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Chapter 11

Communities in Fukushima and Chernobyl—Enabling and Inhibiting Factors for Recovery in Nuclear Disaster Areas



Tetsuya Okada, Serhii Cholii, Dávid Karácsonyi, and Michimasa Matsumoto

Abstract This chapter provides case studies on disaster recovery in the context of community participation. It presents two cases that explore, compare and contrast the nuclear disasters in Chernobyl and Fukushima. Despite differences in the socio-economic circumstances between the Soviet Union (Soviet–Ukraine) in 1986 and Japan in 2011, the Chernobyl and Fukushima disasters provide an opportunity to discuss power relations in disaster management and the role of local communities. These large-scale nuclear disasters are amongst the most traumatic experiences for the disaster-impacted communities worldwide. This chapter discusses the implementation of relocation and resettlement measures with socio-political power relations within and between the stakeholders. The combination of these is shown to significantly affect the everyday lives of those within the communities throughout the recovery process. Along with government documentation, the interviews with evacuees, community leaders and decision-makers conducted between 2012 and 2016 form the basis of the case studies discussed in this chapter.

Keywords Community · Power relation · Chernobyl · Fukushima · Evacuation · Resettlement

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11.1 Introduction

This chapter provides case studies on disaster recovery in the context of community participation. It presents two cases that explore, compare and contrast the nuclear disasters in Chernobyl and Fukushima. Despite differences in the socio-economic circumstances between the Soviet Union (Soviet–Ukraine) in 1986 and Japan in 2011, the Chernobyl and Fukushima disasters provide an opportunity to discuss power relations in disaster management and the role of local communities. These large-scale nuclear disasters are amongst the most traumatic experiences for the disaster-impacted communities worldwide (Josephson 2010).

This chapter discusses the implementation of relocation and resettlement measures with socio-political power relations within and between the stakeholders. The combination of these is shown to significantly affect the everyday lives of those within the communities throughout the recovery process. Along with government documentation, the interviews with evacuees, community leaders and decision-makers conducted between 2012 and 2016 form the basis of the case studies discussed in this chapter.

11.2 Community Participation in Disaster Recovery¹

The organisational cultures of authorities in disaster management often follow a top-down approach and downplay or ignore local people's needs when managing disaster recovery and risk reduction (Cannon 2015; Gaillard 2008; Manyena 2006; McEntire et al. 2002). As a consequence, affected communities were excluded from decision-making during disaster recovery.

Maintaining social network by maintaining relocated communities is necessary for revitalisation for individuals along with the physical recovery and reconstruction. Even so, the importance of communities came to the fore just recently during disaster mitigation and reconstruction (Oliver-Smith 2013). A community's capacity in disaster recovery assists its members to work together and solve problems leading to collective actions and decision-making (Norris et al. 2008). Community capacity builds up through the development of local knowledge, and it balances individual and collective interests (Patterson et al. 2010). However, authorities holding socio-political power often overlook or disregard the significance of local knowledge and experiences imposing mainstream values with expertise developed outside the disaster-affected communities (Bird et al. 2009; Haalboom and Natcher 2012; Howitt et al. 2012). Organisations responsible for disaster management are often found to implement policies using a top-down approach while downplaying or even ignoring the local community's needs and preferences in managing disaster recovery and risk

¹Literature review included in this chapter was also included in the Ph.D. thesis (Okada 2017). Material drawing on my research on the Fukushima (Nami) case study was included in the thesis (Okada 2017) submitted to and accepted by Macquarie University in April 2017.

reduction (Cannon 2015; Gaillard 2008; Manyena 2006; McEntire et al. 2002). As a result, implemented measures and policies miss local needs, bring harmful consequences and/or create excessive dependency in local communities, while parties with power remain unaware or indifferent to these situations (Haalboom and Natcher 2012).

Centring communities within a risk reduction processes before a disaster minimises risks, ensuring effective partnerships in the process while incorporating local knowledge (Hayashi 2007; Ingram et al. 2006; Pandey and Okazaki 2005; Patterson et al. 2010). By assigning clear roles and responsibilities, decision-makers promote locally self-sustained recovery and risk reduction (Ahrens and Rudolph 2006). Community participation in disaster management develops a greater understanding among community members concerning their responsibility in recovery and risk reduction processes (Aguirre 1994; Pearce 2003). Community participation also facilitates a suitable balance in the interrelationship between all actors involved (Berke et al. 1993; Davidson et al. 2007). All in all, community members should play an active role in disaster recovery and risk reduction as key drivers, instead of remaining as passive receivers of services and information provided by authorities (Pearce 2003; Usamah and Haynes 2012; Bird et al. 2011; Haynes et al. 2008).

11.3 Data and Methods

In the Chernobyl case, we investigated the process of community relocation and resettlement in the post-disaster recovery, based on a series of integrated analyses from two main information sources. The first source is the official historical documents, including government policies collected from local governments and archives. These documents allow us to focus on the regulations (resolutions and decisions) legislated and implemented by the central Soviet and Soviet–Ukrainian governments. This is because the actions to deal with the widespread consequences of the disaster were mainly coordinated in Kiev (or Kyiv, the capital city of Ukraine) due to the location of Chernobyl inside Soviet–Ukraine. However, some neighbouring districts of Belarus and Russia, which were at that time also part of the USSR, also received high amounts of nuclear fallout.²

The second information source was based on 30 in-depth interviews with eyewitnesses of the relocation process. These interview sessions were conducted in Zhytomyr and Kiev regions of Ukraine with families displaced from the contaminated areas, exclusively from villages. Most sessions were structured interviews conducted with individuals and focus-groups between 2012 and 2015. The majority were chosen based on availability and random criteria because of high mortality rate of relocated persons during the previous decades and psychological distress among them. The 30 interviewees represent a vast geographical diversity of settlements of

²The actual size of radioactively contaminated area is larger in Belarus than in Ukraine; the power plant just located 8 km from the Belarusian-Ukrainian border.

origins (Fig. 11.1). Most of the interviewees were in their productive age, with 80% of respondents were in the 20–40 age cohort during the course of the disaster (1986).

