Special Issue

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation

Disaster, Infrastructure and Society
Learning from the 2011 Earthquake in Japan

災害・基盤・社会　東日本大震災から考える

contents

Editor's Note

Cascading as a Social Process in Highly Infrastructure-mediated Societies
Tadahito YAMAMOTO

WORKSHOP AND SPECIAL ISSUE

The Study Group on Infrastructure and Society (SGIS) held a workshop entitled "Understanding the 2011 Disaster in Japan: Crisis, Resilience and Emerging Regime" on January 24, 2012 at Hitotsubashi University. The guest speaker was Stephen Graham, Professor of Cities and Society at Newcastle University, who published Disrupted Cities: When Infrastructure Fails (Graham ed. 2010) and developed methods and theoretical frameworks of sociological analyses on the interrelationship between infrastructure disruption and social change in modern urbanized society. During the workshop, following an introduction by the organizer, Takashi Machimura, and opening remarks by Graham, there were seven presentations by the members of the study group on "the 2011 disaster" in Japan.

The workshop consisted of three sessions. The articles in this issue are elaborated versions of the presentations made during the first and third sessions, "Different Faces of Post-disaster Situation, and "The Impacts of Disaster: Changed and Unchanged," respectively.

The second session, "City Life and Disruption of Infrastructure," is supposed to be published in the forthcoming DIS No. 4. The main concern of this special issue is to observe and verify the "cascading social process" caused by the 2011 earthquake, tsunami, and Fukushima nuclear accident. Therefore, it is said that the issue is a follow-up on "The Great East Japan Earthquake Chronicle," which listed many of the events that occurred during the two months after the disaster (see DIS No.1).

"Cascading" is one of the main concepts in Graham's analyses on characteristic processes of infrastructure disruption in contemporary society. Graham says, "[B]ecause infrastructures that are usually considered separate are actually woven together in all sorts of mutually dependent ways—as with the Internet/electricity example already discussed—disruptions to one infrastructure quickly cascade through other systems in unpredictable ways" (Graham, in this issue). Importantly and paradoxically, the more modernized societies are urbanized and dependent upon a complex system of infrastructures, the more cascading-type social processes become increasingly "normal."[1] In addition, Graham indicates that, according to Richard Little, large scale, cascading infrastructure failures can have many "orders" of effects (Little 2010: Graham, in this issue). Disruption in one place is mediated through several "orders" and can reach larger, more structural levels of social change. Cascading is a key perspective in the understanding of such whole processes caused by infrastructure disruption in modern urbanized, unstably structured societies.

The second point relates to "Infrastructural Perspectives," which aims to reintroduce a material/spatial dimension into social analysis in the era of post-growth-oriented developmentalism. During the 20th century, a large number of infrastructures were embedded inside national territory and have formed the spatial regime of social geography, which was an indispensable but "blackboxed" condition of high economic growth in post-war Japan. It was not only an economic matter

Tadahito YAMAMOTO, Senior Researcher, The Institute of Politics and Economy

but also a political resource to make "periphery" subordinate to "center" in the nation.

However, with the decline of the Fordist-type developmentalism and dynamic waves of technological innovation, such economic, political, and spatial regimes of a post-war society are forced to change structurally. Drastic disruptions in existing infrastructure systems can develop into crises of economic activities, social institutions, and cultural orders of society. On the other hand, reorganization of infrastructure in the proper directions can create moments for reconstructing the material/spatial condition of peoples' subsistence and reinventing new types of collective subjectivities in today's highly infrastructure-mediated society. The introduction by Takashi Machimura and opening remarks by Stephen Graham present basic concerns and key theoretical perspectives of this issue. The following two articles (originally presented during Session 1 of the workshop) explain how the chain processes following the disaster affected the local society in northeast Japan. Tadahito Yamamoto's piece is on assistance networks in the tsunami-stricken area of Iwate Sanriku Coast, and Akihiko Sato's piece is on forced evacuation from Iitate village in the Fukushima prefecture polluted by radioactivity from the disrupted Fukushima Daiichi Nuclear Power Plant. The subsequent three articles (presented in Session 3 of the workshop) explain how such cascading and interconnected impacts on local society caused reinterventions from society with various geographical scales. Keisuke Mori discusses the mobilization of the Japanese Self Defense Force and US Navy in "Tomodachi (Friend)" Operation. Keiichi Satoh discusses the social movement in Tokyo in favor of a referendum to stop the reopening of the temporarily shut nuclear power plants around the country. Finally, Masao Maruyama discusses reconstruction politics and the future of developmentalism in the northwest region in a case study of the Ofunato city, Iwate Sanriku area.

RESEARCH

After the Fukushima nuclear accident, the Tokyo metropolitan region experienced large scale rolling blackouts from March 14th–28th, 2011 for the first time since just after World War Ⅱ. With a crisis of direct pollution by radioactivity, this brought with it unexpected and sudden psychologically traumatic events that severely disrupted ordinary life in Tokyo; it forced urban residents to rethink the relationship between "center" and "periphery" which was forced to place risky facilities through post-war developmentalism.

Sunmee Kim's group conducted a questionnaire survey about the effects of the rolling blackout and peoples' reactions on the streets of Kunitachi, a suburban city of west Tokyo, during November–December 2011. Kim's report is the result of this questionnaire.

Notes

1 Graham discusses this with reference to the concept "normal accident" by Charles Perrow (Perrow 1984).

References

Graham, Stephen (ed.), 2010, *Disrupted Cities: When Infrastructure Fails*, Routledge.
Little, Richard G., 2010, "Managing the Risk of Cascading Failure in Complex Urban Infrastructures," Graham, S. (ed.), *Disrupted Cities: When Infrastructure Fails*, Routledge.
Perrow, Charles, 1984, *Normal Accidents: Living with High-Risk Technology*, Basic Books.

Study Group on Infrastructure and Society Workshop

Understanding the 2011 Disaster in Japan: Crisis, Resilience and Emerging Regime

24 January 2012 (Tue), Hitotsubashi University

Program

Introduction

Takashi MACHIMURA

Opening Remarks (via Skype)

Disrupted Cities: Infrastructure Disruptions and the Logic of Cities

Stephen GRAHAM

Session 1 Different Faces of Post-disaster Situations

Tsunami Disaster and Organized Networks of Assistance in Japan: A Case of Sanriku Area

Tadahito YAMAMOTO

Different Faces of Post-disaster Situations: The Case of Nuclear Crisis; Based on a Case Study of Iitate Village

Akihiko SATO

Session 2 City Life and Disruption of Infrastructure

Making a Chronicle of the Great East Japan Earthquake: Toward a Representation of the Spread and Depth of the Impact of Disasters

Takefumi UEDA

Breakdown of Infrastructures and Urban Disconnection: Tokyo in Post-quake Chaos

Junko UENO

Session 3 The Impacts of Disaster: Changed and Unchanged

Disaster and Military: Trajectory of Disaster Dispatch of the SDF and US Forces

Keisuke MORI

Anti-nuclear Social Movements after the Fukushima Accident: Similarities and Differences with the "New Wave" in the Late 1980s

Keiichi SATOH

Changes of Local Regime after 3/11?: Developmentalism, Neoliberalism, and Regional Reconstruction after the Tsunami

Masao MARUYAMA

Special Issue
The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation

"Normal" Disaster in the 21th Century?: Understanding Cascading Effects of the East Japan Great Earthquake

Takashi MACHIMURA

TRIPLE DISASTERS AND MORE

Several days after the 3.11 earthquake, the banking system of Mizuho, one of Japan's major financial groups, suddenly broke down at a national scale; moreover, serious trouble continued for almost a week. It happened when a large number of transactions for disaster-relief donations, supported by one of the national TV networks, flooded into several branches of Mizuho in Tokyo. The total amount of transaction surpassed the capacity of the system. Several months later, it was also reported that the system's dysfunction was accelerated by a deficit in the system's original design.

As can be inferred from this case, the effects of the disaster were broad, unexpected, cascading, and cumulative. The interconnectedness among different systems, particularly infrastructure-wise, a facet that is otherwise not so apparent, can produce an unforeseen disastrous effect. In the aforementioned instance, the damaged area was very wide, including both the core and periphery of the nation. Under such conditions, the form and degree of suffering is often differentiated by place, class, gender, nationality, and other characteristics.

This is one of the reasons why our research group compiled a variety of "disaster-related" events from media content like websites in the form of a day-to-day chronicle. It covered not only tsunamis and nuclear accidents but also related causes such as infrastructure, politics, military affairs, economies, daily lives, cultures, media, and civil societies. By the end of 2011, more than 11,000 events that occurred for about two months after the 3.11 disaster were listed. The study is now open to public and is available on the Hitotsubashi University Repository website.[1] One of the major findings of the chronicle was a simple yet essential fact that suffering systems varied, were spread out, and interconnected.

FOR UNDERSTANDING THE LOGIC OF CASCADING

On January 24, 2012, the first Study Group of Infrastructure and Society (SGIS) workshop, Understanding 2011 Disaster in Japan: Crisis,

Takashi MACHIMURA,Professor, Graduate School of Social Sciences, Hitotsubashi University

"Normal" Disaster in the 21th Century?:
Understanding Cascading Effects of the East Japan Great Earthquake

Takashi MACHIMURA

Resilience and Emerging Regime, was held at Hitotsubashi University, Tokyo. The meeting was focused on the reconsideration of structural impacts of the East Japan Great Earthquake from a critical (sociological) point of view. Presented papers were divided into two groups: one was on different faces of the disaster and the other was on various impacts on urban infrastructures.

In the first part of the workshop, Stephen Graham, a professor of Newcastle University, gave a plenary talk via Internet, titled "Disrupted Cities: Infrastructure Disruptions and the Logic of Cities." After a critical analysis on infrastructural disruptions and the "distinctiveness" of cities, Graham, at last, raised several possible questions for the future research on the 2011 Disaster in Japan.

- What did the disaster expose about the infrastructural, political, sociotechnical, and social norms of Japanese society during times when infrastructure systems operate normally?
- How have the usually hidden politics of infrastructure been exposed?
- Can new concepts of cyborganized urbanism help to understand the disaster more completely?
- How did disruptions cascade in time and space in nonlinear and surprising ways?
- How can research on these help to build resilience into infrastructure design, urban planning, and disaster preparedness?[2]

Disruptions caused by the triple disasters, as Graham pointed out, cascaded in time and space. The way of cascading was not only linear, direct, and expected but also nonlinear, indirect, and unexpected. Probably it was easy to emphasize how unexpected and exceptional this disaster was. For instance, a 9-magnitude earthquake, 20-meter and above high tsunami waves, and severe accidents of nuclear power plants are all unusual and beyond expectation.

However, it must be erroneous to overemphasize their unexpectedness. As shown earlier, a major banking system that was not directly damaged by from the disaster itself was disrupted nationally by the rush of relief donations. Yet, actually, it was accelerated also by a deficit in the system's original design. The disruption might be unexpected, but, it should be seen as structural. We can add many other episodes to this, such as the fact that automobile industries all over the world were influenced by the disaster in the way of disruptions in supply chain of car parts manufactured in the tsunami-hit factories in Japan. This was also unexpected, but it never happened without the increasingly globalization of manufacturing processes.

The focus of the chronicle is that such cascading and often seemingly unexpected effects present, actually, a dominant story of contemporary structural disaster. In this point, I believe the experiences in Japan include a lot of hints and lessons for the advancement of understanding about such changing social realities not only from a disaster-oriented perspective but also from broader perspectives of social sciences and humanities. Graham's questions, based on his related works,[3] give us the basic frameworks for future study. In addition, various recent studies on other major disasters such as Hurricane Katrina also present potential and feasible models for such a critical research.[4]

"NORMAL" DISASTER IN THE 21ST CENTURY?

Our attempt to study is still going on, and the following articles in this issue are tentative results of our continuing projects. It is too early to say something as a conclusion. However, in our own research, in fact, it became clear that a series of

"Normal" Disaster in the 21th Century?:
Understanding Cascading Effects of the East Japan Great Earthquake

Takashi MACHIMURA

events that occurred after 3.11 presented critical theoretical issues that are becoming more serious and structural in current globalizing, neo-liberalized, and "assemblage" society.

Here I would like to address a hypothetical question. Is the disaster we experienced a "normal" disaster in the 21st century? The term "normal" comes from Charles Perrow's notable book, Normal Accidents: Living with High-Risk Technologies (1984). In his analysis of the Three Mile Island accident of 1979, Perrow indicates "(M)ost high-risk systems have some special characteristics, …, that make accidents in them inevitable, even 'normal'."[5] As a scholar of complex organizations, Perrow emphasizes that the current systems of infrastructure and productions have unique characteristics such as interactive complexity and tight coupling within organizations. If such system characteristics inevitably will produce an accident, "I (Perrow) believe we are justified in calling it a normal accident, or a system accident."[6]

While using the term "normal," Perrow originally focuses on the cause of accidents, particularly those arising from within complex organizations. In contrast, my argument here is that we should extend the focus of analysis from an organizational level to a broader system level. As described earlier, one of the main characteristics of the 3.11 disaster was the complex interconnectedness of suffering systems. It implies that an accidental event in one system can be the cause of unexpected trouble in another system. The key point is not just a system but a system of systems or "assemblage." People cannot understand the reality of the contemporary disaster without paying attention to such interactive complexity and tight coupling across different systems.[7]

STILL "THE SOCIAL" MATTERS: URBAN ASSEMBLAGES AND AGENTS

Urban infrastructure is not just a collection of technical "things" but "complex assemblages that bring all manner of human, nonhuman, and natural agents into a multitude of continuous liaisons across geographic space."[8] Infrastructure is a fundamentally relational concept.[9] Thus, a sudden experience of its disruption can force people to change or at least doubt their attitude toward material settings that are usually "bracketed."

For instance, just after the earthquake, "scheduled rotating blackout" was planned by Tokyo's electric power company (TEPCO) and was put into practice for almost two weeks to reduce the risk of unexpected "total" blackout in the Tokyo metropolitan region. Under the repeated blackout, people knew the city was a part of "assemblages" that had been invisible in the "normal." Yet, even in such a "crisis" situation, actually, individual agents responded to it differently. This made clear the hidden disparity in resilience, usually embedded in the context of everyday life.

According to our shopkeeper survey in a suburban city in Tokyo, branch shops of national chain stores were often totally closed during the time of scheduled blackout because of the difficulty in sustaining a level of nationally "standardized" services, which depended heavily upon complex systems of infrastructures. On the other hand, self-employed local shops often tried to continue their operation. One of the key factors for continuous operation was the ability to concentrate their functions to the limited core, even accompanied with decreased satisfaction of both shopkeepers and consumers.

Resilience against system disruption depends upon the flexibility of daily operation and individualized "culture of repairs."[10] This fact reminds us of

"Normal" Disaster in the 21th Century?: Understanding Cascading Effects of the East Japan Great Earthquake

Takashi MACHIMURA

the importance of continuous work necessary to bring about infrastructural circulation even when assemblages are working normally. The position of agents is still crucial even in an "assemblage." However, the consequences of "culture of repairs" in any process can be imbalanced because the working of such "culture" actually depends upon social, economic, and cultural capital of each agent. The culture itself is shared unevenly by the population. The process of this multiple disaster was mediated by various forms of material things. At the same time, its effects were still channelized through the political arena and other institutional settings, and finally, an actual form of their manifestations was always socially selected and culturally managed by both collective and individual actors.

"The social" still matters. When studying contemporary structural disaster, we have to put "the material" into social settings, and, simultaneously, put "the social" into material worlds methodically and theoretically. The interconnectedness of suffering systems, such as energy, transportation and communication, manufacturing, finance, media, and culture, made this disaster more complicated, serious, and difficult to be handled not only in its damaging process but also in its recovery process. Furthermore, under continuously globalizing situations, accidental events can be easily interconnected across national boundaries. The chained effects can go beyond the traditional boundaries among markets, governments, and civil societies because of deregulation and privatization in the current neo-liberalized society.

Almost two years have passed since the severe days of crisis. Yet a lot of "new" facts on the disaster are being "discovered," not only by those who directly experienced it but also by scholars, professionals, journalists, and critics. The disaster is still going on — a large number of evacuees and refugees, continuing anxiety about nuclear safety, and cumulative impacts

from stagnating recovery process itself. Therefore, no one knows how and when the impact of the disaster will end. We should not forget that a disaster is always surprising and can be beyond our imagination. However, now we recognize that it is extremely important to accumulate knowledge on disasters and develop our lively imagination to figure out what may happen next. The following articles in this issue and those in the next issue will set up a forward base for this.

Notes

1 Takefumi Ueda, et al., "The Great East Japan Earthquake Chronicle 2011.3.11-2011.5.11," *Disaster, Infrastructure And Society: Learning from the 2011 Earthquake in Japan,* No.1, pp.13-269, (http://hermes-ir. lib.hit-u.ac.jp/rs/handle/10086/22109).

2 Stephen Graham, "Disrupted Cities: Infrastructure Disruptions and the Logic of Cities," presented at SGIS Workshop, Understanding 2011 Disaster in Japan: Crisis, Resilience and Emerging Regime, January 24, 2012, at Hitotsubashi University.

3 Stephen Graham, 2010, *Cities under Siege: The New Military Urbanism*, London: Verso, Stephen Graham, ed., 2010, Disrupted Cities: When Infrastructure Fails, New York: Routledge.

4 For instance, see Cedric Johnson, ed., 2011, *The Neoliberal Deluge: Hurricane Katrina, and the Remaking of New Orleans*, Minneapolis: University of Minnesota Press, Phil Steinberg and Rob Shields, eds., 2008, *What Is a City?: Rethinking the Urban After Hurricane Katrina*, Athens, Ga.: University of Georgia Press, Ronald J. Angel, Holly Bell, Julie Beausoleil, Laura Lein, 2012, *Community Lost: The State, Civil Society, and Displaced Survivors of Hurricane Katrina*, Cambridge: Cambridge University Press.

5 Charles Perrow, 1984, *Normal Accidents: Living with High-Risk Technologies*, New York: Basic Books, p.4.

6 Ibid,p.5.

7 As related works published in Japan, see Miwao Matsumoto, 2012, *Kozosai: Kagaku Gijutu ni Hisomu Kiki (Structural Disaster: Crisis in the Society of Science and Thechnology)*, Tokyo: Iwanami Shoten.

8 Stephen Graham, 2010, "When Infrastructure Fails," Stephen Graham, ed., 2010, *Disrupted Cities: When Infrastructure Fails*, New York: Routledge, p.11.

"Normal" Disaster in the 21th Century?:
Understanding Cascading Effects of the East Japan Great Earthquake

Takashi MACHIMURA

9 Susan L. Star, 1999, "The Ethnography of Infrastructure," *American Behavioral Scientist*, Vol. 43, No. 3, p.380.

10 See Graham's paper in this issue and ibid. p.19.

disasters and develop our lively imagination to figure out what may happen next. The following articles in this issue and those in the next issue will set up a forward base for this.

Opening Remarks

Disrupted Cities:
Infrastructure Disruptions
as the Achilles Heel of Urbanized Societies[1]

Stephen GRAHAM

"The town exists only as a function of circulation and of circuits ; it is a singular point on the circuits which create it and which it creates. It is defined by entries and exits: something must enter it and exit from it"[2]

On our rapidly urbanizing planet, the everyday life of the world's swelling population of urbanites is increasingly sustained by vast and unknowably complex systems of infrastructure and technology stretched across geographic space. Immobilized in space, they continually bring into being the mobilities and circulations of the city and the world. Energy networks connect the heating, cooling and energising of urban life through infrastructure to both far-off energy reserves and global circuits of pollution and global warming Huge water systems sate the city's insatiable thirst, their waste water and sewerage parallels removing human and organic wastes from the urban scene (at least partially). Within cities, dense water, sewerage, food and waste distribution systems continually link human bodies and their metabolisms to the broader metabolic processes through which attempts are made to maintain public health. Global agricultural, shipping and trade complexes furnish the city's millions with food. Highway, airline, train and road complexes support the complex and multi-scaled flows of commuters, migrants, tourists and refugees, as well as materials and commodities, within and through the global urban system and its links with hinterlands and peripheries. And electronic communications systems provide an universe of digitally mediated information, transaction, interaction and entertainment with is the very lifeblood of digital capitalism and which is increasingly assembled based on assumptions of always being 'on'. The vital material bases for 'cyberspace' are largely invisible and subterranean. They also link intimately both to the electrical infrastructures which allow it to function, and to the other infrastructural circuits of the city as they themselves become organised through digital media. Whilst sometimes taken for granted -- at least when they work or amongst wealthier or more privileged users and spaces -- energy, water, sewerage, transport, trade, finance and communication infrastructures allow modern urban life to exist. Their pipes, ducts, servers, wires, conduits, electronic transmissions and tunnels sustain the flows, connections, and metabolisms that are intrinsic to contemporary cities. Through their endless technological agency, these systems help transform the natural into the cultural, the social and the urban.

Infrastructural edifices thus provide the fundamental background to modern urban everyday life – a background that is often hidden, assumed, even naturalised. They fundamentally underpin the ceaseless and mobile process of city life in a myriad of ways. This process inevitably works across many geographical scales, from the level of the human body and its metabolisms -- through which the food, water and energy brought to the city through infrastructural

Stephen GRAHAM, Professor of Cities and Society, Newcastle University

Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies

Stephen GRAHAM

circulation actually flow – through the city, region and nation to the transnational and even planetary – with its transnational networks of energy extraction and flow, airline travel, electronic communication, food trade, port systems, and the movement of solid, liquid and gaseous wastes. Much-debated processes of 'globalisation' -- beneath the fast-fading hyperbole of the business press -- rely after all on vast and unimaginably complex material circuits of infrastructure within which cities invariably act as the dominant hubs of built networks, the predominant centres of demand (for energy, food, water, transport and communications), and the dominant centres for generating pollution and waste of all forms.

The political, economic, social and environmental importance of the world's lattices of urban infrastructure can only grow as the world becomes more urban. Well over 50% of the world's population lives in cities; 75% of the world's population of over 9 billion people is projected to live in them by 2050.[3] Within just over four decades there will be fully 7 billion people living in the world's cities, 4.75 billion more than in 2007. The overwhelming majority of these will be in the burgeoning cities and 'megacities' of the so-called 'Developing World': in Asia, Africa and Latin America.

