purposive sampling is done based on the researcher's goals and research questions. Selection of participants at We Effect project in Ormoc included several semi-structured interviews with the country director, NEDC project manager, staff from other partner organizations, the engineer responsible for housing construction and the community organizers. Staff from governmental bodies, International Non-Governmental Organizations (I-NGOs), Filipino NGOs, housing co-operatives among others who had first-hand experience on Post-Haiyan housing recovery provided their verbal consent to participating in the current study, in the sense of taking part in semi-structured interviews in 2014 and 2015. The researcher has made explicit that the identity of all participants would be kept confidential when reporting the findings in journal articles or in this doctoral thesis, especially considering Paper 2. A wider selection of participants with different backgrounds and views contributed to triangulation of data from different types of participants. Yin (2014, p. 45) contends that one tactic for constructing validity in case study research is to use multiple sources of evidence.

Sources of data

Observations of social settings

Case study research should not be mistaken for neither ethnography nor participant-observation, which are qualitative methods that require longer time engagement in the field (Yin, 2014). From a critical realist perspective, observations are made and experienced by observers at the *empirical domain*. Events can be understood differently or might not be observed because they occur in the *actual domain*. Hence, observers need to interpret their observations of social settings of events because they are the effect of mechanisms operating in the *real domain* (Easton, 2010).

For this thesis, observations of social settings during fieldwork in different post-disaster housing projects focused on the following aspects:

- In situ organization of the project;
- Types of activities during construction or self-construction
    - Involvement of women and men;

- Interactions between staff and users;
- Output of housing units;
- Types of activities after occupancy:
- Possibilities for extension of the units.

Box 3.4. Building a relation with women from the O-Balay housing cooperative

The relation between the researcher and users from the O-Balay housing cooperative started with the first fieldwork after getting access to the community. Three months after the typhoon, women were getting to know each other whilst being involved in self-construction activities with technical assistance by an engineer and a foreman –a construction supervisor. During the first focus group discussion, the women were shy for speaking, at the beginning of the discussion. After the researcher explained that the purpose of discussing with them was to learn from their experience of being involved in the post-disaster housing process, trust started to develop and they overcame their shyness. The women were proud to be able to explain what they had learn and how they have decided to take the whole responsibility over the cleaning, preparation and weaving of bamboo for the walls. During the second fieldwork, this group of women was called for another focus group. The women recognized the researcher and were excited to share their experience further. Some women of this group participated in the evaluation workshop implemented in this community. The women contributed to qualify the type and level of user involvement according to different stages of process. The tool used for the workshop was a matrix written in English and Bizaya, which members of the community developed in collaboration with the researcher. After the matrix was completed, users took pictures of it. For the researcher providing the information of the matrix to the community was an act of reciprocity.

Observations were systematically registered as field notes and through photographic record. Then, clarification questions regarding any of the aspects mentioned above were included in the semi-structured interviews.

Semi-structured interviews

According to Yin (2014, p. 104), "your research questions formulate what you want to understand; your *interview questions* are what you ask people in order to gain that understanding" (own emphasis added). For the first fieldwork, an interview guide was developed and pilot-tested on the field. This allowed the researcher to rephrase questions that were not clear enough and remove questions that were useless. The interviewees were staff of I-NGOs, Filipino NGOs and housing cooperatives working directly with different post-disaster housing projects in Leyte. Interviewees were also official from governmental bodies such as National Housing Authority, who were working with housing reconstruction in Leyte. The former Mayor of Tanauan was interviewed in 2014. Twenty-seven semi-structured interviews were implemented in Metro Manila, Tacloban, Ormoc, Tanauan, Palo, Javier, Abuyog and Cebu in 2014.

In the first interview guide, there were a total of 24 questions and an interview took around 45 minutes. However, the interview questions that are relevant to address the research questions of this thesis are the following:

1. What are the main components of the reconstruction programme?
2. Which organizations are involved? What are their responsibilities?
3. How has the community been involved since the reconstruction started?
4. Can you think of one specific reconstruction project and explain the main activities of the reconstruction process?
5. How have community members been involved for different activities during reconstruction?
6. What skills and abilities do you think people have developed during the reconstruction process?
7. What else does the community develop due to the reconstruction process?
8. From your experience, what might have been different if users would have been involved since the beginning of the reconstruction process (planning or preparation stage)?

The interview guides were further developed before the second fieldwork. Questions 1 to 5 were included to capture data that could help to identify events related to unexpected outcomes of the housing recovery programme –i.e. low output of permanent post-disaster housing units.

Questions 6 to 15 addressed involvement of prospective users in housing recovery through the lens of the capability approach. Therefore, questions focused on *opportunities* offered by the projects, *choices* made by users, and *capacities* that the users enhanced because of involvement. For the second fieldwork, the interview guide had 35 questions and took between 60 to 90 minutes. From the second interview guide, the interview questions that are relevant to address the research questions addressed in this thesis are the following:

1. Which stakeholders are in control of housing reconstruction and urban development in areas affected by Haiyan?

2. What factors have slowed down the reconstruction of permanent housing in areas affected by Haiyan?

3. What are the main components of the reconstruction programme?

4. Which organizations are involved? What are their responsibilities?

5. Which problems/challenges are necessary to overcome to speed up the reconstruction of permanent housing?

6. How were the beneficiary families selected for this project?

7. How has the community been involved since the reconstruction started?

8. What *opportunities* has this project offered to families affected by Haiyan?

9. How has the *community been involved* in different project stages or activities?

10. Which *choices* related to the housing reconstruction process were made by the community?

11. How was decision-making done during the different activities of the project? Who was in control?

12. What *capacities* (skills) have people developed or enhanced during and after the housing reconstruction process?

13. How has the community benefited from the capacities people have developed from the project?

14. What has the community achieved as a group because of the housing reconstruction process?

15. From your experience, what might have been different if users would have been involved since the beginning of the reconstruction process (planning or preparation stage)?

Participants for semi-structured interviews included project manager and staff working on-site from the selected NGOs; implementing partners; public servants working at management level and operational level; and staff and donors from I-NGOs. Twenty six semi-structured interviews were carried out in Metro Manila, Palo, Mayorga, Tacloban, Tanauan, Palo, Burauen, Ormoc, Abuyog, and Javier in 2015. The former Mayor of Javier was also interviewed during the second fieldwork. Participants were selected if they accomplished at least one of the following criteria:

a) *relevance:* informants with first-hand experience from post-disaster housing processes with involvement of prospective users;

b) *holistic knowledge:* informants with an understanding of the complexity of the Philippines institutional setup, urban development regulations, and reconstruction policy.

c) *contrastive view:* informants with a different or even conflicting view of reconstruction approaches and explanations –e.g. regarding the low output of permanent post-disaster housing.

Key informants for the interviews were contacted and asked for an appointment for the interviews that were implemented in English. The researcher introduced herself, the research and its purpose. Then permission for recording the interview was agreed by most interviewees. The researcher implemented the interview herself with all interviewees, took notes, linking the written notes with the timing of the recording. The latter made it easier to find a specific answer during data analysis. If the interviewee showed lack of clarity regarding any question, the researcher rephrased the question to clarify it. The questions were conducted in a systematic way, following the same order with all interviewees. However, if an interesting issue appeared, the researcher was flexible enough to ask for further information; and then return to the next question of the interview guide. There were some dropouts, candidate participants identified by the researcher through the organizations where they were working but who were not available for being interviewed –e.g. it was not possible to interview the bayani builder carrying out the GK-Village in Tanauan

neither in 2014 nor in 2015. Other candidate participants have expressed their willingness to be interviewed but were not available or did not find anybody from their team to be interviewed –e.g. officers at the Municipality of Tacloban.

Focus group discussions

Focus group discussions imply that the researcher recruits and moderates a group discussion "about some aspect of your case study deliberately trying to surface the views of each person in the group" (Krueger and Casey cited in Yin, 2014 p. 112). Focus groups were implemented when doing the first and second fieldwork respectively. Ten focus groups discussions were implemented in Metro Manila, Tacloban, Ormoc, Tanauan and Javier in 2014. Participants of the focus group discussions were professionals involved in post-disaster housing projects, Haiyan survivors living in bunkhouses (Tacloban and Ormoc), prospective users of housing projects being built in Tanauan and Ormoc, and a beneficiary family in Javier.

Fourteen focus group discussions were carried out during the fieldwork in 2015 after post-disaster housing processes have finished and users have moved to their new houses provided more detailed and rich information regarding the following issues:

a) types and levels of user involvement;

b) opportunities offered by the projects;

c) choices made by the users before, during and after construction;

d) capacities developed by the users

Participants for the focus groups needed to accomplish a main criterion, which is to have participated himself/herself in the post-disaster housing process. Community members were informed in advanced regarding the focus group discussion by the community organizer or project manager. Participants were also invited by the researcher while in the field according to people's availability on site when the researcher implemented fieldwork. Twelve focus group discussions were carried out in Mayorga, Tanauan, Palo, Tacloban, Ormoc and Abuyog in 2015. The researcher was assisted by the community organizer or project manager regarding translation to Tagalo or Bizaya or any other dialect. Some residents in the region can understand English but sometimes have difficulties in answering in English. In order to avoid bias due to the translation, the researcher made a summary of the answer in English and asked participants to confirm if her understanding was correct or if they wanted to add something else. Focus

groups discussion lasted around 60 to 90 minutes including translation time.

Document analysis

"For case study research, the most important use of documents is to corroborate and augment evidence from other sources" (Yin, 2014, p.106). Documentation analyzed in this thesis includes:

- Technical reports by the Shelter Cluster Philippines
- Progress reports of I-NGOs
- Evaluations related to the case studies
- Local news articles
- Official documents from the Philippines Government for reconstruction after Haiyan
  - Reconstruction Assistance on Yolanda: Build Back Better (RAY 1),
  - Reconstruction Assistance on Yolanda: Implementation for results (RAY 2)
  - Comprehensive Recovery and Rehabilitation Plan (CRRP)

- Policy documents from the Philippines Government ruling urban development and housing, disaster risk reduction and procurement made by governmental agencies:
  - The Republic Act 7279, the Urban Development and Housing Act of 1992[62]
  - The Republic Act 10121, the Philippine Disaster Risk Reduction and Management (DRRM) of 2010[63]
  - The Government Procurement Reform Act 9184 (revised version of 2009)[64]

[62] See Republic of the Philippines (1992)
[63] See Republic of the Philippines (2010)
[64] See Philippines Government Procurement Policy Board (2009)

3.6 Case studies: selection and data analysis

Case 1: approaches to housing reconstruction

Selection of case studies

Case study 1 is defined as *approaches to housing reconstruction*. It is a single case study with different embedded units of analysis. The focus of this case study is on identifying reconstruction approaches; describing how users have been involved; and assessing the possibility of the housing unit to grow horizontally and/or vertically. The approaches to housing reconstruction that have been analyzed in Paper 1 are:

a) Reparation of previous makeshift shelter in no-build zone in Tacloban;
b) Expanding people's opportunities to rebuild in Javier;
c) Shelter as humanitarian assistance through cash for housing in Palo;
d) Agency-driven reconstruction with users involved as unskilled labour in Tanauan;
e) Enhancing users' self-construction and self-management capabilities in Ormoc.

This doctoral thesis analyzes the following clusters of actors and their approaches to reconstruction:

a) Cluster 1: public and humanitarian aid collaboration;
b) Cluster 2: public-private-Non-Governmental Organization partnerships;
c) Cluster 3: partnership between Filipino Non-Governmental Organizations and International Faith Based Organizations;
d) Cluster 4: partnership between Filipino and International Faith Based Organizations;
e) Cluster 5: partnership between International Non-Governmental Organizations and Filipino housing cooperatives;

The criteria for selecting these cases were to fulfil at least two of the following criteria:

1. ***Relevance of the case***[65]: the case *approaches to housing reconstruction* is relevant to learn how different organizations are building partnerships, in what ways the organizations have involved prospective users in post-disaster housing reconstruction or not;

[65] Relevance: "The relevance of the case for explanatory research questions is based on theoretical considerations. The relevance of the case or cases for the research objective is the most important criterion for selection" (Bleijenbergh, 2012).

2. ***A crucial case***[66]: the embedded units of analysis show different types and levels of involvement of the prospective users;
3. ***Access to different types of informants***: the case and its embedded units of analysis were selected because the researcher had access to interview NGO staff working for the project and prospective users.

Data analysis

When beginning the analysis, one of the interviews was transcribed totally. It required 1 ½ hour to transcribe 16 minutes of the recording. This procedure was disregarded. Firstly, because there was information that was part of the natural conversation in an interview and transcription of the latter was not relevant to the research questions. Secondly, due to the inquiry framework that underlies this study, the researcher is not concerned with how people say something –as Phenomenologists might be interested in– but on tracking causal processes.

Data analysis of Case 1 and Paper 1 followed the following steps:

1. **Analyzing field notes** and **pictures** to select projects that were suitable for being included as embedded units of analysis in case 1;
2. **Analyzing recordings** of semi-structured interviews or focus group discussions to identify narratives suitable to address the following themes: types of reconstruction approaches, assistance provided by different organizations –Local Government Units, I-NGOs, NGOs or FBOs–, ways of involving the affected people, physical qualities of the housing typologies;
3. **Selecting narratives** from the recordings with the *software NVivo 10.* Label narratives in the recordings according to the themes;
4. **Transcribing selected narratives**[67] with the *software NVivo 10.*
5. **Reorganizing the data** acording to themes mentioned above and new issues that arise from the narratives;
6. **Triangulating** data from different sources –observation of settings, field notes, semi-structured interviews, focus groups discussions, document analysis.
7. **Elaborating the capability approach framework** based on the literature review;
8. **Testing the framework** using the empirical data.

