วารสารรัฐศาสตร์และรัฐประศาสนศาสตร์ ปีที่ 13 ฉบับที่ 2 (กรกฎาคม-ธันวาคม 2565): 157-186

Looking Through Social Capital Lens: Community Evaluation of the Local Government's Resource Capability in Managing Earthquake Emergency in Chiang Rai, Thailand[1]

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Received: 24 November 2021
Revised: 29 March 2021
Accepted: 31 March 2022

Abstract

The roles of local government in emergency prevention and response have become more critical considering the increasing threats of natural hazards. However, it is still an understudied area in the disaster literature in Thailand. The study aims to amplify the resource capability factors of Thai local government institutions to build community resilience in crisis response by utilizing the social capital lens by Robert D. Putnam. Social capital is a network of reciprocity norms and institutional relationships that has two forms: bonding and bridging social capital. In this study, resource capability in the disaster response model from Cigler (2007) and Kusumasari, Alam, and Siddiqui (2010) was woven to integrate Putnam's social capital measurement. There was six resource capability of the local government evaluated: 1) institutions, 2) human resources, 3) policy for effective implementation, 4) finance, 5) technical facilities, and 6) leadership. By applying a mixed-method analysis, this study collected qualitative data through a literature review and semi-structured field interviews with four policymakers and local leaders in Phan district, Chiang Rai province. One sample T-Test statistics from a Likert scale survey were generated quantitatively to outline the local community's feedback measuring the local government's capability effectiveness. The result shows that the local government had the highest capability in technical and policy for effective implementation. Contrastingly, human resource and financial capability scored the lowest. From

[1] This article received funding support from Mae Fah Luang University Research Fund (2019-2020), Mae Fah Luang University, Chiang Rai, Thailand.

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the bonding social capital lens, the local people had thick trust that the local government would effectively support and assist the community to provide protection and support. However, it was still challenging for the local government to build the bridging social capital under vertical hierarchy commands. This study offers a third way of linking social capital as an alternative approach to effectively managing DRG locally in Thailand.

Keywords Local Government, Earthquake, Social Capital, Community Resilience, Chiang Rai

1. Introduction

Thailand has experienced a sharp increase in natural disasters over the previous 20-year period (EMDAT-CRED, 2020). The occurrence and intensity of natural hazards have risen since the turn of the 21st century in Thailand, and the local community will be immensely vulnerable to the hazard threats. Especially in Chiang Rai, unpredicted seismic ground movements from active fault lines in Northern Thailand and neighboring countries have continued to occur in high-population areas (Songlar, La-or, Chomchoe, & Khunthason, 2019). In 2014, the Department of Mineral Resources conducted Earthquake Risk Assessment in Chiang Rai province and outlined that villages in the province were located in the active fault lines of the Phayao fault, the Mae Chan Fault and the Mae Ing fault.

On May 5, the biggest earthquake was recorded in Phan district, Chiang Rai province, with a magnitude of 6.3 Richter and occurred at a depth of 7 kilometers from the ground (Tanchaisawat & Hirano, 2018). The 2014 earthquake in Phan generated nearly 1,000 aftershocks recorded by the regional and temporary seismic networks until April 12, 2015 (Pananont et al., 2017). The abrupt shock was felt in other provinces such as Phayao, Nan, Chiang Mai, Tak, and Mae Hong Son (Jintaprasat, 2016), causing many falling structures, massive surface fractures, and liquefaction. In Chiang Rai alone, the area within 30 kilometers from the epicenter was widely damaged and affected seven districts, including 50 sub-districts and 609 villages. It was reported that there were 107 injuries, one death, and 5,139 damaged houses. After the quake, roads and bridges were unusable, and public buildings such as temples, schools, and hospitals were heavily damaged (Suwanmolee, 2017). According to Thai statistics data (NSO, 2000), the epicenter, Phan District, has around 120,000 people working as farmers in the agricultural environment.

The big earthquake in the northernmost province of Chiang Rai in 2014 eventually exposed some concerns related to inadequate Disaster Risk Management (DRM) systems, including building practices and financial budget allocation for renovation, prompting public alertness about the future threats from the earthquakes in the country (Soralump, Feungaugsorn, Yangsanphu, Jinagoolwipat, Thongthamchart, & Isaroranit, 2014). Following the earthquake, wider concern about public infrastructure came to light in the province as it was revealed that schools, hospitals, and other public buildings still lacked seismic properties and proper building practices despite the Building Control Act coming into effect in 2007. With the policy, the enforcement of the earthquake-resistant designs in the infrastructure is only applied to the infrastructural structures with 15-meter height or above, but it does not include the community households and temples where residents live (Sararit, 2014). Meanwhile, Piyawat & Teraphan (2019) observed that the probable fault destruction of buildings in Thai rural areas within the seismic zone is two times higher than in urban areas. Since the existing

policy could not prevent the physical vulnerabilities of people living in rural areas, it is critical to reflect on proper disaster cycle management for the local community's resilience in the future.

Notwithstanding the challenges, Thailand strengthened its Disaster Risk Reduction (DRR) efforts to safeguard people and their well-being. Following the Hyogo Framework of Action (HFA) mandates, disaster risk assessments are highlighted in Thailand's legislative plans and policies and performed by different levels of government under the Department of Disaster Prevention and Mitigation (DDPM). The Disaster Prevention and Mitigation Act of 2007 provides guidelines for operationalizing DRR at the provincial and local administration levels to improve Disaster Risk Governance (DRG) strategies. By this Act, all provinces and local administrative bodies must conduct disaster management plans and streamline DRM systems by fostering coordination among actors at the sub-national level with three governmental levels: central, provincial (and districts), and local administration (or sub-districts).

