

Materiality of Intervention: A Note on the Infrastructure Question

Yutaka IWADATE

INTRODUCTION

Investigation of the Infrastructural Crisis

This paper is an attempt to express the serpentine process of the author's theoretical work.¹ A critical social condition following the Great East Japan Earthquake on March 11, 2011, especially in Tokyo, has led the author to pursue such work. Certain outcomes in the urban infrastructure of Tokyo, such as the paralysis of transportation, rolling blackouts, and radioactive contamination of tap water, have continually occurred. This urban situation of Tokyo is one of the starting points for this work.

However, the current research has faced the challenge to produce theoretical tools for investigation of this infrastructural crisis. That is, specific tools that are more useful and relevant to approach the infrastructure problem are still needed to pursue this work. Yet, as this research is currently in process, the purpose of this paper is not to present any completed accomplishment but serves to help the author move forward with ongoing work.

To approach such infrastructure issues, as all theoretical work requires, it is essential to transform raw materials through the use of particular tools. The next section shall therefore briefly trace a classical concept of collective consumption as produced by Manuel Castells as a key material for the current research. Secondly, this classical concept will be improved upon by referring new interventionism inspired by governmentality studies. Then, the third section will provide a short analysis on the critical

situation of the Tokyo water supply as a case study of infrastructural crisis.

RECONSIDERING “COLLECTIVE CONSUMPTION”

In the process of writing *The Urban Question* in the 1970s, Castells named concrete social problems that are perceived as “the urban problem” through which the growing importance of the urban areas over the last twenty years have been discussed, as follows: (1) Growing urban concentration and the concentration of the population; (2) The intervention of the state in both production and distribution in urban development; (3) The development of urban struggle and new forms of social conflicts; (4) The development of both discourse on the urban areas and of attention paid to the urban areas by official institutions (Castells 1976: 451).

Castells remarked that the concept of collective consumption makes it possible to reveal correspondence and causality between these concrete social problems and the fundamental structural tendencies of state monopoly capitalism. Thus, Castells's argument should be further pursued as a significant contribution.

Consumption and Reproduction of the Mode of Production

“Consumption,” Castells stated, refers to “the social process of appropriation of the product by people, that is to say, social classes,” and further stated that

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

“the process of consumption acquires a decisive place in the reproduction of the mode of production as a whole in its present phase” (Castells 1976: 454-458).

In addition, practices of consumption involve three levels: (1) The economic level: this is essential to both the reproduction of labor power and to the mode of realization of surplus values; (2) The political level: consumption increasingly assumes an important place in the process of claims-integration, as the expression of class relations at the level of the relations of distribution; (3) The ideological level: as reproduction of the social relations inherent in the mode of production, consumption is the expression of class practice and of level in the hierarchy of social stratification (Castells 1976).

However, Castells stated that it is necessary to differentiate between two broad types of processes in the reproduction of labor power: collective consumption and individual consumption. Specifically, Castells remarked as follows:

While both processes are articulated in practice, the one that dominates the process as a whole will structure the other. Now, the organization of a process will be all the more concentrated and centralized, and therefore structuring, as the degree of objective socialization of the process in advanced, as the concentration of means of consumption and their interdependence is greater, as the administrative unity of the process is more developed. *It is at the level of collective consumption that these features are most obvious and it is therefore around this process that the ensemble of consumption/reproduction of labor power/reproduction of social relations is structured* (Castells 1976: 445; emphasis by the author).

Here, we should reconfirm the basic definition of collective consumption. According to Castells,

collective consumption is “consumption of commodities whose production is not assured by capital, not because of some intrinsic quality, but because of the specific and general interests of capital” and “means of consumption objectively socialized, which, for specific historical reasons, are essentially dependent for their production, distribution and administration on the intervention of the state” (Castells 1976: 440).

