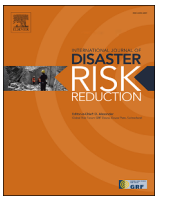
International Journal of Disaster Risk Reduction 95 (2023) 103861

Contents lists available at ScienceDirect

International Journal of Disaster Risk Reduction

journal homepage: www.elsevier.com/locate/ijdrr



Social capital and community integration in post-disaster relocation settlements after the 2004 Indian Ocean Tsunami in Indonesia

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ARTICLE INFO

Keywords:
Aceh
2004 Indian Ocean Tsunami
Social capital
Disasters
Post-disaster resettlement
Climate migration

ABSTRACT

The permanent relocation of persons from areas threatened by environmental stress is widely seen within the international humanitarian sector as problematic due to negative social and economic impacts. However, relocation is increasingly seen as a likely, if unfortunate, response to climate change as rising sea-levels, changing ecological conditions, and increasingly intense disasters create powerful push factors. The more dramatic examples of environmental migration focus on long-distance movements, including crossing national borders, which raise issues about the importance of social capital for migrants trying to build community cohesion and integrate into different cultural contexts. However, it is likely that most relocation because of environment stress will occur at sub-national to very local geographic scales, similar to what happens after large-scale disasters, meaning that persons might be resettled within familiar cultural, linguistic, and religious contexts. In this paper we use qualitative data collected in 12 resettlement complexes built in Aceh, Indonesia for persons displaced by the 2004 Indian Ocean Tsunami to analyze the importance of social capital for building cohesion within resettlement complexes and between resettlement complexes and host communities. We find that even though tsunami-affected persons were generally relocated less than 20 km from their pre-tsunami homes, there were clear social distinctions between resettled persons and host communities, which had practical impacts on integration, access to resources, and participation within local governance structures. We found shared cultural and religious traditions and social practices served as important sources of bonding capital within resettlement complexes. However, the same attributes were less effective as bridging capital between resettlement complexes and their host communities. These findings show that governments and NGOs need to be cautious about underestimating the negative social disruptions caused by short-distance relocation and the importance of bonding social capital for fostering stable and sustainable resettlement communities.

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https://doi.org/10.1016/j.ijdrr.2023.103861
Received 23 November 2022; Received in revised form 9 July 2023; Accepted 12 July 2023
Available online 13 July 2023

1. Introduction

Global climate change raises the specter of the mass migration of people from areas that can no longer support subsistence and well-being [1–5]. There has been significant media and academic attention paid to the ethical, legal, and logistical challenges of managing large groups of persons displaced across national borders by environmental stress [6–10]. While international migration motivated at least in part by environmental pressures might become an increasingly pressing humanitarian issue, much of the relocation from climate change is likely to occur rather within national boundaries, and potentially consist of relatively short distance movements, similar to what happens following natural disasters [11–16]. This means that many migrants may resettle in close proximity to their former homes and in ostensibly similar cultural settings.

While such short distance movements might seem less problematic than international migration, decades of research and practice establish that relocation of people from high risk areas or land designated for infrastructure or development projects can have a range of negative outcomes. Even relatively short distance relocation can separate people from their sources of livelihoods, familial and social networks, and their ancestral homes [17–24]. Communities resettled following disasters often end up with inferior land, housing, and infrastructure, in some cases leading them to abandon their resettlement communities [19,25–27]. Furthermore, relocated persons might be placed within already established host communities, which can lead to tension over land use, access to resources, congestion, governance jurisdiction, cultural differences, and disruption of host-community ways of life [28–30]. For all of these reasons, current humanitarian best-practice is to avoid involuntary relocation unless absolutely necessary [31–33].

However, as environmental stresses become more acute, there will be increasing pressure on governments and NGOs to facilitate sometimes large-scale relocation of persons and communities away from high-risk or otherwise uninhabitable areas. Therefore, it is essential to better understand the challenges caused by short-distance relocation and explore potential solutions to make such efforts more sustainable, equitable, and humane. In our contribution to this special issue on social capital and post-disaster relocation, we use data from a qualitative study of 12 resettlement complexes in Aceh, Indonesia built to house persons displaced by the 2004 Indian Ocean Tsunami, to assess social integration within resettlement complexes and the extent to which resettled persons were integrated into host communities ten years after the tsunami. Specifically, we test whether familiar cultural, social, religious, and governance practices served as bonding capital for building community cohesion within resettlement complexes, as well as bridging capital between residents of resettlement complexes and their host communities. Our focus on whether high levels of cultural familiarity can serve as both bonding and bridging capital is a unique contribution to both the disaster and resettlement literatures, as most studies generally assume that there are significant cultural differences and barriers between resettled persons and host communities.

2. Social capital and resettlement

Social capital, broadly defined as the networks of relationships and social resources that allow people to function effectively as a group [34–38], is an important factor for post-disaster recovery [39]. Numerous studies have established that higher levels of social capital can lead to better recovery outcomes, increased access to post-disaster assistance, and increased psychosocial wellness [40–48]. Additionally, there is an extensive body of literature showing how social capital can shape the resettlement patterns of migrants and refugees, and potentially build community cohesion and support practical aspects of resettlement such as education, employment/livelihoods, childcare, socializing, and integration with host communities [49–53]. Furthermore, social capital has been noted as an important factor influencing the success and sustainability of post-disaster resettlements [44,54–56].

There are two main kinds of social capital that can potentially shape resettlement outcomes: bonding and bridging capital [35,57,58]. Bonding capital are social resources, such as personal/familial connections, ethnic-based networks, and shared linguistic, cultural, and/or religious understandings, that help build trust, cohesion, and functionality within groups of people with shared cultural attributes [59–61]. In practical terms, bonding capital can be useful for groups of resettled persons with shared attributes to engage in productive manners that provide practical benefits as well as a sense of belonging and community. Bridging capital are social resources, such as participation within professional networks, sporting activities, religious services, civil society, etc. that help build trust and productive connections between resettled persons and their host communities [38,59,62–65].

Much of the literature on social capital and resettlement assumes homogeneity within resettled communities and differences between resettled persons and their host communities based upon cultural, religious, linguistic, ethnic, and/or socio-economic factors. Accordingly, bonding capital mainly focuses upon ‘in-group’ relations amongst people with shared attributes, whereas bridging capital mainly focuses on relations between ‘in-groups’ and ‘out-groups’ [50]. However, Madhavan and Landau [66] remind us that there can be considerable diversity within host communities. Less noted in the literature – and one of the things we examine in this paper – is whether considerable similarities between resettled persons and host communities can serve as both bonding and bridging capital.

