Chapter 3
Crisis, Coordination, and Governance in Post-3.11 Japan

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Abstract

Japan's governance response following the Great East Japan Earthquake leveraged decentralized, bottom-up networks, harnessing local knowledge and polycentric organization to effectively address immediate humanitarian crises where formal institutions faltered. This paper argues that, despite a subsequent shift toward a centralized, state-led recovery emphasizing large-scale infrastructure projects and standardized policies coordinated by the Reconstruction Agency, successful long-term disaster recovery fundamentally depended on local adaptability and community involvement. Through case studies, this research finds that rigid, centrally mandated reconstruction plans frequently undermined local resilience and community recovery. Conversely, municipalities which effectively combined centralized resources with strong local participation and flexibility, experienced more favorable outcomes. Ultimately, the paper concludes that effective long-term disaster governance requires integrating centralized capabilities with the critical flexibility and active engagement of local actors.

1. Introduction

On March 11, 2011, a magnitude 9.0 earthquake struck off the coast of northeastern (Tōhoku) Japan, triggering a tsunami that devastated over 500 kilometers of coastline (Figure 1) and caused one of the worst nuclear accidents in history at the Fukushima Daiichi plant. Nearly 20,000 people lost their lives, hundreds of thousands were displaced, and physical and economic losses reached an estimated $235 billion—the most expensive disaster on record (Cho 2014, p. 416). In the days and weeks following the disaster, Japan mounted a massive relief effort, deploying more than 100,000 Self-Defense Forces (SDF) troops and mobilizing civil society, local governments, religious organizations, and international partners to address the humanitarian crisis. Yet even as this response unfolded, weaknesses in information sharing, inter-agency coordination, and central decision-making became visible. In the months and years that followed, Japan's recovery required the establishment of new institutions, such as the Reconstruction Agency, and the allocation of over $220 billion in national budgets over 10 years to rebuild housing, restore infrastructure, and resettle communities.

Economists working in the Austrian tradition have significantly informed the understanding of disaster response and recovery by analyzing how information, incentives, and institutional arrangements shape outcomes. Much of this literature critically examines experiences like Hurricane Katrina, where the difficulties encountered by centralized emergency management highlighted the operational limits of hierarchical control under conditions of profound uncertainty. For example, Boettke et al. (2007) provide a broad assessment of Katrina’s

aftermath, arguing that decentralized, civil society-led initiatives often proved more adaptive and responsive than formal bureaucratic interventions. Work by Chamlee-Wright and Storr extensively explores how local knowledge, social capital, and community narratives were pivotal in shaping recovery trajectories in New Orleans (Chamlee-Wright and Storr 2010a; Storr and Chamlee-Wright 2011). This body of research also contrasts the performance of different actors, with scholars like Horwitz (2009a, 2009b) documenting how private firms such as Wal-Mart, leveraging responsive supply chains and decentralized decision-making, were often more effective in crisis logistics than some government agencies. Furthermore, the literature emphasizes that institutional arrangements supporting polycentricity—characterized by multiple, overlapping centers of decision-making—can enhance successful adaptation by empowering local actors to utilize their specific knowledge (Haeffele and Storr 2020a; Storr, Haeffele-Balch, and Grube 2015). Indeed, Storr, Haeffele-Balch, and Grube (2015) argue that resilient communities are more likely to recover effectively when their efforts are driven by local entrepreneurship and bottom-up initiatives rather than predominantly by imposed, top-down planning.

Japan's initial, acute-phase response to the Great East Japan Earthquake (GEJE or 3.11 disaster) largely confirms the patterns this literature identified in other major catastrophes. The collapse of many local government functions created a governance vacuum that was filled by a de facto polycentric network of actors who leveraged local knowledge to deliver critical aid where formal systems had failed. In the subsequent long-term recovery, however, Japan pivoted to a highly centralized model, establishing the Reconstruction Agency as a "control tower" to oversee a massive, state-funded rebuilding effort (Samuels 2013). Judged by metrics of physical reconstruction, this centralized response was a monumental achievement. Backed by a national reconstruction budget that ultimately exceeded ¥32 trillion, the state successfully oversaw the completion of nearly all planned public infrastructure, including the construction of approximately 30,000 new public housing units, the full restoration of major transportation networks, and the erection of a massive new system of coastal seawalls (Takemoto et al. 2021). The impact was tangible; for instance, rebuilt expressways reduced travel times between key cities like Kesennuma and Sendai by an hour (Silva Loáiga 2023).

Yet, this success in physical reconstruction was not matched by a corresponding recovery of the region's social fabric and economic vitality. As of 2022, data shows that while the construction and transportation industries saw sales surpass pre-disaster levels, and manufacturing output had largely recovered, the same cannot be said for the region's traditional, place-based economies (Nakamura et al 2024, p. 186). Sales in the lodging and hotel industry have remained down and the vital fisheries and food processing sectors have been devastated (Nakamura et al 2024, p. 186). More critically, the top-down approach has contributed to significant social fragmentation. Multiple studies confirm that the transition into permanent public housing paradoxically worsened social isolation for many survivors, particularly the elderly, by breaking up the community bonds forged in temporary shelters (Sekiguchi et al. 2019; Shiba et al 2022). This outcome, however, was not universal. The case of Iwanuma City provides a crucial counter-example, where a deeply participatory planning process, intentionally designed to preserve existing community ties by preventing the scattering of residents, proved successful in maintaining social cohesion (Cosson 2020). This divergence suggests that adverse social

outcomes were not an inevitable consequence of the long-term recovery, but rather were contingent on the specific mode of reconstruction implemented at the community level.

This variation in local outcomes is central to this paper's argument. While Japan's long-term recovery appears as a case of successful centralization, this paper argues it was fundamentally reliant on the capacity of local, polycentric forces to adapt national directives into viable community plans. The challenges of the centralized model were most apparent where it acted as a rigid hierarchy, imposing standardized templates that overlooked local knowledge. In municipalities like Minamisanriku, for example, a government-centered redevelopment that prioritized large firms and infrastructure over local social problems led to an erosion of social capital and community discohesion (Ward 2018). Conversely, more effective outcomes emerged where there was robust coordination between state-led mechanisms and bottom-up initiatives. In communities like Iwanuma, strong local actors did not reject the centralized framework but skillfully adapted its resources to fit their own, locally-defined plans through intensive, citizen-led workshops. This demonstrates that even within a highly centralized system, the decisive factor for community well-being was the ability of polycentric, bottom-up forces to shape outcomes. Japan’s recovery, therefore, does not present a simple case of successful centralization, but rather a stress test that reveals its limits, highlighting that state capacity, while necessary, is insufficient for building truly resilient communities.

