

Prioritizing Recovery: Expected Roles of Public Support during the Noto Peninsular Earthquake

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Abstract: The recovery from the damage of Noto Peninsular Earthquake in Ishikawa Prefecture, Japan that occurred at 16:10 on New Year's Day of 2024 would be the time of challenge to realize a drastic change: from the approach to the disaster recovery characterized by the government-centered decision-making for the investment as in the East Japan Earthquake/Sendai Framework, to the participatory approach to set a priority on the satisfactory reconstruction of affected people and community with their trust and pride secured. The institutional framework to guarantee the participation of affected communities in the governmental decision-making for town-rebuilding is critical to realize a satisfactory choice of priority.

Key words: Noto Peninsular Earthquake, damage estimation, recovery budget, standard of safety

1. Introduction

The Noto Peninsular Earthquake in Ishikawa Prefecture, Japan that occurred at 16:10 on New Year's Day of 2024 was a stark reminder nationwide of the severe fate of living in the earthquake-prone archipelago. Immediate assessment of the scale of damage was a critical need as the basis of overall planning for the government's effective emergency response. As envisaged in the 1961 Basic Act of Disaster Countermeasures (Art.23, Art.24, Art.28-2), the classification of the scale of specific, extraordinary or emergency disaster decides the institutional structure of government's response; , also the scale of damage is the threshold that triggers the governmental decisions on the implementation of the 1949 Law on Disaster Relief (Art.2 and Decree Art.1) as well as the 1998 Law on Support for Livelihood Reconstruction of Disaster-Affected People (Art.2, No.2, Decree Art.1). Also the damage estimation constitutes the basis for the estimation of economic damage, which decides the overall scale and reach of public support through the budgetary arrangement for the reconstruction and recovery phases; which is the threshold of the designation of "disaster of extreme severity", which enables a national budgetary support for the disaster-affected local governments under the 1962 Law on Special Fiscal Support in Disasters of Extreme Severity, as well as the application of special-zone method for the deregulation of legal procedures under the 2013 Law on Recovery from Large-Scale Disasters.

However, the method of estimation of economic damage during a disaster has not yet been firmly established, leaving room for political discretion. In the post 1995 Hanshin-Awaji Earthquake recovery, the estimation was made by the cumulative calculation based on the investigation of individual properties; while the method applied in the 2011 post-East Japan Earthquake recovery was the multiplication of damage ratio to the property stock in the affected municipalities. Both cases required approximately three months for the estimation, to which Toyoda et al. (2020) claim there is a need of developing quicker methods of estimation.¹ One thing commonly maintained in these Japanese methods is the direct damages-based calculation, in contrast to the overseas trend of model analysis combining both direct damages and indirect losses,² as evident in the Post-Disaster Needs Assessments promoted by the World Bank and the United Nations Development Programme (UNDP) guiding the policy choices of post-disaster reconstruction during mega-disasters in the developing world,³ often resulting in a great scale of international borrowing.⁴ Given the instability of methodology, disaster-prone countries may tend to manipulate the estimation of damages, such as calculating the minimum damages to downsize the recovery budget, or, on the contrary, inflating the

damages in response to the political pressures calling for a larger public support at the risk of fiscal burden, which often results in the heavier allocation of recovery budget to the corporate sector than the individual disaster-affected households under the logic that the increase of corporate tax payment would fulfill the temporary fiscal deficit by disaster response.⁵