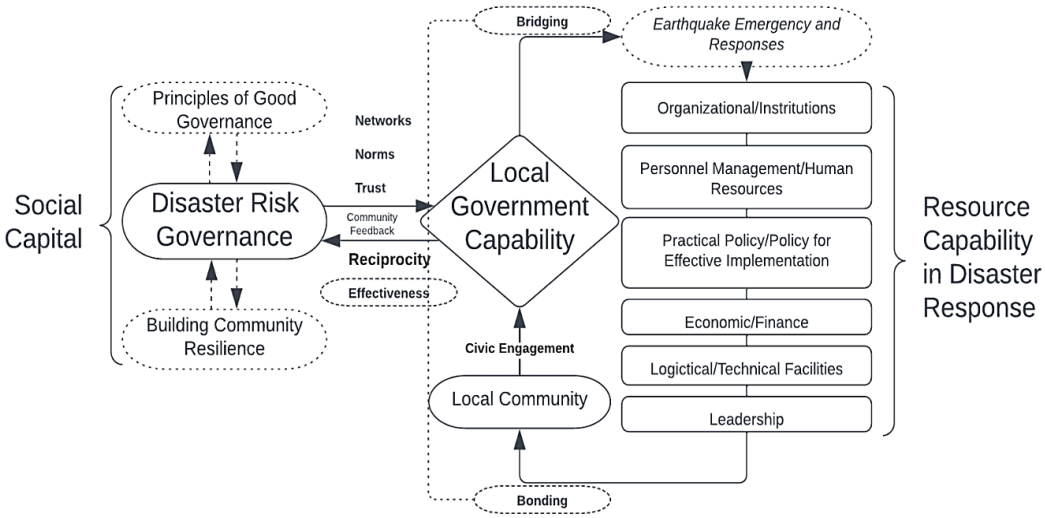
In this context, the role of the local governments is imperative in linking locally-led resilience-building action to national development priorities. Regrettably, one of the most understudied organizations in natural disaster research in Thailand is the local government (Wolensky & Wolensky, 1990). Only a few extensive kinds of research on institutional capabilities explain local government as a critical feature of DRG. Furthermore, there have been few studies on the role of municipal governments in managing risks from natural disasters. Hence, this article will examine the capabilities of local governments in assessing disaster risk during and after catastrophic events using a case study of the earthquake in 2014 in Phan district, Chiang Rai province, as an important subject that is still under-explored. The case study area was chosen since Phan was the epicenter of the 2014 Chiang Rai earthquake.

This article evaluates the importance of local government institutions in DRG and building community resilience through the social capital lens. According to Robert D. Putnam (1995), social capital is the collective value of features of social organizations, such as networks, norms, and trust that improve the efficiency of the society by facilitating cooperation for mutual benefit to pursue shared objectives. Utilizing the communitarian view of the bottom-up approach grounded in the school of thought by Putnam (1993), the research recognizes trust and reciprocity as norms among community members to lubricate community participation in social life and foster good governance (Kugler & Zak, 2017). This article offers the potential thinking with social capital within formal emergency response performed by the local governmental agencies drawing on a case study of the earthquake in 2014 in Chiang Rai province, Thailand. This study explicitly intends to augment Thai local institutions' capability performances in performing DRR activities by sounding local people's feedback on the local government's crisis response.

Conceptual Framework

The study's primary purpose is to appraise how social capital configurations across DRG actors can be an effective means of responding to rapid-onset disasters, such as earthquakes. Social capital is conceptualized as the shared resource produced by trust in others to enable individuals to participate in organized networks and maximize political influence on those in power (Coleman, 1988). The proponents of a social capital approach explain several variables as a form of social capital, including the capability to improve performance, accumulation over time, and the need for maintenance measured at individual and collective levels in terms of social perspective (Bhandari & Yasunobu, 2009). One focal point of social capital is that the concept showed a link between institutional performance and civic life, and Putnam (2000) conceptualizes it into the term bonding and bridging social capital. This conceptual framework shows how good government and civic engagement are locked together in a "virtuous circle" in response to earthquake emergencies and responses in contrast to the "vicious circle" of distrust and poor government mechanisms (Putnam, 1993), as shown in Figure 1.

Figure 1: Local Resource Capability



Source: adapted from Putnam (1993, 2000), Cigler (2007), and Kusumasari, Alam, and Siddiqui (2010)

According to Putnam (1993), social capital can be explained as a network of reciprocity norms and institutional relationships within a community. Social capital involves the network and the resources to be stimulated through social interaction (Erten, 2022). Putnam's (2000) more detailed conceptions of bridging and bonding social capital are also essential conceptual tools. Bonding social

capital, according to Putnam, is inward-looking, strengthening exclusive identities and encouraging homogeneity, whereas bridging social capital is outward-looking, promoting connections between varied persons. According to Putnam, many groups connect across some social dimensions while bridging over others simultaneously. One concern that the concept lacks is the measurement of the social capital to specify governmental effectiveness, particularly during the cycle phase of a disaster, that is, the planning stage (Wisner, 2003), during the response (Aldrich, 2012), and recovery period response (Bihari & Ryan, 2012). Hence, resource capability in the disaster response model from Cigler (2007) and Kusumasari et al. (2010) was woven to integrate with the social capital lens by measuring the local government's capability to implement DRG by sounding local people's feedback. The local community's feedback is looped into the structure as part of civic engagement, enabling reciprocity and people participation in building community resilience. The conceptual framework follows the logic of this model by identifying the configurations of social capital embedded in the DRG capability mechanism to respond to an emergency rapid-onset situation, like an earthquake.

Understanding local government capability performance and the absence role in this area is a critical predictor of how effectively public disaster prevention and mitigation policy developed since 2007 is likely to cope with future disasters. According to Cigler (2007), a capability is characterized as the economic, logistical, practical policy, organizational, leadership, and personnel management capabilities that local administration institutions need to possess to undertake operations at all phases of common emergencies. In a similar vein, according to Kusumasari et al. (2010), capability in handling disaster is reflected in six dimensions: 1) institutions, 2) human resources, 3) policy for effective implementation, 4) finance, 5) technical facilities, and 6) leadership. Therefore, adapted from Cigler (2007) and Kusumasari et al. (2010), this study develops the local government's resource capability into six key success aspects that influence the Thai local government's competence in governing natural hazards.

