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Social Movements as Networks of Meanings: Constructing a Mental Map of the 2012 Antinuclear Movement Campaign in Japan*

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Abstract. Social movement is a battlefield of meanings; a movement campaign contains a cluster of diverse meanings given by those participating in the campaign. Stimulated by such theoretical concepts as “network of meanings”, scholars have attempted to seize the collective meaning attribution process and resultant meaning clusters, as well as central/dominant and peripheral meanings in social movement campaigns. However, such a meaning cluster in the actual movement campaign has never been captured to date. This paper is an attempt to draw what we call “mental map,” mapping a cluster of meanings the movement campaign accommodates. Employing network analysis technique, we draw a network graph showing a cluster of meanings present in the movement campaign. We used the 2012 anti-nuclear movement campaign in Japan as a research site where we collected empirical data. The analysis of the 2012 network graph clearly showed central meanings considered to dominate the signification process of the 2012 campaign and a cluster of meanings that constituted a subset in the entire web of meanings. To ensure the capability of our research technique to differentiate meaning clusters from one movement campaign to another, we compared the 2012 campaign against the 1954 campaign. The differences were stark: the 2012 campaign was strongly driven by motherhood mentality to protect children and a concern over local environments, while the 1954 campaign dominantly drew its signification from collective memory of Hiroshima and Nagasaki and risk on food safety. The mental map approach can help us understand “why” of the movement campaign from yet another perspective; it can also assist us in understanding the change in the mentality and meaning attribution processes of social movements, as, given the data exist, it can be applied to the past campaigns.

Key words: mental map, social movement, social movement campaign, meaning, network analysis, network of meanings, Japan.

Introduction

On March 11, 2011, a big earthquake and a subsequent tsunami struck Japan. The gigantic tsunami, sweeping away towns and villages and claiming the life of some twenty thousands in the northern pacific coastal regions of the main island, paralyzed the function of the nuclear power plants in Fukushima. Then in the afternoon next day, one nuclear power plant exploded, followed by further explosions of two other plants, causing the Japanese government to give a quick evacuation order to the residents living within a 20 kilometer radius from the nuclear plant site.

This nuclear power plant explosion and its aftermath, now collectively called “3.11,” incited numerous actions. On March 27, more than a thousand protesters took to the street in Tokyo, forming a first antinuclear

demonstration since 3.11. On April 3, another demonstration took place in Kyoto with some 500 participants, according to the Asahi Newspaper on April 4. Since then, the entire Japan became caught up in a series of antinuclear campaigns.

By mid-April, antinuclear campaigns became widespread. A series of antinuclear demonstrations, talks, teach-ins, and forums were organized consecutively in numerous locations in Japan. Large campaign events were also organized. On June 11, a huge national campaign was orchestrated, with more than three thousands of civil organizations actively participating in the activities that covered the entire Japan. Another big event was organized on September 11. Again in some forty different locations, Japan was covered with the voice of denuclearization claims.

Seldom in recent history have Japanese people witnessed the protest action that has continued for such a long period of time. For the first six months, protest actions, campaigns and events, including talks and forums, were organized almost incessantly in various parts of Japan. In the Japanese denuclearization event calendar [3], of the ninety days during the period of May 1 to August 31, 2011, almost all are the days with multiple campaigns occurring somewhere in Japan.

Prompted by the resurgence of the antinuclear movement, studies have been published to inquire into the nature of post-3.11 protest actions with diverse concerns, such as environmental risks, food safety, community reconstruction, and protection of human life. Throughout these studies, one feature stands out as distinctive; they mainly rely on objectively observable events and factual information to grasp the nature of the movement. They emphasize measureable facts and observable aspects, together with other morphological features of the movement, as important references to their understanding. Thus one study depicts a large volume of participation and higher rates in the involvement of the young and inexperienced as a decisive feature of today's antinuclear movements [4].

Morphological understanding based on aspects observable from the outside can reveal important features of civil activities, and thus is an indispensable part of an effort to understand today's antinuclear movements. Yet, this approach, unless exercised with great care, could be misleading. Specifically, it runs the risk of lumping together mutually discrete movement campaigns. In an effort to grasp the nature of the anti-Iraq war movement in 2002–2004, for example, observers pointed out that a great magnitude of participation and involvement of the young and inexperienced

had been important features of the campaign [5]. Such a characterization leaves us little with which to decipher the anti-Iraq war movement a decade ago and today's antinuclear movement in Japan.

Antinuclear movement in present Japan needs to be understood in its own right. To attain this goal, cultural approach offers a viable route for alternative understanding. Cultural approach is context-driven; it emphasizes traditions, ways of life, thoughts and perceptions, and other properties residing in the minds of people in a specific cultural milieu. It provides us with a tool with which to probe deep into the subtleties, and this should lead us to an enriched understanding of the movement action.

Literature on Post-3.11 Antinuclear Movement

To this date, we have a few attempts that seek to understand the present Japanese antinuclear movement with a focus on cultural elements. They invariably look into thoughts and consciousness deemed dominant in the movement. Suga, for instance, interprets today's antinuclear movement as a culminating result of the movement campaigns in the previous decades [6, pp. 9-11]. He argues that the movement claims are to a large degree shaped by the thoughts and spirit of the time, which in turn are conditioned by their predecessors in previous periods. For Suga, post-3.11 movement is a direct decedent of the spiritual movements in 1980s characterized by a strong sense of festivity and nonpolitical orientations in subcultural groups [6, pp. 273-328]¹. This historical approach of Suga separates itself from the rest in that it strongly puts forth historical development of spirituality

¹ Suga often cites such groups as "Shiroto no ran (protest by the laity)" and "Dame-ren (useless bunch)" and other "new wave" groups as referent to his arguments.

as a fundamental force that determines the nature of the movement.