[66] "A 'crucial case' – whereby the 'crucialness' of the case depends on the 'likeliness' that it is congruent with the expectations that we can deduct from the selected theories" (Blatter & Haverland, 2012, p.25).
[67] Maxwell (2012, pp. 36-44) proposes the use of narratives to capture the chronological and contextual connections between events.

Case 2: the housing recovery programme in Leyte

Selection of case studies

Case study 2 is the housing recovery programme in Leyte. It is a single case study –*the housing recovery programme in Leyte*– with different embedded units of analysis. The focus of this case study is on explaining the plausible causal mechanisms that have affected the outcomes of the programme. The criteria for selecting the case and its embedded unit of analysis were to fulfil all of the following criteria:

1. ***Relevance of the case:*** the embedded units in the case are relevant to answer the research questions related to this case.
2. ***A revelatory case***[68]: the embedded unit of analysis of the case study are housing recovery projects that provide data of events that have been experienced by the researcher or experienced by the informants at the empirical level. These units of analysis were key for identifying the unexpected outcomes of the housing recovery programme (See Paper 2).
3. ***Access to different types of informants***: this is a very sensitive case and access to staff from I-NGOs, Filipino NGOs, FBOs working with housing recovery, staff from governmental organizations, and prospective users, was extremely important to get different perspectives and be able to triangulate data from different informants.

Data analysis

Data analysis of Case 2 and Paper 2 followed the following procedures:

1. **Analyzing recordings** to identify narratives suitable to address the following research questions: Why is the output of permanent post-disaster housing low? What are the outcomes of the housing recovery programme? How have multiple causal mechanisms triggered these outcomes?
2. **Selecting narratives** with the *software NVivo 10*. The software was used to select parts of the recordings and label them according to themes. Themes are related to factors affecting the housing recovery programme in Leyte.
3. **Transcribing selected narratives** with the *software NVivo 10* to preserve cause-effect relations within the data.
4. **Organizing narratives** acording to themes –e.g. rising costs of labour, transport, materials; land speculation, off-city resettlement,

[68] A revelatory case: When the researcher "can uncover some prevalent phenomenon previously inaccessible to social scientists…" (Yin, 2014, p.52).

reconstruction approaches, the under the table practice, constraining factors to user involvement, etc.

5. **Identifying events at the empirical level and infering plausible causes** in the narratives and organize these issues first in a causal map to keep cause-effect relations;
6. **Writing** a first draft of Paper 2, presenting it at the European Network of Housing Research (ENHR) 2018 conference and getting feedback;
7. **Improving Paper 2:** presenting the paper at the PhD course in critical realism, **further literature review** on critical realism;
8. **Identifying** the observable events –unexpected outcomes of the housing recovery programme;
9. **Applying the Resolution, Redescription, Retrodiction, Elimination, Identification and Correction (RRREI-C) model** to the empirical findings;
10. **Identifying the context** and social structures that allow plausible causal mechanisms to act;
11. **Formulating** a plausible causal explanation for the unexpected outcomes.

Case 3: two housing recovery projects

Selection of case studies

The multiple-case studies for analyzing user involvement from a capability approach perspective in Leyte are a) Gawad Kalinga-Village in Barangay Pago in Tanauan; and b) We Effect project in Barangay Dolores in Ormoc. The criteria for selecting these cases were the following:

1. ***Relevance of the case***: both cases are relevant because both projects involved the users in different ways and levels;
2. ***A crucial case***: the cases are crucial because different ways and levels of user involvement could be linked to opportunities and choices offered by the projects and the development of their capacities;
3. ***Longitudinal case***: the researcher was able to study both case studies at two points in time:
   a) During the construction or self-construction process (3 months after typhoon Haiyan)
   b) After occupancy (16 months after typhoon Haiyan);
4. ***Availability of different sources of data***:
   a) Observations of social settings
   b) Semi-structured interviews
   c) Focus group discussions
   d) Documentation;
5. ***Access to different types of informants***:
   a) Staff working in project implementation

b) Staff from governmental bodies
c) Prospective users.

Data analysis

Data analysis of Case 3 followed the following steps

1. **Develop a model** for user involvement in housing recovery based on the theoretical framework –the capability space for post-disaster housing– specifying types and levels of involvement (See Paper 3).
2. **Analizing** oservations of settings and field notes to select projects that were suitable for being included as multiple cases for case 3 –i.e. We Effect pilot project in Ormoc, and Gawad Kalinga village in barangay Pago in Tanauan;
3. **Selecting narratives** from the recordings of semi-structured interviews, focus group discussions and the workshop with the *software NVivo 10* to address the following themes: types of reconstruction approaches, opportunities provided by different projects, ways of involving users, choices made by the users, enhancement of capacities;
4. **Transcribing selected narratives** with the *software NVivo 10* to preserve connection of data;
5. **Analyze the narratives** using pre-defined categories, namely opportunities offered by the projects, choices made by prospective users, and capacities enhanced by users (See Paper 3).
6. **Analyzing field notes** and **pictures** and **architectural drawings** to identify physical qualities of the housing typologies to assess possibilities for extension;
7. **Triangulating** data from different sources –observation of settings, field notes, semi-structured interviews, focus groups discussions, the workshop, and document analysis.

4 Findings and discussion

"Some communities are resistant to being resettled away from danger zones as resettlement plans failed to engage them in the design or implementation, whilst newly constructed homes remain unoccupied because water and electricity are not yet in place. Some may be ready to promote tourism in Tacloban, presenting successful recovery and 'resilient' populations, but life remains difficult for many who have yet to be safely resettled, to establish sustainable livelihoods, or gain access to basic services and sanitation" (Greengrass and Eadie, 2018, p.1).

This chapter includes the results and discussion of the thesis. The first section seeks to characterize and describe different approaches to housing reconstruction in Leyte. The second section attempts to explain causal mechanisms underlying the outcomes of the housing recovery programme in Leyte. In the third section, the discussion focuses on two case studies at project level –Gawad Kalinga-Village in Barangay Pago, Tanuan and We Effect pilot project in Barangay Dolores, Ormoc. The fourth section discusses two tools for user involvement from a capability perspective. The last section focuses on the replication of We Effect's housing typology and the need for early stage evaluation.

4.1 Case 1: Approaches to housing reconstruction in Leyte

Political dynamics, the Filipino elites' influence on public institutions, policies and procedural errors, bureaucracy, powerlessness at operational level and/or lack of resources to address the housing needs of the poor before Haiyan made landfall in Leyte seem to be intertwined with the Filipino socio-economic context. After Haiyan hit Leyte, some I-NGOs and Filipino NGOs already working with housing for the poor became critical to the efforts of the Philippine Government on shelter relief and reconstruction. The latter might be among the causes underlying parallel housing reconstruction initiatives.

Although the Office of the Presidential Assistant for Rehabilitation and Recovery (OPARR) was designated as overall manager and coordinator of the post-Haiyan recovery phase, political dynamics delayed the planning and implementation of the Comprehensive Recovery and Rehabilitation Plan (CRRP).

"Lacson resigned due to political dynamics. The President gave him the authority to handle the whole reconstruction, rebuilding project in Eastern Visayas. What happened was that in the field the municipalities were not cooperating with him, some of the governmental agencies also such as the Department of Social Welfare and Development, National Housing Authority, the Social Housing Finance Corporation. Because OPARR is a special agency just under the President. It is more on how the rules of each agency affects the function of OPARR. When they have a cluster meeting, all agencies will meet and they will discuss the plan. Then suddenly these agencies will say, "Oh this is not part of the regulation of your agency, it is part of our agency". The development in the ground is very slow. It is from what I read and from my own observation" (Respondent from Filipino NGO, March 2015).

Both ideological distortion and political dynamics are strong cultural forms in the Philippines that seem to have undermined the trust among different organizations for emergency shelter relief and for housing recovery. The complexity of the Post-Haiyan response was related not only to the scale of housing losses or casualties but also to the variety of actors that were involved in housing recovery –from emergency shelter to permanent housing. Figure 4.1 illustrates some of the key actors who acted in housing recovery in Leyte. The *Philippines Resettlement Cluster*[69] – public sector– included the Office of the Presidential Assistance for Rehabilitation and Recovery, National Housing Authority (NHA), fourteen other governmental agencies; and apart from those Local Government Units (LGUs) within the Haiyan corridor from the 43 LGUs in Leyte. Other actors included international humanitarian agencies represented by the Shelter Cluster, International Non-Governmental Organizations (I-NGOs), small I-NGOs, Multilateral Agencies, local Non-Governmental Organizations (NGOs) and Faith-Based Organizations (FBOs) at international and local level, and the users themselves –Haiyan survivors.

[69] The Philippine Government Resettlement Cluster is responsible for developing and implementing relocation post-disaster housing projects for settlements requiring to be transferred to safer locations. The following sixteen public agencies are members of this cluster: Housing and Urban Development Coordinating Council, National Housing Authority, Department of Public Works and Highways, Department of Agriculture, Department of Agrarian Reform, Department of Education, Department of Environment and Natural Resources, Department of Interior and Local Government, Department of Health, Department of Science and Technology, Department of Social Welfare and Development, Office of Civil Defense, Housing and Land Use Regulatory Board, National Commission on Indigenous Peoples, Office of the Presidential Adviser on the Peace Process, National Anti-Poverty Commission (Office of the Presidential Assistant for Rehabilitation, 2014b).

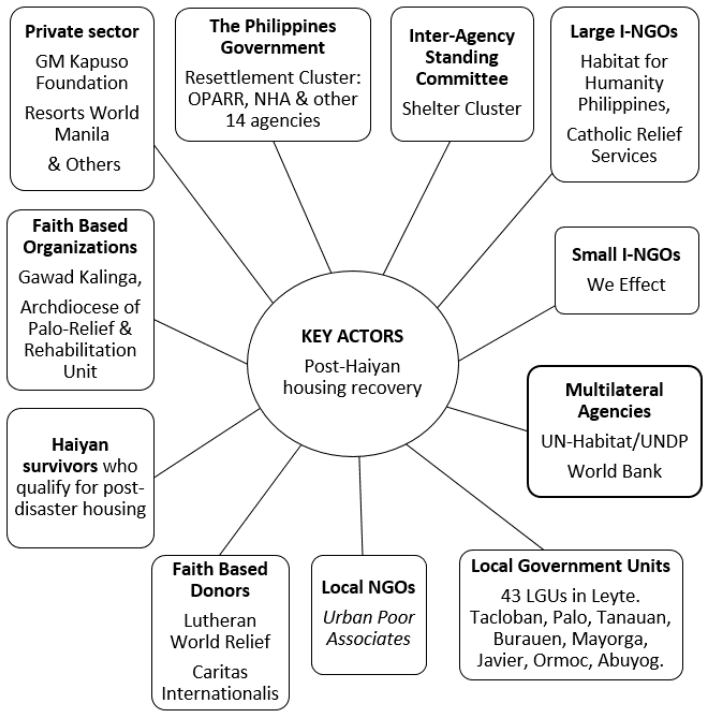

Figure 4.1 Key actors carrying out post-Haiyan housing recovery in Leyte. Elaborated by the author based on empirical data

This study has identified different types of clusters of actors who worked with different approaches to housing reconstruction in more or less coordination with the Philippines government (See Figure 4.2). When the researcher describes the different *types of clusters,* the 'Shelter Cluster' was also considered part of one of these clusters. On a close coordination basis with the government was *Cluster 1* in which the Inter-Agency Committee was represented by the Shelter Cluster. Cluster 1 was questioned by other actors regarding working with barangay councillors and captains instead of accessing Haiyan survivors directly. Large I-NGOs were part of Cluster 1. The present study found out that Clusters 3, 4 and 5 –Filipino NGOs, FBOs, and small I-NGOs respectively– were the ones that achieved to work directly with Haiyan survivors and not only with barangay captains; and therefore, more independently from the government. Respondents from different organizations highlighted that some barangay officials seemed to have favoured their political allies among Haiyan survivors when preparing

lists for I-NGOs that lacked local knowledge or networks in the disaster area.