For Castells, the concept of collective consumption is a process wherein the ensemble of consumption/reproduction of labor power/reproduction of social relations is structured, depending on the intervention of the state. This is the essential and decisive field for the reproduction of the mode of production in this phase of capitalism. As is well-known, this phase is referred to as state monopoly capitalism.

State Monopoly Capitalism and Intervention

Castells specified the phase of state monopoly capitalism according to two levels. The first is the economy level: the monopoly capital organizes and rationalizes consumption as a whole in every domain. This is expressed at the level of experience by a growing oppression in everyday life. The other is the political level, which Castells explains as follows:

The state apparatus intervenes into the process of consumption in different forms. Especially, the state is taking over sectors of the production of means, which are essential for the reproduction of labor power. *It is here that the ‘urban problematic’ sends down its roots.* So, the state is taking charge of a considerable part of the process of consumption. This is at the root of so-called “urban politics” (Castells 1976: 459; emphasis by the author).

This intervention of the state, which Castells called urban planning in the broad sense, involves

an almost immediate politicization of the whole urban problematic, because the administrator and interlocutor of the social claims and demand tends to be the political apparatus of the dominant classes. However, the politicization is not necessarily a source of conflict or change, for it may also be a mechanism of integration and participation: everything depends on the articulation of the contradictions and practices, or on the dialectic between the state apparatus and urban social movement. Therefore, Castells translated “the urban problem” and processes linked with them in terms of collective consumption.

In short, the key point of collective consumption is opening a theoretical field of the process wherein the ensemble of consumption/reproduction of labor power/reproduction of social relations is structured. In state monopoly capitalism, since the state strongly intervenes in this process, it becomes the dialectic between the state-intervention as urban planning and civil society as an urban social movement. Therefore, the process of collective consumption is the main arena of urban politics, for the reproduction of mode of production.

Focusing on interventionism, the concept of collective consumption specifies concrete routes in which the state has powerful effects on civil society in the urban settings of state monopoly capitalism. For the investigation of infrastructural issues, this is of great significance.

However, there are two points to be criticized based on the concern of this paper. One is a historical limit of the concept of collective consumption. As previously mentioned, Castells had produced his theoretical framework according to state monopoly capitalism. Thus, a more relevant concept in contemporary capitalism, particularly neoliberalism, is needed. The other is the need to analyze the inner connection of the process of collective consumption. As Castells said:

Like every social process, collective consumption is made up of elements that may be defined only in their relations. Indeed, it is nothing but relations, historically determined between these elements. What are these elements? The same as those of the process of production: Labour Power, Means of Production, Non-Labour, but organized differently. *In the structural organization of the contradictions specific to this process resides the ultimate secret of collective consumption* (Castells 1976: 461-462; emphasis by the author).

It is the author’s view that “the ultimate secret,” which Castells once located, has not yet been elucidated. The review of Castells’s argument on collective consumption is sufficient at the moment. Based on this short review of collective consumption, transformation of this raw material will be the onset.

Neoliberal State and New Interventionism

As Castells noted carefully, “this theoretical translation of urban problematic into terms of collective consumption has only a historical meaning. And such an analysis is specific to the capitalist mode of production” (Castells 1976: 448). It is important to overcome any historical limitations of the theoretical background upon which Castells’s argument is based.

In state monopoly capitalism, the process of growing production and distribution of collective consumption goods made the “big” government.² However, this process had generated another emergency, specifically a financial crisis. One of the principal prescriptions for the financial crisis is the diminution of public service and making “small government.” However, it is important that “small government” does not mean the weakening of the power of state.

As Wakamori pointed out, neoliberalism is a project of reconstruction of capitalism by legal

and institutional intervention of a “strong state.” According to this belief, only a strong state can produce and maintain operative and competitive market orders. The strong state refers to a state that intervenes in the economy and society on the principle of competition, market, and price (Wakamori 2012). David Harvey called this process “the paradox of intense state interventions and government by elites and ‘experts’ in a world where the state is supposed not to be interventionist” (Harvey 2005: 69).