2. Governing Disaster Risk Reduction (DRR) at the Local Government

Disaster resilience is described as a community's capacity to overcome, accommodate, absorb, and rebuild expeditiously from calamities (UNISDR, 2009), and fostering resilience has increasingly been recognized as the ultimate goal for Disaster Risk Reduction (DRR) (Djalante, Holley, & Thomalla, 2011). DRR has been based on a top-down, state-centered emergency system of laws and practices in governmental network institutions. However, for the last three decades, disaster response has shifted from reactive to proactive, more holistic

norms to form co-governance that recognizes the importance of non-state actor involvement in disaster management and community-based initiatives (Srikandini, Hilhorst, & Van Voorst, 2018). APDC (2003) underlined the relevance of local government in DRR activities and highlighted the contribution of local government to disaster management. For example, from the case study of the 2011 flooding disaster in Thailand, the local government agencies actively used television and social media as the medium to update warnings and flooding information to the local community.

The Hyogo Framework of Action (HFA), an international agenda to engage many stakeholders in DRR (Jones, Oven, Manyena, & Aryal, 2014), prioritizes decentralization to establish DRR from the international to sub-national levels. The framework allows the state to establish more systematic planning, execution, and assessment of DRR efforts. The HFA was a 10-year worldwide set of actions from 2005 to 2015. During that time, calamities worldwide continued to inflict social, economic, infrastructure, and environmental losses, particularly in the world's most vulnerable and impoverished nations. HFA Priority 1 has emerged as the principal global mechanism for driving DRR integration at all layers of society by ensuring DRR is a national and local government priority (Sternberg & Batbuyan, 2013; Djalante, Thomalla, Sinapoy, & Carnegie, 2012). According to this concept, the local government is critical in reducing hazard threats in its areas.

In parallel, Malalgoda and Amaratunga (2017) explain that DRR should be institutionalized at the municipal level to bring governments closer to local populations and better reflect their demands in policymaking. The decentralization idea brings decision-making closer to people and allows for designing and delivering of services tailored to local requirements. Similarly, Coles et al. (2004) argue that if policy commitment is effective, it must be converted into action, and the first step is to go through the emergency planning process. Indeed, developing and implementing local DRR policies and strategies is one of the tasks of local government (Chatterjee, Shiwaku, Gupta, Nakano, & Shaw, 2015). However, a successful policy can only be realized when the affected community is actively involved in response activities as an indicator of local and community engagement. As a result, disaster resilience would be ineffective unless local people engage in more extensive social networks.

3. Social Capital and Community Resilience in DRR Context

Many definitions emerge for the concept of social or community resilience. In DRR studies, refers to Van Breda (2001), the concept of community

resilience can be interpreted as a process reflecting people's distinctive capabilities to govern and adaptively cope to stress imposed on resources and losses related to disasters in the context of DRR studies (Paton, 2006; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). According to Aldrich (2012), community resilience refers to the collective ability to cope with disruptions and restore everyday life rhythms efficiently through collaboration after the disruptions.

In theorizing community resilience, social capital is often considered in various pieces of literature. Hanifan (1916) describes social capital as mutual compassion and goodwill among a group of persons who make up a social unit. Several fields have generally embraced the idea that group interaction and involvement may benefit the community mutually (Portes, 1998). Social capital, along with economic, cultural, and symbolic capital, is one of four categories of capital established by Bourdieu that influence social life trajectories.

According to Bourdieu (1985), social capital is the sum of resources associated with the presence of a long-lasting network of more or less institutionalized mutual acquaintance or recognition ties. Coleman (1988) and Lin (1999) have focused on the impact of social capital on individual outcomes, drawing on Bourdieu's conception. Coleman (1988) was interested in how social structures, networks of relationships, and social capital may be transformed into tangible assets for individuals to take advantage of. While Lin (2001) went on to define social capital as "resources embedded in one's social networks, accessed or mobilized through interconnections in the networks," Robert D. Putnam (1995, 2000) promoted this notion with his article "Bowling Alone" in the *Journal of Democracy*, and later into a book of the same name. Putnam's concept of social capital puts on its function in generating benefits for the community. Putnam (1993) described social capital as the characteristics of social institutions that facilitating action and collaboration for mutual benefits, such as networks, norms, and trust.

In the DRR context, some studies have used a range of methodologies to study social capital in community resilience towards disasters, including in-depth interviews, quantitative surveys, statistical indicators, and field observations, mostly based on openly accessible data (Peacock et al., 2010; Norris & Galea, 2010). Norris et al. (2008) evaluate the links between geography, well-being, and social capital through their study of community resilience and disasters. Community resilience toward disaster is a process that arises from a network of adaptive capacities and the ability to advance and preserve social capital as articulated through a sense of belonging within a community (Cox & Perry, 2011).

Social capital networks support information, aid, financial, emotional, and psychological support (Elliott, Haney, & SamsAbiodun, 2010; Hurlbert, Haines, & Beggs, 2000; Kaniasty & Norris, 1993).

4. Local Resource Capability in Disaster Response

According to UNISDR (2010), each country must support a National Platform owned and administered by the government to promote and establish a comprehensive national DRR system customized to the needs of each country. Disaster Risk Governance (DRG) is a notion that has become widely used in policy discourse, and it is closely linked to the HFA (Priority 1). According to Meerpoël (2015), DRG is founded on good governance concepts such as participation, accountability, transparency, fairness, effectiveness, policymaking, and public service delivery quality. DRG is a way of steering and governance that incorporates non-state actors in policymaking through collaboration, coordination, partnership, mutual alliance, interaction, and network to eliminate disaster risk and improve community resilience (Mardiah, Lovett, & Evanty, 2017). DRG implementation should strive to improve the efficacy of DRR policies and focus on the entire disaster governance framework (preparation, response, recovery, and rehabilitation), and aims to address the inherent complexities of institutional contexts, power relations, and policy advocacy in the particular context of risk reduction (Srikandini et al., 2018).

Local governments have been identified as critical players in constructing disaster-resilient communities. There is a consensus in the literature that local governments play a critical role in executing DRR initiatives and constructing disaster-resilient communities (Kusumasari et al., 2010; Malalgoda & Amaratunga, 2015; Manyena, 2006). Even though all levels of authority are engaged in disaster governance, the responsibility and actions of local governments in building resilient communities are significant (Col, 2007). Because they are anchored at the local level, local governments should play a crucial role in developing community resilience in several ways.

