https://doi.org/10.20965/jdr.2014.p0653

Paper:

An Analysis of International Assistance Based on Lessons from the Great East Japan Earthquake

Atsushi Koresawa

Chubu Regional Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT)
2-5-1 Sannomaru, Naka-ku, Nagoya 460-8514, Japan
E-mail: koresawa-a85aa@cbr.mlit.go.jp
[Received March 31, 2014; accepted June 30, 2014]

This study analyzes Japanese management of international assistance, focusing on the role of search and rescue teams based on lessons learned from the response to the March 11, 2011, Great East Japan Earthquake. It first reexamines lessons collected from different sources. Applying root cause analysis to them, it then explores why the system did not perform as expected and what causes were responsible for such performance. Identified root causes include: a reactive approach to international assistance, a lack of operational management coverage, a lack of stakeholder involvement – especially at the local level, insufficient preparation for difficult or sensitive issues, and deviation from international standards and practices. The study then implements comparative analysis by applying a set of selected benchmarks to examine the strengths and weaknesses of the Japanese system compared to selected leading practices of other nations. Results of analysis identified areas requiring improvement and provided ideas on how to improve the system. The study also suggests ways to improve the system's nature and scope, its content, and its management structure.

Keywords: Great East Japan Earthquake, search and rescue (SAR), international assistance, INSARAG

1. Introduction

In the immediate aftermath of a disaster, saving lives of survivors who may not remain alive under severe conditions is a top priority in the government's emergency response. The survival rate rapidly drops with time, so it is often called a "race against the clock."

The powerful March 11, 2011, earthquake off Japan's northeast (Tohoku) Pacific coast triggered a series of huge tsunamis. In response to them, local first responders, both volunteers and professional firefighters and police officers, along with Self-Defense Forces (SDF), rushed to tsunami-hit coastal communities, eventually saving approximately 27,000 victims despite ensuing tsunamis and earthquake aftershocks [1].

With live images of these tsunamis hitting the coast being broadcast around the globe, offers of international assistance began arriving in Japan from 163 countries and regions and 43 international assistance organizations – an unprecedented scale. Search and rescue (SAR) teams from 16 countries and 1 region, and 2 United Nations organizations, arrived in Japan to provide their support [2].

Japan had previously received international assistance in the aftermath of the 1995 Great Hanshin-Awaji (Kobe) Earthquake. A system for managing international assistance was then developed and incorporated into the government's disaster management plans and manuals. This management system was first tested following the 3/11 earthquake.

The system's strengths and weaknesses have thus become evident. CIQ (Customs, immigration and quarantine) procedures, for instance, went smoothly due to collective government ministerial efforts. In addition, liaison officers dispatched by the Ministry of Foreign Affairs (MOFA) and Emergency Fire Response Teams coordinated by the Fire and Disaster Management Agency (FDMA) both contributed significantly to international SAR team activities.

In contrast, the system did not work as planned in many other areas. The Committee for Policy Planning on Disaster Management set up by the Cabinet Office reviewed the government's overall response and stated that the "smooth acceptance of international support in different fields is indispensable during large-scale disasters, so the matching of personnel and goods, the clarification of acceptance criteria must be discussed with foreign governments and organizations when preparing to accept international support [3]."

Since then, overall progress in improving the system has been very slow or even almost nonexistent. This study thus clarifies why progress has been so slow and what measures must be taken to solve the problems found.

2. Methodology

This study assumes that receiving international assistance requires special capacity differing from that required to respond to domestic disasters or to provide international assistance in overseas disasters.

1. The opinions expressed and arguments employed herein are those of the author and do not reflect any view or opinion of the MLIT.

Focusing on international assistance from SAR teams, it realigns and reexamines lessons learned from the response to the 3/11 earthquake already identified in prior work by entities such as government ministries and agencies and individual researchers, including my previous study.

Relevant issues have been discussed elsewhere, so this study applies root cause analysis to examine underlying causes assuming that unless root causes are addressed appropriately, solutions are likely to be limited or better solutions missed. Accordingly, the study selects benchmarks corresponding to identified root causes – a proactive approach, operational, inclusion of local stakeholders, attention to critical or sensitive issues, and compatibility with international standards and practices. These benchmarks are applied to comparative analysis clarifying insufficient or missing elements in current Japanese system compared to leading practices of other nations, i.e., the US, New Zealand, and the Netherlands.

Based on root cause and comparative analysis results, this study reexamines the Japanese system, exploring ways to improve it.

Note that issues related to the armed forces and non-governmental actors, though increasingly important, are not in the scope of this study.

3. Recapturing Issues Needing to be Addressed

3.1. Japanese System Overview

The current Japanese system for managing international assistance is described in the Basic Disaster Management Plan developed based on the 1961 Disaster Countermeasures Basic Act. The Plan was revised in 1995 based on the lessons learned from the Great Hanshin Awaji (Kobe) Earthquake. The Plan describes necessary procedures as outlined in **Fig. 1** [4].