The feature of this kind of intervention is not direct intervention into civil society, but rather indirect. State intervention has been shifted from governing with a distribution of resources to governing with control and rule over the mode of distribution. Various actors in social domains face certification, evaluation, and mobilization from the state agency. Based on this context, in neoliberal capitalism, the intervention of state remains powerful and heavy. This type of active power is referred to as “new interventionism.” Thus, more useful concepts and analytical tools for this feature of intervention should be adopted.³

Materiality of Governing

To conceptualize an indirect power mechanism, Miller and Rose noted the “government at a distance,” referring to Bruno Latour’s notion of “action at a distance” (Miller and Rose 2008: 32-33). In their governmentality studies, series of fruitful concept such as ‘political rationalities,’ ‘program of government,’ and ‘technologies of government,’ has been produced (Miller and Rose 2008).

As Miller and Rose remarked, citing Michel Foucault’s discourse, “What one sees is not a uniform trend of ‘State intervention’ but rather the emergence, at a multitude of sites in the social body, of health and disease of crime and punishment, of poverty and pauperism, of madness and family life as problems

requiring some measure of collective response, and in relation to which political authorities play a variety of different roles” (Miller and Rose 2008).

However, governmentality studies have been criticized for their tendency to focus on literature. Higgins and Larner stated that many of the empirical analyses in existing governmentality literature have been criticized for tending to study how technologies of governing are constituted discursively from the perspective of those “programmers” seeking to govern, rather than investigate how they are put into place and the resulting consequences at the level of everyday practice (Higgins and Larner eds. 2010: 5). In other words, for the concern of the current study, it is more necessary to investigate “material practices of governing” and materiality of governing at the level of everyday life.

The next section will draw upon a short case study of the emergence of intervention in a concrete urban situation as problems requiring some measure of collective response, in which political authorities play a variety of different roles. Specifically, this event is an urban infrastructure crisis in the midst of a disaster process, The Great East Japan Earthquake in 2011.

CRISIS OF TOKYO WATER SUPPLY SYSTEM

The Great East Japan Earthquake and Politics of Intervention

On March 11, 2011, in the early afternoon (14:46:23 local time), Japan was rocked by 9.0-magnitude earthquake that caused widespread damage to the country’s eastern coastal region. This is referred to as a triple disaster: large and continuous earthquakes, a tsunami, and serious accidents at the Fukushima Daiichi Nuclear Power Plant. This disaster is named The Great East Japan Earthquake, and the aftermath of the disaster is still ongoing.

Especially in Tokyo, some chains of events within

the urban infrastructure of Tokyo, such as paralysis of transportation, rolling blackouts, and radioactive contamination of tap water had been continuously occurring. Such a criticality of the urban condition had caused various governmental responses and intervention. As Lakoff noted, the first decade of the twenty-first century was punctuated by a series of domestic and international emergencies. Despite the differences between each emergency, it is clear that there were features of the contemporary politics of intervention into disaster: (1) Each emergency situation galvanized governmental response; (2) There were perceived failures of governmental response to disaster generated political crisis; (3) There were disagreements both over the appropriate measures for managing emergencies and over the locus of responsibility for implementing measures (Lakoff ed. 2010).

The following section focuses on the crisis of the Tokyo water infrastructure following The Great East Japan Earthquake, governmental response to disaster, and the contemporary politics of intervention.

Hybridity of Tokyo Water Infrastructure

Historically, the water supply for an urban space is one of the crucial matters for existence of a city. In particular, modern cities do not sustain without clean and safe water. In other words, modernization of the urban space has been embodied in creating routes to water access: “The existence of modernity’s quasi-objects and hybrids can be extended to include spatial categories such as the modern city” (Kaika 2005: 24).