The comparison of Soviet government documents with in-depth interviews of evacuees enabled us to understand the power balances and community responses to the recovery processes.

Fieldworks in Japan were conducted between 2011 and 2017 consisting of 49 interviews with evacuated individuals, community groups, support organisations and government officials. Research participants were recruited through direct communication. This was largely developed with snowball sampling as residents in the communities knew each other well and were interconnected, although their residences after the evacuation were spread across Fukushima Prefecture and beyond.

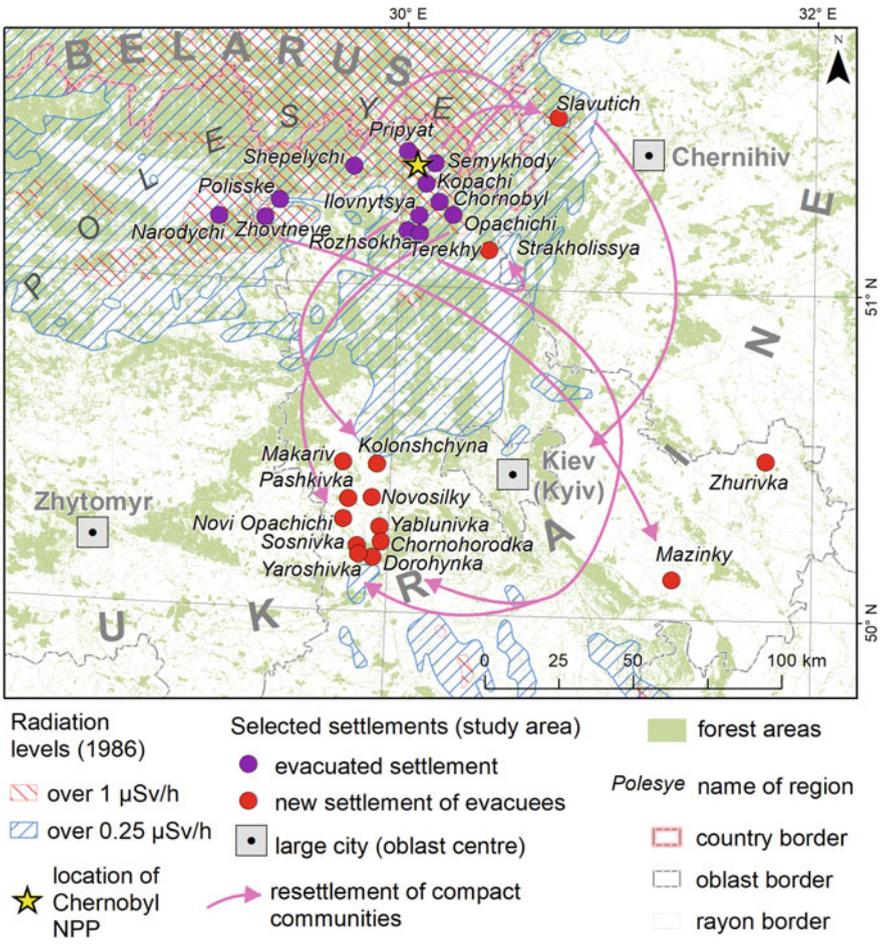


Fig. 11.1 Study area in Ukraine (Author Cholii, Karácsonyi, cartography by Karácsonyi)

A wide variety of participants were involved who were impacted by the disaster and the recovery process in different ways and extents.

The semi-structured interviews were conducted as qualitative in-depth research. Hence, they were not intended to quantify responses or generalise across the community. Instead, the interviews aimed to (and this book chapter aims to) understand and explore some of the issues being experienced during the recovery process within the Namie community in a qualitative manner.

11.4 Recovery Process After Chernobyl Disaster in Frame of Gradual Democratisation and Increasing Public Participation

The Chernobyl nuclear power plant is located in Ukraine, part of the Soviet Union (hereafter USSR) at the time of the disaster (1986). From the mid-1980s, during the Gorbachev era the USSR was undergoing gradual democratisation and marketisation processes (the so-called *Perestroika*, restructuring). The centralised and planned command economy was in deep crisis already in mid-1980s. The economic reforms, however, resulted in chaos and accelerated the decline. This affected the availability of funds to deal with the aftermath of the Chernobyl disaster. The estimated costs were enormous, which surpassed the economic benefits of the entire civil nuclear power industry of the USSR since its establishment in the 1950s (Bekar 2014, p. 19; Prister et al. 2013). The rise of *Glasnost* (openness, transparency)³ revealed a more realistic and complete picture of the disaster, as one of the largest catastrophes in world history. On the other hand, the changing societal, political and economic circumstances also gradually influenced the community participation in the recovery processes over time with more and more involvement of affected people.