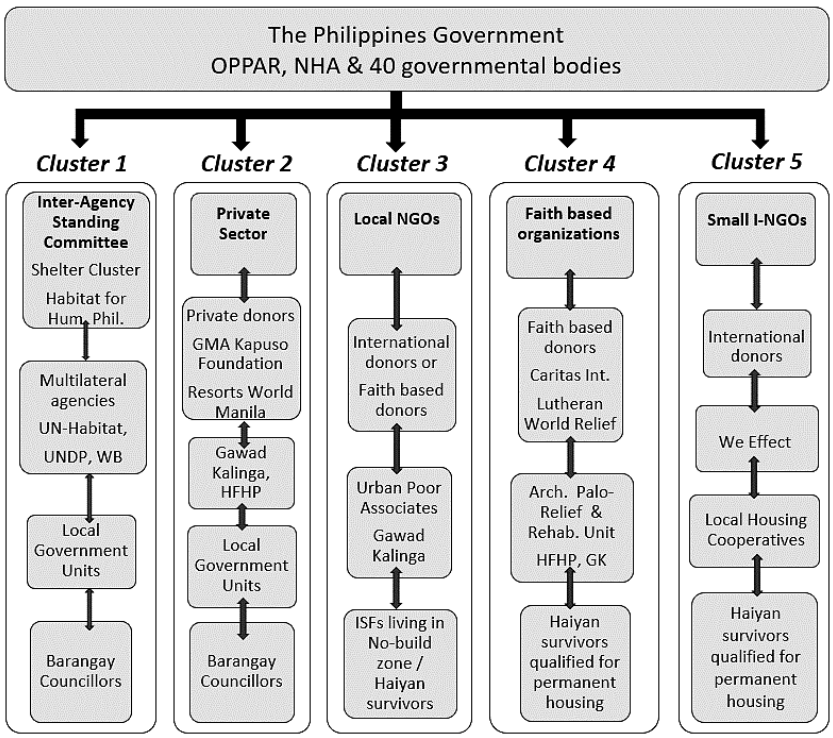

Figure 4.2 Partnerships among key organizations in post-Haiyan housing recovery. Elaborated by the author based on empirical data

The Comprehensive Recovery and Rehabilitation Plan (CRRP) established relocation of affected families in safer locations with a build back better approach as key strategies for the Resettlement Cluster. The CRRP also stated that the minimum size of the unit should be a 22 m² loftable row house on a 40 m² plot able to resist winds up to 250 km/h (Office of the Presidential Assistant for Rehabilitation, 2014b, p 50). The CRRP did not specify anything regarding agency-driven, owner- or community-driven reconstruction approaches to housing recovery.

This section is organized according to the five Clusters identified in the study (See Figure 4.2). The organizations acting in each cluster, the reconstruction approach and the housing solution proposed by each cluster

are discussed. Key complementary data of the different clusters focusing on a specific project or partnership are provided in Boxes 4.1 to 4.6.

Cluster 1: public and humanitarian aid collaboration

The Philippines government represented by OPARR, NHA and other 14 governmental agencies –the Philippines Resettlement Cluster– are part of Cluster 1. The Inter-Agency Standing Committee represented by the humanitarian agencies conforming the *Shelter Cluster*, Local Government Units (LGUs), and large I-NGOs –such as Habitat for Humanity Philippines or Catholic Relief Services (CRS) – work also in partnership or close coordination with the Philippines Government in Cluster 1. Cluster 1 has received most of the international funding from multilateral agencies, international donors and other governments. The emergency shelter relief provided by Cluster 1 has been recognized as effective while the Shelter Cluster was still active. However, when the government and the LGUs have taken over the recovery phase, the output of permanent housing has been assessed as inadequate and lagging behind schedule (See Paper 2).

Catholic Relief Services' (CRS) approach to reconstruction was *cash transfer for shelter* for Haiyan survivors whose house was destroyed or damaged (See Paper 1). This approach supported in-city housing reconstruction in plots owned by the affected families. CRS housing solution was a grant in cash that families could use to build a new temporary shelter or for repairing their previous shelter (See Figure 4.3). The grant was 33,000 PHP per family, payed through three conditional money transfers direct to affected families. One shortcoming of this project is that wood construction lacks quality regarding junctions in the roof framework. Thus, users involved in reconstruction did not improved their skills for building with wood.

Box 4.1. Catholic Relief Services cash transfer for shelter

Although CRS provided funding for temporary shelter, it has been included within Case 1 because of the reconstruction approach –cash transfer for shelter– the choices the project provided to users, and the use of local materials available after the typhoon such as coco lumber.

Users in Palo whose shelter was heavily damaged or destroyed could choose between repairing their previous shelter or building a new one storey, storm-resistant temporary shelter with coco lumber and amakan in the same plot of their previous shelter. Amakan is a matting made with woven bamboo fibre, which is used by local people for making the walls of their houses. CRS offered two different designs to the families. In the first design the shelter stands on a concrete floor on the ground; and in the second, the shelter is elevated on poles (See Figure 4.3). The users received first a payment of 18,000 PHP. When the foundation and frame of the new shelter was completed, they received 10,000 PHP to finish the roof. Finally, they got 5,000 PHP for paying for the walls and labours. Apart from the 33,000 PHP in cash, CRS provided the affected families the tick 0.475mm corrugated iron sheeting, which was not available in the local market, so CRS procured this material nationally for their shelter projects. CRS shelter is built in the plot were the affected families had their previous shelter which helped to overcome the problem of finding land, remain near their livelihood activities and keep their social network in the neighbourhood. Although the users decided about the materials, the design of the house and construction method, the shelter has no possibility for neither vertical nor horizontal growth in the long-term. Therefore, a drawback of the project is that CRS did not have an approach in which temporary shelter can evolve into permanent housing over time.

Cluster 2: public-private-Non-Governmental Organization partnerships

Cluster 2 is an example of the partnership between the private sector, LGUs and National Housing Authority. Private companies such as GMA Network, Inc.[70] and Resorts World Manila have contributed as donors of permanent housing projects in Tacloban and Ormoc respectively. The approach of GMA Network was *agency-driven reconstruction off-city*, consisting of 403 permanent one-storey row housing through its own non-governmental organization GMA-Kapuso Foundation in Tacloban North (See Paper 2). This project was the first one in turning over 107 units to Haiyan survivors in Tacloban. One shortcoming of this project is that the housing units cannot expand horizontally because row houses lack setbacks to the sides. The use of an orthogonal grid system for the settlement layout with small plots also limits horizontal expansions.

Another example of Cluster 2 is the partnership between Resorts World Manila (RWM), Habitat for Humanity Philippines and Metro Ormoc Community Cooperative (OCCI). HFHP's approach in barangay Dolores was *agency-driven reconstruction off-city* (See Figure 4.4). HFHP housing approach was replicating We Effect's permanent one-storey single detached housing (See details on We Effect's housing in Paper 1, Paper 3 and Chapter 4-Section 4.3 Case 3.2 We Effect project in Barangay Dolores, Ormoc). During a focus group discussion, HFHP Head of Operations highlighted that they opted for an *early recovery approach* to post-disaster housing when building the typology mentioned above instead of building temporary shelter.

Cluster 2 also included hybrid partnerships between Gawad Kalinga (GK), which is a Filipino FBO, working both in partnerships with NHA and the private sector. In Haiyan affected areas in Leyte, GK's approach was *agency-driven reconstruction* with involvement of the prospective users as *unskilled labour*. GK's housing solution in Barangay Palanog in Tacloban was a 32 m^2 permanent two-storey town housing in which the building envelope is provided by GK –i.e. the ground floor of 18 m^2 is built with double height. The housing unit has a total height of 5.4 meters that allows the users to build a walkable loft (See Figure 4.5).

[70] Global Media Arts (GMA) Network, Inc is the leading broadcasting company in the Philippines.

Box 4.2 Habitat for Humanity Philippines early recovery housing in Barangay Dolores, Ormoc

Resorts World Manila (RWM) received a donation from private Filipino artists who performed a concert of Ms. Saigon to raise funding to rebuild houses for Haiyan survivors. The latter allowed the sponsorship of 209 permanent houses in Ormoc. RWM contracted Habitat for Humanity Philippines (HFHP) for implementing the project. HFHP built the 209 units in Barangay Dolores at the same location where We Effect implemented its pilot project of improved bamboo housing. HFHP replicated almost the same 25 m2 single detached unit consisting of a metal framing system with bamboo and ferrocement walls. HFHP replaced the openings of the unit with louvre windows but did not do any modifications regarding the height of the housing, which would allow prospective users to self-build a more spacious loft. Due to the pressure from RWM to complete the housing units and because OCCCI was delayed in selecting affected families for the project, the engineer working for HFHP had to modify the way the bamboo work was done before in We Effect project. He established a workshop in which skilled labourers carried out the bamboo work instead of involving prospective users in this stage of the process.

In a focus group discussion with the first 50 families that were going to move to HFHP project, participants regretted that they would not be able to repair or extend their houses in the future because they lacked the skills that the pioneers have –this is how they the name the 30 families from We Effect pilot project. Members of the first 50 families felt unsecure regarding future calamities and their ability to cope after them. In RWM project implemented by HFHP, users were only involved for cleaning and beautifying the common areas outdoors. Conversely, in a focus group discussion with representatives from RWM and HFHP, the donor was informed that prospective users had been involved in the construction stage in a similar way as it happened in We Effect project. The quality of the houses produced by HFHP was monitored by Habitat for Humanity International. However, it seems that philanthropic donors such as RWM lack technical competence and tools to assess the ways users have been involved or not in post-disaster housing processes. Such tools are important when agents are concerned to both build resilient housing and communities.

Figure 4.3 Cash approach for reconstruction of temporal housing by CRS in Barangay Caparas an Guti, Palo. Pictures: by the author, March 13, 2014

Figure 4.4 Agency-driven reconstruction off-city by HFHP in Barangay Dolores, Ormoc. Pictures: by the author, March 16, 2015

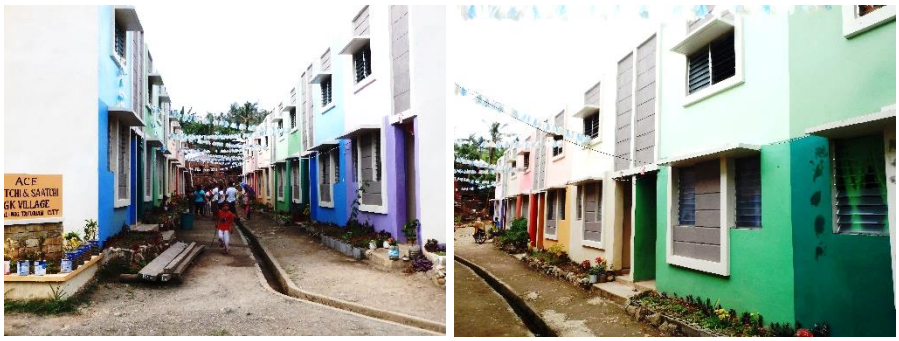

Figure 4.5 Agency-driven reconstruction off-city by Gawad Kalinga in Barangay Palanog, Tacloban, Leyte. Pictures: by the author, March 12, 2015

Box 4.3 Gawad Kalinga's partnerships with the private and the public sectors in Tacloban and Tanauan

GK mobilized resources such as donations of land, funding from private donors including private individuals and companies, and human resources –i.e. international and local volunteers, *bayani builders*. Private companies acting as donors to GK include different types of businesses. Ace Saatchi & Saatchi –a communication agency– sponsored the GK Villa Barangay Palanog, consisting of 24 permanent houses located outside Tacloban. The Philippine Football Federation (AFC) provided funding for 100 houses in the GK-AFC Villa in Barangay Libertad, in Palo.

The housing typology might have possibility to growth vertically but not horizontally due to limitations of the size of the plots. GK had a more holistic approach to resettlement in which they also assist the affected families with livelihood programmes and capacity building –especially value formation. GK accomplished 758 housing units by March 2015 in Leyte (See Figure 4.5).

Another example of GK-NHA and LGU partnership is GK-Village in Barangay Pago, Tanauan. This was the first project of GK in Haiyan affected areas in which they used NHA housing design. The settlement consists of 381 one-storey units with an area of 35m² after building a walkable loft (For detailed information about this typology See Paper 1, Paper 3 and section 4.3).

Cluster 3: partnership between Filipino Non-Governmental Organizations and International Faith Based Organizations

Cluster 3 is an example of partnership between Filipino NGOs such as Urban Poor Associates and international Faith Based Organizations such as Development and Peace[71]. The approach was *community-driven reconstruction in-city*. Informal Settler Families (ISFs) were resettled in transitional shelter located in the 40-meter-wide no build zone in Tacloban.

Box 4.4 Urban Poor Associates' transitional shelter in Barangay San Jose, Tacloban

Some NGOs had a more critical stance towards the government's work and questioned policy such as off-city relocation. Urban Poor Associates (UPA) worked with community organizing for assisting Haiyan survivors settled next to the shoreline in Barangay San Jose in Tacloban. UPA's community organizing follows three steps: 1) consciousness raising, 2) empowerment through breaking the culture of silence, and 3) change in the power structure. After strong advocacy with the Tacloban Mayor and negotiation with landowners, UPA managed to move ISFs from tents to the on-site project Mahusey transitional shelter. The negotiations allowed the affected people to build transitional shelter in the no build zone because they had a Memorandum of Agreement with the landowner. Haiyan survivors rent the land for 100 to 200 PHP per month. "We are here to challenge the policy if it is for the benefit to the survivors of Haiyan" (Respondent UPA Tacloban, March 2015). UPA has also mobilized funding from a consortium of Faith-based donors for planning, designing and implementing Pope Francis Village. This in-city resettlement project targets 1,000 permanent housing with a community-driven reconstruction approach.

[71] Development and Peace is the official international development organization of the Catholic Church in Canada and the Canadian member of Caritas Internationalis (See https://www.devp.org/en/aboutus/caritascanada)

Figure 4.6 Community-driven reconstruction on-site in rural areas by the Relief and Rehabilitation Unit of the Archdiocese of Palo in Mayorga. Pictures: by the author, March 10, 2015

Cluster 4: partnership between Filipino and International Faith Based Organizations

Actors within Cluster 4 include Faith Based Organizations (FBOs) such as the Relief and Rehabilitation Unit of the Archdiocese of Palo (AP-RRU) working with international faith-based donors such as *Caritas Internationalis*[72]. The approach of the AP-RRU was more *community-driven reconstruction in rural areas* in which users are involved in different ways and stages of the housing process. The housing solution was a 25 m^2 permanent one-storey single detached housing in which the prospective users were trained in carpentry by skilled carpenters (See Figure 4.6).