In line with Suga's interpretation, Kawamura offers a post-war history of ideas on nuclear energy. In his work, Kawamura claims that interpretations and perceptions toward "the nuclear" in the minds of the ordinary people have changed dramatically, and that the direction of the change has been determined largely by critical incidents of the time. Thus, Kawamura argues that the governmental campaigns in the 1950s to promote nuclear energy and antinuclear movements in foreign countries in the 1980s function to either promote or hinder the movements in respective historical periods and thus determine the characteristics of the movement [7, pp. 107-110, pp. 179-188]. Kawamura characterizes the movement after 3.11 as a spiritual expression of the concern over the fate of the mankind [7, p. 173].

As much attractive and intuitive their arguments may be, they are not wholly convincing. Efforts to explain social movements using such concepts as spirituality, thoughts, and ideas of the time, might entice their contemporaries with shared experiences. In few instances, however, their arguments are constructed on logical inferences; they do so by reading the "mood of the time", and thus their claims remain as personal accounts. To provide a more sensible account of the post-3.11 movement, we need an understanding built on empirical evidential pieces and sound inferences of the perceptions of those who actually engage themselves in the movement activities.

Social movement studies have identified various cultural components that constitute movement action, such as frames, collective identity, emotions, in addition to norms and ideologies [1; 2; 8; 9; 10; 11; 12; 13; 14]. Among

these cultural assets, this paper focuses on the meaning of action. Human act does not occur in the vacuum; it necessarily entails the intent of action the actor gives to his/her own act of doing, or undoing. Action in the social movement, because it is intended to make a claim, carries with it subjective attribution of the meaning to the phenomenon in question and to subsequent action to change the status quo.

Social movement entails interpretations. Participation in movement action can be considered as an outcome of thought processes that involve an assessment of the object considered problematic and associated interpretations to make sense of the fact that the object exists as it is, together with the defining reasons for its being problematic. As multiple actors exist in the movement action, so do subjective interpretations and meanings, be they interrelated or contradictory, attributed to both problematic circumstances "out there" and the subsequent act of protest. In fact, social movement is a constellation of significations projected by the movement actors against the dominant significations that have occupied the commonsensical understanding in the public space. Viewed more widely, social movement generates "wars of interpretations" [15, p. 385], in which alternative conceptualization confronts hitherto dominant signification.

Importance in understanding movement action in terms of meaning attribution has long been recognized by social movement scholars. In his effort to differentiate various aspects of culture, Sewell [16] points out that one way to understand culture is to view it as a system of meanings. In this perspective, the main task of cultural analysis is to abstract the meaningful aspects of human life. Thus one central component of cultural analysis is to analyze importation and creation of meaning by actors

in their effort to define and redefine situations in favor of their action.

Such a conceptualization of culture and subsequent importance given to the analysis of meaning finds a more concrete expression in Melucci's work. Melucci, referring to the process of collective identity formation, argues that the small groups are the hotbed of anti-dominant culture where new cultural codes are created and alternative frameworks for meaning is produced. For Melucci, social movement can be regarded as a complex of network of meanings of social action. Network, then, is the site where meaning of anti-dominance is born and preserved [1; 2; 14; 17].

Other scholars have also paid attention to various aspects of meaning attribution in social movement. Some focus on the production process of meaning as an important act of creation [18; 19]; others emphasize sociocultural space and background from which social movement extract multiple meanings for action [20; 21; 22; 23; 24].

Despite the importance found in the role of meaning in social movement action, the content of meaning itself has not been well documented in the analyses of concrete social movement action. What meanings, for example, do the movement constituents attribute to the problematic phenomenon and to their own act directed to the phenomenon at hand? Attributed meaning is a product of human capacity for association; a newly associated meaning is extracted from existing sociocultural contexts and then attached to the object in question [16, p. 51]. Repetition of this process, which Gamson and Modigliani [21, p. 3] refer as "value-added," produces a constellation of meanings. Also attributed meanings should differ in content from one actor to another. How then is each meaning in the constellation connected to one another,

and how do they appear as a collective totality? If social movement can be viewed as a network of meanings, then in an ideal empirical circumstance we should be able to identify each meaning as constituting the totality. Delineating the network of meanings, or scheme of interpretation, in a concrete setting then is a next step to proceed; we need to visualize the network of meanings.

Picturing a network of meanings provides us with an additional tool to analyze movement culture: detecting core and peripheral meanings in the movement. We often ask what the central ideas are that spearhead the movement activities. To answer this question, we have in the main relied on an educated guess based on our expertise knowledge. As already discussed earlier in this paper, this practice is without sound empirical foundations. An empirical base on which that can decipher dominant and peripheral meanings should also help us understand the movement culture in a more fruitful way.