11.4.1 An Overview of Chernobyl Evacuation and Resettlement Measures

The central administration of USSR in Moscow envisioned the complete clean-up of the aftermath of the Chernobyl catastrophe as its main goal of the recovery efforts (Leukhina 2010; Vendland 2011). However, at the same time, responsibility for the recovery efforts was often imposed on local authorities in Kiev. Coordination of mitigation measures between these local authorities was a political challenge. According to general statistics (based on a document collection issued on the 18th

³Glasnost is a state-led policy of USSR during 1985–1991, aimed at gradual democratization of society. Its main principle was gradually lifting the limitation on basic democratic rights of its citizens such as freedom of speech, assembly, consciousness with simultaneous abolition of censorship and organization of first (partly) democratic elections in the USSR (in 1989).

anniversary of the disaster in 2004, referred hereafter as ‘18th anniversary 2004’), 164 thousand people were relocated from the contaminated areas to 204 resettlement sites across the country, where more than 29 thousand dwelling units were constructed.

An important feature of the relocation caused by the Chernobyl disaster was that most of the affected population had lived in rural areas (except those evacuated from Pripyat town, see Fig. 11.1). Many of these people were settled in rural communities such as Zhurivka district in Kiev region, which were set up exclusively to host evacuees from the same villages. Many of them suffered from the fragmentation of their community, lack of job opportunities and difficulties to adapt to the environment in the new place. The new settlements were created, sometimes hundreds of kilometres away from the disaster-prone area mostly, using available lands adjacent to already existing towns and villages. The new environment in these locations made it difficult to integrate the newcomers into the already existing local communities. Most of these resettlement measures were planned to complete in haste following tight schedules based on the command economy practised in USSR to facilitate the progress under the challenging situation. However, the economic crisis and political collapse of the USSR coupled with the negative consequences from the disaster (radiation risk, tremendous costs of reconstruction, relocation of a large number of people) caused major delays. These delays stretched the schedules of the clean-up and recovery measures, which eventually took several decades.

11.4.2 Evacuation and Resettlement Stages

The resettlement process consisted of three stages (The Human Consequences 2002). The first was an immediate evacuation of people during April–May 1986, who lived in the areas contaminated by the highest level of radiation mostly in the alienation/exclusion zone (about zoning see Chap. 2). Alternative residential areas for these people were arranged in Kiev and its surrounding areas (Belyakov 2003). Evacuees were often provided with already occupied apartment units, sharing a unit with other families for some time.⁴ Some industrial properties were also turned into short-term residential facilities.

Although the evacuation order was made within 24 h after the explosion, only Pripyat town (the nuclear power station worker’s city) responded to it quickly (27 April 1986). Villages in the alienation zone were evacuated later (e.g. Semykhody, Shepelychi and Kopachi on 2–3 May), exposing their residents to high levels of radiation due to failures of decision-making and because of political reasons (to avoid panic and hide the real extent of the disaster). Evacuees had a very limited

⁴The apartments were owned by the state or city council in the USSR and they were rented out to families or individuals. It was not because of the emergency situation to have more families in one apartment, or in one detached house. The communal apartment, the so called *kommunalka* (one family per one room and sharing kitchen and bathroom of the apartment) introduced in 1917 by the Bolsheviks to overcome housing shortages, was still usual in large Soviet metropolises in the late 1980s.

time to organise and carry necessary things and were forcibly evacuated. Along with the alienation zone (10-km radius), the compulsory evacuation order was also issued for other areas located further away but with radiation levels assessed as dangerous. These areas included Chernobyl town, which was evacuated on May 6 (Belyakov 2003; Prister et al. 2013, pp. 66–78).

Prompt evacuation of the entire population within the 30-km zone was challenging because of the very large area and population involved (see details in Chap. 2). This resulted in delays and may have facilitated the political decision, later on, to send those evacuees back home who were relocated from areas where the radiation levels were less-severe.

Children and their mothers who had lived in the 30-km zone were temporary evacuated from their place of residence. After a medical check-up, they were sent to hospitals or sanatoriums distant from the contaminated zone and stayed at those facilities for three months (until the end of summer 1986). By contrast, most males in the contaminated areas stayed at home to continue agricultural work or look after stock in the local collective farm (*kolkhoz*). This may have contributed to high mortality rates of male population in the following decade of the disaster. This male-victimising situation was created by the authorities' order designed to avoid panic and abandonment of local agricultural production. As it was still under the Soviet command economy, such emergency situation mixed with panic was concerned to shake the Soviet system (Ioffe 2007; Romashko 2016), which the authorities apparently wanted to avoid disrupting at any cost.

The second wave of evacuations was the immediate resettlement (1986–1987) after authorities recognised that evacuees could perhaps never return to their homes. Preparation for relocation from the compulsory resettlement zone (30-km zone) started in May 1986. This included investigation of possible construction sites for housing the evacuees, planning different types of buildings, estimation of the number of houses needed and planning construction works. The construction had to be done in a very short period. For example, only three months were allocated for the construction in Kolonshchyna and Novi Opachichi villages in the Kiev region housing resettled people. This led to some people resettling in unfinished buildings and squeezing two or three families into one house. Some waited in nearby villages until the construction works finished (but not necessarily completed). It took approximately a year for the state to resolve these issues in early 1987.

In most cases in the immediate resettlement stage, whole communities were relocated without breaking existing local social connections. Newly constructed settlement sites of this stage were typically large-scale with a hundred or more houses in each estate (*Chornobyls'kyi posyolok*). The first and second stages of resettlement occurred within a short period, between April 1986 and by the end of 1987. Around 90 thousand residents were involved in the relocation and the subsequent resettlement just inside the territory of Ukraine.