Box 4.5 The Archdiocese of Palo-RRU's community-driven reconstruction in rural areas in Mayorga

AP-RRU aimed at implementing 1,000 permanent houses during 3 years in rural areas in Mayorga where assistance was lacking. Its holistic approach to reconstruction focuses on enhancing capacities of survivors regarding disaster risk reduction and livelihood strategies. The AP-RRU used Participatory Disaster Risk Assessment as a tool for community organizing. The project had the following components: a) disaster risk reduction awareness, b) houses with resiliency features, c) reviving the economy of the community through making livelihood sustainable, d) WASH programme, and e) food security through rising seeds and training. Housing with resiliency features included a perimeter wall made of four rows of concrete hollow blocks, a wooden structure on top of the wall, reinforcement of the corners of the structure with diagonal wooden elements, anchoring of the roof structure with a steel bar and diagonal wooden elements. A drawback of the project is that the users cannot build a second floor but they can build horizontal extensions because of the size of the plots.

[72] Caritas Internationalis: Inspired by Catholic faith, Caritas is the helping hand of the Church with 160 member organizations who are working at the grassroots in almost every country in the world. See https://www.caritas.org

Figure 4.7 Community-driven reconstruction in relocated site by We Effect in Barangay Guintagbucan, Abuyog. Clustering of houses, focus group discussion with users. Pictures: by the author, March 17, 2015

Cluster 5: partnership between International Non-Governmental Organizations and Filipino housing cooperatives

Cluster 5 includes initiatives of small I-NGOs such as We Effect working with Swedish funding, partnering Filipino housing cooperatives. The pilot project of We Effect in Barangay Dolores in Ormoc has been analyzed in Paper 1, Paper 3 and in Chapter 4, Section 4.3.

Another example of Cluster 5 is the partnership between We Effect, Abuyog St. Francis Xavier Credit Cooperative (AFCCO) and NATCCO Enterprise Development Center (NEDC). The approach of We Effect and partners was *community-driven reconstruction in relocated* in which the users were involved in self-construction with technical assistance from NEDC. As shown in Figure 4.7, the housing solution was the same 25 m^2 typology built by We Effect's and partners in Ormoc.

Box 4.6 We Effect project promoting housing cooperatives in Abuyog

We Effect with AFCCO, NEDC carried out a project for 30 families who were living near the shoreline in Abuyog. The project components were a) construction of houses, b) organizing housing cooperative associations, and c) Community-based Disaster Risk Reduction and Management plan. NEDC carried out community organizing and provided training in cooperative values and state management. The project introduced common property. The owner of the project is Yolanda Village Housing Cooperative. Each family has to pay 500 PHP monthly during 25 years to AFCCO for the cost of the land, without paying interests. Criteria to select users were being homeless and Haiyan victims, poor members of AFCCO, living in danger zones and families with many members. "Sweat equity is a shift from the dole-out mentality because culturally we have been used to being dependant. Cooperativism is a new idea that aims to pull people helping people help themselves" (Respondent AFCCO, March 2015).

4.2 Case 2: The outcomes of the housing recovery programme in Leyte

> *"The built environment is perhaps the most obvious manifestation of socially constructed entities and should arguably be considered as a particular sub-set of social structures" (Naess, 2016, p.53).*

The Philippine government used concepts elaborated by disaster research such as *build back better* as their rhetoric for post-disaster reconstruction in areas affected by Haiyan since the Reconstruction Assistance on Yolanda (RAY) was released on 16th December 2013. However, build back better was neither meant to transform socio-economic inequalities nor the political dynamics underlying pre-disaster vulnerabilities of the affected population. One example of pre-disaster socio-economic inequalities is Informal Settler Families (ISFs) who were living in makeshift shelter in dangerous locations due to their lack of finacial resourcess to access housing.

Although National Housing Authority was delayed two years regarding the national target of rebuilding 205,128 permanent housing units in the Haiyan corridor, there has not been studies that attempt to provide plausible causal explanation for this and other unexpected outcomes of the programme. The few studies and evaluations on housing recovery in Haiyan affected areas that have been published up to date are mainly descriptive – See Opdyke et al (2017) and Karaos, et al. (2017) among others. These studies have neither identified nor discussed to what extent recovery and rehabilitation have managed to address pre-disaster vulnerabilities of Haiyan survivors.

Further plausible causal explanation

Findings of Paper 2 and the transformational model of social activity

Based on the empirical data collected in areas affected by Haiyan in Leyte, Paper 2 identified at least five unexpected and emergent outcomes of the housing recovery programme:

(1) low output of permanent post-disaster housing;

(2) generic housing solutions that cannot been extended over time;

(3) reproduction of pre-disaster vulnerabilities;

(4) recovery of valuable land next to the shoreline by the Filipino elite;

(5) allocation of public funding in a limited range of recipients –mainly large construction companies, contractors or developers.

The *context* of the housing recovery programme in Leyte was highly politicized from national to local levels. Normalisation of corruption and centralized bureaucratic processes allowed that Filipino elites exerted their agency to keep both economic and political power. Moreover, other characteristics of the context were limited mandate of National Housing Authority –that is responsible for housing for the poor; current normative policies and regulations of socialized housing with the tendency to elicit delay time and low output of units even when massive reconstruction is needed. These contextual conditions and *social structures* such as *the Filipino power elite network* and *hierarchical organizational structures* ruling the housing sector have let the following causal mechanisms to act:

(i). the intentional causal agency of the Filipino power elite;
(ii). the collaboration-competition dilemma among individual agents and social structures/organizations;
(iii). National Housing Authority tied hands on procurement and budget;
(iv). unfreedoms for resilient resettlement (regarding reconstruction approaches, land and user involvement);
(v). the secondary side effects of normative: land-use and resettlement policies;
(vi). the under the table practice of bribery.

The six causal mechanisms have been discussed in Paper 2, *Section: Building causal explanation: from the actual towards the real*. Figure 4.8 summarizes the context, social structures –from which causal mechanisms have emerged– and the observable events or outcomes. Figure 4.8 illustrates the following *social structures* identified in this study: (a) resourcing & construction structure, (b) procurement policy for design & build scheme, (c) normative structure and (d) the Filipino power elite network. Based on Bhaskar's (1998, 2016) *transformational model of social activity* (TMSA), social forms pre-exist human agency, which means that the social structures mentioned above already existed before agents acting in Post-Haiyan housing recovery. The TMSA also states that human activity is enabled or constrained by these social forms, which are reproduced or transformed by that activity. In this line of thought, *the normative structure* can enable or constrain human activities such as involvement of prospective users in housing recovery. As shown in the same figure, two causal mechanims emerge from the normative structure –

unfreedoms to resilient resettlement and the secondary effects of normative: land-use and resettlement policies.

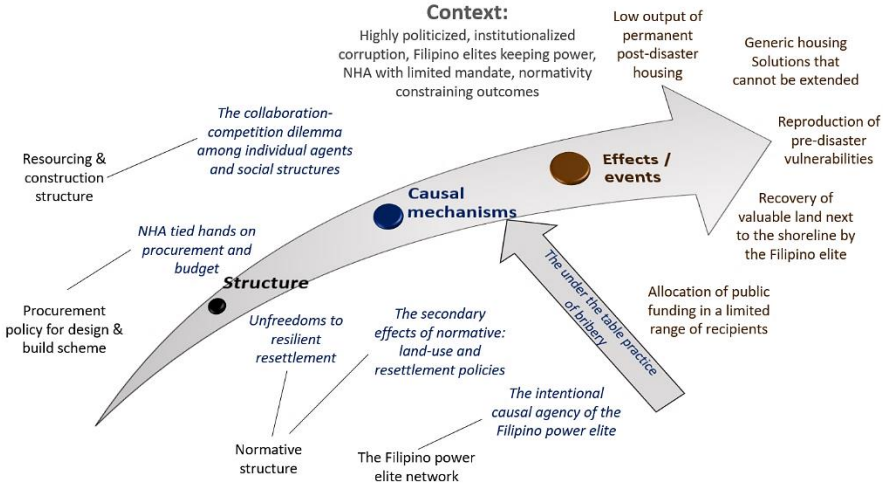

Figure 4.8 Plausible causal mechanisms for the outcomes of the housing recovery programme in Leyte. Elaborated by the author.

Unfreedoms to resilient resettlement is a mechanism that embraces exclusion of prospective users in decision-making regarding resettlement location and type of housing solution. The latter happens especially in agency-driven reconstruction approaches implemented by large developers or construction companies –which is the main approach of private recipients of public funding. This seems also to be the case in some projects carried out by Non-Governmental Organizations (See Paper 1, Findings and discussion). Thus, the involvement of prospective users seems to have been constrained by the normative structure in areas affected by Haiyan. The latter has been confirmed through data from the focus group discussions with prospective users in several projects, especially lack of involvement of prospective users regarding deciding the location of resettlements and housing design. Agents within governmental bodies –such as National Housing Authority– are reproducing the normative structure, probably unconsciously. Conversely, *the Filipino power elite network* might have the tendency to reproduce the normative structure –through exerting their intentional causal agency– to keep both economic and political power. From a critical realist stance, the normative structure can be transformed

through the agency of the users themselves with support of agents within organizations ruling the housing sector –especially when agents exert their intentional causal agency through advocacy from bottom-up and at policy level from top-down.

Causal mechanism (v): the secondary side effects of normative: land-use and resettlement policies

The Reconstruction Assistance on Yolanda: Implementation for results (RAY 2) establishes the framework for recovery, detailed planning and states strategies for reconstruction in Haiyan affected areas. Conversely, RAY 2 is not a policy document focusing exclusively on housing recovery after natural hazards. Informal Settler Families (ISFs) did not follow the 40-meter no-build zone next to the shoreline due to the lack of informed decision regarding off-city resettlement in Tacloban. RAY 2 established relocation from hazard-prone areas to safe locations among other recovery strategies for Haiyan affected areas. The Comprehensive Recovery and Rehabilitation Plan stated that the Resettlement Cluster should "relocate affected families living in unsafe zones to the new housing sites" (Office of the Presidential Assistant for Rehabilitation and Recovery, 2014, p.49). The latter policy document also stated that resettlements should include basic services.

As argued in Paper 2, some of the outcomes that causal mechanism (v) triggered was that Informal Settler Families (ISFs) who did not follow the 40-meter no-build zone next to the shoreline could be legally evicted and resettled. This mechanism could have transformed ISFs' pre-disaster vulnerabilities –living in makeshift shelter in dangerous locations– if resettlement was in-city instead of in the city outskirts. In-city resettlement would have expanded people's opportunities to have both permanent housing and access to livelihood. Fishermen used to live in makeshift shelter next to the shoreline due to their fishing activities. The nearest transitional resettlement areas carried out by the government and International Non-Governmental Organizations (I-NGOs) is 15 km away from Tacloban city centre. Hence, neither the local government nor private donors or I-NGOs anticipated the potential loss of livelihood that this policy would cause to fishermen and other poor people in the near future. The average daily income of a fisherman is 300 Philippine Peso (PHP) and a daily back and forth jeepney fare from Tacloban North to reach the coastal areas will cost 52 PHP –that is 17% of the fisherman's daily salary will be spent in transport to continue with its livelihood. By contrast, accessing the seashore from in-city resettlement within 8 km from the city centre would have cost only 16 PHP, daily back and forth, in jeepney fare.

The way *the secondary side effects of normative: land-use and resettlement policies* seems to act as a mechanism is through generating

side effects of actions that are legal according to the current policies and laws –such as selling overpriced land, relocating or evicting Informal Settler Families (ISFs) from dangerous locations, and performing time-consuming procedures for changing land-use. There is a tendency that land speculation might have triggered changing *the 40-meter no-build zone* policy to *the 40-meter no-dwelling zone* in Tacloban instead of following OPPAR's recommendation of assessing the zones near to the shoreline according to their vulnerability. Filipino elites have built resorts and other businesses in the 40-meter no-dwelling zone in Tacloban. Hence, the elites seem to have recovered valuable land next to the coastal areas through exerting their intentional causal agency of profit making.

Land prices increased up to 10 times in Leyte since reconstruction started in November 2013 until March 2015. There is a tendency that land speculation might have been among factors generating off-city resettlement in cities such as Tacloban. The latter also made it easier to recover valuable land next to the shoreline whilst relocating Informal Settler Families (ISFs) to Tacloban North. Complex procedures such as land-use changes involved sixteen governmental bodies and governmental officials with different reasons for a particular course of action. The period for processing all required certificates and licences to change land-use from agricultural to residential use was reduced from 180 days to 114 days. There is a tendency that the elites might have used their influence in governmental institutions to delay procedures related to land-use change, considering that the cost of private land was expected to increase due to shortage of public land owned by the national government or the LGUs and high demand of land for resettlement in Leyte.