Our primary goal in this paper is to characterize the antinuclear movement in post-3.11 Japan through our observations of the meanings attributed to the nuclear power plant explosions and subsequent protest action. To highlight the dominant features of the post-3.11 movement, we will also take up another antinuclear campaign that occurred in 1954, Japan, as a point of comparison. Given that our approach is sensitive enough to capture the meanings of action, we should be able to observe different sets of meanings across these two discrete campaigns. Even though these two campaigns are often bundled together under the names of antinuclear movement, they must be constructed on different premises, with differential socio-cultural backgrounds and mental make-up of those participating in the campaigns. Thus in this paper, we analyze both

1954 campaign and post-3.11 campaign in 2012 to contrast the networks of meanings found in these movement actions.

Two Antinuclear Campaigns in 1954 and 2012

I. Anti-atomic/hydrogen bomb campaign in 1954

Nuclear arms race between the United States and the Soviet Union characterized the first decade of post-World War II period. In 1945, it was the US that first developed an atomic bomb. One month after the experimental run, the atomic bombs were used in Hiroshima and Nagasaki, Japan, claiming the life of more than 200,000 in total. The Soviet Union followed with its own experiment of an atomic bomb in 1949. Then the US developed a hydrogen bomb in 1952, which again was followed by the Soviet Unions. In this historical context the US conducted another hydrogen bomb test, called Bravo Shot, at Bikini atoll on March 1, 1954. The Bravo Shot, it is said, had 1000 times as much explosive power as the one used in Hiroshima [25, pp. 199-210].

A Japanese fishing boat, Daigo Fukuryu Maru, trolling for tuna nearby Bikini atoll in the moment of explosions, was showered with the radioactive fallout from the blast. In March 14, the boat returned to its home port, Yaizu, with a load of radioactive-contaminated fish. By the time the ship arrived, 23 crew members had already developed symptoms of radioactive contaminations. Among them was Kuboyama Aikichi, who eventually died in September, 1954, along with heavily injured two others who were taken to a university hospital in Tokyo.

More than anything else, this incident incited massive disturbance all over Japan. In Japan in 1950s, fish was an indispensable source of the daily food supply. The idea of radioactive-contaminated fish displayed on the market instantly instigated people's anxieties, creating

a panicky situation here and there in Japan. Thus, the Tokyo municipal government, using Geiger Counter, started to measure the extent of radioactive-contamination of unloaded fish from one fishing boat to another in the Tokyo port. Food markets responded likewise; the market price of fish fell down sharply by 20 to 30 % toward the end of March. Local fish merchants and workers in the fish markets, suffering from a sharp drop of sales, started to claim compensation for damages caused by the radioactive-contamination. The Tokyo municipal assembly, together with Shizuoka prefectural assembly, issued a demand for compensation to the national government. Social anxieties grew large as no one, including the Japanese government, was able to show a way to eradicate dietary risks of everyday life.

Soon people began to view the incident in the Bikini atoll in a larger context. In late March, 1954, in Setagaya Ward in Tokyo, the assembly meeting was held, where they adopted a resolution calling for an unconditional ban on the nuclear weapons for the entire humankind, together with an observation that they would constitute damages to the descendants. It also offered a historical recollection that this incident was "the third time" in which the Japanese people were exposed to the nuclear radiation [25, pp. 263-268]².

A huge signature collecting campaign began in this context. In May, 1954, women's council in Suginami Ward in Tokyo held a meeting and, listening to the story of one fish merchant who had to shut down the store, decided to address the problems associated with the Bikini incident. With a quick establishment of the Suginami Petition Drive to Ban the Atomic and Hydrogen Bomb, the Suginami Appeal was

² The first one was the drop of the atomic bomb in Hiroshima in August 6, 1945, and the second one in Nagasaki in August 9, 1945.

issued a month later. The appeal, interpreting the Bikini incident as creating life difficulties of fish market workers and fish merchants and everyday anxieties of the consumers in general, declared to defend the life and happiness of human kind. The Suginami Appeal punctuated the start of the signature collecting campaign. Originally the goal of the campaign was to collect 100,000 signatures in a month; however, it easily exceeded this mark. As the campaign developed itself into a national drive, the number of signatures collected grew to 1.1 million by October, and more than double that number by January, 1955. By August, the signature number rose to more than 32 million [25, pp. 274-299; 26, p. 122; 27, pp. 172-173].

II. Antinuclear Campaign in 2012

On March 11, 2011, a big earthquake and a gigantic tsunami hit the northern part of Japan. The tsunami instantly washed away towns and villages, destroying communities, families and other social milieus people had built up over a long period of time. The tsunami also paralyzed the emergency power system of the nuclear power plant in Fukushima, causing the power plant explosions the next days. The nuclear accident and subsequent radioactive contamination uprooted and drove out local residents who had made their livelihoods in proximity to the nuclear power plant. The residential areas became ghost towns, where only wandering pets and livestock remained to be found.

“March 11 (3.11)” ignited a huge volume of civil actions. After March 27, when a first antinuclear demonstration took place in Tokyo with some 1200 participants, the entire Japan became caught up in a series of antinuclear campaigns [2, p. 66].

In mid-April, the movement picked up its speed of growth. Day in and day out, one spontaneous action was followed by another. A

chronological denuclearization event calendar shows that from April 9 onward, a series of antinuclear campaigns, talks, teach-ins, and forums took place consecutively, with no single day recorded without any civil action until mid-August [3]. It was rare in Japanese movement history that campaigns drew people one after another every day.