The Plan is complemented by the Manual for the Government Disaster Management Headquarters (HQs). This Manual is slightly more detailed than the Plan, but mainly describes activities of ministries and agencies of HQs and is thus intended for internal use only.

Government Disaster Management HQs are not a standing organization. It was set up to respond to a particular disasters ad-hoc based on the 1961 Disaster Countermeasures Basic Act. The Cabinet Office's disaster management department is responsible for serving as the secretariat for HQs. The Cabinet Office disaster management department is typical of a scratch team assembling members from different ministries and agencies. They stay at the Cabinet Office an average of 2 to 3 years before returning to home ministries and agencies. Its mandate does not include responses to overseas disasters, so knowledge has yet to be accumulated organizationally. This may be one reason why the system for international support deviates from international standards and practices as discussed later.

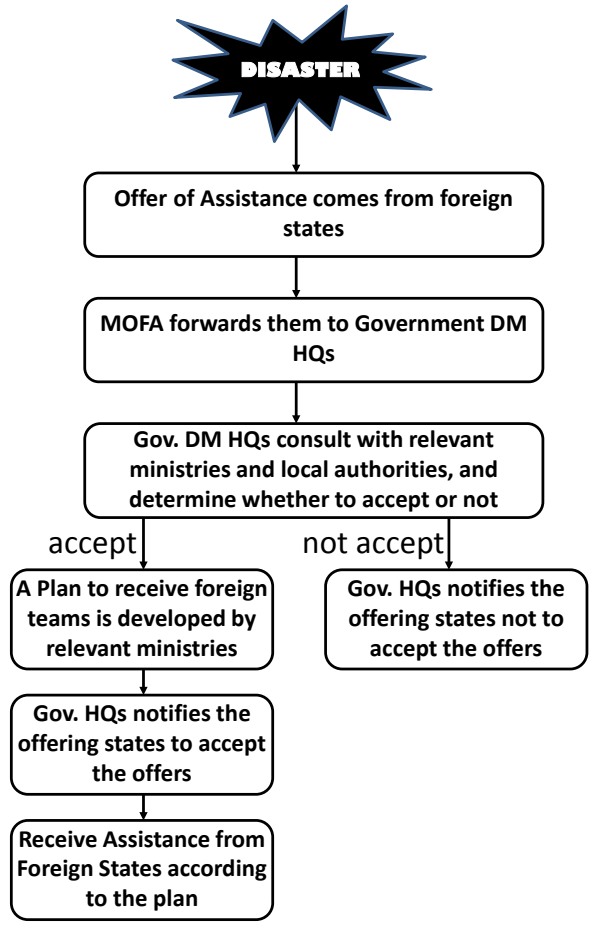

Fig. 1. Flow of international assistance management.

3.2. Realignment of Lessons Learned

My previous study on SAR operations examined experiences of Japanese SAR teams who worked with foreign counterparts in the field. The study concluded stressing that "the system developed based on experience from the 1995 Kobe earthquake did not work as smoothly as planned and no system yet exists to link on-the-ground needs, operational requirements, and the capability of overseas rescue workers. Likewise, no solid system yet exists ensuring the effective deployment of overseas rescue teams in coordination with their Japanese counterparts, particularly at the local level [1]."

The Task Force on Emergency Response established at the Cabinet Office reported that "despite the government's request, some rescue teams from overseas did not operate self-sufficiently, particularly concerning transportation and fuel supplies ... procedures for accepting foreign rescue teams and necessary activities thereafter must be further clarified" and "there is no legal system yet to compensate for damage and loss to be incurred by rescue and medical teams from overseas [5]."

Relevant government ministries and agencies, most notably the Cabinet Office Disaster Management, the MOFA, the FDMA, and the NPA, reviewed operations and identified problems.

Several independent researchers also examined relevant

issues. Some provided insightful ideas. For instance, Banzai, a professor in international law at the University of Waseda, and fellow researchers, analyzed different problems encountered in receiving international assistance, and concluded that "it is necessary to make a well-balanced judgment between humanitarian and diplomatic aspects." He admitted, however, that their study was more fact-finding than theoretical [6]. Sakamoto, a researcher at the Disaster Reduction and Human Innovation Institute in Kobe, Japan, conducted a more comprehensive study and made several significant suggestions, including the further clarification of conditions and requirements for receiving international emergency assistance and further development of institutional capacity [7]. These suggestions are more or less in line with what this study is aiming at, but fell short of proposing concrete, practical solutions to identified problems. One possible reason for such a shortfall is that they still focused on the analysis of problems, and suggestions were made as a kind of afterthought.