The third stage was organised resettlement (1988–2002), which aimed to relocate people who lived in the guaranteed voluntary resettlement zone (outside the 30-km zone). In contrast to the quick implementation of the compulsory resettlements between 1986 and 1987, there was a debate on whether the government should extend

the resettlement efforts beyond the 30-km zone or not (Tykhyi 1998; Malko 1998). This resettlement stage took a long time and exposed the local population in the contaminated areas to radiation for a decade after the catastrophe. The main reason for such delay was the deep crisis of the disintegrating USSR and the economic problems during the post-Soviet transformation in newly emerged independent countries, such as Ukraine.

The organised resettlement stage consisted of two sub-stages, which were defined by government regulations, the so-called Chernobyl construction programs. The first sub-stage was based on government regulation No. 333 (1989), commencing on 30 December 1989. It included plans to construct 2318 houses, 18 blocks of flats with a combined 1052 apartments, 17 kindergartens, 11 schools and 210 km of gas pipelines. These works were in anticipation of 3370 families relocating from Narodychi district (*rayon*) of Zhytomyr region (*oblast*) and Polissky district of Kiev region. The second sub-stage was based on regulation No. 228 (1990), commencing on 23 August 1990. This included the construction of housing estates for another 14,700 families from the guaranteed voluntary resettlement zone. The organised resettlement stage in Ukraine continued until the early 2000s, when the government stopped constructing resettlement estates and offered additional compensation money for those impacted by disaster and who had not received government assistance (Baranovska 2011, p. 32; regulations Nr. 333, 1989; Nr. 228 1990).

These resettlement processes allowed elderly people to return to their home (Davies and Polese 2015). They were often referred to as *samosely* (self-settlers), who lived and still live in their home town even inside the alienation zone. Other residents repeatedly experienced relocation and resettlement.⁵

Many of those who resettled in apartment blocks in big cities such as Kiev were also separated from their original communities (regulations Nr. 333, 1989; Nr. 228 1990). Many interviewees stated that their communities were often split and/or destroyed through the resettlement processes in the organised resettlement stage. Although the government tried to resettle communities as whole, each community was often split into two or more (The Human Consequences 2002, p. 14) because of their large population size. After relocating more than 90 thousand residents in the evacuation and immediate resettlement stages, it was impossible for the government to keep tailoring resettlement land for each community to fit its large population. In other cases, people from different communities were transferred to and mixed in a new settlement. These new settlers experienced challenges in various aspects of their everyday lives. For example, in the case of Novosilky, a family relocated and lived in

⁵For example, a family, originated in Terehy village, firstly resettled in the neighbouring village of Straholissya located outside the 30-km zone. After a while, the family returned to their original home in Terehy. The next resettlement was conducted end of summer 1986, when all residents of Terehy and Straholissya were transferred to the new housing estates built in Fastiv district of Kiev region. But, this family among several others returned to Terehy by end of 1986. From 1986 to 1991, many of these families lobbied governments in Kiev and Moscow to stay in Terehy, but they, including this family, were all forcibly transferred to different locations of Makariv district of Kiev region.

a new settlement with other evacuees from very different regions, experienced additional socialising problems on top of their psychological problems that they were already suffering from settling in a totally new environment after a tragic event.

11.4.3 Resettlement and Community in the Context of Changing Political Structures

The relationships between society and government in the late Soviet era also influenced the resettlement processes. So-called *Perestroika*, a series of democratisation processes in the Gorbachev-era of the Soviet Union, rapidly progressed in parallel with the post-disaster relocation processes. This rise of democratisation may have diminished the political influence of Soviet authorities (Lane 1992; Pickett 2016; Plokhyy 2014). During the third organised resettlement stage, private and community initiatives were increasingly established with government supervision, and private industries were involved in construction work associated with the government's resettlement efforts. This situation is quite a contrast to the first two stages of relocation: the evacuation and immediate resettlement stages.

However, this democratic stage was still influenced by some dichotomies and contradictions. Although USSR gradually incorporated democratic ideas in its governance, its citizens' democratic rights such as freedom of action were still limited (Marples 1988). For example, although many resettled residents participated in local governance activities like sending their representatives to their councils, the centralised political system strictly limited the decision-making power of these councils. While these local councils were only allowed to deal with local issues, democratisation continued to be absent at higher levels of politics in the late 1980s. Despite this, almost all interviewees recognised a high level of support from their new local governments (village or collective farm administrations) such as integrating the resettled people transferred from different areas, the new settlers were not entitled to directly influence the state that retained a dominating power.

Communities were also divided by the rise of individual and collective initiatives around resettlement. Residents of the guaranteed voluntarily resettlement zone continued discussions on their relocation and resettlement options. As the repeated relocation and resettlement of mass population became increasingly challenging, the state actively invested to (re-)develop local infrastructure and services inside the guaranteed voluntary resettlement zone hoping that many local people would choose to stay in their original areas (regulations Nr. 315, 1989; Nr. 1006–286 1986). This would often divide local communities into two groups—the conservative group (older generations), who were willing to stay, and the opposition group who wanted to leave. In particular, the opposition groups often formed by young people and/or families with small children, as they feared radiation effects on their health (The Human

Consequences 2002, p. 14).⁶ Communities were often informed about the levels of radiation in their areas of the guaranteed voluntarily resettlement zone and this also triggered arguments for or against relocation and resettlement. The state provided options for the most active groups, especially families with pregnant women and small children, to relocate and resettle quickly, but this support was provided inconsistently (regulations Nr. 115, 1990; Nr. 886, 1989). These debates ended around 1989 and 1990, when the government eventually decided to evacuate everyone from the compulsory resettlement and guaranteed voluntarily resettlement zones.