This successive rise of spontaneous actions was punctuated by a few commemorative occasions. On June 11, 2011, three months after 3.11, a big national campaign was orchestrated, with more than three thousand civil organizations covering the entire Japan islands with some eighty different civil actions [28]. There, antinuclear activists, environmentalists, labor unionists, educators, food collectives, as well as ordinary people including parents and children, took to the street, claiming denuclearization of power plants in entire Japan. In Tokyo, actions were seen in more than ten different sites in various districts, gathering some ten thousands participants in total. Another big event was organized in September 11, in part in commemoration with the “9.11”. Again, in some forty different locations, Japan was covered with the voice of denuclearization claims. While civil participation shrank gradually in late September, the event was still lively in multiple locations in Japan throughout the year 2011.

Another big event was recorded in January 14–15, 2012, when NGOs and social movement groups got together to hold the first World Congress of Denuclearization in Yokohama. With six organizations in the steering committee, and some 150 NGOs and social movement groups as part of the organizing body, together with 100 foreign guests from 30 countries, the Congress drew some 20,000 visitors and spectators in two days. The congress

venue were packed with hundreds of booths and desks by various civil groups together with onlookers and pedestrians passing by, along with talks and forums organized almost incessantly in rooms and halls of the building; while outside went large demonstrations and small disquieting gatherings surrounding the conference venue. It was in a way among the most colorful event that occurred during the entire denuclearization campaign after March 2011.

A temporal endurance is one characteristic of the post-3.11 antinuclear movement, so is its geographical spread. Of those eighty campaigns that erupted on June 11, for example, five were organized in Hokkaido, the very northern island, and four in Kyushu and Okinawa, the southernmost islands in Japan. During the month of June, an average of 42 campaigns were listed as performed in weekends, suggesting that the campaigns were not organized only in a small number of big urban cities. One reason for the campaign spread is a scattered settlement of fifty-four nuclear plants over the Japanese islands, as protest actions are typically organized around the nuclear plants in the localities³.

The post-3.11 antinuclear movement campaigns continue to the present, albeit having shrunk gradually after one-year commemoration in March, 2012. No parallel movement of this magnitude, with wide geographical spread and temporal endurance, has Japan witnessed since the student movement of the sixties in the last century.

In the next section, we will discuss the data and methods employed in our analysis. As the main case to be analyzed in this paper, we use the denuclearization campaign in January, 2012, to examine its meaning constellation

that comes as a result of participants meaning attribution processes. In so doing, we also introduce 1954 anti-atomic/hydrogen bomb campaign as another case in the analysis. Our claim is that all social movement campaigns are uniquely different in their meaning constellations. This is because each campaign has its own historical context and cultural background, with a different set of participants, distinctive from others. The 1954 campaign and 2012 campaign share the claim of denuclearization of Japan; however they are more than 60 years apart in time, during which the nuclearization policy of the Japanese government has dramatically changed with a substantial increase in the number of nuclear power plants in Japan. Thus, we should be able to see totally different meaning constellations across these two cases if our theoretical premises and analytical method are correct.

Data and Methods

Our aim in this paper is to delineate the configuration of the meanings that would constitute the subjective totality of the movement campaign. By the term meaning we refer to a set of understandings, or interpretations, an actor subjectively attributes to the incidents of nuclear explosion and to the act of participation in the campaign.

We employ network analysis as a method to examine the realm of meaning in the movement campaign. In line with the existing literature on social network [29], we use both qualitative and quantitative approaches, the former in extracting the subjective meanings attributed to the act of participation in the campaign, and the latter in analyzing the data using network analysis techniques, after sorting out an array of meanings in a way to be treated numerically.

The meaning is subjectively created first out of individual mental process of association, the result of which would then constitute a

³ Japan had 54 nuclear plants as of Sept 26, 2011.

motivational source of action of the individual. For example, for an individual actor, the incident may be associated with the terms “Hiroshima and Nagasaki,” “black rain,” “radioactive contamination,” and the “death of an innocent mass.” These four attributes are literally the results of the mental association processes; they represent subjective meanings attributed to the incident. At the same time, these meanings constitute actor’s motivations to act, as they are potential and imagined outcomes that the actor strives to avoid from happening. Since we have multiple actors in the campaign, we need to extract multiple numbers of attributed meanings from the participants in the campaign. By observing interconnectedness among multiple meanings and integrating them into a subjective totality that would represent the entire campaign we can see a configuration of meanings in the campaign.

Who are the subjects of study? Here we had to make a decision. It would be ideal to interview all the participants and attendants to the campaign to obtain their messages, and to sort out the meanings each participant attributes to the nuclear explosions and protest action. This is beyond possibility, however. We then decided to focus on “strong participants”, rather than “weak participants,” in the campaign. The former signifies those who participate willingly in the campaign through an overt expression of their ideas, opinions, and interpretations of the phenomenon at hand; the latter those who either stay quiet or participate rather passively in the campaign. Given that motivational and ideological inclinations as well as general orientations of the campaign tend to be driven by the voices and statements of those who have issued such statements, we decided to focus on expressed ideas and opinions of strong participants. There was another problem: determining strong participants. In

principle, you never know who the committed participants are until you listen to all the participants. To circumvent this problem we laid out one assumption. We assumed that published documents handed out in the campaign site would represent their interpretations about the object they considered problematic and about their actions. Also the fact that they published the documents would constitute their strong involvement in protest action.