As this great demographic and geographic shift continues, humankind will become ever more reliant on functioning systems of urban infrastructure. Indeed, the very nature of urbanisation means that every aspect of people's lives tends to become more dependent on the infrastructural circuits of the city to sustain individual and collective health, security, economic opportunity, social well-being and biological life. Moreover, because they rely on the continuous agency of infrastructure to eat, wash, heat, cook, light, work, travel, communicate, and remove dangerous or poisonous wastes from their living place, urbanites often have few or no real alternatives

when the complex infrastructures that sometimes manage to achieve this are removed or disrupted.

What happens when the infrastructural flows or metabolisms of the modern city, that so often come to be considered so 'normal' that urbanites may even come to see them as culturally banal, invisible, even boring, are suddenly interrupted or disturbed? In what ways do technical malfunctions, interruptions in supplies of resource, wars, terrorist attacks, public health crises, labour strikes, sabotage, network theft, extreme weather and other events usually considered to be 'natural' (floods, earthquakes, tsunami etc.) disrupt the flows of energy, water, transportation, communication and waste that are the very lifeblood of the contemporary city?

Ironically, moments of infrastructural statis and disrupted flow as a powerful means of revealing the politics of the 'normal' circulations of globalizing urban life which tend to fall off the radar screen of contemporary political and social-scientific debates. Here we confront a paradox: Studying moments when infrastructures cease to work as 'normal' is perhaps the most powerful way of really penetrating and problematizing those very normalities of flow and circulation to an extent where they can be subjected to critical scrutiny..

In fact, infrastructural disruptions provide important 'heuristic devices' or learning opportunities though which critical social science can excavate the politics of urban life, technology or infrastructure in ways that are rarely possible when such systems are functioning 'normally.' Disruptions and breakdowns in normal geographies of circulation allow us to excavate the usually hidden politics of flow and connection, of mobility and immobility, within contemporary societies. Occasions of immobility and interrupted flow help to reveal urban infrastructure systems to be much more than the technocratic 'engineer's stuff' configured in value-free ways to serve some notional

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Opening Remarks
Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

'public good' often imagined.[4] Instead, they emerge, fleetingly, as materialisations of the starkly contested and divided political, ecological and social processes which tend both to characterize contemporary cities and to shape the configurations of the flows, and immobilities, that sustain global capitalism. Studying infrastructural disruptions critically thus allows us to do much more than learn policy or planning lessons about how to avoid repetitions of such events or how to ameliorate their effects. It also brings major opportunities to re-think and re-theorise the nature of contemporary urban life.[5]

"THE FORGOTTEN, THE BACKGROUND, THE FROZEN IN PLACE"?: INVISIBILITY AND INFRASTRUCTURE

Whilst public commentary may celebrate certain infrastructures as glamorous and worthy of (at least temporary attention), this process often works to render the remainder of a city's infrastructural circuits as curiously invisible and mundane – even boring. Indeed, when infrastructure networks work best, and succeed in reaching mass adoption as the basis for styles of urban life, they tend to become progressively both more 'ordinary' and less and less noticed.[6] Western urban culture, certainly, has often displayed a tendency for the technological circuits of cities to be rendered culturally more invisible – at least to powerful or hegemonic users – as their use has becomes progressively normalized.

When it happens, the very rendering of infrastructural services as virtually ubiquitous and utterly ordinary means that their use can become taken for granted and 'normalised' as an essential, but largely invisible, support to modern urban life. In the language of the sociology of technology, such

infrastructures have thus become 'black boxed'[7] by their users who often had no other functional alternative to relying on the networked infrastructure systems whether it was water, sewerage, electricity, the telephone or the automobile system. Mobile and land-line telephones, electric plug sockets, water taps, flushing toilets, Internet computers, and cars are thus tend to be so utterly ubiquitous in advanced industrial societies that these apparently banal artifacts give no hint to the average user of the huge and geographically-stretched infrastructural complexes that invisibly sustain them.

Bruce Mau has argued that "the secret ambition of design is to become invisible, to be taken up into a culture, absorbed into the background." He argues, in fact, that "the highest order of success in design is to achieve ubiquity, to become banal."[8] Taking such a perspective further, Mau reflects that the "automobile, the freeway, the air-plane, the cell phone, the air conditioner, the high-rise – all invented and developed first in the West, but fully adopted and embraced the world over -- have achieved design nirvana. They are no longer considered unnatural. They are boring, even tedious." Most of the time, Mau argues that "we live our lives within these invisible systems, blissfully unaware of the artificial life, the intensely developed infrastructures, that support them."[9]

Anthroplogists, Geoffrey Bowker and Susan Leigh Star, meanwhile, suggest that "good, usable [infrastructure] systems, disappear almost by definition. The easier they are to use the harder they are to see. As well, most of the time, the bigger they are, the harder they are to see."[10] Within social scientific writing about cities, especially, the vast infrastructural circuits of the city have often emerged as little more than "the forgotten, the background, the frozen in place"[11] – a merely technical backdrop that is the preserve of engineer's only. Geoffrey

Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

Bowker and Susan Leigh-Star offer the banal and often universal experience of uninterrupted electricity services to power a simple, reading light as an example of how infrastructures have a tendency to become taken for granted. "Unless we are electricians or building inspectors," they write, "we rarely think about the myriad of database, standards, and inspection manuals subtending our reading lamps, much less about the politics of the electric grid that they tap into."[12]

When anthropologists or sociologists define 'infrastructure,' the ways in which sometimes attains cultural invisibility over time is one of the key criteria that they settle on. For Bowker Susan Leigh Star, for example, one of the eight defining characteristics of technological systems that achieve the cultural status of 'infrastructure' is that they "becomes visible upon breakdown." They write that "the normally invisible quality of working infrastructure becomes visible when it breaks: the server is done, the bridge washes out, there is a power blackout. Even when there are backup mechanisms and procedures, their existence highlights the now visible infrastructure."[13]

When infrastructure achieves the status of a 'black box', few modern urbanites venture to understand the inner workings of the technology or the giant lattices of connection and flow that link these network access points seamlessly to distant elsewheres. How many of the world's burgeoning billions of urbanites, after all, routinely consider the extraordinary assemblages of fuel sources, generating stations, transmission wires and transformers that push electrons through the myriad electrical artifacts of contemporary urban life? Or the mass of servers, satellites, glass fibres, routers – and, indeed, electrical systems – that bring our 'virtual' worlds of play, socialising, e-commerce or communication into being? Or the globe-straddling systems of communication, data processing, financial transaction, or risk profiling that bring airliners into

the sky? Or the vast subterranean worlds that bring the fresh water to the tap or faucet or remove the human waste from the toilet once flushed? Or the global supply chains that populate a supermarket shelves with produce, fill the gas or petrol station with the hydrocarbon products of the decayed forms of billions of ancient life-forms?[14]

Beyond the (usually temporary) celebration of new airports, highways, glitzy fast-rail stations, TGV networks, or broadband telecommunications, the more prosaic and banal underpinnings of modern urban life tend to populate a kind of cultural substrate to the city. Many urban networks in the contemporary city remain "largely opaque, invisible, disappearing underground, locked into pipes, cables, conduits, tubes, passages and electronic waves."[15] Once initially completed and universalized – at least in many western cities – the water, sewerage and electricity systems of the city tended to "became buried underground, invisible, banalised, and relegated to an apparently marginal, subterranean urban world."[16] Often burrowing underground into the dark, dirty and dusty worlds of the subterranean city, such architectures and technologies increasingly became cordoned-off physically as well as imaginatively, abandoned to the engineers, urban explorers or cultural marginals to inhabit, reveal or celebrate the dark labyrinths of the subway, the sewer, the security tunnel, or the historical legacies of earlier systems of movement and mobility abandoned or forgotten below ground.[17] It is not surprising that counter-cultural movements as well as science fictions and urban dystopias routinely delve – quite literally – into the forgotten or abandoned subterranean circuits through which the technologies or circulation burrow and connect. When it occurs, the 'black boxing' of infrastructural systems, and the failure of their users to see beyond the flowing tap, the car ignition, the computer screen, the telephone handset, or the

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Opening Remarks
Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

burning stove, to the empire of functions 'behind' the working service, has further important implications for the imaginations of urban infrastructure. Cultures of normalised and taken-for-granted infrastructure use sustain widespread assumptions that urban 'infrastructure' is somehow a material and utterly fixed assemblage of hard technologies embedded stably in place which is characterised by perfect order, completeness, immanence and internal homogeneity rather than leaky, partial and heterogeneous entities. The combination of the social normalisation of uninterrupted and ubiquitous service and the cultural invisibility of so many of the subterranean artifacts which bring infrastructural services into being, mean that entire technological systems can effectively become black boxed from the point of view of their millions of users. At the same time, our tendency to take infrastructural complexes for granted still means that, for many western urbanites, at any rate, "technical systems [now] conjure up images of stability and permanence."[19] This is because of their historical evolution from small, fragmented, specialised systems to integrated, often (quasi) universal, and technologically-standardised ones that can be regarded as "functional subsystems of society as a whole." [20]

Because of the apparent permanence of black-boxed infrastructural complexes, infrastructure networks thus retain powerful images of stability. Often, they are regarded as "symbols of the complexity, ubiquity and the embodied power of modern technology."[21] This explains why urban studies, for example, still often uses a language such as 'public infrastructure' or 'public works', that traps these networks within a historically-specific period, so utterly failing to acknowledge radical current shifts in the social organisation of the sectors. Urban studies appears to have difficulties acknowledging the intrinsically dynamic nature of network changes. It, too, has, in

effect, tended to 'black box' networks like electricity as permanent, ubiquitous and banal underpinnings to urban life that don't really warrant contemporary attention.

INFRASTRUCTURE AS PRECARIOUS ACHIEVEMENT

Such caveats help hammer home a crucial point : That infrastructure networks, despite their occasional veneer of permanence, stability and ubiquity, are never structures that are given in the order of things. Instead of being static material or technical artifacts to be relied on without much thought, infrastructure networks are, in effect, processes that have to be worked towards. The dynamic achievement of a functioning energy, communications, water or transport network requires constant effort to maintain the functioning system. It is easy to overplay the degree to which infrastructure networks necessarily 'mature' to become socially ignored and 'embedded'. "We sometimes seem to view mature [infrastructure networks] as invulnerable," writes sociologist Jane Summerton, "embodying more and more power over time and developing along a path whose basic direction is as foreseeable as it is impossible to detour [But] systems are more vulnerable, less stable and less predictable in their various phases than most of us tend to think." [22]

When the diverse elements are coupled and interact according to their assigned roles within any given infrastructural networks – allowing the intended effects to be expected with high reliability – sociologist of technology describe the network as stable and closed. Take the 'Large Technical System' of the automobile and its related highways and service infrastructure, for example:

"the techno-structure of automobile traffic is a

Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies

Stephen GRAHAM

striking example of this stability : the strongly-knit relations between automobile manufacturers and suppliers, the close intertwining of transport and taxation policy, the long-lasting tradition of motorcar engineering and the mass myth and mass practice of automobilism. Each of these relations guarantees the continuation of a technological trajectory, although the automobile traffic system has been deeply shaken by the crisis of oil supply, air pollution, and urban traffic jams. This close coupling of things, people, and signs and its continuous production by routines are the social base of the technological momentum and the myth of technics-out-of-control."[23]

Despite such occasional veneers of permanence, closure and stability, infrastructure networks are always precarious achievements. The links between nodes do not last by themselves ; they need constant support and maintenance. For many of the world's urbanites, indeed – especially those in the burgeoning informal settlements which dominate many cities in the global south – achieving an electricity, water or communication service is the result of a constant process of improvisation.[24] For such urbanites, infrastructure networks are far-from being black boxes that almost miraculously and invisible bring electricity, internet connections, water or food to any point or space. Instead, they are highly politicized assemblages of artifacts and practices within which continuous efforts at agency, or resistance may – just may – allow services to be improvised, often beyond the bounds of markets and strict legality.

But even in cities where infrastructure services are associated with a veneer of stability or permanence, a vast and hidden economy of repair and maintenance is continually at work to allow infrastructural circuits to actually work.[25] Constituting at least 10% of

most urban economies, this economy of repair and improvisation is almost invisible within the debates of urban studies. The sheer amount of economic activity generated by repair and maintenance I notable, even though it is almost completely ignored in accounts of the economies of contemporary cities. In the United States, for example, there were fully 5.82 million people engaged in 'Installation, Maintenance and Repair' (IMR) occupations in 2000. This figure was expected to rise to 6.48 million by 2010, a growth rate of 11.4%. These jobs constituted 4% of all jobs in the USA, making the sector one of the six most important service industry occupational groups.[26] "Think only of some of the familiar sounds of the city as an instance," write Stephen Graham and Nigel Thrift, "from the sirens denoting [automobile] accidents, to the noises of pneumatic drills denoting the constant upkeep of the roads, through the echoing clanks and hisses of the tire and clutch replacement workshop, denoting the constant work needed just to keep cars going."[27]

UNDERSTANDING INFRASTRUCTURE DISRUPTIONS

"City-dwellers are particularly at risk when their complex and sophisticated infrastructure systems are destroyed and rendered inoperable, or when they become isolated from external contacts" [28]

The continuous reliance of urban dwellers on huge and complex systems of infrastructure stretched across geography creates its inevitable vulnerabilities. When infrastructure services have become taken for granted, paradoxically, as we have seen, it is often the moment when the blackout occurs, the server is down, the subway has a strike, or the water pipe ceases to function that the dependence of cities on

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Opening Remarks
Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

infrastructure networks becomes most visible. In such circumstances, "for most of us," writes Bruce Mau, "design is invisible. Until it fails."[29]

Sudden disruptions to the complex and 'cyborgian' assemblages that sustain infrastructure networks brings with it the startling paradox with which we started this essay: The unexpected absence of functioning infrastructure works to underline the very (albeit useless) presence of the vast stretched-out system that usually remains so invisible.[30] When they have become stable and taken for granted, interruptions in power, clean water supplies, the arrival of fresh food, the ability to move commuters, tourist or business travelers, the means of flitting electronic data, money, communication or video around the planet at the speed of light, or the means of shifting waste and sewerage away from teeming cities, immediately work to make the vast complexes of infrastructure on which urbanites continually rely starkly visible – if only until normal services are resumed. Sociologists of technology call this a process of 'un-blackboxing': a social process, the opposite of 'black boxing' process discussed above, through which the complex system and technologies upon which everyday life relies , which are normally kept within a 'black box' within which only specialist engineers and policy makers penetrate, are suddenly clearly revealed.[31]

Interconnection and Cascading Effects

During infrastructural disruptions within contexts where infrastructure has become taken for granted, to adopt Irving Goffman's terms, the built environment's "backstage' becomes momentarily "frontstaged."[32] But because infrastructures that are usually considered separate are actually woven together in all sorts of mutually dependent ways[33] – as with the Internet/electricity example already discussed -- disruptions to one infrastructure quickly cascade

through other systems in unpredictable ways.[34] As Charles Perrow's highly influential book Normal Accidents[35] demonstrates, tightly interconnected infrastructures "predictably fail but in unpredictable ways."[36] Crucially from the point of view of this book, disruption or destruction in one point in a water, transport, communication or energy grid tends to move through the whole system. And because these systems are densely interlinked and mutually dependent -- or are 'tightly coupled' in engineering parlance -- disruption in one tends to cascade to others very quickly. Thus, when the baggage handling facilities at Heathrow's new terminal 5 failed to keep up with passenger throughput in March, 2008, cascading effects quickly disrupt the entire planet's airline system. When thieves literally cart off electrical copper networks – affected by the high price of the metal – as has been common in China, Europe, Russia or the Global South within the lest decade, complex chains of de-electrification can quickly paralyse the multiple electrical circuits and digital or physical circulations of urban life.

Given that all of the 'Big Systems' of infrastructure that sustain advanced, urban societies are profoundly electrical, city residents become, in particular, "hostages to electricity."[37] This is because it is very difficult to store large quantities of electricity. In an electrical blackout it is not just electric lighting that fails. Electrically-powered water and sewerage systems tend to grind to a halt. Public transportation stops. Food processing and distribution is disabled. Health care becomes almost impossible. Even the Internet ceases to function.

Large scale, cascading infrastructure failures, particularly between electricity and transport outages and other systems, demonstrate, can have many orders of cascading effects. For example, Richard Little recounts how, in May 1998, the failure of just one satellite terminated the operation of 80%

of all US pagers, disrupted ATM and credit card transactions systems, interrupted emergency health care communications systems, and brought chaos to the complex, Just-in-Time systems in place in health care systems.[38]

From Apocalyptic Fears to Cultures of Repair

Just as cultural debates about infrastructure tend to privilege glitzy and glamorous infrastructural edifices, cultural commentaries about infrastructural disruptions tend to be with the spectacular collapse of whole cities, societies or civilisations, rather then the mundane interruptions and repairs and improvisations that constitute the quotidian existence of urban dwellers.[39] As we have seen, in many cases, infrastructural services do not become blackboxed and taken for granted because their use is always precarious and unreliable. This point is especially important in the parts of global south cities where rudimentary or improvised access to power, water, fuel, food, or sanitation, beyond the limits of 'formal economies,' is all that is possible.[40]

Rather than swarming masses of repair workers or urbanites tinkering with the prosaic technicalities of urban life, or dealing with cascading infrastructural disruptions, though, we find that films, video games and novels are endlessly preoccupied with fantasies of complete societal or urban collapse replete with annihilated cities and complete societal breakdowns.[41] We have mass disasters, wholesale loss of life, the repeated end of cities per se,[42] and reversals to pre-industrial existence for small bands of hardy survivors, rather than the improvised coping strategies of users and providers in dealing with day-to-day infrastructure disruptions. We also encounter widespread social and political discussions of how past societies have collapsed[43] and how contemporary civilization is facing a future wholesale collapse

characterised by resource exhaustion, runaway climate change, growing demographic pressure, and spiraling warfare, rather than the prosaic experiences of sewer overflows, transport disruptions, or energy blockades.[44] And we rehearse the millennial speculations of endless predictions of apocalypse by 'cyberterror'[45] or malign software running out of control -- think of the debates that surrounded the Y2K problem in the run up to the year 2000 -- rather than the endless and deeply prosaic software glitches, crashes and the continuous repair necessary to run a simple Windows PC, a city electrical system, or an organizational computer network.[46] In addressing the infrastructure disruptions in this book, therefore, we need to be especially mindful of the continuous, invisible work necessary to being about infrastructural circulation even when infrastructural assemblages are working 'normally.'[47]

Of course, fear, apocalypse and catastrophe sells; routine portrayals of prosaic improvisation don't. Disaster genres in film, video games and novels, after all, tap into widespread sense of apocalyptic dread about the fragility of urban life in times of growing environmental stress, burgeoning populations, and the growing sense of imminent or existing resource exhaustion, catastrophic climate change, or biodiversity collapse. More generally, there is a widespread cultural sense of the flakiness of many of the essential infrastructural services organised through often unreliable 'kludges' of myriads of software fudges lacing together massive computer communications systems.[48] "Fear of the dislocation of urban services on a massive scale", writes Martin Pawley, is now "endemic in the populations of all great cities", simply because contemporary urban life is so utterly dependent on a huge range of subtly inter-dependent and extremely fragile computerized infrastructure networks.[49]

Disruption and Digitality

Such is the cyborgian nature of computerized infrastructure systems that disruptions to normal services are sometimes moving from the status of inconveniences to that of life-threatening events. Taking an unusually reflective and critical stance for a software engineer, Bill Joy, co-founder of Sun Microsystems, caused a furor back in 2000 amongst readers of the bible of the high-tech elite, Wired. He suggested that the mediation of human societies by astonishingly complex computerized infrastructure systems will soon reach the stage when "people won't be able to just turn the machines off, because they will be so dependent on them that turning them off would amount to suicide."[50] Such concerns fuel an entire publishing industry emphasizing that the lurking actions of distant 'cyberterrorists' could bring an 'electronic Pearl Harbor' to the US nation by sewing mass destruction and death by bringing paralysis to air traffic control, logistics, electricity, water or other critical systems through the use of malign code.[51]

Computer worms and viruses are often deemed by US security commentators to be mere trial runs for such mass, digital paralysis. The 'I Love You' or 'Love Bug' virus, launched by a college student in the Philippines on May 3rd 2000, remains powerful example here. This virus moved to infect 45 million computers in at least twenty nations across the world within three days, clogging and destroying corporate e-mail systems in its wake. Overall damage was estimated at well over $ 1 billion and many Fortune 500 companies were substantially affected. The virus also exposed some of the transnational tensions and inequalities that surround corporate IT. Some newspapers in the Philippines, for example, expressed national pride that the country could spawn a hacker that could bring the highly fragile computer communications systems of Northern corporations to an (albeit temporary) collapse.

On 1st February 2008, meanwhile, just off the coast of Alexandria, Egyptian fishing trawlers inadvertently sever the optic-fibre lines which work to continually bring the 'virtual' interactions of global finance, global telephony and the Internet into being – as happened. In an instant, entire portions of the planet – on this occasion, India and the Middle East – suddenly experience 'network unavailable' signs on their computers, the collapse of stock markets, or the disappearance of their telephone call tone. Again, flurries of media reports momentarily expose the geographies and politics through which glass strands are weaved together at the bottom of the world's oceans to sustain burgeoning electronic interactions between global archipelagoes of high-tech cities and urban economies. For a day or two, the serious newspapers are full of detailed maps of the world's optic fibre networks. Once the crisis is over, these geographies sediment back into the collective unconscious until another interruption occurs.

The reorganization of every circuit and aspect of modern urban life through incredibly complex digital control systems[52] clearly adds a new and vital twist to discussions about the politics and impacts of infrastructure disruptions. Crucial within such debates is the growing awareness that, far from being rational, orderly, or even explicable, digital systems often display a kind of vitalism and non-linear complexity that it can be difficult even for experts to explain how they work (or, equally, don't work).