In this paper we explore the relevance of social capital for relatively short-distance resettlement, where resettled persons do not move far from their place of origin and are resettled with other persons and in proximity to host communities which have ostensibly similar cultures, social practices, languages, etc. Our hypothesis is that higher levels of shared cultural understandings, traditions, and practices have the potential to provide both bonding capital to build internal cohesion within resettlement complexes, as well as bridging capital to facilitate good relations and integration between resettlement complexes and host communities. In our analysis, we focus on three possible sources of both bonding and bridging capital, as described below:

1. **Shared Religious Traditions:** Research has found that shared participation in faith-based organizations and activities can serve as both bonding and bridging capital [62]. Religion can serve as a foundational component of migrant communities – providing familiar settings, languages, and practices. Furthermore, religious establishments often double as venues for more secular social services, such as education, language instruction, and social activities [52,59,62,64,67–70].

Hypothesis 1. Shared religious traditions and engagement with religious practices and rituals will provide both bonding capital to build community cohesion within the resettlement complexes, and bridging capital to build relations between resettled persons and the host community.

2. **Shared Cultural Practices:** Participation within shared and/or familiar cultural practices, such as festivals, celebrations, sporting events, and memorials, can serve to express common identities and values, which in turn can build trust and contribute to both bonding and bridging capital [23,44,71,72]. For example, one study of social capital and post-disaster resettlement in Indonesia found that respondents reported the importance of 'life events' such as births, circumcision, marriage, and burials as important moments for bringing people together to form a more cohesive sense of community [73].

Hypothesis 2. Shared cultural practices will provide both bonding capital to build community cohesion within the resettlement complexes, and bridging capital to build relations between resettled persons and the host community.

3. **Shared Visions of Local Governance/Social Organization:** In a study of resettlement communities in Zimbabwe, Barr found that "in the absence of kinship and ethnic ties they traditionally depend on, they needed to build social ties in order to support cooperative endeavors and that one of the ways in which they chose to do this was through civil social engagement." [[74], p. 1764] There is evidence that participation in community leadership, community-based organizations, and engagement with local governmental organizations can play an important role as bonding and bridging capital [51,71,75].

Hypothesis 3. Shared understandings of and inclusion within local formal and informal governance institutions will provide both bonding capital to build community cohesion within the resettlement complexes, and bridging capital to build relations between resettled persons and the host community.

3. Post-Tsunami relocation policies

In the Aceh province of Indonesia, the 2004 tsunami inundated over 600,000 ha of land, rendered over 80,000 ha submerged or uninhabitable, destroyed over 140,000 houses, and temporarily displaced over 600,000 people [76–79]. When the tsunami hit, many people ran away from the coast and/or to higher areas they considered safe [80,81]. Some stayed at relatives' houses, while others stayed at public facilities such as *meunasahs* (village communal buildings), mosques, schools, universities, and military barracks. Tsunami-displaced persons (TDPs) were initially provided with food and shelter by local residents before national and foreign militaries, the Indonesian government, and humanitarian aid organizations started to provide formal emergency assistance such as food, water, medical services, and temporary shelter [82].

In January 2005, the Indonesian government issued a policy that eligible tsunami-affected households would receive new permanent houses of at least 36 m2 size or assistance to repair damaged houses that could be re-occupied [83]. However, the government acknowledged that this would take time, and in the meantime they would build temporary barracks to house TDPs. The National Public Work Department provided funds for barrack development, while the local Aceh government provided the land [77]. Barracks generally consisted of long elevated buildings made of wood, with electricity and nearby water and sanitation facilities. Each building consisted of several family rooms, a public kitchen, bathrooms, and a public hall for meeting and praying. There were at least 190 documented barracks in Aceh by December 2006 [77].

The scale of destruction and displacement made provision of permanent housing one of the top priorities during post-tsunami reconstruction [83]. While there was initially much debate about not rebuilding within areas heavily damaged by the tsunami and exposed to future coastal hazards, in the end most tsunami-affected households who owned land were provided aid houses in their pre-tsunami villages [84]. However, approximately 13,000 households around the city of Banda Aceh could not receive aid houses in their pre-tsunami villages because the land was submerged or uninhabitable [85,86]. Additionally, approximately 15,000 pre-tsunami renters and squatters did not have land to build a house on, and/or they had difficulty finding new rental housing in their village due to limited housing stock, increased rent prices, and loss of income [85].

Some organizations, including Oxfam and UNDP, advocated for a formal policy to provide assistance for landless TDPs. Their recommendations stressed the importance of reintegrating landless persons, including renters and informal residents, back into their pre-tsunami communities, or at least villages close to their pre-tsunami livelihoods using community-based village planning mechanisms that would enable them to rent, buy, or receive land there [85]. Proponents of this strategy argued that it was better than relocating people off site, which could be disruptive and impede recovery and long-term well-being.

In the end, a combination of pressure to move people out of barracks into permanent housing and inability to develop a feasible policy to rehouse TDPs in or near their pre-tsunami villages led the BRR and aid organizations to build a number of resettlement complexes on previously uninhabited agricultural land near existing villages in Banda Aceh and Aceh Besar. These were intended to provide new permanent houses for people without the means to secure permanent housing solutions on their own. Most of these resettlement complexes were constructed just outside tsunami affected areas. Some land was allocated by the Aceh government, but most land was purchased from private landowners by the BRR, donors, or groups of TDPs. All land eventually obtained to build post-tsunami resettlement complexes fell within the jurisdiction of existing villages – which we refer to in this paper as 'host-villages'. This is important because all resettled persons were put into populated areas and had to relate with and function within the parameters of long-established villages.

The various ways in which people ended up in resettlement complexes was not a uniform or transparent process. Persons living in temporary barracks became aware of the possibility of obtaining houses in new resettlement complexes through a combination of announcements from barrack leaders, solicitation from representatives of the NGOs involved in building resettlement complexes, and

word of mouth. Most relocated people preferred to live as close to the city of Banda Aceh as possible. Therefore, resettlement complexes in or near Banda Aceh received many more applications than allocated houses, so the house providers had to select house recipients. Relocated people who could not afford to buy land got houses located further from Banda Aceh. Most relocated people submitted applications for housing to the BRR or aid organizations individually, while some submitted as a group.

To get a relocation house, the TDPs had to submit their original family identification card and a letter verifying their pre-tsunami renter and tsunami victim status from the head of their pre-tsunami village. They sometimes needed additional verification from the head of their sub-district, head of sub-district police office, and head of sub-district military office. Persons/households deemed eligible were assigned to one of the resettlement complexes where they were provided with a standard 36 m2 house. Most resettled households were granted legal ownership of their land and house within the resettlement complexes. Despite the many challenges of relocation and post-disaster recovery, many resettled persons who were renters before the tsunami became homeowners as a result of this housing aid process.