This decision then largely defined our data sources. In the post-3.11 social movements, the World Congress of Denuclearization was the best possible opportunity for the data collection. It attracted civil groups and activists from the northernmost islands to the very south islands in Japan, and showed a mixture of social movement activists and NGO groups. Thus we believed that a good representation would be attained by using the documents from the World Congress of Denuclearization campaign. During the entire campaign period, we poured our energy in collecting brochures, pamphlets, on-site newspapers, posters, and any other handouts that were delivered and handed out to attendants in the campaign. These data sources constitute the entire text through which subjective meanings are to be extracted through our interpretive inferential work.

In a way, a set of documents handed out in the campaign gives an analytical edge over the interview methods to our study. Use of text taken from interview limits the scope of study because data-collection has to be done only in the campaign site; whereas using documents as data sources enables us to explore a similar incident in the past, as long as related documents have been stored and available in use. This addition of historical depth in the study enables us to study multiple incidents that have taken place in different historical periods in time.

In this paper, we take up two massive antinuclear campaigns in Japan; anti-atomic/hydrogen bomb campaign in 1954 and antinuclear campaign in 2012. In 2012, we collected the data sources by ourselves. We set two criteria in the data source selection: whether it was handed out at the campaign site and manufactured by the movement participants or participating organizations. We sorted out all the collected documents, and omitted redundancies. In the end, 191 pieces of documents were qualified as documents constituting the data sources for the 2012 campaign. For the 1954 campaign, we entirely relied on the archival data⁴. The archival data range from statements, appeals, pamphlets and posters. After following the same procedures, 34 pieces of documents were retrieved as qualified data sources.

In a first stage of data-set creation, we use qualitative approach. We focus on extracting the meanings an actor attributes to the incident of nuclear explosion. Needless to say, the word “nuclear explosion” or “nuclear fusion” in itself is a term that denotes only physicochemical phenomena. In the life world, through association process such a term is given specific meanings and interpreted as having an impact on the life of the individual in multiple ways. Reading the text in the collected documents, we try to look into subjective interpretive processes. Specifically, we infer the intention, reception, comprehension and explanation of those who drafted and delivered the text, by looking at metaphors, catchphrases, visual images, appeals, and symbolic representations [30]. In other words, we attempt to decode the meaning work of those who drafted the texts and visual images in the documents and extracted meanings attributed to the incident and their reaction.

⁴ All the archival data were in the National Diet Library and the Sugunami Historical Museum.

In a second stage of data-set creation, we quantify the meanings we extracted from various data sources in the first stage. In each year, we often encounter multiple documents that share the same meaning. For example, in the year 2012 “Fukushima” and “radioactive” prove to be among the most frequently associated meanings in multiple documents. For each term, we give a frequency number according to the number of documents sharing the same meaning. This procedure allows us to obtain a list of meanings with different frequency scores respectively: 41 meanings with frequency scores from 1 to 78 for the 2012 campaign, and 23 meanings with frequency scores from 1 to 17 for the 1954 campaign.

It is our assumption that these meanings are interconnected and hierarchical. One meaning may be associated with another, which then is connected to another. This is because a set of meanings tend to be associated together with the term nuclear explosion. Thus the whole set of meanings constitutes a web of meanings, or network of meanings. Not all the meanings are equal, however, in their relative importance in the network of meaning. In an extreme case, one meaning may dominate the rest, playing the central role in the network. Such a case represents the circumstance where there is one strong meaning that all the campaign participants associate with the nuclear explosion. At the other extreme, there may be an array of meanings that are equally important in the creation of the web of meanings. An important task in the data analysis is then to configure the web of meanings, in which meanings are interconnected in one way or another.

This requires us to use network analysis software, which allows us to do a numerical treatment of the data⁵. This is because the

⁵ In this analysis, we used UCINET 6 for Windows (32).

questions of centrality and segmentation in the network of meanings are being sought in this paper [31]. It is also a useful tool to avoid an impressionistic assessment of the role each meaning plays in the entire network of meanings. A network analysis allows us to systematically detect the centrality and sub-networks of the entire network of the meanings in the movement campaign.

Data problems may exist in the 1954 documents. The number of documents we use for the 1954 campaign is much smaller than that for the 2012 campaign. That may show insufficiency in the amount of collected data sources. More problematic is a possibility of biased data. We retrieved documents from the archival collections of historical materials. Some historical documents may have been preserved better than others when compiled into books and booklets of collected materials.

While acknowledging possible existence of these potential problems, we still have decided to employ the 1954 data. Not only are they important historical resources, but they are indispensable materials with which we perform a historical comparison. In fact, after a comparative analysis of qualitative accounts of the 1954 campaign taken from other academic literature and the outcome of our network analysis, we feel fairly confident that we were able to reproduce an essential portion of the field of meanings that existed in the 1954 campaign. Yet we treat the 1954 campaign as a case to be referenced, and not to put too much weight on it in our final analysis of the data.

Results and Analysis

The network graph offers a chance to enhance our understanding of the interrelationship among the meanings and their relative importance in the creation of the entire network

of meanings⁶. *Graph 1* shows a network of meanings found in the 1954 data.

