DISASTER, INFRASTRUCTURE AND SOCIETY
No.4 March 2013
Learning from the 2011 Earthquake in Japan
災害・基盤・社会　東日本大震災から考える

Special Issue

Disrupted Tokyo

Study Group on Infrastructure and Society　/　「社会と基盤」研究会

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

No.4

Issued on March 2013
Published by Study Group on Infrastructure and Society（「社会と基盤」研究会）

Editorial Office:
Study Group on Infrastructure and Society (c/o Takashi Machimura)
Graduate School of Social Sciences, Hitotsubashi University
2-1 Naka, Kunitachi, Tokyo 186-8601, Japan
tel/fax: +81-(0)42-580-8642
e-mail: sgis@soc.hit-u.ac.jp
URL: http://sgis.soc.hit-u.ac.jp

DISASTER, INFRASTRUCTURE AND SOCIETY
No.4 March 2013
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

Disaster Experiences in Tokyo: Reconsidering Center–Periphery Relationship

Tadahito YAMAMOTO

SPECIAL ISSUE : DISRUPTED TOKYO

The March 11, 2011 earthquake, later named "The Great East Japan Earthquake," greatly impacted ordinary life and social systems in Tokyo. Immediately following the earthquake, all trains were stopped and many people became "one night refugees" at their offices or other public facilities. The next day, a hydrogen explosion occurred at the Fukushima Daiichi Nuclear Plant, which had supplied electricity to the Kanto Region. This event horrified Tokyo residents, many of whom fled the city. On March 14, rolling blackouts began under the management of the Tokyo Electronic Power Company.

Despite the significant impact this disaster had on life in Tokyo, few social scientists have analyzed how the city's residents experienced "disrupted Tokyo." In this special issue, we started with the standpoint that greater consideration of the experiences of Tokyo's residents is indispensable for understanding the meaning and influence of the 2011 disaster in Japan.

Junko Ueno, a member of the Study Group on Infrastructure and Society (SGIS) at Momoyama Gakuin University, edited this special issue. Her article is an extended version of the presentation she gave during a workshop held on January 24, 2012 at Hitotsubashi University. The featured guest at that workshop was Stephen Graham, Professor of Cities and Society at Newcastle University, UK. The basic tone adopted in this issue reflects his infrastructural perspective (see DIS, No.3).

In her article, Ueno observes that experiences in "disrupted Tokyo" give social scientists an opportunity to visualize and problematize two types of center–periphery relationships. The first is a hierarchical relationship between Tokyo and the northwest region, which was developed as a supplier of food, labor, and energy for urban economic growth during the modernization of Japan. This process also imposed socially created risk on this marginalized area. The nuclear disaster in Fukushima and its impacts on the whole metropolitan area revealed how much Tokyo's growth depended on the northwest region and how hierarchical center–periphery relationship had become during the post-war era.

The second type of hierarchical center–periphery relationship is evident within Tokyo itself. Urban redevelopment policies, adopted in the context of economic globalization after the 1980s, have dramatically transformed the social geography developed during the post-war growth and urban welfare periods of the late 1960s and 1970s. Urban redevelopment policies have created a large precariat class and widened class-based spatial segregation within the city (Ueno 2010; Hashimoto 2011). The fact that the rolling blackouts did not include

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

the urban center reminded Tokyo residents of the spatial (and social) hierarchy of center–periphery relationship as embedded within urban society.

Ueno also considers how geographical center–periphery relations relate to the uneven distribution of power between central and local (i.e., peripheral) political agencies.

In order to explore the issues Ueno raises, social scientists must identify appropriate theoretical perspectives and methods to understand the links between "disrupted Tokyo" and the northeast region in the aftermath of the March 2011 earthquake, tsunami, and nuclear accident.

Takefumi Ueda describes the roles of professional groups to bridge "disrupted Tokyo" and the northeast region by monitoring "reality" in the disaster stricken area. The engagement of these professional groups has played an important role in constructing peoples' perceptions of reality within the northeast region. Ueda investigates whether the mobilization of scientists has promoted democratic decision-making or enhanced a neo-technocratic tendency during reconstruction. This critical point must be established in order to determine the future of post-disaster social change.

Naofumi Suzuki collected SGIS members' personal experiences of the March 11 earthquake and its aftermath. We collected more than 11,000 events related to the earthquake, utilizing newspapers, magazines, websites, and other materials to develop the "The Great East Japan Earthquake Chronicle," published as DIS, No.1 in December 2011. Ueno's analyses are based on this database.

A comparison of the personal records collected in Suzuki's article with Ueno's description of the disaster and its aftermath, one can yield a deeper understanding of what people actually "experienced." Furthermore, these articles provide a critical perspective from which to view the prevailing images of the recovery effort presented by the mass-media and in other scientific research.

The articles collected within DIS, No. 4 challenge social scientists to focus on Tokyo's disaster experience as the backdrop to post-disaster social change. Ueno's introductory article details the structure and goals of this special issue.

ARTICLE

Yutaka Iwadate's article is about a theoretical approach to post-disaster situations. It focuses on a classical work, Manuel Castells's *La Question Urbaine*, which was about interactive relationships among urban systems based on material conditions and social change. In Iwadate's creative reading, a dynamic process of theory production is helpful in learning to invent new theories and research methods in the context of post-3.11 change.

RESEARCH

This section, named "Key Organizations of the Post-Fukushima Accident Civil Society," reports on the responses of civil society organizations to the Fukushima accident. Keiichi Satoh provides the preface to this section and also reports on female farmers' projects in Fukushima prefecture. Reeya Komoda describes an anti-nuclear power social movement in Kyoto prefecture. The research presented in this section is based on interviews that the SGIS working group conducted with key organizations during the summer and fall of 2012.

References

Kenji, Hashimoto, 2011, *Class Divided City: Unevenness Erodes Urban Society,* Chikuma Shobo (= 橋本健二, 2011,『階級都市―格差が街を侵食する』筑摩書房).

Junko, Ueno, 2010, ""Global City" Strategies of Tokyo and Political Reform: How Could a Developmental State be Neoliberalized?," *The Annals of Japan Association for Urban Sociology* 28: 201–217 (= 上野淳子, 2010,「東京都の「世界都市化」戦略と政治改革―開発主義国家がネオリベラル化するとき」『日本都市社会学会年報』28: 201–217).

Special Issue
Disrupted Tokyo

Introduction

Urban Experience of Disaster: Situating the Great East Japan Disaster in Regional Contexts

Junko UENO

INTRODUCTION

"What did you do on March 11, 2011?"—This is a question that all Japanese can answer immediately. Since the devastating disaster that hit northeastern Japan in spring 2011, March 11 has become an unforgettable day for the Japanese, much like September 11 for the Americans. The tragedy of the Great East Japan Disaster (hereafter, the disaster) and the nuclear accident in Fukushima that followed served as a catalyst for Japan to question the meaning and sustainability of a "prosperous life."

This special issue, "Disrupted Tokyo," investigates Tokyo's experience of the disaster by focusing on the infrastructure. Though the physical damage of Tokyo was minor compared with what occurred in northeastern Japan, the disaster shook the foundation of urban life by causing disruptions in infrastructure and left deep scars in the hearts of the urban residents. Tokyo was disrupted both physically and socially as a result of the disaster, and the city has still not fully relaxed, even though the physical damages have been repaired.

The extent of social shock caused by the disaster varied according to the strength of people's connection with the disaster-stricken areas. People living in the Tokyo Metropolitan Area generally felt that their everyday lives worsened following the disaster, and they tended to change their lifestyles to save energy more than the people in the Keihanshin Metropolitan Area of western Japan.[1] After the disaster, anti-nuclear protests grew, which were centered in Tokyo. The number of anti-nuclear events such as demonstrations, sit-ins, symposiums, workshops, and movie screenings peaked in June 2011, when 297 events were held across the country, of which 80 took place in or around Tokyo.[2] The social shock and reaction in Tokyo was caused partly because Tokyo was a large city located closest to the disaster-stricken areas. Moreover, Tokyo became the center of the clash on nuclear power policy and the post-disaster reconstruction because it is the national capital, where political decisions are made.

INTERCONNECTEDNESS AND CENTRICITY

To understand the uniqueness of Tokyo's experience, it is important to consider two aspects

Junko UENO, Department of Sociology, Momoyama Gakuin University

of the relationship between Tokyo and the disaster-stricken areas: the urban-rural connection and central-local relationship. The disaster occurred as Japan's regional structures were changing. Due to the demographic, economic, and political shift in recent decades, the urban-rural connection became invisible, the relationship between the central and local governments destabilized, and these changes inevitably affected the central positions of Tokyo in Japan.

Tokyo as a Privileged Center of Infrastructure Networks

The case of a "disrupted Tokyo" is a great example to examine the invisible interconnectedness between regions. Urbanites gradually lost a sense of connectedness with rural areas, as the metropolitan-native living in metropolitan areas was increased by the progress of urbanization. In the 1960s, the net migration from northeastern Japan to the Tokyo Metropolitan Area was over one million in that decade and declined to around 300,000 in the 2000s.[3] As a result, people born in the Tokyo Metropolitan Area accounted for nearly three quarters of the population there in 2006.[4] These demographic changes accompanied political realignment in Japan. Since the Liberal Democratic Party (LDP), which had represented the interests of both urban secondary and rural primary industries for years, lost its political power in 1993, domestic politics is realigned along with the urban-rural cleavage (Shiratori, 2009). While urbanites lost social and emotional ties to rural areas, the invisible urban-rural connection strengthened through nationwide supply-chains and infrastructure networks. The disaster revealed that metropolitan life deeply depended on the surrounding rural areas. The Fukushima Daiichi nuclear plant accident, which is more than 200 km away from the center of Tokyo, led to rolling blackouts and disruptions in infrastructure in Tokyo. A disruption in the power grid instantly cascaded to other elements of the infrastructure such as the water, transport, communications, and banking systems. Through these cascading failures in the infrastructure, urban residents became aware that Tokyo has flourished by exploiting resources from its surrounding areas, especially northeastern Japan.

The case of Tokyo also reveals local differences in the degree of damage, recovery, and burdens after the earthquake. The central area of Tokyo was exempted from the rolling blackouts that were planned to avoid unexpected large-scale blackouts, because it is home to the central administrative function of politics and economics. The exempted area was gradually extended to the rich residential areas. As Stephen Graham indicated, the construction, maintenance, and operations of infrastructures tend to privilege certain more powerful spaces and users over others (Graham, 2010: 12).

The disaster did not overturn the existing socio-spatial structures. Instead, it seemed to reinforce socio-spatial disparities between regions and among the city areas through the process of restoring and operating infrastructure networks. However, urban residents realized that they were not only victims of the disaster and infrastructure disruptions but also the victimizer who imposed the risk of radiation contamination on northeastern Japan. The latter annoyed them and prompted them to change the uneven regional structure.

Tokyo as a Center of Disaster Reconstruction

Tokyo played a central role in rebuilding the devastated areas in northeastern Japan, even while it was in a state of post-quake chaos. In addition to the Japanese government, the various actors and organizations in Tokyo, such as local governments, civil society organizations (CSOs), universities, and experts, participated in the reconstruction support.

Japan is known as the developmental state (Johnson, 1982) because its national government has strong leadership to achieve national economic growth. Under the developmental state, the regional planning policy that includes the development priority, location of infrastructure project, and allocation of budget was centrally coordinated by the national government, though central coordination has been weakened by the neoliberal reform originating in the 1980s (Saito, 2012). Then, how will the varied actors involved in the reconstruction support affect the centralized political structure? Will the influence of Tokyo be increased or reduced?

One possible future is that the centralized political structure will be reinforced and Tokyo's influence will increase for two reasons. First, under fiscal deficit pressure, the Japanese government has advocated involving multiple actors in the decision-making process as a matter of policy. In 2008, the LDP government introduced the concept of a "New Public (新たな公)," defined as the partnership between governments, businesses, citizens, and NPOs, expecting this partnership to take the responsibility for regional planning. This concept of a "New Public" was inherited by the government of the Democratic Party of Japan with little change in Japanese (from Arata-na-ko (新たな公) to Arata-na-kokyo (新たな公共). The involvement of multiple actors in reconstruction support might be a product of the "New Public" policy promoted by the national government. Second, a significant number of organizations based in Tokyo supported the affected areas. Some international NGOs based in Tokyo were well-financed, had budgets comparable to that of a small-sized local government, supplied massive support services that the affected local governments could not provide, and had a great presence in decision-making processes (Nihei, 2012). Tokyo-based CSOs overwhelmed local CSOs based in the affected areas in terms of both numbers and scales, and this might prevent them from reflecting the opinions of local residents in the reconstruction process.

However, another future is possible. Some actors supporting disaster reconstruction have tried to bridge regions within and outside the affected areas. Their activities have the potential to transcend the existing centralized political structure and to create a new geography of civil society.

MANY SUFFERERS, LITTLE RESEARCH

There are few documents or research on Tokyo in the post-quake chaos, though a large number of people in Tokyo suffered from the earthquake and the disruptions of infrastructures.[5] Before the crucial damage in northeastern Japan, the experience of a "disrupted Tokyo" was ignored as inconsequential. Academic papers that focused on the Great East Japan Earthquake amounted to more than 12,000 as of December 31, 2012.[6] Among them, topics on the damage and restoration of Tokyo were rarely documented or analyzed. The record of the disaster in Tokyo (The Tosei Shimpo, 2012) and research on stranded commuters (Hiroi et al., 2011) were two exceptions. Detailed information of the place and time for implementing rolling blackouts in spring 2011 remains unavailable today, nearly two years after the disaster.[7]

Recording and analyzing the experience of a "disrupted Tokyo" are necessary, not only because the case is worth examining as an example of urban infrastructure disruptions that were caused by multiple disasters but also because it significantly changed the behavior and consciousness of the citizens of Tokyo. The suffering experienced in Tokyo served as a trigger to question the "city-first thinking," participate in anti-nuclear movements, and

support reconstruction in northeastern Japan, which, together, resulted in a comprehensive review of Japanese regional structures. [8]

This special issue contains three articles. In the first article, Ueno described the story of "disrupted Tokyo," through which people noticed the uneven spatial structures in the city and in Japan. The historically strong relationship between the Japanese government, bureaucrats, and business community did not yield cooperation that was effective enough to cope with the city's chaotic aftermath of the earthquake. In the second article, Ueda focuses on the organizations of academic scholars and professionals in civil engineering as key actors to determine the method of disaster reconstruction. Though the specialized knowledge and skills supplied by academic or professional organizations are crucial to the decision-making of governments and the activities of other CSOs, studies or research on them are rare. Ueda reveals Tokyo's central role in controlling material infrastructures by examining how the academic or professional organizations of civil engineering based in Tokyo became involved in the process of reconstructing the affected areas. In the last article of this special issue, Suzuki organizes the experiences of the members of the "Study Group of Infrastructure and Society" in the disaster and its aftermath. The disaster gave us, as well as the other scholars, the momentum to reconsider the meaning and necessity of our research. Obviously, Tokyo's experience depicted in this special issue was different from that of northeastern Japan, where many refugees still drifted away from home, and that of western Japan, where people "experienced" the disaster through TV screens. Even in Tokyo, the experiences after the disaster were greatly diversified according to each person's living and working place, gender, age, class, and family structure. Before hastily forming conclusions about the impacts of the disaster on the Japanese society, let us start by carefully examining Tokyo in the aftermath of the earthquake.

Notes

1 The research was conducted by Hakuhodo from April 15-18, 2011 for the people living within 40 kilometers of Tokyo and those living within 20 kilometers of Keihanshin Area (Hakuhodo, 2011).

2 Based on the "anti-nuclear event calendar" (脱原発系イベントカレンダー) (http://datugeninfo.web.fc2.com/).

3 Northeastern Japan here refers to six prefectures, Aomori, Iwate, Miyagi, Akita, Yamagata, and Fukushima Prefectures, which include the Sea of Japan side that were not damaged by the tsunami in 2011. The Tokyo Metropolitan Area includes Tokyo, Saitama, Chiba, and Kanagawa Prefectures. The number was calculated based on the "Report on Internal Migration in Japan" (Statics Bureau of Ministry of Internal Affairs and Communication, each year).