This study focuses more on solutions, so it first recaptures issues from a wide range of existing literature and realigns them by focusing on those that are deemed most critical and relevant, as follows:

- In response to many offers of assistance, the government requested assistance for only a few countries. Still, offers of assistance continued to arrive, creating a situation in which it was quite difficult to refuse.
- Diplomatic and political considerations often took precedence over actual needs of disaster-affected areas that were difficult to grasp in chaotic situations.
- Details of required assistance were not made concrete or clear to incoming teams.
- Some international SAR teams continued to arrive despite the government's intention not to request more teams and even after the response phase was over.
- Some international SAR teams asked local governments for transport, fuel, camp sites, and other logistical support, placing an additional burden on local people in disaster-affected areas and generating confusion and uncertainty about "self-sufficiency."
- Local governments were neither well informed of incoming teams nor accustomed to international standards and practices for on-site coordination.
- Liaison officers were temporarily deployed by the Ministry of Foreign Affairs without prior knowledge about and equipment for emergency response, although these were indispensable.
- No rules were made for settling issues related to damage caused by international SAR teams, so property owners had no way to have their claims attended to.

All of these issues are the basis for more in-depth analysis in the following sections.

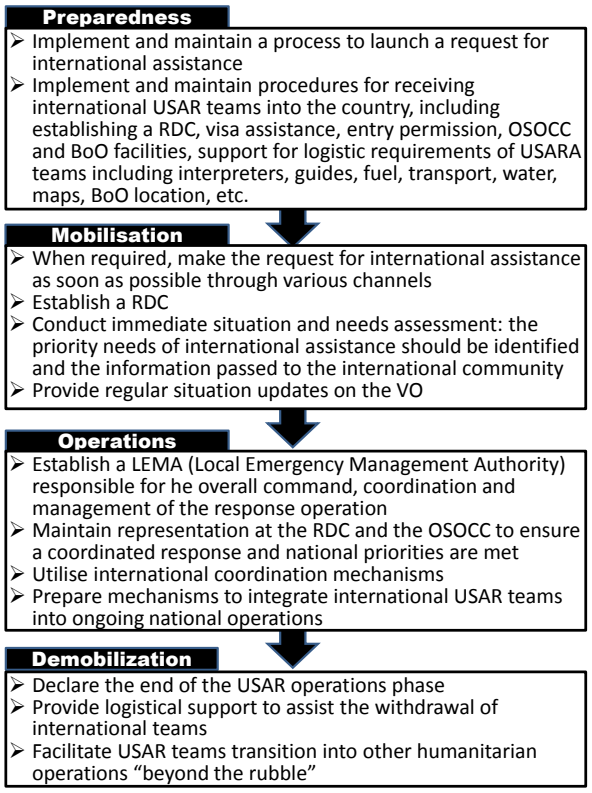

Fig. 2. Responsibilities of disaster-affected countries as defined in the INSARAG Guidelines.

3.3. Comparison to Global Standards

The coordination of international SAR teams has been debated by the international community for several decades. In retrospect, the December 19, 1991, UN General Assembly Resolution 46/182, entitled "Strengthening the coordination of humanitarian emergency assistance of the United Nations," led among others to the setup of the International Search and Rescue Advisory Group (INSARAG). INSARAG, a network of countries and organizations dedicated to urban search and rescue (USAR) and operational field coordination, produced the INSARAG Guidelines that have become the de-facto standards for SAR operations worldwide. The INSARAG Guidelines include a section entitled "Affected Country Responsibilities" that lists actions and procedures to be taken by an affected country as shown in **Fig. 2** [8].

The way the Japanese government managed international SAR teams in the wake of the 3/11 earthquake differed in many respects from procedures defined in the INSARAG Guidelines, including the following:

First, during preparation and mobilization phases, the government did not establish a Reception and Departure Centre (RDC). Liaison officers temporarily dispatched by the MOFA met international SAR teams on their arrival and accompanied them throughout their stay in Japan, but required RDC functions were not performed. As such, Japanese SAR teams were not informed well in many cases, for example, when international SAR teams would arrive or depart.

Second, during the preparation phase, the Japanese government did not facilitate On-Site Operations Coordination Centre (OSOCC) or Base of Operation (BoO). Most of these gaps were filled through spontaneous efforts by stakeholders in disaster-hit areas, as evidenced by the following statement: "Although the three USAR workers were prepared to set up shelters and operate outdoors even in the dead of winter, the availability of the school's athletic court and offices saved time in setting up the BoO and allowed the teams to immediately engage in search and rescue operations" [9]. The Japanese government did not provide regular situation updates on the Virtual OSOCC (VO),[2] either.

Third, during the operations phase, a local emergency management agency (LEMA) was not officially announced to international SAR teams. A LEMA in the Japanese context meant a local government disaster management HQ established based on the Countermeasures Basic Act. Since the OSOCC was not established, coordination between international SAR teams and local authorities was implemented ad hoc. Both liaison officers and members of Emergency Fire Response Teams deployed by the FDMA filled gaps by facilitating communication and coordination between them as evidenced by the following statement: "Without their help, communication with those who spoke Japanese would have been seriously hampered" [9].