When we pay attention to this causal relation between disaster damage estimation, recovery budget and its allocation, the post Noto Peninsular Earthquake recovery may be a turning point in the history of Japanese disaster recovery. The government response to the Noto Peninsular Earthquake has been incredibly smooth in terms of the application of relevant laws in each procedural step toward the recovery stage: the declaration of the establishment of the headquarters of “extraordinary” disaster’s response on January 1st, the very day of its occurrence; the designation by the governmental decree of the application of the Law on Disaster Relief on the same day; the designation by the governmental decrees of the application of the Law on Support for Livelihood Reconstruction of Disaster-Affected People to each affected prefecture from January 6th and on; the designation by the governmental decree of the application of the Law on Special Fiscal Support in Disasters of Extreme Severity on January 11th; and the designation by the governmental decree of the application of the Law on Recovery from Large-Scale Disasters on January 19th. In parallel to such smooth procedural steps, the result of the estimation of economic damages by the Noto Peninsular Earthquake was announced by the Cabinet Office on January 25th, which amounted to the range of 1.1 to 2.6 trillion yen in total for Ishikawa, Toyama, and Nigata Prefectures, with a total of 400-900 billion yen for residential damage, 200-400 billion yen for industrial damage, and 500 billion to 1.3 trillion yen for damage to social infrastructures. The government’s estimation was unique in its double ranged discrepancy, and surprisingly larger than the estimations made by private institutions.⁶ It was also meaningful that the Ministry of Economy and International Trade (METI) had made repeated announcements on the status of indirect loss caused by the Noto Peninsular Earthquake in regard to the nationwide industrial supply chains, particularly in regard to the sectors of garment, crafts, and printing industries,⁷ with an implication that the neo-liberal political pressures call for the enlargement of recovery budget to enable a larger industrial allocation, through a device for the inclusion of not only direct damages but also indirect losses to the economic damage estimation.⁸ This was obviously the deviation from the aforementioned direct damage based-estimation policy, which has long been maintained by the fiscally-disciplined government since the post-Hanshin-Awaji Earthquake recovery.

It is true that the recovery budget has decided the scale and reach of government-sponsored disaster recovery, and therefore, both the government and industrial sectors have made it a custom to compete for getting a pie of its distribution, or known as the notorious behavior of “waiting-for-disasters” strategy, which has been particularly evident due to the worsening fiscal condition of local governments since the comprehensive de-concentration of administrative works from the national to the local governments without transfer of budgetary sources in the 2000s.⁹ However, the national fiscal condition itself has been deteriorating due to the continuous failure of the Liberal Democratic Party’s neo-liberalist-oriented expansive budgetary policy by accumulating the issuance of national bonds only to increase the outstanding fiscal debts up to the level of 1,000 trillion yen, or 250% to the GDP, which is the worst in the world. The special account for the post-East Japan Earthquake recovery only worsened the level of fiscal debts, enlarging a fear that repeated giant disasters will destroy Japan’s fiscal system sooner or later.

The post-Noto Peninsular Earthquake recovery will be a rare opportunity for the Japanese government to get rid of its bad habit of accumulating endless borrowing from future generations during every mega-disaster. It is necessary for this challenge to start with setting a clear priority for the use of a limited pie of recovery budget, and a critical question is who decides this priority. In the following, section 2 will review the result of prioritization in the use of recovery budget in the post-East Japan Earthquake, section 3 will turn eyes to the recovery vision for the Noto Peninsular Earthquake, section 4 considers the matter of “safety” as one of the priority from the viewpoint of disaster victims, and section 5 is a quick review from an international comparison.

2. Damage Estimation and Recovery Budget in the Post East Japan Earthquake Recovery

Three months after the occurrence of the 2011 East Japan Earthquake, for the purpose of reference for the rehabilitation and reconstruction in the affected areas, the Cabinet Office announced the amount of 16.9 trillion yen as the estimated economic damage caused by the Earthquake, which covered the direct damages to all buildings of both public and private sectors, lifeline facilities such as electricity, gas and water supplies, and the social infrastructure such as roads and ports, while excluding indirect economic losses. The method of its estimation was, according to the evaluation report by the Board of Audit,¹⁰ such that the total of residential damages (5.8947 trillion yen) was calculated by multiplying the estimated residential damage