The remainder of this paper is structured as follows: Section 2 lays out the conceptual framework; Section 3 then provides an analysis of the acute emergency response to Japan's 3.11 disaster; Section 4 examines Japan's transition to a more centralized, state-led long-term recovery effort; and Section 5 concludes.

2. Conceptual Framework

Disaster recovery unfolds in phases that pose fundamentally different coordination problems. Austrian and public choice economists have argued that immediate post-disaster environments are defined by uncertainty, urgency, and dispersed knowledge, conditions under which centralized authorities struggle to operate effectively (Chamlee-Wright and Storr 2009; Haeffele and Storr 2020a). Actors embedded in local communities—such as businesses, neighborhood associations, and religious institutions—are often better equipped to identify urgent needs and act on them without waiting for formal instruction. In the immediate aftermath of a disaster, centralized actors often face severe epistemic constraints. Communication lines may be destroyed, data collection systems inoperative, and official chains of command disrupted. Under such conditions, effective coordination depends less on authority than on proximity and embeddedness. As Hayek (1945) argued, knowledge of time and place is inherently local and often tacit—conditions that favor decentralized actors who are already situated within affected communities. Building on this, several scholars argue that what enables local actors to respond effectively is not just physical proximity, but their embedded knowledge—context-specific understanding shaped by ongoing participation in the social and spatial life of the community—which allows them to grapple with ambiguity and adapt in real time (Chamlee-Wright 2007; Chamlee-Wright and Storr 2010; Horwitz 2009; Haeffele and Storr 2020a).

While local actors benefit from contextual knowledge and network embeddedness, formal institutions often face structural impediments that inhibit rapid adaptation. In large-scale disasters, overlapping mandates, rigid hierarchies, and vertical reporting structures delay both assessment and action. Many scholars argue that formal institutions often struggle to respond effectively in post-disaster settings not simply due to scale or structure, but because their procedures, incentive structures, and risk-averse norms are ill-suited to fluid and uncertain environments. These systems frequently prioritize compliance over adaptability, delay decision-making in the absence of procedural clarity, and lack mechanisms to incorporate context-specific knowledge at the point of action (Haeffele and Grube 2020; Chamlee-Wright and Storr 2010). Public agencies may hesitate to act without procedural clarity, while mid-level bureaucrats prioritize jurisdictional preservation and risk avoidance. These challenges were visible in Japan's response to the 2011 disaster, where central ministries prioritized jurisdictional authority and procedural control over responsiveness. Instead of enabling lateral coordination or delegating tasks based on on-the-ground conditions, bureaucratic actors often duplicated functions, delayed action, and imposed administrative burdens on local governments already operating under severe constraints (Samuels 2013; Cho 2014). In such environments, even well-resourced central agencies become paralyzed—not because of malice or neglect, but because the institutional design governing them was not designed for improvisation under uncertainty. The acute phase rewards responsiveness, lateral coordination, and adaptive behavior—traits more easily found in informal networks than in bureaucratic systems with formal chain-of-command dependencies.

As disaster recovery progresses beyond the immediate crisis, the nature of the coordination problem evolves. The acute-phase challenges—such as disrupted communication, lack of situational awareness, and dependence on tacit local knowledge—begin to subside as information flows improve and basic infrastructure is restored. In their place longer-term problems of aligning goals, responsibilities, and resources emerge across multiple agencies and levels of government. These new challenges center on resolving overlapping mandates, harmonizing recovery plans across agencies and levels of government, and aligning fiscal and legal mechanisms with long-term reconstruction goals. In this second phase, effective coordination depends less on improvisation and more on institutional capacity: the ability to mobilize resources, adjust legal and regulatory processes to facilitate rebuilding, and manage infrastructure projects across overlapping jurisdictions.

Johnson and Olshansky (2017) observe that in many large-scale recoveries, governments have responded by forming special-purpose agencies, initiating new institutional partnerships, and adjusting planning processes to overcome jurisdictional fragmentation and bureaucratic delay. These efforts reflect the need for long-term recovery to be driven by actors capable of sustained, large-scale implementation—roles often filled more effectively by state institutions than by informal networks. But this does not mean informal institutions are irrelevant. During the acute phase, when centralized systems are paralyzed by information loss or administrative bottlenecks, the actors best positioned to coordinate are those with embedded knowledge, operational autonomy, and incentive alignment—traits found in local civic and commercial networks. The implication is not that formal systems are unnecessary, but that their effectiveness depends on their timing and adaptability. Following the 2011 disaster, the Japanese government created the Reconstruction Agency and introduced Special Zones for Reconstruction, mechanisms intended to accelerate recovery by providing municipalities with streamlined access to regulatory

exemptions and direct fiscal support. In cities like Iwanuma and Kesennuma, these tools were used to integrate neighborhood-level input into broader land-use and resettlement strategies. But elsewhere, uniform policy templates clashed with local conditions, producing delays, bureaucratic friction, and reduced legitimacy. Long-term recovery, then, requires more than institutional capacity—it requires coordination between state-led recovery mechanisms and the informal networks that supported survival and adaptation during the immediate aftermath.

The challenge is not simply to layer informal efforts on top of formal mandates, but to understand how recovery unfolds through the interplay—and sometimes friction—between them. In the acute phase, informal institutions operate through decentralized trust networks, localized knowledge, and flexibility in decision-making. These systems thrive under conditions of uncertainty because they do not require complete information or bureaucratic authorization to act. But their reach is limited. Chamlee-Wright (2008) observes that mutual assistance efforts not only provide immediate material relief, but also function as recovery signals—conveying a community's intent to rebuild and reestablishing social ties that help coordinate labor and attract participation. These mechanisms can be undermined, however, when formal institutions introduce regime uncertainty or centralized redevelopment authority without local legitimacy, disrupting the very signaling processes communities depend on to rebuild (Chamlee-Wright 2007, p. 251). Institutional resilience in crisis appears to depend less on fixed hierarchies and more on arrangements that foster bottom-up learning and local adaptation. For instance, Storr, Haeffele-Balch, and Grube (2015) argue that polycentric systems are more suited to crisis response than rigidly centralized structures (p. 126). Effective recovery, then, involves achieving an alignment of ensuring that top-down systems, while providing essential legal and fiscal capacity, do not inadvertently strangle the bottom-up response from local leadership and organizations (Chamlee-Wright 2010, p. 144) or suppress the adaptive knowledge emerging at the ground level. The experiences from the Great East Japan Earthquake recovery illustrate this principle. Municipalities like Iwanuma, which instituted structured citizen workshops for reconstruction planning, and Kesennuma's Hashikami district, where a community-building association proactively submitted its own recovery proposal, demonstrated how strong local engagement and existing or quickly mobilized civic structures could effectively translate community priorities into the frameworks of national reconstruction programs."