4 National Institute of Population and Social Security Research, 2008, *The 6th Research of Population Migration.*

5 More than 5 million commuters in Tokyo were unable to return home on March 11, the day the earthquake struck (Cabinet Office, 2011). The scheduled blackouts that started on March 14 were implemented over a 10-day period and affected 70 million households total (The Denki Shimbun, 2011).

6 Based on the CiNii articles database (http://ci.nii.ac.jp/).

7 Kim's (2012) survey of western Tokyo is a clue to the picture of scheduled blackouts and the local response to them.

8 Akasaka and Oguma (2012) re-examined the relationship between Tohoku (northeastern Japan) and Tokyo from the viewpoint of "periphery" areas.

References

Akasaka, N., and Oguma, E., eds., 2012, *Starting from the "Periphery": the Discussion on Tokyo/ Tohoku.* Tokyo: Akashi Shoten. (in Japanese) (赤坂憲雄・小熊英二編『辺境からはじまる――東京／東北論』明石書店)

The Cabinet Office (Government of Japan), 2011, "The Result of Actual Condition Survey in Countermeasures for Stranded Commuters: Response in March 11th and after That," (Retrieved December 13, 2012, http://www.bousai.go.jp/jishin/chubou/taisaku_syuto/kitaku/2/4.pdf). (in Japanese) (内閣府「帰宅困難者対策の実態調査結果について――3 月 11 日の対応と

その後の取組」2012 年 12 月 13 日取得）.

The Denki Shimbun (Electric Daily News), 2011, *The Record of The Great East Japan Earthquake,* Tokyo: Japan Electric Association Newspaper Division. (in Japanese)（電気新聞『東日本大震災の記録――原子力事故と計画停電』日本電気協会新聞部）

Graham, S., 2010, "When Infrastructures Fail," Stephen Graham ed., *Disrupted Cities: When Infrastructure Fails,* New York: Routledge.

Hakuhodo, 2011, "The Research on the Consumer Action and Consciousness after the Great East Japan Disaster,"（Retrieved January 6,2013, http://www.hakuhodo.co.jp/pdf/2011/20110513.pdf）.（in Japanese）（博報堂「東日本大震災後の生活と消費の意識・行動に関する調査」2013 年 1 月 6 日取得）.

Hiroi, U., Sekiya, N., Nakajima, R., Waragai, S. and Hanahara, H., 2011, "Questionnaire Survey Concerning Stranded Commuters in Metropolitan Area in the Great East Japan Earthquake," *The Annals of Institute of Social Safety Science,* 15: 343-353. (in Japanese)（廣井悠・関谷直也・中島良太・藁谷峻太郎・花原英徳「東日本大震災における首都圏の帰宅困難者に関する社会調査」『地域安全学会論文集』15: 343-353.）

Johnson, C., 1982, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975.* California: Stanford University Press.

Kim, S., 2012, "Rolling Blackouts and Changes to Everyday Life in Suburban Tokyo: Survey of Kunitachi's Local Shopping Streets." *Disaster, Infrastructure and Society,* 3: 61-65.

Nihei, N., 2012, "Two Earthquakes and the Restructuring of Non-Profit Sectors in Japan: Focusing on Activities of Volunteers for the Great East Japan Earthquake of 2011 after a Change in Governance," *Journal of Welfare Sociology,* 9: 98-118. (in Japanese)（仁平典宏「二つの震災と市民セクターの再編」『福祉社会学研究』9 号 : 98-118, 東信堂 .）

Saito, A., 2012, "State-Space Relations in Transition: Urban and Regional Policy in Japan," Park, B-G., Hill, R. C., and Saito, A., eds. *Locating Neoliberalism in East Asia: Neoliberalizing Spaces in Developmental States.* Malden, MA: Wiley-Blackwell, 59-85.

Shiratori, H., 2009, *Urban-Rural Cleavages in Japanese Politics,* Tokyo: Ashi Shobo. (in Japanese)（白鳥浩『都市対地方の日本政治――現代政治の構造変動』芦書房 .）

The Tosei Shimpo press, 2012, *3.11 in Tokyo: Learning from the Great East Japan Disaster.* Tokyo: The Tosei Shimpo press. (in Japanese)（都政新報編集部『東京の 3.11――東日本大震災からの教訓』都政新報社 .）

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

Junko UENO

INTRODUCTION

On March 11, 2011, urban life in Tokyo experienced a fundamental shock when a devastating disaster caused severe damage in northeastern Japan. This paper will reveal the disruption process on urban infrastructures and its impact on the urban life in Tokyo after the Great East Japan Earthquake. Tokyo was disrupted both physically and emotionally in the chaos that followed the earthquake. In this paper, we will explore two questions by focusing on the breakdown of urban infrastructures: What was the experience of a "disrupted Tokyo"? And what caused the disruption?

Tokyo in the 2011 Disaster from an Outsider's View

These questions were inspired by my personal experience of the 2011 disaster. On March 11, the day the earthquake struck eastern Japan, I was at home in Osaka, the central city of western Japan. All national news programs broadcasted the terrible situation occurring in northeastern Japan (Tohoku), where the earthquake and tsunami had hit. Upon hearing the news, I felt anxious about the safety of my family and friends in Tokyo, because little information on the situation there was being provided. Only a few news programs showed scenes of people running and screaming amid fallen tiles from building walls. Viewing these scenes, I grew concerned that Tokyo was turning into a pile of debris.[1] However, when I traveled to Tokyo the next day, I was astonished to find it rather peaceful; no buildings had collapsed, and the people appeared as calm as usual, though many shops and restaurants were closed. This astonishing experience serves as the starting point of my research: How do we explain the calmness of Tokyo the day after the quake struck? What happened inside the city?

Method/Data

To paint an accurate and precise portrait of the Tokyo life in the post-quake chaos and explore the source of a physically and socially disrupted Tokyo, we will focus on the disruptions and breakdown in the infrastructure network.[2]

The disruption in the infrastructure networks will reveal the socio-spatial structure and the economic and political systems, of which citizens are often unaware in everyday life. Three aspects of infrastructures are important. First, there is the interdependence of infrastructures, which resulted in connectivity between regions. Because infrastructures connect tightly and mutually with each other, an infrastructure disruption quickly cascades beyond infrastructure boundaries to other systems (Little, 2010). After the earthquake on March 11, 2011, the disruption of the electricity supply in Tokyo had the most significant impact for causing cascading failures. Compared to northeastern Japan, which was seriously damaged by the earthquake, the tsunami, and the nuclear accident, the direct and physical destruction to Tokyo was minor. The salient feature of the post-quake experience in Tokyo was that the

Junko UENO, Department of Sociology, Momoyama Gakuin University

damage to the disaster-stricken areas affected Tokyo indirectly and intermittently due to the infrastructure collapses. Second, the infrastructure has a politicized nature. Social biases have always been built into urban infrastructure systems and their abilities to respond to crises, collapses, or disruptions, whether intentionally or unintentionally (Graham, 2010: 13). Tokyo, as an urban center with material infrastructures, has imprints of social inequality that are historically and geographically structured. The process of restoring disrupted infrastructures makes visible the social inequality embedded in urban materials and causes citizens to be aware of the actors and systems that have maintained the infrastructures. Third, the material infrastructure is permanent. Infrastructures can not only promote economic activities but also be a barrier to it when the infrastructure becomes outdated.[3] As the economic activities and the political regulating systems change from those that originally constituted the infrastructure, they become inconsistent with the infrastructure because of its enduring qualities. This inconsistency can worsen the situation of the infrastructure disruption.

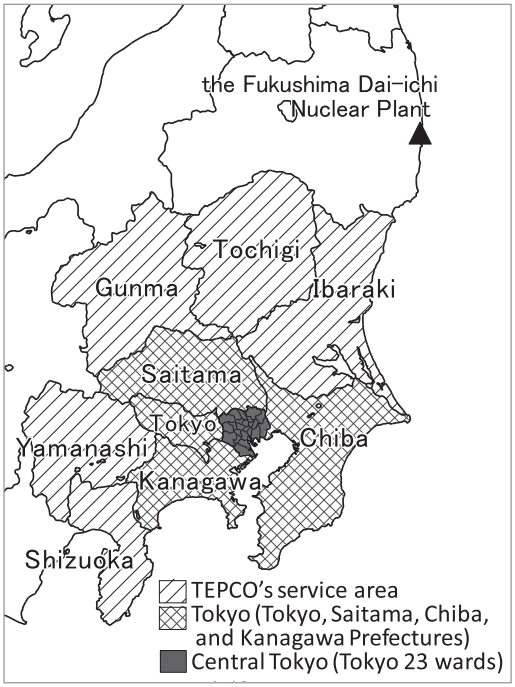

Figure 1. Map of Tokyo, TEPCO's service area and the Fukushima Dai-ichi Nuclear Plant
Note.
TEPCO's service area includes Tokyo and its surrounding prefectures.

Before starting the analysis, we will define the geographical regions in this paper. We focus on the Southern Kanto region, which includes Tokyo, Saitama, Chiba, and Kanagawa Prefectures, as the subject of analysis (hereafter, "Tokyo"). Tokyo's 23 wards will be referred as central Tokyo, and the Southern Kanto region with the exception of these wards will be referred as the periphery areas.

The analysis used data from the "The Great East Japan Earthquake Chronicle"[4] as well as documents released by the Tokyo Electric Power Company (TEPCO) and the Japanese and local governments.

Section 2 will reveal that the experience of a "disrupted Tokyo" comprises four phases, of which the first three are described in detail. Section 3 will examine the social biases embedded in the handling of the disaster and the inconsistency between infrastructures, the industrial structure, and the political system by focusing on the rolling blackouts. In Tokyo, the degree of damage, recovery, and burdens varied between the central Tokyo and the periphery areas. The political regulating system had no function in ensuring the fairness and efficiency of Tokyo urban life.

DISRUPTION OF TOKYO

Outline

Tokyo's prosperous daily life has been maintained via stable supply sources from its surrounding area. Most damage to Tokyo was caused by its historical connection with Tohoku, which has long supplied Tokyo with farm and marine products, manufactured products, workforce labor, and especially electric power. The electricity-generating capacity of TEPCO amounted to 68 million kW in 2010, of which 30

million kW were supplied from outside of TEPCO's service area (Ito, 2011). The disaster exposed the vulnerability of the highly complex supply and distribution systems that maintain the urban life. The confusion inside Tokyo did not end the day the earthquake caused direct damage, and the whole city was plunged into further turmoil as supply networks disrupted in the stricken areas.

The earthquake and tsunami caused failures in different infrastructures in four phases, causing a major disruption in Tokyo. Phase 1 is the day the quake struck, March 11, 2011. The earthquake caused simultaneous failures in multiple infrastructures and stranded millions of commuters. Phase 2 is a motionless phase that occurred in the two days following the earthquake, March 12 and 13. Phase 3 features the cascading disruptions triggered by the nuclear accident and rolling blackouts, which ended on March 28. In Phase 4, people gradually became accustomed to uncertainty; the end of Phase 4 is obscure. We will describe Phases 1, 2, and 3 in detail.

Phase 1: The Day of the Great East Japan Earthquake —March 11, 2011

Phase 1 is the day the earthquake struck eastern Japan, causing simultaneous failures in multiple infrastructures (Figure 2). These included water, gas, and power outages; suspension of rail and airline services; and damage to the Fukushima Dai-ichi nuclear plant. The national and local governments focused their efforts on saving Tohoku from the destruction caused by the earthquake, tsunami, and nuclear accidents. Compared to Tohoku, Tokyo experienced little damage. Thirteen houses were completely or partially destroyed, and 351 houses were damaged in Tokyo Prefecture. In the Tokyo metropolitan area, 11,557 houses were completely or partially destroyed.[5] In Tokyo Prefecture, electricity was cut off to approximately 120,000 houses (approximately 3.9 million houses in the Tokyo metropolitan area); there was no water in approximately 20,000 houses (about 0.9 million in the Tokyo metropolitan area); and no houses were without gas (47,056 houses in the Tokyo metropolitan area) (MLIT, 2011). The damage in the Tokyo metropolitan area was concentrated in the northeastern part, which is adjacent to Tohoku.

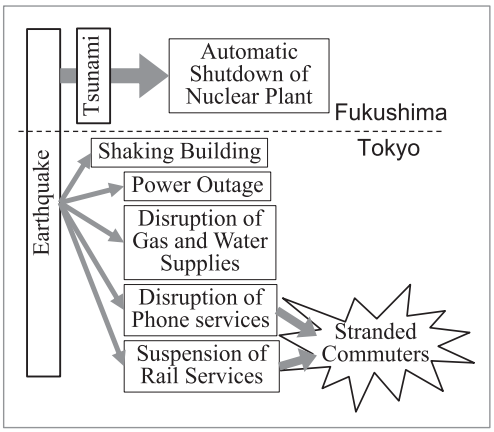

Figure 2. Phase 1: The day the quake struck, 11 March, 2011

Tokyo's problems lay mostly in the large number of stranded commuters. In the Tokyo metropolitan area, approximately 7.9 million people commute to work and school daily by train, and most commuters from Chiba, Saitama, and Kanagawa Prefectures travel to central Tokyo (MLIT, 2012a). Overconcentration in central Tokyo worsened the situation for stranded commuters. Most railways in the Tokyo metropolitan area suspended service immediately after the earthquake.[6] When Yukio Edano, the Chief Cabinet Secretary, held a press conference at around 17:30, it was too late to stop the commuters who were already struggling to return home. Almost half of the people who were at work or school at 14:46, the moment the earthquake hit, left to go back home before 17:00 (Cabinet Office, 2011). To support the commuters who were on their way home, local governments provided 1,000 temporary shelters. They also asked convenience stores and restaurants, which volunteered to cooperate in a time of disaster, to provide water, toilet facilities, and information. It was

estimated that the peak time was 19:00, four hours after the earthquake hit, when about 3 million pedestrians were walking through the Tokyo metropolitan area (Mitsubishi Research Institute, Inc., 2011). The main roads were full of pedestrians and cars stuck in traffic jams. Consequently, more than 5 million commuters were unable to return home that day (Cabinet Office, 2011).

This problem of stranded commuters originated from the overconcentration of commuters in Tokyo. An enormous number of commuters spend an extremely long time commuting from their suburban homes to central Tokyo every day.[7] The problem of stranded commuters during disaster will not be solved fundamentally unless there is change in the excess population of Tokyo and their commuting style.

Phase 2: Temporary Peace and Creeping Uncertainty —March 12–13

In Phase 2, the people in Tokyo enjoyed a temporary respite from the post-quake confusion. Although some railway services resumed and the stranded commuters returned home, disruptions in water and gas supplies continued in the periphery areas. On March 12, an explosion occurred at the nuclear plant in Fukushima. Then, on Sunday, March 13, TEPCO announced that it would implement its first-ever rolling blackout from Monday, March 14 until April, to deal with the shortage of electricity.

Phase 3: The Nuclear Accident, Rolling Blackouts, and Cascading Disruptions — March 14–28

In Phase 3, the nuclear accident triggered cascading disruptions (Figure 3). This phase distinguishes the Great East Japan Earthquake from other disasters and characterizes the "disruption" of Tokyo. A convenient urban lifestyle and highly concentrated economic activity in Tokyo are sustained by material

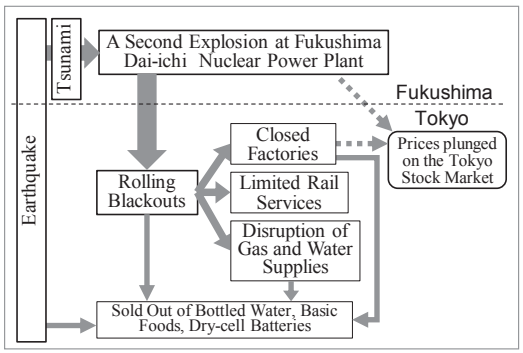

Figure 3. Phase 3: The nuclear accident and cascading disruptions, March 14- 28

infrastructures that are mutually connected. Cascading infrastructure failures induced by the nuclear accident in Fukushima made visible the complex infrastructure network and led us to realize how deeply the Tokyo urban life depends on its surrounding areas.