We employ centrality measures to gauge the relative importance of each meaning in the creation of the whole network of meanings⁷. Twelve meanings with high centrality scores are identified and classified into four areas of meanings: instantaneous response to the hydrogen bomb (fear for A+H bomb, radioactivity), Japanese historical memory (Japanese, Hiroshima&Nagasaki, death fallout, death), anxiety and difficulty of everyday life (fish contamination, vegetable contamination, poverty fish retailer), and anxiety for the future (A+H weapons, destruction of a mankind, descendant damages)⁸. These four areas can be considered as mental fields that played an important role in the creation of the 1954 network of meanings.

Adding to this finding, the network graph shows relative importance among these four areas of meanings. In this respect, clearly Hiroshima & Nagasaki stands out as the most central meaning; the rest of eleven meanings retreats somewhat to the background⁹. Looking into the connection between Hiroshima & Nagasaki and other nodes reveals that this node is strongly associated with the other nodes

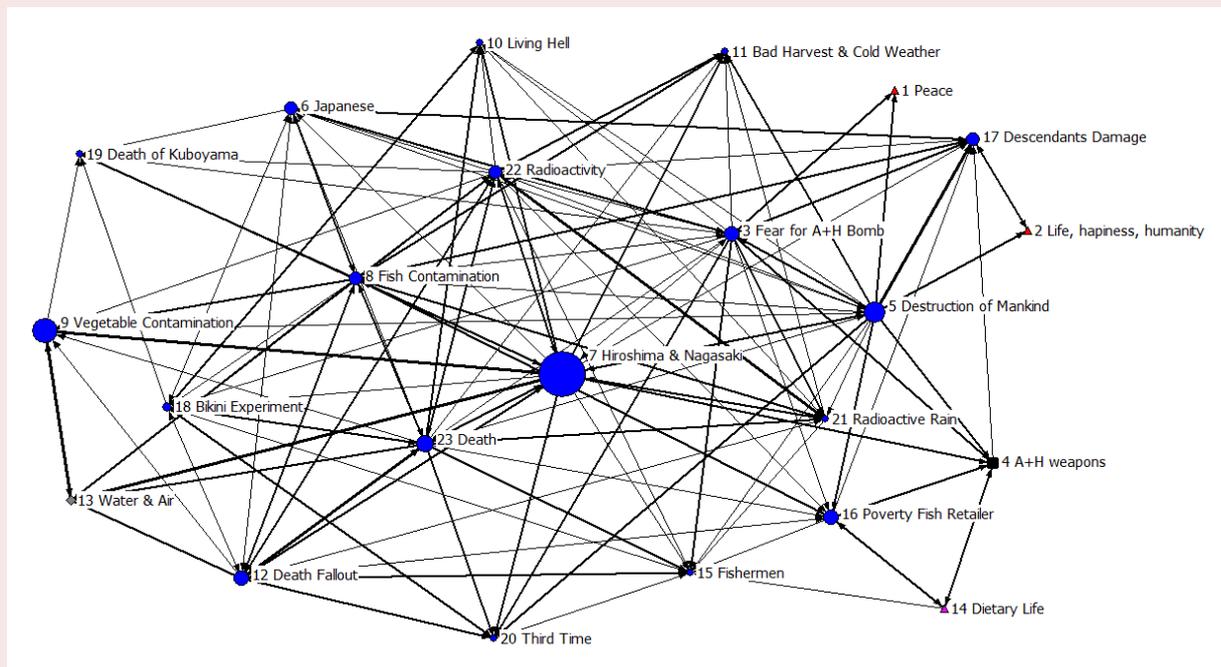
⁶ We used the co-occurrence ratio of 0.4 as a cutoff point in determining the existence of linkage between nodes in the network graph.

⁷ We mainly used betweenness centrality as a measure of centrality. This is because we place importance on connecting function of each node. We consulted with degree centrality measure when necessary; the difference was not significant enough to lead us to change our initial judgment.

⁸ In the network graph, the extent of centrality for each node is shown by the shape and size of the node. A round circle shape (○) denotes the highest degree of centrality, followed by diamond (◇), square (□), and triangle (△). Within the same shape, a larger-sized node shows a higher degree of centrality than a smaller-sized node.

⁹ Betweenness centrality for Hiroshima & Nagasaki is 49.46 while that for vegetable contamination is 21.70. An examination using outdegree centrality measure also points to the same conclusion; Hiroshima & Nagasaki remained to occupy the most central position in the graph.

Graph 1. Network of meanings, 1954*



* Compiled with the use of 1954 anti-nuclear campaign, Japan.

peculiar to the experiences of the Japanese in 1945: such as, third time, living hell, radioactive rain, and death fallout. Clearly the drop of the atomic bombs by the US to the city of Hiroshima and Nagasaki and its consequential disasters of an unprecedented magnitude in 1945 had stayed in the minds of many as a living hell causing the death of an innocent mass with radioactive rain and death fallout. This collective memory became a mental base on which to extract the meanings of 1945 hydrogen bomb experiments. The term “third time” demonstrates this mental association process being at work during the 1954 anti-nuclear campaign; for them the 1954 incident was the third time the Japanese had fallen a victim to the nuclear explosion, followed by Hiroshima and Nagasaki.

Vegetable contamination carries the second highest degree of centrality in the graph. It is linked to the meanings denoting anxieties of

daily diet (water & air, fish contamination, poverty fish retailer) and death and disaster (death, death of Kuboyama, death fallout, destruction of mankind). This set of meanings centering around the vegetable contamination node is interpreted as representing people’s fearful signification that an intake of radioactive-contaminated fish, water, and air may cause death.