All in all, the government's response deviated from that required by the INSARAG Guidelines and most gaps were filled by spontaneous and dedicated efforts by local stakeholders rather than being planned in advance. This suggests that preparation for incoming international SAR teams was insufficient at best or almost nonexistent. It further implies that local stakeholders or even national government were not familiar with procedures required by the INSARAG Guidelines.

4. Root Cause Analysis

Most of the issues discussed so far have been discussed elsewhere. Accordingly, the Government's ministries and agencies and individual researchers were already aware of many of them. In this sense, they can be regarded as symptoms that had come to the surface.

Still, overall progresses toward a resolution of all of these issues and improvement of the system have been lagging behind.

This study assumes that unless underlying reasons rooted in the system, i.e., root causes, are resolved, the system is likely to remain inactive or ineffective. So the following sections describe how root cause analysis was applied to identified issues.

4.1. Reactive Approach to International Assistance

In the immediate aftermath of the 3/11 earthquake, the national government initially planned to accept SAR teams from only a few countries that were deemed "capable," but it ended up accepting teams from 16 countries and 1 region [1]. Indeed, the government accepted international SAR teams mostly based on political or diplomatic considerations. Given a rather short lead time and the chaotic situation, it was almost impossible to make decisions based on the actual needs of disaster-hit areas.

In this respect, Asazuma, who was responsible for coordinating the MOFA at the time, confessed that the diplomatic policy was clear from the beginning, that is, to accept as many offers as possible to avoid any risk of being criticized by the media for not having accepted international assistance. He also admitted, however, that there were not as many needs for international SAR teams as originally envisaged [10].

As a result, in some cases, local governments in disaster-hit areas were required to facilitate incoming international SAR teams. Some local governments claimed that some international SAR teams, if not all, asked for logistical support such as transport and camping sites, thereby placing an additional burden on local governments even though they were supposedly self-sufficient. Although it was typical of communication gaps regarding what was meant by "self-sufficient," negative opinions about international support were often expressed by local stakeholders.

There are many reasons behind this challenging situation. The Japanese government could not maintain its initial stance for accepting only sufficiently capable teams as explained before. In fact, it was almost impossible to base government decision on actual on-the-ground needs or the capability of individual SAR teams in such a rather short period of time. The government imposed "self-sufficiency" on incoming international SAR teams as the sole requirement, but its actual meaning is so unclear that it could be understood in different ways. In any case, insisting on "self-sufficiency" without providing details about what it actually means is inadequate. While the government also should have had a solider system to prioritize the acceptance of international SAR teams, it also should have had a more workable system in place to make requirements and conditions far clearer to incoming international SAR teams.

Overall, the government took no initiative in requesting assistance or of making its real intentions concrete and clear enough to be understood by countries offering or rendering assistance. This implies that the government's approach to international assistance is largely reactive rather than proactive.

Other possible reasons for such problems include a lack of clear recognition and consensus on the need for international assistance, a lack of confidence in the capability of international SAR teams, a lack of knowledge about international standards and practices (as discussed later), and, more importantly, a lack of ownership of the system. These underlying reasons are responsible for government ministries and agencies not taking a proactive effort.

2. The Virtual OSOCC (VO) is an information portal to facilitate information exchange between responders and the affected country.

4.2. Lack of Operational Management Coverage

Many communications gaps appeared between the Japanese government and international SAR teams and between national and local governments, which resulted in confusion and additional burdens at the local level.

The disruption of communication and transport systems caused by the earthquake, tsunamis, and power shortages were partly responsible for such problems, but overall insufficient preparation for logistics throughout the system also hampered effective management.

Specifically, liaison officers temporarily dispatched by the MOFA and Emergency Response Teams dispatched by the FDMA are typical examples. Although liaison officers contributed greatly to enabling communication between international SAR teams and local stakeholders in the field, they were not planned, prepared, or trained in advance. Some liaison officers could not even accompany international SAR teams in the field because they did not carry appropriate clothing, protective shoes or boots, etc. Emergency Fire Response Teams were deployed from fire departments outside the three hardest-hit prefectures under the coordination of the FDMA with the aim of providing required support. Their mission did not include facilitating international SAR teams, but they were requested to do so. Eventually, some of them had to leave their assigned areas to go elsewhere to meet and facilitate international SAR teams.

The issue of "self-sufficiency" is especially challenging, as stated before. A solution to this issue therefore requires that more operational elements be incorporated into plans or manuals that must detail to what extent the government provides logistical support to incoming international SAR teams on the one hand and to what extent the incoming SAR teams have to be "self-sufficient" or "self-contained" in a strict sense on the other.

One fundamental reason behind these gaps is that the government's plans and manuals described mainly the tasks of government ministries and agencies without detailing operational management for incoming international SAR teams – such as communication, command and coordination in the field, transport, and logistics. Indeed, much of the implementation was left as the responsibility of individual organizations. SAR operations were managed, for instance, by both the NPA and the FDMA, but how to implement them was not covered by either plans or manuals. The system was, in addition, never exercised nor its operation confirmed in situations of actual use. Because of these features, the system can be regarded as more procedural than operational in nature.