4. Resettlement complex profiles and methods

4.1. Case study profiles

In this paper we focus on 12 resettlement complexes for tsunami-affected residents of Banda Aceh and Aceh Besar (Fig. 1; Table 1). These complexes lie within or near the periphery of Banda Aceh and bordering regions of Aceh Besar. The Pante Riek complex was built within the city of Banda Aceh. Most of the land used for the complex was owned by the Aceh government, with additional land bought by the BRR from private landowners. The resettlement complex was built on agricultural land enclosed by an old meander of the Aceh river (SI Figs. 1 and 2).

All other resettlement complexes were built outside of the city limits. The BRR bought around 140 ha of land on the slope of a ridge to the north-east of Banda Aceh from residents in Neuhen, Lam Ujong, Mireuk Lam Reudep, and Labuy villages. The BRR partnered with aid organizations to establish the Beuramo New Town project to accommodate around 2500 relocation houses [SI Figs. 3–6]. The relocation complex included housing and communal facilities like a mosque, meeting hall, school, health center, and market. It was envisioned as a satellite town for Banda Aceh, which would create new economic opportunities. The area is within convenient travel distance to the Malahayati port and the Blang Ulam industrial estate, which were anticipated to provide future employment opportunities for relocated people [77]. Further to the east is the Ladong resettlement complex, located on the slope of a ridge approximately 1 km from the shore (SI Figs. 7 and 8). Four resettlement complexes, Punie, Ulee Tay, Kayee Lheue, and Krueng Anoe, were built to the south of the city, inland from the sea (SI Figs. 9–14). These were all built on repurposed rice fields next to existing villages.

Most of the areas used for resettlement complexes were agriculture fields or grazing spots owned by individuals and located a short distance away from the host village housing zone. Village leaders[1] in seven out of 12 host villages told us that they were consulted before the BRR or NGOs bought land in their villages and built resettlement complexes. Village leaders in five other villages (Pante Riek, Mireuk Lam Reudep, Lam Ujong, Punie, and Atong) reported that they were not consulted. Village leaders in Pante Riek and Atong told us that they were not consulted because the land used for the resettlement complexes was owned by the local government or a social foundation. In other villages, the BRR or NGO contacted individual owners directly to buy their land. To get houses in the Kayee Lheu and Ulee Tuy resettlement complexes, which are close to Banda Aceh, TDPs had to purchase the land themselves.

House providers and year occupation started for the resettlement complexes are shown in Table 1. The first relocation settlement in Pante Riek started in 2005, within the first year after the tsunami, and the last resettlement complex was completed in Miruk Lam Reudeup in 2011, two years after the end of formal reconstruction period. At the time of relocation, most aid organizations were about to close their operations in Aceh. The late completion of resettlement complexes meant that resettled people received relatively limited post-resettlement assistance (when compared with people who returned to rebuild their pre-tsunami villages), such as livelihood aid and public facilities.

4.2. Methods

This study is part of a larger longitudinal research project on post-tsunami recovery in Aceh which used mixed quantitative and qualitative methods to investigate housing, economics and livelihoods, relocation, gender, demographic changes, and disaster risk reduction [81,84,87–95]. In this paper, post-tsunami resettlement is defined as the provision of permanent housing for tsunami-affected people within an official resettlement complex by the government or aid organizations.[2] We assessed the status of resettlement complexes around Banda Aceh ten years after the 2004 tsunami, and five years after the reconstruction officially ended, with interview data collected between December 2014 to January 2015. To gain a comprehensive overview of the status of residents within the resettlement complexes, we analyzed post-tsunami resettlement program design and implementation, the occupancy rate of resettlement houses, the demographic profile of people living in resettlement complexes, the impacts of resettlement on TDPs, the development of social cohesion amongst resettled persons, and integration between resettled persons and host villages.

[1] These persons were village leaders when we conducted this survey. Contextual information presented in this section come from interviews we conducted with leaders of resettlement complexes and host villages. See the Methods section for detailed information on data collection.

[2] We found it was common in rural tsunami-affected villages for new housing to be constructed in different places within village land to account for land degradation. However, in such cases, villages were kept together, and there were not significant changes in terms of village composition, governance structure, and access to livelihoods. Additionally, studies during the reconstruction period demonstrated that many internally displaced persons (IDPs) temporarily moved to other locations in Aceh. It is not clear how many eventually returned. These groups of 'relocated' people are not included within this study.

villages), such as livelihood aid and public facilities.

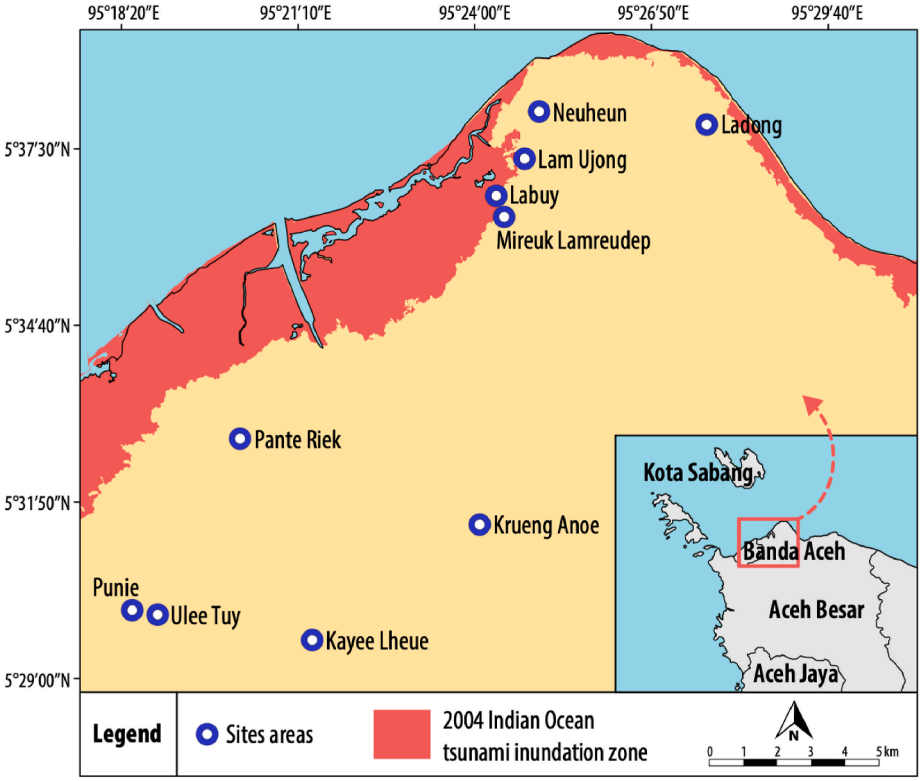

Fig. 1. Map showing the post-tsunami resettlement complexes discussed in this paper. The red shaded areas indicate the inland extent of destruction caused by the 2004 Indian Ocean tsunami. (Figure by M. Ikhsan). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

Table 1
Post-tsunami resettlement complexes in Banda Aceh and Aceh Besar, as of December 2015. We conducted one focus group discussion (FGD) in each resettlement complex and host village.