Effectively bridging the gap between the operational scale of formal institutions and the nuanced, informational access of local actors frequently hinges on the willingness and ability of formal systems to yield discretionary authority. As Horwitz (2009) shows in his study of private-sector disaster response during Hurricane Katrina, resilience is closely tied to operational flexibility: Walmart succeeded because its managers were empowered to act on local information without waiting for authorization, while centralized agencies like FEMA were constrained by rigid protocols and hierarchical bottlenecks (p. 520–521). A similar point is made by Storr, Haeffele-Balch, and Grube (2015), who argue that in post-disaster contexts, "local governing units with the authority to make decisions are more likely than centralized governing authorities to overcome the challenges... because of their access to local knowledge as well as their greater flexibility and adaptability" (p. 126). Chamlee-Wright (2010) also cautions that "rigid adherence to regulatory code in times of crisis can strangle the bottom-up response" (p. 144) and advocates for devolving power because "local leadership also needs the flexibility and discretion" (p. 148). In the recovery phase, this principle is critical. Where central agencies permit procedural

discretion, delegate planning authority, or accept local input, they are more likely to produce credible commitments and sustain momentum. In Japan, this was evident in Iwanuma and parts of Kesennuma, where municipal governments used their discretion within Reconstruction Agency frameworks to institutionalize participatory planning. These municipalities did not reject national authority; they translated it. But where formal systems imposed rigid compliance—for example, in land readjustment programs that required fixed sequencing or budgetary plans that penalized iterative design—municipalities became risk-averse, innovation stalled, and community legitimacy eroded (Cho 2014, p. 165). These outcomes reflect a broader insight that institutional effectiveness is not defined solely by jurisdictional power, but by epistemic openness—the ability to absorb local information and shift the discretionary authority accordingly.

If recovery is ultimately a problem of institutional coordination under changing constraints, then the critical variable is not who governs, but how institutions coordinate across boundaries of knowledge, authority, and scale. Post-disaster environments, as Chamlee-Wright (2010) extensively discusses, are fundamentally contexts for social learning. Effective recovery thus requires institutional arrangements that enable communities to discover and adapt viable strategies; this involves, for instance, policy that avoids creating signal noise which distorts local information flows, and instead fosters an environment where power can be devolved and rules adapted to local circumstances (Chamlee-Wright 2010). Similarly, Storr, Haeffele-Balch, and Grube (2015) argue that effective approaches to disaster management and recovery are likely to be ordered according to the principles of polycentrism. Such systems, characterized by multiple autonomous centers of authority that are formally independent yet interdependent, are considered better suited than monocentric systems for crises because they allow for greater flexibility and adaptability, better utilization of local knowledge, and are more likely to adjust to changing circumstances.

Disaggregating disaster response into distinct phases—acute and long-term—clarifies how different coordination problems require different institutional solutions. In the immediate aftermath of a catastrophe, uncertainty dominates. Information is local, fragmented, and perishable; needs shift hourly; and action must often precede understanding. Under these conditions, decentralized actors—those closest to the ground—frequently outperform formal systems, not because they are more powerful, but because they are structurally equipped to act without bureaucratic delay. In contrast, recovery requires durable institutions capable of planning over long time horizons, managing large fiscal transfers, and resolving interjurisdictional conflicts. This shift in coordination type is critical. The contribution of this framework is to treat acute response and recovery not as discrete episodes but as overlapping regimes of institutional competence. Instead, failure is frequently rooted in the state’s rigidity, particularly its struggle to appropriately yield discretionary authority or shift roles to ensure that the actors best equipped to handle the distinct coordination demands of each phase—whether acute response or long-term recovery—are empowered to act effectively. Consequently, successful recovery hinges on establishing institutional arrangements that preserve the learning and responsiveness of bottom-up systems while effectively integrating them with formal structures that provide fiscal and legal reach. Chamlee-Wright's (2010) analysis of post-Katrina New Orleans offers critical insights here, particularly her examination of how the post-disaster 'civil society vacuum' is filled (p. 135). She argues that for recovery to effectively unfold, this vacuum should be primarily filled

by returning private stakeholders, as their early actions are vital for signaling recovery and fostering optimistic expectations among the displaced. Government policies, in this view, best support recovery by fostering swift and informed private decision-making and avoiding actions that create uncertainty or impose delays, which could allow the state to prematurely dominate the recovery environment and thereby diminish local agency and lead to pessimistic expectations (Chamlee-Wright 2010, p. 135-136).

3. Acute Response

The Great East Japan Earthquake of March 11, 2011, a magnitude 9.0 megathrust event, occurred off Japan's Pacific coast, initiating a catastrophic sequence of events (Samuels 2013, p. 3-4). The ensuing tsunami reached devastating heights, reportedly exceeding 40 meters in some areas, and penetrated as far as 10 kilometers inland, causing widespread destruction to coastal municipalities (Cho 2014, p. 157). The disaster resulted in 19,759 deaths (including disaster-related deaths) and left 2,553 people missing as of March 1, 2022 (Reconstruction Agency 2023, p. 2). An estimated 470,000 people were displaced in the immediate aftermath (Cho 2014, p. S157; Yonetani 2017, p. 2). Numerous coastal municipalities, including Rikuzentakata, Minamisanriku, Ōtsuchi in Iwate Prefecture, and Ishinomaki, Higashimatsushima, and Onagawa in Miyagi Prefecture, experienced near-total destruction of public infrastructure, residential areas, and local industries (Sakamoto 2012, p. 27; Fukumoto 2019, p. 2; McLaughlin 2013, p. 301). The crisis escalated with the nuclear accident at the Fukushima Daiichi Nuclear Power Plant, where tsunami-induced damage to cooling systems led to reactor meltdowns and significant radioactive releases, compelling large-scale evacuations (Reconstruction Agency 2023, p. 7). Critical lifeline systems, including roads, ports, railways, and communication networks, suffered severe damage or were destroyed across the affected region (Reconstruction Agency 2023, p. 4-5). Consequently, many municipal governments became immediately non-functional due to the loss of essential facilities and personnel (Sakamoto 2012, p. 3). These initial conditions exemplified the extreme uncertainty and radically dispersed knowledge characteristic of major disasters. The established disaster response protocols, such as those outlined in Japan's Disaster Countermeasures Basic Act (Reconstruction Agency 2023, p. 6), were immediately overwhelmed by the scale and complexity of the event. The first weeks following March 11 were thus defined by emergent and often improvised coordination efforts among a variety of actors striving to establish operational order amid widespread institutional failure and severe informational deficits.