ratio (classified by 100%, 50%, or 20% damage) to the estimated average reconstruction price per unit of 18 to 24 million yen obtained from the statistic survey report on building construction by the Ministry of Land, Infrastructure and Transportation (MLIT) for the total of 560,000 affected residential units reported by the Fire Bureau, with the upward modification by 20% added for the consideration for possible uncovered damages, to which the depreciation ratio (estimated as 0.48) was not reflected; while the total of corporate damages (4.0559 trillion yen) was calculated by multiplying the estimated residential damage ratio to the estimated average reconstruction price for each prefecture and industry based on the statistic of private corporations' capital stock by the Cabinet Office and the result of statistic survey on businesses and corporations by the Ministry of Interior, again, without reflecting the depreciation ratio. Also, most of the estimated damage to the lifelines (1.3458 trillion yen), social infrastructures (2.1669 trillion yen), and of the agricultural facilities (1.8778 trillion yen) were calculated for the reconstruction price without reflecting the depreciation.¹¹

Thus, the Cabinet Office's damage estimation after the East Japan Earthquake was the one that included a double upward revision by choosing to apply the re-procurement price rather than the present value reflecting depreciation and adding 20% premium. This estimation walked alone as the basis for deciding the size of the recovery budget of 19 trillion yen for the initial five years for intensive reconstruction under the "Basic Principles for Recovery" of the national government as of July 2011 after four months from the disaster, which was explained as the result of an estimation applying the same method as the post-1995 Hanshin-Awaji Earthquake recovery that estimated 9.2 trillion recovery budget corresponding to the estimated damage of 9.9 trillion yen at that time. But in fact, the recovery budget for the East Japan Earthquake did not finish with the total 15.7 trillion yen (rehabilitation budget of 10.4 trillion yen and reconstruction budget of 5.3 trillion yen) that may correspond to the estimated damage of 16.9 trillion yen, but included the additional expenditures such as 2.5 trillion yen in the name of small-medium enterprises support and 1.3 trillion yen for nationwide emergency improvement of disaster resilience.¹² To meet with the thus expanded needs of recovery budget, the issuance of national bonds in the total of 11.5500 trillion yen was decided by the third supplementary budget in the year end of 2011.

Toward the end of the ten year-recovery period, the recovery budget was expanded to the size of 32 trillion yen (excluding the additional 6 trillion yen of expenditures for the Fukushima Nuclear Power Plant's accident). The breakdown of its use was, according to the information availed by the Reconstruction Agency as of March, 2021,¹³ such that 2.3 trillion yen (5.8%) was used for disaster victims; 13.4 trillion yen (34.1%) was used for the public works for social infrastructure rebuilding, such as seawalls and roads as well as residential development projects such as land readjustments, collective relocation and the public apartments; 5.9 trillion yen (15.2%) for the supplements for the local governments' expenditures for such social infrastructure rebuilding; 4.4 trillion yen (11.2%) for industrial and business reconstruction; and 7.2 trillion yen (19.2%) as the expenditures related to the Fukushima Nuclear Power Plant's accident, etc. Even though it is true that the damage estimation corresponds to the total size of the recovery budget, it is noted that their breakdowns largely differ each other. While 70% of the damage estimation was the accumulated damage in the private sector, the majority of the recovery budget was allocated to the public works for social infrastructure rebuilding amounting to the total of 19.3 trillion yen (see Table 1). Obviously, the upward estimation of the private sector's damage was utilized by the government for the enlargement of national bond issuance to finance the great scale public works, including the 400km-long great seawalls covering the entire costal line of the tsunami-affected prefectures of Iwate, Miyagi and Fukushima as the symbol of the government's *Kokudo Kyojinka* (national land resilience) policy.