According to a considerable body of literature, local governments are vital in DRR strategies because the local authorities are integrated into the communities where calamities occur. According to Manyena (2006), local governments are the key stakeholders in mainstreaming the DRR agenda to create community resilience. Therefore, a key priority in empowering the local government is capacity development. Malalgoda et al. (2010) argue that the ability of local governments to implement DRR programs is directly proportionate to their resource capability. To effectively implement the DRR agenda, it is necessary to

address the challenges faced by local governments and provide them with the necessary financial and other resources and the appropriate level of decision-making authority, which necessitates the reformation of the existing governance structure.

5. Methodology

This paper applied a mixed-method analysis in an exploratory case study to analyze the Disaster Risk Governance (DRG) mechanism impelled in Thailand and assess its resource capability implementation in local government institutions in a particular calamity of the 2014 Chiang Rai earthquake. This study proposed newfangled understandings by viewing local people's feedback on the local government's resource capability in managing extreme events. The study collected data through a literature review and semi-structured interviews with four policymakers and local leaders from the Municipality and Tambon Administrative Office (TAO) in Phan district, Chiang Rai province. The Resource Capability Model for Local Government Framework developed by Cigler (2007) and Kusumasari et al. (2010) directed the literature and interview guidelines into six scopes: institutional, human resource, policy for effective implementation, financial, technical, and leadership. An additional one-sample T-Test statistics method from a Likert scale survey was applied to outline the local community's feedback and measure the local government's effectiveness. According to the red zone of damaged infrastructures from earthquakes, twenty-five local beneficiaries were determined based on inclusion criteria in this study. The inclusive population was adults who directly experienced the 2014 Chiang Rai earthquake in the epicenter of the Phan district, and they were selected using a linear purposive sampling technique.

6. Local Government's Resource Capability in Phan District

In the past, Chiang Rai province experienced frequent natural catastrophes such as floods, rainstorms, and periodic droughts. However, because the disasters did not have severe consequences, the province's disaster preparedness was mainly based on the features of the disasters within the level of severity at a particular stage. As a result, an alert system, emergency management, and rescue efforts were ineffective in dealing with medium-to-large-scale impact events, such as earthquakes. At the same time, Chiang Rai is vulnerable to future earthquakes because of its geographical placement between active earthquake faults.

Disasters can create crises for local authorities dealing with uncertainty because their existing management may not correspond to the current complexity of natural disasters. The local government must thoroughly prepare to manage a crisis and create a long-term plan for quick change and flexibility on the fly to cope with unpredicted circumstances. However, most emergency responses by local governments depend on the command-and-control approach in a centralized system (Neal & Phillips, 1995). This study summarizes key findings of Chiang Rai's local government's capability to manage the 2014 Chiang Rai earthquake, presented in Table 1.

Table 1: Summary of Key Findings from the 2014 Chiang Rai Earthquake

Resource Capability Model for Local Government	Summary of Key Findings from the Case Study of the 2014 Earthquake in Chiang Rai
1. Institutional	Defined and clear hierarchal structure, function, duties, and interaction amongst all levels of government based on the implementation of the Disaster Prevention and Mitigation Act 2007
2. Human Resource	Had insufficient local personnel but had the most immediate document tasks allocation
3. Policy for Effective Implementation	Had implemented policies on disaster management based on provincial and DDPM instructions
4. Financial	Had limited and insufficient financial resources to support disaster management operations
5. Technical	Had sufficient logistic management for Level 1-2 hazards and communication network between organizations and communities
6. Leadership	Could not perform immediate decisions in a centralized vertical hierarchy of command and control

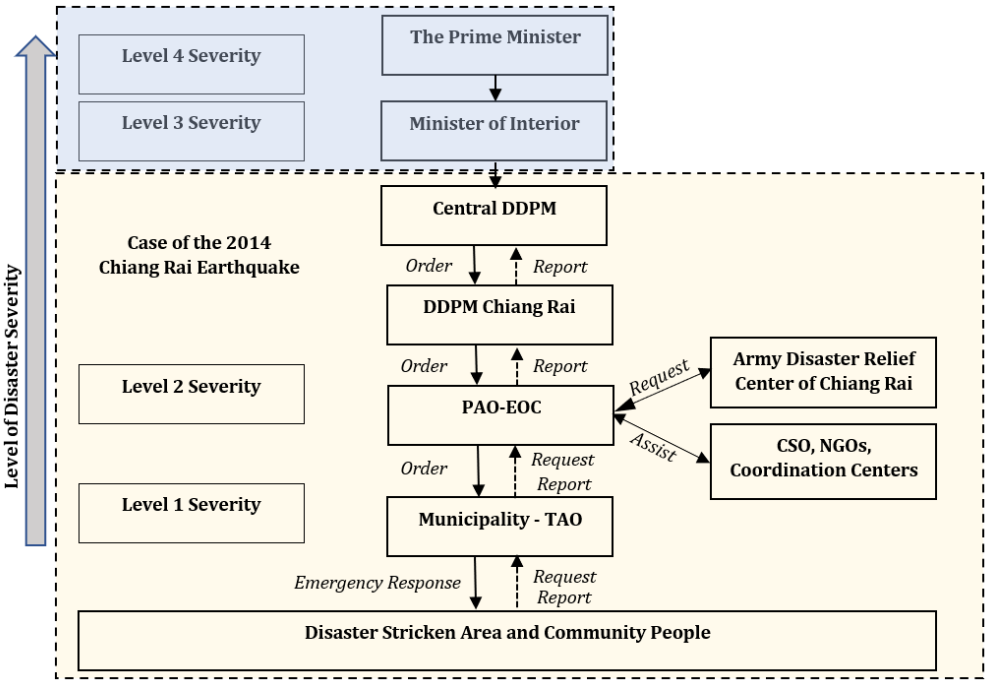
Source: adapted from Cigler (2007) and Kusumasari et al. (2010)

Table 1 shows the six dimensions of resource capability (institutional capability, human resource capability, policy for effective implementation capability, financial capability, technical capability, and leadership capability) in the local government in the Phan District. A detailed description of those resource capabilities is elaborated in the sub-sections below:

6.1 Institutional Capability

From the case study of the 2014 earthquake in Chiang Rai, it was found that the institutional actor in the local government has a defined and clear hierarchal structure, function, duties, and interaction amongst all levels of government based on the implementation of the Disaster Prevention and Mitigation Act 2007. Based on the disaster scale provided by the DDPM Thailand, the 2014 Chiang Rai earthquake was included as a medium-scale disaster (level 2 hazard severity). Level 2 indicated that the provincial government had to declare the crisis and required immediate action from the provincial Governor to command and control the situation with vertical coordination to the district, sub-district, and village coordination of response activities through the Municipality and TAO. Thus, the governance of the disaster risks was centered on Chiang Rai Provincial Governor, in which the Governor established Emergency Operations Center (EOC) to command and control the locally affected area under his authorization. The DRG mechanism applied for the 2014 Chiang Rai earthquake is shown in Figure 2 as follows:

Figure 2: The 2014 Chiang Rai Earthquake Emergency Governance



Source: adapted from structure outlined in the National Disaster Prevention and Mitigation Plan (2011)

According to the Strategic National Action Plan (SNAP), Thailand has designed main actors and supporters to coordinate the national policies at the provincial and local government levels. In an emergency, SNAP mentions core activities: monitoring, evacuation planning, performing search and rescue, and distributing relief aid. While in the recovery phase, SNAP remarks on several activities: performing disaster damage assessment and measurements, restoring infrastructures, managing disaster relief goods allocation, and establishing a long-term recovery plan. Most of the activities and strategies stated in SNAP are coordinated by the Department of Disaster Prevention and Mitigation of the Ministry of Interior (DDPM) as the leading actor, with Provincial Administration Office (PAO), Municipality, and TAO as the prominent supporters.

Following the Disaster Prevention and Mitigation Act 2007, DDPM in Thailand is appointed as the core national government on Disaster Management to handle three categories of disaster: 1) human-made and natural, 2) disasters resulting from an air raid during wartime, and 3) disaster resulted from sabotage or terrorist attack. Under the HFA guidelines, DDPM has developed operational procedures and policies for managing DRR activities by adopting the SNAP initiated by the government in collaboration with UNISDR (Fakhruddin & Chivakidakarn, 2014). The Provincial Disaster Prevention and Mitigation Committee and Bangkok Metropolitan Committee were formed at the national level, authorizing local government administrators to get accountable for DRR management (Kitagawa, 2020). There are 18 DDPM regional centers in Thailand, including the official center in Chiang Rai (Wijitpatcharaphon, 2009).

Thailand has recognized and accepted the Disaster Prevention and Mitigation Act 2007 as the Public Disaster Prevention and Mitigation Act. It enables the country to administer operations and initiatives in conjunction with the Province, District, and Municipalities as the prominent actors. In the 2014 Chiang Rai earthquake case study, the Municipality and TAO relied on command and instructions from the higher hierarchy institutions. As a result, Thailand's disaster management is greatly affected by the hierarchical-vertical relationship and adheres precisely to command and control operating procedures based on relevant laws enforced by the government in DRR action plans and activities.

6.2 Human Resource Capability

Human resource capability at the local government level involves networks of actors coordinating with local personnel and immediate document task allocation in an emergency due to a natural disaster. In the 2014 Chiang Rai earthquake case study, EOC was established by Chiang Rai Provincial Governor to immediately assist the affected people in the impacted area in an emergency

and cope with donors and related organizational supporters. Structurally, the DDPM Chiang Rai connected Provincial EOC with Municipality-TAO and communicated with PAO-EOC to other actors, such as the Army disaster relief center of Chiang Rai, public health networks, civil society volunteers, academic institute, NGOs, and the coordination center of building inspection. The primary objective was to support human resources, machines to remove and demolish the damaged building, coordinate public health affairs in North regional and other related hospitals, and other supporting networks. Following that, the local government in Phan engaged in typical crisis management, which focuses on institutional supervision and order during an emergency. The local administration personnel was critical since the institution had to deal with a top-down hierarchy to deliver the report from the impacted areas and people and, at the same time, receive the request from the community under emergency management.

The role of the local government officers at TAO in affected districts was also crucial to assess and gather data from their authorized area and send the report to the district's disaster administration board for approval before sending it to the office of DDPM Chiang Rai. The report immediately required detailed damage and loss assessment by village leaders and TAO councils. The report was later used as the document-based evaluation for budget/resource allocation and disaster compensation reimbursement among municipalities in affected districts in Chiang Rai Province.

However, in practice, the cases of compensation reimbursement redundancy were still found because TAO administrators needed to do all the work for data gathering, verification, and distribution to the DDPM office and EOC, with the limitation of information system, human resources, budget, and coordination in sharing database systems and knowledge transfer. The 2014 Chiang Rai earthquake case study found that the local government at the sub-district level had the most immediate document task allocation but with the most insufficient number of local personnel.

6.3 Policy for Effective Implementation Capability

The policy for effective implementation capability from the 2014 Chiang Rai earthquake case study was seen from how the local government had implemented policies on disaster management based on provincial and DDPM instructions. In the Phan district, all agencies were liable for aid assistance. The Disaster Prevention and Mitigation Act 2007 mentioned that all Ministries and Departments are responsible for disaster recovery assistance, depending on their ability and commitment. Nevertheless, not all administrative levels had resources for implementing DRR policies, especially long-term actions. The current disaster

policies implemented were entirely in effect and considered suitable to a certain degree since the local government would work to provide short-term support during an emergency period.

According to the Municipality and TAO representatives in Phan District, "the existing policies were sufficient to a certain extent because the local governing body would provide assistance, remedy, and survey the damage caused by the disaster in immediate time." These remedies and assistance were the rights those affected by the disaster should receive. However, even though Chiang Rai province already has a good structure in DRG for the emergency phase, implementing the long-term policy plan launched for the recovery phase is usually less effective in practice since the issue is linked to the financial resources for DRR activities that are limited.