Japan's formal disaster management framework, primarily established by the Disaster Countermeasures Basic Act of 1961, delineates a multi-tiered system for emergency response with the national government responsible for overall policy, coordination, and the mobilization of large-scale support (Reconstruction Agency 2023, p. 6).The Cabinet Office, operating under the Prime Minister and the appointed Minister of State for Disaster Management, serves as the central coordinating authority (Reconstruction Agency 2023, p. 7). In the event of a significant disaster, the Act mandates the establishment of an emergency response headquarters. Depending on the disaster's scale, this can be a Headquarters for Major Disaster Management, headed by the Minister of State for Disaster Management, or, for more severe events, an Extreme Disaster Management Headquarters, chaired by the Prime Minister (Reconstruction Agency 2023, p. 10). The Central Disaster Management Council, also chaired by the Prime Minister and comprising

all cabinet ministers, heads of major public corporations, and academic experts, formulates the overarching Basic Disaster Management Plan, which provides strategic direction for the nation's disaster preparedness and response (Reconstruction Agency 2023, p. 8). National-level information gathering is centralized through the Cabinet Information Collection Center, operating continuously, and an emergency team of director-generals from relevant ministries is designed to convene at the Prime Minister's Official Residence to rapidly analyze situational reports (Reconstruction Agency 2023, p. 10). The national framework is also designed to provide wide-area support to affected localities, including the dispatch of national police units, Emergency Fire Response Teams, the Japan Coast Guard, and the Japan Self-Defense Forces (JSDF), whose deployment for disaster relief is typically initiated upon request from prefectural governors (Reconstruction Agency 2023, p. 10). Additionally, the national government is prepared to offer "push-mode" support by proactively procuring and transporting essential relief supplies to disaster-stricken areas (Reconstruction Agency 2023, p. 10). Prefectural governments function as a critical intermediary layer, tasked with establishing their own disaster management headquarters, aiding overwhelmed municipalities, coordinating resource distribution within their jurisdiction, and liaising with the national government, including any on-site national headquarters established in the field (Reconstruction Agency 2023, p. 12). This formally structured, hierarchical system, with its designated roles and channels for information flow and resource mobilization, represents Japan's intended plan for managing large-scale disasters and providing centralized coordination and support.

In the initial 24 to 72 hours post-tsunami, the operational capacity of municipal governments, designated as primary responders under the Disaster Countermeasures Basic Act (Sakurai and Sato 2018 p. 116), effectively collapsed in numerous severely impacted coastal towns. The tsunami inundated or destroyed municipal administrative buildings, including town halls and disaster prevention centers crucial for emergency operations (Sakamoto 2012, p. 28). In Minami Sanriku (located in Miyagi prefecture), nearly 7 percent of its population was instantly wiped out, and in Rikuzentakata (located in Iwate prefecture) one-third of its municipal officials perished (Samuels 2013, p. 4). Ōtsuchi’s mayor and a significant number of municipal staff perished when their town office was destroyed (Aoki 2015, p. 2). This destruction of physical infrastructure and loss of key personnel rendered established emergency protocols largely irrelevant. The widespread failure of communications systems, including landlines and cellular networks, further crippled any remaining local response capacity by severing information links (Cabinet Office 2012, p. 3-4). Social Welfare Councils, vital for local volunteer coordination and aid distribution, were also directly hit (Sakamoto 2012, p. 28). For example. in Ishinomaki, one of the worst hit cities in the region, the local Social Welfare Council had to relocate its volunteer center as the intended one was washed away (Sakamoto 2012, p. 30). This immediate paralysis of local administrative capacity created a critical governance vacuum, illustrating the "epistemic constraints" and operational failures that hierarchical systems face when their local nodes are eliminated. Higher-level authorities, including prefectural and national governments as well as the JSDF, despite possessing resources, consequently faced an acute Hayekian knowledge problem, lacking the timely, localized information essential for effective action.

In response to the disaster, the central government in Tokyo activated its highest-level emergency protocols. Prime Minister Naoto Kan established an official Emergency Disaster Countermeasures Headquarters in his office less than an hour after the earthquake, and shortly

thereafter convened the Extreme Disaster Management Headquarters, also under his direct leadership (Samuels 2013, p. 143). Concurrently, individual ministries and agencies established their own disaster headquarters, leading to a proliferation of command centers; by March 13, more than a dozen such parallel headquarters were active (Samuels 2013, p. 11; Leng 2015, p. 10). This multiplication of headquarters, however, did not translate into seamless coordination. Instead, it exemplified Japan's longstanding problem of *tatewari gyōsei*, or vertical administrative silos, where ministries operate with considerable autonomy and limited horizontal integration (Samuels 2013, p. 8). In the critical early days, these ministries often issued separate and sometimes overlapping directives and information requests to already overwhelmed prefectural and municipal governments (Leng 2015, p. 10; Samuels 2013, p. 12). This lack of integrated operational direction across ministries led to procedural duplication, resource misallocation, and confusion among frontline responders (Bosner 2012a; Bosner 2012b). Compounding these coordination issues was the severe informational deficit. With local government functions crippled and communication lines severed in many affected areas, the central government struggled to obtain accurate, real-time situational awareness. This informational black hole severely hampered the ability of national agencies to effectively target relief efforts or allocate resources based on actual needs, illustrating the acute knowledge problem confronting centralized authorities in a rapidly evolving, large-scale crisis.