Beneath the techo-boosterism of the 'digital' or 'networked society,' then, and far removed from the rapidly receding utopianism of the likes of Michael Benedikt discussed above, the prosaic and everyday realities of using contemporary computer systems is, in many ways, constituted through continuous repair and maintenance. Ellen Ullman stresses that the Y2K 'crisis,' in particular, hammered home the fact that

contemporary ICT systems are not "shining cities on a hill – perfect and ever new – but something more akin to an old farmhouse built bit by bit by non-union carpenters."[53] "Glitches, patches, crashes", the crisis revealed, were "as inherent to the process of creating an intelligent electronic system as is the finely tuned program, the gee-whizz pleasure of messages sent around the world at light speed. "[54]

During the Y2K crisis, even computer and software engineers often had little idea of the full archaeological sedimentation of decades worth of software within their computer networks underlined what Ullman calls the "near immortality of computer software" – the way new software often merely aggregate around the kernels of very old systems. Resulting systems are thus inevitably going to be unreliable to an often unknown extent. In the event, only one of the largest concerted repair operations in human history, in the years leading up the turn of the millennium, was able to avert the mass failure of a whole host of transnational ICT systems, and the interdependent infrastructures that they sustain.

Large amounts of any investment of time and money in keeping an IT system running is inevitably spent confronting the need for continuous software and hardware upgrades and maintenance; installing software patches to iron-out a continuous stream of identified flaws; addressing the malignant code that is continually unleashed into the world; organizing secure back-up systems to maintain data in the event of a major crash; and training and equipping the staff, facilities and services to offer such continuous repair services. To take just one example, within Metropolitan Chicago in 2003, 'computer maintenance and repair' constituted 4% of all jobs in the city (5, 679 jobs in all).[55] Moreover, a burgeoning universe of software support and call centre help-lines, spread right across the world to service the major markets of northern metropolitan areas, constitutes one of the world's fastest-growing industries. Here we confront transnationally configured networks, organised through computer systems, which link consumers in the global north to advisors in the global south, and whose very raison d'être is the continual requirement of users to deal with the mass, routine, failure in computer systems. Spurred on by 9/11, new urban landscapes of repair and maintenance have even started emerging around the cores of the world's great cities, as emergency computer centres, hardened and windowless like Cold War bunkers, are built to be occupied within minutes in the event of a major disruption or crisis.

Fears of the complete collapse of digital circulations are paralleled by updated variations of long-standing fears of autonomous or cyborgian technics running amok. Events where largely autonomously software, linked into cyborgian infrastructural assemblages, automatically triggers devastating actions – such as with the shooting down of Iran Air flight 655 by the automated computer systems of the US Navy's USS Vincennes – add a new twist to such risks.[56] The interdependence inking electronic communications infrastructures and other infrastructural assemblages also means that electronic disruptions and signals are likely to unpredictably disrupt flows of more prosaic and less glamorous infrastructural circuits, as they themselves become organized through networked computer systems. In February, 2006, for example, the cars of drivers on a coastal road in Norfolk, England, started to mysteriously grind to a sudden halt. Local mechanics were completely flummoxed ("It's like the X-Files, isn't it?" one was reported to have said). Eventually it became clear that the control systems latest computer-controlled cars were being disrupted by powerful radar signals from a nearby early-warning station. (These very means of electronically disabling modern infrastructures are at the heart of emerging military doctrine surrounding

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Opening Remarks
Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

electronic pulse weapons[57]).

Conversely, disruptions in physical transport infrastructures can have far-reaching effects on electronic communications circuits. This is because, at least within cities, these circuits are invariably layed within conduits that parallel physical roads, subway tunnels or rail systems to minimize costs. In July, 2001, a fire on a train in tunnel beneath central Baltimore, for example, brought network disruptions to email and Internet traffic in places as distant as Atlanta, Seattle, Los Angeles and even Lusaka, Zambia.[58] The fire revealed the continuing role of key US metropolitan areas as the hubs of the vast majority of the world's electronic traffic – a legacy of the military and Cold War origins of the system, and the global commercial dominance of US telecommunications and Internet firms. Against the rhetoric of step-like shifts toward a dematerialized 'information society' demonstrated by writers like Michael Benedikt, discussed above, events like the Baltimore train fire hammer home, rather, that "new infrastructures do not so much supersede old ones as ride on top of them, forming physical and organizational palimpsests -- telephone lines follow railway lines, and over time these pathways have not been diffused, but rather etched more deeply into the urban landscape."[59]

Disrupted Cultures

Recent efforts by the artistic world to represent threats of infrastructure disruption have recently received a great deal attention, most notably through the work of French theorist Paul Virilio on the links between speed, modernity, and the rapid or instantaneous diffusion of technological 'accidents' through global reliance on interlinked digital control systems.[60]

Perhaps more surprisingly, popular music has also started to develop some of the most powerful representations of experiences of infrastructural disruption. Members of Canadian band, the Arcade Fire, for example, personally experienced the huge power collapses which impacted on Eastern Canada's main cities in January 1998 because a massive ice storm led to the widespread collapse of the power transmission system.[61] Some of the five million people affected were without power for five weeks within one of the coldest Canadian winter's on record). As Jacques Leslie recounts, classic cascading effects quickly brought a state of emergency to the area:

"People without power discovered just how many facets of their lives depended on electricity. Their stoves, appliances, and heating didn't work, and many telephones went out. In eastern Ontario, where 50,000 phones went dead, the electric utility, Ontario Hydro, was doubly confounded, since it depended on customers' phone calls to alert it to power failures. Throughout the affected region, all financial transactions had to be in cash, since credit card swipes and ATMs were useless. And even if drivers could find highways free of tree limbs and power lines, they could go only as far as the gas in their tanks would take them, because gasoline pumps didn't work. Most disturbing of all, at 12:20 p.m. on the 9th, the two water filtration plants that served 1.5 million people in the Montreal region went down, leaving the area with a 4- to 8-hour water supply."[62]

Arcade Fire's song, "Neighborhood #3 (Power Out)" provides a visceral reflection of the experience, and hammers home the sense of modernity unraveled, lives threatened, and norms abandoned amidst darkness and cold that few had experienced before.[63]

Disruptive Politics

Finally, it is useful to stress the growing centrality

of deliberate infrastructural disruption to the political strategies of dissenters, protestors, states and non-state fighters alike. Public protest in cities, for example, increasingly eschews traditional mobilizations in city centers, concentrating instead on disabling or occupying the most strategically important infrastructural hubs of a city. In November and December, 2008, for example, thousands of activists of Thailand's main opposition, the People's Alliance for Democracy (PAD), occupied Bangkok's two main airports, preventing at a stroke their 125,000 daily passengers of from traveling. A powerful demonstration against Prime Minister Somchai Wongsawat, whom they argued was merely a puppet of the previous ousted President, the occupation was an effective siege which completely disrupted lucrative tourist economy of the whole of Thailand.

State military theorists, are also all too aware of the debilitating cascading effects of interrupting infrastructural flows, especially electricity supplies. They have developed a range of military doctrine which legitimizes the destruction of urban societies' electrical systems as means of reducing societies deemed adversaries to a state of 'strategic paralysis.' The US and Israeli armies, amongst others, have carefully developed a range of weapons – from giant 60-ton bulldozers equipped with claws designed to destroy roads, water systems and power lines to 'soft' bombs which rain millions of graphite coils onto electrical sub-stations, 'de-electrifying' entire adversary societies in an instant. Indeed, a complex body of military theory legitimizes such attacks as a necessary and supposedly 'non-lethal' means to coerce highly urban societies by bringing about complete infrastructural disruption or devastation, By generating huge public health crises, as electrically powered water and sewerage systems grind to a halt and repair becomes impossible because of sanctions,

such targeting actually leads to very large numbers of civilian deaths, usually amongst the old, the young and the ill.[64]

Non-state fighters and insurgents, meanwhile, have moved well beyond the long-term staple of the car bomb.[65] They now attempt to appropriate airliners, subway cars, railway carriages and buses as means, paradoxically, to devastate and interrupt the circulations of cities.[66] Infrastructures and technologies of circulation are pre-eminent amongst the myriad of 'soft targets' that constitute contemporary cities in the eyes of such movements. They symbolize the purported arrogance of technocratic western nations or the transnational reach and power 'global' cities.[67] They provide opportunities to engineer massive media events and extraordinary levels of devastation without the use of any military weapons whatsoever. And they help generate incalculable economic costs as 'normal' circulations and flows sustaining globalised capitalism are interrupted by cascading disruptions unleashed unpredictably in space and time.

In India, for example, terrorists have targeted the electrical infrastructures sustaining the country's burgeoning high-tech enclaves.[68] In Iraq, Saudi Arabia and Nigeria's Niger Delta, meanwhile, a whole spectrum of insurgents work to destroy oil pipelines, targeting the distant supply lines of fossil-fuels as a means to bring economic and political pressure on distant cities. In all these examples, perversely, "the space of the city, orchestrated by the organizational logics of infrastructure, is… precisely revealed in its destruction."[69] Political violence against infrastructure is perhaps the ultimate way of forcibly 'unblackboxing' infrastructures that have managed to achieve the status of perceived stability, invisibility or permanence.

Geopolitical power, finally, increasingly centers not merely on the use and deployment of military

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Opening Remarks
Disrupted Cities:
Infrastructure Disruptions as the Achilles Heel of Urbanized Societies
Stephen GRAHAM

power but on the control of the energy, water and food resources which must continually be imported to sate the appetites of rapidly urbanizing societies. Vladimir Putin's resurgent Russia, for example, is emerging one again as a 1st order power largely through its continual threats and disruptions to the gas supplies that it pipes Westward toward the Ukraine and Eastern and western Europe.

Notes

1 This article is an altered version of "When infrastructure fails," in *Disrupted Cities: When Infrastructure Fails*, ed. Stephen Graham, New Yorkn: Routledge.

2 Gilles Deleuze and Félix Guattari, (1997) ' City/State' *Zone* 1/2 195-199, pp. 196.

3 United Nations Habitat Program, *State of the World's Cities*, United Nations Habitat program: Nairobi, 2007, pp 4

4 See Olivier Coutard (ed.)(1999), *The Governance of Large Technical Systems*, London : Routledge.

5 See, for example, Phil Steinberg and Rob Shields (Editors)(2008), *What is a City? Rethinking the urban after Hurricane Katrina*, Athens and London: University of Georgia Press.

6 David Perry (1995), "Introduction". In D. Perry, (1995), *Building the Public City: The Politics, Governance and Finance of Public Infrastructure*, London: Sage. 1-20.

7 Steve Hinchliffe defines black boxes "as settled items whose users and colleagues (human and non-human) act in ways which are unchallenging to the technology". Steve Hinchcliffe (1996), "Technology, power and space – the means and ends of geographies of technology", *Environment and Planning D: Society and Space*, 14, 659-682. Pp 665.

8 Bruce Mau, *Massive Change*, London Phaidon, 2003. pp. 3-4..

9 Bruce Mau, *Massive Change*, London Phaidon, 2003. pp. 3-6...

10 Geoffrey Bowler and Susan Leigh Star (2000), *Sorting Things Out: Classification and its Consequences*, Cambridge, Ma.: MIT Press.

11 Susan Leigh-Star (1999), "The ethnography of infrastructure", *American Behavioral Scientist*, 43(3), 377-391. 379.

12 Geoffrey Bowler and Susan Leigh Star (2000), *Sorting Things Out: Classification and its Consequences*, Cambridge, Ma.: MIT Press. pp. 33

13 Bowker and Leigh-Star use seven other characteristics to define 'infrastructure.' To them, infrastructure is embedded (i.e. "sunk into other structures); transparent ("it does not need to be reinvented each time or assembled for each task"); offers temporal or spatial reach or scope; is learned by its users; is linked to conventions of practice (e.g. routines of electricity use); embodies standards; is built on an installed base of sunk capital; and is fixed in modular increments rather than being built all at once or globally (Bowker and Leigh-Star, 2006, 335).

14 See Aihwa Ong and Stephen Collier (2005)(Editors), *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*, Oxford: Blackwell.

15 Maria Kaika and Eric Swyngedouw (2000), "Fetishising the modern city: The phantasmagoria of urban technological networks", *International Journal of Urban and Regional Research*, 24(1), 122-148, pp. 122.

16 Maria Kaika and Eric Swyngedouw (2000), "Fetishising the modern city: The phantasmagoria of urban technological networks", *International Journal of Urban and Regional Research*, 24(1), 122-148, pp. 122.

17 See, for example, David Pike (2007), *Metropolis on the Styx: The Underworlds of Modern Urban Culture, 1800-2001*, New York: Columbia.

18 See, for example, Julia Solis (2007), *New York Underground*, Routledge: New York.

19 Jane Summerton (ed.) (1994), *Changing Large Technical Systems*, Boulder: Westview Press, pp. 1.

20 Renata Mayntz, R. (1995), "Technological progress, societal change and the development of large technical systems". *Mimeo*. Pp. 5.

21 Jane Summerton (ed.) (1994), *Changing Large Technical Systems*, Boulder: Westview Press, pp. 1.

22 Jane Summerton (1994), "Social shaping in large technical systems", *Flux*, 17, July-September, 54-56. Pp. 56.

23 Werner Rammert (1997) "New rules of sociological method: Rethinking technology studies." *British Journal of Sociology*, 48: 171-191.

24 Colin McFarlane (2010), "Infrastructure, interruption, and inequality: Urban life in the Global South", Stephen Graham ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge.

25 See Stephen Graham and Nigel Thrift (2007), "Out of order: Understanding maintenance and repair", *Theory, Culture and Society*, 24(3), 1-25.

26 DPE (Department for Professional Employees) (2003) *Current Statistics on White Collar Employees*. Washington, DC: DPE.

27 Stephen Graham and Nigel Thrift (2007), "Out of

order: Understanding maintenance and repair", *Theory, Culture and Society*, 24(3), 1-25. Pp. 2.

28 Seymore Barakat, 'City war zones, *Urban Age*, Spring, 11-19. pp. 12.

29 Bruce Mau, *Massive Change*, London Phaidon, 2003. pp. 3-4..

30 Heideggerian philosophy and phenomenology is particularly helpful in explaining how the apparent failures of infrastructure systems work to render them visible. Such events "disclose a world," writes Peter-Paul Verbeek. "When somebody uses a tool or piece of equipment, a referential structure comes about in which the object produced, the material out of which it is made, the future user, and the environment in which it has a place are related to each other. But that this is so, according to Heidegger, generally appears only when a handy or ready to hand tool or piece of equipment breaks down. When this happens, the tool suddenly demands attention for itself. The reliable dealings we are used to having with the tool are ruptured, and instead of withdrawing from our attention the tool suddenly forces itself upon us. Someone sits at a word processor focused on the text at hand and all of a sudden the computer freezes. The trustworthy world that developed around the computer – the open book, the keyboard, the screen, the cup of coffee; in short, the entire mutually referring network that Heidegger calls a world – is abruptly destroyed." (Peter-Paul Verbeek, (2004) *What Things Do. Philosophical Reflections on Technology, Agency and Design*. University Park, Pennsylvania State University Press. pp 79-80. Cited in Stephen Graham and Nigel Thrift (2007), "Out of order: Understanding maintenance and repair", *Theory, Culture and Society*, 24(3), 1-25.)

31 See Leigh Star, S. (1999), "The ethnography of infrastructure", *American Behavioral Scientist*, 43(3), 377-391.

32 See Erving Goffman, (1959) *The Presentation of the Self in Everyday Life*. New York: Doubleday, and Henke, C.R. (2000) 'The Mechanics of Workplace Order: Toward a Sociology of Repair', *Berkeley Journal of Sociology*, 43: 55–81. Rather than focusing on material infrastructure networks, Goffman worked within an ethnomethodological tradition, discussed the way 'repair' operated as a kind of interactional maintenance of order in everyday encounters and conversations.

33 See Rae Zimmerman (2001), "Social implications of infrastructure network interactions," *Journal of Urban Technology*, 893), 97-119.

34 Richard G. Little (2002), Controlling cascading failure: Understanding the vulnerabilities of interconnected infrastructure," *Journal of Urban Technology*, 9(1), 109-123. See Richard G. Little (2010), "Managing the risk

of cascading failure in complex urban infrastructures", Stephen Graham, ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge.

35 Charles Perrow (1999), *Normal Accidents: Living With High-Risk Technologies*, Princeton, New Jersey: Princeton University Press.

36 Richard G. Little (2002), Controlling cascading failure: Understanding the vulnerabilities of interconnected infrastructure," *Journal of Urban Technology*, 9(1), 109-123. pp. 113.

37 John Leslie, ' Powerless, *Wired*, April, 1999, 119-183.

38 Richard G. Little (2002), Controlling cascading failure: Understanding the vulnerabilities of interconnected infrastructure," *Journal of Urban Technology*, 9(1), 109-123.pp.112.

39 See, for example, Lawrence Vale and Thomas Campanella, (Editors)(2005) *The Resilient City: How Modern Cities Recover From Disaster*, Oxford: Oxford University Press and In Jane Schneider and Ida Susser, (eds.) *Wounded Cities: Destruction and Reconstruction in a Globalized World* . London : Berg. 25-46.

40 Colin McFarlane (2010), "Infrastructure, interruption, and inequality: Urban life in the Global South", Stephen Graham ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge.

41 See, for example, Claire Sponster (1992), "Beyond the ruins : The geopolitics of urban decay and cybernetic play", *Science Fiction Studies*, 20(2), 2251-265.

42 See, for example, Max Page, (2008), *The City's End, New haven*, Yale, and Stephen Graham (Ed.)(2004), *Cities, War and Terrorism*, Oxford: Blackwell. NY book

43 See Jared Diamond (2006), *Collapse: How Societies Choose to Fail or Survive*, London: Penguin.

44 See, for example, Roy Woodbridge (2004), *The Next World War: Tribes, Cities, Nations, and Ecological Decline*, Toronto: University of Toronto Press.

45 William Mitchell and Anthony Townsend (2005) 'Cyborg Agonistes: Disaster and Reconstruction in the Digital Era'. In Lawrence Vale and Thomas Campanella (eds) *The Resilient City: How Modern Cities Recover from Disaster*. Oxford: Oxford University Press. pp.313–24

46 See Ellen Ullman (1999) "The myth of order," *Wired*, 7(4), at http://www.wired.com/wired/archive/7.04/y2k.html

47 Susan Leigh Star (1999), "The ethnography of infrastructure", *American Behavioral Scientist*, 43(3), 377-391, pp. 385.

48 See Stephen Graham and Mike Crang (2008), "Sentient cities: Ambient intelligence and the politics of urban space", *Information, Communications and Society*,

10(6) 789-817.

49 Martin Pawley (1997), *Terminal Architecture, London*: Reaktion Books. pp. 162

50 Willaim Joy (2000), "Why the future doesn't need us", *Wired*, April, 238-260, pp. 238.

51 Stephen Graham (2010), "Disruption by design: Urban infrastructure and political violence", Stephen Graham ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge. See, for example, R. Pineiro, *Cyberterror*, New York: Forge Press, 2003. For an excellent

discussion of the way fears of 'cyber-terror' attacks are manipulated and exaggerated, see François Debrix (2008), *Tabloid Terror: War, Culture and Geopolitics*, New York: Routledge, 2008, chapter 1.

52 Stephen Graham and Simon Marvin(1994), "Telematics and the convergence of urban infrastructure: Implications for contemporary cities", *Town Planning Review*, 65 (3), 227-242.

53 Ellen Ullman (1999), "The myth of order", *Wired*, April, 126-187., pp. 126.

54 Ellen Ullman (1999), "The myth of order", *Wired*, April, 126-187., pp. 126.

55 WBMC (Workforce Boards for Metropolitan Chicago) (2003) *State of the Workforce*

Report for the Chicago Metropolitan Region. Chicago: WBMC.

56 Gene Rochlin (1997), Trappe   uption by design: Urban infrastructure and political violence", Stephen Graham ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge.

58 See Kazys Varnelis (2004), "The Centripetal City: Telecommunications, the Internet, and the Shaping of the Modern Urban Environment," *Cabinet Magazine*, 17, Spring, available at http://varnelis.net/articles/centripetal_city.

59 See Kazys Varnelis (2004), "The Centripetal City: Telecommunications, the Internet, and the Shaping of the Modern Urban Environment," *Cabinet Magazine*, 17, Spring, available at http://varnelis.net/articles/centripetal_city.

60 See Steve Redhead (2006), "The Art of the Accident: Paul Virilio and accelerated modernity," *Fast Capitalism*, 2 (1). At http://www.uta.edu/huma/agger/fastcapitalism/2_1/redhead.htm and Paul Virilio (2003), Unknown Quantity, London: Thames and Hudson.

61 See Jacques Leslie(1999), "Powerless", *Wired*, April, 119-183.

62 Jacques Leslie (1999), "Powerless," *Wired* 7(4), available at http://www.wired.com/wired/archive/7.04/blackout_pr.html

63 For full lyrics of the song "Neighborhood #3

(Power Out)", from the album Funeral, see http://www.metrolyrics.com/neighborhood-3-power-out-lyrics-arcade-fire.html

64 Stephen Graham (2010), "Disruption by design: Urban infrastructure and political violence", Stephen Graham ed. *Disrupted Cities: When Infrastructure Fails*. New York: Routledge.

65 See See Mike Davis (2007) *Buda's Wagon: A Brief History of the Car Bomb*, London: Verso.

66 See John Robb's influential global guerillas blog at http://globalguerrillas.typepad.com/ as well as his 2007 book *Brave New War: The Next Stage of Terrorism and the End of Globalization*, New York: Wiley.

67 See Stephen Graham (2009), *Cities Under Siege: The New Military Urbanism*, London: Verso.

68 See Vyjayanthi Rao , (2007), "How to Read a Bomb: Scenes from Bombay's Black Friday," *Public Culture*, 19(3), 567-592.

69 See Vyjayanthi Rao , (2007), "How to Read a Bomb: Scenes from Bombay's Black Friday," *Public Culture*, 19(3), 567-592. pp.572.

Tsunami Disaster and Multi-layered Assistance Networks in Japan: The Iwate Sanriku Area Case

Tadahito YAMAMOTO

DISASTER RELIEF AND MULTI-LAYERED ASSISTANCE NETWORKS

This study describes the formation of broad scale and multi-layered assistance networks in the Sanriku tsunami stricken area, Iwate prefecture, after the March 2011 earthquake.