11.5 Fukushima Recovery—Disintegrating Communities Under Uncertainties

The second section of this chapter addresses the formation and transition of communities of evacuees who were displaced by the nuclear accidents at the Fukushima Daiichi Nuclear Power Plant following the magnitude 9.0 earthquake off the Pacific coast of Tohoku occurred on 11 March 2011 (see also Chap. 2). According to the website of Fukushima Prefecture (2013), approximately 154 thousand residents of Fukushima Prefecture were evacuated, of which 109 thousand were mandatorily evacuated by 19 February 2013. The number of evacuees of the Prefecture as of January 2017 was approximately 81 thousand (Fukushima Prefecture 2017).

In this section, we detail results of interviews and document analyses related to the impacts brought by the relocation or resettlement processes on the disaster-impacted people's everyday lives. Semi-structured interviews were conducted with community members and stakeholders from Namie, Naraha and Tomioka towns and Iwaki city in Fukushima Prefecture (Fig. 11.2). Each of the semi-structured interviews focused on the disaster and the recovery processes. Namie and Tomioka towns are different in location and land size, but both were under evacuation order (which was partially lifted in March and April 2017) and contain areas where residents will not be able to return *at least* for five years⁷ (Cabinet Office 2013). Naraha town lifted its evacuation order in September 2015. Iwaki city did not issue an evacuation order, but experienced

⁶Here we have symptomatic example of Zhovtneve area outside the 30-km zone that was divided by resettlement into fractions of resettled in 1990–1991 to different locations, mostly in Makariv district of Kiev region and the main cluster of population, resettled later to Mazinky village in Pereyaslav district of Kiev region several years later. It demonstrates the situation when initiative groups were exempted from the community and dispersed while the main part of community was later resettled compact that partially ruined the community unity after resettlement.

⁷Areas under evacuation order were divided into three zones. Difficult-to-return zone contains the annual integrated doses of more than 50 mSv, where residents cannot return to live at least for five years. Restricted residence zone has the radiation level between 20 and 50 mSv, where daytime business activities without overnight staying are generally permitted. Evacuation order cancellation preparation zone's radiation level is less than 20 mSv. These zones have been re-shaped along with decontamination outcomes (see <https://www.pref.fukushima.lg.jp/site/portal-english/en03-08.html>).

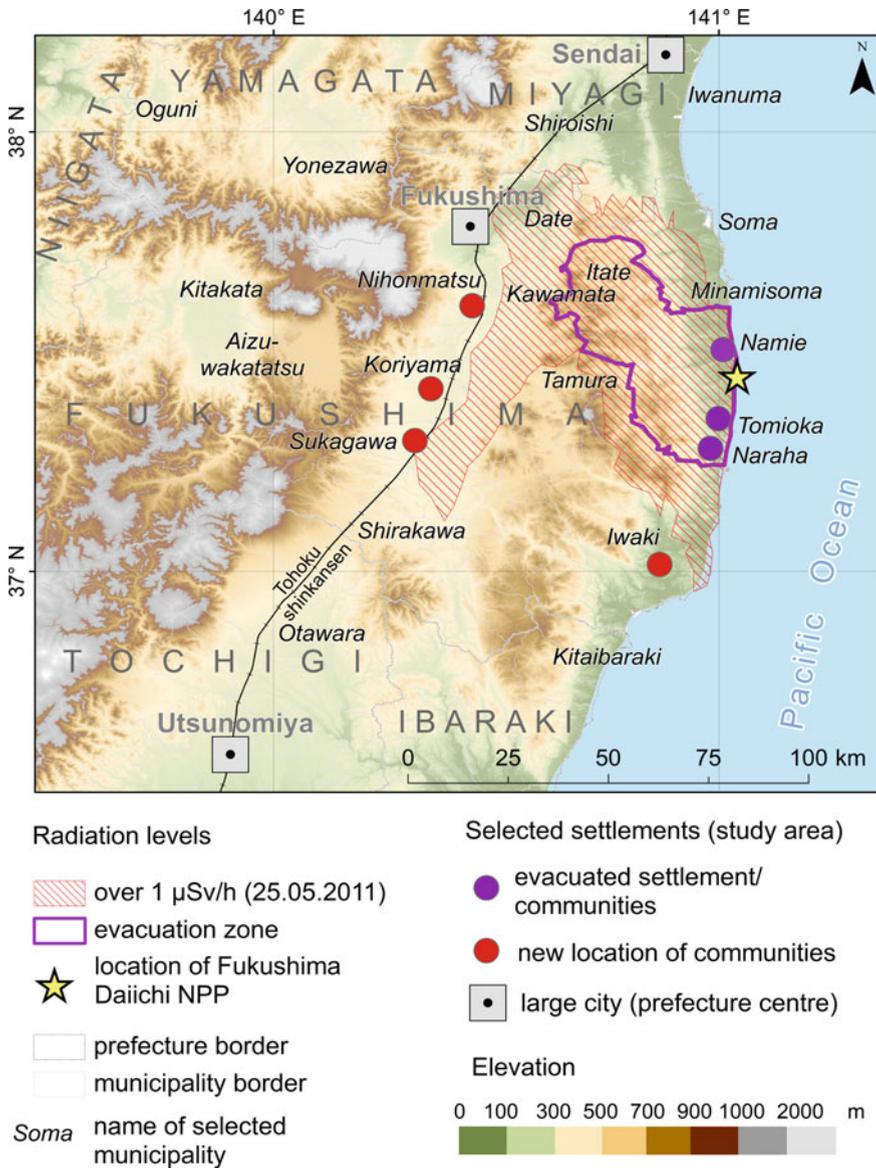


Fig. 11.2 Study area in Japan (Author/cartography by Karácsonyi)

severe tsunami damage on the coastal areas and received influx of evacuees from other towns.