Deployment of the Japan Self-Defense Forces (JSDF) was swift and the scale massive. Approximately 100,000 personnel within three days of the March 11 earthquake, constituting the largest domestic operation in their history, were sent to the afflicted areas (Samuels 2013, p. 89). Their contributions were extensive and critical: JSDF personnel conducted search and rescue missions, served 4.5 million meals, supplied over 30,000 tons of water, cleared 500 kilometers of roads, and recovered the remains of more than 8,400 individuals (Samuels 2013, p. 89). A unified joint task force, headquartered at the JSDF Sendai base by March 14, facilitated rapid internal decision-making (Samuels 2013, p. 89). In numerous devastated coastal areas where municipal government had collapsed, JSDF units became the de facto administrative presence, undertaking rescue and relief efforts (Samuels 2013, p. 91). The JSDF's effectiveness was noted by local officials, with one from Iwate Prefecture remarking on their impressive ability to "take charge" (Samuels 2013, p. 91). This operational capacity was supported by prior disaster preparedness, including specific drills simulating a Tōhoku earthquake and tsunami (Samuels 2013, p. 92).

Horwitz (2009) argues that effective disaster response is often enhanced by decentralizing responsibility to units with strong local connections and the discretion to act on local knowledge, citing the U.S. Coast Guard's performance during Hurricane Katrina as a key example. The Coast Guard's success was attributed to its numerous local offices, close working relationships with local residents (including those with private boats who assisted in rescues), and a decentralized command structure that empowered on-the-spot decision-making (Horwitz 2009, p. 39). While the JSDF operates as a more hierarchical structure, elements of its effective response in the EJET reflect similar principles. The presence of over 20,000 Tōhoku-native personnel among the first responders provided a degree of local embeddedness and familiarity (Samuels 2013, p. 89). Furthermore, the JSDF's operational effectiveness was significantly amplified by its ability to integrate with local knowledge networks. For instance, in Ishinomaki, JSDF teams relied on shelter maps created by Peace Boat volunteers to target aid (Sakamoto 2012, p. 33; Samuels 2013, p. 90). This necessity for local intelligence led to field-level adaptations and collaborative

efforts, such as the "three-party meetings" in Ishinomaki and Kesennuma, where JSDF officers, local government remnants, and NPO representatives planned daily relief efforts (Sakamoto 2012, p. 33). These emergent, polycentric coordination mechanisms demonstrate how the JSDF, despite its centralized nature leveraged linking capital with decentralized actors to overcome epistemic constraints and enhance the efficacy of its considerable logistical capabilities (Horwitz 2020, p. 39; Lee 2018, p. 34).

Various elements of Japan's civil society also mobilized with remarkable speed to address immediate needs on the ground. Building on the experience of the 1995 Kobe earthquake, which spurred the growth of volunteerism and the non-profit sector in Japan, NPOs were among the first to act (Pekkanen 2015, p. 4; Leng 2015, p. 1). Members of the Japan Platform—a coordinating NPO to support humanitarian relief for developing countres founded by NGOs, the Ministry of Foreign Affairs (MOFA), and the Japan Business Federation— deployed assessment teams into severely affected coastal cities like Ishinomaki and Onagawa (Sakamoto 2012, p. 29-30). These teams quickly identified an acute lack of basic information: lists of functioning shelters, accurate counts of evacuees, and reliable channels for communicating needs to higher authorities were largely non-existent (Sakamoto 2012, p. 30). To facilitate broader information exchange and collaboration among the many responding NGOs/NPOs, the Japan Civil Network (JCN) was created on March 30, marking the first large-scale official networking of such organizations in Japan. JCN, which grew from 141 to over 700 member organizations by December 2011, enabled these groups to share information about their activities, local conditions, and challenges encountered (Sakamoto 2012, p. 33). While JCN served as a useful platform for information exchange, making decisions on specific issues through such a broad network was difficult due to the varied missions and experiences of its diverse member organizations (Sakamoto 2012, p. 33).

In Ishinomaki, a city that suffered immense devastation and where municipal functions were severely impaired, the NPO Peace Boat, drawing on its prior disaster relief experience, initiated ad hoc coordination meetings among the various NPOs and unaffiliated volunteers arriving in the area (Sakamoto 2012, p. 31; Leng 2015, p. 10). These initially informal gatherings rapidly evolved, and by mid-March, they had coalesced into the Ishinomaki Disaster Recovery Assistance Council (IDRAC). IDRAC convened daily, serving as a crucial local node for collating and sharing disparate pieces of information gathered from individual shelters, surviving Social Welfare Council members, and local religious organizations. Its functions included mapping active shelters, assigning NPOs to specific shelter coverage to avoid duplication and gaps, tracking shortages of critical supplies like food and sanitation items, and sharing this synthesized operational picture with JSDF units to help guide their relief efforts (Sakamoto 2012, p. 32-33). This illustrates a practical attempt at creating order from chaos through inter-organizational networking at the local level.

Religious organizations, leveraging their established networks, physical infrastructure, and dedicated memberships, were also critical first responders. Soka Gakkai, a large lay Buddhist organization with prior disaster relief experience from Kobe, began relief operations within hours. Its Tōhoku Cultural Center in Sendai, for instance, sheltered 600 refugees by the evening of March 11, and by March 14, Soka Gakkai was hosting over 3,200 evacuees in 24 of its culture centers across Tōhoku, irrespective of their religious affiliation (McLaughlin 2013, p. 303;

Fisker-Nielsen 2012, p. 18). At its peak, their facilities accommodated around 5,000 people, with members providing meals, temporary toilets, and delivering supplies to other official and unofficial shelters by car or bicycle (Fisker-Nielsen 2012, p. 18; Fisker-Nielsen 2013, p. 195; Asai 2018, p. 1327). Their swift action was partly due to internal disaster relief guidelines and a well-organized national structure (Fisker-Nielsen 2012, p. 19). Many other established Buddhist denominations (such as Rinzai Zen, Sōtō Zen, Jōdo Shinshū, and Shingon-shū), Shinto shrines, and numerous Christian churches and organizations (Caritas Japan and various other denominations like the United Church of Christ in Japan and the Japan Baptist Union) also opened their temples, shrines, and churches as evacuation centers, providing shelter, food, clothing, and other essential supplies from the earliest days of the disaster (McLaughlin 2011; McLaughlin 2013). For example, a Rinzai Zen temple in Rikuzentakata housed 69 evacuees and hosted Red Cross medical teams (McLaughlin 2011, p. 292). Other New Religious Organizations such as Risshō Kōseikai cooperated with the secular Japan National Council of Social Welfare to carry out needs assessments and aid work (McLaughlin 2013, p. 302). Muslim communities also contributed; the Sendai Mosque served as an initial shelter for a few individuals on March 11 and subsequently became a vital distribution center for supplies, including halal food, for both Muslims and the wider community, with volunteers and aid also coming from other mosques and Muslim organizations across Japan (Kotani et al. 2023; Asai 2018).