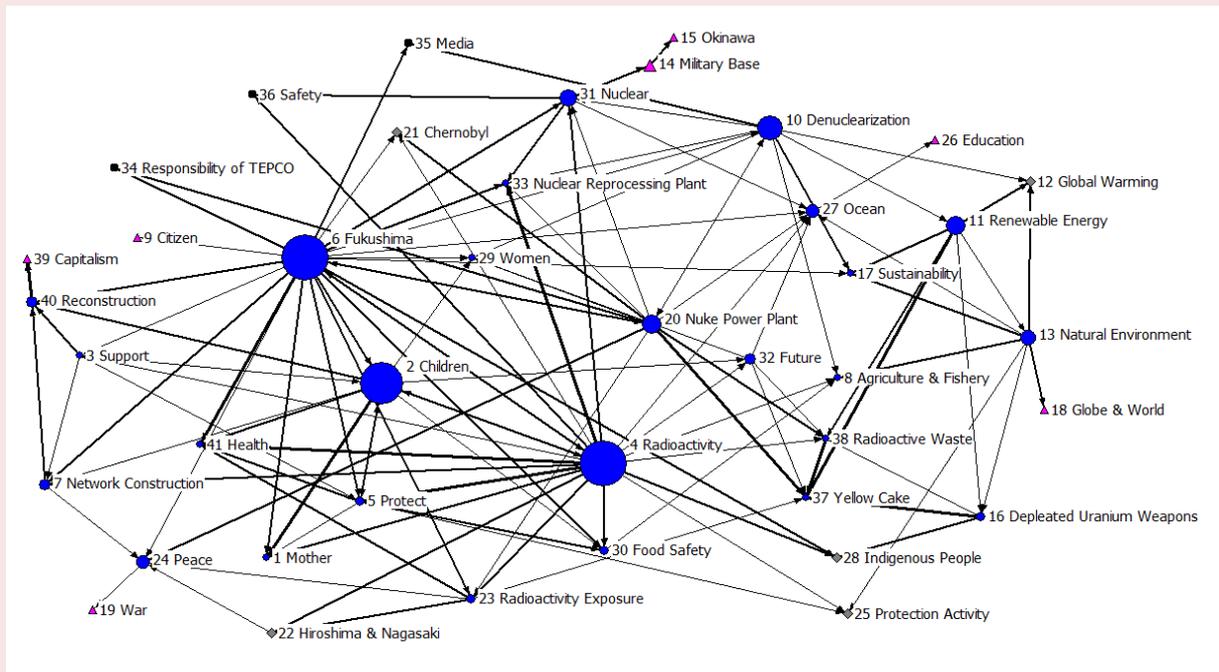
In sum, those participating in the anti-atomic/hydrogen bomb campaign in 1954 took the Bikini experiments and resultant Japanese fishermen’s exposure to the radioactivity as infringing on their everyday dietary practice, which in turn led to the anxiety for the present and future generations, including damages to the descendants and the future of mankind. Historical memory of tragedies and agonies in 1945 Hiroshima and Nagasaki played a central role in the creation of the 1954 network of meanings.

Graph 2 shows the result of network analysis of 2012 movement campaign, our main case to be analyzed in this paper. In the graph, three meanings stand out as having highest centrality scores: “children,” Fukushima,” and “radioactivity.” There are other meanings that also carry higher centrality scores than the rest. Classifying these meanings results in five areas of meanings: Fukushima, direct response to the power plant explosions (radioactivity, radioactivity exposure, nuclear power plant, nuclear), child protection (children, protect, future), denuclearization (denuclearization, network construction), and environmental concern (renewable energy, natural environment, ocean). The term Fukushima has become an all-inclusive word; it signifies from direct physical results of the power plant explosions to a sense of risk and anxiety to the future, and to grief and sorrow of those affected by the incident. Just as we saw

in the 1954 network graph, we find a set of direct mental responses to the 2011 incident. Naturally in this area, the terms nuclear and radioactivity occupy the central significations of the incident.

A set of meanings that represents a mental orientation to protect a child is clearly among the most visible characteristics of the 2012 campaign. In the network graph, the term “children” has linkages to the terms protect, nuclear, health, support, women, future, and food safety as well as Fukushima and reconstruction. This sub-network of meanings can be interpreted as having its origin in the motherhood mentality aiming at the protection of a child into the future. This is reflected to the actual movement action. A significant portion of participants were young mothers, often holding the hands of their children. The post-3.11 movement can then be considered as mother’s movement.

Graph 2. Network of Meanings, 2012*



Compiled with the use of 2012 anti-nuclear campaign, Japan.

The last two areas of meanings, denuclearization and environmental concern, are interrelated, as an effort to stop nuclear energy policy, which has been considered as the source of the contamination of the natural environments – soil, trees, and oceans – after the 3.11 in 2011, necessarily entails retrieving the nature as it used to be and preserving natural environments that have escaped from the contamination.

Note that this environmental concern is not the one we typically find in the global social movements. The terms globe & world and global warming are found to have only marginal positions in the network graph. Thus, it is a locally oriented concern, and closely connected to the daily life of the residents. Global concerns do not play a central role in the creation of the meaning world of the 2012 campaign.