Resettlement Complex	Number of Occupied Houses	Number of Survey Respondents	Number of Interviews	House Provider
Pante Riek	702	69 (9.8%)	23	Buddha Tzu Chi
Punie	115	12 (10.4%)	7	BREA
Ulee Tuy	230	23 (10%)	9	Gen-Assist, IOM
Kayee Lheu	271	28 (10.3%)	11	Kuwait Red Crescent, IOM
Krueng Anoe	77	8 (10.3%)	5	Yayasan Berkati Indonesia
Miruk Lam Reudeup	508	50 (9.8%)	19	Asian Development Bank, Australian Red Cross, Islamic Relief Saudi Charity Campaign
Labuy	83	8 (9.6%)	6	Asian Development Bank, Australian Red Cross
Lam Ujong	97	10 (10.3%)	5	BRR, Saudi Charity Campaign
Neuheun	1391	149 (10.7%)	48	Buddha Tzu Chi, PMI-French Red Cross, Nurani Dunia Mandiri, Rebuild Aceh Foundation, UMCOR, China Charity Federation, Saudi Charity Campaign
Gampong Baro	46	5 (10.8%)	10	TDH German, Gen-Assist
Ladong	155	13 (8.3%)	10	Australian Red Cross
Atong	135	13 (9.6%)	6	IOM, Oman-based Charity Organization
Total	3810	388 (10.1%)	159	

In each resettlement complex, we checked the occupancy status of every aid house using a combination of high-resolution satellite images, ground proofing, and interviews with host village and resettlement complex leaders. Out of 4432 identified houses, 3810

(86%) were occupied and 622 (14%) were abandoned.[3] Only occupied houses were used within the research sampling frame. Households were randomly sampled from all 12 resettlement complexes and the number of sample households in every complex was drawn proportionally based on the number of occupied houses to provide a statistically representative sample. We conducted a total of 388 questionnaires. Our project had teams of Acehnese field researchers who administered the questionnaires. Most of our field researchers had years of experience conducting surveys and facilitating community outreach for international NGOs during the post-tsunami reconstruction period. All data collection instruments are included in the SI. In this paper we present data from the pro-forma survey on the composition of the resettlement complexes and their options regarding resettlement to provide context.

Most of the analysis presented in this paper comes from qualitative data from 159 semi-structured interviews with resettlement residents, leaders, and host village leaders (Table 1). We conducted focus group discussions (FGD) in each resettlement complex. Participants were selected based upon their knowledge of the resettlement process. A local facilitator in each resettlement complex was hired to identify and recruit the FGD participants. Each resettlement complex was represented in those key informant interviews and group discussions. Transcripts of all interviews and FGDs were coded using MAXQDA to identify key themes related to: 1) personal pathways of resettlement; 2) social cohesion and relations within the resettlement complexes; 3) governance structures within the resettlement complexes; 4) host community perspectives on the resettlement complexes; 5) inclusion of resettled persons within the governance structures of the host communities; and 6) relations between residents of resettlement complexes and host communities.

5. Results

5.1. Composition of resettlement complexes

5.1.1. Residents of resettlement complexes who were displaced by the tsunami (62%)

We surveyed a total of 388 residents within the 12 resettlement complexes. We found that 62% of respondents residing in the complexes at the time of our survey were relocated because they lost their place of residence during the tsunami. Among these TDPs, almost 80% did not own a house or land in their pre-tsunami villages (rented, squatted, lived for free with relatives, etc.). The remaining 20% owned land/house in their pre-tsunami villages. Approximately half of these pre-tsunami land-owners still maintained their land in their pre-tsunami villages, while the other half had either sold their land, or it was submerged or too degraded for residential use.

Therefore, the vast majority of TDPs who were offered aid houses in the resettlement complexes had no other place to live following the tsunami. Return to their home villages was generally not an option due to lack of housing for purchase or rent and donor policies against providing houses to persons who did not own land. We found that 26% of respondents were given a choice about where they were resettled, only 2% were offered the choice to return to their pre-tsunami village, while 71% did not have a say over where they were resettled. Most relocated persons were given some degree of formal ownership of their land/house in the resettlement complexes – thus many TDPs who were renters or otherwise informal residents before the tsunami became home owners.[4]

TDPs within a given resettlement complex typically came from various pre-tsunami villages, as there was no consistent policy to group tsunami-affected persons from the same pre-tsunami villages together in the same resettlement complexes. The single exception is Gampong Baro, where survivors of a single pre-tsunami village organized their relocation as a group.[5] In the other cases, some resettled persons met in the barracks after the tsunami and were relocated to the same place, such as in Ladong and Labuy. TDPs in the same barracks sometimes coordinated among themselves to end up in the same resettlement complex. Some resettlement complexes, like Atong and Kayee Lheu, had people from different pre-tsunami villages who did not know each other before resettlement. Some big resettlement complexes, such as Pante Riek and Buddha Tzu Chi in Neuheun, combined both those who had lived together in the tent complex established by Buddha Tzu Chi in Jantho, with people from different places who arrived later. Therefore, people in resettlement complexes had different degrees of prior social integration, ranging from living in the same village and living in the same barracks after the tsunami, to having never met before resettlement.

5.1.2. Residents of resettlement complexes who were not displaced by the tsunami (38%)

The other 38% of respondents living in the resettlement complexes at the time of our survey were not resettled because of the tsunami. Rather, they were renting or had purchased an aid house within a resettlement complex from TDPs, or were residents of the host village who somehow received an aid house within the resettlement complex during the reconstruction period.[6] It was not possible for us to determine why a substantial number of TDPs opted to rent or sell their aid houses. Regardless, it is clear that within approximately five years after the completion of the resettlement complexes, there was significant resident turnover which impacted both the composition of the population within the resettlement complexes and relations between the resettlement complexes and host villages. Several host village leaders complained to us about the turnover of residents within the resettlement complexes, as it was dif-

[3] Abandoned houses were defined as not being occupied for at least 30 days prior to the commencement of the survey. Field researchers determined house occupancy status by observing the house appearance, and looking for indications of abandonment such as no signs of current occupation (people, personal items in or around the house, etc.), lack of maintenance, lack of electricity, and over grown bushes around the house. When in doubt, field researchers verified house occupancy status with neighbors and village leaders.

[4] At the time of our survey, TDPs in Pante Riek and Buddha Tzu Chi Complex in Neuhen has not received land titles. TDPs in the other resettlement complexes had received land titles.

[5] Gampong Baro is unique amongst the relocation settlements as almost all of the inhabitants were from the same pre-tsunami village. Their land was too heavily degraded by the tsunami to re-build on, and so the village pooled together to purchase a large tract of land to build a new village on.