Since the 1970s, the northeast Japan industrial structure and distributive system to mitigate collective risk has changed greatly. The inland northeast expressway and Shinkansen (bullet train) were constructed, along which new types of industrial centers, such as Kitakami, have risen with national industrial policy support. In contrast, traditional industrial cities such as Kamaishi along the Pacific coast have markedly declined, and northeast region population has decreased simultaneously with an over-concentration of economic activity in the Tokyo metropolitan area.

Responding to this situation, the central government has cut back ineffective public enterprises that functioned as a distributive system rather than a weak welfare state during post-war Japan and has strongly supported a merger policy among municipal governments beginning in the 1990s. Together, these regional policies weakened municipal areas' self-sufficiency and subsumed them into the framework of larger-scale governance systems and global market mechanisms.

We address this situation to redefine "the local" in such contexts. Locally based activism must bridge and mobilize in a multi-scaled manner, from local to global, agents and service providing systems to reconstruct bases for people's subsistence. In this sense, the disaster stricken area of the Great East Japan Earthquake can be viewed as the epitome of the "articulation" (Leitner, Peck, & Shepperd 2007) processes of the post-neoliberal situation.

This study addresses the following questions. How did people connect multi-layered networks of assistance and embed them into the tsunami stricken local area? To what degree will these networks be sustainable and exhibit the potential to enhance the democratic governance in reconstruction politics?

OUTLINE OF THE TSUNAMI DISASTER THE IN IWATE SANRIKU AREA

On March 11, 2011 at 14:46 hours, an M9 earthquake struck off the coast of northeast Japan, causing a large scale tsunami, severely damaging the Pacific coast region.

The Iwate Sanriku coast was one of most seriously damaged areas. According to National Police Agency, a total of 15,873 people died, 2,744 were missing, and 6,114 were injured (National Police Agency, 2012)[1].

The Iwate Sanriku Area's 12 cities, towns, and villages reported 4,671 dead, 1,188 missing, and 71 injured (Iwate Prefectural Police, 2012)[2]. Thus, the Iwate Sanriku Area suffered roughly a third of the total dead and 40% of the total missing.

Tadahito YAMAMOTO, Senior Researcher, Institute of Politics and Economy

The Sanriku coast's geography features rias (sawtooth coastline), composed of numerous cliffs and small bays. Many fishing villages and more urbanized areas on mid-sized bays with harbor facilities were thoroughly destroyed. Because many areas of level ground are small and villages or urbanized areas occupy narrow valleys, tsunami waves became very high and reached interior bay regions through the rivers.

The Japan Meteorological Agency reported tsunami wave height of 8.6 m in Kuji, 7.3 m in Miyako, 9.3 m in Kamaishi, and 11.8 m in Ofunato in the Iwate Sanriku area (2011)[3], reaching 3rd or 4th floor of buildings.

ORGANIZING ASSISTANCE NETWORKS

The Cabinet and the Japan Civil Network (JCN)

One feature of the response to this disaster was the emergence of broad scale and organized assistance networks.

"Broad scale" means networks formed beyond the local scale, comprising municipal, prefectural, and national to global scales. "Organized" means networks composed not only of NPOs/NGOs but also governmental/quasi-governmental organizations.

The Cabinet responded quickly to mobilize civil society organizations (CSOs). The Cabinet appointed Kiyomi Tsujimoto, a representative, as a Special Advisor to the Prime Minister to promote voluntary disaster relief activities on March 13, and Makoto Yuasa as the Head of the Cabinet Secretariat's Volunteer Coordination Office on March 16[4].

Tsujimoto is a founder of the famous NGO "Peace Boat" established in 1983 to travel to nations the Japanese military had invaded and learn how to construct world peace directly from war victims'

voices. The Peace Boat operation had broadened, and it engaged in emergency relief after the great Kobe earthquake in 1995, during which she played an important role[5].

Tsujimoto first became a representative for the Social Democratic Party in 1996 and played an important role in establishing the 1998 NPO Act. She switched her alliance to the Democratic Party of Japan on September 10, 2011 (press release date)[6].

Yuasa is a member of the Independent Life Support Center "Moyai (もやい)" (a ship mooring rope), an important NPO engaged in the Tokyo anti-poverty movement beginning in the late 1990s. He became famous for being the "village mayor" in the "Haken-Mura (派遣村)" (Temps' Village) created in Hibiya Park in Tokyo as an interim shelter for temporary office workers dismissed suddenly after the Lehman Brothers Shock in 2008 (Independent Life Support Center Moyai, 2012)[7].

The NPO/NGO sector also formed broad scale networks. For example, the Japan Civil Network for Disaster Relief in East Japan (JCN) was founded on March 30, 2011, and has grown to comprise 780 groups throughout Japan (November 17, 2012). Its office is in Tokyo, and its primary activities support CSOs engaged in disaster relief and coordinate needs among CSOs and the central government. Certain government bureaucrats participate in every meeting and positively support CSO activities[8].

Historical Background: Institutionalization of Volunteerism

Why did assistance networks form so quickly and widely? One factor is the maturation of the disaster relief volunteer system since the late 1990s.

After the 1995 Kobe earthquake, many people from all regions of Japan went to Kobe for relief activities, and some volunteer groups became permanent organizations after Kobe's reconstruction. The 1998

NPO Act promoted this trend (Yamashita & Suga, 2002; Nishiyama, 2005).

The Central Community Chest of Japan initiated investigative meetings on the functions and issues of volunteer centers after the 2004 Niigata Chuetsu earthquake, with the Keidanren (Japan Business Federation), Japan National Council of Social Welfare, and NPOs. In 2007, this informal group became a national scale assistance network (Joint Committee for Coordinating and Supporting Voluntary Disaster Relief Activities) to collect donations from the Community Chest or companies through Keidanren and to organize and manage volunteer centers in disaster stricken areas[9]. Japan's National Council of Social Welfare continued to train staff as volunteer coordinators in local-level Councils of Social Welfare.

The Cabinet Office created the Investigative Commission for Voluntary Disaster Prevention Activities in 2005, and a close relationship developed among governmental agencies and NPOs/NGOs engaged in disaster relief activities (Suga, Yamashita, & Atsumi ed., 2008)[10].

Through such national policies and increased networking, assistance groups have grown widely in the Japanese society, and the volunteer system became institutionalized in both central and local governments.

A LOCAL NETWORK: OFUNATO

Ofunato Action Network

Ofunato was one of the most seriously damaged areas in Iwate Prefecture on the Sanriku Coast. Immediately after the earthquake and tsunami, many NPO/NGOs were engaged in relief activities in Iwate Prefecture (Yamamoto 2012). Disaster victims who lost their houses were originally scattered among more than 60 shelters. On March 25, 2011, construction of

temporary housing began, and on April 25, those displaced began moving from emergency shelters into temporary housing built in 37 sites around Ofunato[11]. During the phase of emergency relief, each separate group could sufficiently assist victims. The phase of rebuilding the basis of residents' ordinary life, however, presented more complex problems necessitating shared information and coordination among diverse assistance groups.

NPOs/NGOs engaged in relief activities in Ofunato area established the Ofunato Action Network on June 30, 2011, to respond to the needs of such new stage of recovery. Ofunato municipal government staff members also participated in this network's meetings. It became an important place for both governmental organizations and NPOs/NGOs to mutually exchange information and share roles in assistance activities[12]. In this sense, the Ofunato Action Network initiated not only the epoch of horizontal networking among NPOs/NGOs but also of "governance" connecting municipal administrative organizations with the NPO/NGO sector.

One key person in this network was Terukazu Ozeki, a staff member of the Independent Life Support Center Moyai and the Foundation for Cooperative Community Creation. The NPO Moyai is the same group as the anti-poverty movement that Yuasa Makoto, Head of the Cabinet Secretariat's Volunteer Coordination Office, belongs to. The Foundation for Cooperative Community Creation was another assistance group established on April 15, 2011, by the National Homeless Support Network, Green Co-op, and the Seikatsu Club Consumers Cooperative (Yamamoto, 2012)[13]. Its chief director, Tomoshi Okuda is a clergyman of the Higashiyahata church in Kitakyusyu and a key person in national social inclusion policies as a member of the Social Security Council of the Ministry of Health, Labor and Welfare (Yamazaki, Okuda, Inazuki, Fujimura, & Morimatsu,

2006)[14].

First, Ozeki went to Sendai in Miyagi Prefecture, the largest city in the northeast region, and assisted victims with One Family Sendai[15], a sister group of Moyai.

Next he contacted Tono Magokoro Net established on March 27, 2011, in Tono, a city roughly 40km inside the stricken Sanriku area and halfway between the coast and several cities along the Tohoku expressway or Shinkansen. It takes approximately an hour to drive into Sanriku's most heavily damaged towns and cities such as Otsuchi, Kamaishi, Ofunato, and Rikuzentakata. Tono Magokoro Net was founded as a network among local and outside groups engaged in assistance activities (59 groups as of December 19, 2011) and played an important role in linking the stricken area's needs with diverse assistance networks.[16] Because of its location, Tono has become a major gathering spot for various assistance groups (Yamamoto, 2012).

Ozeki established his base camp in Tono and has continued to assist Ofunato. The Tono connection provides indispensable infrastructure for managing his activities and those of local networks among the NPO/NGO and municipal sectors in Ofunato.

Career and Life History of Ozeki, a Key Person

Ozeki first participated in disaster relief activities for the 1995 Kobe earthquake. Then, he became deeply engaged in the 2004 Chuetsu (central Niigata Prefecture) earthquake, and now plays a major role in the current tsunami disaster relief project.

After the 2008 financial crisis, he also participated in the anti-poverty movement[17].

His personal history reveals a developing network and social skills in volunteer activities and social inclusion movement against disruptive shocks during Japan's transition to a post-industrial society.

One factor in the speed and broad scale with which organized networks formed is that, through the disruptive events during and after the 1990s, many talented individuals in the Japanese society have developed such necessary social skills.

NETWORK GOVERNANCE AND INTERVENTION POLITICS THROUGH INTERMEDIARY ORGANIZATIONS

Roles of Intermediary Groups

Several national scale intermediary groups participated in the Ofunato Action Network. Such groups have many connections with assistance groups in the NGO/NGO sector, corporations, and governmental organizations. They collected a high volume of donations and funded assistance activities in stricken areas.

For example, the Japan Platform is an NPO established to collect funds from corporations and government agencies and distribute them primarily to international NGOs. From March 11–31, 2012, it collected donations totaling 6,872,507,064 yen and distributed roughly 83% of it to 57 activities of member groups and 70 activities of others (Japan Platform, 2012)[18]. It played a noteworthy role in sustaining emergency assistance.

Participation in and communication with local-level networks in stricken areas is necessary for effectively matching donations with activities. Such national scale intermediary NPOs also coordinated efforts among governmental agencies and the stricken area's needs. The central government has provided many options for assistance and reconstruction, and local assistance networks can function as a place where intermediary NPOs provide information about policy options to local assistance groups.

In this manner, assistance provides a tactical realm

for intervention politics to provide post-disaster governance across NPOs/NGOs and government agencies.

Continuity and Discontinuity

From different perspectives, both continuity and discontinuity exist between the Kobe and the Great East Japan Earthquakes.

Historically, the Kobe disaster became one starting point of the institutionalization of volunteerism and the methods of the intermediaries system of network governance, which has become the "new public" policy of the government of the Democratic Party of Japan after the 2009 regime change.

From this perspective, networks formed in the Great East Japan Earthquake can be viewed as the maturation of volunteerism growing since the Kobe earthquake.

However, the March 2011 disaster occurred during a financial crisis and caused a disruptive shock to the privatized system of local governance. The privatization of social services and municipality mergers beginning in the 1990s decreased administrative power to provide resources that disaster victims and assistance groups urgently needed.

The 2011 disaster differed from Kobe earthquake in that the emergence of the anti-poverty movement beginning in the 2000s and the Democratic Party government's subsequent social policy reorganization supported assistance activities and network formation.

CONCLUSION: FROM NETWORK TO GOVERNANCE

In the Great East Japan Earthquake, beyond the local level, broad scale and multi-layered networks formed across both the disaster stricken area and the society as a whole.

From the example of Iwate Sanriku, especially Ofunato, we can identify the factors of network formation from the perspectives of associating two types of assistance activity linkage systems.

On one hand, the linkage exists mainly in Tokyo, between the government sector and volunteerism that matured and became institutionalized through epochal disasters beginning in the 1990s, such as the 1995 Kobe earthquake and the 2004 Niigata Chuetsu earthquake.

Intermediating practices to distribute public funds by national scale NPOs played a leading role in disseminating governmental policy options in disaster stricken regions. It was a characteristic point in the 2011 disaster that many international NGOs have also participated in and sustained such activities.

On the other hand, a grassroots linkage has grown, largely in disaster stricken areas among local and wider multi-scale activities. In Ofunato, construction of temporary housing was such a movement to establish an NPO/NGO network, the Ofunato Action Network, in June 2011. It consists of NPOs/NGOs and several agencies of the Ofunato municipal government. Thus, it seems to have the potential to create governance in a context different from that of the institutionalization of volunteerism after the Kobe earthquake.

Beginning in the 1990s, the central government's forced merger policy and involvement in the global economy eroded municipal government power, and the 2011 earthquake and tsunami shocked the resultant condition of local society. From the last period of the Liberal Democratic Party regime ended, the central government attempted to partly reorganize social policies to respond to the negative effects of global economism, and some projects became governmental policies after the 2009 regime change to the Democratic Party of Japan. In this background, the anti-poverty movement and support activities for

social inclusion have grown to a national scale as a different social sector from NPO-based volunteerism, and it became important for assistance to not only mobilize emergency relief activities but also support longer-term rebuilding of victims' daily lives and communities on the local scale.

Networks in Ofunato have exhibited mixed features of volunteerism activated beginning in the 1990s and such reorganized social sector as the anti-poverty movement and independent support activities for marginalized persons formed during the 2000s. Another finding of this case study illustrates the issue of the scale of connected assistance activities. Tono Magokoro Net in Tono city provided an indispensable social infrastructure for assistance activities in the tsunami stricken Sanriku area. Prefectural sized networks served as the primary intermediating scale among disaster stricken areas and national scale resource mobilization systems.

Thus, we must ask whether such practices as networking activities or vertical governance relationships for recovery from the 2011 earthquake and tsunami will provide a new model of democratic governance from local side? We must also explore how to open governance to various types of activities and utilize their potential capabilities in a more fluidly changing post-disaster society. This research suggests these concerns for further study.

Notes

1 National Police Agency HP, retrieved 20 November, 2012 (http://www.npa.go.jp/archive/keibi/biki/higaijokyo_e.pdf) (=警察庁 HP, 2012 年 11 月 20 日取得).

2 Iwate Prefectural HP, retrieved 20 November 2012 (http://www.pref.iwate.jp/~bousai/) (= 岩手県 HP, 2012 年 11 月 20 日取得).

3 Japan Meteorological Agency HP, retrieved 20 November 2012 (http://www.jma.go.jp/jma/press/1104/05a/tsunami20110405.pdf) (= 気象庁 HP,

2012 年 11 月 20 日取得).

4 Reconstruction Agency, 2011, "Record of Activities by Tsujimoto Former Special Advisor to the Prime Minister and the Cabinet Secretariat's Volunteer Coordination Office", Reconstruction Agency HP, retrieved 20 November, 2012 (http://www.reconstruction.go.jp/topics/volunteer_keii.pdf) (= 復興庁 HP, 2012 年 11 月 20 日取得).

5 PEACE BOAT HP, retrieved 20 November 2012 (http://www.peaceboat.org/index_j.shtml) (=PEACE BOAT HP, 2012 年 11 月 20 日取得).

6 Kiyomi Tsujimoto Official Site, retrieved 20 November, 2012 (http://www.kiyomi.gr.jp/) (= 辻元清美オフィシャルサイト, 2012 年 11 月 20 日取得).

7 Independent Life Support Center 'Moyai' HP, retrieved 20 November, 2012 (http://www.moyai.net/) (= 自立生活サポートセンター・もやい HP, 2012 年 11 月 20 日取得).

8 Japan Civil Network for Disaster Relief in East Japan HP, retrieved 20 November, 2012 (http://www.jpn-civil.net/) (= 東日本大震災支援全国ネットワーク HP, 2012 年 11 月 20 日取得).

9 Joint Committee of Coordinating and Supporting for Disaster Relief Activities HP , retrieved 20 November, 2012 (http://www.shien-p-saigai.org/) (= 災害ボランティア活動支援プロジェクト会議 HP, 2012 年 11 月 20 日取得).

10 Cabinet Office HP, retrieved 20 November, 2012 (http://www.bousai.go.jp/volunteer/index.html) (＝内閣府 HP, 2012 年 11 月 20 日取得).

11 Iwate Prefecture HP, retrieved in 20 November 2012 (http://www.pref.iwate.jp/view.rbz?nd=4294&of=1&ik=1&pnp=53&pnp=4201&pnp=4242&pnp=4294&cd=31658) (= 岩手県 HP, 2012 年 11 月 20 日取得); Ofunato Temporary Housing Official Site, retrieved 20 November, 2012 (http://ofunatocity.jp/index.php) (= 大船渡仮設住宅団地 Official Site, 2012 年 11 月 20 日取得).

12 Interview with Terukazu Ozeki, 5 November, 2011; Ofunato Action Network facebook (http://www.facebook.com/ofunatoaction) (= 大船渡アクションネットワークフェイスブック, 2012 年 11 月 20 日取得).

13 Foundation of Cooperative Community Creation HP, retrieved in 20 November, 2012 (http://www.from-east.org/) (= 共生地域創造財団 HP, 2012 年 11 月 20 日取得).

14 Kitakyusyu Support Organization for Homeless HP, retrieved 20 November, 2012 (http://www.h3.dion.ne.jp/~ettou/npo/top.htm) (= 北九州ホームレス支援機構 HP, 2012 年 11 月 20 日取得).

15 One Family Sendai HP, retrieved in 11 November, 2012 (http://www.onefamily-sendai.jp/) (= ワンファミリー仙台 HP, 2012 年 11 月 20 日取得).

16 Tono Magokoro Net HP, retrieved 20 November,

2012 (http://tonomagokoro.net/) (遠野まごころネット HP, 2012 年 11 月 20 日取得).

17 Interview with Terukazu Ozeki 5 November, 2011.

18 Japan Platform HP, retrieved 20 November, 2011 (http://www.japanplatform.org/) (= ジャパンプラットフォーム HP, 2012 年 11 月 20 日取得).

References

Independent Life Support Center "Moyai" ed., 2012, *No Time for Poverty!: Ten Year's Track with No Conclusion*, Iwanami Shoten (= 自立生活サポートセンター・もやい編 , 2012,『貧困待ったなし！とっちらかりの 10 年間』岩波書店).

Japan Platform, 2012, *Report of Assistance for Victims in the Great East Japan Earthquake (2011.3-2012.3)*, Japan Platform (ジャパンプラットフォーム , 2012,『東日本大震災被災者支援報告（2011 年 3 月～ 2012 年 3 月)』ジャパンプラットフォーム).

Leitner, Helga, Jamie Peck and Eric. S. Sheppard ed., 2007, *Contesting Neoliberalism: Urban Frontier*, The Guilford Press.

Nishiyama, Shiho, 2005, *Logic of Volunteering: from the Great Hanshin-Awaji Earthquake to Subsistence*, Toshindo (= 西山志保 , 2005,『ボランティア活動の論理―阪神・淡路大震災からサブシステンスへ』東信堂).

Suga, Mashiho, Yusuke Yamashita, and Tomohide Atsumi ed., 2008, *Introduction to Theory of Disaster Relief Volunteer*, Kobundo (= 菅磨志保・山下祐介・渥美公秀編 , 2008,『災害ボランティア論入門』弘文堂).

Yamamoto, Tadahito, 2012, "Tsunami Disaster and Assistance: Interviews with Key Persons in Ofunato and Tono Cities," *Disaster, Infrastructure and Society: Learning from the 2011 Earthquake in Japan*, No.2 (http://hermes-ir.lib.hit-u.ac.jp/rs/bitstream/10086/23121/1/dis0000200460.pdf).

Yamashita, Usuke, and Mashigo Suga, 2002, *Sociology of Volunteer for Earthquake Disaster Relief: Possibility of 〈Volunteer=NPO〉 Society*, Minerva shobo (= 山下祐介・菅磨志保 , 2002,『震災ボランティアの社会学―〈ボランティア =NPO〉社会の可能性』ミネルヴァ書房).

Yamazaki, Katsuaki, Tomoshi Okuda, Tadashi Inazuki, Osamu Fujimura, and Nagao Morimatsu, 2006, *Support for Independence of Homeless: "Getting back of Home" by Partnership among NPO, Civilian and Government*, Akashi Shoten (= 山崎克明・奥田知志・稲月正・藤村修・森松長生 , 2006,『ホームレス自立支援―NPO・市民・行政協働による「ホームの回復」』明石書店).

Different Faces of Post-disaster Situations: The Case of Nuclear Crisis; Based on a Case Study of Iitate Village

Akihiko SATO

INTRODUCTION

This report is based on the fieldwork undertaken in Iitate, Fukushima, a village which is identified as the Deliberate Evacuation Area and all the villagers were ordered to evacuate due to the accident at the Fukushima Daiichi Nuclear Power Plant after the Great East Japan Earthquake on March 11, 2011. This report gives an overview of the various problems that arose between the government and residents after the evacuation and discusses the possibility of such a situation affecting the structure of the local government.

OVERVIEW OF IITATE VILLAGE

Spanning approximately 230 km^2 in the hilly region of the northern part of the Abukuma range, Iitate is a rural agricultural mountain village located along the coastline area of the Fukushima Prefecture. The Village is located approximately 35–45 km from the Fukushima Daiichi Nuclear Power Plant, and its southeast area lies less than 30 km from the Plant. In 2010, the village population was 6,209 and the total number of households was 1,734. However, as of October 1, 2012, after the Deliberate Evacuation, the number of residents (evacuees) was 6,677 and the number of households was 3,117. The number of individuals in households that decided to live separately upon evacuation continues to increase today, with the number reaching approximately 1.8 times more than that before the Earthquake. Since the Earthquake, 13 people, who were unable to evacuate, and 100 elderly home residents continue to live in the Village.