Causal mechanism (vi): the under the table practice of bribery

Several participants in the interviews asserted that some contractors had to give bribes of around 20% to 30% of the project cost for the *under the table practice of bribery* to mayors and councillors at the local level, and to some public officials working in governmental bodies at the national level. Causal mechanism (vi) refers to corrupted activities within governmental bodies such as public officials asking or accepting bribes from private contractors, politicians or other actors. Some corrupt public officials might delay procedures within any national organization or local governmental unit – e.g. blocking that a housing recovery project obtains the permission to proceed whilst asking for bribes to approve an access road through another housing subdivision. Causal mechanism (vi) seems to be activated both under normal conditions and after a calamity because it has become normalised in the Filipino context. Some organizations, after accomplishing all the paper work, had to deal with this illegal practice. An organization might report corrupt officials but this does not mean that these officials will be convicted.

Corrupt politicians, local authorities and/or governmental officials have tried to profit even from money donated by international donors. A former vice-mayor put a barricade for not allowing a truck with construction materials to enter a project site because the organization implementing the project refused to pay bribes. Some I-NGOs worked mostly with the barangay captains to identify beneficiaries for their shelter projects without realising that some affected survivors did not received any shelter relief because they were not political allies with the barangay captains.

The way *the under the table practice of bribery* seems to have acted as a mechanism affecting the housing recovery programme is through facilitating corrupted practices within networks of corrupted private landowners and private contractors connected to the Filipino elite network who have influence in governmental bodies. These private landowners or contractors bribe corrupted public officials working for LGUs or public officials working for national bodies according to their pro-profit intentions.

Methodological and theoretical contribution

In Paper 2, the Resolution, Redescription, Retrodiction, Elimination, Identification and Correction (RRREI-C) model of scientific discovery for applied research has been used to build plausible causal explanation for unexpected outcomes of the housing recovery programme. Drawing upon the *Irreducible and necessary components in a complex whole* (LS5) (Bhaskar, 2016, p.85; and Bhaskar et al., 2018, p.49), the paper proposes a *Laminated System Ontology of the Housing Recovery Programme in Leyte*. Hence, Paper 2 uses a realist laminated ontology as the first stage when applying the RRREI-C model (See Figure 4.9). The methodological contribution of Paper 2 is to elucidate how the RRREI-C can be applied to uncover a multiplicity of causal mechanisms acting and affecting the outcomes of the recovery programme in Leyte. The same approach can be applied to investigate the outcomes of housing reconstruction in other developing contexts affected by other natural hazards. Moreover, the *Laminated System of the Housing Recovery Programme (LS-HRP) in Leyte* is a theoretical contribution that can be adapted to other developing contexts. The LS-HRP can be used to overcome the common mistake of reducing the complexity of housing recovery programmes to their spatio-material and socioeconomic components when designing new programmes.

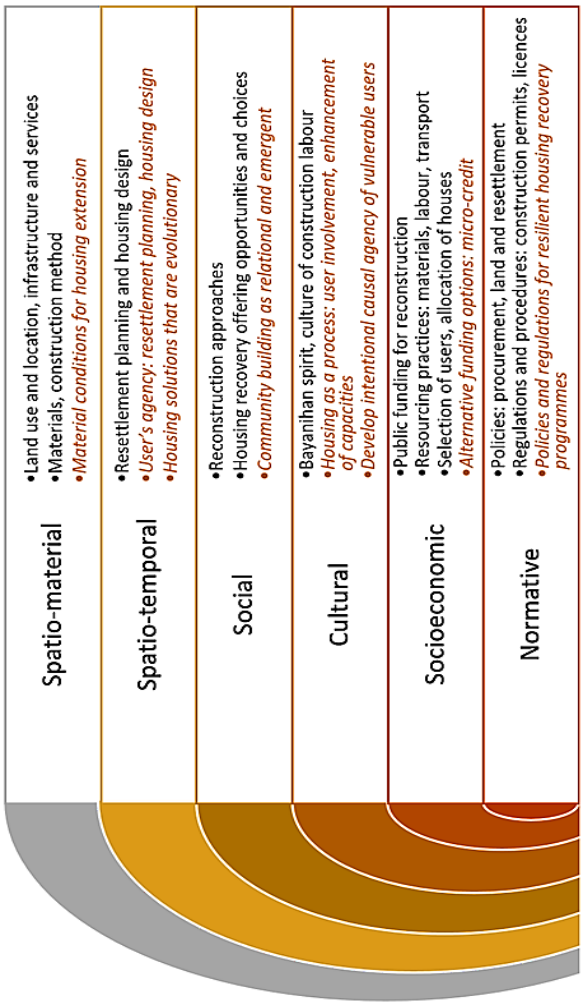

Figure 4.9 A laminated system ontology of the housing recovery programme in Leyte. Source: Arroyo and Åstrand (2019)

Concluding remarks:

Complex, centralized, hierarchical, bureaucratic and time-consuming processes related to housing recovery carried out by governmental bodies perpetuates *the under the table practice of bribery* both in terms of profit-making interest on housing reconstruction and for maintaining political power.

The influence of the elites in governmental institutions might have affected the change to the 40-meters no-dwelling zone to recover valuable land next to the shoreline, the timing of procedures or results regarding changing land-use from agricultural to residential uses. The latter might have created the conditions for selling overpriced land for housing recovery projects located in the city outskirts. A side effect of the latter seems to have been legally relocating Informal Settler Families to the city outskirts.

Some Informal Settler Families (ISFs) have rebuilt their makeshift shelters next to the coastal areas reproducing pre-disaster vulnerabilities, and might become victims of the next natural hazard.

In the case of housing recovery, critical realism has shown to be useful to unveil the intentions of agents, identify causal mechanisms and contextual conditions underlying tendencies and preliminary outcomes of any housing recovery programme. The latter is important to improve disaster risk reduction and management policy and practice.

4.3 Case 3: Two housing recovery projects

"When dwellers control the major decisions and are free to make their own contribution to the design, construction of management of their housing, both the process and the environment produced stimulate individual and social well-being. When people have no control over, nor responsibility for key decisions in the housing process, on the other hand, dwelling environments may instead become a barrier to personal fulfilment and a burden on the economy" (Turner & Fichter, 1972, p.241).

User involvement from a capability perspective

The Capability Approach has been mostly applied as an evaluative framework based on Sen (2001) and has the potential to be applied in projective ways –i.e. for planning and urban design (Frediani and Hansen, 2015). The Capability Approach can be used as a comprehensive evaluative framework suitable to assess both the physical attributes of the *products of design* and the *process of design* (Frediani and Boano, 2012). The same authors propose the conceptual framework of *Capability Space*[73] "which presupposes that the process and products of design collide with notions of justice, access and freedoms central to capability discourses" (Frediani and Boano, 2012: p 204). Paper 3 has discussed the Capability Space of post-disaster housing as a theoretical framework suitable for analyzing the involvement of users in housing recovery. As discussed in Paper 3, greater freedom enhances human agency and empowerment that are central to development. In the context of housing recovery and this thesis, enhancing the capabilities or "the freedoms that people have to achieve the lifestyle that they have reason to value" (Frediani, 2010) has been understood as

a) increasing opportunities offered by different housing recovery projects;
b) generating multiplicity of choices for users; and
c) enhancing the capacities of users both at individual and collective levels.

[73] Frediani & Boano (2012) proposed the notion of Capability Space to overcome the divide between planning and design schools of thought regarding participation. The planning tradition builds on the social/institutional deterministic approach to participation that comes out with normative principles to guide the *process of design*. The design tradition focuses on power relations regarding the appropriation of the *products of design* and its relation to aspects of justice in the city.

Case 3.1: Gawad Kalinga-Village in Barangay Pago, Tanauan

Background information of the project, organizational and social factors shaping the project, process freedom and product freedom have been discussed in Paper 3, Section 4.1.1. The following text adds to that discussion. Actors collaborating for implementing this project were National Housing Authority (NHA), Gawad Kalinga (GK), the LGU of Tanauan. GK carried out the construction of the houses and its approach was *agency-driven reconstruction in city* with involvement of the prospective users as *unskilled labour*. GK built NHA's disaster resilient housing, a 35 m^2 permanent one-storey row house whose height allowed for building a walkable loft. The prospective users had to do 1,500 hours of sweat equity per family to get a unit. From the 390 houses in Barangay Pago, 100 families were relocated from Barangay Roque, located in the 40-meter no-build zone in Tanauan. The prospective users for this project were selected by the LGU of Tanauan. This resettlement has streets and water pipes because NHA developed the land while GK built the housing units in parallel. The houses have septic tanks.

Affected families in this project were living in the *tent city* after Haiyan and before obtaining one of these units. Before moving to their new houses, the families had an assembly every last week of the month and value formation on Saturdays. GK value formation aimed at develop the families' god moral, so that they learned to respect themselves and the others. The value formation and the sweat equity seemed to have contributed to develop trust between each other. After 90 hours of sweat equity, the affected families qualified as beneficiaries of the project.

Users were involved as unskilled labour assisting the construction workers in the following activities: sieving sand, carrying and passing hollow blocks and mortar, carrying roof sheets, casting concrete, preparing the iron bars for the columns, doing the plastering, painting the houses, cleaning, taking care of the safety of other volunteers, etc (See Figures 4.10 and 4.11). The families received value formation focusing on rules and regulations for the resettlement, cooperation in meetings and with organizations visiting the project, and cooperation through sweat equity. The rules of the resettlement were decided by Gawad Kalinga and they included: no gambling, segregate garbage, maintain the outdoor environment, prohibitions for doing changes in the façade –although families were allowed to improve the front of their houses with greenery– and prohibition for growing animals such as chickens or pigs. Another rule was to participate in the livelihood training carried out by GK after the

families moved to the resettlement. The houses were donated to the users so that they did not have to pay neither for the land nor for the houses. The families own the houses but they cannot rent or sell them.

In a focus group discussion implemented in March 2015, the respondents highlighted that they were not afraid of the next typhoon because they knew that their houses were strong and would resist it. When typhoon Hagupit –known in the Philippines as typhoon Ruby– hit Tanauan on 6th December 2014, instead of going to the evacuation center, the users stayed in their houses and provided safe refuge to three other families from outside the resettlement. The families in this project asserted that they were satisfied with the physical qualities of their house because of the spacious loft and the construction quality that was disaster resilient.

Figure 4.10 Users involved as unskilled labour, GK-Village in Barangay Pago, Tanauan. Pictures: by the author, March 10, 2014

Figure 4.11 Users cleaning, reusing steel bars and preparing concrete, GK-Village in Barangay Pago, Tanauan. Pictures: by the author, March 10, 2014

Citybank Foundation provided funding for the livelihood programme implemented by GK that included training for making hollow blocks, carpentry, bakery, farming and masonry training. Training was carried out during the weekend and while attending the training, the users received 200 PHP per day as allowance. Citibank Foundation offered to buy a big ship for 15 fishermen and to provide an ice plant for storing the fish. The livelihood training included social entrepreneurship to develop the skills of some community members as fish vendors. Families within the resettlement were planning to buy fish from these vendors. The livelihood programme also included urban farming and handicrafts such as elaborating *tambo* –a soft broom– that they could sell.

GK managed to enhance the capacities of users of the project in Barangay Pago although they were mostly involved as unskilled labour during the construction stage. The training and livelihood programme after users moved to their new houses have enhanced users' capacities.

In a focus group discussion, users identified that they had learnt to:

a) face many people;

b) not be afraid to be in front of other people;

c) become more confident about oneself;

d) coordinate actions with some actors such as the LGU;

e) improve their leadership skills;

f) gather people;

g) plan and report to other actors –such as the LGU.

"Everything I have learnt from the sweat equity and the trainings, I can teach to others" (Participant focus group discussion, March 2015). Participants have increased their self-confidence and they were even willing to help other vulnerable people. They highlighted that as individuals they enhanced their skills to get a job for having an income. Regarding collective capacities, users emphasized that they had learnt to

a) work together and become more united;

b) improve the relationships between neighbours;

c) produce hollow blocks;

d) become more productive after different livelihood training;

e) develop community businesses such as a bakery, a grocery store;

f) convince other affected families to be part of the next batches of the project;

g) help other communities to paint their houses.

"Our big achievement are the relationships between each other. This community will not be a community without the contribution of everybody. Now we are stronger people, no more people without work. We are not waiting for help from others. We are standing on our own" (Participant focus group discussion, March 2015).

This housing recovery project had a holistic approach that included:

a) providing permanent and spacious housing involving the users as unskilled labour;

b) increasing the capacities of the families through value formation, construction training and entrepreneurship training;

c) providing financial assistance to support users in starting community businesses, and

d) providing facilities and equipment support to carry out livelihood in groups –such as livelihood for the fishermen.

Case 3.2: We Effect pilot project in Barangay Dolores, Ormoc

Actors collaborating for implementing this pilot project were We Effect, National Confederation of Cooperatives (NATCCO), NATCCO Enterprise Development Center (NEDC), and Metro Ormoc Community Cooperative (OCCCI). The approach of We Effect and partners for the project was *community-driven reconstruction off-city* through Organized Self-Help Reconstruction. The housing solution was a 25 m^2 permanent one-storey single detached housing. The houses were built with reinforced masonry – four rows of hollow concrete blocks– and on top of that "a metal framing system –metallic coated structural zincalume– with bamboo and ferrocement walls" (Arroyo, 2015) (See Figures 4.12 and 4.13). We Effect built 30 units with a simplistic neighbourhood design clustering all houses along both sides of a main street (See Figure 4.14).