[6] This latter category was not anticipated and mainly consists of people who used personal connections, payments, or another form of corruption to obtain an aid house.

ficult to keep track of which TDPs were leaving and who was coming in. Host village leaders reported that the TDPs did not always ask or inform them of a pending house sale, which was a source of tension. Our data show that many of the non-tsunami affected residents within the resettlement complexes who bought or rented an aid house came from all over Aceh, and in some cases from distant parts of Indonesia. The end result was all resettlement complexes other than Gampong Baro had to continually integrate new households who came from various locations.

5.2. Community cohesion within resettlement complexes

5.2.1. Social cohesion

Our survey shows that over 65% of respondents stated that they are content to stay in their resettlement complex. However, this could be skewed because of the number of tsunami-affected persons who had already moved out before our survey. Key informant interviews and FGDs suggest that most of the remaining residents within the resettlement complexes claimed to have good to tolerant relations with other residents. However, we heard about sources of distance, tension, and occasional conflict in all of the resettlement complexes. Conflict in relocation settlements occurred at the household level, between neighbors, and between relocated groups, but for the most part such issues do not seem to be unique to resettlement complexes (meaning there was no reason to believe they did not also occur in other villages). Most of the issues reported to us were domestic disputes, bothersome neighbors, and petty crime.

Heightened tension that was clearly a product of resettlement was prevalent in Punie, where a relatively equal number of Muslim Acehnese and Christian Bataks[7] were resettled in the same complex. There were widespread rumors amongst the resettled Muslims within the complex (and the host village, as discussed more below), that a Christian NGO relocated the Bataks to the village to spread the Christian faith. Some respondents from the host villages even expressed doubt that the Bataks were tsunami survivors. Respondents reported that differences between the groups' life styles were the main sources of tension, as the Bataks consume pork and alcohol, which are forbidden by Islam, wear different attire, and engage in what Muslim residents saw as inappropriate social relations. Christian Bataks reported that they were discouraged from conducting prayer services in the complex. These tensions resulted in limited daily interaction, relatively segregated groups, and in some cases threats of violence.

Building cohesion amongst residents within the resettlement complexes was a process that took considerable time and required both formal and informal efforts. It was common for residents to note that their relations with other resettled residents were initially not as strong as the relations that they had in their pre-tsunami villages. Respondents reported that some people in the resettlement complexes were more individualistic than in their former villages and did not want to participate in mutual help activities like cleaning the complex. Some resettled people were reluctant to interact socially with other complex residents. Such hesitation possibly reflects, at least in part, the extensive trauma tsunami-survivors went through, the disorientation caused by prolonged stays within the barracks, challenges of being grouped with unfamiliar people, and that some residents of the resettlement complexes were short-term renters who lacked motivation to invest in building long-term social relations.

Several factors seemed to foster social cohesion within the resettlement complexes. While most donors did not implement specific programs or activities to facilitate the integration of people relocated from different pre-tsunami villages, the Buddha Tzu Chi Foundation in Pante Riek facilitated meetings and social events for resettled people from the start so they could get to know each other, establish leadership structures, and discuss common problems. Respondents reported that this helped integrate residents and give them a sense of collective purpose and belonging. In some of the other complexes, complex leaders played a significant role by encouraging people to cooperate and participate in communal activities.

We found that participation within familiar religious practices, which are standard within many Acehnese Muslim villages, was perhaps the most important factor that contributed toward community bonding in the resettlement complexes. Respondents reported that shared religious services, prayer groups, and activities such as Quran studies and recitation sessions were important social activities that helped bring disparate people together and provided a point of connection for non-tsunami displaced Muslim residents from elsewhere in Indonesia who subsequently moved into the resettlement complexes.

Additionally, respondents stressed the importance of participating in Acehnese cultural traditions that couple as social activities and forms of mutual assistance for building community cohesion. These are separated into *keuruja udeep* and *keuruja mate. Keuruja udeep,* which means 'living works', is related to celebrating 'living' activities like marriage, circumcision, cleaning the village, etc. *Keuruja mate* means 'death works" and is concerned with cleaning and preparing the body of the deceased, burial, and conducting post-burial prayers. These bonding activities are public performances that require interpersonal engagement and often involve exchange of gifts, money, food, and labor, creating obligations of reciprocity which bind residents together. In most of the resettlement complexes, residents and village leaders reported that these kinds of familiar and prescribed rituals provided important points of contact for people and opportunities for the resettlement complexes to morph into what most residents saw as villages, replete with a full range of village social and cultural activities.

Establishing appropriate communal venues and spaces for cultural and social activities played an important role in building community cohesion, similar to what we found in reconstructed villages within the tsunami inundation zone [88,96]. Resettlement complexes that provided venues for social and cultural activities, religious worship, and community deliberation seem to have built both community cohesion and functioning social and governance infrastructure quicker than the complexes which did not initially provide such facilities. Three complexes were not provided with a community center. A respondent mentioned that the lack of a community center made it difficult to socialize and build community cohesion, especially early on in the relocation process. Eventually, people

[7] The vast majority of TDPs in Aceh were ethnic Acehnese, spoke a dialect of the Acehnese language, and were strict Muslims. The Bataks are an ethnic group originating south of the Aceh province in Sumatra, that are distinct for their cultural practices, architectural styles, and practice of Christianity. Some ethnic Bataks lived within areas of Banda Aceh affected by the tsunami and therefore ended up in a resettlement complex.

living in those three complexes built community centers with their own resources so they would have a suitable venue for worship and social engagements.

5.3. Leadership and governance within resettlement complexes

The development of governance structures within resettlement complexes played an important role in helping to build cohesion within the resettlement complexes. Every complex elected a coordinator to manage activities in the complex, find solutions for community problems such as drainage and waste management, mediate conflict among resettled persons and serve as the focal point in communications between the resettlement complex and host village leaders. The complex coordinator served as an extension of the host village leadership into the resettlement complex, and helped with village administration, such as registering resettled persons for national elections and distributing assistance to poorer residents. Resettlement complex coordinators generally had some autonomy to manage their complexes, with consultation or referral to host village leadership about problems that they could not solve by themselves. Some complex coordinators had served in similar roles as barrack coordinators, like a complex leader in Ladong who had ten years of experience coordinating in the barracks and then at the resettlement complex. Some big relocation settlements, such as Pante Riek and Neuhen, are divided into several complexes, each with a complex coordinator, while smaller settlements like Kayee Lheu and Krueng Anoe only have one coordinator.