On the morning of Monday, March 14, a second explosion occurred at the Fukushima nuclear plant. As a result, prices plunged on the Tokyo stock market.

Rolling blackouts, the first ever in Japan, also began on March 14. Because of the power cuts, many manufacturers such as Toyota, Honda, and Sony closed their factories. In addition, rail services were drastically scaled back across Tokyo. For example, Tokyo Metro Co. Ltd. ran all its lines at 50–90% capacity. East Japan Railway Co. ran its nine busiest lines at about 20% capacity and stopped the other 29 lines. Every station was packed with commuters. To avoid any problems, over 1,000 schools suspended some or all classes in the areas served by TEPCO. On the first day, power outages were implemented shortly from 17:00 to 18:30, affecting 110,000 households in Ibaraki, Chiba, Shizuoka, and Yamanashi Prefectures (The Denki Shimbun, 2011: 301). As many factories, stores, and restaurants were closed, economic activities and social life in Tokyo degenerated into chaos all day long.

Figure 4 shows the actual electricity demand and the implementation time of power outages. On

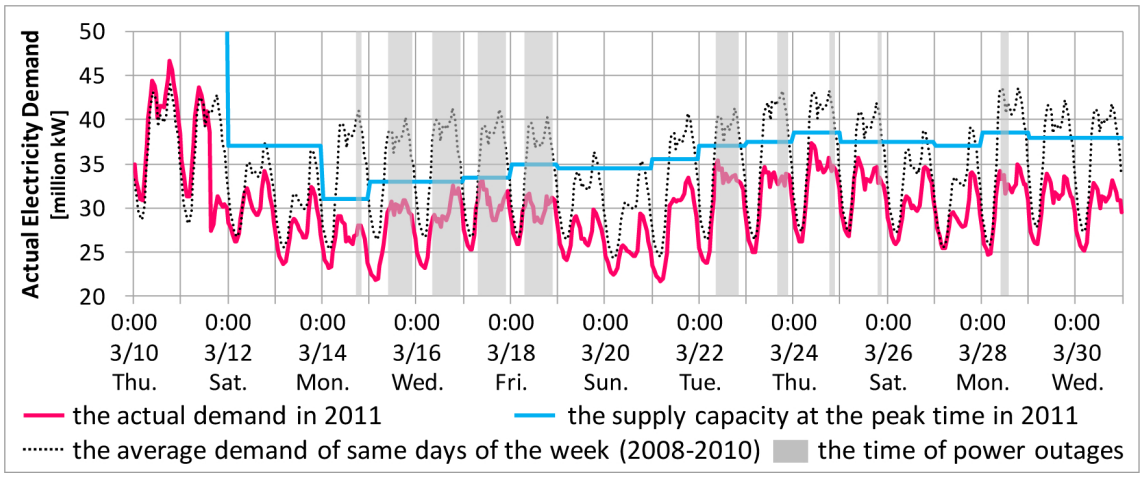

Figure 4. Actual electricity demand and the implementation time of power outages

Note.
March 21, 2011 was Spring Equinox Day (春分の日), a public holiday in Japan.
Source: Based on TEPCO ("Past electricity demand data" and "TEPCO electricity forecast").

the weekdays of the first week, electricity was cut randomly around TEPCO's service area. In total, rolling blackouts were implemented for 10 days and affected 70 million households (The Denki Shimbun, 2011: 306). People put up with the inconvenience to them as the frequency of trains was reduced and the lighting on the streets and stores was switched off to save energy. Power shortages also impaired industrial productivity. The material industry, especially the semiconductor industry, was the most damaged because their facilities required a stable electricity supply to manufacture good. Industrial recovery from the earthquake and tsunami was delayed, and national supply chains were disrupted. The planned power outages have since been remembered as symbols of the chaos after the earthquake.

Residents of Tokyo coped with this situation in one of the following two ways: they either adjusted to their disrupted way of life or they evacuated. Anxious consumers stockpiled bottled water, basic foods, dry-cell batteries, and fuel and cut back on spending. On March 14, the Minister of State for Consumer Affairs explained that there were a large stock of daily necessities and asked the public to stay calm and not accumulate a stockpile. Even so, bottled water and foods like breads that could be eaten without cooking during blackouts became scarce in stores. On the contrary, some companies and people, mainly foreigners and families with babies, fled Tokyo because of the fear of radiation and blackouts. Many foreign embassies including those of France, the United Kingdom, and Germany advised their nationals to leave; thirty-two embassies were shut (28 of them reopened as of April 29, 2011). At the same time, the number of foreign visitors declined. Although number of foreign visitors to Japan was the highest number in 2010, it decreased by nearly 30% in 2011 from the previous year (JNTO, 2012). All these events combined to result in the economic and social stagnation of Tokyo, which deepened after March 23, when Japanese officials warned that radiation levels in the Tokyo tap water exceeded the safe levels for babies.

UPROAR OVER THE ROLLING BLACKOUT AND ITS ALTERATION PROCESS

Central–Peripheral Split in Rolling Blackouts

In this section, we will examine the socio-spatial disparities in the disaster response by focusing on the rolling blackout schedules. TEPCO divided its service area, which included Tokyo Prefecture and its surrounding eight prefectures, into five groups and assigned each group a schedule of blackouts that would last for three to six hours.

The first-ever implementation of blackouts on March 14 proved that TEPCO had not considered the stricken areas. The power outages were conducted only in two groups, which included the areas hit by the earthquake and tsunami. For example, Asahi in Chiba Prefecture, where 11 people had died and a few were still missing, was included. The governors of Chiba and Ibaraki Prefectures formally complained about the implementation of blackouts in areas affected by the disaster. Although TEPCO apologized the next day and announced that Ibaraki Prefecture and the affected areas of Chiba Prefecture would be spared future power cuts, Urayasu in Chiba Prefecture, one of the seriously affected areas, experienced blackouts again on March 17.

Anger mounted against TEPCO not only over its mismanagement of rotating blackouts but also over their unfair assignment. TEPCO had excluded most of central Tokyo from power cuts, as central government offices and many company headquarters are housed there. The original assigned area included eight wards and was limited to four wards starting March 17. After March 22, only 2 of 23 wards, Arakawa and Adachi, were assigned rolling blackouts. Both ward mayors lodged a formal complaint against TEPCO, arguing that blackouts should be rotated fairly and affect all areas equally. These two wards are located on the northeast side of central Tokyo. They are part of the Tokyo industrial belt, where many blue-collar workers live and where the average income is relatively low among the 23 wards (Kurasawa and Asakawa, 2004; Ueno, 2008). There was some speculation that TEPCO assigned rolling blackouts intensively to socially marginalized areas.

The opaque handling of rolling blackouts by TEPCO fostered a sense of unfairness. Some communities in suburban and rural areas experienced rolling blackouts twice a day. Both areas with and without power outages existed, even within the same community because the rolling blackout was assigned according to the electrical substation and not the community's address. The TEPCO call center was inundated with complaints and protests from businesses and residents in periphery areas, especially the area adjacent to central Tokyo.

The Modification Process of Rolling Blackouts

The confusion over rolling blackouts revealed the absence of cooperation between the Japanese government, bureaucrats, the business community, and TEPCO, though these groups had historically enjoyed a strong relationship described as the "iron triangle".[8] The lack of coordination resulted in the stagnation of urban economic activity and the abandonment of the periphery areas. The schedule for rolling blackouts was made hastily while most staffs of TEPCO and the Japanese government had devoted their attention to responding to the nuclear accident. Considering that the first rolling blackout was implemented in the disaster-stricken area, it is obvious that the company automatically cut electricity in the periphery areas.

The implementation plan of the rolling blackouts was steadily modified. Three points in the

modification process are notable. First, the railways were exempted from the rolling blackouts. On requests from the railway companies and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), TEPCO exempted the electrical substation for railway trains from rolling blackouts after the early morning of March 15.

Second, the business community had a communication problem with TEPCO. Although the business community requested several times that the rotating blackouts be stopped, TEPCO maintained its policy of rotating power outages for nine prefectures. On March 15, Keizai Doyukai (Japanese Association of Corporate Executives) proposed that power delivery cutbacks in contracted amounts and other forms of gross restriction were more effective than blackouts that lasted several hours (Keizai Doyukai, 2011). The next day, Keidanren (Japan Federation of Economic Organizations) decided to ask TEPCO for a separate implementation plan for the industrial sector from the residential sector. Nevertheless, TEPCO refused these alternative proposals of rotating power cuts by the business community.

Third, the Japanese government had little control over TEPCO. While the government appealed immediately to the public and the industrial sector for full cooperation in conserving electricity and cooperating in the rolling blackouts, it sought TEPCO to modify the implementation plan of the rolling blackouts only few times.[9] The electricity supply–demand emergency response headquarters was established in the cabinet office and held meetings on March 13, the day before the implementation of the rolling blackouts, and on the next morning of March 14. No meetings were held until March 25. During this period, the main government officials such as Prime Minister Naoto Kan, Chief Cabinet Secretary Yukio Edano, and Minister of Economy, Trade, and Industry Banri Kaieda devoted all their energy in stabilizing the Fukushima Dai-ichi nuclear power plants (The Independent Investigation Commission on the Fukushima Nuclear Accident, 2012). The government and TEPCO were too busy to consider fairness in implementing rolling blackouts. The only thing they could do was try to avert an unforeseeable large-scale blackout.

The process of modifying the scheduled blackouts was influenced by the industrial structure of Tokyo. Both TEPCO's exemption of the railway and its refusal of the business community's request in order to prevent damage to the manufacturing industry imply that manufacturing industries were no longer preferred recipients of the electricity supply. Fukushima Prefecture, where the nuclear accident occurred, has been a major electricity supply area for the Tokyo metropolitan area since before the Second World War (Kainuma, 2011). Its main purpose in providing electricity was to promote industrial production in the Keihin industrial area around Tokyo and Kanagawa Prefectures. Along with

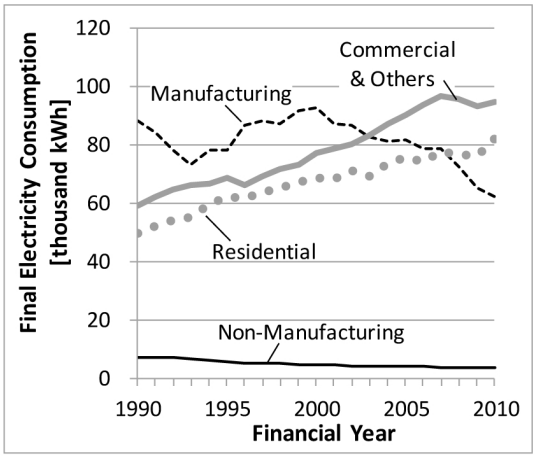

Figure 5. Final electricity consumption by sector in Tokyo (Tokyo, Saitama, Chiba, and Kanagawa Prefectures)
Note.
1 "Non-manufacturing" sector includes agriculture, forestry, fishery, construction, and mining.
2 "Commercial & Others" sector includes the service industries except transportation.
Source: Agency for Natural Resources and Energy, 2012, "Energy Consumption Statistics by Prefecture."

the shift in the industrial structure, manufacturing in Keihin has declined. In 2008, the number of business establishments in Keihin was 83,800, which indicated a decline of more than 40,000 since 1998, and the value of manufactured goods shipments was 44.9 trillion yen, which had declined by 13 trillion yen over the previous decade (TMG, 2011: 41). As a result, more importance was now placed on the value of manufactured goods shipped from the Chukyo area, where Toyota—the leading Japanese auto manufacturer—is located, than the Keihin area. In particular, Tokyo Prefecture, where small factories have accumulated, had already shown a sharp decline in manufacturing before the 2011 disaster. In Tokyo Prefecture, the value of manufactured goods shipments was 10.5 trillion yen, and the amount of added value was 3.9 trillion yen in 2008, both of which had dropped by half since 1990 (TMG, 2011: 40). The decline in manufacturing in Tokyo was exacerbated because of the supply-chain disruption and factory shutdowns due to the rolling blackouts. Instead of the manufacturing sector, the residential and commercial sectors grew in electricity consumption (Figure 5). In the 2000s, a large number of high-rise office and residential buildings were constructed in central Tokyo (Ueno, 2008). These buildings have strengthened their presence as recipients of the electricity supply.

The strong relationship between the Japanese government, bureaucrats, the business community, and TEPCO had little effect on the modification of the implementation plans of the rolling blackouts. Miscommunication between TEPCO and the government was caused partly by a change in the government. The former governing party—the Liberal Democratic Party—has received political donations from executives of electric companies.[10] TEPCO held key positions in influential business interest groups such as Keidanren and Keizai Doyukai and offered advisory posts to the ex-officials of the competent authorities such as the Ministry of Economy, Trade and Industry.[11] Though they had protected each other's interests in the regulation of business for a long time, this collusive relationship did not contribute to the smooth communication or management in the case of an emergency.

CONCLUSION

In this paper, we explored the characteristics and causes of a "disrupted Tokyo." The following are the three points of the analysis.

First, the multiple disasters of the earthquake, tsunami, and nuclear crisis complicated the process of disruption and the recovery of infrastructures in Tokyo. As infrastructures failed one after another, Tokyo residents lived through four different phases. The physical and social disruption of Tokyo did not end after the first day the earthquake struck. The damage to the stricken areas affected Tokyo indirectly and intermittently via infrastructure collapses. With respect to these four phases and the impact of the disaster on the infrastructural disruption, the experience of a "disrupted Tokyo" was distinct from those of other cities' disruptions that have been triggered by a single instance of direct damage such as a hurricane or a massive power loss.

Second, socio-spatial disparities were revealed in TEPCO's handling of the power shortage. The rolling blackouts made people aware of the heavy dependence of Tokyo on its surrounding areas such as Tohoku and brought to light the social gap as well as the geographical boundaries between central Tokyo and its periphery areas. The power of Tokyo, which has been used to exploit the resources of the surrounding areas, was also seen inside Tokyo. While central Tokyo escaped power cuts, the residents of the periphery areas were forced to live with power

cuts. Their frustrations with the blackouts turned into grudges against TEPCO, the government, and the central Tokyo residents. Therefore, to avoid becoming a fragmented society, we need measures to reconnect central Tokyo with the periphery areas as well as Tokyo with its surrounding areas, both physically and socially.

Third, the Japanese government, the business community, and TEPCO forged little effective cooperation to cope with an urban crisis in the chaotic aftermath of the earthquake. The government failed to fairly assign the rolling blackouts. The requests of the business community to give priority to the continuation of business activities were disregarded. The biggest reason for the poor cooperation between these entities was that the government and TEPCO were desperate to stabilize the Fukushima nuclear power plants. Furthermore, the strong relationship between the government, bureaucrats, and the business community was weakened by the change in the government and the shift in the industrial structure. The physical and social disruptions in Tokyo continued because of the inconsistency between the power grid, the urban industrial structure, and the "iron triangle" that has protected each entity's interests in electrical industry.

The experience of a "disrupted Tokyo" has changed the urban lifestyle and the popular way of thinking. Two future inquires related to our analysis still remain unanswered. The first question is whether the central–periphery split, which became apparent through the post-quake chaos, will be repaired and the two areas reunited. Civil society organizations and universities in Tokyo have shown the potential to bridge the urban–rural divide by supporting reconstruction for the areas affected by the disaster. On the other hand, the political will has grown to reform political and economic institutions in favor of metropolises (and large corporations). Metropolitan governors had formed new political parties and aimed to reform national politics prior to the great earthquake. Coupled with the push to rescale, such as establishing a cross-regional federation (広域連合) and regional decentralization, this move might deepen the urban–rural gap. The second question is how the Japanese energy policy will change by the experience of a "disrupted Tokyo." Repeated infrastructure failures presented Tokyo residents with extraordinary experiences that were combined with mixed emotions of anxiety and expectation. Sometimes they feared that their lives had crumbled from their very foundation. At other times they hoped that they would be able to create a new society on the rubble of the old politics and institutions. These mixed feelings might be the engine for an upsurge of social movements that oppose the prevailing nuclear power policy more than ever before. The "iron triangle," including TEPCO, did not perform a regulatory function during the period of the rolling blackouts right after the disaster, though this relationship was revived and again promoted nuclear power before the electricity conservation started in the summer of 2011. By the experience of a "disrupted Tokyo," it is necessary to look closely at what has been changed and what has not.