Paper 1 describes We Effect pilot project in Barangay Dolores in Ormoc as enhancing users self-construction and self-management capabilities based on empirical data gathered in 2014 (See Paper 1: p 85). The project background information, structural factors shaping the project, process freedom and product freedom have been discussed in Paper 3, Section 4.1.1. During the field study in 2014, the researcher highlighted that the height of the housing unit limited the potential for building a loft for sleeping within the unit, so that the habitable area would have been around 40 or 45 m^2 (See Figure 4.12 and 4.15). The housing height on the sides is 2.70 m and the height in the middle is 4.40 because the housing has a hip roof (See Paper 3, Figure 7). In the current design, if families build a loft leaving 2.20 m height in the ground floor, the heights of the loft will be 0.50 m on the exterior sides and 1.50 m as maximum height in the middle of the house. An increase of 0.50 m in the height of the exterior walls (from 2.70 m to 3.20 m) and increasing also the height in the middle to 4.90 m would have derived in a more spacious a loft, with heights between 1.00 m in the perimeter to 2.50 m at the higher point of the roof. The discussion of positive aspects of this case continues in the following sections.

Figure 4.12 Housing solution and women working with bamboo, We Effect's pilot project in Barangay Dolores, Ormoc. The images show the construction method and women cutting, preserving and preparing bamboo for the walls. Pictures: by the author, March 6, 2014

Figure 4.13 Woman weaving bamboo in a wall and man producing concrete hollow blocks, We Effect's pilot project in Barangay Dolores, Ormoc. Pictures: by the author, March 6, 2014

Figure 4.14 Simplistic neighbourhood design, We Effect pilot project in Barangay Dolores, Ormoc. The 30 houses are located along both sides of a main street. Picture: by the author, March 14/2015

4.4 Tools for user involvement from a capability perspective

"And it is intentional agency, agency performed for a reason that marks the site of the contribution of the human agent to the social process, that is, to the reproduction or transformation of social structures (as well as quite generally to the natural and practical orders) (Bhaskar, 2016, p. 61).

A model for user involvement in evolutionary housing recovery

In Paper 3, the proposed notion of *capability space of post-disaster housing* was applied for analyzing the involvement of prospective users in Case 3.1: GK-Village in Barangay Pago and in Case 3.2: We Effect pilot project in Barangay Dolores. A *model for user involvement in evolutionary housing recovery* has been developed and tested in Paper 3 (See Figure 4.16). The model is based on Sen (2001), Frediani and Boano (2012) and the Sphere Association (2018) (See Paper 3, *Section: Theoretical Framework)*. The model was applied to analyze empirical data collected from the case studies mentioned above. The model was also used to assess how different *types* and *levels* of involvement have contributed to expand users' capabilities in terms of opportunities offered by the housing projects, choices made by users and capacities enhanced because of their involvement (See Paper 3, Tables 2 and 3).

"Capabilities are a person's real freedoms or opportunities to achieve functionings …[ ]… The distinction between functionings and capabilities is between the realized and the effectively possible" (Robeyns, 2016, p.2). Following the same line of thought, while *being involved in housing recovery* is a functioning, *the real opportunities of being involved in housing recovery* are the corresponding capabilities. Hence, the model for user involvement intends to expand the opportunities that housing recovery offers to prospective users whilst increasing users' freedom of choice between *multiplicity of options* –that is activities during planning and design, construction or self-construction and post-occupancy. When applied for evaluation, the model also relates *types* and *levels* of user involvement with the enhancement of users' capacities at individual and collective level (See Paper 3, Tables 2 and 3).

Figure 4.15 Self-built fences and improved gardens, We Effect pilot project in Barangay Dolores, Ormoc. The fences and the gardens have been beautified by the users who are members of the O-Balay community. Picture: by the author, March 14/2015

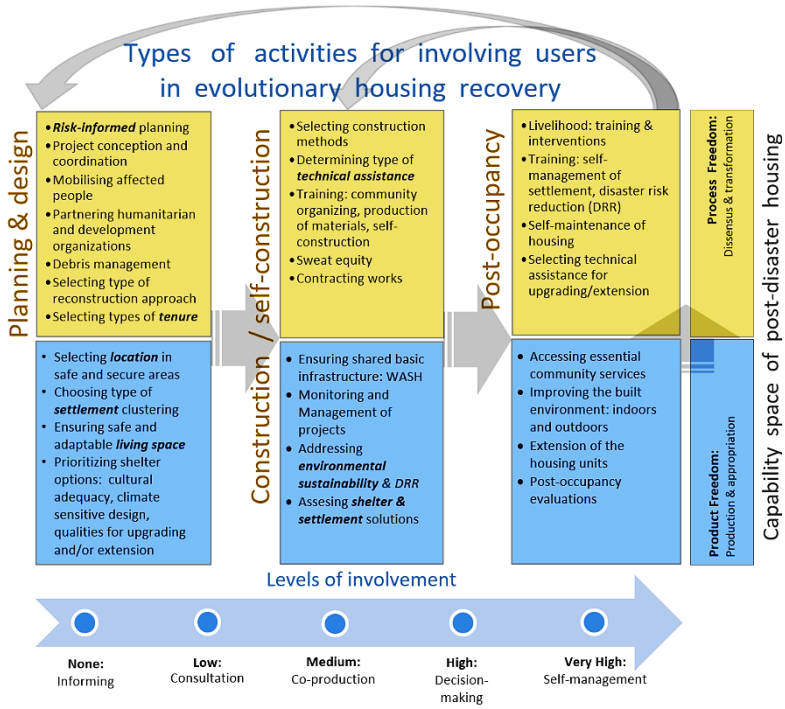

Figure 4.16 A model for user involvement in evolutionary housing recovery. The model is based on the capability space of post-disaster housing: process freedom, product freedom and a three-stage process. The model details types of activities for involving users in the three stages, namely planning & design, construction or self-construction and post-occupancy. The level of involvement in each stage can be assessed with the following qualitative scale: None: Informing, Low: consultation, Medium: co-production, High: decision-making and Very high: self-management. Source: See Paper 3

Bhaskar (2016, p. 67) argues that augmenting the capability approach with critical realism, might consider agent's reasons "as a causal mechanism that triggers a particular course of action". Hence, the model for user involvement becomes instrumental for developing the *intentional causal agency of vulnerable users*[75] in post-disaster contexts in developing countries. If users' reasons for *being involved* in housing recovery are to achieve resettlement located near their pre-disaster livelihoods, safer housing to withstand future natural hazards and adaptable housing solutions, among others; then, their intentional causal agency might become a causal mechanism that triggers a tendency towards active involvement for achieving better housing recovery outcomes. A tendency towards active user involvement in housing recovery enabled by Non-Governmental Organizations, Faith Based Organizations, Housing Co-operatives and Local Government Units, among other actors, can lead to transforming current housing recovery practice at project level.

Freedom to Rebuild: a post-disaster housing evaluation framework

Paper 1 proposes an early version of *Freedom to Rebuild,* a post-disaster housing evaluation framework. The first version of the framework draws on Turner (Turner and Fichter, 1972; Turner, 1976; Sen, 2001; Frediani, 2007; Joakim 2013) and it is shown in Paper 1, Figure 13. Before the second fieldwork in areas affected by Haiyan in 2015, the researcher travelled to Bangkok to meet colleagues from the Asian Coalition for Housing Rights (ACHR). Min Chau Tran[76], ACHR secretariat in Bangkok and Maurice Leonhardt[77], Regional Coordinator for the ACHR, provided valuable feedback regarding the framework.

The first version of the *Freedom to Rebuild* framework was discussed to include the expertise of practitioners who have first-hand experience in post-disaster housing processes in which affected people are involved. The feedback of the practitioners was positive to the use of the notion of user involvement instead of the term participation because organizations use this term but mean different things. Sometimes the use of the term participation can find resistance from governments or donors. The main

[75] See Figure 4.9 A laminated system ontology of the housing recovery program in Leyte in which the intentional causal agency of vulnerable users is proposed among possible component parts of the laminated system.
[76] Minh Chau Tran is a city and regional planner who studied at Cornell University, United States. Minh Chau has experience with community-driven slum upgrading in Thailand and Vietnam.
[77] Maurice Leonhardt is a social scientist with experience in participatory processes. ACCA programme (See http://www.achr.net).

observations to the initial *Freedom to Rebuild* framework was the need to include three other functionings –namely *Freedom to collaborate*, *Freedom to engage* and *Freedom to finance*.

Minh Chau reacted to *Freedom to decide collectively* because it is a long way to go before people are able to decide collectively. In the Asian coalition for Community Action (ACCA) programme, the savings from community members was the way ACHR brought the people to come together. The savings aspect is very important because savings builds capacity in people. They learnt how to manage money and trust is built among them. Later on governmental agencies learn to trust in community organizations that have shown their capacity to save and manage their own savings. Maurice Leonhardt pointed out the need to include *Freedom to finance* that has been the strength of ACCA. If people learn how to manage the funding for reconstruction, they will become more resilient for the next disaster. The success of ACCA is that money was accessible to community people and that they could decide what to do with it.

The improved version of *Freedom to Rebuild* is composed by seven functionings that are 1) Freedom to collaborate, 2) Freedom to plan/design, 3) Freedom to engage, 4) Freedom to self-build/self-manage, 5) Freedom to decide collectively, 6) Freedom to finance, and 7) Freedom to evaluate during implementation. The procedure for carrying out the evaluation implies the following steps. First, participants of the evaluation are asked to identify pre-disaster vulnerabilities of users regarding each functioning. Then, participants are asked to assess the capabilities of users in terms of the opportunities and choices offered by the projects; and the capacities enhanced by the users due to being involved in the project. Finally, participants of the evaluation are asked to assess the resilience of the users regarding each functioning. The improved version of *Freedom to Rebuild* was tested with members of the O-Balay housing cooperative who were involved in the pilot project implemented by We Effect and partners in Barangay Dolores, Ormoc. The researcher was assisted by one of the community organizers from NEDC to translate the framework to Bizaya. The framework was drawn in two A0 papers[78] with blank spaces to add colour cards with the answers of the participants (See Figures 4.17 and 4.18).

[78] An A0 paper measures 841 × 1189 millimetres.

Testing Freedom to Rebuild version 2015

Figure 4.17 Workshop with members of the O-Balay housing cooperative. Place: We Effect pilot project in Barangay Dolores, Ormoc, Leyte. Photos: by the author, March 19, 2015

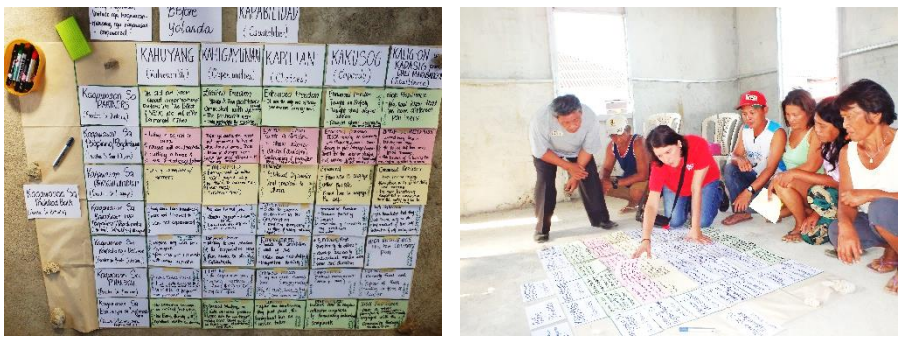

Figure 4.18 Discussing self-assessment with the tool Freedom to Rebuild with members of the O-Balay housing cooperative. Place: We Effect pilot project in Barangay Dolores, Ormoc, Leyte. Pictures: by the author, March 19, 2015

Community members of the O-Balay housing cooperative were notified in advance about the workshop. The participants were five men and five women who were involved in the post-disaster housing process. The way the workshop was carried out is explained in Chapter 3, Box 3.2. The workshop was a self-evaluation in which the researcher acted as facilitator assisted by the community organizer (See Figure 4.17). To sum-up users explained and assessed the following for each of the seven functionings:

- their pre-Haiyan vulnerabilities;
- the opportunities that the We Effect project offered to them;
- the choices they were able to make;
- the capacities they have enhanced;
- their own resilience after being involved in the project.

Opportunities, choice and capacity were assessed in terms of unfree, limited freedom, enhanced freedom and empowered. Participants were asked to provide an explanation for their assessment of each element of the framework (See Table 4.1). The following text discusses the findings of the workshop.

Insights from the workshop

Pre-Haiyan vulnerabilities

Participants in the workshop identified that lack of knowledge regarding organizations that could fund permanent houses was one of their vulnerabilities. Their pre-disaster living conditions in making shelter and dangerous locations were also part of their vulnerabilities. Pre-disaster vulnerabilities also included lack of knowledge and experience on construction. They were not organized in their previous settlements and lacked knowledge regarding cooperative housing. Unstable employment, limited income and access to credit with high interest rate.

