A Risk Management on Demographic Mobility of Evacuees in Disasters

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INTRODUCTION

To date, our global society is endlessly threatened by disasters (UNISDR, 2018). This article devotes to describe both risks and crises on disaster, and especially it deals with the nature of Fukushima case caused by accident of nuclear power plant (aftermath of the disaster at 11th Mar.2011). Since the human history, this case was one of extreme disasters and multiplied tragedies damaged by quakes, tsunamis, and nuclear power plant accidents. Still now, it presents a number of challenges indeed to be overcome. One of the hardest problems from the inventory of the Fukushima case was characterized as intensive purifications of nuclear pollutions around Fukushima and collective migration of evacuees caused by both natural and human-made disasters. And ongoing disputes against safety seem to vary widely such as compensations, socioeconomic reasons, environmental restorations and community reconstructions. The author intends to review these issues and discuss future design for the lessons from the disaster.

BACKGROUND

No blindness against the truth shall conceal the nature of the serious tragedies around the Fukushima. It should conquer an innermost meaning of sentence "*Ignoramus et ignorabimus*" (We do not know and will not know). Those who independently inquired into the matters ever since the crisis condemned collective optimism and anti-scientism among governmental authorities and polytechnics (Funabashi,Y&Kitazawa,K, 2012). They were hoping to stop more catastrophes, but they clung to saving their faces and dogmatic standpoints. Their statements against risks of nuclear power discredited any citizens. Consequently their poor management of risk prevention in nuclear energy following the tsunamis and nuclear power plant accidents magnified the damage. Their less attention has given to scientific verification ways (Cyranoski,D, 2011). Through entirely investigations on consequences after the disaster, Japanese obtained the lessons: *no social systems exist without any scientific verification, and no solutions will be properly conducted without the efforts by true professionalism (academician, governors and other practitioners) involving civic engagements.*

In this point, the SCJ's report pointed out crucially lack of effective risk management for nuclear power plant accidents before the crisis (Science Council of Japan, 2011). Regarding this, in sociology of science, Merton,R.K (1968) already proposed his conceptual term '*CUDOS*', namely *Communality, Universality, Disinterestedness* and *Organized Skepticism*. Not to mention, scientific community in Japan should be recalled the significance of both Disinterestedness and Organized Skepticism in his prospective discussions. The rule of conduct among scientists as well as anti-crisis operations and imperatives by governors need to be critically reviewed whether national crisis or not. Eventually scientists must be

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always devoting to strictly scientific governance in their community. Obviously, the social roles shall be undertaken by professional academicians and researchers in terms of their majors standing on the CUDOS. It is too natural that they shall be obligated to solve above emerged and serious matters. Similarly JST (2011) proposed to solve and tackle those scientific matters by both social and natural scientists. For example, they enumerated modeling and simulation for disaster prevention, risk management, and risk communication for citizens as well as R&D on the nuclear power and new energy technologies (Sugiyama, et al, 2016).

FOCUS OF THE ARTICLE

Governance and Management at Disaster

When governors face at any extreme disaster (including anthropogenic, natural and combining one), they should eagerly devote to achievement of the future restorations (Curt,C.&Tacnet,J.2018). In this point, effective management including evidence based analysis and policy making should be quite needed for actual plans (Biello,D, 2012). Social media analysis also utilizes to unveil communication patterns during disaster (Li, et al, 2014). At least, these concurrent processes are required during disaster as follows.

- Ø *Demographic Data Management*: Migration and Evacuations, Total population of survivors, injuries, fatalities, and etc.
- Ø *Budget Management*: Financing for reconstruction assistances, and etc.
- Ø *Provisioning Management*: Relief supplies, Relief units, Allocating Temporary Evacuation Places, Necessary Resources, Medical cares, Information, Donations, and etc.
- Ø *Access Control Management*: Managing Traffic and Transportations, Restricting area against risks and hazards, and etc.
- Ø *Work Flow Management*: Coordinating total process control, Prioritization on evacuation plans and needs, Project management, and coordinating engagements among stakeholders and volunteers, and etc.

Regarding these points, governors should immediately, responsibly and comprehensively tackle necessary prioritizations. First, it should be tracking dynamics of evacuees and citizens' conditions. Secondly, it offers multiple transportations for evacuees and improves their mobility. Thirdly, it should prepare and allocate temporal housing for them. Of course, without saying, foods and water provision are quite necessary. However, according to revealed data after the disaster, many of municipal governments as well as the national government does not prepare efficiently evacuation plans for large migrants and evacuees. When magnitude 9 level disasters occur around the Tokyo capital area, some researches forecast serious shortages of necessaries for two millions migrants and evacuees at least. Those conditions will further cause crisis such as transport congestions, collapse and others. Limitations of budgets and human resources will decisively call exhaustion and confusion in each city. Thus it should make a clearer orientation and plan against future disaster in each municipal city in advance (Batler, D, 2012).

After that, it should turn eyes to persevering purification from the radiation damage caused by the nuclear accidents, its environmental restoration, health monitoring and socioeconomic reconstruction in community (NRC, 2011; IAEA, 2011). As consequently, the Fukushima case definitely needs to solve