6.4 Financial Capability

The case study of the 2014 earthquake in Chiang Rai found that there was no specific allocation budget for disaster response and recovery. The local government allocated merely a collective budget for disasters, including the impacts of the earthquakes. Based on the DDPM (2015) report, the Disaster Prevention and Mitigation Act 2007 does not enforce Municipalities, TAOs, and village leaders at the local level to create their own DRR action plans. Therefore, DRR policies and strategies were incorporated in only a tiny part of the local development plan related to local budgeting.

According to SNAP, Thailand has designed main actors and supporters to coordinate the national policies at the provincial and local government levels. Most of the activities and strategies stated in SNAP are coordinated by DDPM as the leading actor, with PAO, LAO, and SAO as the prominent supporters. In Chiang Rai, the preliminary plans for the local development plan usually prioritize building infrastructure rather than disaster preventive and mitigating measures. Similarly, the DRR has not also become a top priority in the provincial development plan, although the government at the provincial level is encouraged to develop its DRR activities and budget for plan implementation and exercise. Therefore, the only budget resources for DRR activities come from the central government, which allocates some budget to support plan development for the government at the provincial level at least once a year to ensure the effectiveness and applicability of the plan. The limited resources for DRR budgeting also impact the limited amount of financial capability and insufficient financial resources at the municipality to support disaster management operations.

6.5 Technical Capability

From the case study of the 2014 earthquake in Chiang Rai, it was reported from the interview that the Municipality and TAO administrators were commanded to have three stages of emergency responses: in the first 24 hours, the next 24-48 hours, and within 48-72 hours. While, after 72 hours, the period was counted to be under a long-term recovery plan.

During the Emergency Response phase, in the first 24 hours, the local government had acknowledged the mechanism to provide people's basic needs aid in systematic arrangements, especially for providing food, drinking water, cloth, health, rescue, and collecting initial situation data for casualties' reports. According to the Deputy Chief of TAO in Phan District, "private and public organizations work collectively to assist people from disaster damages. According to Thai Laws, all Ministry and Department are responsible for disaster recovery assistance depending on their ability and commitment". In the next 24-48 hours, from the collected initial situation data, the Municipality and TAO administrators launched shelters, personal properties, public emergency facilities, and personnel of Search and Rescue (SAR) for missing persons or bodies. Finally, within 48-72 hours, the Municipality and TAO administrators established the coordination center for building inspection and conducted loss assessment and preliminary relief. They planned long-term recovery after 72 hours, including assessing impacts and victims and job rehabilitation at the local government level.

According to the interview, the Deputy Chief of TAO in Phan District acknowledged that Chiang Rai Province encountered regular disasters, such as floods, rainstorms, and seasonal drought. However, earthquake disasters did not occur frequently. Hence, an alert system and emergency management in the local area had not been effective enough to handle medium-to-large-scale impact disasters. Usually, the preparation for coping with the disasters in the province was mainly based on disasters' characteristics within the extent of severity in some particular stage. While truthfully, Chiang Rai has potential future earthquakes due to its location in active earthquake zones. In the rapid-onset scenario, the local government maintained the technical capability for sufficient logistic management and communication network between organizations and communities for levels 1-2, but not the long-term infrastructural and community-building remedies. As a result, the technical emergency evacuation capability is relatively effective, but it will take a longer processing time for the beneficiary's compensation for infrastructural damages (Deputy Chief of TAO in Saikao in Phan District, personal communication, March 15, 2021).

6.6 Leadership Capability

The leadership capability of the local government from the case study of the 2014 earthquake in Chiang Rai was seen under the command and control of the higher hierarchical organizations. Although the rapid-onset disasters need an urgent response, the local authority in the Municipalities and TAOs could not make immediate decisions under a centralized vertical hierarchy leadership.

The works from Municipality and TAO depended on EOC as the central network, DDPM Chiang Rai, and the Army disaster relief center as the coordinator for human resources in the emergency phase. While the relationship between each agency (PAO, and EOC, DDPM Chiang Rai, Army disaster relief center of Chiang Rai, public health networks, civil society volunteers, academic institute, NGOs, and the coordination center of building inspection) was independent as their operating actions were based on their procedure in a separate order, and each agency had its database system and knowledge of DRR policies based on their functional roles. Consequently, for the administrators of the Municipality and TAO, the command-and-control strategies are still in the top-to-down process (vertical direction), causing them to postpone emergency decisions and actions until approvals are granted from the top institutional decision-makers. Therefore, it is evident that in governing DRR activities in Chiang Rai, the government at the local level still applied traditional disaster management, which refers to bureaucratic command and control during an emergency. It is preferable for DRG, especially in the emergency and long-term recovery phase, that inter-organization relations be changed from vertical to horizontal directions to decrease command and control from the top and increase flexibility and adaptability to the government at the local level.

7. Beneficiaries' Responses: A Feedback

As Coles et al. (2004) argue, an effective policy in the emergency planning process can only be implemented when the impacted community is actively engaged. Hence, the disaster risk management policy's effectiveness in building resilience cannot be separated from the local community to rebuild livelihood. The local community's feedback is central to ensuring community participation in the local government's response to emergencies. Table 2 below shows the local community survey on the six dimensions of the local government in Phan District from the case study of the 2014 earthquake in Chiang Rai. The table also shows key success factors for each capability dimension as the comparative indicators to measure the effectiveness of resource capability for local government in Phan District, Chiang Rai province.