PLANNED EVACUATION AND THE LIFE OF AN EVACUEE

Facts of the Evacuation

On April 22, 2011, Iitate Village was identified as the Deliberate Evacuation Area. The evacuation policy of this area was set prior to this date, on the 11th. When announced, the village office began to hold dialogues with the villagers on the evacuation. Iitate Village mayor Kanno stated that the basic policy should include the evacuees being situated "within around one hour from the village" so that they could continue to "commute to the fields and work facilities" in the Village. These measures were taken to show the evacuees that the government was "trying to ensure the current lifestyle and livelihood as much as possible for the people."

On May 9th, on the basis of the policies established by Mayor Kanno, the Village submitted their evacuation plan to Fukushima Prefecture. As many people had already been evacuated from the northern coastline area of the Prefecture, there appeared to be some difficulty in securing shelter. Yet the majority of residents were able to complete the evacuation by mid-August. Presently, approximately 90% of the Village residents have been evacuated to an area within one hour of the Village center.

Anxieties and Distress of the Villagers during the Evacuation

During the process of the Dliberate Evacuation,

Akihiko SATO, Fukushima Future Center for Regional Revitalization, Fukushima University

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Different Faces of Post-disaster Situations:
The Case of Nuclear Crisis;
Based on a Case Study of Iitate Village

Akihiko SATO

various types of anxiety and distress arose among the residents. These included worries over the breakup of families, anxieties over losing relationships, and those over not being able to return to their normal life. Other worries included earning a living, their children's health, the environment and nature, and relationships with neighbors. The process continued with the residents living with these anxieties and worries. However, as their new lives as evacuees began, changes were observed in the residents' thinking. Although the majority of voices until then expressed "not wanting to leave our home" and "not wanting to be far from home," especially among the elderly, there was an increase in feelings that "although I want to return home, there is no way I can live there," accompanied by an overwhelming feeling of unease and despair over potential radioactive contamination.

"DIALOGUE" AND "CONFRONTATIONS" DURING RESIDENT MEETINGS

One and a half year after the disaster, as residents became accustomed to life as evacuees, they started facing issues such as employment, livelihood, health, and the pros and cons of returning to the Village. As their anxieties deepened and multiplied, their distrust toward the government, which stressed "Emergency Procedure" and "National Policy," increased.

Residents Refusing to Participate and Engage in Dialogue

In October 2011, the Village announced a "revitalization plan" and held approximately 20 meetings to discuss the plan in various evacuated areas. Residents who attended these meetings criticized and expressed discontent about the Village mayor and members of assembly. Main issues raised

in the meetings were: (1) decontamination methods and their effects, (2) appropriation of a part of the decontamination budget amounting more than 300 billion yen for reconstruction of livelihood, and (3) prompt resettlement. The Mayor and government officials did not accept the villagers' proposals because of "the national policy."

Disappointed over not being heard and receiving a two-word response of "National Policy" to all their concerns, desires, and opinions, the number of residents attending these meetings decreased dramatically. Initially, meetings were held in large venues and drew more than 200 attendees; however, over time, attendance diminished to three to ten attendees. Their reasoning was that "the Village follows the country's orders, and doesn't care about the residents' needs and opinions" and therefore "it would be useless to participate."

Various Doubts Arising from Distrust

Various types of doubts arose as a result of the meetings and exchanges between residents and government representatives. The biggest result, however, was an increase in residents' criticism of the country: "Despite the numerous decontamination experiments and results showing a return of radiation after the model projects, they have neither investigated the cause nor considered improvement of these methods." The residents pointed out that the only thing being pushed forward in the decontamination project was the "profit of the construction companies and the related superficial appeal of economic recovery." Many residents felt that the government's methods of handling this situation was "against their will and that they were being returned by force." Reality was that the residents were deeply anxious that the current housing assistance would be cut-off within the next few years, a happening many claimed would result

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

**Different Faces of Post-disaster Situations:
The Case of Nuclear Crisis;
Based on a Case Study of Iitate Village**

Akihiko SATO

in it being "…impossible to continue living in the current situation, in the evacuated site." Many stated that,

> …They would like to return to their homes, but did not want to return to a contaminated area. Furthermore, there would be no way that their lifestyle before the Earthquake can even be considered while all business and commercial infrastructure was still under reorganization. Still, if they considered living expenses, they would have no choice but to return to the Village.

These remain the residents' concerns. When the Village's "present" problems are dissected, these conflicts between the residents and government become visible. As the Village's "present" problems worsen and become more serious and as the residents continue to see a response of "National Policy" from the government, it can be inferred that there remains a complex situation in the political environment that makes it virtually impossible for the Village mayor to take any decision on his own. Below, overviewing the deveropment of Iitate Village regarding the complex situation, the paper further observes in perspective that exceeds the Village in order to view the structure of the problem.

HISTORICAL PROCESS OF CREATING A VILLAGE

Creating a Village with Resident Participation

Since a merger of two villages in 1956, confrontation between old communities had weakened the vitality of New Iitate village, and it had been worsened by large scale cold-weather damages. In 1983, when the 3rd General Plan of Iitate was developed, community

participation practice was introduced by the village.

Iitate Village appointed young residents to serve as the core group of leaders and a young officer to work collaboratively with the group. From 1983 to 1990, Iitate village made strategic efforts that were implemented and expanded to serve as stepping stones for creating a full-fledged village that would allow for resident participation in the future government. These efforts were aimed at developing and securing community leaders in the long term, which resulted in a ripple effect of participation of women in various areas (such as administration, management, and residential development), development of resident activities, and the creation of entrepreneurship. The actual implementation of resident participation in creating the Village was devised in the 4th General Plan (1994) under the category of "District Planning." This comprehensive plan gave the residents the authority to be involved in decision-making and creating budgets for all 20 districts, which led to extensive participation in the village in which they resided.

Country Policy Trends and Village Administration

However, around the year 2000, discontinuance and branching-off of the relationship between the Village residents and government occurred. Programs such as the district plans provided the opportunity for residents' participation and the expansion of community efforts in Iitate Village. While the program's target expanded to include state subsidy, the residents began to see that local issues and needs were not being properly reflected in government decision. For example, complaints— such as "The local administration gets subsidies from the state and then forces it on to the districts" and "Our local staff is useless. We, the residents, came up with great plans but they do nothing to structure

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Different Faces of Post-disaster Situations:
The Case of Nuclear Crisis;
Based on a Case Study of Iitate Village

Akihiko SATO

or implement them"—were made regularly by the residents. Similar sentiments were being voiced by the Village administration staff: "Since 2000, instead of acting as a bridge or a mediator between the administration and residents, it seems as if our roles were to 'introduce a policy or a business that a government wants and to persuade the residents to accept it'." These statements raise the question of whether, around the year 2000, there were external factors that affected Village politics. There were significant changes occurring around this time, including structural reform; the Great Merger of the Heisei; and reduction in the number of staff involved in administrative reform. Moreover, new concepts—such as "collaboration," "partnerships," and the "new public"—were introduced to promote the independence of the local government. It was the time when there was an overlap with the period before and after the administration of Prime Minister Junichiro Koizumi's policies and structural reforms implemented during the Hashimoto administration. Other legal trends occurring during this period include the Decentralization Law (2000), Local Government Amendment Act (2000), Municipal Merger Law (2004), and the Decentralization Legal Enforcement Law Reform (2006).

CONSIDERATION OF ISSUES SURROUNDING THE STRUCTURE OF THE RELATIONSHIP BETWEEN RESIDENTS AND GOVERNMENT

Since 2000, under the title "administrative efficiency," many administrative businesses in the Village were dropped to districts. There also was an extreme decrease in contribution from the "regional staff" in planning strategies for various districts, such as the

state subsidy businesses. As a result, the relationship between the community and government weakened. As residents in districts started to engage in separate business plans and their independence grew, there was less interaction between the residents and government and a definite decrease in the residents' passion to fight for local issues that affected them. The reduction in the interaction between the residents and government also directly prevented "perspective-taking" and "self-other merging" from occurring, and this lack of communication made it more difficult for the government to understand what actually was going on at the local level. As this continued, resident issues started to become unfathomable to the local administration and it became increasingly difficult to reflect the people's will upon policy-makers.

Analyzing the policy trends of Iitate Village since the 1980s, there was extensive resident participation because of the Village's independent discretion up until 90's. However, around the year 2000, there was definitely a break in this connection. Through the 80s and 90s, the clear political intentions continued for two generations of leaders and were seen through the efforts of "independence and self-reliance." However, after the year 2000, under the regional planning by the leadership of Kanno, as seen among the previous comments from the residents and staff and/or from the country's political tendencies, it seemed as if the Village was governed by external entities such as national institutions and laws. It even seemed as though the Village had unintentionally been shaped by the "national policy."

SUMMARY

The "current" distrust and conflict between the residents and government can be said to be related to the political structure of "Country–Region–Residents." In politics, it has long since been

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

**Different Faces of Post-disaster Situations:
The Case of Nuclear Crisis;
Based on a Case Study of Iitate Village**

Akihiko SATO

advocated decentralization; however, looking at the earlier interaction between the government and residents which has been mentioned as "dialogues with the villagers", it seems that even the local government was extensively restricted by national policies. Because of this, there even exists a possibility that this situation causes elimination of the "public opinion" of the party being directly involved. In the Village, where this structure cannot seem to be broken, there seems to be another big problem: The reduction and loss of "dialogue opportunities," situations in which the residents and government officials can communicate and interact with one another. Dialogue opportunities should be a fair procedure in which two-way conversation is ensured. Even if there is criticism and frustration, loss of trust can be prevented, or at the very least, minimized through an "acceptable" explanation of both sides' viewpoints and differences.

On the other hand, the resident meeting mentioned in Section 2 had a twofold problem: One-way communication and the loss of opportunity.

It is definitely not a simple task to solve these problems. I hope this report may provide some help in the revitalization of disaster affected region and promotion of local autonomy.

Disaster and the Body of the Rescue Agency after 3/11

Keisuke MORI

SUBJECTIFIED BODIES AFTER THE GREAT EAST JAPAN EARTHQUAKE

This paper analyzes the condition of the formation of a subject after the Great East Japan Earthquake. The disaster statistics were grim: 15,870 people died, 2,846 were missing, and 6,110 were injured. Miyagi Prefecture was the most damaged location, where 9,527 people died primarily because of the tsunami and its cascading impacts. In addition, housing and infrastructure suffered serious damage. 129,291 houses were completely destroyed, 264,004 were half destroyed, and 725,918 were partially destroyed[1]. It was a serious disaster that completely changed the scenery of the northern part of Japan.

In an emergency, people feel that they should help each other in order to survive and escape from the threat of death caused by disasters. The same situation must have occurred because of the Great East Japan Earthquake. Therefore, it caused serious concern for the body. Human beings were intensely stressed, not merely from the perspective of the rescue mission but also from the (particularly natural) scientific of the subjectification. The Fukushima Daiichi nuclear accident was an additional and significant cause of this because of both the long-lasting radioactive effect and its non-discriminatory impact on human beings. The problem of the body can be extended to the nuclear workers as well as children, pregnant women, and members of the private voluntary organizations who have suffered from the radioactivity.

The word "body" is, however, not limited to the human beings. The disaster also damaged the body of the nation-state and its infrastructure. As can be seen in the past, the re-building of a nation and state in an emergency has always been an issue of modernity. As Ichinokawa Yasutaka mentioned, by citing the works of Michel Foucault, one of the significant features of modernity is the shift from the power configuration of a king to gouvernementalité that controls the population (Ichinokawa 2000: 19-36). From this transition, "the existence of lives that supports the condition of the existence and perpetuity of society is talked about not through the body of king anymore, but through the population" (Ichinokawa 2000: 36), which exist in the society and must be regulated to manage the nation-state. Taking this transition of power into consideration, the Great East Japan Earthquake destroyed not only the lives of people and infrastructure but also the system of subjectification that was supported by the stable networks of discourse, knowledge, and things.

INVUNLERABULE BODY OF/ FOR THE NATION-STATE

Does anyone have the right to flee from any catastrophes? The people's body has been steadily controlled and mobilized to mitigate the situation after 3/11 in the name of nation-state. In particular, the public body as the rescue agency (therefore, potentially as the soldier's body in the regime of nation-state) formed a unified nationalism and vice–versa. These subjects rescued many people suffering from the impact of the earthquake, tsunami, Fukushima Daiichi, and its diffusing radioactivity. Although these subjects simultaneously risked their

Keisuke MORI, Doctoral Student of the Graduate School of Social Sciences, Hitotsubashi University, Research Fellow, Japan Society for the Promotion of Science (DC1)
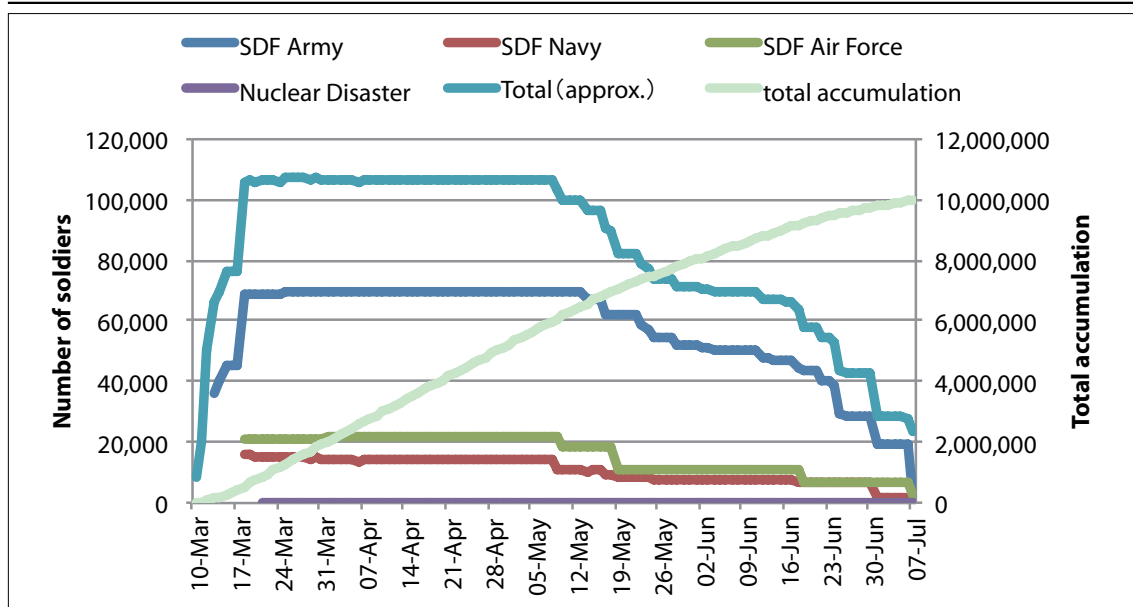
Figure 1 : Number of SDFs deployed from 2012/3/11 to 7/8
(Modified from the source: SDF webpage http://www.mod.go.jp/j/press/news/index.html)

lives, the risk involved for the public body was concealed because of superiority to the nation. Some people were able to rescue others; this implied that they had competence superior to normal citizens and were equipped with appropriate technology. I call the people that have the capability of taking such roles as policemen/women, firemen/women, and soldiers as the subjectification of the public body, representing the masculinity of the nation[2]. They are not supposed to lose, be injured, and show their vulnerability.

This subjectification needs a cofiguration. Cofiguration is the schema of the process in which the nation represents itself to itself. By doing so, the nation constitutes itself as the subject (Sakai 1997: 28-29). Sakai does not consider the nation-state to be essential, but as the effect (or figuration) of a translation that creates differences in language and representation. Through the translation, the entity of the subjectification can be formed.

As Sakai Naoki (2001) mentioned, to strengthen the narrative of nationalism, there should be a community of sympathy in which people can be able to bond with each other with a strong sense of intimacy. This intimacy separates "us" from "them" by creating sympathy within "us," while ending communication with "them." This encourages a strong sympathy among "us," "we" shall not be responsible for replying to others to whom "we" do not listen. As a result, "we" believe that "they" always claim credit for what "we" have done in the past; furthermore, "we" come to resent "their" voices because "they" always lie. This retroactive movement of creating itself is the way in which a closed community with sympathy emerges.

After the 3/11 disaster, it seems that Japan and the US have created a cofiguration of "West and the Rest" and simultaneously have tried to put equal value on both nation-states using words such as "Tomodachi (friendship)" and "Alliance." This represents an equal-based relationship between both nation-states, while concealing the predominance of the US relative to its military presence after the WW2.

SOLDIERS MAKING NATIONALISM

During the chaos after the disaster, the soldiers of the

Japanese Self Defense Forces (SDFs), policemen, and firemen actively tried to improve the situation by rescuing people and re-building infrastructure such as roads and bridges. The US Forces joined in voluntarily and strategically. There were, however, a variety of people from many different countries, groups, and individuals who tried to rescue and support the people who were suffering[3]. That initial wide range of support vanished after the new representation emerged when the US government announced "Operation Tomodachi." It started on March 12 after the US made a formal request to support Japan and Japanese Prime Minister received it on March 11. Until the end of the operation on April 30, a maximum of 24,500 US soldiers, 24 warships including a nuclear aircraft carrier, and approximately 189 aircraft were deployed.

The Japanese SDFs started its operation right after the impact of the earthquake based on the SDF act. The Ministry of Defense in Tokyo established Disaster headquarters. Simultaneously, North Eastern Army Aviation Group in Sendai and Maritime SDF 73th Division in Ominato rushed jet fighters to investigate the situation. At 6 PM, the Defense Minister issued an order to dispatch SDFs for the Great Japan Earthquake Disaster. Prime Minister Kan ordered deployment of a 100,000-soldier force, which reached the location on March 18. On March 14, the Joint Mission of Army, Navy, and Air Force was established. On May 16, the SDF Army reserve was called to active duty for the first time since the foundation of SDFs. On April 15, the Navy and Air Force reserves were called to active duty.

On the other hand, there was a serious nuclear plant problem in Fukushima. On March 11 at 7:30 PM, Prime Minister Kan issued a nuclear emergency warning. The Defense Minister announced an order of dispatch to address the nuclear disaster. The following days, on March 12 and 14, SDF soldiers were dispatched to the Fukushima Daiichi nuclear plant, and on March 14 and 15 to Fukushima Daini.

From March 11 to July 8, the total number of soldiers involved in rescuing reached over 10 million. It seemed that this joint-military action had succeeded and acquired great honor from the nation.

TWO FACES OF "TOMODACHI"

For many Okinawan people, the situation was different. The history of oppression of Japan and the occupation of the US military is constantly remembered because of the continuous presence of the military facilities and consequent violence against Okinawans, particularly to children and females in Okinawa4. Wakabayashi Chiyo described the situation after 3/11 as follows.

Shortly after the 3/11 earthquake, NHK Okinawa repeatedly reported that the US military had announced that the Marines were ready to be dispatched to the affected areas for disaster rescue, just awaiting a request from the Japanese government. Under the name of "Operation Tomodachi [friendship]," the US Forces with Marines began sending a nuclear aircraft carrier to the coast of Fukushima. The garish impression the operation gave to the public, blended later with another garishness: the killing of Osama Bin Laden, performed as a public execution. Together they seem to have impressed the Okinawan public with a sign of US decline, rather than a fear of its magnitude of power.

Many Okinawans are aware that Operation Tomodachi is more a deception staged for the benefit of the US government and Japan–US alliance than a genuine project for humanitarian aid. It is also thought to be an excuse for the US military to legitimately gain access to public

airports and air facilities for their military use. But it makes us question more fundamental characteristics of the military itself, i.e., as epitomized in Eisenhower's Janus-faced nuclear strategy, it is difficult to believe that their basis of humanitarian aid comes from "good will" while they unfold indiscriminate massacres in Iraq and Afghanistan and commit crimes on a daily basis in Okinawa. Not to mention that Kevin Maher, who branded Okinawans as "stupid" when he was the US Consul General of Okinawa, took charge in mediation for the operation. (Then, in May, he turned out to be a business consultant in a company, working for nuclear fuel recycling industries, in which Richard Lawless, the former Deputy Under Secretary of Defense for Asian and Pacific Affairs during the Bush administration, is one of the executives.) (Wakabayashi 2012)

Before the disaster, Okinawan people were outraged at the contemptuous speech of, Kevin K. Maher, the former US Consul General, particularly, his comments as the "colonizer," such as "although Okinawans grow goya (bitter melon), other prefectures grow more than Okinawa. Okinawans are too lazy to grow goya," or "by pretending to seek consensus, people try to get as much money as possible. Okinawans are masters of "manipulation" and "extortion" of Tokyo"5, had remarkable impacts on the Okinawan people. Given these facts, Operation Tomodachi and the statement of the US–Japan Alliance appeared to Okinawans as statements of a continuous colonial master. Furthermore, the deployment of the PAC3 on Okinawa Island, Miyako Island, and Ishigaki Island was completed because of the alleged threat of North Korea's long-range ballistic missiles on April 2012.

SLIT OF CHAIN ARMOR

In the mainland, the joint-military action has succeeded and acquired great honor from the nation. Soldiers, however, have been facing mental diseases and injuries, and have been exposed to the radioactivity by participating in the rescue operation. SDFs raised the compensation for the injury and death of soldiers to 150% for those who were in the act of rescuing6. On April 1, a soldier of Ground SDF died. He had to participate in a tough rescue operation7. On October 18, a field officer of Ground SDF committed suicide; on October 19, another field officer also committed suicide8. According to the survey of the Cabinet Committee of the House of Representatives, the soldiers mobilized to the disaster field have an increased risk of developing PTSD and depression9. According to the survey conducted on 58,050 Army SDF after one month of the mission, 3.3% (1,916) were at high risk to develop PTSD, 2.2 % (1,277) were at high risk to develop depression, and 4.3% of 6,112 of Maritime SDF (262) were at high risk to develop PTSD. For Maritime SDF, a survey for depression was not conducted. 7.5% of 3,319 of Air SDF (249) were at high risk to develop PTSD and 6.5% of 2,829 of Air SDF (184) were at high risk to develop depression[10].

SDF, like any military institution, has a tendency to experience a high suicide rate because of its vertical organization form, the chain of command, and its masculinity. Konishi Makoto, who was an anti-war soldier of SDF and is now a journalist, has written a variety of books on SDF. He argues that there are serious problems of bullying among SDF soldiers. He founded the Trans-Pacific GI/SDF Rights Hotline in 2003; the number of calls has been increasing since 2005. "The cases come particularly from the families of SDF soldiers, who have a variety of problems of human rights abuse such as suicide, retirement,

depression, bullying, and sexual harassment" (Konishi 2006: 10)[11]. Why have these problems not led pursuing the causes of the suicides? That is the reason d'être of the military protecting the security and safety of the nation and ruling class, ruling both the nation and its military.