11.5.1 Formation of Residents' Groups During First Year After the Disaster

The neighbourhood councils called *jichikai* are a form of self-organised groups in Japan who are officially recognised by local governments and have a lobbying role for the residents living in their respective neighbourhood. Evacuees also established their neighbourhood councils at each temporary housing units (*kasetsu* in Japanese) where they have been evacuated, to liaise between the residents of their unit and their local government. Some interviewees highlighted that the effectiveness of these bottom-up organised groups was more effective compared to individual voices when negotiating and working with authorities. For example, a temporary housing council leader stated that he officially established the evacuee's council in July 2011, which was the first official group of evacuees from Namie. He recalled that his requests on temporary housing conditions were all rejected by the local government when the requests were made as individuals, but then, were mostly addressed after the establishment of evacuee's council. The official *jichikai* (neighbourhood council) status increased the validity of the residents' collective voices for the local government to recognise the raised issues as more community-based rather than individually generated.

Temporary housing for evacuees from Naraha became available in July 2011. However, initially, Naraha evacuees in some of the temporary housing units did not establish their neighbourhood councils, because decisions on the establishment were left to the residents. Eventually, each estate formed its evacuee's councils once both the town office and the residents recognised the necessity of an official liaison. In Tomioka, the town office maximised its pre-existing ties with residents to establish temporary housing evacuee's councils (*kasetsu jichikai-s*), consulting with local leaders in the early stage of evacuation. Therefore, the establishment of such councils in Tomioka (May 2011—only two months after the disaster) was quicker than that in Naraha. This led to the outcome that the scattered Tomioka residents played a leading role in establishing these evacuee's councils. In any case, evacuee's councils were expected to process requests and announcements from both the government and residents, although the focus was mostly on dealing with residents collectively rather than individually. With the help of town office meeting venues for evacuee's councils, which became available from October 2012, extensive networks among these councils were quickly and successfully enabled.

The evacuee's council (*jichikai*) structure was also helpful for those who lived outside temporary housing units, including evacuees who were living in rental housing subsidised by local governments (*kariage* in Japanese).⁸ Namie set up

⁸Kariage housing means a rental apartment, where local government reimburse the rent for the tenants regardless that it is a commercial property or public housing.

evacuee's councils for themselves in various locations following the series of establishments of temporary housing councils. Many interviewees highlighted the importance of looking after the evacuees outside the temporary housing units as much as those inside. This is because, in general, people outside temporary housing units attracted less attention than those inside due to their less visible presence. Temporary housing units were physically visible and identifiable living as clusters (see Chap. 2, Fig. 2.4), but subsidised rental accommodations (*kariage*) were geographically woven into host communities. The situation of public housing evacuees from Naraha and Tomioka was similar to that of Namie evacuees. Evacuees living in subsidised rental housing received services such as town magazines, rental tablet devices and regular visits of social welfare council staff to maintain basic communication.

Staff members of the social welfare council of Namie pointed out the challenges of sharing information evenly and timely with evacuees scattered in subsidised rental housing. Because of unfamiliar surroundings that these evacuees suddenly faced, they often became reluctant to go out, and they eventually became isolated. According to Shinmachi-Namie, a citizen-led support group of Namie, these *kariage* evacuees had little opportunities to gather or interact with other Namie residents and share their feelings and experiences. It was one of major challenges for Namie community in the early stage of temporary settlements.

Retaining broader connections between evacuees was an important issue too, because several residents evacuated to not only within the Fukushima region but also across Japan and beyond. Shinmachi-Namie was established by some members of the local merchants' association of Namie. According to a leading staff member of Shinmachi-Namie, the organisation adopted a form of NPO (Non-Profit Organisation) to maximise the social and financial opportunities in recovery such as grant application. It held evacuees' networking events and supported the establishment of evacuee's councils for those living in subsidised rental housing in the cities of Nihonmatsu, Koriyama and Sukagawa and set-up of a community-based recovery committee of Namie.

11.5.2 Emerging Communities and Issues in Recovery—Second and Third Years Post Disaster

Many interviewees living in temporary housing units strongly valued the sense of belonging to their new communities at each estate. These emerging communities were the place where they could live together after being transferred from one place to another many times. While this sense of community developed, various changes kept widening gaps between individuals and communities despite that evacuees' everyday lives seemed less chaotic than the initial phase of evacuation.

Staff members of the Namie social welfare council were concerned that some residents at temporary housing units, particularly the most vulnerable, were feeling

left behind. These residents often would have nowhere to go when, one day, their units were closed, while others gradually started moving out from these estates. Adding to this view, a staff member of Shinmachi-Namie warned that this does not mean that those who moved out from the estates achieved their recovery because moving out was simply one of several stages that they would still have to go through in their recovery. Evacuees' views on receiving external supports also varied. During the interview sessions in 2012 in Naraha and Tomioka, evacuee's council leaders often focused on self-reliance in their management, anticipating their future lives after moving out from temporary housing. However, some other temporary housing residents demanded more external supports. This shows that the views on their future lives already varied between residents at this stage.

The Namie social welfare council staff achieved trustful relationships with many evacuees through their long-term regular visits but also identified that some requests from the evacuees were becoming overly reliant on external supports. For example, some family members refused to take care of their elderly parents for nursing. This was because they feared that they might get too impatient and aggressive with parents as a result of excessive stress from their recovery issues. Such problems previously were dealt with from within local communities, but the former neighbourhoods disappeared. As a result, their mutual support at a micro-local scale did not function as effectively as it once had.