Table 1: Damage Estimation and Recovery Budget in East Japan Recovery

	Damage Estimation by Cabinet Office (Total 16.9 trillion yen)	Recovery Budget (Basic Principle 19 trillion yen) (10 years total 32 trillion yen)
Private Sector	Housing: 5.9 trillion yen (34.9%)	Disaster Victim Support: 2.3 trillion yen (5.8%)
	Industry/Business: 4.1 trillion yen (24.3%)	Industry/Business: 4.4 trillion yen (11.2%)
	Lifelines: 1.3 trillion yen (7.7%)	-
Social Infrastructure	2.2 trillion yen (13.0%)	Total : 19.3 trillion yen (49.3%) -Recovery Public Works: 13.4 trillion yen (34.1%) -Support to Local Governments: 5.9 trillion (15.2%)

(Source: compilation by the author based on Board of Auditors (2015) and Reconstruction Agency (2021))

3. Characteristics of the Noto Peninsular Earthquake and Recovery Budget

The aforementioned damage estimate for the Noto Peninsular Earthquake in the range of 1.1 to 2.6 trillion yen by the Cabinet Office will similarly decide the fate of its recovery phase. But the characteristic of the Noto Peninsular Earthquake that occurred in the rural setting where private residences and industrial stocks are scarce even compared to the East Japan prefectures must have made it difficult for the government to apply its familiar method to sum up the private sector damages to meet with the needs of social infrastructure rebuilding. Given the great scale of the natural hazard caused by the Noto Peninsular Earthquake involving the land elevation of more than 4 meters and numerous landslides triggered by the crash of 150 km long undersea active faults as well as the 5 meter tsunami, the damages to roads, ports and other social infrastructure seem to amount to an enormous scale, making it all the more difficult to be balanced by the relative smallness of accumulated private sector damage. It seems, therefore, that the post-Noto Peninsular Earthquake recovery will necessitate a serious argument for a stricter choice of priority among plural goals of disaster recovery. In other words, in contrast to the East Japan Earthquake recovery budget, which utilized the private sector damage estimation for public construction works, the Noto Peninsular Earthquake recovery can initiate a new mode of disaster recovery which utilize the public sector damage estimation for an idealistic choice of goals centering on the life reconstruction of disaster victims.

4. Priority of Recovery Budget Allocation: Life Reconstruction and Safety

To what goals of disaster recovery the priority of distribution from the limited recovery budget should be placed? While a “human-centered” recovery has been called for since the post-Hanshin-Awaji Earthquake recovery against the neo-liberal governmental policy known as the “creative recovery” focusing on urban development and economic vitalization,¹⁴ there are some variations even among the goals dedicated for the sake of disaster victims. Due to the diversity of modes and degrees of disaster impacts on each individual, with a range from those who are grieving lost family members and incapable of participating in any immediate reconstruction activities, or those who have suffered housing damage, to those who are partially affected by indirect losses, the choice of recovery goal setting can vary. Among them, the author has focused on the achievement of “safety” through the town reconstruction, based on the lessons learned from the post-East Japan Earthquake recovery,¹⁵ and also from the recent interviews with the affected residents in the Noto Peninsular.¹⁶

“Safety” in disaster recovery has been argued in the context of the adequacy of design standard for public works for the rebuilding of social infrastructure facilities, such as seawalls and river banks as well as urban planning projects.¹⁷ It should be noted, however, that this context of “safety” in public works has always been a discussion on the minimum standard of safety for which the government is legally responsible under the Law on State Damage Compensation (Art.2), or in other words, the level-1 requirement of safety, which is interpreted by the Supreme Court of Japan as a mere “temporary standard of safety set under the various considerations on the fiscal, technical and social constraints.”¹⁸ Also under the “Basic Principle of Recovery” issued by the national government after the East Japan Earthquake, it was taken as granted to design the safety standard of public works such as construction of seawalls to level-1 (equivalent to the height of the 1929 Meiji Sanriku tsunami), while making it the obligation of individual and/or community-based disaster risk management to respond to the future risks of level-2 tsunamis (equivalent to the 2011 East Japan Earthquake tsunami). This idea of separating the roles of the government (by the hard infrastructure construction up to the level-1 risks) and those of individuals and communities (by the “soft” approach such as disaster drills for preparedness for the level-2 risks) was newly campaigned for under the concept of *Taju-Bosai* (multiple approaches to disaster management), which led to the amendment to the Basic Law on Disaster Countermeasures in 2013 to emphasize the ideal of self-help and mutual help, while explicitly narrowing the responsibility of the government (Art.2-2).