Notes

1 It is said that greater the distance that people are from a disaster-stricken area, lesser the amount of information they receive, tending to more pessimistically imagine their situation (Solnit, 2009).

2 Research on the disruption of infrastructure networks often uses the concept of "urban assemblage." Brenner et al. (2011) identified three major levels of the assemblage concept regarding its articulation with political economy: empirical, methodological, and ontological. According to these categories, our position is close to the empirical level, which "demarcates the use of assemblage as a distinctive type of research object within urban political economy" (Brenner et

al., 2011: 231).

3 Harvey (1985) suggested the double-edged nature of infrastructure for economic activity, though he used "built environment" instead of infrastructures.

4 Visit our website:
http://hermes-ir.lib.hit-u.ac.jp/rs/handle/10086/22085

5 The Tokyo metropolitan area includes eight prefectures: Tokyo, Saitama, Chiba, Kanagawa, Ibaraki, Tochigi, Gunma, and Yamanashi. TEPCO's service area is the Tokyo metropolitan area and the western part of Shizuoka Prefecture.

6 While the East Japan Railway Co. decided on a shutdown all day starting at 18:00, several private railway and subway services resumed successively from 21:00 to midnight, and some lines in the Tokyo Metro Co., Ltd. and Toei subway ran through the night.

7 The average one-way commute time in Tokyo is 80 minutes. It is eminently long compared to London and New York (43 and 40 minutes, respectively) (MLIT, 2012b).

8 The strong relationship between the Japanese government, bureaucrats, and the business community that were aiming at Japanese economic growth was often called the "iron triangle" (Johnson, 1982) or "Japan Inc." (Abegglen, 1970).

9 Besides MLIT exempting the railway from power cuts on March 15, the electricity supply-demand emergency response headquarters requested that further information be provided to the public on March 18; and Banri Kaieda, the minister of Economy, Trade, and Industry, asked for a "fair allocation of the burden" on March 23.

10 Kyodo News Service reported that current and former executives of TEPCO and eight other electric power companies accounted for 72.5% of the donations made by individuals to the Liberal Democratic Party's political management fund in 2009 (http://www.japantimes.co.jp/text/nn20110724a1.html).

11 Ex-officials of the Ministry of Economy, Trade and Industry have served as advisers to TEPCO for a long time. Before the earthquake, the former Director General of the Agency for Natural Resources and Energy obtained an advisory post in January 2011 (*Diamond Weekly* (『週刊ダイヤモンド』in Japanese), issued on April 16, 2011).

References

Abegglen, J., 1970, "Economic Growth of Japan," *Scientific American*, 222(3): 31-37.

Brenner, N., Madden, D. J., and Wachsmuth, D., 2011, "Assemblage Urbanism and the Challenges of Critical Urban Theory," *City: Analysis of Urban Trends, Culture, Theory, Policy, Action,* 15 (2): 225-240.

The Cabinet Office (Government of Japan), 2011, "The Result of Actual Condition Survey in Countermeasures for Stranded Commuters: Response in March 11th and after That," (Retrieved December 13, 2012, http://www.bousai.go.jp/jishin/chubou/taisaku_syuto/kitaku/2/4.pdf). (in Japanese) (内閣府「帰宅困難者対策の実態調査結果について――3 月 11 日の対応とその後の取組」2012 年 12 月 13 日取得).

The Denki Shimbun (Electric Daily News), 2011, *The Record of The Great East Japan Earthquake,* Tokyo: Japan Electric Association Newspaper Division. (in Japanese) (電気新聞『東日本大震災の記録――原子力事故と計画停電』日本電気協会新聞部)

Graham, S., 2010, "When Infrastructures Fail," Stephen Graham ed., *Disrupted Cities: When Infrastructure Fails,* New York: Routledge.

Harvey, D., 1982, *The Limits to Capital*. Oxford: Blackwell.

Hiroi, U., Sekiya, N., Nakajima, R., Waragai, S. and Hanahara, H., 2011, "Questionnaire Survey Concerning Stranded Commuters in Metropolitan Area in the Great East Japan Earthquake," *The Annals of Institute of Social Safety Science,* 15: 343-353. (in Japanese) (廣井悠・関谷直也・中島良太・藁谷峻太郎・花原英徳「東日本大震災における首都圏の帰宅困難者に関する社会調査」『地域安全学会論文集』15: 343-353.)

The Independent Investigation Commission on the Fukushima Nuclear Accident, 2012, *The Independent Investigation Commission on the Fukushima Nuclear Accident: Research Investigation Report,* Tokyo: Discover 21. (in Japanese) (福島原発事故独立検証委員会『福島原発事故独立検証委員会 調査・検証報告書』ディスカヴァー・トゥエンティワン)

Ito, H., 2011, "Tokyo: From Re-Examination to Reconstruction of Regional Relationships," *Area Development,* 566: 39-42. (in Japanese) (伊藤久雄「東京――地方関係の見直しから再構築へ」『地域開発』566: 39-42.)

Japan National Tourism Organization (JNTO), 2012, "Number of Foreign Visitors, 6,219 thousands Declined by 27.8%," News Release, January 20, 2012. (Retrieved December 13, 2012, http://www.jnto.go.jp/jpn/downloads/12.0120_monthly.pdf) . (in Japanese) (日本政府観光局「訪日外客数、27.8% 減の 621 万 9 千人」ニュースリリース 2012 年 1 月 20 日、2012 年 12 月 13 日取得)

Johnson, C., 1982, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975.* California: Stanford University Press.

Kainuma, H., 2011, FUKUSHIMA, Tokyo: Seidosya. (in Japanese) (開沼博 , 2011,『「フクシマ」論』青土社 .)

Keizai Doyukai, 2011, "Urgent Appeal concerning Response to the Tohoku-Pacific Ocean Earthquake," (Retrieved December 13, 2012, http://www.doyukai.or.jp/en/

chairmansmsg/articles/msakurai/110315.html).

Kurasawa, S. and Asakawa, A., eds., 2004, *New Social Atlas of Metropolitan Tokyo, 1975-90.* Tokyo: University of Tokyo Press. (in Japanese) (倉沢進・浅川達人 (編)『新編東京圏の社会地図 1975-90』東京大学出版会 .)

Little, R. G., 2010, "Managing the Risk of Cascading Failure in Complex Urban Infrastructures," Stephen Graham ed., *Disrupted Cities: When Infrastructure Fails,* New York: Routledge.

McFarlane, C., 2011, "Assemblage and Critical Urbanism," *City: analysis of urban trends, culture, theory, policy, action,* 15(2): 204-224.

Mitsubishi Research Institute, Inc., 2011, "Future Measures for People that Have Difficulty in Returning Home in the Capital Region Based on the Situation of Difficulty in Returning Home after the Great East Japan Earthquake." (Retrieved December 13, 2012, http://www.mri.co.jp/NEWS/press/2011/_icsFiles/afieldfile/2012/05/30/nr20110613_ssu02rev.pdf) . (in Japanese) (三菱総合研究所「東日本大震災における首都圏の帰宅困難状況を踏まえた今後の帰宅困難者対策のあり方」2012 年 12 月 13 日取得)

Minister of Land, Infrastructure, Transport and Tourism MLIT, 2011, *Annual Report on National Capital Region Development in Fiscal 2010: White Paper on National Capital Region.* (in Japanese) (国土交通省『平成 22 年度首都圏整備に関する年次報告 (平成 23 年版首都圏白書)』2012 年 12 月 13 日取)

Minister of Land, Infrastructure, Transport and Tourism (MLIT), 2012a, *Census of Metropolitan Transportation in 2010: Report on National Capital Region.* (in Japanese) (国土交通省『平成 22 年大都市交通センサス 首都圏報告書』)

Minister of Land, Infrastructure, Transport and Tourism (MLIT), 2012b, "Future Strategy of Transportation in National Capital." (in Japanese) (国土交通省『今後の首都の交通戦略について』(第 4 回首都高速の再生に関する有識者会議資料、2012 年 7 月 5 日開催))

Solnit, R., 2009, *A Paradise Built in Hell: The Extraordinary Communities That Arise in Disaster.* New York: Viking.

Tokyo Metropolitan Government (TMG), *2011, Industry and employment in Tokyo, 2011.* (in Japanese) (東京都産業労働局『東京の産業と雇用就業 2011』)

Ueno, J., 2008, "The Impact of Deregulation and Urban Development: Socio-Spatial Polarization in Tokyo," *The Annals of Japan Association for Urban Sociology,* 26: 101-115. (in Japanese) (上野淳子「規制緩和にともなう都市再開発の動向――東京都区部における社会 - 空間的分極化」『都市社会学年報』26: 101-115.)

The Great East Japan Earthquake and Responses from Civil Engineering, Urban Planning, and Architecture Industry: Reconsidering Tokyo as a Center of Expertise

Takefumi UEDA

PURPOSE

The Great East Japan Earthquake revealed that the modern society is founded on multiple, complex infrastructures consisting of materials, institutions, and knowledge.[1] It can be difficult to realize that infrastructures have sustained modern society and underlie our daily lives. However, the existence of such infrastructures clearly shows not only in the post-disaster experiences of the Tohoku and Northern Kanto regions, which were directly devastated by earthquakes, tsunamis, or the Fukushima Daiichi nuclear disaster, but also in the experiences of the Tokyo metropolitan region, which was subject to the impacts of liquefaction, rolling blackouts, and the contamination of water and food by radioactive materials.

Though many people who experienced the Great East Japan Earthquake realized the existence of infrastructure, it remained difficult to precisely determine how and what infrastructure was damaged or lapsed into malfunction. Especially, it has been difficult to grasp the entirety of the damage to infrastructure by reliable means, because the devastated area is large and the damage differs by region. Nevertheless, reliable information about the overall damage to infrastructure caused by the Great East Japan Earthquake is needed to plan for post-quake reconstruction, especially in the process of making decisions about the distribution of various resources on a national scale. Then, who can supply reliable information about the damage to infrastructure, and how can they obtain such information?

This paper examines the attempts to understand the entirety of the damage to infrastructure that occurred as a result of the Great East Japan Earthquake, in order to show some important points of argument related to the governance of infrastructure in post-disaster situations. Through this investigation, this paper reconsiders Tokyo as a center of the power structure that may appear in the governance of infrastructure.

To consider the problem mentioned above, this paper will focus on the build environment (Harvey 1985). The build environment is selected based on the following two points. First, due to the serious damage to the build environment and its drastic post-disaster reconstruction process, it is presumed that the build environment is one of the representative infrastructures revealed by the Great East Japan Earthquake. Second, following the structural changes to governance structure after the 1980s, the build environment is one of the suitable objects to consider the present governance of infrastructure. In the case of Japan, the national state had centrally governed the build environment throughout the modernization process. After the 1980s, however, the build environment has come to be governed not only by the national state but also by multiple actors such as local governments, enterprises, NPOs, and other CSOs and community organizations. When based on such a change, problems regarding who governs the build environment and how as well as what kind of

Takefumi UEDA ,Research Fellow, Japan Society for Promotion of Science, Keio University

knowledge makes governance possible are critical to consider the direction of structural change of governance of infrastructure in a post-disaster situation. [2]

A build environment as infrastructure consisted not only of materials but also of institutions and knowledge that enable management or maintenance of the build environment. Therefore, for the purpose mentioned above, this paper will focus on organizations that have expertise in the management or maintenance of build environment. Concretely, this paper reviews the activities that have been implemented by academic or professional organizations in civil engineering, urban planning, or architecture in the two months following the Great East Japan Earthquake. [3]

RESPONSES FROM ACADEMIC ORGANIZATIONS IN CIVIL ENGINEERING, URBAN PLANNING, AND ARCHITECTURE

What kind of activities have academic organizations in civil engineering, urban planning, or architecture done to deal with the damage caused by the Great East Japan Earthquake? The activities conducted by academic organizations for about two months after the disaster can be classified as follows (see also Figure 1).

Task Forces

First, academic organizations in civil engineering, urban planning, or architecture convened task forces for coping with the disasters in each organization, within several days of March 11. Thereafter, these task forces met periodically.

In addition, ad hoc organizations were founded by the cooperation of two or more academic or professional organizations. Examples include the "Liaison Committee among JAEE, JSCE, AIJ, JGS, and JSME on the Tohoku-Pacific, Japan Earthquake (「東北地方太平洋沖地震被害調査連絡会」)" formed on March 18 by the Japan Association for Earthquake Engineering (JAEE; headquartered in Minato Ward, Tokyo), Japan Society of Civil Engineers (JSCE; headquartered in Shinjuku Ward, Tokyo), Architectural Institute of Japan (AIJ; headquartered in Minato Ward, Tokyo), Japanese Geotechnical Society (JGS; headquartered in Bunkyo Ward, Tokyo), and Japan Society of Mechanical Engineers (JSME; headquartered in Shinjuku Ward, Tokyo); and the "Liaison Committee of Building-related Organizations on the Provision for the Disasters (「建築関連団体災害対策連絡会」)" formed on April 14 by the AIJ, City Planning Institute of Japan (CPIJ; headquartered in Chiyoda Ward, Tokyo), Japan Federation of Architects and Building Engineers Association (headquartered in Minato Ward, Tokyo), Japan Association of Architectural Firms (headquartered in Chuo Ward, Tokyo), Japan Institute of Architects (JIA; headquartered in Shibuya Ward, Tokyo), and Japan Society of Urban and Regional Planners (JSURP; headquartered in Minato Ward, Tokyo).

Moreover, academic organizations established new websites dedicated to disseminating information about their post-disaster activities or the damage caused by the disaster. For example, the JSCE created the "2011 Great East Japan Earthquake - JSCE Information Forum (「土木学会 東日本大震災情報共有サイト」)."