The swift and multifaceted mobilization of Japan's civil society in the immediate aftermath of the 3.11 disasters—encompassing a wide range of NPOs, established religious organizations, and emergent volunteer groups—was instrumental in addressing critical information and resource gaps created by the paralysis of formal state institutions at the local level and the initial coordination challenges at the national level. These non-state actors, by virtue of their embeddedness within or rapid deployment to affected communities, demonstrated a distinct capacity to overcome the acute knowledge problem that plagued more centralized entities. NPOs conducting on-foot damage assessments and religious groups like Soka Gakkai leveraging their extensive local networks and facilities were able to gather, process, and act upon granular, time-sensitive information regarding survivor locations, specific needs, and local conditions far more effectively in the initial hours and days than distant bureaucratic structures. The efficacy of many of these groups, particularly religious organizations with strong pre-existing community ties and national organizational structures, was significantly amplified by their existing social capital. This included both bonding capital within their memberships, which facilitated rapid internal mobilization of volunteers and resources, and bridging capital, demonstrated when these organizations extended aid to non-members and began to coordinate with other responding entities, including other religious groups and secular NPOs. The trust, shared norms, and established communication channels inherent in these networks drastically reduced the transaction costs typically associated with collective action, which is especially critical in high-stress, information-poor disaster environments.

Furthermore, the efforts to establish broader coordination among NPOs, such as the formation of the Japan Civil Network (JCN), and more localized operational bodies like the Ishinomaki Disaster Recovery Assistance Council (IDRAC), exemplify processes of social entrepreneurship (Chamlee-Wright and Storr 2010). Leaders within NPOs and local community activists identified critical coordination failures and coordinated with other organizations to improve information flow and resource allocation among a diverse set of actors. While a broad network like the JCN

faced difficulties in specific decision-making due to the varied missions of its members, its role in information exchange, alongside the more targeted operational coordination of bodies like IDRAC, contributed to a polycentric governance landscape. This multiplicity of decision-making centers and overlapping efforts provided a degree of robustness and adaptability to the overall response. Different organizations addressed different needs based on their specific capacities and local knowledge. These civil society actions were not merely supplementary to an otherwise functioning state response; in many instances during the acute phase, they constituted the primary de facto governance system for information gathering, resource distribution, and local-level coordination, demonstrating the critical importance of non-state actors in navigating the profound complexities of a mega disaster.

The acute response to the 3.11 disaster in Japan, spanning roughly the first three to four weeks, was thus characterized not by the seamless execution of pre-ordained national plans, but by a complex, dynamic, and often improvised interplay between overwhelmed formal institutions and a rapidly mobilized, diverse civil society. While the central government activated its emergency headquarters and the JSDF deployed with significant logistical capacity, the widespread collapse of municipal governments and communication infrastructure created severe epistemic constraints. This resulted in a pronounced knowledge problem, where centralized actors lacked the timely, localized information necessary for effective resource allocation and targeted relief. Into this void stepped NPOs, religious organizations, student volunteers, and other civic and economic actors, leveraging embedded knowledge and social capital to conduct initial needs assessments, establish ad-hoc shelters, and create rudimentary information and supply chains. The emergence of coordination hubs like IDRAC in Ishinomaki and the "three-party meetings" involving JSDF, local officials, and NPOs, exemplified a form of polycentric crisis governance. The JSDF, despite its hierarchical structure, demonstrated a degree of adaptability by integrating with local information networks. This period underscored the limits of purely centralized disaster response in a catastrophe of this magnitude and highlighted the critical role of decentralized, bottom-up initiatives in achieving a degree of operational order and delivering life-saving aid. The acute phase was an illustration of how institutional resilience in extreme events often depends on the robustness derived from the coordination of state and local actors, rather than on the efficacy of any single command structure.

4. Long-Term Recovery

Following the March 11, 2011, earthquake and tsunami, Japan's initial disaster response was managed by the Extreme Disaster Management Headquarters, established the same day (Cabinet Office, 2023). The shift towards long-term recovery began with the enactment of the "Basic Act on Reconstruction" in June 2011 (Reconstruction Agency 2023; Samuels 2013). This act led to the establishment of the Great East Japan Earthquake Reconstruction Headquarters in the same month, tasked with creating a system to promote earnest recovery and reconstruction (Cabinet Office, 2023). The Basic Act also provided a legal basis for entities like the Reconstruction Design Council, which helped formulate basic guidelines for the recovery (Samuels 2013; Cabinet Office, 2023). A more centralized approach was solidified with the Act for Establishment of the Reconstruction Agency, enacted in December 2011 (Reconstruction Agency 2023). This led to the inauguration of the Reconstruction Agency on February 10, 2012 (Reconstruction Agency 2023; Cho 2014; Samuels 2013). Envisioned as a central "control tower" (Samuels

2013) or "one-stop agency" (Cho 2014), the Reconstruction Agency subsequently took over the functions of the Reconstruction Headquarters (Reconstruction Agency 2023). Its primary responsibilities included the overall planning, drafting, and coordination of reconstruction measures across ministries; managing a substantial national reconstruction budget, which eventually exceeded ¥32 trillion over a decade; and guiding prefectural and municipal governments in critical areas such as housing reconstruction, infrastructure development, and economic revitalization (Reconstruction Agency 2023; Samuels 2013).

A significant component of the national strategy was the creation of Special Zones for Reconstruction under the Act on Special Zones for Reconstruction, enacted December 2011. These zones aimed to accelerate recovery and stimulate economic activity by offering a package of measures including simplified procedures for regulatory approvals, preferential tax treatment (such as exemptions or special depreciation rates for investments), and financial assistance programs (Reconstruction Agency-5 2023, p. 18-19). Municipalities could propose their own zone plans, thereby ostensibly having a degree of latitude in directing these incentives towards locally prioritized sectors and projects (Reconstruction Agency-2 2023, p. 199; Cho 2014, p. 163). For reasons explained below this wasn't always the case, however. For the physical rebuilding of communities, particularly those devastated by the tsunami, the government heavily promoted and funded Disaster Prevention Collective Relocation Promotion Projects, which facilitated the movement of entire residential communities to safer, higher ground, and large-scale land readjustment and elevation projects (Reconstruction Agency-5 2023, p. 18 ; Iuchi et al. 2015, p. 35). While the national government provided substantial financial backing for these endeavors, the primary responsibility for detailed urban planning, including land use decisions and community design within these projects, rested with the municipal governments (Reconstruction Agency 2023, p. 2; International Recovery Platform (IRP) 2020, p. 4-9). This framework was intended to empower local actors, but the process often involved complex negotiations between national directives, prefectural oversight, municipal capacities, and differing resident opinions, sometimes leading to delays or a perception of top-down pressure despite the emphasis on local initiative (Cho 2014, p. 163-167).