Of course, some residents retained their sense of community both before and after the disaster. They often kept community-ties having regular meetings and events during the post-disaster. This seemed to ease residents' uncertain feelings over prolonged evacuation to some extent. Some of the evacuee's councils developed friendships with their host communities, co-organising socialising events and festivals. Based on this development, new neighbourhood ties were established between evacuees and host communities. Some other evacuee's councils, such as Namie So-So Jichikai participated in and facilitated cleaning activities in the local areas. Aizu-Miyasato Jichikai joined local sporting events. Evacuees' Namie Sasaya-Tobu Jichikai and host communities' Fukushima Kita-Nakajo Jichikai jointly held regular socialising events.

However, in general, some of the evacuee's councils maintained regular meetings and gatherings with their host communities. Tanaka et al. (2013) pointed out that local communities existed but did not exist in Fukushima. This meant that although the communities existed in local people's post-disaster lives, pre-disaster personalisation of people's lifestyle continued to diminish their community lives.

Regarding the development of broader works on evacuees' connections, the citizen-based NPO Shinmachi-Namie further expanded its projects with other support groups such as academics and businesses. For example, the NPO and a research group at Waseda University, Tokyo, jointly introduced a semi-public transport system for Namie evacuees in Fukushima Prefecture and beyond using large passenger vehicles funded by external businesses.

At the same time, the NPO started experiencing a new difficulty in maintaining the organisation as a result of the prolonged uncertainty in recovery. Between 2013 and 2015, the number of staff at the NPO dropped from ten to three. One main reason

pointed by some of the members were that many evacuees could not settle in one area to work for the NPO because of their unstable life circumstance. Prolonged evacuation without certainty discouraged them working, when budget for personnel costs was often unavailable due to the organisation's status as NPO. Therefore, even if the organisation won valuable project grants, they often could not work on those projects due to staff shortages.

11.5.3 Return or No Return with Widening Gaps—Four Years After the Disaster and Beyond

The unstable situation in recovery developed further, although reconstruction progressed and lifting of evacuation orders came into affect (at least politically). In addition, effects of a serious lack of sharing information, projects and goals in recovery started unfolding between authorities, support groups and residents. Political uncertainty further complicated to the situation.

A big gap in recognition of and expectation for the future between governments and the residents of their jurisdiction emerged in case of Namie. Generally, two major ideas of semi-permanent residence had been publicly discussed and shared in parallel: (1) to collectively settle outside the disaster-impacted town and redevelop evacuees' everyday lives there; (2) to build public apartments inside and outside the disaster-impacted areas and return (Namie Town 2012). However, in 2015, the central government (and the local government) was almost solely focusing on the latter idea of 'return' and the local government followed it, although this shift of focus was not clearly announced. Namie and Tomioka lifted their evacuation orders (except the difficult-to-return zones) on 31 March and 1 April 2017, respectively (Namie Town 2017; Tomioka Town 2017).

This shift of focus also showed in Namie town office's responses to residential developments. According to a Namie town officer interviewed, the town office approved Namie residents to move into public disaster housing provided by Koriyama and Fukushima. There were also extension plans to build more public disaster housing on the same site. However, Namie town office did not approve another extensive residential development plan, which was a non-governmental project but endorsed by Fukushima city office. Possible factors that contributed to the difference in Namie town office's decisions were the driving factors of the projects (either government-led or others), scale of the projects (about 20 houses in Koriyama, 400 blocks in Fukushima) and items that they were dealing with (either public housing or land blocks). This seemingly relates to the government's current intention to lead Namie residents to return in a coerced manner.

Regarding the residents' view on returning or not returning, a member of the NPO Shinmachi Namie pointed out that, in 2015, 80% of the recent government survey respondents said that they would or could not return anytime soon for various reasons such as safety and availability of social services (Reconstruction Authority

et al. 2016). However, another town officer, during the interview, interpreted this survey result differently; that 80% of non-returning did not necessarily mean giving up on the town. The officer also explained that building Namie communities in other cities and towns would have several difficulties such as taxation, public services and facilities to use.

In Tomioka, the evacuation order (except for the difficult-to-return areas) was lifted in March–April 2017. Public housings for returning evacuees were being built; infrastructures such as medical and commercial facilities were being redeveloped. However, similar to Namie, many of the residents already secured their houses outside the town. Therefore, it would be difficult to expect a high return rate.

In Naraha, the whole town evacuation order was lifted on 5 September 2015. However, the return rate as of September 2016 was less than 10% of the pre-disaster population. One of the potential reasons for this low return rate is that there was no any difficult-to-return area designated in Naraha (unlike Namie and Tomioka). Because of the absence of the difficult-to-return areas, Naraha residents are not entitled to the disaster public housings located outside the town, while utilities and essential services have not been organised sufficiently. At the same time, approximately 80% of the town's population evacuated to the nearby Iwaki city, and they often live their lives in Iwaki without too much inconvenience. These factors may have prompted Naraha residents to individually secure their houses outside the town, which caused low return rates (see Fukushima Minpo 2016).

Evacuees at subsidised rental housing also started accepting the reality and trying to find ways to cope with challenging situations to settle in their current places of living, although they often faced difficulties living in and with the host communities. For example, host community members reportedly criticised Namie evacuees for daily issues (such as managing household waste dump sites). A leader of their evacuee's council explored, at their regular socialising occasions, with other evacuees how they would better deal with such situations so both the evacuees and host communities could maintain and improve their lives rather than conflicting to each other. Media have reported increasing cases of bullying and discrimination against Fukushima evacuees across Japan (see Japan Times 2017; Asahi Shimbun 2017).