Swyngedouw remarked that water is indispensable “stuff” for maintaining metabolism, not only for our human bodies but also for the wider social fabric. The very sustainability of cities and the practices of everyday life that constitute “the urban” are predicated upon and conditioned by the supply, circulation, and elimination of water. Further, the supply of water is routinely—although by no means necessarily or exclusively—organized by means of large bureaucratic and engineering control systems, collective intervention and action, and centralized decision-making systems (Swyngedouw 2004).

As Figure 1 shows, Tokyo’s water supply system

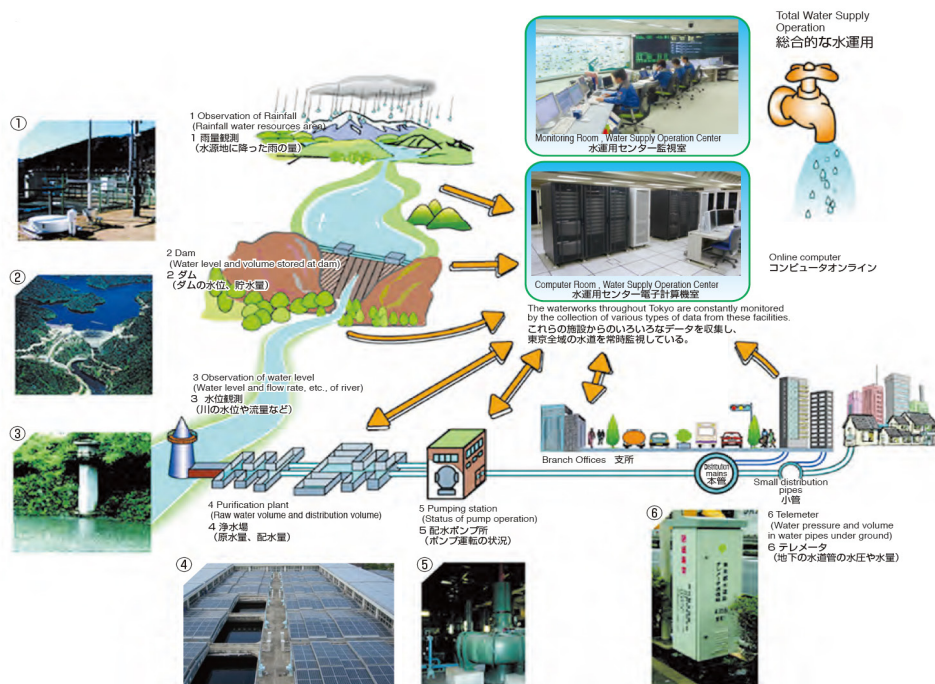


Figure 1: Relationship Diagram of Water Supply Operation (水運用関係図)
Note: Made by Tokyo Metropolitan Waterworks Bureau.

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was constructed of a catchment area, dam, river, intake weir, reservoir, purification plant, pump, distribution pipe, telemeter, computer, and monitoring room, among other features. Tokyo’s water supply system is highly modernized and is a kind of assemblage of natural things, materials devices, and technology.

Before the earthquake occurred, due to the high modernization of Tokyo’s water supply, the reliability of tap water was relatively high. Many residents considered that tap water was immediately usable and drinkable. This water infrastructure as hybrid system is often black-boxed in everyday life and invisible to urban dwellers. There are many major water pipes in underground Tokyo, and because these are not visible and not perceived consciously in everyday life among most urban dwellers. However, there are some critical moments in which urban grids become visible. One of these moments is the disaster process (Graham ed. 2010).

Intervention as Translation into Crisis of Tokyo’s Water Infrastructure

To consider the crisis of the Tokyo water infrastructure in a concrete manner, the following section of this paper is based on “The Great East Japan Earthquake Chronicle 2011.3.11-2011.5.11,” as empirical data. In this work, 122 events are noted as related to Tokyo’s water infrastructure.⁴ In addition, these events can be classified into three phases: Phase 1: Since March 11, the breakage of water supply devices; Phase 2: Since March 14, a rolling blackout at the Tokyo Electric Power Co., Inc. Phase 3: Since March 22, the detection of radioactive materials (see Figure 2). In these phases, various governmental interventions emerged.