The concept of subject formed in the knowledge of the population is prone to create the homogeneous body of soldier. Michel Foucault's concept of gouvernementalité is therefore useful to cite here (Foucault 2007). Foucault does not regard the state as a natural entity, but rather the effect of unremitting statization with the knowledge and power of the state itself. Therefore, it could be said that the rescue operation of SDF is pre-included into the program of knowledge and institution of the state which creates each body of military constitution that can restore the destroyed soil and population. Therefore, soldiers as population (both within the knowledge and institution) do not possess vulnerability and have to be invincible. This causes a paradoxical anancastia. That is to say, if even one soldier exposes his/her own vulnerability, it might cause a scenario of dissolution of the military. Therefore, the dead (and) body of the soldier has to be monumentalized and included within the state or concealed thoroughly. Within this knowledge and power, the soldier as population is separated from the soldier of the crowd. As Doi Tomoyoshi points out through Foucault, "the divide generated between the population as the object of ruling and the crowds of the individuals is applied as the intermedium on the level of this population when the power relation works. The significant point of Foucault is that hierarchization of the adequate and inadequate was not developed in the axis of the sovereign and subjects, but in the crowd of the individuals that are the subjects of the ruling" (Doi 2012: 399). For the power, the constant populization of population is essential to manage itself. Therefore,

the constant distinction of the subject of nation from the crowds of individuals is crucial. In other words, the crowds are quantified through the technology of the gouvernementalité and statistics to the subjects. As a result, the soldiers who deviate from the concept of soldier are discarded in this process and will be stigmatized socially, economically, politically, and epistemologically. Therefore, the soldier as population will be reincarnated; this constant renewal of the soldier's body lets the military institution survive. This subjectification is simultaneously influenced by the gouvernementalité of the Neoliberalism in the present. Both inseparable bodies (of the nation and human subject) have been reformed to the adequate formation of the subjects for the Neoliberalism (Miller & Rose 2008).

CONCLUSION

Each human body differs from the soldier as the population and always and already has differences within[12]. Unless one would be a cyborg, the body is always and already vulnerable. What does it mean to be deployed to a field of disaster and get injured? This should not end only by keeping one's self reminded firmly to serve the country and nation. It might be said that the mechanism of organizing and representing the soldiers as population is nothing new, but rather a core of the Modernization from the end of eighteenth century (when T. M. Malthus published An Essay on the Principle of Population in 1798). It should, however, be pointed out that the excessive thought of SDF soldiers as rescuing subjects by the nation after 3/11 has concealed its essential role as soldiers itself and the new strategy of the US Forces in East Asia in the twenty-first century.

This is the beginning of the disaster as you witness US military veterans in the Vietnam War begin to to confess the existence of Agent Orange and a nuclear

crisis in Okinawa, more than 40 years after the war (Mitchell 2011; 2012). It takes time. This problem can be extended, as I mentioned at the beginning, not only to the soldiers but also to the nuclear plant workers, children, pregnant women, the crowds in the future and, above all, everyone living on this globe. Moreover, the reformation of US military bases throughout the world is still underway. Much smaller, dispersed, and flexible models of bases, what David Vine mentioned as the Lily-Pad Strategy[13], is the near future strategy of Pentagon, Japan, and its "Tomodachi" alliances. We should view the real face of military institutions in this globalizing era of the twenty-first century and rethink what reconstruction means and who was the protagonist of this narrative.

Notes

1 Metropolitan Police Department, 2012, "The damage situation and police measures by the Great East Japan Earthquake", accessed on Sep 8, 2012 (http://www.npa.go.jp/archive/keibi/biki/higaijokyo.pdf).

2 In case of the SDF Japan, the "camouflaging" of its masculinity through representation of the female gender has been strategically conducted to soften the image of military operations. See (Sato 2012), accessed on September 11, 2012 (http://www.japanfocus.org/-Fumika-Sato/3820).

3 Since March 12, 24 countries and areas (Israel. Italy, India, Indonesia, England, Korea, Australia, Singapore, Switzerland, Sri Lanka, Thailand, China, Germany, Turkey, New Zealand, France, the Philippines, America, South America, Mexico, Mongol, Jordan, Russia, and Taiwan) have sent teams of first-aid workers, UNDAC, UNOCHA, FAO, IAWA and WFP to Japan. The Australian Air Force supported transportation. Teams for medical care from four countries (Israel, Jordan, Thailand, and the Philippines) were active. Aid Supply was sent from 163 countries and areas, as well as 43 institutions. More than 17.5 billion yen was donated from 126 countries, areas, and institutions. (Ministry of Foreign Affairs of Japan, June 19, 2012, accessed on June 22, 2012) (http://www.mofa.go.jp/mofaj/saigai/shien.html).

4 There are, however, of course the Okinawa elites who constantly have had a relationship with the Japanese and US elites. In this sense, there are homosocial relationships among those to manage the military presence beyond the law. On the politics of homo sociality, see (Shinjo, 2010).

5 People's Plan Study Group, 2011, "American University Kevin Maher" , Accessed on July 21, 2012 (https://docs.google.com/viewer?a=v&pid=explorer&chrome=true&srcid=0B6kP2w038jEANGFhZmJkNDUtYzNiYS00ZmUyLWJjYjEtMGUyMWU4ZTYzOWQ2&hl=en).

6 Asahi Shimbun, March 25, 2011.

7 Nikkan Sports, April 2, 2011.

8 Jcast News, October 22, 2011.

9 Yomiuri Shimbun, March 7, 2012.

10 The minutes of the Cabinet Committee of the House of Representatives on March 7, 2012.

Vice Minister Watanabe: I received a question about the mental health of soldiers deployed after the Great East Japan Earthquake. Yesterday, a brief overview of the mental health check was reported. So I am going to inform you. A survey conducted for 58,050 soldiers of the SDF Army shows that 3.3% of them were at high risk to develop PTSD, 2.2 % at high risk to develop depression. Some surveys are still in process. One year has passed, as you mentioned, since the Earthquake. Therefore, the new mental health check is supposed to be done soon.

Next, a survey conducted for 6,112 Maritime SDF soldiers shows that 4.3% of them at high risk to develop PTSD. For Maritime SDF soldiers, a survey for the depression was not conducted and the reason for that is demanded. Already five MSDF soldiers are identified as having PTSD. They are under medical care and have been struggling for returning to their work. A survey conducted for 3,319 Air SDF soldiers shows that 7.5% of them were at high risk to develop PTSD and 6.5% were at high risk to develop depression. The possibility of PTSD was not checked.

We, the Ministry of Defense, will continue to tackle the issues of mental care of the SDF soldiers having worked so hard by facing the national crisis. In any case, we want to take care of it by inviting counselors and increasing numbers of clinical psychotherapists over a prolonged period with the fiscal 2012-year budget. That is the situation. Thank you. (The House of Representatives HP, accessed on July 21, 2012 (http://www.shugiin.go.jp/itdb_kaigiroku.nsf/html/kaigiroku/000218020120307002.htm)).

11 The numbers of suicides have been shifting as follows: in the decade after 1995, the total number was 673: 75 in 1998, 62 in 1999, 73 in 2000, 59 in 2001, 78 in 2002, 75 in 2003, and 94 in 2004. The suicide rate of the SDF (per 100,000 people) in 2003

was approximately 39.5. It is much higher than 27.0 of normal citizens (in 2003) (Konishi 2006: 16-7).

12 This insight is related to the works of Brono Latour (Latour (Porter tr.) 1993).

13 David Vine, 2012, "The Lily-Pad Strategy: How the Pentagon Is Quietly Transforming Its Overseas Base Empire and Creating a Dangerous New Way of War," ToDispatch.com, accessed on July 21, 2012 (http://www.tomdispatch.com/archive/175568/).

References

Doi, Tomoyoshi, 2012, "Beigun Senryoki ni okeru Kokumin/Gaikokujin to iu Shutai Hensei to Shokuminchi Shugi," Okinawa Bunka Kenkyu, 38 (= 土井智義 , 2012,「米軍占領期における「国民」/「外国人」という主体編成と植民地統治」『沖縄文化研究』38).

Foucault, Michel, 2004, Securité, Territoire, Population: cours au Collège de France (1977-1978), Gallimard/Le Seuil (= ミシェル・フーコー , 2007,『ミシェル・フーコー講義集成〈7〉安全・領土・人口』筑摩書房).

Ichinokawa, Yasutaka, 2000, Shikou no Frontia—Shintai/Seimei (Frontier of Thought: Body/Life), Iwanami Shoten (= 市野川容考 , 2000,『思考のフロンティア－－身体／生命』岩波書店).

Konishi, Makoto, 2006, Jieitai Sono Toransu Fomeshon(Transfomation of Japan Self-Defense Forces), Shakai Hihyo Sha (= 小西誠 , 2006,『自衛隊　そのトランスフォーメーション』社会批評社 .

Latour,Brono, Catherine Porter (tr.) 1993, We Have Never Been Modern, Harvard Univ. Press.

Mitchell, Jon, 2011, "US Military Defoliants on Okinawa: Agent Orange," The Asia-Pacific Journal, 9（37-5）

Mitchell, Jon, 2012, "Vets win payouts over Agent Orange use on Okinawa: U.S. soldier unloaded barrels at Naha Port, ex-marine handled tainted Vietnam gear," Japan Times, Feb.14.

Miller, Peter, and Nikolas Rose, 2008, Governing the Present, Polity Press.

Sakai, Naoki, 1997, Nihon Shiho to iu Mondai—Honyaku to Shutai (Problematique of Japanese Thought: Translation and Subject), Iwanami Shoten (= 酒井直樹 , 1997,『日本思想という問題－－翻訳と主体』岩波書店).

Sakai, Naoki, 2001, "Kyokan no Kyodoutai to Kuso no Jissenkei: Higashi Aisa ni okeru Amerika Gassyukoku no Sonzai wo megutte (Community of Compassion and Practices of Utopia: To Think of United Sates of America in the East Asia Region)," Gendashi Shiso 29(9): 213-237 (＝酒井直樹 , 2001, 「共感の共同体と空想の実践系－東アジアにおけるアメリカ合州国の存在をめぐって」『現代思想』29（9）:213-237).

Sato, Fumika, 2012, "A Camouflaged Military: Japan's Self-Defense Forces and Globalized Gender Mainstreaming," Asia-Pacific Journal 10(36-3), accessed on September 11, 2012 (http://www.japanfocus.org/-Fumika-Sato/3820)

Shinjo Ikuo, 2010, Okinawa wo kiku (Hearing Okinawa), Misuzu Shobou. (= 新城郁夫 , 2010,『沖縄を聞く』みすず書房).

Wakabayashi Chiyo, 2012, "Atom for Peace is Dead: Reexamining Okinawan Contemporary History Through Post-311 Fukushima," Japan- Fissures in the Planetary Apparatus.

within one hour of the Village center.

Longing for the Right to Decide Nuclear Policy by Ourselves: Social Movements led by the Citizen Group Minna de Kimeyo in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

INTRODUCTION

Social Movements Calling for Many Local Referendums

After the severe nuclear plant accident in Fukushima Daiichi, grassroots local social movements are calling for local governments to conduct local referendums on the appropriateness of restarting nuclear plants that are currently out of operation owing to periodic check-ups of the plants.

According to the Electricity Business Act, all nuclear power plants need to be checked every 400 days. After the Fukushima accident, nuclear power plants nationwide entered into this periodic check-up period one by one, but they could not be restarted. Consequently, by March 5, 2012, all nuclear power plants had stopped.

It is obvious that this unusual situation was brought about by growing public opinion against restarting the plants, questioning their safety.

Legally, an electric company may restart a plant after the periodic check-up only if the site city agrees and the prefectural governor approves doing so.

The site city and the prefecture have an incentive to restart, because they are often financially dependent on the subsidy for the operation of the plants given by the central government. This situation has been criticized, particularly following the Fukushima accident, on the basis that the current decision-making system sacrifices careful thought about safety.

Instead of the decision being made by the site governor and prefectural governor, the above-mentioned social movements demand that the decision be made by a referendum.

The social movements are led by the citizen group *"Minna de Kimeyo (みんなで決めよう)" or "Let's Decide Together."* The first two movements took place from winter 2011 to spring 2012 in Tokyo and Osaka, followed by two in Niigata and Shizuoka Prefectures this past summer.

As is well known, social movements calling for local referendums are not new in current Japan. According to Hajime Imai, there were over 400 local referendums on various issues in the past 15 years (Imai 2011:66). In terms of the nuclear energy issue, local residents who are opposed to invite nuclear plants to their city or town often organize a citizen group and call for a local referendum, especially after the well-known case of the Maki town in the Niigata Prefecture in 1996. Many scholars, such as Hasegawa (2003), Nakazawa (2005), and Ito et al. (2005), have reported on these local movements.

However, the movements led by Let's Decide Together have different faces from those previous movements. The current movements took place not in the site city but in cities (the Osaka city's case) and the metropolis (the Tokyo's case) that do not have nuclear plants in their area. Although Niigata and Shizuoka Prefectures have nuclear power plants in their area, they have not so far questioned the

Keiichi SATOH, Doctoral Student, Graduate School of Social Sciences, Hitotsubashi University, Research Fellow, Japan Society for the Promotion of Science (DC1)

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

decision made by the subordinate site city. Therefore, the movements can now be regarded as an attempt to deprive the current decision makers of their up-to-now monopolization of decision rights, and change the scale of the decision-making sphere.

If these movements have different faces as explained above, we need to cast light on how they came to be this way. Namely, how did these movements occur away from the site cities? Social movements outside the site cities need to be supported by different people from the people who live near the plants feeling the risk of accident. What resources could the social movements use? How did the social movements frame their movements where they were not located at the actual sites?

To analyze this new political situation, I will focus on the Tokyo case in this study. In the next section, I will first describe how the movements progressed. Then, I will describe the context of the Tokyo movement. Finally, I will report the frame developed by the social movement and the difficulties caused by the setting of the frame that the participants faced.

PROGRESS OF THE TOKYO CASE

Until the Establishment

The citizen group Let's Decide Together was established on June 25, 2011, three months after the Fukushima accident. The group leader, Hajime Imai, was a journalist and had written several books about referendums.

At the beginning, they intended to call for a referendum at the national level. However, because the referendum is not defined at the national level in Japanese law, the only thing the groups could do was to collect signatures and find a member of the Diet to submit the petition to the Diet.

In August, members of the groups decided that they should first find a more concrete way to force referendums using the provision for referendums at the local government level. According to provision number 74 of the Local Autonomy Law, which applies at the metropolitan, prefecture, and city levels, citizens are entitled to call for the local governor to enact or abolish prefectural or municipal regulations if 1/50th of the residents sign an appropriate petition. The governor must hand in the bill drafted by the citizens to the assembly.

Using this provision of the Initiative, some social movements have succeeded in enacting a regulation to conduct a local referendum.

In October, members of the citizen group held a press interview and announced that they would collect signatures for such an initiative in Osaka and Tokyo.

According to the law, only residents who registered as "Juninsha (受任者)" or deputy at the local election administration commission can collect the signatures. Therefore, it was important for the citizen group to find as many deputies as possible before the actual signature collection period.

At the beginning of the collection period on December 11, 2011, the number of the deputies reached 9000 people.

During the Signature Collection

At the prefecture level, including the Tokyo metropolitan areas, the legal collection period lasts two month. Within this period, in the case of Tokyo, the citizen group had to collect signatures of 1/50th of the residents or 214,236 signatures.

However, this number is often not enough because for various reasons roughly 10% of the signatures are judged as invalid by the election administration commission. For example, a signature is unreadable; the date of the signature is not correct; and if one correction of the signature is not done correctly, all

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

the remaining signatures below it in the signature book can be judged invalid.

Aiming for a number far greater than the required 1/50th of the residents, deputies collected the signatures. During this period, deputies stood almost every day at public places such as the entrances of the Shinjuku, Shibuya, and Tachikawa stations, calling for signatures.

However, collecting signatures in this way had some problems. Every local election commission authorizes only at a municipal or a ward level. Accordingly, if one deputy lives in the Shinjuku ward for example, he/she must register at the commission in Shinjuku and may collect only signatures of Shinjuku ward residents. However, pedestrians came to Shinjuku station, from every other city in Tokyo. Therefore, deputies from various cities needed to stand there at the same spot.

Places for collecting signatures were also very restricted. Every public place, such as the entrance of a station, requires police permission for collection. It is prohibited to collect signatures in a workplace or in public buildings such as a city hall, community center, or university.

Surmounting these legal difficulties, the number of collected signatures reached 323,076. By the end of the period, there were 28,056 registered deputies.

Deliberation at the Assembly

With more than 1/50th of residents' signatures were collected, the bill drafted by the citizen group was submitted to the metropolitan assembly in May 2012. However, the metropolitan governor Shintaro Ishihara made negative remarks about the bill, arguing that nuclear policy should be decided by the national government and that the subject was unsuitable for a local referendum.

At the committee for general affairs in the assembly, which discusses proposed laws before the plenary session, the citizen group's bill was rejected. DPJ proposed an amendment that the right to vote on the bill be permitted only to Japanese residents above 20 years, as is usual in elections, not to those above 16 years and that resident aliens be included as specified in the citizen group's draft. Half of the members, or seven committee members, agreed with the proposal, while the remaining seven were against. Eventually, the chair of the committee voted against and the amendment was also rejected.

Because the amendment was rejected at the committee level, only the citizen group's original draft was handed in to the plenary session. Seikatsu sha Network, JCP, and some of the DPJ members voted for, but the other DPJ members and the ruling party Koumei and the LDP voted against. Ultimately, the draft was rejected, with 41 members approving against 82 members' opposition.

After the rejection, citizens who knew each other through the movement held a briefing session for participants in many cities. They invited members of the assembly to it. Some of them succeeded in networking the movement, and organized a new group with the intent of campaigning to prevent the reelection of assemblymen who voted against their bill in the next election in 2013.

Photo 1: A Citizen group collecting signatures in front of the Shibuya station exit, Tokyo on February 8, 2012.
Note: Photograph by the author.

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

CONTEXT OF THE TOKYO CASE

Origin of the Idea of Using Referendum

In this section, I will review the historical background of the Tokyo case and examine the context of the movement.

In 1988, two years after the Chernobyl disaster, Japan had already witnessed a nationwide social movement calling for a referendum on whether Japan should continue to use nuclear energy. This action was inspired by the case of Sweden, which decided to abolish the use of nuclear energy on the basis of the results of a referendum.

The signatures reached over three million. However, the referendum did not take place. The signatures were brought to the Diet as a petition introduced by opposition party members. Although the movement got dozens of the members to sponsor the introduction, the then ruling party LDP and the nuclear-approval opposition party DSP rejected the draft in the committee of science and technology. After this defeat, anti-nuclear social movements severely declined. However, Hiroshi Honda considers this movement a forerunner of the success in Maki (Honda 2005: 222-224).

The Network and Experience of the Food Security Regulation Movement

At that same time, there was another social movement taking place in Tokyo, also brought about by the Chernobyl disaster. Afraid of radioactive poisoning, in 1988, residents petitioned (without legal obligation) the metropolitan government with 11,000 signatures to enact a regulation that ensures food safety. In 1989, a consumer co-operative union, Seikatsu Club, led social movements as an initiative for food security regulation and succeeded in gathering 55,000 signatures (Ueno 2011:53).

Table 1 Number of signatures by each Ward, city, town, and village in Tokyo

	(A)Number of Signature	(B)1/50 residence	(A)/(B)	Existance of the Seikatsusha office
Subtotal of Wards	198,286	146,356	135%	
Setagaya	32,945	14,316	230%	○
Sibuya	5,248	3,518	149%	
Meguro	7,222	4,430	163%	○
Ota	16,321	11,537	141%	○
Minato	3,200	3,575	90%	
Shinagawa	9,342	6,131	152%	○
Koto	7,012	7,707	91%	○
Edogawa	13,758	10,636	129%	○
Chiyoda	1,117	831	134%	
Chuo	894	2,070	43%	
Suginami	19,324	9,200	210%	○
Nakano	9,456	5,310	178%	○
Sinjuku	6,615	5,056	131%	
Toshima	5,542	4,407	126%	○
Itabashi	12,066	8,833	137%	○
Kita	5,480	5,534	99%	
Nerima	21,974	11,566	190%	○
Adachi	3,496	10,748	33%	○
Katsushika	4,969	7,284	68%	
Arakawa	2,229	3,229	69%	
Taito	2,856	2,981	96%	
Sumida	2,039	4,142	49%	
Bunkyo	5,181	3,314	156%	
Subtotal of Cities	145,627	66,437	219%	
Nishitokyo	9,475	3,225	294%	○
Musashino	6,560	2,335	281%	○
Kodaira	6,394	2,950	217%	○
Koganei	5,066	1,906	266%	○
Kunitachi	4,770	1,232	387%	○
Kokubunji	6,265	1,930	325%	○
Higashikurume	3,940	1,890	208%	
Kiyose	1,908	1,208	158%	○
Higasimurayama	5,508	2,489	221%	○
Higashiyamato	2,366	1,360	174%	○
Tachikawa	4,703	2,908	162%	○
Akishima	3,957	1,846	214%	○
Ome	3,658	2,269	161%	○
Musashimurayama	991	1,125	88%	
Fussa	1,520	955	159%	○
Hamura	2,014	907	222%	
Akiruno	2,559	1,318	194%	
Machida	14,366	6,862	209%	○
Mitaka	7,246	2,960	245%	
Fuchu	7,846	4,046	194%	○
Chofu	10,590	3,654	290%	○
Komae	4,594	1,292	356%	○
Hachioji	15,902	9,112	175%	○
Hino	5,104	2,898	176%	○
Tama	5,385	2,416	223%	○
Inagi	2,940	1,343	219%	○
Subtotal of Towns and Villages	2,907	1398	208%	
Mizuho	310	543	57%	
Hinode	680	276	246%	
Okutama	124	109	114%	
Hinohara	108	48	225%	
Hachijo	663	138	480%	
Oshima	422	142	297%	
Ogasawara	556	40	1390%	
Nijima	41	52	79%	
Miyake	3	50	6%	
Total	346,820	214,235	162%	

Note:
1. The number of the signature is before the confirmation by the election administration committee. Accordingly each number is slightly more than valid signatures.
2. Data by the Lets Decide Together HP(http://kokumintohyo.com/branch/archives/934), calculation by the auther.