Table 2: Community Survey on the Local Government's Capability in Phan District

Resource Capability Model for Local Government	Key Success Factors in Governing Emergency Phases	Community Survey on the Local Government's Performances
1. Institutional	Having a defined structure, function, duties, and interaction amongst all levels of government	The local government had a clear understanding of its institutional role and functions during and after the disasters
		The local government provided the people with immediate responses to access supports
2. Human Resource	Having sufficient personnel, adequate task allocation, and division of labor	The local government had sufficient personnel to facilitate the administrative tasks of the community
		The local government divided the proper task delegation to accomplish their duties to the community during the emergency
3. Policy for Effective Implementation	Access to applicable policies, rules, and regulations for making decisions, mobilizing resources, and engaging relevant public/private organizations	The local government implemented the relevant policies, rules, and regulations that supported the disaster-affected people
		The implemented policy had already been adequate to help the people rebuild their lives after the disasters
4. Financial	Having appropriate financial resources to support disaster management operations at all stages	The local government-supported social welfare in an emergency
		Local government-supported financial situation, particularly disaster-based compensation
5. Technical	Having an effective logistic management system, sufficient technology information system,	The local government distributed aid/assistance to all disaster-affected people

Resource Capability Model for Local Government	Key Success Factors in Governing Emergency Phases	Community Survey on the Local Government's Performances
	and communication network between organizations, communities, and media representatives	The local government built a communication network to share information with disaster-affected people
6. Leadership	Developing local-level leadership to make timely and appropriate decisions as needed	The local government initiated to make an immediate decision
		The local government initiated to encourage the local people to participate in the long-term recovery plan

Source: adapted from Cigler (2007) and Kusumasari et al. (2010)

In link with Table 2, the one-sample T-Test statistics were performed to evaluate the community survey result, as shown in Table 3 and Table 4.

Table 3: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Institutional	25	6.0400	1.85921	0.37184
HR	25	4.8400	2.37487	0.47497
Policy	25	6.4800	1.63605	0.32721
Financial	25	4.2400	2.29637	0.45927
Technical	25	7.2000	1.52753	0.30551
Leadership	25	5.3600	1.91224	0.38245

Source: adapted from Cigler (2007) and Kusumasari et al. (2010)

The rank measurement was required to comprehend the highest rank among the six dimensions of local government capability. The rank also reflected the effectiveness of the local government's capability collected from the local community feedback for the local institution's improvement. Based on the survey, the local community rated technical capability and policy for effective implementation capability as the local government's highest effectiveness in governing rapid-onset emergencies. On the contrary, financial capability and human resources capability scored the lowest. The statistical description is shown in Table 4.

Table 4: Community Satisfaction Rank

	Mean	t-statistic	t-statistic	Rank
		t	SD	
1. Technical 1.1 The local government distributed aid/assistance to all disaster-affected people 1.2 The local government built a communication network to share information with disaster-affected people	3.6	23.568	0.00	1
2. Policy for Effective Implementation 2.1 The local government implemented the relevant policies, rules, and regulations that supported the disaster-affected people 2.2 The implemented policy had already been adequate to help the people rebuild their lives after the disasters	3.24	19.804	0.00	2
3. Institutional 3.1 The local government had a clear understanding of its institutional role and functions during and after the disasters 3.2 The local government provided the people with immediate responses to access supports	3.02	16.243	0.00	3
4. Leadership 4.1 The local government initiated to make an immediate decision 4.2 The local government initiated to encourage the local people to participate in the long-term recovery plan	2.68	14.015	0.00	4
5. Human Resource 5.1 The local government distributed aid/assistance to all disaster-affected people 5.2 The local government built a communication network to share information with disaster-affected people	2.42	10.190	0.00	5
6. Financial 6.1 The local government-supported social welfare in an emergency 6.2 Local government-supported financial situation, particularly disaster-based compensation	2.12	9.232	0.00	6

Source: adapted from Cigler (2007) and Kusumasari et al. (2010)

From Table 4, it was indicated that the highest rank of resource capability from the local community's feedback is the technical capability dimension. As beneficiaries of the 2014 Chiang Rai earthquake, the local people believed that the SAO in Phan had effectively distributed the aid/assistance during the emergency and built an effective communication network. This performance helped the community accelerate its resilience as addressed by local people: "As the earthquake happened, the local government had distributed the food and other stuff, e.g., blanket, light and so forth, and they tried to communicate to all stakeholders to respond to a response to post-earthquake impacts."

Moreover, according to the Deputy Chief of TAO in Phan District, the most crucial issue to be concerned about when a catastrophe comes is taking care of and protecting women, children, and the elderly, who are considered vulnerable. The Deputy Chief explained, "We believe that children, women, and the elderly are the most vulnerable groups in the disaster. As an initiated evacuation, we prioritize them in the immediate response. Because their physical aspect becomes challenging to mitigate themselves." The interview found that vulnerable people would be first assisted from the areas damaged by disaster to evacuation places as safer places for the earthquake victims. The safety-first mindset was set for prioritizing women, children, and the elderly from dangerous areas due to health and physical concerns.

Conversely, the lowest rank of community feedback was scored in the financial dimension, particularly in insufficient compensation budget to rebuild the houses after the earthquake. As the Deputy Chief of TAO mentioned in Phan District, "[t]here were several criteria that the local government had to follow for financial spending on the local community. The local people affected by the earthquake will be given financial support in emergency and recovery situations, especially in the housing sector. It has been regulated under the Budget Procedures Act 1959 (BE 2502) and Emergency Disaster 2013 (BE 2556)".

Furthermore, under the Ministry of Finance regulations from the Budget Procedures Act, 1959 (BE 2502) and Emergency Disaster 2013 (BE 2556) Article 5, the rules and procedures of financial assistance for disaster victims should have complied with the rates. For example, in an immediate emergency, catering costs are not more than three meals a day, not more than 30 baht per meal per person, and the cost-of-living bags do not exceed 550 baht per family. Injury assistance provided money for each hospital that did not exceed 2,000 baht. In the housing sector, the cost of materials or construction of a damaged house was not more than 33,000 baht.

Although the government prescribes rules and regulations for the use of advance payments to aid emergency catastrophe victims, it was discovered that the worth of the damage sustained by the victims was frequently more extensive than the amount of assistance under the criteria mentioned above. In addition, the local community had to undergo a lengthy process to obtain financial compensation. "We have been given financial assistance. However, the report's complicated process and trust issue make us obtain the compensation longer. Therefore, it has impacted to renovate the house." Local government administrators also required the local community to gather papers from the impacted area and verify the documentation as the truth. Consequently, the method created delays and inadequately supported the victims of the Chiang Rai earthquake in 2014.