The practical implementation of these locally-led reconstruction efforts frequently encountered significant obstacles, reflecting a gap between the policy's intent and the on-the-ground realities. One major challenge was the limited capacity of disaster-stricken municipalities, many of which had lost staff and resources in the disaster itself (Aoki 2015; Ubaura 2017). This often made it difficult for local governments to effectively manage complex projects, secure necessary agreements, and navigate the bureaucratic requirements associated with national funding and prefectural oversight (Cho 2014, p. 163-164). Furthermore, the process of consensus-building within communities proved to be arduous. The dispersal of residents into temporary housing, sometimes far from their original neighborhoods, complicated communication and participation in planning meetings (Ubaura 2017, p. 6-7; Kuroishi 2018, p. 1). Differing opinions among residents regarding relocation, the design of new residential areas, and the balance between safety measures and the desire to rebuild livelihoods created further complexities (Cho 2014, p. 167; Ubaura 2017, p. 8; Posio 2019, p. 45). For instance, in Yamamoto, the town's reconstruction policies, which prioritized relocation to new compact cities and placed restrictions on rebuilding in coastal zones, were perceived by some resident groups as neglecting the needs and desires of

those wishing to remain or rebuild in situ, leading to feelings of abandonment and inequality (Posio 2019, p. 51-52).

Moreover, the top-down nature of some national guidelines and the need to adhere to prefectural plans often constrained local autonomy, despite the rhetoric of local empowerment (Cho 2014, p. 164; Puppim de Oliveira and Paleo 2016). The Special Zones for Reconstruction, for example, while offering some deregulation, still required central government approval for plans, and municipalities often had to align their proposals with lists of nationally approved project types, which were heavily focused on physical infrastructure (Cho 2014, p. 163-165). This sometimes led to a disconnect between the large-scale infrastructure projects and the more nuanced social and economic recovery needs of the communities (Ward 2021, p. 11; Nakamura et al. 2023, p. 2). The significant delays in housing reconstruction and the long periods spent in temporary accommodations also took a toll on residents' well-being and community cohesion, with particular impacts on vulnerable groups like the elderly (IDMC 2017; Kuroishi 2018, p. 4-5). Consequently, the intended empowerment of local actors was often undermined by structural constraints, capacity issues, and the inherent difficulties of participatory planning in a post-disaster context of such magnitude.

In Minamisanriku, Miyagi Prefecture, the reconstruction planning demonstrated that official procedures were at odds with resident input. While a resident intention survey was conducted early on, the finalized reconstruction plan, particularly concerning safety measures and eligibility for government-sponsored relocation, did not always align with the initial broad preferences expressed by residents (Ward 2021, p. 9-10). The recovery planning process was largely government-centered, and critical decisions regarding land use and relocation were often made with limited direct resident involvement in the formal decision-making bodies, leading to subsequent conflicts and delays when implementation began (Ward 2021, p. 10). Furthermore, the focus of redevelopment and resource allocation on specific districts, like Shizugawa, created disparities and left other districts such as Togura feeling underdeveloped and lacking essential social and economic infrastructure (Ward 2021, p. 11). Residents from these less-serviced areas reported difficulties in accessing information and in feeling that they could affect change in their community, which hindered their ability to influence outcomes effectively, suggesting that standardized procedures did not adequately capture or respond to the diverse and evolving needs of all community segments (Ward 2021, p. 18). This situation discouraged a more iterative, locally-driven planning process as residents perceived the system as inflexible or unresponsive to their specific circumstances.

Similarly, in Yamamoto, Miyagi Prefecture, the *machizukuri* (community-building) processes, which were intended to facilitate resident participation, were often perceived by the community as top-down directives rather than collaborative planning efforts (Posio 2019, p. 43-44). The town’s reconstruction plan emphasized collective relocation to newly established compact cities and imposed restrictions on rebuilding in coastal areas, a strategy heavily guided by national policies and available subsidies (Posio 2019, p. 51-52). This approach limited the options available to residents and did not fully accommodate the desires of those who wished to rebuild in their original locations or had alternative visions for their communities. Many residents felt that their input during consultation meetings was not genuinely incorporated into the final plans, leading to a sense that their participation was a mere formality and that the prescribed

participatory framework offered them little actual agency (Posio 2019, p. 51). The standardized procedures for relocation and housing construction, while aiming for efficiency, often failed to address the specific needs and preferences of individuals or the nuances of rebuilding a community's social fabric, thereby creating bureaucratic friction and a sense of reduced legitimacy for the recovery efforts among segments of the population (Posio 2019, p. 52).

Despite these overarching challenges that often led to a sense of top-down control, some municipalities made notable efforts to foster genuine citizen engagement and integrate local voices into their land-use and resettlement strategies. In Iwanuma City, Miyagi Prefecture, the reconstruction process actively incorporated citizen participation, especially regarding community relocation projects (Ishikawa 2015). Following the disaster, the city established a "Reconstruction Committee" on April 25, 2011, which included survivors, scholars, and leaders from agricultural and industrial sectors, to help shape recovery plans (Ishikawa 2015, p. 809). A notable case is the Tamauranishi district, where residents of six coastal villages reached an early consensus on collective relocation (Ishikawa 2015, p. 808; Ubaura 2017, p. 4). To facilitate this, a Town Planning Study Committee for Tamauranishi was established in June 2012, bringing together academic experts with citizens from the affected and surrounding areas. This committee convened 28 workshops over an 18-month span to deliberate on town planning policies, land use, and the layout of facilities (Ishikawa 2015, p. 811; Ubaura 2017, p. 4-5). This participatory process extended even to the selection of architects for the public housing, who were chosen by residents following a design competition (Cosson 2020, p. 14). This "Citizen Workshop" phase (identified as Stage 2 of Iwanuma's reconstruction) enabled survivors to collaboratively design their new community, prioritizing safety, the preservation of existing community ties, and the creation of a child-friendly environment (Ishikawa 2015, p. 810). This focus on maintaining community bonds was a direct lesson from past disasters, such as the 1995 Hanshin-Awaji earthquake where relocation led to severe social isolation, and was implemented by dividing the new district into six zones to keep residents from the same village together in neighborhood "clusters" (Cosson 2020, p. 15). Although the city administration initially proposed a different, more uniform plan, the final land-use plan for the Tamauranishi relocation project significantly reflected the principles and desires articulated by the residents during these workshops, indicating a successful blending of local input with broader resettlement strategies (Ishikawa 2015, p. 811).