It is highly questionable, however, that such a minimum and temporary standard of safety in a legal sense should be the ultimate level of safety that the disaster victims have to be satisfied with in their livelihood reconstruction. Level-1 safety is merely the minimum level in which the government can be freed from the tort claims, and there is much room for the disaster victims to call for the realization of level-2 class safety in the public works for post-disaster recovery. In fact, there were several cases of East Japan recovery in which the level-2 safety was realized by the local initiative for an integrated relocation of an entire community to a nearby high ground instead of following the government’s *Taju-Bosai* policy, which only leaves the level-2 safety as a matter of individual choice by each household for self-financed improvement.¹⁹

A step forward to an increased standard of safety by public support was observed in the post-Kumamoto Earthquake recovery in 2016: In contrast to the government plans for the post-1995 Hanshin-

Awaji Earthquake recovery, which featured the land-readjustment projects for widening the public areas such as trunk roads and evacuation spots but lacked any improvements for residential land conditions prone to the liquefaction effect, the Kumamoto Prefecture government introduced a public support measure for the residential land improvement out of the limited pie of “recovery fund” offered by the national government for the post-Kumamoto Earthquake recovery.²⁰ It is envisaged that a similar “recovery fund” will be offered by the national government for the post-Noto Peninsular Earthquake recovery, and therefore, an initiative of each community is critical so as to pressure the Ishikawa Prefecture government to allocate a certain portion of the fund to the increase of “safety” for the entire households in the community, instead of leaving the safety as a matter of individual choice by self-investment.

To realize the community’s initiative for such an integrated community reconstruction, it is critical to utilize a certain legally institutionalized framework of civic participation which can be influential over the government’s administrative decision-making under the law. Since the Noto Peninsular Earthquake has already been designated as a “large-scale disaster” under the 2013 Law on Recovery from Large-Scale Disasters, the “special zone” method that deregulates the existing legal procedures to realize a quick administrative decision for post-disaster town-rebuilding will be applicable, while bypassing the existing procedural guarantees for civic participation. Due to this separation of post-disaster administrative decision-making from the civic procedures under existing laws, any results of participatory consultation on the basic recovery planning basically had no legal effect on the town reconstruction projects.²¹ But still, there is room for civic participation through the local prefecture’s or municipalities’ ordinances, since the same 2013 Law contains only one sentence (Art.10, Sec.5) obliging the local governments to take “necessary measures for reflecting the voice of residents.” This provision can be utilized as a legal basis of the future development of participatory procedures, which can activate the self-decision by the affected communities of the fate of their own lives and livelihoods reconstruction.

5. A Comparative Perspective: “Safety” in Community Rebuilding

What the priority should be in the allocation from the limited pie of recovery budget has been a common question shared in the reconstruction phase of the world’s mega-disasters. A quick review will be made from the perspective of international comparison.

The 2011 Canterbury Earthquake in New Zealand, that occurred almost simultaneously with the East Japan Earthquake in Japan, was characterized by an active provision of public support by the Earthquake Commission (EQC) covering not only the housing reconstruction but also the improvement of soils safety against liquefaction.²² Such advanced support was made possible by the government-managed compulsory earthquake insurance system since 1945, which applies a uniform flat 1% premium on residence and land throughout the nation, essentially functioning as a stable fund-raising mechanism for the social support for disaster victims, different from Japan’s market-based private insurance system backed by government’s reinsurance.

The 2015 Nepal Gorkha Earthquake’s recovery stage featured international financial assistance for residential reconstruction linked to the improvement of the safety standard through the donors’ close monitoring on the local operation of construction permits. The Japan International Cooperation Agency (JICA) also took part in this assistance by the grant scheme, with a strict conditionality on the implementation of the seismic resilient construction methods.²³ This is said to be a typical case of successful disaster recovery in developing countries in terms of achieving the goal of increased safety under the pressures of international watchers, particularly under the monetary obligations imposed by international financiers.