Other strong characteristics of the 2012 network graph are to be found in its peripheral areas. First, quite contrary to the finding we saw in the 1954 data, Hiroshima & Nagasaki do not occupy a central position in 2012. Rather it places itself as playing only marginal roles in the creation of the meaning network. As mentioned earlier, one way to interpret this result is to think that, after 3.11, the term Fukushima has acquired a status synonymous to Hiroshima and Nagasaki, and thus they do not need to resort to a collective memory of the Japanese people as often as they did in 1954. Second, the terms militarism, military base, Okinawa, and capitalism are all positioned in the peripheral areas. This indicates that concerns we typically find in anti-globalization movements, such as anti-capitalism and anti-militarism, do not constitute a substantial base for the meaning creation in the 2012 campaign. Finally, TEPCO, electric company that owns the exploded nuclear power plants, is not the central concern of the campaign participants either. This may be related to the weakness

in the voice in the movements to denounce the TEPCO as causing the explosions and a subsequent human misery.

In sum, the 2012 campaign does not seem to be classified as global movements, nor the movement that strongly oppose to TEPCO. It is a campaign that is centered around the concern over child protection and environmental protection.

Discussions and Implications

The purpose of the paper is to investigate the mental aspects of post-3.11 antinuclear movements in Japan. To attain this goal we focus on the meanings campaign participants attribute to the incident of nuclear explosions and the subsequent action to promote denuclearization. This approach is based on the assumption that the participant acts based on the meanings s/he attributes to the object of concern, and that the multiplicity of participants in the movement campaign create an array of meanings in which multiple meanings are interrelated so that they altogether create a network of meanings.

Social movement researchers have acknowledged, for quite some time, that there is a world of meanings in the social movements and that an act of protest can be interpreted as a battle against a set of meanings attributed by the opposition parties, often dominant, to the phenomenon that the movement participants consider problematic. Scholars have also known that in a social movement campaign, there may be a central meaning that controls and regulates the other meanings, and that there are sub-sets of meanings within the web of meanings that cover the entire social movement campaign [e.g. 12; 14; 15]. In other words, our approach to create a “mental map” is to identify diverse meanings attributed to the act of protest and to identify the central meanings and important sub-networks of the meanings.

Our major finding is that in the 2012 campaign there were three central meanings around which a majority of other meanings were clustered: Fukushima, radioactivity, and children. The term Fukushima appeared to have become a catch-all word, acquiring a status parallel to the terms Hiroshima and Nagasaki. Taken away its root as a noun designating a special location, the term, as when written in “fu-ku-si-ma” in a phonetic Japanese language, seems to have become an abstract word that denotes a totality of tragedy deriving from radioactive contamination, family dissolution, community destruction, and grief and sorrow. Radioactivity can be interpreted as a result of straightforward association process from the power plant explosions. It is probably the first meaning campaign participants attributed to the explosion. A strong presence of the term children shows that participants’ mental inclination moved significantly toward the protection of the children and this gave them a meaning to their act of protest; among other things their action was to protect children into the future. In this sense, post-3.11 movement is a mother’s movement. Also a set of meanings points to participants’ strong concern with environments. There has been a host of popular characterization featuring the post-3.11 movement as overtly expressive and denouncing the government policies and TEPCO [33; 34]. Our analysis shows a different picture of the movement: it is the movement to protect their own neighboring natural environment and children.

Finally, post-3.11 movement is not a global movement. Some of the significations typically associated with today’s global movements were not found to play a central role in the campaign. Nor is it a movement of anti-globalization; meanings associated with anti-capitalism and anti-militarism are pushed to the periphery in the entire network of meanings.

Characteristics of post-3.11 movement in Japan become much clearer when compared with the antinuclear campaign in 1954. In 1954 campaign, major part of participants’ mental disposition was largely formed by the memory of Hiroshima and Nagasaki. It was a collective memory they drew the meanings of nuclear explosions from. Post-3.11 movement appears otherwise. It does not draw its meanings from historical antecedents; instead it seems to have created a new overarching symbol of sorrow of its own: “fu-ku-shi-ma”, or Fukushima. Second, 1954 movement was in part driven by the sense of risk on everyday food security. In the post-3.11 movement, food safety is also a concern; but it does not play a central role in the entire network of meanings, as shown by relative remoteness of meanings referring to food safety.

In total, the 1954 campaign and the post-3.11 campaign, often lumped together under the name of antinuclear movements, are totally different campaigns. While 1954 movement dominantly drew its signification from collective memory of Hiroshima and Nagasaki and risk on food safety, post-3.11 movement was strongly driven by motherhood to protect a child and a concern over local environmental protection.

In cultural approach to social movements, much has been discussed about the meanings participants attribute to their own action and to the object deemed problematic. A host of meanings found in a movement action has also been referred to as a network of meanings. However, such a web of meanings present in the actual movement campaign has never been captured to date. The mental map approach presented in this paper captures mental properties of movement participants. It helps us understand better cultural aspects of social movements.

The mental map approach can also assist us in understanding the change in the mentality and meaning attribution processes of social movements, as, given the data exist, it can be applied to the past campaigns. In this paper, we have examined only two movement campaigns in different points in time. By increasing the number of cases across time, we may be able to draw transformations of meanings movement participants attach to their own act of protest.

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