In addition to electing complex coordinators, some complexes established community advisory boards (*tuha peut)* to supervise the complex coordinator and help him/her solve community problems. The *tuha peut* is a traditional Acehnese council of respected elders and knowledgeable people who provide leadership and guidance on issues like land use, agriculture and fishing, village development projects, resolving minor conflicts, and enforcing village codes of behavior. Some complexes formed religious groups (*kelompok pengajian)* that meet every week to pray and listen to sermons, funeral groups to manage burial practices and assist mourning families, and cultural groups to teach traditional arts. Frequent meetings during these activities enabled resettled people to build stronger social relations and trust. These governance structures and cultural institutions replicated the governance structures common in Acehnese villages, providing resettled residents from Aceh with familiar kinds of institutions and activities and generally served as effective bonding capital. However, leadership structures in resettlement complexes lacked official authority and legal jurisdiction and were subordinate to the official governance and power structures of the host villages.

5.4. Integration of resettlement complexes with host villages

5.4.1. Social integration between host villages and resettlement complexes

Most members of the host villages initially saw resettled people as tsunami survivors who were forced to leave their pre-tsunami village and needed help, and so there was a period of initial sympathy. However, residents within the resettlement complexes were clearly defined as 'newcomers' (*ureng tameung)* both by themselves and by residents in host villages (*asoe lhok)*. We found that in almost all host villages and resettlement complexes, there was the perception that resettled persons had an obligation to respect and conform to the social norms and practices of the host villages. This was stated by all of the leaders of the host villages we interviewed, but also voiced by both leaders and residents within the resettlement complexes. Host village residents saw clear differences between themselves and the residents of the resettlement complexes, in spite of the fact that most resettled persons were Acehnese Muslims from near-by areas who shared considerable cultural, religious, and governance practices.

Once initial sympathy wore off, attitudes in the host villages about resettled residents turned more ambivalent, and in some cases negative. Many of the host villages leaders saw the resettlement complexes as some degree of disruption or burden. There was a perception within most host villages that resettlement complexes had more conflicts and problems than in the host villages. Several host village leaders told us that there were higher rates of domestic abuse, criminal activity, and culturally inappropriate activity within the resettlement complexes, compared with the host village. Inadequate drainage and waste management facilities, repurposed agricultural lands, and restricted access to use the host village cemetery have led to tensions between resettlement residents and host villagers. However, it is important to note that some host village leaders reported that there were positive benefits that came with the resettlement complexes, such as support for new village facilities and infrastructure such as schools and roads, increased land price in the host village, and new economic opportunities for shop keepers in the host villages due to the increased population.

We found that there were tensions between host villages and resettlement complexes based on perceived bias in the distribution of resources and access to facilities. Within Indonesia, there are types of social welfare, such as micro-credit programs for women, cash transfers, and rice for the poor, that are typically distributed at the village level. It was common for residents from the resettlement complexes to feel that they were not receiving their fair share of assistance, in spite of the fact that the host villages included the number of residents within the resettlement complexes when requesting aid for their village. Miruk Lam Reudep and Pante Riek are exceptions where the social security programs seemed to be distributed equally between members of the resettlement complex and the host village. In some villages, such as Labuy and Ulee Tuy, resettled residents did not receive any social security programs. Some of the host village leaders responded to this by saying that they needed to take care of their people first – and by pointing out that there is never enough assistance for everyone and that not all members of the host villages receive assistance either. However, a combination of restricted or conditional involvement in formal government and access to resources make it clear that there were potent barriers between host villages and resettlement complexes and that resettled persons were in a subordinate position.

While many respondents reported that there were generally good interpersonal relations between residents of the host villages and resettlement complexes, it was common to hear that the host villages and resettlement complexes formed their own distinct social spheres. There were different perspectives on the causes and responsibility for the lack of integration between host villagers and resettlement residents. It was noted by respondents on both sides that part of the cause was the physical separation of host villages and resettlement complexes. We found that while they were generally in close proximity, they had separate spatial layouts that amplified

perceptions of social separation. Host community leaders told us that resettled residents had limited social relations with the host community and did not participate in communal activities such as visiting host village families who were in mourning; attending village meetings; and cleaning public spaces in the host village. Host community leaders told us that resettled residents behave like guests, as if their stay in the resettlement complex was temporary and they are not committed to the overall development of the whole village.

Conversely, there was a general perception within the resettlement complexes that the host villagers preferred to maintain separation and were generally reluctant to engage socially with them. Multiple respondents reported that it was uncommon for host villagers to attend communal activities, social gatherings, and religious functions (many of which overlapped) held within the resettlement complexes, whereas residents of the resettlement complexes were expected to participate in activities in the host villages, such as village cleaning, mourning rituals, weddings, etc. Residents within resettlement complexes often expressed that host villagers looked down on them and treated them as second-class citizens.

We found much more pronounced evidence for conflict and poor social integration in the settlements such as Punie that included Christian Bataks, similar to the tensions between these groups within the resettlement complex. Host village leaders reported intense discomfort with the Christian residents, citing incompatible cultural practices such as consumption of pork and alcohol, type of female clothing, and how the different groups reared their children. Furthermore, there were rumors within the host village that the Christian residents wanted to build a church so they could spread their religion in the area. These concerns led the host village to tell Christian residents they are not allowed to conduct group prayer services in the settlement, and especially not allowed to invite Christian outsiders into the settlement to participate in any Christian activities.

While most resettlement complexes were not fully integrated with their host villages, some of the same cultural and religious practices that helped foster interaction and bonding within the resettlement complexes also provided some bridging opportunities between resettled persons and host villagers. In particular, rituals such as marriage, birth, circumcision, and celebration of Prophet Muhammad's birthday (*mauled)* provided opportunities for social interaction. Furthermore, in some cases participation within communal work projects such as cleaning communal lands or maintaining public facilities such as mosques and meeting halls brought people together. While at the time of our survey, such interactions were not fully reciprocated, such connections existed and served as a bridge between resettlement complexs and host villages. Furthermore, we found that host village leaders valued and welcomed interaction with resettled residents who had attributes perceived to add value to the host village. For example, resettled residents who were well-educated persons, respected religious authorities, or persons employed within the government were often seen as assets for the host villages. Such persons played important roles building connections between resettlement complexes and host villages.

5.4.2. Participation of resettled residents within host village governance

Over time, it became common for some members of the resettlement complexes to participate within host village governance institutions. Resettled persons with high levels of education and leadership experience were invited to join village advisory boards (*tuha peut)* in several villages, such as Kayee Lheu, Krueng Anoe, Ladong, Lam Ujong, Pante Riek, and Punie (this is separate from the *tuha peut* that were formed within the resettlement complexes). The village advisory board is responsible for providing advice to the head of the village, approve village development plans, and help the village head solve problems and disputes among community members. In Pante Riek, residents from the resettlement complex have been appointed to the village office staff and the coordinator of the village empowerment program. Neither Neuhen or Ulee Tuy have *tuha peut* members from the resettlement complex because resettled persons were considered new-comers by the host village and not sufficiently knowledgeable about local customs to effectively manage village affairs.