Research Activities

After the Great East Japan Earthquake, most of the academic organizations in civil engineering, urban planning, or architecture conducted research activities in the devastated areas of the Tohoku

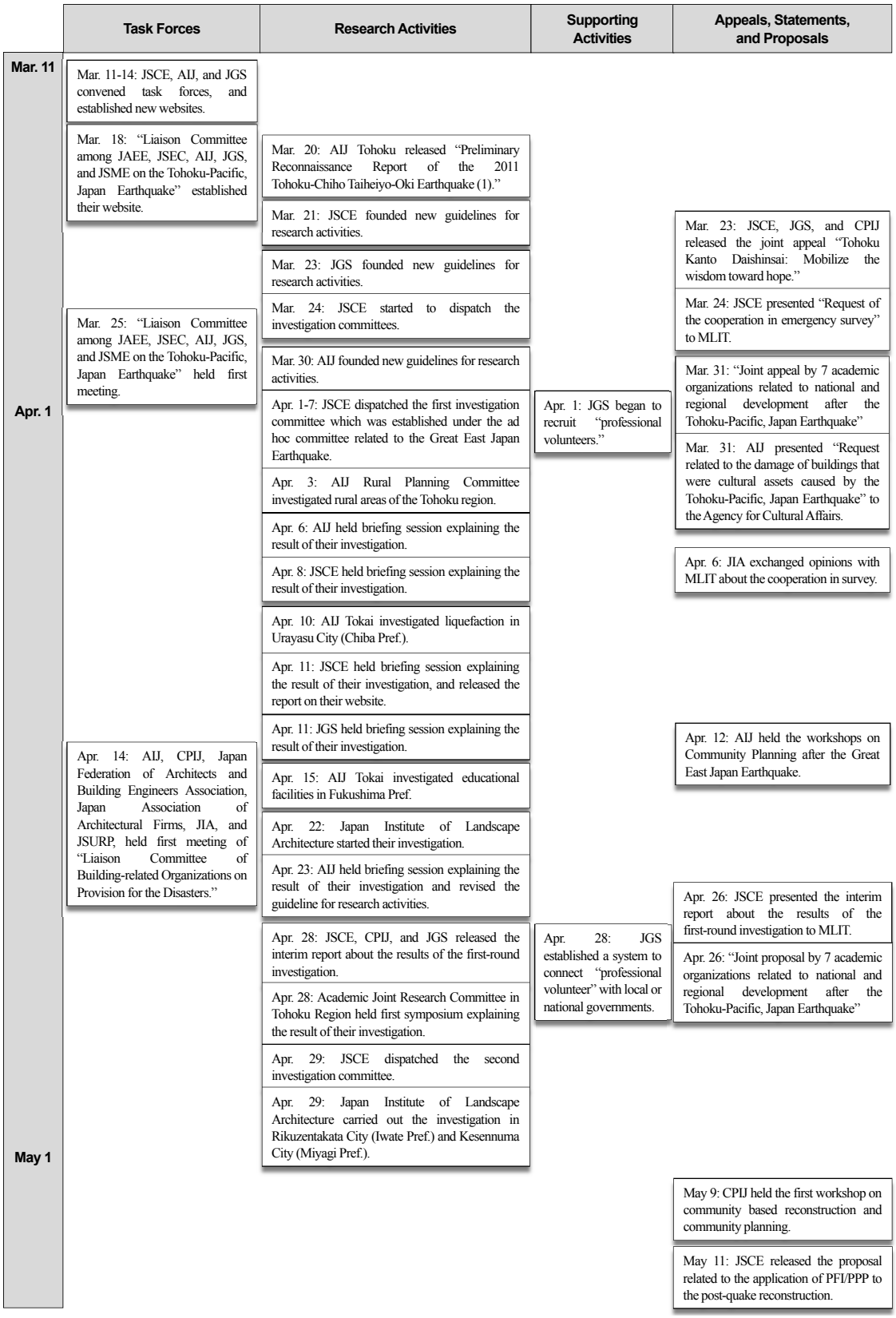

Figure 1. Responses from academic organizations in civil engineering, urban planning, and architecture (2011. 3. 11 – 2011. 5. 11)
Source: Author, based on Ueda et al. (2011).

region to determine the details and extent of the damage caused. However, these organizations did not necessarily perform research on a large scale immediately after the earthquake.

Specifically, the JSCE ordered members to refrain from research activities for the time being, and then founded new guidelines for research activities. The JGS also created new guidelines for research activities, and AIJ reviewed its guidelines. After the guidelines were reviewed and/or revised, starting from the beginning of April, the organizations conducted complete research activities. Shortly afterward, they began to hold briefing sessions explaining the results of their research activities in the Tokyo metropolitan or Tohoku regions.

Supporting Activities for Local Governments around Devastated Areas

Some academic organizations also sought to offer expertise to local or national governments to support the devastated areas. Beginning in April, the JGS began to recruit "professional volunteers" from among its members to support the activities of the local or national governments in the devastated areas of the Tohoku region. At the end of April, the JGS established a system to connect experts with local or national governments. In the first two months after the disaster, however, such types of supporting activities were not common.

Appeals, Statements, and Proposals

After the Great East Japan Earthquake, most academic organizations in civil engineering, urban planning, or architecture conducted some kind of appeals or statements. These include not only appeals or statements made by the organization director but also by joint appeals or statements made by multiple organizations or directors. Examples of these appeals and statements include "Tohoku Kanto Daishinsai: Mobilize the wisdom toward hope（「東北関東大震災――希望に向けて英知の結集を」）" released on March 23 by the JSCE, JGS, and CPIJ, "Joint appeal by 7 academic organizations related to national and regional development after the Tohoku-Pacific, Japan Earthquake（「東北地方太平洋沖地震後の国土・地域振興に関する関連学協会会長共同アピール」）" released on March 31, or "Joint proposal by 7 academic organizations related to national and regional development after the Great East Japan Earthquake（「東日本大震災後の国土・地域振興に関連する7学会会長共同提言」）" released on April 26 by the Society of Heating, Air-Conditioning and Sanitary Engineers of Japan (headquartered in Shinjuku Ward, Tokyo), JSCE, CPIJ, JGS, AIJ, Japan Institute of Landscape Architecture (headquartered in Shibuya Ward, Tokyo), and Japan Concrete Institute (headquartered in Chiyoda Ward, Tokyo).

Some academic organizations tried influence the national government by lobbying. Examples of these appeals and statements include "Request of the cooperation in emergency survey（「緊急調査等への協力について（依頼）」）" presented by JSCE to the Ministry of Land, Infrastructure, Transport and Tourism on March 24, or "Request related to the damage of buildings that were cultural assets caused by the Tohoku-Pacific, Japan Earthquake（「東北地方太平洋沖地震による文化財である建築物の被害について（依頼）」）" presented by the AIJ to the Agency for Cultural Affairs on March 31.

In addition, some academic organizations held workshops about the post-quake reconstruction. For example, the workshop on Community Planning after the Great East Japan Earthquake was held by the AIJ (beginning on April 12, 2011 in Tokyo).

RESPONSES FROM PROFESSIONAL ORGANIZATIONS IN CIVIL ENGINEERING, URBAN PLANNING, AND ARCHITECTURE

What kinds of activities have been conducted by professional organizations in civil engineering, urban planning, or architecture to deal with the damage caused by the Great East Japan Earthquake? Professional organizations have formed task forces in individual organizations for coping with the disasters, within several days of March 11, and conducted research activities in devastated areas of the Tohoku region to clarify the damage of the disasters. [4] Typical activities conducted by these professional organizations for about two months after the disaster are the following (see also Figure 2).

Logistic Support for Research or Supporting Activities of Local Governments around Devastated Areas

One characteristic activity conducted by these professional organizations was logistic support for the research activities of local governments near the devastated areas. These professional organizations had tried to dispatch required experts in response to a request from the Tohoku Regional Bureau Ministry of Land, Infrastructure and Transport in the Ministry of Land, Infrastructure, Transport and Tourism or local governments around the devastated areas. Especially, nationwide professional organizations requested or ordered their branches to cooperate for the requisition of experts and resources necessary for supporting activities in devastated areas, beginning in the second half of March. Some professional organization attempted to establish institutions to dispatch experts to devastated areas.

For example, the Japan Association of Architectural Firms requested or ordered these branches to cooperate for post-quake quick inspections of damaged buildings, and the Japan Federation of Architects and Building Engineers Association requested or ordered these branches to cooperate for the construction of temporary dwellings. In addition, the Urban Renaissance Agency (headquartered in Yokohama City, Kanagawa) or the Japan Sewage Works Association (headquartered in Chiyoda Ward, Tokyo) dispatched their experts to Iwate, Miyagi, and Fukushima Prefectures and basic municipalities in these three prefectures and tried to support their activities, including the construction of temporary dwellings or planning for post-quake reconstruction.

Reconsideration of Professionalism

These professional organizations formed some kind of task force in each organization, also after the second half of March. Through the activity of the task forces, the professional organizations attempted to reconsider their professionalism and design professional support activity in the post-disaster situation. However, few professional support activities were designed based on the reconsideration of their professionalism in the two-month period following the disaster. Then, it is necessary to examine their subsequent activities to determine the results of their attempts.

DISCUSSION

It is important to focus on academic or professional organizations that have struggled to deal with damages to infrastructure based on their expertise for the following reason.

Importantly, in the process of post-quake reconstruction, knowledge or information about the damage to infrastructure is necessary for planning. The measurement of the gap between a plan and

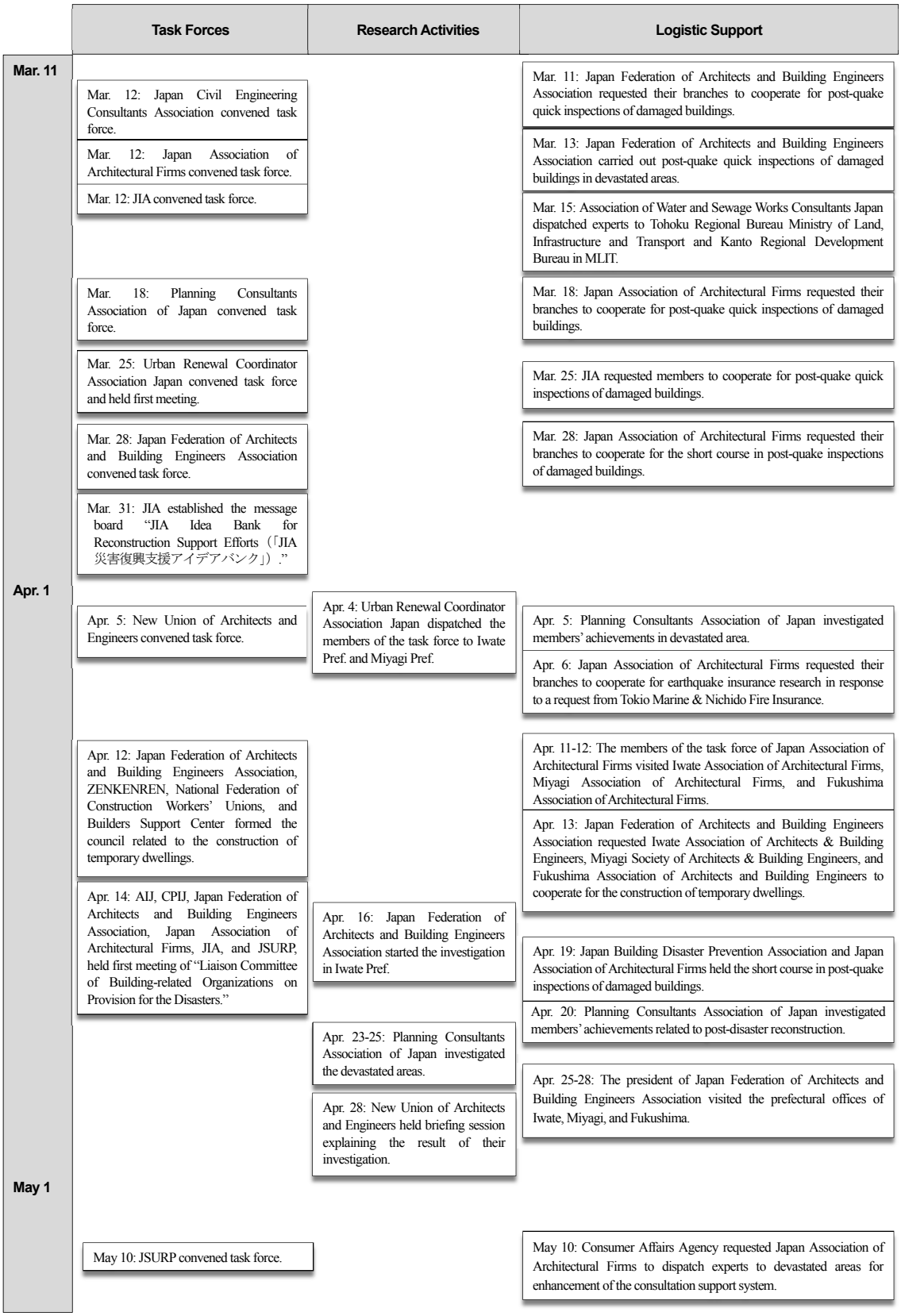

Figure 2. Responses from professional organizations in civil engineering, urban planning, and architecture (2011. 3. 11 – 2011. 5. 11)
Source: Author, based on Ueda et al. (2011).

reality, which is necessary for the concrete process of post-quake reconstruction, also depends on having knowledge or information. Then, academic or professional organizations that supply reliable knowledge or information about infrastructure damage based on their expertise should possess critical positions,[5] because the determination of which infrastructure should be reconstructed will be made through a series of processes from research activities to planning.[6] The reliable fact that the build environment infrastructure was damaged or lapsed into malfunction should be constructed through the activities of academic or professional organizations.

The following arguments are evoked from here.

Uneven Spatial Distribution of Expertise in Build Environment Infrastructure

The spatial distribution of expertise on build environment infrastructure has been uneven, as many of the academic or professional organizations mentioned above are located in Tokyo. Many of these academic or professional organizations formed task forces that were headquartered in Tokyo and dispatched experts or investigation committees to devastated areas in the Tohoku region from there. Some academic organizations also negotiated with ministries and government offices located in Tokyo about their cooperation in supporting or research activities in devastated areas or the requisition of resources required for their activities. In addition, some academic organizations released from Tokyo their statements or proposals based on their activities in the devastated areas of the Tohoku region. Thus, through the Great East Japan Earthquake, it became clear that Tokyo is the center of expertise on build environment infrastructure.[7] This fact may entail the following problem.

The fact that the build environment infrastructure was damaged or lapsed into malfunction in the local field is relayed through the activities of academic or professional organizations that translate the local and elusive reality into logical documents or numerical information based on their expertise. However, this translation process includes the possibility of creating a gap between the reality in local fields and reliable facts that will serve as the premise for decision making on the distribution of resources. It will be able to share the reality that cannot be translated into logical documents or numerical information on the condition that there is spatial proximity, and vice versa. Therefore, it is necessary to investigate whether there is any gap between the reality in local fields, such as devastated areas of the Tohoku region, and the "reality" in Tokyo that has been reconstructed from documents or numerical information.[8]

Toward an Argument on Governance of Build Environment Infrastructure

After the 1980s, in Japan, due to a severe financial situation, the national government tried to retreat selectively from the supply of collective consumption goods and regulation on development by private capital on one hand, and to realize policies through spontaneous development activities by private enterprises and all kinds of activities by NPOs and other CSOs and community organizations on the other hand.

After the 1980s, governance structure such as "government at a distance" (Miller and Rose 2008) seemed to decentralize the distribution of power that governed the build environment infrastructure. However, the uneven spatial distribution of expertise on the management and maintenance of build environment infrastructure, or concentration in Tokyo of such expertise, suggests that there is a center of power that governs build environment infrastructure from a distance. Therefore, Tokyo as a center of expertise is critical to consider the power structure

that may appear in the governance of infrastructure.

The above argument is based on the situation that unfolded for about two months after the disaster. It is necessary to consider the direction of structural change of governance of infrastructure in post-disaster situation on a long-term basis and to examine whether the usefulness of expertise on governing build environment infrastructure falls, through the experience of the Great East Japan Earthquake that made many people realize the "limits" of technological expertise.

Notes

1 See the argument by Graham (2010).

2 Also, see the indication of Miller and Rose (2008) that "Central to the possibility of modern form of government, we argue, are the association formed between entities consisted as 'political' and the projects, plans and practices of authorities-economic, legal, spiritual, medical, technical -who endeavor to administer the lives of other in the light of conceptions of what is good, healthy, normal, virtuous, efficient or profitable. Knowledge is thus central to these activities of government and to the very formation of its objects, for government is a domain of cognition, calculation, experimentation and evaluation" (Miller and Rose 2008: 55).

3 The following description is based on "The Great East Japan Earthquake Chronicle 2011.3.11-2011.5.11" made by the Study Group on Infrastructure and Society, which recorded more than 11,000 events that occurred in the two months following March 11, 2011 (see Ueda et al. 2011). In addition, references for the chronicle, such as documents or websites made by each academic or professional organization, are also referred to (see Ueda and Mori 2011).

4 The earliest case is the Urban Renaissance Agency dispatching the investigating commission to Sendai on March 12.

5 Such a critical position of academic or professional organizations is not unique to the post-quake reconstruction process. Rather, the Great East Japan Earthquake may have made the potential of academic or professional organizations visible.

6 See the arguments by Power (2007) or Power (1997) indicating that the object of risk management or audit constructed through the procedure and technique of risk management or audit.