The following is, focusing on Phase 3, a short analysis on the governmental response to Tokyo’s water infrastructure and material practice of governing. Table 1 shows the chronological events



Figure 2: Three Phases of Crisis of the Tokyo Water Infrastructure

of the Tokyo water infrastructure in The Great East Japan Earthquake. The detection of radioactive materials led to several chains of reaction by human actors and the generation of discourses. Figure 3 shows the interrelationships between human actors, materials, and perception/discourse/knowledge in the “Tokyo Water Infrastructure Chronicle 2011.3.11-2011.5.11.” In Figure 3, human actors, things/materials, and perception/discourse/knowledge are extracted from each event in the “Tokyo Water Infrastructure Chronicle 2011.3.11-2011.5.11” and plotted.

To describe this process as an infrastructural crisis, the “translation” used in actor-network theory literature is a useful theoretical tool.⁵ Beveridge remarked that “the notion of translation is used to capture the process through which actor-networks emerge and are stabilized: to reveal how actors, objects and organizations are brought into alignment to achieve particular objectives” (Beveridge 2012: 92).

Based on this framework, the process of Tokyo’s water infrastructure crisis as the emerging actor-networks will be briefly described in the following section. In the process wherein the water infrastructure become visible and invisible, there are several aspects that are important to consider.

**(1) The problematization of tap water:
Detection of radioactive materials**

After serious accidents at the Fukushima Daiichi Nuclear Power Plant, the Ministry of Health, Labour

Table 1: Tokyo Water Infrastructure Chronicle 2011.3.11-2011.5.11 Phase 3

month	day	summary of event	resource (date of publish)
3	22	Bureau of waterworks, Tokyo Metropolitan Government measured radioactive materials in water which are extracted at some water purification plants, such as Kanamachi, Asaka, and Kosaku. In Asaka, no radioactive materials detected. In Kosaku, result is below the normal. In Kanamachi, 201Bq/kg of radioactive iodine detected.	Nihon Suidou Shinbun (March 24, 2011)
3	23	On the detection of radioactive materials as above the safe standard for baby in Tokyo tap water, Mr. Edano, the Chief Cabinet Secretary, stated that it is better to stop using tap water for baby, for taking all possible measure to ensure.	Asahi Shinbun (March 24, 2011)
3	23	Tokyo Metropolitan Government request 23 wards and 5 cities in Tama area to abstain from giving tap water to baby.	Asahi Shinbun (March 24, 2011)
3	24	Tokyo Metropolitan Government released the restriction on supplying water for baby. Because, readings of radioactive materials was under the safe standard in water purification plant at Katsushika ward.	Asahi Shinbun (March 25, 2011)
3	24	In Tokyo stock exchange, the closing price of nikkei stock average was 9435 yen. It is 14.46 yen cheaper than the day before. Since detection of radioactive materials in tap water occurred on after another around Metropolitan area, the market watch the situation calmly.	Asahi Shinbun (March 25, 2011)
3	24	In connection to the detection of radioactive materials as twice of national safe standard in tap water of Kanamachi water purification plant, Municipal government in Tokyo metropolitan area issued drinkable water to every households with baby.	Asahi Shinbun (March 25, 2011)
3	24	Musashino city released that no radioactive iodine detected in tap water around the city.	Asahi Shinbun (March 25, 2011)
3	24	To cope with rise of demand for still water, Toell Inc., a private company dealing with business of delivering drinkable water to households, increased the staff of call center.	Nihon Keizai Shinbun
3	24	Institute of Physical and Chemical Research released a comment, titled 'on the announcement by Tokyo metropolitan government about the detection of radioactivity in tapwater.'	Website of Institute of Physical and Chemical Research
3	24	The Japan Radiological Society released statement, 'To pregnant woman and familiy with children.'	Website of The Japan Radiological Society
3	25	Japan Society for Neonatal Health and Development, Japan Society of Perinatal and Neonatal Medicine, and Japan Pediatric Society stated common position at website of Science Council of Japan; 'On giving tap water to babies with above 100Bq/kg radioactive iodine, which is over the safe standard regulated by food sanitation act.	Website of Science Council of Japan
3	26	Ministry of Health, Labour and Welfare requested all muncial government managing water works to consider the correspondings as to control the amount of water taken from pond and river after rain within a range not to affect water supply.	Asahi Shinbun (March 28, 2011)
3	26	The special headquarters for water supply restoration in the Great East Japan Earthquake had second meeting. It confirmed restoration action policy and agreed that it is needed to reinforce scrutiny system and unificaiton of publicity to react radioactive materials in tap water.	Nihon Suidou Shinbun (March 28, 2011)