4.3. Lack of Local Stakeholders Involvement

The aforementioned issues, especially those related to the lack of operational management, often resulted in a heavy burden on local governments in disaster-hit areas. Local governments eventually had many difficulties in satisfying different requests from international SAR teams directly or through MOFA liaison officers. These requests ranged from road guide, transport, and fuel to camp sites, food, water, etc. Likewise, some local governments claimed that they were not well informed of incoming international SAR teams either in advance or when SAR teams left their jurisdictions.

Certainly, there were many other issues in which communication gaps and confusion arose at the local level. These incidents clearly indicate that local governments were not prepared for incoming international SAR teams and therefore their response tended to be ad hoc.

The current Japanese system defines only the tasks of the national government and does not cover those of local authorities. This reflects the division of labor between the national government and local authorities as prescribed in the Disaster Countermeasures Basic Act and the Basic Disaster Management Plan even though local authorities, especially municipalities, are responsible for disaster response in their jurisdictions.

It thus remains unclear to what extent the national government takes care of incoming international SAR teams in the field and to what extent local governments are fully responsible for such tasks.

Lack of coverage of local activities led to a situation in which there was almost no preparation for incoming foreign assistance at the local level.

4.4. Insufficient Preparation for Difficult or Sensitive Issues

Receiving international SAR teams entails complex issues involving financial cost, foreign licenses, compensation for damage caused by international SAR teams, liability and the like.

Indeed, several minor incidents were reported such as a case in which damage to property was claimed to have been caused by foreign workers. There was, however, no established rule enabling property owners to seek compensation for damage incurred by international SAR teams. This particular issue was never really resolved.

For foreign medical teams, the Ministry of Health, Labor and Welfare issues a circular, as a temporary measure, to the effect that absolve some teams of liability if they were providing minimum necessary medical treatment [11]. A question has been raised, incidentally, about what would happen if a serious case, such as injury to a victim, arose.

None of these sensitive issues are covered by the current system, so preparation for difficult or sensitive issues remains insufficient.

4.5. Deviation from International Standards and Practices

Receiving foreign assistance has become a common practice worldwide. International and regional rules and standards have been developed and widely accepted.

As explained, the way the Japanese government managed international SAR teams in the 3/11 earthquake differed from procedures defined in INSARAG Guidelines.

There are several reasons behind this drawback: organizations responsible for emergency response to domestic

disasters, such as the Cabinet Office, the FDMA, and the NPA, had only insufficient knowledge about international standards and practices. The Japan International Cooperation Agency (JICA), which plays a central role in managing assistance for overseas disasters by, among other things, sending the Japan Disaster Relief Team (JDR), composed of SAR teams, medical teams, experts, etc. JICA is thus most familiar with international standards and practices in Japan, but is not mandated to participate in domestic disaster responses. This marks quite a difference from the US system in which the United States Agency for International Development (USAID), equivalent to JICA, plays an important role in domestic responses involving international assistance.

Deviation from international standards and practices and other reasons discussed in this section have led to confusion at the local level. If the OSOCC had been established, for instance, communication and coordination between domestic and foreign teams would have been much better. This was indicated by the fact that voluntary nightly meetings held between the Ofunato fire department and US and Australian SAR teams helped greatly to ensure mutual communication and coordination among them [12]. In contrast, as stated, there was little communication between local fire departments and international SAR teams in other cases.

The possibility of enhancing communication and coordination is high if both domestic and international partners work together based on common international standards and practices.

5. Comparative Analysis

5.1. Benchmarking

Root causes of problems with the Japanese system discussed in the previous section clarify problem areas to be addressed. Accordingly, the following benchmarks are selected that convert negative features of identified root causes to positive ones, such as from a reactive approach to a proactive approach, from a lack of operational management to being more operational. These selected benchmarks are applied to comparative analysis in sections below.

Proactive approach

i. Is the system based on clear recognition of and consensus on the potential need for international assistance?

ii. Does the system contain procedures for specifically requesting international assistance?

Operational

iii. Does the system provide detailed operating procedures covering all phases of operation?

iv. Does the system provide practical tools for enhancing communication among stakeholders?

Inclusion of local stakeholders

v. Are local stakeholders responsible for international SAR teams?

vi. Does the system cover activities by local stakeholders?

Attention to critical or sensitive issues

vii. Does the system refer to conditions or requirements for incoming international SAR teams?

viii. Does the system covers legal and financial issues such as liability, compensation, etc.?

Compatibility with international standards and practices

ix. Does the system clearly refer to and integrate international standards and practices?

x. Does the system involve actors who familiar with international standards and practices?