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

Although their bill was rejected by the municipal assembly, that experience succeeded in the current Tokyo case's movements for the initiative in 2012. The secretary general of Let's Decide Together was an office staff of the Seikatsusha Network, an affiliated political party of the Seikatsu Club. During the collection period, Seikatsusha opened its office to the deputies of the collection. Deputies in the cities where the offices were available could do their daily work much more easily (Table 1).

FRAMINGS OF THE MOVEMENT

The Framings of Rights, Responsibility, and Democracy

As written in the introduction, the movements could not directly advocate the fear of nuclear disaster which they could have if they had done social movements in the site city, because their location is far from the nuclear power plants.

Instead, they pushed their rights and responsibility for nuclear energy use based on their being consumers of the energy produced. The handbill that Let's Decide Together wrote for the collection deputies summarizes their stance well.

> The accident at Fukushima Daiichi Nuclear was caused by the Great Earthquake and Tsunami Disaster in East Japan. The nuclear plants of the Tokyo Electric Power Company (TEPCO) are located far from Tokyo. Until now, the energy produced there has been sent to Tokyo every day. Every resident who lives in the largest energy-consuming area should now think and decide about the future of nuclear energy.
>
> The Tokyo metropolis, the largest consuming area, is the fifth largest stockholder of TEPCO. Accordingly, the residents of Tokyo are large

stockholders too.

> This means that we have the right and responsibility to affect the business plan of TEPCO. To exercise this right and responsibility, we claim the right to enact a regulation for a local referendum.

(Translation by the author)

The other framing simultaneously used throughout the movement was the logic of democracy. As already mentioned, only the site city's governor and prefectural governor are included in the decision-making system. This caused the ability to question nuclear power promotion to be hampered institutionally. The movement criticized this situation.

Sociologist Shinji Miyadai, who committed to this movement and played a theorist role for it, repeatedly stated the following:

> We don't intend to stop the use of nuclear energy. We intend to change the society that cannot (in its current form) stop using nuclear energy.
> (Translation and words within clauses by the author)

Photo 2: A Citizen group collecting signatures in front of the Kunitachi station exit, Tokyo on February 9, 2012.
Note: Photograph by the author.

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

**Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy**

Keiichi SATOH

Turmoil in the Street

As these sentences show, this framing does not say anything about actual nuclear policy. However, most of the deputies in this movement actually favor decreasing or abolishing nuclear power plants. Accordingly, emotional turmoil can occur both between citizens and within individual citizens.

Occasionally, pedestrians hostile toward antinuclear movements would draw closer to a deputy and show disapproval, although the deputy claimed that people who favored nuclear energy but believed that the current decision-making system was problematic could also sign their signature book too.

On the other hand, some antinuclear activists, who the deputies anticipated would have friendlier attitudes toward the movement than those described above, were opposed to this movement and refused to sign, because they were not sure the results of the referendum would favor the antinuclear side.

The deputies' messages were not completely consistent. A man was confused after he heard one deputy's appeal. "You said," he asked, "this is not an antinuclear signature, but is just calling for a referendum. But they said to me, 'if you are antinuclear, please sign'. I would not sign if this signature is for that purpose."

I also witnessed that some deputy groups brought the flags of the movements to an antinuclear demonstration.

Some deputies can phrase their arguments in a way best suitable for the purpose of the movements. One deputy appealed to pedestrians saying, "If you still undecided about which side you should vote at the referendum, it's no problem. You have time to wrestle with the choices. What's important is the worrying itself. We should worry seriously about our energy's future."

Some deputy's appeals, on the other hand, seemed to me to indicate inner emotional turmoil. One deputy wanted to state directly her stance that she was against nuclear energy, but she restrained herself so as to not deviate from the purpose of the social movements. She appealed, "I went to Fukushima and met children. We must think about our children's future. Therefore, we must decide the important things by ourselves."

CONCLUSION

After the Fukushima accident, more and more people came to realize that they have been excluded from decision making, although the decision can bring hazardous consequences into their everyday life.

To penetrate into the decision-making sphere, citizens who were previously excluded from the system organized a social movement. Although this movement itself was new, the accumulation of experiences by previous movements on related issues, especially those following the Chernobyl disaster, made it easy to organize the movement. Nevertheless, to question the decision-making system and to question nuclear energy itself was a significant step. Consequently, participants of the movement experienced various turmoil.

Through the movement, participants came to know that nuclear promotion was protected by multiple institutional layers. Even if they want to widen the decision-making sphere, the law stipulating the initiative process in Japan functions to protect the current decision-making system, and eventually protects the current nuclear energy promotion system. Having experienced this, some citizens now continue the tug of the war of the politics of energy, using the network created during the movement.

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Longing for the Right to Decide Nuclear Policy by Ourselves:
Social Movements led by the Citizen Group Minna de Kimeyo
in Tokyo Call for Referendums on Nuclear Policy

Keiichi SATOH

Notes

1 The Japanese government let the Kansai Electric Power Company restart the Oi nuclear power plants on July 1. On that day, the period of zero nuclear plant operation ended after two months.

2 According to the Electricity Business Act, the electric company may even restart nuclear plants without any approval of the others. However, most of the case electric companies conclude agreements with hosting cities and prefectures that the companies should have their approval when restarting.

3 Tokyo Shimbun, December 10, 2011 evening edition, p.1.

4 The number of votes by each party and faction were as follows. The members who approved the draft were DPJ(30), JCP(8), and Sekatsusha/Mirai(3). The members who opposed were LDP(37), Komei (23), DPJ(19), and independent member (3).

5 Some situations were different between the movements in 1989 and 2012. In 1989, Seikatsu Club was more active than in 2012 thanks to the availability of the full-time housewife with high education present in the society. And Unions such as Jichiro cooperated for the movements (Ueno 2011: 53). In 2012, Unions didn't declare cooperation.

6 Demonstration at the Kaikono Mori Park, Suginami, Tokyo, on February 19, 2012.

7 Appearance by a deputy at the exit of the Kunitachi Station, on January 26, 2012.

8 Appearance by a deputy at the exit of the Kunitachi Station, on January 26, 2012.

References

Hasegawa, Koichi, 2003, Environmental Movements and the New Public Sphere: The Perspective of Environmental Sociology, Yuhikaku.（＝長谷川公一，2003，『環境運動と新しい公共圏――環境社会学のパースペクティブ』有斐閣.）

Honda, Hiroshi, 2005, The Anti-Nuclear Power Movement and Politics, Hokkaido University Press.（＝本田宏，2005，『脱原子力の運動と政治』北海道大学図書刊行会.）

Imai, Hajime, 2011, Referendum on "nuclear energy," Shueisha Shinsho.（＝今井一，2011，『「原発」国民投票』集英社新書.）

Information center for Referendum and local referendum, Retrieved on June 30, 2011 (http://www.ref-info.net/).（＝国民投票・住民投票情報室，2012 年 6 月 30 日取得）

Ito, Mamoru, Matsui, Katsuhiro, Watanabe, Noboru, Sugihara, Nahoko, 2005, Democracy Reflection: Sociology on Local Referendum in Maki Town, Liberta Press.（＝伊藤守・松井克浩・渡辺登・杉原名穂子 , 2005,『デモクラシー・リフレクション――巻町住民投票の社会学』リベルタ出版.）

Let's Decide Together, 2011, Homepage of Let's Decide Together, Retrieved June 30, 2012 (http://kokumintohyo.com/)（＝みんなで決めよう！「原発」国民投票，2012，みんなで決めよう！「原発」国民投票ホームページ，2012 年 6 月 30 日取得）

Nakazawa, Hideo, 2005, The Social Movements of Local Referendum and the Local Regime, Harvest Press.（＝中澤秀雄，2005，『住民投票運動とローカル・レジーム』ハーベスト社.）

Tokyo Shimbun（＝東京新聞）.

Ueno, Junko, 2011, "Birth and developments of the Town Making Groups which shows alternative Proposals: Changing of the Scale, Institution and Resources," Tadahito, Yamamoto eds., Research on Urban Spaces and the Composition of Civil Society: From the Survey and Research on Civil Society in the Metropolitan Area (Report of Grant-in-Aid for Scientific Research (KAKENHI) 2009-2010: Nr. 20653039), Hitotsubashi University:48-62.（＝上野淳子，2011，「対案提示型まちづくり団体の誕生と展開――空間スケールの移動と制度、資源」山本唯人編『都市空間と市民社会組織の編成に関する研究――首都圏市民活動調査から』2009-2010 年度科学研究費補助金研究成果報告書（課題番号：20653039），一橋大学.）：48-62.

Local Regime after the Great East Japan Earthquake: For a Study on the Politics of Post-disaster Reconstruction

Masao MARUYAMA

PURPOSE OF THE PAPER

On March 11, 2011, the Great East Japan Earthquake and tsunamis claimed uncountable lives; engulfed cities, towns, and fishing villages; and greatly damaged the infrastructure in the coastal region of northeastern Japan. Following the disasters, national government-funded regional reconstruction projects have commenced in devastated municipalities, except the evacuated areas around the Fukushima Daiichi nuclear plant. Now, one year and nine months after the disaster, the reconstruction projects are underway here too, despite their enormous task.

Regional reconstruction projects in the damaged cities and towns pose two key questions for researchers interested in Japan's urban and regional politics and political economy. The first is regarding the nature of Japanese urban and regional politics' impact on the reconstruction projects. In the affected region, there are many small and middle-sized cities, most of which were seriously damaged by the disaster. The process of regional reconstruction in each city is primarily affected by its local political structure built before the disaster. While the Japanese national government is involved in the projects to a considerable extent through making laws and supplying funds, local political actors in the devastated regions are also highly engaged in the decision-making processes. Therefore, not only the natural disasters themselves but also the local political structure of each city affect the features and

progress of the post-disaster reconstruction projects. The other question concerns whether each city's local political structure will transform through the regional reconstruction projects, and if so, into what kind of structure. Due to the immense damage caused by the quakes and tsunamis, the reconstruction projects involve a wide variety of actors and receive a large amount of money from both within and outside each city. Therefore, the projects may represent a historical opportunity for the political restructuring of the cities. In this paper, we will discuss the relationship between local political regimes and the regional post-disaster reconstruction projects, focusing on Ofunato, a small city of approximately 40,000 inhabitants, located on the eastern coast of Iwate Prefecture. In Ofunato, the 3/11 tsunamis hit the coastal and central areas. Over 450 people were killed or went missing, and 30% of all buildings were seriously damaged. Since the Meiji era, Iwate's coastal region, including Ofunato, has experienced three tsunamis caused by giant earthquakes: in 1896, 1933, and 1960. Cities, towns, and villages in the region have been revived and reconstructed each time.

Because the regional reconstruction projects have recently begun, we cannot make definite conclusions about them. This paper aims to clarify the issue and propose hypotheses for future research on the local politics surrounding post-disaster reconstruction projects. In the following section, we will summarize the characteristics of Ofunato's local political structure built before the Great East Japan

Masao MARUYAMA , School of Human Cultures, University of Shiga Prefecture

Earthquake. Considering this background, we will examine the city's regional reconstruction project. Finally, we will discuss issues and hypotheses for future research.

OFUNATO BEFORE THE 2011 DISASTER

Ofunato is situated in southeast Iwate Prefecture (see Figure 1). It covers 323.3 km2 and includes fishing and mountainous villages. The city's population is approximately 40,000, about 18% of whom (7,321 people, according to the 2005 census) live in the DID (Ofunato city authority 2010).
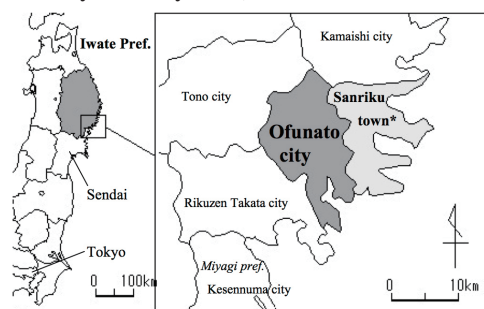

Figure 1: Map of Ofunato city
Note: Sanriku town was merged into Ofunato city 2001.

In the Edo era, Ofunato included fishing and mountainous villages in addition to the commercial and administration town. Because the ocean provided abundant food, many fisherfolk lived on the coast. Others worked in timber in the backland.

In the 1930s, a private company began manufacturing cement using limestone from the city's backland. This served as a catalyst for Ofunato's transformation into a modern heavy industrial city. In 1952, two towns and five villages in the region merged into Ofunato city to comply with a national development project to build a coastal heavy industrial city ('*rinkai kogyo moderu toshi*'). In addition, the Ofunato city authority bid to become a model city of "industrial development in underdeveloped areas ('*teikaihatsu chiiki kogyo*

kaihatsu')," a national industrial location policy implemented in the age of economic high growth in the 1960s (Editorial Committee of History of Ofunato City 2002). Ofunato's local entrepreneurs, especially those in the declining fishery sector, and local politicians from the industrial sector scrambled to bid for the model city designation.

These big development projects supported by the national government promoted not only regional industrialization but also construction of the city's urban infrastructure such as seaports and fishing industrial complexes. In addition, the projects aimed to improve people's economic status in the coastal region of northern Japan, one of the poorest districts in the country. The Japanese national land and industrial location policies in the age of economic high growth between the 1950s and 1980s aimed at "even development of national land" (*The 1st Comprehensive National Development Plan*, established in 1962) and suggested correcting uneven regional development. Under these policies, small and middle-sized cities, towns, and villages in the country, including Ofunato, enjoyed regional economic growth and an increased population until the 1980s (see Figure 2).
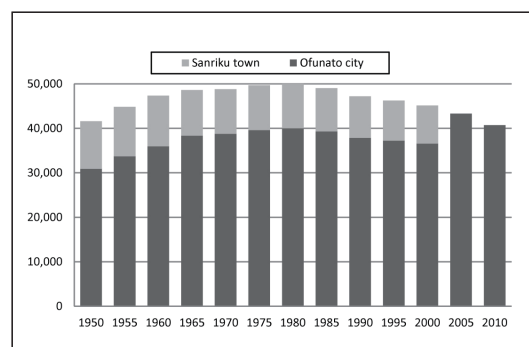

Figure 2: Population in Ofunato city
Source: Census.

Since the 1980s, fishery in Japan stagnated at a low level. As a result, the marine product processing industry in Ofunato declined. Later, Japan's economic turmoil following the bubble burst in the

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

Local Regime after the Great East Japan Earthquake:
For a Study on the Politics of Post-disaster Reconstruction
Masao MARUYAMA

early 1990s devastated Ofunato's cement industry because the industry was susceptible to the effects of public and private construction projects (see Figure 3). In addition, the city faced an increasing aging population.
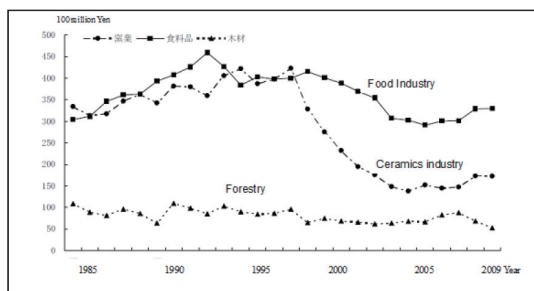

Figure 3: Shipment values of Ofunato's manufacturing industries
Source: Ofunato city authority (2010).

Influenced by the economic depression, the Japanese national government implemented a decentralization policy in the 1990s. Gradually, the policy, called "heisei municipal mergers," encouraged local governments to merge. It offered financial support for mergers and penalties for non-mergers. Prime Minister Junichiro Koizumi's neoliberal administration (2001–2006) strongly pursued the policy, which ended in March 2010, one year before the Great East Japan Earthquake. Overall, it led to a reduction in the number of municipalities from 3,229 (April 1999) to 1,730 (March 2010).

Under the merger policy, the Ofunato city authority merged with Sanriku town, located north of Ofunato, in November 2001. The Sanriku town authority had faced a fiscal crisis induced by its increasing aged population and declining fishery industry. Therefore, the town officials eagerly sought fiscal support through the national merger policy.

Ofunato's local entrepreneurs and politicians expected that the fiscal support from the merger would enable the city authority to develop and redevelop urban infrastructures and enrich the city's urban competitiveness (Maruyama 2005). Accordingly, the city authority accrued a 10-year 63.2

billion yen package from the national fiscal support and invested it in construction projects for urban infrastructure.[1]

THE 2011 DISASTER AND ITS AFTERMATH IN OFUNATO

On March 11, 2011, 2:46 pm, Ofunato experienced a huge quake measuring six lower on the Japanese intensity scale and was struck by three tsunamis, one of which was 23.6 meters high (The Port and Airport Research Institute 2011). The quake and tsunamis claimed 340 lives and caused 82 persons to go missing. In addition, 5,433 houses and buildings were damaged, amounting to property damage worth 107.7 billion yen.[2] Photo 1 shows downtown Ofunato a few months after the disaster.

One month after the disaster, on April 20, the Ofunato city authority prescribed a basic regional recovery and reconstruction policy. Forthwith, the authority established a planning committee comprising local politicians and business leaders as well as urban planners at the university. They finalized the city's reconstruction plan on October 31. The plan suggests the construction of public housing, removal of coastal settlements, and repair and construction of fishing ports and roads. A significant portion of the amount for these regional reconstruction projects will be covered by the national government. Photo 2 shows the downtown area of Ofunato more than a year after the disaster.

In addition to the municipal reconstruction plan, there are other plans for regional reconstruction. One is the "Kesen Regional Future City" project, which is supported by the national government. In 2010, the national cabinet office planned the "Future City" Initiative as an urban and regional development project to strengthen regional competitiveness. After the 3/11 disaster, the cabinet office changed this

**Local Regime after the Great East Japan Earthquake:
For a Study on the Politics of Post-disaster Reconstruction**

Masao MARUYAMA

Photo1: Downtown Ofunato four months after the tsunami disaster
Note: Photo by author on July 19th, 2011.

Photo2: Downtown Ofunato fourteen months after the tsunami disaster
Note: Photo by author on may 18th, 2012 (same location with photo above).

Photo3: Downtown Ofunato eighteen months after the tsunami disaster
Note: Photo by author on September 30th, 2012 (same location with photo above).

policy into a financial support menu for regional reconstruction. In December 2011, it adopted 11 cities and regions, including six that were devastated.[3]

After competing with municipalities situated next to Ofunato and battery industry groups, Ofunato city was selected as this initiative's model region. The "Kesen Regional Future City" project includes a plan for new energy development, such as constructing a solar power station, hybrid energy system, smart grid, and accumulator plant.

The cabinet office describes the policy design as follows: "The Japanese government selected some strategic cities and regions and intensively focused our policy resources there to support, for example, an urban energy management system with a smart grid, recyclable energy, next-generation vehicles, the environmental industry and industrial innovation, and increased use of recyclable energy."[4] As this indicates, the policy was designed as a new tool for not government- but private-driven regional development. After the 3/11 disaster, it was altered for regional reconstruction. In addition, the new policy's experiments of "selection and concentration" and "private initiative" have become widespread in state neoliberal reforms in the 1990s and early 2000s.

TOWARD FUTURE RESEARCH ON THE POLITICS OF REGIONAL RECONSTRUCTION AFTER THE DISASTER

In this paper, we studied the local political situation of a devastated city, Ofunato. We examined the situation before the Great East Japan Earthquake and tsunamis as well as the current situation during the regional post-disaster reconstruction projects. Finally, we consider an agenda for future research on local political regime studies, using this case as an example.

Within the past two decades, the research perspective and method of local regime analysis (Stone 1989) has expanded its area of study to students interested

Local Regime after the Great East Japan Earthquake:
For a Study on the Politics of Post-disaster Reconstruction

Masao MARUYAMA

in local politics and political economy. Local regime is generally defined as "formal and informal modes of collaboration between business and government" (Mossberger 2009: 41) and is embodied within the actions of a governing coalition, which is "an informal yet relatively stable group with access to institutional resources that enable it to have a sustained role in making governing decisions" (Stone 1989: 4, original emphasis).

In studies on contemporary Japanese local politics, some researchers have indicated that they cannot find "market liberal regimes" in US cities (Elkin 1987) or Western European welfare states (John and Cole 1998; Harding 2000), but instead identify a "regional development regime" (Nakazawa 2005) or "developmentalist regime" (Maruyama 2011). This unique Japanese local regime shares the characteristic of preference for regional economic growth and development with the market liberal regime. However, this case is not an ideal type of a market liberal regime. In the Japanese developmentalist regime, not free economic activities by private entrepreneurs but local government's interventionist activities have contributed to regional economic development and growth. In addition, local officials and politicians have scrambled for financial support from the national government for regional industrial development and construction of urban infrastructure. The public and private sectors, and even the labor sector, have always acted in harmony with each other. Since the 1990s, the Japanese developmentalist regime has drastically changed, as the "entrepreneurist regime" has become prominent since the US and Western Europe economic crisis in the 1970s. There is history of local economic restructuring under the influence of economic globalization and competition-driven reform of the central–local governmental relationship.

We return to the first question presented in the paper. How will Japanese urban and regional political economic structures impact post-disaster reconstruction projects? We propose two hypotheses based on the case of Ofunato.

First, the developmentalist regime may have an impact. The close political partnership between the public and private sectors and the goal of promoting regional economic development and growth may influence the regional reconstruction projects. The coalition may strongly drive the project forward, especially the revival of the regional industrial infrastructures, using financial support from the national government. As a result, the reconstruction projects may increase regional economic competitiveness from what it was before the disaster. On the other hand, we may witness negative consequences. For example, with its emphasis on economic growth, the coalition may postpone the reconstruction of infrastructure for residential livelihood. Also, the closed coalition between public and private sectors may exclude new actors such as external civil society organizations seeking to engage in residential rescue and regional restoration. In addition, the reconstruction projects may reinforce local fiscal dependence on national government.