In some resettlement complexes, administrative and leadership structures were dissolved or gained official status as a sub-village or a *dusun*. Some resettlement complexes, such as Kayee Lheu, Lam Ujong, Pante Riek and Punie, were acknowledged by host villages as formal sub-villages, which have leaders and some autonomy to manage their business and receive village development funds. However, the settlements of Labuy, Ladong, Neuhen and Mireuk Lam Reudep did not have this status and were managed by a separate complex leadership structure. The complexes in Neuhen and Mireuk Lam Reudep received some autonomy for managing social activities, collecting and distributing religious taxes and submitting aid proposals to the local government. In Krueng Anoe, the resettlement complex leadership had been dissolved as the complex was considered part of the host village.

Despite the inclusion of resettled residents within host village leadership structures, respondents in all host villages made it clear that residents from the resettlement complexes should not be allowed to serve as village head and that top leadership positions should be reserved for original members of the host village. For example, Lam Ujong has a regulation that anyone who wants to run for village head must have lived in the village for at least 15 years. In Pante Riek, the efforts of resettled residents, who outnumbered the host village residents, to run for village head led to tensions between the resettlement complex and host village. The resettled residents argued that it is their constitutional right and they have the capacity to manage village affairs. Residents in the host village feel that they had been generous accepting the resettlement complex in their village and allowing them to be part of the village advisory board, village office staff, and head of sub-village. The conflict resulted in a lack of definitive village leadership as the host village postponed elections so resettled residents could not become village head. This has caused social rifts between the two groups and led to threats of violence, including threats to burn down houses in the resettlement complex.

6. Discussion

Our research in post-tsunami settlement complexes in Aceh shows that even relatively short-distance resettlement involving residents with similar ethnic, cultural, and religious back grounds can be complicated by relationships within resettlement complexes,

and between resettled persons and host villagers. Most of the initial residents within the resettlement complexes lived somewhere in or close to Banda Aceh at the time of the tsunami, were Muslim, and were familiar with the basic culture and structure of Acehnese villages. However, a number of factors complicated building cohesion within the resettlement complexes.

First, there was no official policy to preserve social and family networks by providing households from similar pre-tsunami areas the option of being resettled in the same new location. Therefore, many of the original residents within the resettlement complexes needed to build up new interpersonal relationships and social networks while trying to adjust to new physical environments, manage changes to their household livelihoods, and deal with the trauma of the tsunami. Second, almost 40% of the residents in the resettlement complexes had either rented or purchased their home from a TDP, reflecting a high rate of resident turnover which affected both the internal social cohesion within the resettlement complexes, and relations with host villages. Third, several of the resettlement complexes tried to merge together Acehnese Muslims and Batak Christians. The religious and cultural differences between these groups led to continued tensions and separation, as seen also in other studies of post-disaster resettlement [30]. However, within five years after the end of the reconstruction period, there were indications that most of the resettlement complexes had built up a functioning level of community cohesion and local governance structures. We interpret that bonding capital, derived from participation in familiar religious, cultural, and governance practices, was important to this process.

Relations between resettlement complexes and their host villages faced diverse challenges. While host villages were initially sympathetic to resettled persons, tensions rose when the host villages saw the resettlement complexes as an imposition that diluted the quality of their lives, limited their access to resources, and challenged their established modes of governance. In places like Indonesia which have strongly defined official and customary governance structures, building resettlement complexes, even if on land that was legally purchased or provided by the government, disrupted or complicated the administrative functions of host villages. This was not properly anticipated during the building of the resettlement complexes, and lead to tensions, questions about jurisdiction, and the unequal distribution of resources. Our data show that most of the resettlement complexes and host villages maintained generally cordial or at least functional relationships, but that five years after relocation, there were deep divisions between people living in resettlement complexes and in host communities.

At the start of this paper, we proposed that shared religious beliefs and practices, participation within familiar cultural and social activities, and inclusion within familiar informal and formal local governance structures have the potential to serve as both bonding capital within resettlement complexes and as bridging capital between resettled persons and host communities. Our analysis of qualitative data obtained from both resettlement complexes and host communities allows us to assess the validity of these hypotheses.

6.1. Shared religious traditions

We found that participation within shared religious traditions provided bonding capital within the resettlement complexes. Given the importance of Islam within Aceh, shared religious beliefs introduced a common ground for all Muslim residents. This provided an important starting point for building cohesion and trust. Bonding went beyond just shared systems of belief. Regular religious routines and practices, such as daily and Friday prayers, Quran recitation classes, religious holidays, and breaking fast during Ramadan, provided ample opportunities for regular face-to-face engagement for most residents. Additionally, religion provided a material setting for community engagement, in the form of a shared mosque and prayer hall, which served as the social heart of the resettlement complexes. These facilities were also used for regular secular functions as meeting halls, areas for communal deliberation, and venues for informal socialization. Conversely, the complexes consisting of a mix of Muslim and Christian residents were divided at the time of our survey with limited positive interaction and bonding between the two groups.

Shared religious traditions were less effective as a source of bridging capital between the resettlement complexes and the host villages. Host villages were comforted by the fact that most resettled persons had a similar belief system to them, with the exception of the complexes consisting of a mix of Muslims and Christians. However, we found lower than expected mutual participation of residents of the host villages and resettlement complexes within the same religious activities. Similar religious activities, conducted separately, did not constitute bridging capital as there were less frequent and less intimate personal engagements across these groups. It is possible that this is because each group had their own mosques and prayer halls, which reflected divisions within the spatial relationships between the host villages and resettlement complexes. This lack of shared spaces for gathering and worship limited regular opportunities for interaction and engagement and reinforced distinctions and separation between resettled persons and host villages.

6.2. Shared cultural practices

Participation within shared cultural practices served as a significant source of bonding capital within the resettlement complexes. The most commonly cited social practices were ritual activities associated with lifecycles, such as marriages, births, circumcision, and funerary practices. All of these events involved a combination of choreographed ritual activities where communal participation was expected, regular face-to-face interactions, and exchanges of labor, time, gifts, and money that created reciprocal social obligations.

Shared cultural traditions also served as a source of bridging capital, but in a more limited manner. Some activities, such as marriage and funerary practices, provided opportunities for participation by residents of both the resettlement complexes and host villages. However, the strong feelings of reciprocity and social obligation generated by lifecycle events and associated activities were not nearly as pronounced between residents of resettlement complexes and host villages as they were within both resettlement complexes and host villages. Furthermore, we found most of the host villages were reluctant to allow the resettlement complexes to use the village cemetery for burials, leading to the creation of separate burial grounds, which added to the spatial separation and built-up resentment within the resettlement complexes.