5.2. Selection of Leading Practices

For applying comparative analysis, a quick search was conducted to identify leading practices of developed countries by first looking into individual countries' progress as reported at international meetings, including the International Search and Rescue Workshop hosted by the FEMA in November 2012, or registered in the IFRC's disaster law database,[3] and different European Commission civil protection documents[4], then based on results of the survey, by communicating with SAR organizations to obtain relevant information.

Documents for managing international assistance were collected and analyzed in five nations, i.e., the US, New Zealand, Australia, the Netherlands, and Sweden. It was found that some countries already had produced key documents supporting the system to manage international SAR teams but that other countries are still developing new systems, as explained below.

5.2.1. National Response Framework (NRF) and International Assistance System (US)

The US National Response Framework (NRF), updated in 2013, is a guide on how the US responds to all types of disasters and emergencies. The NRF is supplemented by such annexes as the Search and Rescue Annex and the International Support Annex [13].

These policies, prescribed in the NRF, are detailed in the document entitled "International Assistance System: Concept of Operations (October 1, 2010)" (IAS CONOPS). IAS CONOPS was developed based on lessons from Hurricane Katrina. IAS CONOPS establishes standard operating procedures (SOP) for requesting assistance, reviewing offers, and determining whether to

3. The International Federation of Red Cross and Red Crescent Society (IFRC) compiles international, regional and domestic legal instruments relevant to disaster management as well as legal articles and reports. (http://www.ifrc.org/what-we-do/disaster-law/about-disaster-law/international-disaster-response-laws-rules-and-principles/)
4. European Commission civil protection documents are accessible from http://ec.europa.eu/echo/policies/disaster_response/mechanism_en.htm

accept or decline these offers, managing the logistics of transporting, receiving, and distributing international donations. IAS CONOPS contains a special annex, "Urban Search and Rescue Team SOPs" [14].

5.2.2. International Assistance Cell Standard Operating Procedures (New Zealand)

Following the 2011 Christchurch Earthquake, the way the NZ government managed international SAR teams from Japan, Australia, Taiwan, Singapore, the US, and the UK is often referenced as a good practice for developed countries. Japanese team members dispatched to Christchurch almost unanimously stated that they were very impressed with the neatly organized BoO and the variety of services available, such as a cafeteria, daily cleaned latrines, dry-cleaning, etc. All on-site coordination and management based on international standards were also conducted by New Zealanders only.

Based on experience with the Christchurch Earthquake, the Ministry of Civil Defense and Emergency Management (CDEM) of New Zealand developed a document entitled "International Assistance Cell: the Standard Operating Procedures" in 2012. This document describes the responsibilities, processes, and procedures for the International Assistance Cell (IAC) in the National Crisis Management Centre (NCMC) [15].

5.2.3. Australian Government Arrangements for International Reception

Systems of Australia, a core member of the INSARAG Asia Pacific Regional Group, deploy USAR teams overseas and are well established. They deployed USAR teams to New Zealand and to Japan in 2011.

The Australian government is currently developing a new system, Arrangements for International Reception (AIR). Several AIR features are different from those of the US and New Zealand. In Australia, states and territories are responsible for managing disasters, so international assistance falls under operational control of state or territorial agencies. Accordingly, the current AIR draft covers issues of communication and coordination between Emergency Management Australia and the disaster-affected state or territory eligible for international assistance [16].

5.2.4. Incoming Foreign Assistance: Assistance Manual (the Netherlands)

The Netherlands' Assistance Manual Volume 3, entitled "Incoming Foreign Assistance," is one of the most comprehensive and detailed documents on international assistance. It describes procedures that must be followed and operational management of foreign assistance units and tasks and responsibilities of the Dutch organizations involved. The basic principle of this manual is to clarify and conform to the way foreign assistance is managed in the Netherlands. The manual clearly states that foreign assistance must reinforce disaster relief and not add to a region's workload [17].

The Dutch system is similar to the Australian system in that the Dutch system also covers the roles and responsibilities of regional and local authorities.

5.2.5. Sweden's Blue Ribbon Report

Sweden has reviewed its emergency system to strengthen Swedish ability to receive international assistance. The results, known as the Blue Ribbon Report, were submitted in April 2012 and contains many proposals largely in line with EU Host Nation guidelines. Still it is useful to improving the understanding of non-EU countries [18].

5.3. Comparative Analysis Results

This study comparatively analyzed the Japanese system and those of the US, New Zealand, and the Netherlands by applying the benchmarks defined in the previous section. These three countries were selected because they have specific documents supporting their systems.

Analysis results present a wide range of ideas and insights from other countries' systems. **Table 1** shows how the comparison was made by highlighting major differences between countries. Since the table shows only part of the results, the following sections provide additional information indicating how the Japanese system should be improved.

5.3.1. Proactive Approach

The three other countries' systems clearly state the need for international assistance, although in varying degrees.