Second, the neoliberal turn of the developmentalist regime may influence the regional reconstruction projects. Within the past two decades, the Japanese developmentalist regime has become unstable because of the neoliberal and competitive reform of the national–local governmental relationship. Most local governments in Japan have shifted to selection and concentration in public investment; for example, they have focused on urban core redevelopment and left peripheral areas underdeveloped. Thus, in the post-disaster regional reconstruction process, we may see uneven inter- and intra-regional development, which may widen the economic gap between the urban core and peripheral areas.

The Logic of Cascading: Infrastructural Perspectives on a Post-disaster Situation **Special Issue**

**Local Regime after the Great East Japan Earthquake:
For a Study on the Politics of Post-disaster Reconstruction**
Masao MARUYAMA

Next, we address our second question, regarding whether the reconstruction projects following the disaster will change the local political and economic structures in the devastated regions and, if so, which structures will emerge. To answer this question, we may need to engage in long-term research. However, we can propose hypotheses based on the case of Ofunato. The first is the revival of developmentalism. Massive investment in reconstruction funded by the national government may awaken local actors' memories of the golden age of developmentalism. However, a revival of the developmentalist age is unlikely because, currently, reconstruction projects funded by the national government are selective and competitive. Thus, we propose a second hypothesis, that the reconstruction process may strengthen the neoliberalization of the local regime. Alternatively, after the completion of regional reconstruction projects, a local regime may emerge that is an amalgam of developmentalism and neoliberalism (see Table 1).

CONCLUSION

The ongoing regional post-disaster reconstruction projects in Japan (see Table 2) will be important in

Table 1: Local regime shift after the 3/11 disaster

	Developmetalist regime	Neoliberal regime	Post 3/11 regime?
	Era of economic high growth: 1950s-1980s	After economic growth: 1990s- 2000s	After the 3/11 disaster: 2010s-?
Regional policy of national state	● "Inter-regional even development of national land" ● National "equal" fiscal support and subsidy policy	● "Inter-regional competition and independence of region" ● "Selection and concentration" of national fiscal resource and competition driven fiscal support	
Constellation of local actors	● Local bureaucrat-led coalition building ● Public-private partnership	● Local entrepreneur-led coalition building ● Public-private partnership	
Goal of local regime	● Regional economic growth ● Industrialization and modernization ● Intra-regional even development	● Regional economic growth ● Industrial restructuring ● Selective investment for enhancing regional competitiveness	

Table 2: Road map for regional reconstruction (case of Iwate Prefecture)

		2011	2012	2013	2014	2015	2016	2017	2018	(FY)
Coast and Port	Building bank and floodgate	Onset			Completed					
	Strengthening floodgate	Onset						Completed		
	Building levee and disaster-prevention forest	Onset						Completed		
	Repairing floodgate		Onset		Completed					
	Building and repairing levee and floodgate in fishing port	Onset			Completed					
Town and community	Land redemarcation and settlement transfer	Onset						Completed		
Road	Building and repairing road and highway		Onset					Completed		
Public housing	Building public housing estate		Onset		Completed					
Fishing Port	Repairing port	Onset			Completed					

Source: *Iwate Nippo*, published on June 12th, 2012.

revitalizing the areas affected by the Great East Japan Earthquake. Therefore, understanding the factors that shape these projects and seeking awareness of their influence on local political situations are important areas of research. To comprehensively answer the questions posed in this paper, further research is needed to elucidate the national and local politics as well as the political economy surrounding the post-disaster reconstruction projects. This paper has described the case of Ofunato. More case studies and continued analysis of the reconstruction process, in Ofunato and elsewhere, are required.

Notes

1 By *The Construction Plan of New Ofunato city (Ofunato shi—Sanriku cho gappei kensetsu keikakusho)*.

2 According to a paper presented by Ofunato city authority on March 27, 2012.

3 Selected cities and regions are Kamaishi (Iwate Pref.), Iwanuma, Higashi Matsushima (Miyagi Pref.), Minami Soma, Shinchi (Fukushima Pref.) (above: devastated areas), Shimokawa (Hokkaido Pref.), Kashiwa (Chiba Pref.), Yokohama, Toyama (Toyama Pref.), and Kitakyushu (Fukuoka Pref.).

4 From Cabinet Office's "New Growth Strategy", published in June 2010.

References

Editorial Committee of History of Ofunato City ed., 2002, *History of Ofunato City*, vol.6, Ofunato City. (in Japanese)（大船渡市史編集委員会編『大船渡市史 第 6 巻 通史編』.）

Elkin, S., 1987, *City and Regime in the American Republic*, Chicago: University of Chicago Press.

Harding, A., 2000, "Regime Formation in Manchester and Edinburgh," G. Stoker ed., *The New Politics of British Local Governance*, London: Macmillan: 54–71.

John, P., and A. Cole, 1998, "Urban Regimes and Local Governance in Britain and France: Policy Adoption and Coordination in Leeds and Lille," *Urban Affair Review*, 33: 382–404.

Maruyama, M., 2005, "Local Politics on the 'Heisei Municipal Merger': A Case Study of the Ofunato City and Sanriku Town Merger," *Annuals of Japan Association of Regional and Community Studies*, 17: 109–25. (in Japanese)（丸山真央「『平成の大合併』 をめぐる地域社会の意思決定と自治体財政──岩手 県大船渡市・三陸町合併を事例に」『地域社会学会 年報』17：109-25.）

Maruyama, M., 2011, "A Sociological Study on Local Politics of the Heisei Municipal Mergers" Doctoral dissertation, Graduate School of Social Sciences, Hitotsubashi University. (in Japanese)（丸山真央「『平 成の大合併』をめぐる地方政治の社会学的研究」一 橋大学大学院社会学研究科博士論文.）

Mossberger, K., 2009, "Urban Regime Analysis," J. S. Davies and D. L. Imbroscio eds., *Theories of Urban Politics*, 2nd edition, Thousand Oak: Sage: 40–54.

Nakazawa, H., 2005, *A Local Referendum Movement against Nuclear Politics*, Tokyo: Harvest. (in Japanese)（中澤秀雄『住民投票運動とローカルレ ジーム──新潟県巻町と根源的民主主義の細道, 1994-2004』ハーベスト社.）

Ofunato city authority, 2010, *The Ofunato City Statistics Report 2010*. (in Japanese)（大船渡市『大船渡市統

計書　平成 22 年版』.）

Stone, C. N., 1989, *Regime Politics: Governing Atlanta,*
1946-1988, Lawrence: University Press of Kansas.

The Port and Airport Research Institute, 2011, *Technical*
Note of the Port and Airport Research Institute,
1231. (in Japanese)（港湾空港技術研究所『港湾空
港技術研究所資料　No.1231　2011 年東日本大震
災による港湾・海岸・空港の地震・津波被害に関す
る調査速報』.）

Rolling Blackouts and Changes to Everyday Life in Suburban Tokyo: Survey of Kunitachi's Local Shopping Streets

Sunmee KIM

OUTLINE OF THE RESEARCH

Date: November–December 2011

Field: Kunitachi（国立）, Tokyo

Researchers: Jiyoung KIM, Sunmee KIM, Takashi MACHIMURA, Saki UCHIUMI, and Anna WATANABE

Purpose: To capture unexpected impacts and changes due to the Great East Japan Earthquake and Fukushima nuclear accident, we conducted a questionnaire survey in three shopping districts in Kunitachi, Tokyo. This study intends to investigate the actual conditions of rolling blackouts and describe the atmosphere of local neighborhoods after the disaster through an analysis of survey results.

This study focused on the following topics:

・ Various reactions to rolling blackouts

・Damages and changes resulting from the Fukushima nuclear accident

・ "Mood of self-restraint" (Zishuku) and changes in retail sales

RESEARCH BACKGROUND: DISASTER AND START OF ROLLING BLACKOUTS

Although the Fukushima Daiichi nuclear accident occur 200-km away from Tokyo, it had various impacts on the metropolitan area. Power shortages and blackouts were one of the most immediate and urgent problems to follow the disaster.

On March 14, just three days after the Great East Japan Earthquake, Tokyo Electric Power Company, Inc., (TEPCO 東京電力) announced implementation of rolling blackouts in East Japan due to expected power shortages.[1]

According to TEPCO's plans, approximately three hours of blackout were planned for a wide Tokyo metropolitan area, including Kanagawa, Shizuoka, Yamanashi, Chiba, Ibaraki, Saitama, Tochigi, and Gunma prefectures. However, because the amount of electricity consumption was not completely predictable, the rolling blackout plan was only a notification of what may happen. In fact, as it turned out, the plan was not always implemented as previously scheduled.

To alleviate power shortage, various actors offered temporary solutions. Manufacturing companies temporarily organized weekday holidays as a replacement for the usual weekend holidays.[2] Railway timetables were adjusted to reduce the daytime service.[3] Department stores and retail chains reduced their store lighting and business hours.[4] Signs reading "blackouts now" and "saving electricity" could be observed everywhere in Tokyo. Thus, in a quiet but highly noticeable way, rolling blackouts brought changes to the everyday life in Tokyo and people soon began to adapt to these changes.

Sunmee KIM, Doctral Student, Graduate School of Social Sciences, Hitotsubashi University

| Research |

**Rolling Blackouts and Changes to Everyday
Life in Suburban Tokyo:
Survey of Kunitachi's Local Shopping Streets**

Sunmee KIM

RESEARCH ON KUNITACHI'S LOCAL SHOPPING STREETS

Our research group is based in Kunitachi, which is located to the west of the Tokyo Metropolitan area. The city is a residential area of Tokyo's upper-middle class and home to universities and beautiful greenery. A number of local stores have created a unique street scene at the JR Kunitachi station. The city's current residential population is 74,612, with 35,416 of households (as of August 2012).[5]

The first rolling blackout in Kunitachi occurred on March 16. At the university, a "Weekly Electricity Forecast" board was placed in front of the campus entrance, and the whole university was quiet and rather dim, even during the day. Near JR Kunitachi station, people and cars moved slowly as traffic lights were switched off, and they had to follow the instructions of a police officer instead. These scenes indicate that the daily life of people in every corner of Kunitachi was considerably dependent on infrastructures such as electricity.

Photo 1 Shopping Street with traffic lights switched off (3/22/2011)
Note: Photograph by Takashi Machimura.

To collect data on changes, we conducted a questionnaire survey from mid-November through December 2011 at three major local shopping streets around the south side of JR Kunitachi station: Fujimi-Dori, Asahi-Dori, and Daigaku-Dori. It was part of the "Methods of Social Survey" class. Each student made 3 or 4 questions that reflect their interests about the local shopping street and the change after disaster, and Takashi Machimura (the charge of the "Methods of Social Survey" class) assembled them into one questionnaire. Store owners or managers answered with face-to-face interviews. The target group included approximately 156 stores, and 86 of them responded (55.1% response rate).

Eighteen questionnaire items were divided into the following seven parts: The impact of rolling blackouts, Support for victims, Changes after the nuclear accident, "Mood of self-restraint" and changes in sales, save electricity campaigns, the future of local shopping streets, and Relationship between university and local shopping streets. Because this study addresses changes and impacts on local shopping streets due to the disaster, we will mainly use questions on rolling blackout and changes after the disaster.

RESEARCH FINDINGS: CHANGES IN EVERYDAY LIFE IN SUBURBAN TOKYO

1) Various Reactions to Rolling Blackouts

In TEPCO's original rolling blackout plans, Kunitachi belonged to Groups 2, 3, and 4. A wide area of the city, including our research area, belonged to Group 3 (for more information, see the appendix). However, the time of blackouts and temporary solutions to them varied even within each group. According to survey results, 75 stores (87.2%) had experienced blackouts, but the number of blackouts differed among stores

Rolling Blackouts and Changes to Everyday Life in Suburban Tokyo: Survey of Kunitachi's Local Shopping Streets

Sunmee KIM

(see figure1). This result reveals that not all of blackouts were implemented as planned; even in the same group, there was a considerable difference in the number of actual blackouts.
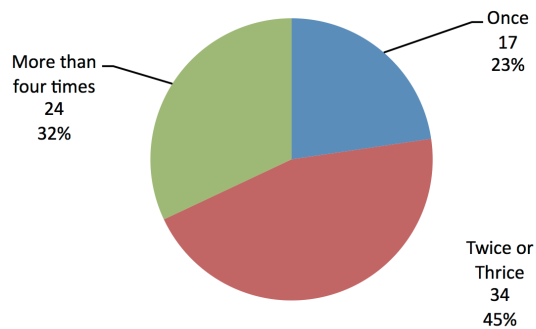

Figure1 How many times did blackouts occurr?

In addition to differences in the number of blackouts that occurred, there was a variation in the stores' responses to blackouts (See figure 2). Some stores remained open even during blackouts (28 stores, 32.6%), some were closed (33 stores, 38.4%), and some were closed temporarily but reopened later (23 stores, 26.7%).
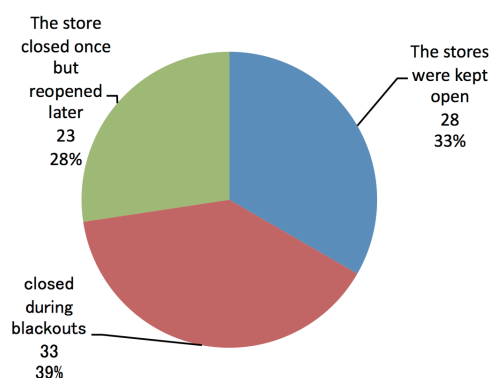

Figure2 What did you do during blackouts?

Since the first blackout, the stores have gradually taken steps to adjust to the new situation. For instance, they have changed their business hours, displayed storefront signs that read "blackouts now, but on sale" or "saving electricity" or used candles and lamps to save electricity (See figure 3). In particular, among all the types of businesses, restaurants and

Left: Photo2 Notice for changes in business hours (3/11/2011)
Note: Photograph by Takashi Machimura.
Right: Photo3 Closed McDonald's during blackouts (3/17/2011)
Note: Photograph by Takashi Machimura.

food stores were the most active in finding a solution. One grocery store owner mentioned, "We are having a hard time right now because of Fu-hyo（風評）."[6]
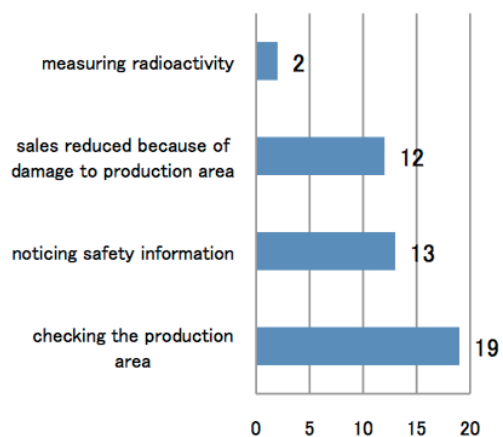

Figure3 Temporary solutions to blackouts(plural responses)

2) Damages and Changes after the Fukushima Nuclear Accident

Not only rolling blackouts but also the prolonged influence of radioactive emissions have changed and damaged local shopping streets. In the survey, more than one third of all stores (31 stores, 36%) replied that they experienced some kind of change after the nuclear accident. In order to protect themselves and attract customers again, shopkeepers started check the production area while stocking goods, and they displayed and explained the radioactivity safety information of products and services: Nevertheless,

Sunmee KIM

product sales dropped partly because of the damage to the production area (See figure 4 below).
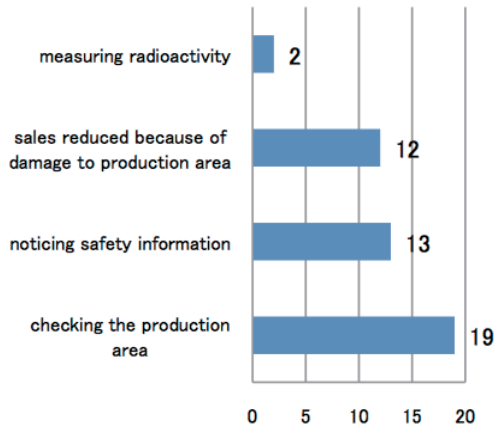

Figure4 Impacts of nuclear accident: what changed? (plural responses)

The survey showed a considerable difference in the impact of the disaster depending on the types of products and services of each store. Restaurants and delicatessens experienced considerable damage to both sales and store management. Only two stores, both restaurants, reported that they measured radioactivity. One electrical store was forced to change its sales strategy; its owner described, "We had been promoting oar electrification to our customers so far, but I'm regretting it. Now I'm aware of the need to save electricity.

3) "Mood of Self-restraint" (Zishuku) and Changes in Sales

Immediately after the earthquake, the media frequently mentioned the rapid spread of a collective "mood of self-restraint（自粛ムード）."[7] In our study, this statement appeared to be partly true; two-third of respondents (58 stores) answered that they actually experienced such a mood. Stores such as restaurants, clothing apparels and cosmetics stores tended to take the mood of self-restraint more seriously than grocery stores or pharmacies, which sell life necessities such as rice, vegetables, canned food, mineral water, toilet paper, and batteries (See figure 5).
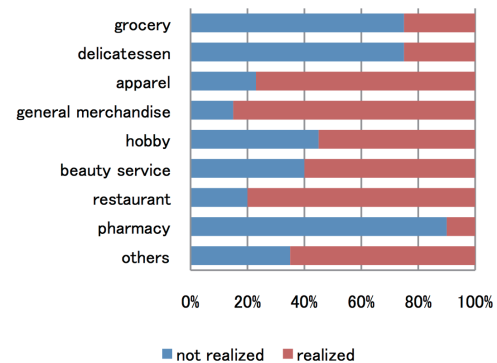

Figure5 Realized the 'mood of self-restraint'?

The city's mood of self-restraint is also reflected in the sales of stores. Sixty-three stores (73.3%) answered that their sales from March to April had declined compared to those during the same period in the previous year. These responses were frequent especially in restaurants, beauty parlors, and clothing stores (Table 1).

Table 1 Change in sales of businesses (No responses to the survey not included)

	March/April			July/August		
	decreased	unchanged	increased	decreased	unchanged	increased
grocery	2	1	1	4		
Delicatessen	3		1	4		
Apparel	11	2		6	6	1
Merchandise	10			6	3	1
Hobby	3	2		3	2	
Beauty	9	4		7	3	3
Restaurant	22	2	1	15	7	2
Pharmacy	2	2	3	3	4	
Others	1	2			3	
Total	63	15	6	48	28	7

On the other hand, several grocery stores and pharmacies increased their sales during the same period, which could be related to radioactive contamination and continuing aftershocks; people tried to hoard food, water, battery, and masks so that they are prepared for another disaster. According to the Nikkei Point Of Sales system (POS) survey, supermarket sales of emergency provisions and daily goods such as sanitary napkins, sport beverages, canned foods, and batteries rapidly increased in the

Sunmee KIM

Tokyo metropolitan area, until March 16.[8]

The retail situation improved partly from July to August. Forty-two percent of stores (35 stores) reported that their sales had increased or were stagnant. However, some grocery and food stores answered that their sales had decreased. It is difficult to speculate the reason for this occurrence, but consumers' awareness of food safety issues is considered as one possibility.

SUMMARY

The Great East Japan Earthquake and Fukushima nuclear disaster led to various catastrophic experiences and generated solutions, even within the same neighborhood. Following the unprecedented disaster, not only did the crisis conditions differ but also the solutions to overcome it varied among individual stores (i.e., shopkeepers). The aftermath of the disaster revealed each actor's endurance and capacity for restoration.

In spite of major inconveniences and anxieties brought about by the disaster, the everyday life in Tokyo continues. The actual rolling blackouts have not been in effect since April, but because they can be implemented again at any time, "saving electricity" signs have remained in Kunitachi storefronts even after summer. "Saving electricity" is not just a phrase that characterizes the spring–summer of 2011; the need to save electricity partially restructured Tokyo's everyday life, continuing up to present. Even now, the Japanese society debates upon the issues of disaster reconstruction and nuclear power.

Notes

1 TEPCO'S press release on March 14, 2011, TEPCO website, Retrieved August 28, 2012 (http://www.tepco.co.jp/cc/press/11031404-j.html).（＝東京電力プレスリリース,「需給逼迫による計画停電の実施と一層の節電のお願いについて【3月14日9時改訂版】」, 2012 年 8 月 28 日取得.）

2 "The domestic car industry considers reduce of working hours due to the government's request for saving electricity," Asahi Shimbun, March 25, 2011（＝「国内の自動車メーカ、政府による電力主要抑制に先んじて、業界全体での生産調整による操業時間の分散化を検討」朝日新聞、2011 年 3 月 25 日）

3 "Rail service in the metropolitan area reduced by 20%–70% of the normal frequency, which is not a major problem," Asahi Shimbun, March 15, 2011（＝「首都圏の鉄道は主要区間で平常の 2~7 割まで本数を減らして運行。大きな混雑なし」朝日新聞、2011 年 3 月 15 日）

4 "Because of the implementation of rolling blackouts, departments decide closing temporarily and reduce working hours," Asahi Shimbun, March 13, 2011（＝「百貨店、計画停電実施決定を受け、14 日は臨時休業や営業時間短縮を決定」朝日新聞、2011 年 3 月 13 日）

5 Kunitachi City Office, Kunitachi City Office website, Retrieved August 28, 2012(http://www.city.kunitachi.tokyo.jp/shokai/jinko/004162.html).（＝国立市役所ホームページ、2012 年 8 月 28 日取得）

6 "Fu-hyo（風 評）" means suspicion or misinformation about farm products. After the Fukushima nuclear accident, shipments of agricultural and livestock products forspecific regions were suspended. Even after the price of radioactivity-checked products reduced, farmers and fisherman suffered major economic losses from reputation damage.

7 "Jishuku"（自 粛）can be defined as a combination of moods of self-restraint and self-denial. According to Kensuke Suzuki, an associate professor of sociology at Kwansei Gakuin University, self-restraint may be a way of coping with the trauma of the loss of lives as well as the spreading fears of radioactive fallout. "Jishuku" has become a way for people in Tokyo to express solidarity in times of crisis. ("In Deference to Crisis, a New Obsession Sweeps Japan: Self-Restraint," The New York Times, March 27, 2011)

8 NHK News, March 16, 2011 (according to The Great East Japan Earthquake Chronicle 2011.3.11 － 2011.5.11 , p.59).