In contrast to such a dependent type disaster recovery under international pressure is the autonomous approach taken in the post-2004 Indian Ocean Earthquake in Aceh, Indonesia, where a series of local ordinances of Aceh province (qanun) realized a drastic transfer of administrative decision-making authorities to the level of traditional villages (Gampong).²⁴ As a result, prioritization among plural goals of disaster recovery was vested to the communal autonomy, which often resulted in a difficult choice on the tradeoff between the safety (relocation to higher ground several miles away) and the immediate needs of livelihood reconstruction in the coastal areas lacking safety measures.²⁵

From the viewpoint of international comparison, *Taju Bosai* policy taken in the post-East Japan Earthquake recovery that limited the governmental safety measures to the level-1 height tsunami is understood as a compromise. This policy is similar to Aceh’s autonomous approach in the sense it entrusts the response to future level-2 tsunamis to each individual and community, while offering governmental protections for level-1 class hazards, as if taking its position in the middle of the spectrum of disaster responses between developed and developing countries in each extreme. One of the problems of this indecisive stance of Japan’s *Taju Bosai* policy is the process of its formation: taken as granted within the

government sector, and even endorsed by the amended Basic Law on Disaster Countermeasures, but without being known to the general public. There was no visible attempt by the government to hold democratic discussion on this concept when it suddenly appeared in the governmental policy documents amid the East Japan Earthquake response, and hence, most ordinary Japanese lack the understanding that this policy is essentially a declaration of the government that it will not take the responsibility to protect its citizens from large scale disasters.

As the result of *Taju Bosai* policy, tens of thousands of affected people in the East Japan Earthquake were trapped in the fate to suspend their individual reconstruction for a 10-years period and had to wait until the completion of the public works for town-safety measures, such as land filling and seawalls. But it was only after the completion of such public works that they realized that the safety standard of such works was a mere level-1, and they cannot help feel betrayed when the government urges them to form a community-based disaster response team to get prepared for future level-2 class disasters, even though they had waited ten years for what they thought to be absolute safety for future generations.

6. Conclusion

This essay concludes with the emphasis that the institutional framework to guarantee the participation of affected communities in the governmental decision-making for town-rebuilding is critical to realize a satisfactory choice of priority in the process of post-Noto Peninsular Earthquake recovery. It is ironic that the Earthquake occurred during the very period of the mid-term review of the United Nation's Sendai Framework for Disaster Risk Reduction, which was adopted in the 3rd World Conference on Disaster Risk Reduction in 2015 in reflection of the lesson from the 2011 East Japan Earthquake. It is known that the Sendai Framework featured the "investment to disaster risk reduction" with the catch phrase of "Disaster Recovery and Build Back Better," which has been the key words repeatedly emphasized in the World Bank's promotion of the Global Facility for Disaster Reduction and Recovery (GFDRR) as if the phrase "disaster recovery" is a synonym of "development." Since funding is a prerequisite for the investment to disaster risk reductions, the estimation of economic damages and/or losses is critical. But here remains the question: to whom should such an investment be directed? If all vigorous campaigns for "Build Back Better" in the name of disaster recovery may result in the allocation of funds raised for the reconstruction of disaster victims to the economic development projects, a feeling of betrayal will never be removed.

Given the world's worst ranked fiscal debts accumulation, now is the time of challenge for the Japanese government to realize a drastic change: from the East Japan Earthquake/Sendai Framework approach to the disaster recovery characterized by the government-centered decision-making for the investment, to the Noto Peninsular Earthquake approach that centers on the participatory approach to set a priority on the satisfactory reconstruction of affected people and community with their trust and pride secured.

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¹ See Toyoda, et al. (2020) for the proposal of a new model for real time estimation of disaster damages by linking the statistic information on physical stocks of municipality to the high resolution data of seismic intensity.