Among them, the US system is very cautious about requesting SAR teams, stating that "foreign personnel should only be requested as a last resort" [14]. The US system states that the United States "has a robust Urban Search and Rescue (US&R) capacity as well as the ability to maintain sustained operations. It is essential, however, to proactively introduce and support international US&R teams" [14]. Interestingly, it also states that "STF, a temporary organization established within the Department of State, will take immediate action to minimize the number of unsolicited foreign offers of assistance… notify offering counterparts and international organizations that the USG does not require formal assistance" [14]. The US system is proactive in nature overall, but at the same time, it is cautious about accepting aid including foreign personnel.

The Dutch system positions international assistance similarly. It states that "it is not inconceivable that a disaster of this scale could deplete the resources of people and equipment on the national level, making foreign assistance necessary" [17]. It further states that "foreign assistance should form reinforcement of disaster relief and not add to the region's workload or be detrimental to disaster relief" [17].

Table 1. Main comparative analysis results.

	USA	New Zealand	Netherlands
Main Document	International Assistance System: Concept of Operations (2010)	International Assistance Cell: Standard Operating Procedures (2012)	Assistance Manual Volume 3: Incoming Foreign Assistance (2010)
i. Recognition of potential need for assistance	States "a need to establish USG policies and procedures for seeking assistance from international US&R teams."	States that "an emergency in New Zealand may generate offers of assistance from overseas governments."	States that "it is not inconceivable that a disaster of this scale could deplete the resources... making foreign assistance necessary."
ii. Requesting assistance	Contains procedures for making requests and states that state that "it is essential ...to take a proactive approach to introducing and supporting international US&R teams."	Details methods for initiating international assistance and requirements for accepting offers and requesting international assistance.	Contains detailed procedures for the application of foreign assistance. A standard application form must be accompanied by a checklist to be filled in by assisting countries.
iii. Detailed operating procedures	Covers both federal agency tasks and system activation, offer and request management, and states a logistical process for receiving and distributing assistance.	Provides detailed procedures for accepting and requesting international assistance but does not cover procedures for logistics, command and coordination, etc.	Contains procedures to be followed and describes the operational management of foreign assistance units and tasks and responsibilities of relevant bodies.
iv. Tools enhancing communication	Specifies that "USAID... will work with the UN OCHA (FCSS) to request and receive international US&R assistance and will post requests for assistance on the virtual OSOCC."	States that New Zealand supports the use of the Virtual OSOCC as an important information sharing and information management tool.	Use of EU online system for communication among member states and the Virtual OSOCC worldwide, and contains Standard Application Forms for Foreign Assistance, checklist units and equipment, contact details, etc.
v. Involvement of local stakeholders	States "activities performed by foreign personnel that must be limited to those carried out under FEMA's authority to provide direct federal assistance to states."	Key responsibilities taken by national organizations such as the MFAT Emergency Coordination Centre, NCMC Logistics Team, NZ Fire Service, and NZ Police.	Makes regional authorities responsible for response management.
vi. Coverage of local stakeholder activities	Activities of local partners out of IAS scope	Covers mostly government organization activities and not activities of local partners.	States that the manual fully covers regional management.
vii. Conditions or requirements	States that "foreign personnel should only be requested as a last resort." Also states conditions to be ensured, such as worker's compensation, liability, etc.	States that "any international assistance must be able to operate within the New Zealand regulatory and legal framework," without giving details.	Describes EU modules, statutory arrangements for liability for medical care provided by foreign professionals, and cost allocation between countries rendering and receiving assistance.
viii. Legal and financial issues	Refers to workers' compensation, liability, and credentials, licenses and certification as issues that must be resolved before FEMA will approve final acceptance.	States that "any international assistance must be able to operate within the New Zealand regulatory and legal framework." No further mention is made.	Covers sensitive issues such as medical care from foreign professionals, and cost allocation, statutory arrangements for customs.
ix. International standards and practices	States that the US&R SOP was developed based on INSARAG Guidelines. Describes procedures for establishing an RDC and use of the Virtual OSOCC.	Refers to OCHA-led mechanisms, including UNDAC, INSARAG, and the virtual OSOCC.	Referring to the EU and UN, states that "we have attempted to use terms that correspond as well as possible to commonly used international definitions."
x. Involvement of international actors	States that "the USG does not plan to establish an OSOCC because international teams will be incorporated into the FEMA US&R Incident Support Team (IST)."	States that "if it is identified that IAC will require support to manage the entry and coordination of international assistance, the National Controller may request an UNDATC Team."	No mention of international actors.

5.3.2. Operational

The three other countries' systems are all supported by detailed documents. Among them, the Dutch system is the most detailed, while the New Zealand's system is more or less procedural in describing mainly tasks of relevant agencies. The US system is somewhat between them. In any case, these suggest that Japan must develop a more detailed document, possibly in the form of standard operation procedures.