Opportunities offered by the We Effect project

Participants had limited freedom regarding *Freedom to partner* because organizations were distributing mainly materials for shelter relief. They were contacted by Tzuchi Foundation and OCCCI. They assessed they were unfree regarding *Freedom to plan/design* because they were not involved in planning the resettlement neither in designing their future houses in Barangay Dolores. They were empowered regarding *Freedom to engage* because after collaborating with one NGO they helped them to obtain assistance from other NGOs. They also assessed themselves as empowered regarding *Freedom to self-build/self-manage* because they were involved in different construction activities; and having developed cooperativism knowledge and values. Regarding *Freedom to decide collectively*, participants assess themselves as having enhanced freedom because they have learnt to decide collectively because of being members of the O-Balay housing cooperative. They assessed themselves as having limited freedom regarding *Freedom to evaluate during implementation* because some complaints they reported to the foreman were not addressed. However, they considered they had enhanced freedom after they moved to the resettlement because they had meetings with NEDC and OCCCI regarding issues affecting them and evaluation meetings every month.

Table 4.1 Self-assessment of the O-Balay housing co-operative using Freedom to Rebuild.

Functionings	Vulnerabilities (before Haiyan)	Capabilities [Scale: unfree, limited freedom, enhanced freedom, empowered]			Resilience [Scale: no resilience, limited resilience, enhanced resilience, high resilience]
		Opportunities	Choices	Capacities	
Freedom to collaborate	We did not know about oranizations or partners like We Effect, OCCCI or NEDC that could offer permanent houses. No projects like this were offered to us before Haiyan.	**Limited freedom:** only a few parterns contacted us after Haiyan (Tzuchi Foundation and OCCCI). Only materials for repairing our previous houses were given by other NGOs.	**Enhanced freedom:** We Effect, OCCCI and NEDC were the only partners offering permanent housing nearby. Tzuchi Foundation offered temporary housing.	**Enhanced freedom:** We were taught on safety, about community organizing, garbage segregation to be environmentaly friendly. The partners did not limit in giving us good ways to learn or capacitate ourselves.	**High Resilience:** We know now that we have different partners and can get help from them.
Freedom to plan / design	Some of us were living in a squatter area and the houses will be demolished. Others were renting a house that was also threatened for eviction by the landlord.	**Unfree: a**fter Haiyan we were not permitted to live in the danger zone. Those living in the danger zone were the ones offered with a housing project. We did not have freedom to plan or design. It was the enginner and contractors who made the design.	**Unfree:** before the project, no other resettlement areas were offered. No other permanent housing project was offered to us. **Limited freedom:** after the project, we could choose to build the interior divisions of the houses, outdoor landscaping, the perimeter fence, and gardening.	**Enhanced freedom:** TESDA provided training on carpentry with masonry that allowed us to plan/design/implement the interior divisions of the houses. Only 7 out of 30 beneficiaries participated in the training. Most home owners developed the skill of painting their houses.	**High Resilience:** we learnt many things in building our own houses. The project helped us to access TESDA training. Because of the learnings we have, we are confident to enhance (improve) our houses. Twelve out of thirty houses have already been improved by the home owners.
Freedom to engage	Lack of connection with partners	**Empowered: e**ngagement with other NGOs paved way for us to receive basic needs supply after Haiyan. Livelihood (tools),	**Limited freedom:** political dynamics limited our freedom to engage. After the project: Differences between O-Balay and OCCCI on how to engage regarding the cooperative store.	**Enhanced freedom:** we know how to engage other people. We know hot to engage ourselves. We know how to follow the decision of the majority.	**Enhanced resilience: w**e know hot to engage ourselves with other NGOs and partners. The more beneficiaries angaged in cooperative then the higher will be our resilience.
Freedom self-build / self-management	We did not have knowledge on building, we were not trained and did not have the experience.	**Empowered:** we have learnt and developed cooperativism values. We were involved in different construction activities. After Haiyan, values formation was done (e.g. team building). We learnt many things. *Self-management:* we learnt how to protect the children. Oxfam trained us in self-cleanliness.	**Empowered:** we were able to choose activities in the construction. We were taking part in the construction. We know the different tools and equipment. *Self-Management:* we know how to adjust to other people and teach the children. We are able to take decision on estate management.	**Empowered:** we learnt the treatment and processing of bamboo. We learnt how to do the layout and installation of metallic frameworks, roof installation, fabrication. We have applied the learnings by making internal divisions, and improved beautification of outdoors.	**High Resilience:** the knowledge we had paved way to the improvement of their self-construction and self-management. The experiences that we had would make us easier to recover and resist a Haiyan like typhoon.
Freedom to decide collectively	Before Haiyan we were not organized. Before we were not oriented with housing cooperative.	**Enhanced freedom:** being members of the cooperative thought us change to decide collectively.	**Empowered:** we made the constitution and by laws. We also made our rules and regulations. We organize bayanihan activities. We took part in excavation of water system and excavation for electrical posts. We decided having the common gardening. We have decided colectively in conduct values formation quarterly. Collective decision in meetings.	**Empowered:** we have developed sensitivity to others, developed capacity. Individual voices are taken into consideration in the collective decision.	**High resilience:** we have a community based disaster reduction management plan (CBDRRM).
Freedom to finance	We had limited income. We had only access to high interest rate credit. We had unstable employment and no permanent income. There were people who escaped from their credit debts.	**Limited freedom:** OCCCI gave calamity assistance fund (4,000 PHP) for materials and 5,000 PHP for mortuary. It was only OCCCI that gave these grants.	**Enhanced freedom:** we were given calamity loan (4,000 PHP), regular loan (4,500 PHP) with 1.5% interest, OCILA (13,500 PHP) with 0% interest, back to back loan. They could choose among these loans.	**Empowered:** financial management: division of money.	**High resilience:** O-Balay cooperative has decided to have a calamity fund and repair of houses funding in times of disaster.
Freedom to evaluate during implementation	Our communities did not do evaluation because there was no project/activities. The barangay officials implemented heatlh evaluation to every family.	**Limited freedom:** during the construction, we reported complains to the foreman. **Enhanced freedom:** we have special meetings to ask about current problems. NEDC asked for meetings. Ask OCCCI about issues on PDAF, water, electricity, road development. House to house visits by NEDC. We conduct evaluation every monthly meeting.	**Limited freedom:** we had the choice to evaluate the construction by giving complaints to the foreman (although he answered why do you complain, you will receive the house for free). After the construction, they just paid, they complained but no action was taken. Evaluation through O-Balay (the beneficiary) were given a chance to evaluate.	**Empowered:** we learnt how to complain. Now we know how to do collective complaints by formulating individual complaints.	**High resilience:** we have a more peaceful cooperative. We engaged with the community through evaluation.

Choices made by the users of the O-Balay housing cooperative

Regarding choices that the project offered to users, participants assessed that they had *enhanced freedom* because they were able to choose between *collaborating* with We Effect to access permanent housing instead than collaborating with Tzuchi Foundation that offered only temporary housing. They considered they were *unfree* regarding *Freedom to plan/design* because they could not choose between different permanent housing projects or solutions. However, they stated they had *limited freedom* regarding the housing design because of being able to decide on the interior divisions, outdoor landscaping, the perimeter fence and gardening (See Figure 4.15). There were differences between O-Balay housing cooperative and OCCCI on how to operate a possible cooperative store; and therefore, they considered they had limited freedom concerning *Freedom to engage*. The functionings that they assessed as empowered were *Freedom to self-build/management* and *Freedom to decide collectively*. This is not surprising considering that they were able to choose among self-construction activities. They decided collectively on the constitution and by-laws of their housing cooperative, to have common gardening, and to carry out values formation,during their monthly meetings. They assessed they had enhanced freedom regarding *Freedom to finance* considering that they could choose among different types of loans. Participants contend they had limited freedom concerning *Freedom to evaluate during implementation* because they raised complaints to the foreman who did not forward their complaints to the engineer, or NEDC.

Capacities enhanced by the users

Participants assessed the first three functionings (1 to 3) as they achieved enhanced freedom and the last four functionings (4 to 7) as they were empowered. The latter even in functniongs that were assessed as unfree or limited freedom regarding opportunities and choices. The following list of enhanced capacities due to *being involved* in housing recovery is a summary of their answers during the workshop:

- increased knowledge on safety, community organizing, garbage segregation;
- enhanced construction skills –bamboo work, carpentry, masonry, painting– and experience;
- ability to generate and engage in collective actions through mobilizing others and themselves;
- increased ability to negotiate and carry out democratic processes;
- enhanced sensitivity to others and respect for individual voices and opinions within the cooperative;
- enhanced skills regarding financial management;
- increased ability to formulate individual or collective complains.

4.5 Replicating We Effect's housing typology

Figure 4.19 Improved clustering of houses, We Effect project in Barangay Guintagbucan, Abuyong. Picture: by the author, March 17/2015

We Effect 25 m^2 permanent one-storey single detached housing that was first built in Ormoc was later on replicated in Abuyog (See Figure 4.19). We Effect in partnership in partnership with AFCCO built 30 houses for affected people who were living near the shoreline in Abuyog. NATCCO Enterprise Development Center (NEDC) carried out the community organizing. The 30 housing resettlement in Abuyog had a better neighbourhood design that created smaller clusters of houses along a cul-de-sac street. Prospective users were given the houses by We Effect but had to pay the plot to AFCCO without paying interests during 25 years. The project included water, solar lamps, food supply and a loan from AFCCO for livelihood or business. The resettlement included a cooperative store for buying rice and can goods at lower prices. Users had to accomplish 300 hours of sweat equity in activities such as doing the layout of the houses, carrying cement and hollow blocks, cutting the steel structure, treating-cutting-cleaning and weaving the bamboo for the walls, mixing concrete, carrying steel frame, trusses and roof sheets. Although users did a training to fabricate concrete hollow blocks, only a few men helped with this because others had to work somewhere else to feed their families.

We Effect's bamboo housing typology was not assessed or improved by Habitat for Humanity Philippines (HFHP) before replicating it in Barangay Dolores in Ormoc (See Figure 4.20). The latter might be because HFHP contracted the same implementing partner than We Effect, and due to time pressure for delivery by the donor. This implied that the housing solution lacks physical qualities for extensions vertically or horizontally. The pressure exerted by the donor also affected negatively the construction process, and prospective users were only involved for cleaning and beautifying common areas outdoors.

Figure 4.20 Houses carried out by HFHP surrounding We Effect's pilot project in Barangay Dolores, Ormoc. The houses are painted in orange, light blue and light green were built by HFHP. Picture: by the author, March 14/2015

Figure 4.21 Agency-driven reconstruction on-site carried out by HFHP in Barangay Poblacion, Burauen. The housing typology and construction system of We Effect pilot housing were replicated. The owner decided to increase the height of the housing without receiving technical advice on housing adaptability for future expantion. Pictures: by the author, March 13/2015

Figure 4.22 Housing solution with interior partitions and a loft for crawling self-built by the owner, Barangay Poblacion, Burauen. Pictures: by the author, March 13/2015

Habitat for Humanity Philippines has also replicated We Effect's housing typology with private funding in Barangay Poblacion in Burauen (See Figure 4.21). HFHP's project in Burauen is *agency-driven reconstruction in-city* without involving the users. The houses are rebuilt on the users' previous plot and the project received funding from Lutheran World Relief. The target of HFHP in Burauen was to rebuild 440 houses. Probably due to the larger scale of the project, the involvement of users was limited to contribute with their own plot. Figure 4.22 shows a housing unit in which the user has already built interior divisions and a loft for crawling. As mentioned before, if the typology would have been evaluated by HFHP before replicating it, the qualities of the loft would have allowed for increasing the habitable area of the unit.

When comparing the ways users were involved in We Effect project in Ormoc and Abuyog with both HFHP projects in Ormoc and Burauen, one can argue that HFHP missed the opportunity to improve the capabilities of affected families. Conversely, the donor representative in HFHP project in Ormoc was told that the NGO kept the same ways of involving users as it was carried out in the We Effect pilot project.

Concluding remarks:

Both Gawad Kalinga and We Effect carried out housing recovery projects that offered different opportunities apart from permanent housing to Haiyan survivors.

Gawad Kalinga implemented agency-driven reconstruction involving the users as unskilled labour but after the families moved to the resettlement, GK carried out assistance to strengthen the capacities of the people. GK focused its assistance on value formation and livelihood.

We Effect and partners implemented community-driven reconstruction involving the users in self-construction activities as the basis for the people to start making-decisions –e.g. what activities they wanted to do. This partnership has strengthened the capacities of users also regarding values formation, disaster risk reduction, democratic processes, and financial management.

Gawad Kalinga was a key partner to the LGU of Tanauan and NHA to accomplish the Tanauan project. Engaging with GK implies mobilizing its human resources; many of them contribute on a voluntary basis. GK builds on previous capacities developed by former users and bayani contractors from other cities and regions to deliver new housing projects.

National coordination among organizations working with housing recovery such as Gawad Kalinga, Habitat for Humanity Philippines, We Effect, Urban Poor Associates, The Relief and Rehabilitation Unit of the Archdiocese of Palo was missing in Haiyan affected areas. Such a coordination would contribute to capacity building and improve housing solutions and ways of involving the users before the next natural hazard hits the country.