and Welfare notified all water suppliers in Japan to follow instruction from Nuclear Emergency Response Headquarters. Further, the Japan Water Works Association created the Measures against Radiation Q&A. On March 18, 2011, the Ministry of Education, Culture, Sports, Science and Technology announced the detection of radioactive iodine in the tap water of Tokyo.

Then on March 22, 2011, iodine-131, one of the radioactive materials, was detected twice as much as the limit set for infants at the Kanamachi water purification plant in the east area of Tokyo. This was a critical event as a trigger for the release of “black-

box.” The Bureau of Waterworks in the Tokyo Metropolitan Government defines this detection of such materials as a “crisis” for Tokyo’s water infrastructure. Material such as tap water, water purification plants, and radioactive iodine thus became serious issues.

(2) Re-disposition of physical devices and materials: Decontamination, measuring, and supplying bottled water

The Ministry of Health, Labour and Welfare indicated that activated carbon has an effect on radioactive decontamination and requested all water suppliers to

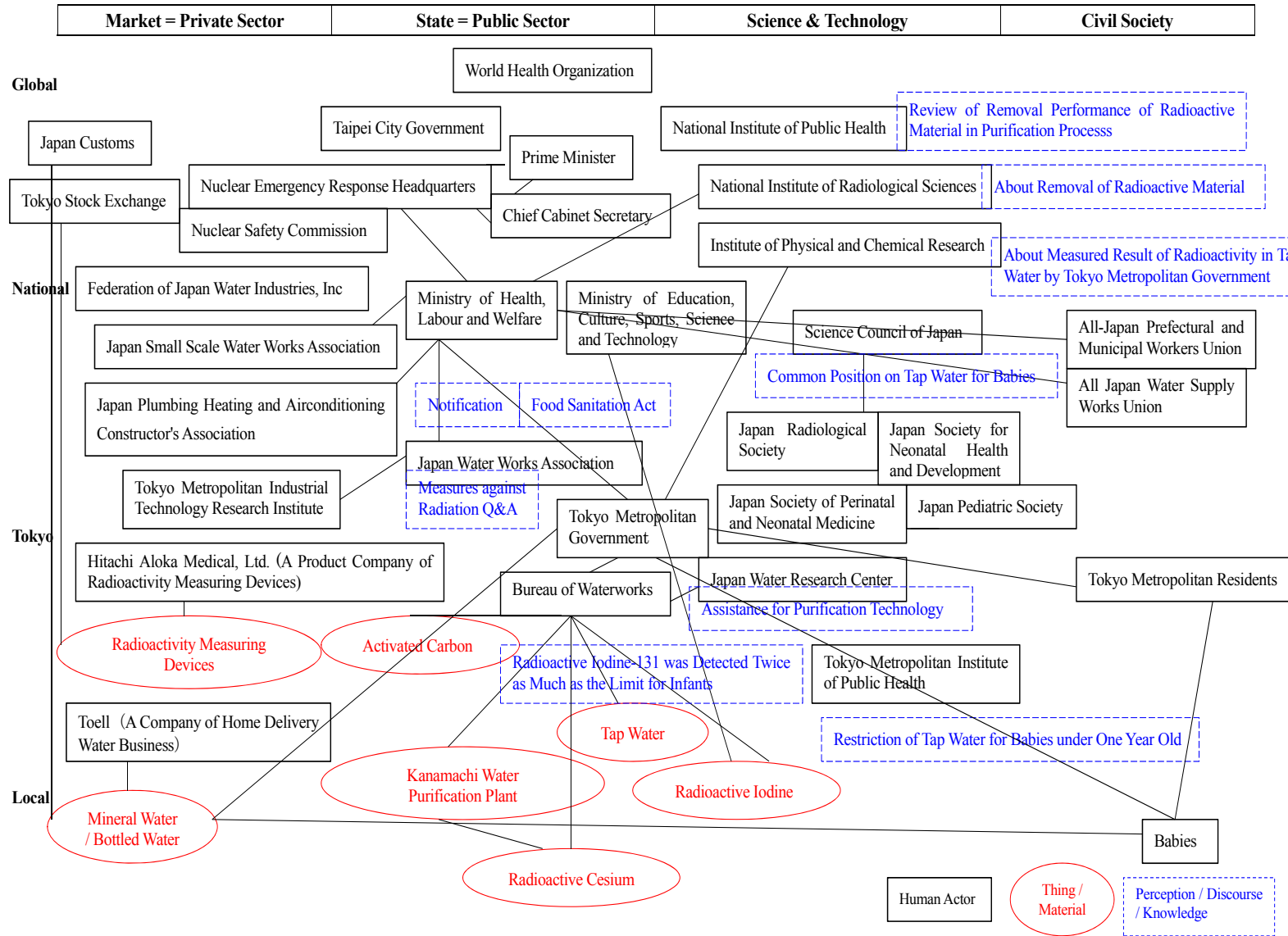


Figure 3: Detection of Radioactive Materials in Tap Water: Crisis of Tokyo Water Supply System

conduct activated carbon treatments when the index value was detected.

After the radioactive material iodine-131 was detected to be twice as much as the limit for infants, the chief cabinet secretary stated that it is better not to use tap water for infants' consumption. The Tokyo metropolitan government restricted the use of tap water for babies under one year of age, and supplied bottled mineral water for babies.