7 Many people in Tokyo might be forced to imagine the entire structure of the disaster from various kinds of fragmented information that has been concentrated in Tokyo, in addition to their direct experience. The uniqueness of experiences of the Great East Japan Earthquake in Tokyo may be emphasized here. However, this argument is beyond the scope of this paper.

8 It is also necessary to look carefully into policy evaluation related to the post-disaster reconstruction and indexes such as progress rate or achievement quotient.

References

Graham, Stephen, 2010, "When Infrastructures Fail", Stephan Graham eds., *Disrupted Cities: When Infrastructure Fails*, New York: Routledge.

Harvey, David, 1985, *The Urbanization of Capital: Studies in the History and Theory of Capitalist Urbanization*, Johns Hopkins University Press.

Miller, Peter and Nikolas Rose, 2008, *Governing the Present: Administering Economic, Social and Personal Life*, Cambridge: Polity Press.

Power, Michael, 1997, *The Audit Society: Rituals of Verification*, Oxford University Press.

Power, Michael, 2007, *Organized Uncertainty: Designing World of Risk Management,* Oxford University Press.

Ueda, Takefumi, Tomoyuki Tatsumi, Yutaka Iwadate, Ikumi Kamiyama, Jiyong Kim, Sunmee Kim, Takashi Machimura, Keisuke Mori, Sayaka Mori, Akihiko Sato, Keiichi Sato, Uichi Tan, Atsuo Terada, and Anna Watanabe, 2011, "The Great East Japan Earthquake Chronicle 2011. 3. 11-2011. 5. 11", *Disaster, Infrastructure and Society: Learning from 2011 Earthquake in Japan,* Study Group on Infrastructure and Society, No.1, pp.13-269, (Available at http://hermes-ir.lib.hit-u.ac.jp/rs/handle/10086/22109).

Ueda, Takefumi and Keisuke Mori, 2011, "List of References for the Great East Japan Earthquake Chronicle", *Disaster, Infrastructure and Society: Learning from 2011 Earthquake in Japan,* Study Group on Infrastructure and Society, No.1, pp.270-277 (Available at http://hermes-ir.lib.hit-u.ac.jp/rs/handle/10086/22108).

Tokyo and the Social Aftershocks of March 11: Our Experiences of the Earthquake and its Aftermath

Naofumi SUZUKI

The earthquake not only completely devastated the northeast region of Japan but also "rocked" the whole nation. This article retrospects to the experiences of the SGIS (Study Group of Infrastructure and Society) members, mainly based in Tokyo, who were relatively "unaffected." In the end, it was quite a traumatizing period for all of us, and may still be for some…

1. The moment—3.11 14:46

The earthquake hit the country at about 14:45 on the afternoon of March 11, 2011. Nobody could have foreseen the level of devastation that was to follow. Not at that moment, at least.

Ueda was in the project room in the Kodaira campus of Hitotsubashi University. The University was on spring break, but that did not bother a postdoctoral fellow like him. The earthquake was big enough to make Ueda fear that the much anticipated "Tokyo Metropolitan Inland Earthquake" or "Tokai Earthquake" had finally occurred.[1] However, such was his dedication to his research project that he continued working, fighting the distraction from incident updates received via the Internet, which were not quick enough to report the scenes of devastation happening in Tohoku as yet….

Iwadate, a postgraduate student, was on his way out of his office and to the library in another campus in Kunitachi.

"I was holding the doorknob when the earthquake hit. I couldn't do anything but hold on to it so I wouldn't fall down. Some other students came out from their rooms as well. We all waited together till it stopped shaking. And then, most of us went down outside. I stayed there for a few minutes and went to the library. But when I just got in, the librarian was shouting, 'The library is now closed!' and I had to go back out again."

Thus, he went back to the office and stayed there until 16:30, when he went out again.

"I had an appointment in central Tokyo that evening, so I went to the station, but the train wasn't moving. So I went back to the office again, logged on to the Internet, and that's when I first got to know what was happening in Tohoku. I just didn't know what to do. I was in panic. What am I supposed to do in this situation? You know?"

After all, it was not just him; we all, more or less, wanted to proceed as normally as possible even under such abnormal circumstances. Terada recalls that what he felt resembled a sense of festivity as he walked around in his neighborhood, where people, who presumably did not know each other, were sharing their joy and relief at not being hurt. Suzuki also admits that he somehow "enjoyed" the unusual circumstances as he walked through and looked around west Tokyo. He was on a Chuo-line train, which was slowing down at the time of the earthquake while approaching Mitaka station.

"I soon found out that the train was not going to

Naofumi SUZUKI, Assistant Professor, Graduate School of Social Sciences, Hitotsubashi University

restart anytime soon and got out of the station. There was already a big queue for taxis, and no bus seemed to head in the direction to help me get home. So, I quite quickly made up my mind to start walking. I was going to attend a seminar that afternoon in central Tokyo, but there was no way I could get there in time, and chances were, it would be canceled anyway because obviously a lot of other people must have been in similar situations. So I thought, 'why don't I make the most of this rare opportunity, and see what it looks like?' You know, 'what's the level of impact?' I was curious, and it was quite interesting to see people's reactions and some surreal sights as well, like a train stuck at a bridge over the road. I know it sounds inappropriate, considering what was actually happening in Tohoku, but there was no way I could have known it at that time. So I wasn't taking it too seriously at first."

2. The Tsunami

Thus, for many who were in Tokyo, it was not until they saw the TV footage showing the devastating impact of the tsunami that they realized the level of the damage and the scale of the tragedy. Kei-ichi, who was at home with his sister, recalls,

"I was sort of curious what was going on after such a big earthquake, and so went out to a gym for a workout. But the janitor came, saying 'I'm gonna shut the gym early. You should leave now,' and I got kicked out. And then I went back home and turned on the TV. It was absolutely horrifying. And I was like, 'Geeeeee. Was it that big?'"

Many say that those scenes looked "unreal." It was obvious that an uncountable number of people had had their lives taken abruptly. Some were drowned under the water and some caught in fires. Suzuki recalls,

"I was just walking through Shinjuku. There were those big screens, all showing the scenes of floods, floating cars and houses, or a whole village on fire. It was absolutely surreal. I prayed for the people to escape and survive, but at the same time, it seemed really hopeless, and I was chilled thinking what the death toll would be like."

3. One-night refugees

While watching those chilling TV footages, Suzuki was also witnessing another aspect of the disaster that the earthquake had brought to Tokyo. Shinjuku, arguably the busiest center of business, transport, and entertainment in Tokyo, was flooded by people who were leaving town to go home on foot because no trains or subways were available.

"There was a sea of people. They were trying to get out of Shinjuku. Pavements were full of people, and cars were stuck at the crossroads while the big screens were showing the scenes of the tsunami. It was quite amazing to know how massive the capacity of Tokyo's transport system is, which usually carries all those people invisibly."

The earthquake was so massive that all tracks had to be inspected before the railway companies could restart their services. Indeed, millions of people struggled to get home that night. The number of people who could not get home and had to find temporary shelters was said to amount to hundreds of thousands.[2] Of those who managed to get home, a majority had to walk for many hours.[3] Suzuki and Ueda were among them. Suzuki says,

"I wouldn't have thought, though, I would walk all

the way home. I was going to catch a bus or a taxi halfway through. But then, all the buses were really full and taxis occupied. I ended up walking five and a half hours. I was exhausted when I got to the nursery to pick up my daughter. At the end of the day, it wasn't a laughing matter, but I was also glad that I started early, so my daughter did not need to wait too long. She must have been scared and anxious."

Unlike Suzuki, who walked all the way, Ueda's account might illustrate the kind of confusion that many people in Tokyo experienced that night. He left the project room with two colleagues just before 18:00, but it took him four hours to get home, a journey which would usually take only half an hour.

"We could only take buses. At Hitotsubashi Gakuen Station, we found out that no train was moving, and went to a bus stop. Several men in suits were already waiting there, and a young woman came after us. We waited over 30 minutes, as the bus delayed, and when it came it was pretty full already, but we managed to squeeze in. But people still kept coming on at the following stops as well. Then we arrived at Kokubunji station. All the electric signs were off. Obviously, no train was moving there, either. Nor did we see any light in the surrounding buildings. We went to the rotary square and tried to take another bus, but there were hundreds of people there, waiting for taxis and buses. Many people looked astounded and were wandering about, not knowing what to do. Some were asking directions at the police box. I checked the signboard. No bus was going to Kunitachi Station, but there was one route going to a hospital near there. So we joined the queue, which was very, very long. We wondered if we might as well walk home. It turned out we should have in the end, but we waited there for an hour or so. The crowd in the square kept bigger and bigger, which reminded me of the word 'refugees'. We finally got on a bus, but it was really, really slow, as we were stuck in a jam. After all, it would have been so much faster if we had walked. Passengers looked nervous. The sounds of alarm, alerting us of aftershocks, kept coming from all the mobile phones, which made us more nervous. Some women were chatting about whether their kids were all right. They probably didn't know each other. But anyway, the bus got to the hospital after another hour or so, and this time we decided to walk rather than wait for another bus from there. We parted there and I popped by the office at the Kunitachi campus. Everything was all right there. I went to a local shop and tried to eat something, but couldn't eat much. Then I walked all the way home to Hino. It was well beyond 10 o'clock when I finally got home."

While Ueda and Suzuki were fortunate enough to get home that night, it was a challenge to provide shelters for all those who could not. A thousand places, including public buildings, universities, high schools, and offices of various public organizations, were made temporarily available for them.[4] Some even slept in train stations.

The confusion affected Osaka as well. Ueno, who lived there, had a meeting in Tokyo the next day. She reached Shin-Osaka station around 10:00. but had to wait for over an hour to buy a ticket for a bullet train. When she arrived at Tokyo station around 14:00, she saw two men clearing up the blankets supposedly provided for those who had slept there the night before.

"I didn't see so many signs of damage. I was relieved to see there was neither collapsed building nor rubble around Tokyo station at least. It was only those blankets that reminded me of the earthquake."

In fact, the train services recovered very quickly. They resumed gradually from 21:00 on March 11, and 90% of the system was restored by noon on March 12. However, we did not know that another disaster was to follow, which horrified not only Japan but also the rest of the world.

4. Explosions

It happened around 15:30 on March 12. Despite some damage, such as fallen ceilings, scattered office furniture, liquefaction of soil along the reclaimed coastal lands, etc., most of us in Tokyo tried to proceed as normally as possible. But then, everything changed. Ueda says,

"I heard about the first explosion in Fukushima when I was attending a seminar. But I thought, 'it's probably gonna be all right. If not, I can't do anything, anyway.' So I was half hopeful and optimistic, and half powerless and helpless."

4.1. Radiation

The news of the hydrogen explosion at the nuclear power plants in Fukushima was totally unexpected and caused a real sense of emergency. All kinds of media, including normal TV channels, the Internet, and Twitter, were reporting constantly on the developments and providing technical information as to what might be happening in the nuclear reactors, whether any radioactive substance would leak out, and when it became apparent that there was a leak, how we could protect ourselves from it, what was the acceptable exposure level, and other related information.

The influx of information demanded a high level of media literacy from us. The information was abundant, but it was hard to distinguish trustworthy sources from others. Therefore, we all responded differently. Kamiyama recalls,

"I saw on a train a middle-aged lady dressed completely in black—a black raincoat, black rain-boots, and a black rain-hat. She looked very normal otherwise, so I felt strange. But now I understand she wanted to avoid the radiation. On a first look, it looked normal, but in fact everyone appeared somewhat awkward. It was the anxiety of not knowing what was going to happen next, that was making us all somewhat depressed and distressed."

4.2. Evacuation

One common reaction was to evacuate from Tokyo to the west. Ueno was on the way back to Osaka on March 13.

"I got on the bullet train and saw the first three rows occupied by mothers with babies and toddlers. Normally, I very rarely see even one baby or toddler in a carrier. That day, there were about ten of them. It must have been that they were trying to flee. On the way back, I was worrying about my family and friends in Tokyo."

The waves of evacuation continued after several days. Suzuki joined them, though unwillingly, on March 16.

"We decided to take our daughter to my wife's parents in Hiroshima. It was a decision that I took against my heart. OK, it sounded completely rational to take her away from the potential risk of radiation to a place where it was 100% safe. In fact, the bullet train we took was very, very full, with people who were supposedly getting out of Tokyo just like us. It wasn't just the nuclear substance. Earthquakes just kept hitting east Japan after nearly a week from the first one, and they were big ones, too, with M6 or

something like that. We wouldn't have been surprised if it had triggered another massive one, maybe the Tokai Earthquake. So there should have been nothing to be ashamed of sending our daughter to Hiroshima. But I wasn't comfortable at all. I probably didn't want to join the hysteria."

It was ironic that they evacuated to Hiroshima, the very place that strongly reminds us Japanese of the tragedy that nuclear radiation could inflict.

"But my wife was so upset. She's the second generation of Hiroshima atomic bomb victims. Her father directly experienced it, and had told her many times when she was young, about the horrible things he had seen. Thus, however small they claimed the amount of radiation was, it was enough to scare her off. I believed it was fine to stay in Tokyo, but to be honest, I was nervous, too. Everyone was, I think. So naturally, my daughter looked nervous as well, with her parents not being very reassuring. So in the end, it was probably a right decision, so as not to traumatize her too much…."

He brought back his daughter to Tokyo after several weeks; however, he knew a few friends who had permanently shifted farther west, seeking "safe food" for their families.

5. Planned blackouts–3.13

The accident in Fukushima also meant that electrical power shortages were highly probable. While urging people to save electricity as much as possible, TEPCO announced a plan of rolling blackouts on the day after the explosions. Kei-ichi experienced the first series of planned blackouts in Kodaira on March 14.

"My sister and I went out for a walk to Kokubunji Station, looking around the town. It was a full moon that night. I didn't know those shadows I had assumed were made by the street lights were actually made by moonlight. It was bizarre we only saw lights here and there, like the convenience stores, which had their own generators, and train stations. I was texting a friend of mine who I was supposed to see the next day, whether we should meet up or not. My gut was telling me it wouldn't be a problem, but we canceled it because blackouts were planned the next day, too."

6. Panic buys

Another reaction was the hoarding of particular goods because people feared supply shortages. On the eve of March 13, Kamiyama saw a few people purchasing a lot of bottled water and toilet rolls at a supermarket.

Indeed, a week after the earthquake, hoarding necessary supplies had commenced even in west Japan. In Osaka, Ueno, to her surprise, saw no bottled water on the shelf, and there were only half as many toilet rolls as usual in a drug store. Shortages extended even farther west. Mori was doing her fieldwork in a rural town in Kumamoto, a thousand kilometers away from Tokyo.

"We heard the news that a level of radiation higher than the safety standard was detected from tap water somewhere in Tokyo. We had some people who had fled Tokyo and stayed with us. One of them said she wanted to send her friend some pure water, and so we went out to a local store. We found only three half-dozen cases of two-liter bottles there, whereas they would usually have a lot more. The shopkeeper said they had run out of stock. It didn't feel right to buy up the three cases, but my roommate said 'we can't stop people from caring for their friends and families, can we?' After we bought up all the packages, an old

lady came in asking for water. She was saying her son in Tokyo asked her to send some. So, 'buying up' was going on even in such a distant, small rural town, which really surprised me. I mean, I might have done the same thing if my family or friends asked me. But it just didn't feel right."

7. Thereafter

These stories by SGIS members illustrate the psychological impact of the earthquake and its aftermath on Japanese citizens. The fight to prevent the power plants from causing further crises continued for days; however, radiation leakages were apparently inevitable. The Government and TEPCO's handling of the matter came under severe public scrutiny, which later developed into a nationwide debate over the vision for national energy policy, which is still ongoing. Meanwhile, after the accident, people kept hoarding supplies for several weeks, although the exodus of people to the west settled down after a while. However, the sense of distress continued. In April, a number of universities, including Hitotsubashi, delayed the beginning of the academic year for several weeks. Countless volunteers worked in the affected areas in Tohoku. Fukushima, though, suffered the stigmatizing effect of people trying to avoid visiting or buying agricultural products from there.