Conflicting relationships between evacuees and host communities in Iwaki city were being moderated due to better mutual understanding brought by progress of time and interaction, according to the interviewees. This moderation was also facilitated by the city's recognition of an important challenge to restore its decreased population after the disaster. Iwaki lost its large coastal population following the severe impacts caused by the 2011 tsunami, similar to the coastal areas of Miyagi and Iwate Prefectures in the Northern Tohoku region.

In exploring the evacuees' connections, a number of interviewees (mainly residents) expressed their dilemma that they wanted to return, but knew practically that they cannot. This was mainly because there would not be the everyday community lives that they had become use to. Furthermore, some reported that those who were determined to return often changed their minds at some points, because the evacuation was going on for too long. They could not decide, because they didn't know

when or if they could return. They often could not help thinking about it and got depressed, because there was no clear answer available.

A Namie interviewee stated that she was feeling guilty because realistically she could not return. Another interviewee identified uncertainty as the most difficult issue of Namie's recovery, because local people's recovery and re-establishment of lives were heavily and repeatedly affected by the factors that were beyond their control. These included environmental conditions that brought radiation to Namie and the decisions and intentions of authorities at the time, whose information was often not clearly announced to or shared with public, most importantly with the local residents.

In Naraha, where the evacuation order was lifted for the entire town in September 2015, interviewees' attitudes varied roughly in three categories: (1) return, (2) do not return and (3) have no means to return. The 'do not return' group often had already bought houses outside the town such as Iwaki and secured foundations of their everyday life including schools and jobs. The 'have no means to return' group included those who ran out of compensation money and only hoped public disaster housings in Naraha to be available (see Sect. 11.4.2). This group would likely stay in the emergency housings as long as these are available, which is likely to become a social issue later on. Considering these stories in this sub-section, lifting evacuation order may also be a trigger point that divides residents into a greater number of different groups and widens the gaps between them.

11.6 Differences, Commonalities and Lessons

Our two case studies demonstrated the importance of socio-political systems, financial capacity, mass migration and uncertainty, which affected local communities in different and similar ways through the post-disaster times.

The political framework during the Chernobyl and Fukushima disaster recovery cases were very different. The Chernobyl disaster occurred under the communist system of former USSR, which rapidly collapsed and shifted towards democratic directions in the early post-disaster period. The communist political system, despite the rapid democratic changes, avoided or considerably limited the opportunities for the disaster-impacted citizens to contribute to their recovery and relocation processes. By contrast, the Fukushima disaster and its recovery and relocation processes have been responded to by continuous government systems of Japan, which are generally democratic and relatively stable compared to that of the Chernobyl disaster. This at least provided the impacted citizens of the Fukushima disaster with rights to be actively involved in the recovery process.

Financial capacities of the governments also varied between the two cases. Due to the declining economy of the USSR and the down-scaled capacities of the new states, the large-scale relocation and recovery efforts increasingly experienced financial limitations over time. The Japanese economy was also not in a position to respond to the scale of damages. The state's economy had been stagnant for 20 years. However,

the stable political system allowed Japan to sustain its capacity to provide funding support and reconstruction.

Despite these differences in political–societal system and financial capacity, the overwhelming uncertainty that was largely generated and amplified by governmental and political responses without centring local communities further impacted the lives of disaster-impacted citizens. The uneven policy-making, budget-availability and implementation of the relocation in the former USSR were affected by the progress of democratisation destroyed pre-disaster local communities and continued restricting emerging communities. The lack of foresight also exacerbated hardships in everyday life and life-planning of the disaster-impacted local people of Fukushima, pushing the most vulnerable groups into an even more vulnerable positions. The uncertainty inhibited various stakeholders from sharing visions and efforts; the poor levels of understanding between them increased the uncertainty as a vicious circle.

This uncertainty was further complicated by other factors. For example, the difficulty of sudden, mass relocation and resettlement. Despite the initial speedy relocation and resettlement of 90 thousand citizens without damaging community structures, inhibited authorities of the Chernobyl case from continuing the same level of service due to the reduced availability of land and resources, possibly affected by the drastic political changes as well. The Fukushima case, Namie in particular, also struggled with the limited availability of land and housing and had to utilise scattered temporary shelters such as school gymnasiums and motels to accommodate hundreds of thousands of evacuees all at once. This meant evacuees kept moving until temporary housing and public housing arrangements become available and brought some host communities surged property prices, reduced land availability and strained public resources and services. Another example was the lack of knowledge about the real scale of the radiation threat, which allowed the Chernobyl authorities to expose citizens to high-level radiation. In Fukushima, although the stakeholders were more aware of measurement and potential risks of radiation, the fundamental lack of knowledge about radiation, such as long-term presence and health effects, continues distressing the evacuees in their decision-making.

Uncertainty was commonly identified as a major challenge at a local-scale recovery following the two nuclear disasters. In particular, the large scale of affected areas and populations and several unknown and unresolved aspects of radiation effects considerably increased the uncertainty such as inability to stay and work on-site or nearby, varied effects of decontamination efforts, enormous amounts of human, financial and land resources needed. In order to avoid exacerbating the uncertainty and associated social damages among disaster-impacted citizens, it is important to centre the impacted citizens in disaster management processes. These case studies illuminated the importance of sharing ideas, issues, options and limitations between all stakeholders centring disaster-impacted citizens so that the recovery processes and outcomes gain community members' awareness of their community lives, reduce vulnerability and increase resilience at individual and community scales.

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