(3) Adjusting representation of material relations: Defining standards of "safety" of tap water

As a governmental response to this crisis, technology intervened continually. The National Institute of Public Health published the Review of Removal Performance of Radioactive Material in Purification Process. Further, the National Institute of Radiological Sciences announced on the removal of radioactive material.

Moreover, in this case, medical science intervened to define the standards of safety of tap water. Concretely, the Institute of Physical and Chemical Research released a comment on the Measured Result of Radioactivity in Tap Water by the Tokyo Metropolitan Government. In addition, the Japan Society for Neonatal Health and Development, the Japan Society of Perinatal and Neonatal Medicine, and the Japan Pediatric Society stated common positions on the detection of radioactive materials in tap water and on using tap water for drinking.

In this disaster process, as a fluid situation, actors in science and technology shifted to more powerful positions as they had several social resources to define the critical situation. Many actors in science and technology intervene to define standards of "safe" water.

(4) Institutional stabilization: Emergence of new allies for water governance

An alliance for water supply restoration from the disaster, which is composed of many actors across fields, was established. It was composed by the Japan Water Works Association, All Japan Water Supply Works Union, All-Japan Prefectural and Municipal Workers Union, Japan Small Scale Water Works Association, Federation of Japan Water Industries, Inc., Japan Plumbing Heating and Air-conditioning Constructor's Association, Japan Water Research Center, and the Ministry of Health, Labour and Welfare.