5 Conclusions and propositions

5.1 The role of architects in housing recovery

Knowledge about housing as a process, user involvement in post-disaster housing and evolutionary housing have been coined in the late 1960s and 1970s. The importance of community participation in post-disaster housing has been widely recognized and advocated by international humanitarian aid organizations and scholars. Research from different developing contexts has shown the negative effects of leaving prospective users outside decision-making, planning, design, construction or monitoring the construction of their future houses. The 2018 version of the Sphere Handbook stresses the need for involving affected people in rebuilding emergency shelter, considering future permanent housing. *Why has user involvement in housing recovery not become mainstream in developing countries regularly affected by natural hazards?* I leave this research question to a future PhD candidate or postdoc. However, a plausible answer might be that the international aid industry –that is private companies and organizations working with rebuilding after disasters– would prefer to keep the status quo for different reasons. The latter means reproducing pre-disaster vulnerabilities –through providing emergency/temporary shelter to disaster survivors that only last a couple of years– so that poor people become victims of future hazards to keep the pro-profit aid industry business going on. It is arguable whether the latter is deliberate or not; however, there is a tendency towards keeping the poor vulnerable and dependant of relief organizations through short-term operations instead of working actively towards capacity building with a long-term perspective.

Who is responsible for designing and producing man-made environments after disasters? What about us, professionals from the making disciplines? Are we using our intentional causal agency to keep or to transform status quo? Practicing architects and researchers should question to what extent universities –both in developed and developing countries– are contributing towards keeping status quo. The current approach of investing scarce international funding in expensive universal solutions shipped from developed countries or in emergency/temporary shelter that will be affected by the next natural hazard contributes to keeping the status quo. Leaving poor affected people outside the housing recovery process also contributes to

keeping the status quo. How will newly graduate architects or planners propose a owner-driven reconstruction approach or a community-driven reconstruction approach for a resettlement in an area struck by a typhoon or earthquake when the latter is not part of the architectural curricula?

A practical and more personal goal of this research is to contribute to reorienting the training of current and future architects and other professionals working for international humanitarian aid organizations so that they can design and lead user-driven reconstruction approaches that would contribute towards rebuilding both resilient communities and safer settlements.

5.2 Approaches to housing reconstruction

Approaches to housing reconstruction in areas affected by typhoon Haiyan have shown that *hybrid partnerships* are needed to facilitate the involvement of prospective users more effectively. An example of hybrid partnership is Cluster 2: public-private-Non-Governmental Organization partnership. Such a partnership was carried out between the private sector, National Housing Authority, the Local Government Unit of Tanauan, and the Filipino NGO Gawad Kalinga in the project GK-Village in Barangay Pago, in Tanauan (See Section 4.1 and Paper 3).

Clusters 3, 4 and 5 –Filipino Non-Governmental Organizations, Faith Based Organizations and small International Non-Governmental Organizations– worked more independently from the Philippines government and with international funding. Hence, these clusters were not required to follow the procurement policy that limited reconstruction approaches mostly to agency-driven reconstruction. Human agents within these clusters might have exerted their intentional causal agency to favour community-driven reconstruction approaches.

Faith Based Organizations (FBOs) –both Filipino and International FBOs– have contributed with their own funding and approaches to housing recovery. The tendency when FBOs collaborate with other organizations is to enable processes where prospective users are involved and capacity building in the community is included. International FBOs have collaborated even with Filipino NGOs considered radical because of having a more critical view of the response and rehabilitation carried out by the Philippine government.

One drawback of the partnerships in Haiyan affected areas is that organizations lacked evaluation procedures during project implementation that focus on a) assessment and improvement of housing solutions; b) assessment of types and levels of user involvement; c) own institutional lessons and capacity building addressed to a wider audience. The

evaluations that humanitarian aid organizations carry out are post-occupancy evaluations and mostly oriented towards assessing user satisfaction or to assess if the project has accomplished its objectives. An example of this drawback is the fact that Habitat for Humanity Philippines replicated the housing solution from We Effect pilot project without assessing how the typology functions or could be improved. They neither assessed how prospective users had been involved and how they could be involved in ways that they enhance more capacities.

5.3 Explanation for unexpected housing outcomes

The thesis has shown that having critical realism as a metatheory has allowed the researcher to dig into deeper levels of reality. Hence, the thesis has reconstructed the conditions under which multiple causal mechanisms have triggered at least the following five unexpected outcomes in the housing recovery programme in Leyte:

(1) low output of permanent post-disaster housing;
(2) generic housing solutions that cannot been extended over time;
(3) reproduction of pre-disaster vulnerabilities;
(4) recovery of valuable land next to the shoreline by the Filipino elite;
(5) allocation of public funding in a limited range of recipients organizations.

Paper 2 provides plausible causal explanation of the emergent outcomes mentioned above through discussing six causal mechanisms. The proposed multiple causal mechanisms are (i) the intentional causal agency of the Filipino power elite; (ii) the collaboration-competition dilemma among individual agents and social structures/organizations; (iii) National Housing Authority tied hands on procurement and budget; (iv) unfreedoms for resilient resettlement (regarding reconstruction approaches, land and user involvement); (v) the secondary side effects of normative: land-use and resettlement policies (v); and (vi) the under the table practice of bribery.

One important conclusion regarding unexpected housing outcomes is the restrictive role that normative structures can have in post-disaster contexts. The Philippines government applied a restrictive planning approach to Disaster Risk Reduction when demarcating a 40-meter no-build zone in coastal areas as a rule of thumb, instead of assessing the risk of particular locations according to different uses.

The procurement policy derived in allocating public funding in larger construction companies or developers whilst limiting reconstruction approaches to agency-driven reconstruction off-site. The design and build

scheme provided too much decision-making power to the private sector and the Filipino elite of which some seems to strive towards keeping the status quo. Hence, such policies have benefited the *Filipino power elite network* whilst constraining the agency of Haiyan survivors regarding being involved in planning and design and construction or self-construction of their future houses.

The metaphor *National Housing Authority tied hands on procurement and budget* is to emphasize that enacting a *rebuild safer and just settlements procurement law* might untie NHA hands through expanding the current procurement options. Hence, NHA or another governmental body should have more resources and mandate to implement such a policy. A procurement policy oriented towards addressing socio-economic vulnerabilities would probably include other options such as a) partnership with small NGOs, FBOs or CBOs; and b) other approaches to reconstruction such as cash approach, owner- and community-driven reconstruction.

Involving Haiyan survivors who will be the users of permanent post-disaster housing would have helped to level both the availability and cost of skilled or unskilled labour. Involving prospective users even during the planning and design stages of agency-driven reconstruction would have probably led to multiple housing solutions with possibilities to extend the units horizontally and/or vertically to address the needs of families over time.

Involvement of poor people affected by natural hazards in housing recovery seems to continue being a difficult task to achieve at the project level for transforming people's pre-disaster vulnerabilities. Critical realism is a useful approach for research on housing recovery because it helps to identify human actors, structures, causal mechanisms and the context under which they operate to trigger specific outcomes –such as low output of permanent housing or generic housing solutions, as it was the case in this thesis. There is the need of developing the competence of both researchers and practitioners regarding the benefits of applying this research paradigm for mid-term evaluations of housing recovery programmes. Both the public sector and the humanitarian sector can benefit from identifying tendencies of their programmes at an early stage.

5.4 User involvement from a capability approach perspective

The researcher is aware of both the potential and the difficulties implied in involving prospective users in housing recovery processes. If the increased strength and frequency of natural hazards in the last decade is considered a tendency, the future capacity of the international humanitarian assistance and governments in providing relief and recovery respectively after calamities in developing countries will be severely affected. The case studies of Gawad-Kalinga-Village in Tanauan and We Effect pilot project in Ormoc have shown that capability space of post-disaster housing is adequate to analyze and evaluate types and levels of user involvement at project level –focusing in both the process and the product of housing recovery. Therefore, it is necessary to develop approaches to housing recovery that:

- offer a multiplicity of opportunities and choices to disaster survivors,
- develop their capacities to react, adapt, plan, manage, self-build or monitor construction, improve their livelihoods, enhance their democratic abilities, etc.;
- include spatial qualities that allow emergency shelters to evolve into permanent housing;
- contribute to rebuild resilient users, communities, and built environment.

The *model for user involvement* in evolutionary housing is a technical tool addressed to organizations responsible for carrying out housing recovery projects. This tool can be used for design, implementation and/or evaluation of housing recovery at project level. For evaluation purposes, the model assesses to what extent *being involved* or not during planning and design, construction or self-construction and post-occupancy has contributed to *enhance the capacities* of users both at individual and collective levels.

Freedom to Rebuild is a post-disaster housing evaluation framework addressed to disaster survivors to self-assess their pre-disaster vulnerabilities, their involvement in housing recovery and their resilience. This tool enables that poor people exert their agency through providing structured feedback to facilitating organizations that have carried out a specific housing recovery project. The self-assessment workshop for applying this tool is intended to be carried out by independent professionals or organizations.

One of the main lessons from this thesis is that users seem to enhance their capacities both when agency-driven reconstruction and community-

driven reconstruction are implemented by Non-Governmental-Organizations or Faith Based Organizations. The latter does not apply for private contractors because involving the users is not included in their contracts and they prioritize their profit-making interest higher than developing the capacities of disaster survivors. Public-private- Non-Governmental-Organizations partnerships such as the one implemented in the GK-Village in Barangay Pago in Tanauan, seem to be suitable for both agency-driven reconstruction with involvement of users at different stages of housing recovery.

Another interesting lesson is how the richness of a process is lost due to scaling up and being affected by the complex post-disaster context. We Effect pilot project in Ormoc and Abuyog managed to involve the users mostly in self-construction activities and post-occupancy self-management. Users have enhanced their capacities to a level that they self-evaluated themselves as "resilient" –in the case of the O-Balay housing cooperative. However, due to the pressure of donors, increasing people's resilience and building resilient houses was missed by Habitat for Humanity Philippines when replicating We Effect's housing prototype. There is a need of educating donors regarding the benefits of involving disaster survivors during the three stages of housing recovery, so that communities can cope more efficiently when facing the next natural hazard.

5.5 Recommendations

Unfreedoms for resilient resettlement in the Philippines should be transformed through enacting procurement and housing recovery policies that are consistent with counteracting pre-disaster vulnerabilities. Such policies should foster multiple reconstruction approaches, spatio-material conditions that allow for a multiplicity of housing solutions and tenures in-city resettlement, and involvement of prospective users in the housing recovery. Hence, policies and regulations for resilient housing recovery would create conditions for building both resilient communities and resettlements.

The importance of the present study is to extract lessons that can be further developed as housing recovery guidelines for a) counteracting causal mechanisms that affect housing outcomes negatively; b) enabling different *types* and *levels* of user involvement in planning and design, construction or self-construction, and post-occupancy for future projects; c) incorporating housing qualities that allow for incremental extensions overtime. The latter are key issues for achieving resilient communities and settlements that can stand future natural hazards with a long-term perspective.

There is a need to include user involvement in housing recovery and disaster risk reduction as an interdisciplinary subject in academia in both developed and developing countries. Knowledge on how to reduce risks when designing man-made environments in urban contexts and how to involve prospective users after natural hazards would be needed if the tendency of mega natural hazards continues.

5.6 Future research

Research in the field of housing recovery would benefit from having critical realist as a metatheory. Such a shift is needed in order to both inform and transform the current practice of international humanitarian aid organizations, so that international funding is invested in housing solutions that break with the vulnerability cycle whilst including prospective users and enhancing their capacities. A shift towards research informed by critical realism is also needed to unveil social structures profiting from housing reconstruction after calamities and to identify restrictive normative policies in developing countries reinforcing such practices.

Tools such as the model for user involvement in evolutionary housing and the Freedom to Rebuild framework –based in the capability approach– should be further developed theoretically and tested in other developing contexts. The latter would contribute to improve these tools. Capacity building regarding how to apply both tools is needed not only for professionals from the making disciplines but also for other practitioners active in post-disaster housing reconstruction on the ground.

In the long term, the scientific goal of this researcher is to develop, test and validate a model for user involvement addressed to professionals working with housing recovery (proposed in Paper 3); and a post-disaster housing evaluation framework addressed to vulnerable survivors of natural hazards (proposed in Section 4.4). Both tools are based on applications of Sen's capability approach. The practical goal of this research is to contribute to transform current housing recovery practice in order to develop resilient communities and built environment whilst optimizing the use of scarce resources.

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Lund University

Lund University was established in 1666 and is one of Scandinavia's largest institutions for education and research, with eight faculties and several research centres and specialised schools. The University offers one of the broadest ranges of programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The University has a distinct international profile, with partner universities in over 70 countries. The University has 40,000 students and 7,400 staff based in Lund, Helsingborg and Malmö.

Architecture and Built Environment

The department of Architecture and Built Environment was established on 1 January 2005 through a re-organization at the Faculty of Engineering. Its tasks include training architects, supervising postgraduate students and conducting research. The research field covers the entire process of planning, construction and management from conceptualization to demolition and re-use. Research studies could include technology as well as social studies, humanities and the arts. They can be interdisciplinary and multidisciplinary, as well as a deeper study within one of the subject areas of the research field.

Housing Development & Management (HDM)

HDM undertakes training and research in housing from an international perspective: planning, design, production, use and management, and the relationship between the dwelling and its surroundings from neighbourhood to city level. The aim is to understand how to improve the processes leading to good housing and sustainable development, especially for the poor.

HDM conducts research and studies in the following areas:

- Sustainable urban housing related to socio-cultural aspects
- Informal settlements development processes
- Assisted self-help housing as a tool for resource mobilization and community cohesion
- Post-disaster housing reconstruction and user involvement
- The relationship between urban design and microclimate
- Building design, thermal comfort and energy use
- Household energy use linked to people's life styles

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