² See Okuyama (2007).

³ See European Union, World Bank & United Nations Development Program (2013) for the details of Post-

Disaster Needs Assessment (PDNA) developed by the World Bank's Global Facility for Disaster Reduction & Recovery (GFDRR).

⁴ For example, as of four months after the occurrence of 2013 Typhoon Yolanda in the Philippines, the author visited the mayors and offices in charge of recovery planning in the affected municipalities in Leyte and Samar island (Tacloban city, Tanayon city, Basay city, etc.), and observed the reality of PDNA which automatically doubled the direct damage estimation and added almost similar sized indirect losses. See Kaneko (2015), p.24-29.

⁵ See Shiozaki (2013), and (2014).

⁶ An economist at the Nomura Research Institute, for example, estimated the economic damages of Noto Peninsular Earthquake as 812.1 billion yen, which corresponds to merely 4% of that of the 2011 East Japan Earthquake (16.9 trillion yen). See Kiuchi (2024).

⁷ See e.g. Ministry of Economy, Trade (Public Relations Office of the Secretariat) (2024).

⁸ It was remarkably quick that the national government newly introduced a grand subsidy scheme which can distribute the subsidies to individual businesses up to 5 billion yen/ case named *Nariwai Saisei Shien* (livelihood reconstruction support) for small-medium enterprises within one month from the disaster. This subsidy scheme is much looser than the SME group subsidy scheme introduced in the post-East Japan Earthquake recovery with the requirement of horizontal/ or vertical "grouping" between affected businesses.

⁹ See Honjo (2011).

¹⁰ See Board of Audit (2015) at Chapter 2, Section 1(1) オ (イ) .

¹¹ The estimation of damages to the electricity supply was capitulated based on the depreciation ratio.

¹² See Board of Audit (2015) at Chapter 2, Section 1(1) オ (エ) .

¹³ See "Contents of Implementation of Recovery Budget (Fiscal Year 2011 through 2020)" in Reconstruction Agency (2021).

¹⁴ See e.g. Yamanaka (2023).

¹⁵ See Mugikura (2020) for a study of safety viewed from the eyes of bereaved family members of the East Japan Earthquake. See also Hokugo et al. (2020) on the results of the residents' questionnaire by the author's team in 16 affected districts by the East Japan Earthquake, which revealed that the recovery of "safety" is slower (after 10 years still the majority are failing to feel safe) than the recovery of other recovery goals such as "housing" and "livelihood" (attained by more than 50% of answers within 5 years).

¹⁶ The author's interviews with residents in affected areas (Shiromaru district in Noto town, Horyu district in Suzu city, and Morning Market area in Wajima city on February 2nd through 6th, February 27th through 29th, and March 11th through 13th in 2024) revealed their common thought that the "safety" is one of the most critical considerations in deciding the place of reconstruction.

¹⁷ See e.g. Tanaka (2023).

¹⁸ Supreme Court judgement (dated January 26th, 1984, *Minsyu* Vol.38, No.2, p.53) of Daito Flood Case on the safety standard of levees for river basin management.

¹⁹ The author is acquainted only with the cases of Akahama district in Otsuchi town, Nebama district in Kamaishi city, Karobe district in Kamaishi city.

²⁰ While there is no legal scheme for subsidizing the improvement of residential land's soil condition against the risk of liquefaction, Kumamoto prefecture introduced the temporary measure to support two thirds of the expense of soil improvement (up to 6.333 million yen) by utilizing the recovery fund established by the national government. See Kumamoto prefecture (2020).

²¹ See Kaneko (2016).

²² See Kaneko (2023).

²³ See Nagami et al (2020).

²⁴ See Taqwaddin Husin & Teuku Alvisyhrin (2016) on the outcomes of Aceh provincial ordinances No. 9/ 2008 on the revitalization of traditional law, and No.10/ 2008 on the traditional institutions.

²⁵ See Alvisyahrin, Taqwaddin, Rizki & Risma (2023).