Nearly two years later, Tokyo might seem to have returned to normal, but problems still hang in the air, and the sense of distress never seems to disappear. Terada's frustration over a year ago still sums up our shared feelings. He says he was depressed from constantly listening to all the media hype.

"I was fed up with it. The earthquake was appalling enough, and then there was the problem in Fukushima, which looked unlikely to be resolved any time soon. It became clear that the planned blackouts would not affect our daily life too much, and there was no need to try to stock a lot of goods. However, there was no sense of security yet. I felt as if there was no way back to the normality we used to enjoy before the earthquake. It was the end of east Japan, the end of Tokyo, I felt. On top of that, I heard the news people were buying up things in west Japan as well. It was really sickening. Where is the sense of solidarity? Who says Japan is a unified nation and socially integrated? It's nonsense!"

On a final note, these statements and experiences, of course, are not representative of Tokyoites on the whole. Given the location of Hitotsubashi University, the base of SGIS, and the fact that many members live in west Tokyo, these experiences may well be at least geographically biased toward the west. For instance, those who lived in east Tokyo might have felt more strongly the risk of nuclear radiation because of their relative proximity to Fukushima. That said, this essay has attempted to convey the kind of impact Tokyo has experienced. Tokyo may appear to have returned to normal now, but we should not forget those initial emotions and feelings; Japan as a nation is still at the beginning of the process of recovering from catastrophic devastation.

Notes

1 Both types of earthquakes are among those that were thought of as highly probable to occur within a few decades. The magnitude of Tokyo Metropolitan Inland Earthquake is expected to be around 7.0, which would cause about 5.3 to 11 thousand deaths (Cabinet Office, 2005). The magnitude of Tokai Earthquake is expected to be around 8.0, and the death toll estimated at 9.2 thousand (Japan Meteorological Agency 2012).

2 Hiroi et al. (2011) report that one fifth of questionnaire respondents (n = 2026), who live in Tokyo, Kanagawa, Saitama, or Chiba and were away from home on that day, did not go home. It is estimated that there are about 7.9 million

commuters who commute by train in the Tokyo Metropolitan Area (MILT 2012).

3 According to Hiroi et al. (2011), the main means of transportation were on foot (36.3%), by car (30.6%), train or subway (14.8%), and bicycle (10.5%).

4 See Hiroi et al. (2011).

References

Cabinet Office, 2005, "Estimated Damage of Tokyo Metropolitan Inland Earthquake (Summary)." Retrieved November 29, 2012 (http://www.bousai.go.jp/syuto_higaisoutei/pdf/higai_gaiyou.pdf)（＝内閣府 , 2005,「首都直下地震の被害想定（概要）」2012 年 11 月 29 日取得 .）

Hiroi, Y., 2011, "A Social Survey and Analysis on Commuters in the Metropolitan Region Troubled by Great East Japan Earthquake." Retrieved November 29, 2012 (http://www.fse.t.u-tokyo.ac.jp/hiroi/hiroi20110527.pdf)（＝廣井悠 , 2011,「東日本大震災における首都圏の帰宅困難者について－社会調査と分析－」2012 年 11 月 29 日取得 .）

Japan Meteorological Agency, 2012, "A Projection of the Magnitude of Tokai Earthquake and the Potential Hight of Tsunami Caused by It." Retrieved November 29, 2012 (http://www.seisvol.kishou.go.jp/eq/tokai/tokai_eq3.html)（＝気象庁 , 2012,「東海地震の発生で予測される震度や津波の高さ」2012 年 11 月 29 日取得 .）

Ministry of Land, Infrastructure and Transportation, 2012, "A Report on 2010 Transport Census for Major Cities: the Metropolitan Region Edition." Retrieved January 11, 2013 (http://www.mlit.go.jp/sogoseisaku/transport/daitoshicensus/h22cencus-shuto.pdf)（＝国土交通省 , 2012,「平成 22 年大都市交通センサス 首都圏報告書」2013 年 1 月 11 日取得 .）

Article

The Actuality of Theoretical Detour: Reading *The Urban Question* on a Critical Point

Yutaka IWADATE

FROM AN URGENT SITUATION

When trying to capture the complexity of reality in our contemporary social world, the most difficult aspect is to find actual problems—in other words, to reach Problematique. Particularly at the time of crisis, "real" critical problems take a back seat and are often repressed because of dominant social forces. Pseudo problems with easier solutions or too-simplified oppositional opinions are brought in the foreground quite often, whereas the "critical" nature of the problems remains unattended. As a result, the crisis deepens and intensifies.

For people who wish to understand the symptoms of social structural change and the transitory forms of urban conditions after serious situations such as a financial crisis, great disaster, or the critical conditions of a nuclear energy system, it is critical to find a way to attend actual problems, which are hidden in reality, and to possess an analytical tool for the elucidation of crucial social phenomena. When trying to manage this task, we know that re-reading classic works provides us some lessons and implications because these works often deal with the task of approaching their own problematique seriously, and in creating suitable analytical tools for it. [1]

The Urban Question is, I believe, one such work, originally published in French in 1972 by Manuel Castells. The basic objective of this book was to communicate with readers certain experiences of work aimed at producing a dynamic research, and to understand a range of critical situations and structural changes of capitalist urban spaces during the late 1960s through the 1970s. This article will focus on these "experiences of work" and the principles of method-in-use on that work. Here, the principle of method-in-use means understanding the concrete ways that are used to define actual tasks and creating a specific method of research and analysis suitable for them. The principle of method-in-use in *The Urban Question* is, as Castells shows, composed of three moments: the epistemological rupture from urban ideology, theoretical construction of urban structure, and concrete research on urban practice. In the following sections, these moments will initially be briefly described. Then, the actuality of the theoretical movement composed of these moments will be specified.

EPISTEMOLOGICAL RUPTURE FROM URBAN IDEOLOGY

Any social investigation has to begin with a certain situation that is histologically socially given, irrespective of the theme it deals with. In case of *The Urban Question*, the "raw" materials of the work were "ideological representation," "knowledge already acquired," and "the specificity of the concrete situations studied" about contemporary urban problems. All these aspects are characterized by the dominance of ideological elements; because of which, such an ideological envelope has to be cut up. To escape from an epistemological limit created by

Yutaka IWADATE, Doctoral Student, Graduate School of Social Sciences, Hitotsubashi University

false questions, a means of mediation must include an attempt to show the contradiction between real observation and the ideological discourses about it. For example, Castells, with his research group, carried out an inquiry on the massive levels of pollution caused by a large food factory in a working class quarter located in a suburb of Paris at a time when no newspaper brought up the critical topic of serious pollution. Through the direct investigation of the factory and local inhabitants, the gap between ideological discourse and the study of "harmful effect" was clearly brought to attention.

However, becoming aware of such a contradiction is not enough to justify further investigation. As Castells said, "once the contours of the ideological discourse on the urban have been established, the supersession of this discourse cannot simply proceed by means of a denunciation; it requires a theoretical analysis of the questions of the social practice it connotes (p. 2)." [2] An analysis of the housing crisis is one of its examples. On the basis of the analysis of concrete data about a housing problem in Paris, which was called "the housing shortage" in ideological language, it is clearly revealed that "the housing shortage" is not "a matter of the balance between supply and demand." The problem, therefore, is formulated into "the disparity between the needs—socially defined—of the habitat and the production of housing and residential amenities (p. 146)." To highlight this problem, the structural analysis of this "disparity and its historical singularities" as well as the theoretical tools suitable for the analysis of the production process of housing crisis in a capitalist economy are required.

THEORETICAL CONSTRUCTION OF URBAN STRUCTURE

Space is "not merely an occasion for the deployment of the social structure but a concrete expression of each historical ensemble in which a society is specified (p. 115)." This is the starting point of theoretical work in *The Urban Question*. To transform the way of understanding space and approaching the actual question, a concept of "mode of production," which is redefined through Althusser's *Reading Capital*, was introduced into the work. This "theoretical event" is of significance in supporting a "transition from ideology to science." [3]

Using a concept of the mode of production, which basically means "the particular matrix of the combinations of the fundamental instances (systems of practice) of the social structure: essentially the economic, the politico-institutional, and the ideological (p. 125)," enables the reader to grasp the specificity of the form of social space. As Castells wrote, "to analyze space as an expression of the social structure counts, and therefore, to study its shaping by the elements of the economic system, political system, and ideological system, and by these combinations and the social practices derived from them (p. 126)." Building on the above, a new theoretical question arises: what is urban space? In other words, with theoretical precision, what is the specificity of urban space as the expression of the articulation of a social structure within a unit defined in one of the instances of the social structure? As is popularly known, Castells' theoretical hypothesis states that "the urban" is an economic unit, and relatively speaking, it relates to labor more power than the production. "Urban spaces, thus, become spaces defined by a section of labor force, delimited both by a job market and the (relative) unity of its daily life (p. 236)." Furthermore, the concept of "urban system" is proposed, which essentially means "specific articulation of the instances of a social structure within a (spatial) unit of the process of reproduction of labor force (p. 237)."

The Actuality of Theoretical Detour: Reading *The Urban Question* on a Critical Point

Yutaka IWADATE

The conjuncture of the urban system, which is constituted by the relationship of element, sub-element, and their roles and levels in social structure, makes it possible to conceive of a social situation. However, mere analysis of such conjunctures does not enable us to grasp the social process of the production of that situation. "An analysis of urban structure while historically elucidating given spatial forms, in which is expressed the internal logic of the reproduction of labor power, regularly comes to a halt whenever it is the matter of apprehending the process of the production of these forms and practices, and whenever one wishes to establish its law of development and transformation. Indeed, because the structures exist only in practice, the specific organization of these practices produces autonomous (though determined) effects that are not all contained simply in the deployment of structural law (p. 244)." Because of that, an additional introduction is required; that is, an analysis of social agency and a specific link between the structural field and the political process, which includes the intervention of the institutional system and social movement.

THE POSITION OF URBAN PRACTICE IN CONCRETE RESEARCH

Castells wrote, "As soon as one approaches the analysis of a concrete situation, the essential axis of its interpretation derives above all from its location in the political process—that is to say, from its relation to power." Moreover, to study the political process often means making "a detour by the way of a structure analysis of its elements and the law of its social matrix (p. 243)" because, following Castells' argument, only the construction of the structural matrix of a society enables one to intelligibly elucidate the society, and only an analysis of the political process makes it possible to understand a concrete situation and its transformation.

Therefore, the "axis" of analysis of the urban question is on "the specific articulation of the processes designated as 'the urban' within the field of class struggle and, consequently, with the intervention of the political instance (state apparatuses) (p. 244)," which at that moment, means an analysis of the process of collective consumption. Moreover, to analyze the specific articulation of power and urban process, "urban planning" and "urban social movement" were articulated and proposed as the main objects of the research. These theoretical tools were deconstructed and analyzed in the process to grasp the urban structure in a practical manner and, particularly, to understand the urban practice in structural dimension. In fact, these tools were used in a limited way in the analysis of concrete urban situations. It is important to remember that these tools are only to be used for "cementing a reality," "testing of the general law," and "discovery of new relationships" in an advanced capitalist society. Therefore, the usefulness and fruitfulness of these tools is more important than the coherence of them.

Consequently, the field of urban practices was defined as "a system of combination between given combinations of structural elements (p. 266)," and then, a theoretical diagram was proposed. This diagram makes it possible to code the complexity of the urban practice, facilitating the more fruitful collection and the comparison of the results of research. However, that itself does not guarantee the capacity of the theoretical diagram for explaining the urban practice. In order to resolve that, more concrete research with theoretical hypothesis were to be conducted to make rectification possible. [4]

The Actuality of Theoretical Detour: Reading *The Urban Question* on a Critical Point

Yutaka IWADATE

ACTUALITY OF THEORETICAL DETOUR

The experiences of work in The Urban Question are a process to produce scientific knowledge on the urban problem of capitalist society. It can be identified as theoretical practice. As described above, it consists of three moments: epistemological rupture from urban ideology, theoretical construction of urban structure, and concrete research on urban practice. What is really crucial, however, is that these moments are not in a time-sequential order; nor are they the phases of a research practice, because, as a study on crafts of sociology suggested, experimentation is only as good as the theoretical construct that it tests. The heuristic value and proof value of such a construct depends on the extent to which it has enabled a break with ideology (Bourdieu et al. 1991: 58). The moments are not separated, but rather interwoven.

In *The Urban Question*, which correlated these different moments, Castells generated a movement of scientific exploration, which tried to combine its original critique, new concepts, and concrete research for transition from the implicit ideology to urban problematic. On account of the actuality that Castells showed by following this movement, although there remain many and correct critiques against it, this work is still alive and attractive, and especially, the theoretical construction of urban structure is an indispensable detour to bridge the critique of ideology and analysis of concrete situations. When confronting a critical moment in urban conditions, we must again remember the actual importance of such a theoretical detour.

Notes

1 This is one of the tasks for Study Group on Infrastructure and Society, organized in April 2011 at Hitotsubashi University, Tokyo. In order to tackle this task, especially rethinking the relationship between infrastructure and society, a working group to reconsider theoretical issues is on the move. A first draft of this article is a discussion paper about the concept of collective consumption and Castells' theoretical work in *The Urban Question*, in process as of September 2011.

2 In this article, quotations are from the English edition of *The Urban Question* (Castells 1977).

3 As Balibar wrote, "'the transformation in the way history is thought' and 'a transition from ideology to science' are merely the effects of a single theoretical event: the introduction of the concept of a mode of production into traditional problematic of periodization" (Balibar 1970: 254, emphasized in original).

4 Empirical research is emphasized by Castells himself in an interview. "My attempt to bring together Marxist theory, urban sociology, a Tourainian knack for social movements and my personal emphasis on empirical research led to the writing of my first book" (Castells and Ince 2003: 15, emphasized by me).

References

Balibar, Etienne, 1970, 'The Basic Concepts of Historical Materialism', in Althusser, Louis and Balibar, Etienne, *Reading Capital*, NLB.

Bourdieu, Pierre, Chamboredon, Jean-Claude, Passeron, Jean-Claude, 1991, *The Craft of Sociology: Epistemological Preliminaries*, Edited by Beate Krais, Translated by Richard Nice, de Gruyter.

Castells, Manuel, 1972 (1976), *La Question Urbaine*, Francois Maspero; Paris. (=1977, *The Urban Question*: *A Marxist Approach*, Translated by Alan Sheridan, Edward Arnold Ltd.)

Castells, Manuel and Ince, Martin, 2003, *Conversation with Manuel Castells*, Polity Press.

Preface: To Understand the Different Side of Problems Faced by Each Civil Organization

Keiichi SATOH

People align and form an organization when they have to resolve a problem or face a reality that they want to change. Established organizations, in turn, draw more people to them, and their interactions together become movements.

After the severe accident at the Fukushima Daiichi nuclear power plant caused by the earthquake in Tohoku region in 2011, Japan witnessed a sudden explosion of social movements that focused on nuclear- and energy-related issues such as antinuclear demonstrations, grassroots activities for spreading renewable energy, citizen-based radioactivity measuring stations, and helping nuclear-related evacuees.

However, it is not always easy to name this phenomenon in a single word. Current social movements do not always share the same goals. For example, some organizations stress the need to abolish nuclear plants, while others maintain a neutral stance. This is because each organization is facing different problems even though it has originated due to the same nuclear accident. What then is the context of the problems that each organization faces? What is the background of each organization's activity? Can we look beyond their superficial differences and see the underlying commonalities in these movements in the post 3.11 civil society?

Distance from the Fukushima Daiichi plant is a significant factor to identify in the context of each organization. People who live near the plant must first face how to live in a radiation region. On the other hand, people who live far from the plant must consider the risk in the future. Based on this idea, we can categorize Japanese territory into roughly three areas: areas that were severely affected, weakly affected, and almost unaffected by radiation (typically the Fukushima, Kanto, and Kansai regions, respectively). Corresponding to this classification, we conducted interviews with key organizations in each area during the summer and fall of 2012. This series reports the results of each interview.