This collaboration illustrates the stabilization of the networks for the reconstruction of a kind of myth, such as that "tap water is clean and safe." The more stable such a new alliance becomes, the more invisible water infrastructure becomes. However, once the reliability of a water supply system is shaken, it does not recover quickly or entirely. Since this new alliance has become stable, many civil associations have been continuing to measure radioactive substance in tap water. This civil scientific practice is questioning who decides whether water is safe or not, and how. This kind of practice to revive infrastructure for individuals is continuing even now.

Materiality of Intervention

In the case wherein the governmental actors responded to the crisis of Tokyo's water infrastructure, as previously described, such governmental intervention involves various levels: materials, scientific discourses, and institutions. Thus, it is significant to note that the reconfiguration and re-interconnection of the three levels as listed previously mattered for the politics in this post-disaster situation. This is due to the fact that collective reliance on infrastructure, which is the foundation for the modern society, has been constructed through the assemblage of materials, scientific discourses, and institutions.

In addition, the material aspect of intervention is an ambiguous one. On one hand, it is the basic source

for governing. Here, it is helpful to refer to Althusser's notion, as follows: "Ideology existing in a material ideological apparatus, prescribing material practices regulated by a material ritual, which practices exist in the material acts of a subject acting in all good conscience in accordance with his belief" (Althusser 2014: 187). On the other hand, the materiality of intervention is inevitably contingent as material is never controlled by humans and or in a conscious manner. This ambiguity of materiality is one of the theoretical keys to study interventional power, infrastructure, and its politics.

CONCLUSION

Toward Infrastructure Politics

This paper does not present particular accomplishments, but helps in moving forward with the theoretical work to approach infrastructure problematic and produce theoretical tools.

Firstly, reconsidering the classical concept of "collective consumption" shows a theoretical task to re-conceptualize state interventionism in neoliberal capitalism. Referring governmentality studies and actor-network theory, it becomes clear that to investigate the material practices of governing and materiality of governing in concrete situations is significant.

Secondly, in the case of the crisis of Tokyo's water infrastructure, from the perspective of translation, governmental intervention in the crisis of infrastructure is a precarious process to re-interconnecting and recovering the assemblage of materiality, knowledge, and institutions in urban settings. In this process, the reliability of infrastructure, which is the foundation of modern society, is re-structured and contested.

In post-disaster situations, analyzing and theorizing intervention and its materiality are essential and urgent tasks to infrastructure issues and the politics

surrounding them.

Notes

1 This work is collective and ongoing. The author would like to thank each member of the Study Group on Infrastructure and Society for our ongoing dialogue. The author is also obliged to members of the Research Group for Places and Co-Presence for fruitful discussion in Nagata, Kobe City, Japan, where a large earthquake struck in 1995. This discussion is published in Japanese (Motooka, Inazu, Nogami, Nakanishi eds. 2015).

2 It is important to ensure that the augmentation of supply of goods and resources essential for life by the public sector are the outcomes of collective action by civil society. People fought against the government and capital for the expansion of public service. Many of their practices and experiences must be inherited.

3 This issue is the result of a study group on the evaluative state, which is a precursor to a study group on infrastructure and society. For further information, see Machimura (2011).

4 In "The Great East Japan Earthquake Chronicle 2011.3.11–2011.5.11," more than 11,000 various events collected from newspapers, websites, etc. are presented in a timeline from March 11 to May 11, 2011 (see Ueda et al. 2011). Further, to develop "Tokyo Water Infrastructure Chronicle 2011.3.11–2011.5.11," I added original data from two trade papers on water supply, such as *Nihon Suido Shinbun* (日本水道新聞) and *Suido Sangyo Shinbun* (水道産業新聞).

5 As is well-known, "translation" involves four stages: the problematization, intersement, enrollment, and the mobilization of allies (Callon 1986). As Latour remarked, "'translation' is a term that crisscrosses the modernist settlement. In its linguistic and material connotations, it refers to all displacements through other actors whose mediation is indispensable for any action to occur. In place of a rigid opposition between context and content, chains of translation refer to the work through which actors modify, displace, and translate their various and contradictory interests" (Latour 1999: 404).

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