Simimarly, Kesennuma City, also in Miyagi, demonstrates similar efforts where neighborhood-level engagement, often channeled through Neighborhood Voluntary Civic Associations (NVCAs), played a crucial role in the recovery (Otsuyama and Shaw 2021, p. 1). The Hashikami district is a key example where the community took a proactive stance. Here, a "Hashikami Machitzukuri Kyogikai" (community-building association), comprising various local groups, was formed to develop a comprehensive vision for the district's recovery (Araki 2017, p. 93). This association independently drafted a "Hashikami Recovery Proposal" and presented it to the city government. This proposal emphasized a self-reliant approach, detailing actions the district could manage on its own—such as NVCA-led disaster risk reduction plans and the updating of hazard maps—and identifying areas where municipal support was essential (Otsuyama and Shaw 2021, p. 6). The high level of participation in Hashikami’s mass relocation project and the successful rebuilding of homes were attributed to this deep resident involvement, the assistance of university researchers in planning layouts, and a concerted effort to revive local employment,

such as seaweed farming (Araki 2017, p. 93). While national frameworks like the Special Zones for Reconstruction were designed to support such local endeavors (Cho 2014, p. 163), the achievements in Kesennuma, and specifically in Hashikami, underscore the importance of robust, pre-existing, or quickly mobilized local-level collaboration and leadership in effectively utilizing these state-led mechanisms to meet community-defined recovery goals.

While the initial response relied heavily on the adaptive capacities of more decentralized actors as discussed in Section 3, the recovery phase necessitated the mobilization of significant institutional capacity for large-scale rebuilding, resource management, and inter-jurisdictional planning—roles the Japanese government sought to fill through the Reconstruction Agency and national programs like the Special Zones for Reconstruction. However, the shift towards these more formalized, state-led mechanisms did not automatically resolve coordination challenges. Instead, as seen in Minamisanriku and Yamamoto, the imposition of standardized policy templates and the intricacies of bureaucratic procedures often clashed with local conditions and the nuanced social and economic recovery needs of communities (Ward 2021; Posio 2019). This echoes the concerns raised in the broader disaster literature about how centralized interventions, if not carefully attuned to local contexts, can generate signal noise, creating uncertainty and discouraging the very community-led initiatives and local entrepreneurship that are vital for sustainable rebound (Chamlee-Wright 2007; Storr, Haeffele, and Grube 2015). The difficulties in achieving genuine consensus and the perception of top-down pressure, despite frameworks designed for local empowerment (Cho 2014; Puppim de Oliveira and Paleo 2016), underscore the challenge of effectively bridging the knowledge and operational divide between state actors and the embedded, often tacit, knowledge of local communities.

Conversely, the more positive trajectories observed in Iwanuma and Kesennuma highlight the critical importance of achieving coordination between state-led recovery mechanisms and the informal networks that supported survival and adaptation. In these cases, the national tools and fiscal support were more effectively leveraged because of robust local engagement, whether through structured citizen workshops as in Iwanuma (Ishikawa 2015) or proactive community-led proposals as seen in Kesennuma's Hashikami district (Araki 2017; Otsuyama and Shaw 2021). These examples align with findings from studies on Hurricane Katrina and other disasters, which emphasize that recovery is often driven by the social capital, collective narratives, and the entrepreneurial actions of local commercial and civil society actors who are deeply embedded in their communities (Chamlee-Wright and Storr 2009; Storr and Chamlee-Wright 2015; Horwitz 2009). The Japanese experience detailed in this section, therefore, reinforces that while state capacity is indispensable for the scale and legal-fiscal authority required in long-term recovery, its ultimate effectiveness is profoundly shaped by its ability to create an institutional environment that supports, rather than supplants, bottom-up learning, local adaptation, and the diverse initiatives emerging from the affected populace (Chamlee-Wright 2010; Haeffele and Storr 2020a).

5. Conclusion

In the immediate aftermath of the 3.11 disaster, the scale of devastation necessitated a de facto polycentric response. The JSDF's massive deployment provided essential logistical support, working alongside a rapidly mobilized civil society that leveraged local knowledge and social

capital where formal systems were initially overwhelmed. While demonstrating flexibility, this phase also exposed challenges in inter-agency coordination, reflective of Japan's vertical administrative silos, and difficulties arising from the incapacitation of some local governments.

The transition to long-term recovery featured a strategic centralization of authority with the Reconstruction Agency and national frameworks like Special Reconstruction Zones, aiming to manage the vast rebuilding effort. However, this top-down approach remained fundamentally dependent on local governments and community actors to operationalize national directives. The success of these efforts varied significantly, contingent upon local capacities, the strength of pre-existing civic networks, and the effectiveness of national-local collaboration. Cases like Iwanuma and Kesennuma demonstrated successful integration of local input, while other areas faced challenges with standardized templates clashing with local realities.

The EJET experience powerfully illustrates that effective disaster governance requires continuous institutional adaptation. The core challenge lies in aligning institutional approaches and reallocating authority to match the distinct coordination problems of each disaster phase. The acute phase benefits from decentralized, adaptive responses leveraging local knowledge, while long-term recovery demands the scale and resources of formal institutions. Japan’s response highlighted the importance of bridging this divide. The national commitment, exemplified by the Reconstruction Agency and substantial budgets, was a clear strength. However, the most effective outcomes emerged where these top-down resources were flexibly applied, empowering local actors and integrating their embedded knowledge, rather than supplanting local agency.

For future disasters, Japan's experience emphasizes several points. First, the capacity of civil society is a critical asset, even in strong states, and should be actively fostered and integrated. Second, centralized recovery mechanisms must be designed with inherent flexibility to accommodate diverse local contexts and enable meaningful community participation. The successes seen in some Japanese municipalities, where national frameworks were effectively translated and adapted through local engagement, offer a pathway. Ultimately, resilience is not achieved through rigid control but through an adaptive governance system that dynamically balances centralized capacity with decentralized knowledge and action, ensuring that appropriate institutional tools are applied as the needs of a crisis evolve.

Figures

Figure 1: Map of Tōhoku, Japan (Schauwecker 2017)

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