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

Key Organizations of the Post-Fukushima Accident Civil Society 2

Revival of the Deep-rooted Anti-Nuclear Power Social Movement in Kansai Region: Green Action

Reeya KOMODA

Outline of the research

Date: September 22 , 2012

Place: Kyoto City, Kyoto Prefecture

Interviewee: Aileen Mioko Smith (アイリーン・美緒子・スミス), Director of Green Action (グリーン・アクション)

Researchers: Reeya KOMODA, Keiichi SATOH, JiYoung KIM

PURPOSE OF THE RESEARCH

After the Fukushima accident, various "newcomer" organizations have begun to act on this energy-related issue. As they emerged, social movements focusing on the issue of nuclear power have become active. However, in our research, we find that the key factor affecting the activity of these social movements varies by locality. In fact, in Kansai region, long-established organizations became more active on the issue than they had been. To understand the nature of the movements in Kansai region after the accident, we interviewed the key person who has played a major role in the anti-nuclear power movements in Kyoto.

PROFILE OF GREEN ACTION

Green Action was founded in 1991. Based in Kyoto, Green Action has been campaigning to stop the introduction of MOX (Mixed oxide) fuel to the reactor, or the "Plutonium-ThermalProject", promoted by the Japanese government. One of Green Action's successful campaigns, in collaboration with Mihama Group (美浜の会) was, for instance, to put the plan of using MOX fuel at the Takahama Nuclear Power Plant in Fukui Prefecture in 1999 on hold for 10 years. This project exemplifies the fact that Green Action has been keenly following the development of the Japanese Plutonium-Thermal Project and providing information to both domestic and international citizen's groups to establish active networks with other organizations.

Green Action has played a major role in the anti-nuclear power movements in Kansai region. After the serious nuclear power plant accident in Fukushima, Green Action once again has drawn considerable attention from the media.

SUMMARY OF THE INTERVIEW WITH GREEN ACTION

We had an opportunity to interview Ms. Aileen Mioko Smith, the founder of Green Action on September 22, 2012 at her office in Kyoto. In this article, I focus on the four points from the topics discussed in the interview.

The four points are about 1)the trend of financial aid policy to the anti-nuclear citizen's groups, 2) the positive effect on the aging problem in Japanese social activism, 3)the rising of new associations in Kansai region, and 4)the creation of the emergency network.

Reeya KOMODA, Master's Student of the Graduate School of Social Sciences, Hitotsubashi University

Revival of the Deep-rooted Anti-Nuclear Power Social Movement in Kansai Region: Green Action

Reeya KOMODA

Then I would like to focus on following two points in the interview. It is interesting to consider the potential of these associations in Kansai region and the emergency network, which Ms. Smith pointed to in the interview.

Photo 1 Ms. Aileen Mioko Smith
Note: photograph by Green Action

First, with respect to financial support, Green Action is supported mainly by foreign organizations. This support has become more firmly established after the Fukushima nuclear power plant accident. For example, an American founder which had financially supported Green Action for many years changed its financial aid policy for them. Prior to the accident, support was provided on a yearly basis; however, now it has been extended to every two years, thus expressing a commitment to longer term financial aid. While there are several funds which support anti-nuclear citizen's groups like Green Action in foreign countries, no significant funder exists in Japan except for The Takagi Fund for Citizen Science, even after the March 11th accident. However, the amount of money to Green Action from fund raising campaigns was doubled or even tripled after March 11, according to Ms. Smith.

The second point is that the explosion of social movements triggered by the nuclear power plant accident can become the seeds for activism in the next generation. Green Action hopes some of these seeds will eventually blossom. One of the problems social activism in Japan faces is the aging of the key players who lead social movements. The majority of them are in their 60's or 70's now. Nevertheless, the accident in March inspired a number of younger leaders. For example, in Fukui Prefecture(福井県), a reggae singer, Sing J Roy, has started a campaign to stop Japanese plutonium programs as a part of his musical activities.

Thirdly, there were some new associations which were formed in Kansai region after the March 11th accident. Characteristic of these associations is that their members are mostly relatively young married parents whom Ms. Smith calls "Papa and Mamma groups". (パパ・ママグループ). Ms. Smith observed that these associations appear to be concerned with the issues as far as their everyday living environments are concerned (e.g. food safety in school meals, disposal methods of rubbles and debris from the earthquake-stricken area). Though they are interested in radioactivity issues, Ms. Smith is concerned that their goal does not seem to be termination of the nationwide plutonium programs. In fact, they are not always collaborating with Green Action.

Finally, organizations, which had never been in close collaboration with each other prior to the accident, functioned as one effective agent to provide emergency aid for Fukushima after March 11. Despite the fact that they had not had a close relationship previously, a number of various action groups called for cooperation with each other as if there was a "chain-reaction of coordination," and thus, establishing an emergency network.

Revival of the Deep-rooted Anti-Nuclear Power Social Movement in Kansai Region: Green Action

Reeya KOMODA

CONSIDERATIONS FOR FURTHER STUDY

The first is that it will be worth watching how these new associations which were formed in Kansai region will campaign in the wake of the March 11 accident. Will the actions that started from the concerns limited only to immediate living environments become independently based in a certain region or will they ever become nationwide political movements? If these actions became the former, in a positive or negative way, the factor of these actions could potentially create the infrastructure connected to the issue of political decentralization, which has been discussed in Japanese society. The decentralization also seems to be "orders from above". These actions can become essentially the institution, which provide the alternative services in the region to bloated and rigid governmental public sector and profit motivated private sector.

Secondly, the new way of implementing emergency aid that has emerged in the wake of March 11th, in which a number of different action groups who had little prior knowledge of each other organized and collaborated with each other, can be understood as "one way of organizing a network-type organization". The relationships were not strong under normal circumstances when it was not necessary to cooperate with each other. Organization know each other by name but their interaction are negligible. These ties can be called "absent ties" rather than "weak ties", according to Mark S Granovetter (1973).

However, he also said that in some contexts like disasters negligible ties might be usefully distinguished from the absence of ties.

In fact, when circumstances required, a number of different action groups who had had "absent ties" succeeded in functioning as an intermediary, a network operating as a system in a state of emergency. In other words, the network system was generated by chance by combining these ties. It is true that the ways by which these organizations are connected is not the same as those organized through a bureaucratic system.

The emergency network also included some organizations at least temporary to achieve the goal. The network can be called "one of the network-type organizations". We can see the characteristic of the network-type organization after organization completed. After achieving the goal, the relations of the network are dissolved. These organizations which constituted the network-type organization acted for their each own goals.

In this sense, the network which we saw after the March 11th accident through the interview is a creation generated by chance, urgency, and emergence and is not generated by a certain intention that follows a pre-defined process or system.

Further Information :
Green Action(グリーン・アクション)
Web http://www.greenaction-japan.org/

Reference:

Granovetter, Mark S. 1973. "The Strength of Weak Ties." American Journal of Sociology 78(6) : 1360−1380.

Connecting Evacuees through Lunchbox Delivery Service: The Female Farmers' Power Project "Ka-Chan no Chikara Project"

Keiichi SATOH

Outline of the research

Date: September 24, 2012

Place: Fukushima City, Fukushima Prefecture

Interviewee: The Female Farmers' Power Project "Ka-Chan no Chikara Project Kyogikai（かーちゃんの力・プロジェクト協議会）"

Researchers: Keiichi SATOH, Sunmee KIM, Atsushi OKADA

EVACUEES AND PROBLEM OF COMMUNITY BUILDING

The great earthquake and tsunami on March 11, 2011 and the subsequent accident at the Fukushima Daiichi nuclear power plant caused a nationwide outbreak of as many as 325,000 evacuees. In Fukushima Prefecture, including the residents of Fukushima's evacuation zone, around 160,000 people have been forced to evacuate[1] and 99,139 people are still evacuating according to the data provided by the Reconstruction Agency as of November 1, 2012[2].

There are many different places where these victims were evacuated. Some people relied on their relatives, some people evacuated to public or private houses that were borrowed by the local government, and others stayed in temporary houses. Because such houses are scattered in different locations, many evacuees are forced to live in communities that are different than those they used to live in. This situation causes stress and may even involve worse living conditions. Consequently, building a new community is becoming increasingly important for the revival of the disaster-stricken area. However, the following question arises: who takes on the leadership for building the new community? And how and through what do they make new connections between evacuees?

In this article, I will take up the case of community building by an initiative conducted by the Female Farmers' Power Project ("Ka-Chan no Chikara Project（かーちゃんの力・プロジェクト）") that includes running a lunchbox shop. Based on an interview with the project leader Tomiko Watanabe on September 24, 2012 at their shop in Fukushima City, I will describe how the group developed their project and why this particular leader could take up the leadership role.

THE PROCESS OF PROJECT DEVELOPMENT

At Matsukawa town, approximately 8 km away from Fukushima City, a shop renovated from an old house opened as a base for the lunchbox delivery service. At the shop, named "Abukuma Chaya（あぶくま茶屋）" (Abukuma Tea Store), 11 female farmers who were evacuated from the disaster-stricken area work everyday selling lunchboxes and other processed agricultural products such as kimchi and tsukemono (pickled vegetables). After months of preparation and trial sales, the shop started to run the lunchbox

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

Connecting Evacuees through Lunchbox Delivery Service: The Female Farmers' Power Project "Ka-Chan no Chikara Project"

Keiichi SATOH

delivery service at full scale on August 28, 2012 and now brings around 100 packs of food to evacuees' houses everyday.

Photo 1 Abukuma Chaya, the delivery shop base; on September 24, 2012, Fukushima City
Photo by Author

This project of building connections between evacuees through the lunchbox delivery service first began with the evacuees and local host residents participating in a festival. Supported by the Fukushima University and the NPO Horai (NPO 法人ほうらい), around 10 female farmers gathered for the first meeting on November 22, 2011 and decided to hold the festival, entertaining guests with local traditional rice cakes on December 17 and 18.

The female farmers who gathered for this meeting had been engaged in growing local specialties and developed processed agricultural products before the disaster. After the disaster, the farmers were deeply depressed and shocked by the stress of living under uncertain conditions and the fact that they could neither farm where they used to cultivate nor sell their products at the market due to buyer's fear of radiation. The festival was the first chance for most of the farmers to work once again after the disaster.

Motivated by the success of the festival, the female farmers began to prepare for running the lunchbox delivery service. At that time, the eating habits of those living in temporary houses were gradually becoming known, and there was a requirement to supply a balanced diet to them. The farmers renovated an old house (mentioned above) provided by the Horai and built a kitchen. Some local residents helped by cutting trees that had been contaminated by radiation.

In May 2012, the first lunchboxes were sold at the Fukushima University; the project had begun on a trial basis. At the same time, they tried to make recipes that they could cook at their small kitchen and corresponded with the prices. In July, deliveries began on Thursdays and finally, at the end of August, the project opened full time.

THE LEADER'S PAST EXPERIENCE

The person who led this project is Tomiko Watanabe, a female farmer in her 50s. Watanabe evacuated from Iitate Village, which is located 40 km away from the Fukushima Daiichi plant and was severely affected by radiation. She was formerly a leader of a farmer's groups that engaged in studying to grow a new variety of potato Iitate Beiku（イータテベイク) and pumpkin Iitate Yukikko（いいたて雪っ娘) which were developed by Motoichi Kanno. To engage in product development using them, She also ran a shop named Madei Kobo（までい工房）.

The career she developed is deeply related to the bitter reality under which the local community was placed after the disaster. Originally, the group was one of those that was supported by the village to develop into a town and had started in 2005. After three years of financial support by the village administration, each group was expected to be an independent business. Though some of the initial groups did not manage this, her group successfully moved to being a self-supporting business. She points out that the reason for their success was the unyielding spirit of her group members. At that time, the village was in

Connecting Evacuees through Lunchbox Delivery Service: The Female Farmers' Power Project "Ka-Chan no Chikara Project"

Keiichi SATOH

turmoil over the issue of annexation by other local governments seeking better financing for the village administration. Because most of her group members were against the annexation, they worked harder at their project, hoping that profits from the agricultural products will help retain the village's independence. During this project, she also became acquainted to other farmers from the Abukuma region, who were also engaged in product development in their localities.

Another reason for her success, she recalls, was related to her main job, sewing. Though she cultivated her farm, she mainly made a living by sewing. As a result, she could analyze the whole process of production and was accustomed to demanding good quality products when she became involved with the sale of different agricultural products.

As she cultivated the potatoes and pumpkins that were otherwise hard to cultivate, she was reluctant to give them up even during the chaos of the disaster and evacuation when she changed her place thrice. She managed to borrow fallow fields and cultivated them almost by hand, until finally she could preserve the seeds of the potato and pumpkin for the following year.

Photo 2: Tomiko WATANABE, the leader of the Female Famers' Power Project; on September 24, 2012, Fukushima City
Note: Photograph by the author.

After she harvested the potato and pumpkin and finished holding a private harvest festival for local host residents in October as usual, a teacher at the Fukushima University who knew Watanabe through a village development project telephoned her and told about the Female Farmers' Power Project. She started gathering people in the neighborhood, though there were many that she could not reach because their contact details were lost after the evacuation. The members that she managed to gather participated to be members of the project.

PLANNING FOR THE NEXT THREE YEARS

Set strict reference values

In every recipe used in the lunchboxes, the project intentionally uses agricultural products from the Fukushima region. Watanabe said that sometimes the Project is criticized for growing foods in Fukushima, however, she maintains, "We keep living in Fukushima. If so, we must intentionally consume it by ourselves as long as it is safe."

To continue using the food from Fukushima region she intentionally set a strict reference value for acceptability. While the Japanese government sets 100 Bq/kg for foods, the project sets 20 Bq/kg, which is two times as strict as the reference value in Ukraine. Watanabe explains the reason for this, "When I brought my pumpkin (Iitate Yukikko) to the direct sales store, I was asked whether I used the name of Iitate. I was really disappointed. But even how I confront emotionally there, consumer feels uneasy and will not want to buy (with governmental reference value). So when I was asked to set a reference value, I set it as strict as possible." To check the radiation on food, they test a 1 kg sample of food everyday, although the cost for the test is not eligible for compensation by TEPCO according to the

Connecting Evacuees through Lunchbox Delivery Service: The Female Farmers' Power Project "Ka-Chan no Chikara Project"

Keiichi SATOH

explanation by the company.

Hear the voice of the evacuees

Delivering lunchboxes with local foods connects the residents of the temporary living accommodation. They meet the residents and greet them everyday. They also cooperate with the residents at the temporary housing who make glossaries, which are sent to supporters of the project. Though these activities are intended to revitalize the disaster-stricken area, Watanabe stresses the need to hear the voices of the residents in temporary houses not only for the residents' welfare but also for the success of their business through which they connect together and have a constant chance to talk each other. The project is expected to be independent of its current financial support from the Fukushima Prefecture. "We should hear the needs of the temporary houses customer there, not just delivering the lunchbox, because from these needs we can know what we can do further as a business. Otherwise, we cannot survive three years later." Today Watanabe and her project members are confronting new challenges to their success just as she once experienced in Iitate Village.

When disaster strikes, a community needs to revive psychologically as well as materially from the destruction in their daily life. The strength of resilience that has accumulated in the community before the disaster needs to be enabled to operate after the disaster. Has Japanese society sufficient accumulations of such strength? Who are the hidden agents enabling the communities' resilience? These issues are now topical in rebuilding social life after the disaster.

Further Information

The Female Farmers' Power Project:
http://www.ka-tyan.com/index.html

Notes

1 According to the report "The Present Condition of Revitalization in Fukushima Prefecture" by Reconstruction Agency published in October 2012, retrieved on December 5, 2012. (http://www.reconstruction.go.jp/topics/20121025_fukusimasaisei-2.pdf). (＝復興庁「福島復興再生の現状について」2012 年 10 月). This data does not include the number of people who evacuated to their relatives' house.

2 According to the report "The number of Evacuee in National Wide", published on November 7, 2012. Retrieved on December 2, 2012. (http://www.reconstruction.go.jp/topics/post.html)（＝復興庁「全国の避難者等の数（平成 24 年 11 月 7 日版)）