8. Discussion

Putnam (1993) perceives social capital from a bottom-up perspective, highlighting the importance of a civic-based approach that facilitates action and cooperation for mutual benefit. In the case study of DRR, community resilience is the shared goal to generate shared outcomes to protect all local people from the risks of rapid-onset hazards like an earthquake. Moreover, Putnam (2000) explains two kinds of social capital, which are bonding capital (inclusive) and bridging capital (exclusive). Bonding social capital is exemplified by affiliations of high similarity in demographic characteristics, while bridging comprises "relations of respect and mutuality" between people from different networks. According to Putnam (2000), the inclusive bonding social capital is the superglue of the community for providing social support and assistance, particularly during natural disasters. On the contrary, the exclusive bridging social capital consists of weaker ties connecting to various involvement from political institutions, associations, and civic organizations. The bridging/bonding distinction is thus important and useful, allowing us to simultaneously capture the dynamics of openness within civil society and closure within small exclusive groups in a way that is impossible with a single, aggregated social capital concept (Woolcock, 1998).

From the local community's feedback, the local government has the strongest capability and effectiveness in technical capability because the administrators knew the demographic characteristics of the local community and understood the social-cultural aspects regarding the safety-first values. In the social capital lens, the community resilience in Phan District has been in the form of bonding social capital. Putnam (2000) explains that bonding social capital describes the connections within a community with strong ties and relationships.

Putnam (2000) explains that bonding social capital is good for mobilizing solidarity and encouraging reciprocity. In the earthquake emergency, the local people had thick trust that the local government would effectively support and assist the community by providing protection, material, and emotional support. The local government administrators and the local people felt belonging stemming from daily interaction within the village. It encouraged community participation and institutional collaboration to "get by" (Putnam, 2000).

Edin and Lein (1997) argue that bonding social capital, on one side, will support the local community in a short-term way, but on the other side, will not allow the local community to connect with actors outside their networks that might promote social change or further development. Nevertheless, Putnam (2000) also suggests how bonding social capital can negatively affect its exclusive and inward manner. Contrastingly, the main problematic issue for DRG at the local government level is trust in financial capability due to the multi-layers of roles from the higher authorities outside the networks of the local government authority.

From the report and studies taken from the case study of the 2014 Chiang Rai earthquake, the DRG toward community resilience at the local level is preferable to be changed from vertical to horizontal directions to decrease command and control from the top and increase flexibility and adaptability to the government at the local level. Although the DRG was seen to be effective in some ways during the emergency response phase, in the long-term plan, DRG for the recovery phase was seen to be less effective, especially to the fact that TAO at the local levels works under vertical hierarchy commands. From the lens of social capital, it was still challenging for the local government to build the bridging social capital. Bridging is perceived as outward-looking networks that span diverse social classes, roles, geographical spaces, norms, and worldviews (de Souza Briggs, 2003).

As also shown by the analysis result, Thailand's governance of disaster risks, including the budgeting plan of financial capability, was still too centralized from the top to down level. Consequently, disaster management is still concerned about hierarchy (top-down relationship) and adheres strictly to standard operating procedures based on applied Acts or laws initiated by the government in disaster management projects. Furthermore, there was still a limitation for the mutual aid between TAO and PAO, especially in arranging DRR activities in the long-term plan for the local development plan, because most TAO did not have sufficient human and budget resources to collect all field information. In contrast, PAO and other supporting agencies did not have enough practical information from TAO to match the policies with the implementation.

Some authors suggested a third type of social capital, the linking social capital (Woolcock, 2001; Healy & Cote, 2001; Claridge, 2018). The linking social capital is an extension of the bonding/bridging form of social capital, which refers to ties between the network of power and the local people. Szreter and Woolcock (2004) described linking social capital as "norms of respect and networks of trusting relationships between people cooperating across formal or institutionalized power in society." During the critical moment of the disaster, the Provincial government officers reacted immediately through a well-established network of agencies that combined many actors working together and separate roles. While the government at the local level, municipality clerks, and village leaders worked dependently with the higher authority of the PAO, Provincial EOC, and Provincial DDPM to report field situations representing the local community and collect documents for further approval actions.

Linking social capital was evaluated by the World Bank in 2001 as a technique for solving the problem of how the poor are excluded from welfare decision-making (Bebbington, Guggenheim, Olson, & Woolcock, 2004). Linking social capital that might leverage resources, information, and ideas among DRG actors included law enforcement officers, social workers, health care providers, NGO officials, legislators, and public administrative officers. These vertical relationships, which connect people despite clear power disparities, could be crucial for accessing public and private services (Szreter & Woolcock, 2004). As a result, it may assist in alleviating social exclusion and improving the lives of the poor. Moreover, the self-organized capacity of the government at the local levels to information systems, human resources, budget, and coordination in sharing database systems and knowledge transfer will be increased. Thus, linking social capital has become a valuable method for incorporating social and political structure into economic analyses (Izmen & Gürel, 2020). However, linking social capital can swiftly become nepotistic or a vehicle for insider trading and political favoritism if no other regulation and accountability exist (Grootaert et al. 2003).

9. Conclusion

One of the most critical aspects of emerging capability in DRG and minimizing disaster risk for building community resilience is the continued development of local laws, rules, and public policies that involve all communities. Social capital plays an important role in strengthening community resilience. From the lens of Putnam's social capital (1993, 2000), the local government has a pivotal role in reducing community risk by encouraging networks, norms, and trust. This study performed a community survey to contribute feedback to the local

government's capability in six dimensions based on the Resource Capability Model adopted from Cigler (2007) and Kusumasari et al. (2010). Although several capabilities, like technical capabilities and policy for effective implementation capability, have been successfully achieved, results still show exacerbated barriers to establishing an effective DRR in the local government in Chiang Rai province. As discussed in previous research findings, Thailand's management of disaster situations has been firmly centralized with vertical command and control methods. From the 2014 Chiang Rai earthquake case study, the bonding social capital factors have contributed to the increase in the technical capability of the local government. However, it is still challenging for the local government to create community resilience in bridging social capital with limited financial access, human resources, and leadership support from the top vertical authorities. Hence, it is important to balance the bonding, bridging, and linking of social capital as an integrated approach in a continuum understanding of shared social, cultural, and political values among power and actors to cope with the increasing frequency and intensity of natural disaster threats.

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