6.3. Shared Visions of Local Governance/Social Organization

All the resettlement complexes quickly developed governance structures, which mostly reflected the kinds of formal and informal governance structures common within Acehnese villages. The formation of leadership institutions provided a tangible framework for deliberation, decision making, and authority within the complexes, which created regular interactions and bonding opportunities (albeit sometimes exclusive and hierarchical). Additionally, complexes with experienced leadership seemed to experience less turmoil and were quicker to build cohesion. In part, this seems to be a function of leaders setting examples and using a combination of their authority and social pressure to encourage or coerce residents to participate in communal activities.

All host villages allowed selected members of the resettlement complexes to participate within host village governance. This was especially the case regarding the inclusion of resettled persons with higher levels of education, religious or social standing, or employment within the provincial or national government, within informal governance structures, such as the *tuha peut* (local council of respected experts/authorities). In most host communities, select resettlement residents served in formal governance roles, either as representatives of the complex as a sub-village, or in other roles. In this light, participation of resettled residents within host village governance structures was a form of bridging capital. However, it was very clear that none of the host villages supported (or allowed at the time of the survey) members from the resettlement complexes to serve as village head, which clearly defined resettled residents as distinct and second-class citizens. Additionally, opportunities for resettled persons to participate in host village governance was limited to a small group of people who possessed attributes that made them attractive and perceived as useful to the host villagers.

The experiences of post-tsunami resettlement complexes in Aceh suggest a need to rethink the applicability of widely accepted understandings of social capital, in particular bonding and bridging capital, for studying the kinds of short-distance relocation that will most likely result from future environmental stresses caused by disasters and climate change. Shared cultural, religious, and governance practices provided important bonding capital, which helped residents within resettlement complexes overcome the lack of personal connections. This is consistent with the literature outlined and first part of the three hypothesis we proposed in Section 2 of this paper [59,60,71]. Being able to plug into familiar social, cultural, religious, and governance practices facilitated interpersonal interaction, built trust, gave people common purpose, formed reciprocal social obligations, and provided a sense of normalcy within the resettlement complexes.

However, relatively high levels of cultural, ethnic, linguistic, and religious similarities between resettled persons and host communities did not erase some of barriers to integration that are commonly cited by transnational migrants, which did not fully align with the second part of the three hypotheses proposed in Section 2. Shared cultural, religious, and governance practices were not sufficient to totally overcome feelings within the host communities that TDPs were newcomers, or feelings within the resettlement complexes that the host communities did not wish to fully integrate them into village life. Seemingly minor perceived differences were amplified to identify resettled residents as 'others.' Furthermore, shared attributes were not sufficient to dispel feelings within the host communities that resettled persons were an imposition or even burdens that potentially threatened the well-being and identity of the host villages. We found that factors such as personal socio-economic status, level of education, and perceived linking capital (i.e. useful connections to government officials) were more likely to serve as bridging capital than the kinds of shared religious and cultural activities that served effectively as bonding capital within the resettlement complexes. This points toward a potential source of inequality. Future research in further contexts should examine the degree to which the ability of newcomers to access bridging capital and more effectively integrate into their new communities may depend on their socio-economic status.

There are a number of limitations to our study. We were not able to collect data to provide a more reliable and quantifiable account of different kinds of social capital within the resettlement complexes, which limited our ability to conduct more focused comparative analysis between the different resettlement complexes. We were not able to systematically survey TPDs who left the resettlement complexes to better understand their motivations for leaving and control for how substantial out-migration might be related to or have impacted social capital. Finally, we collected an extensive amount of qualitative data for this study, which was labor intensive in terms of data collection, quality control, and analysis. Fortunately, our project had sufficient resources to support this work, but dealing with a large qualitative dataset delayed the completion of the research and would be challenging for other teams to conduct similar research in other post-disaster situations.

Our experiences with this research project point out a number of potentially fruitful areas for additional research, both amongst tsunami survivors across the Indian Ocean and in other relocation and resettlement contexts. Given the scale of relocation after the tsunami in Thailand, Sri Lanka, India, the Maldives, and Indonesia, a broader comparative study as we approach the 20th anniversary of the tsunami could provide a very unique long-term and cross-cultural perspective on the relationships between social capital and resettlement in different cultural and development contexts. Furthermore, much more research related to social capital and building cohesive resettlement communities are needed within the increasing amounts of coastal communities which have/are being relocated because of climate change. It is essential to better understand the differences and similarities of the resettlement experiences caused by acute disasters, development projects, and slower-onset environmental stresses.

7. Conclusion

There are several key lessons about relations between resettled persons and host villages that are relevant to policy makers considering future short-distance relocation from environmental risk and stresses. First, shared cultural, religious, and governance attributes can serve as forms of bonding capital to help build cohesion within resettlement complexes. This provides a strong argument for relocation policies that explicitly acknowledge and group resettled persons according to similarities, as much as possible. Furthermore, enactment of such practices is in part dependent upon access to suitable venues, therefore resettlements should provide familiar communal cultural, social, and religious infrastructure to facilitate the kinds of social activities that can serve as bonding capital. How-

ever, extra attention needs to be paid to persons or groups of resettled persons without the kinds of shared attributes that can serve as bonding capital. It is noted in the literature that strong bonding capital has the potential to create exclusive cliques and limit wider interaction and bridging capital [51,59]. Within the parameters of a resettlement complex, the formation of such groups can be divisive if some residents lack shared attributes and therefore cannot fully participate in the range of activities that provide bonding capital. In the case of post-tsunami Aceh, this can be seen with the tensions between Muslim and Christians resettled within the same complexes.

Secondly, shared cultural, religious, and governance attributes should not be assumed to automatically facilitate integration between resettled persons and their host communities. Relocation policies should assume that there is always the potential for perceptions of difference between resettled persons and host communities, regardless of distance of relocation and cultural similarity. Furthermore, relocation policies should aim to reduce potential tensions between resettled and host communities that can arise from competition over resources. It has been suggested in the literature that this can be partly overcome by ensuring participation of host communities within the resettlement process from the start and providing tangible benefits to host communities in terms of infrastructure and economic development support [28].

Finally, relations within resettlement complexes and between resettled persons and host communities could benefit from extended support from the government, donors, or NGOs involved in the resettlement process. As noted by Alaniz in his extensive study of post-disaster resettlement in Honduras, actors responsible for facilitating resettlement need to find a balance between allowing bonding and bridging to occur based on the agency of resettled persons and providing support to help mediate social issues within resettlements and relations between resettlements and host communities [97]. In Aceh, the resettlement complexes were generally built near the end of the reconstruction period, after budgets had been used up. This meant that both the resettlement complexes and the host villages were largely on their own to manage relations and integration. Therefore, it important that planning resettlement complexes anticipates the need for potentially long-term support.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijdrr.2023.103861.

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