The Dutch manual contains many practical tools for enhancing communication, such as the Standard Application Form for Foreign Assistance, checklist units and equipment, contact details of the organizations involved, etc., which deem useful for minimizing communication gaps and making procedures go smoothly. Practical tools of this sort therefore need to be considered in redesigning the Japanese system.

5.3.3. Inclusion of Local Stakeholders

Main documents supporting the three other countries' systems are open and written in clear, plain English.

The US and New Zealand systems do not cover activities of local authorities because federal or national government agencies are tasked with managing international SAR teams. The US system states, for instance, that "activities performed by foreign personnel must be limited to those carried out under FEMA's authority to provide direct Federal assistance to states" [14].

The Dutch system differs from the US and New Zealand systems in that the Dutch system, in line with its domestic response system, describes both regional and national management for foreign assistance.

The Japanese system for managing foreign assistance reflects its domestic system, because the national government has its own plans and manuals focusing mainly on decision making about whether to accept international assistance and describing only briefly the management of international assistance after it has accepted it. Local government plans describe very little about incoming international assistance. All of these add up to the assumption that there is very little or no preparation for currently managing foreign assistance at the local level. Involvement of local stakeholders is thus inevitable unless the national government takes care of all necessities, which means that the Japanese system must contain necessary procedures on operational management at the local level.

5.3.4. Attentive to Critical or Sensitive Issues

The three other countries' systems require certain procedures for requesting foreign assistance that are necessary for minimizing unsolicited offers of assistance and for imposing certain conditions to deployed foreign personnel.

The US system is very strict in these aspects. It clearly states that "foreign personnel may not be deployed until FEMA confirms that the state has agreed to indemnify the USG for any claims resulting from the provision of direct federal assistance based on FEMA regulations" [14]. The requesting agency must ensure that certain conditions for workers' compensation, liability, credentials, licensing, and certification. When requesting international SAR teams, posting to the Virtual OSOCC must contain the following verbiage: "workers' compensation for injuries sustained while conducting relief and rescue operations in the United States cannot be arranged by the United States Government. US&R teams operating in the United States may be liable to tort claims [14]."

The New Zealand system states that "any international assistance must be able to operate within the New Zealand regulatory and legal framework" [15], but does not give any further details.

The Dutch system is also concerned about areas of special attention. It draws on the EU civil protection mechanism that specifies most of the important requirements for EU modules, such as tasks, capacities, components, and self-sufficiency. In addition, the Dutch system describes arrangements pertaining to medical care from foreign professionals, cost allocation for assistance between the country providing assistance and the country receiving it, and the like.

All three countries pay attention to critical issues such as legal and financial issues, licenses, and compensation for damage caused by foreign personnel. This marks a clear difference from the Japanese system, which states only "self-sufficiency" as a requirement without explaining it in detail. Furthermore, this has caused confusion on different occasions because some have claimed that foreign personnel were not self-contained and requested assistance for fuel, transport, camping site, etc. In improving the Japanese system, careful attention must thus be paid to these critical or sensitive issues.

5.3.5. Compatibility with International Standards and Practices

The three other countries' systems refer to and integrate international standards and practices, most notably INSARAG Guidelines, to varying degrees.

The US system contains the establishment of a RDC for incoming teams and the use of the Virtual OSOCC as per INSARAG Guidelines. USAID is mandated, as the USG official representative of INSARAG, will work with the UNOCHA (FCSS) to request and receive international US&R assistance and will post requests for assistance for the Virtual OSOCC. It also states, however, that "the USG (US Government) does not plan to establish an OSOCC, because international teams will be incorporated into the FEMA US&R Incident Support Team (IST)" [14].

New Zealand underlines its support of the use of the Virtual OSOCC as an important information sharing and information management tool. It also states that "if it is found that the IAC requires support to manage the entry and coordination of international assistance, the National Controller may request a UNDAC Team[5]" [14].

The Dutch system provides detailed procedures required by INSARAG Guidelines, such as RDC, LEMA, OSOCC, and BoO. In this respect, it is a model for fully

integrating procedures required by INSARAG Guidelines. The Dutch system draws heavily on the well-established EU Civil Protection Mechanism. One of the noticeable advantages in doing so is the use of EU modules that are operational units for "specific tasks, to be deployed abroad in the event of a crisis at very short notice" [17]. EU modules include Urban Search and Rescue Operation (Medium and Heavy), Aerial Forest-fire Fighting, Advanced Medical Posts, and so forth. A list of specific requirements and essentials to which individual modules must comply is drawn up. Moreover, the EU Host Nation Support Guidelines provide detailed model procedures and numerous practical communication tools, e.g., HNS checklists, templates, glossaries [19].

Overall, international practice holds that systems for managing international SAR teams must be designed based on INSRAG Guidelines. The EU Civil Protection Mechanism, including the EU Host Nations Support Guidelines, could also serve as a good reference for Japan.

6. Reflection on Analysis Results

This study has shown that the current Japanese system for managing international assistance has many gaps evident in the aftermath of the 2011 earthquake. Many of these gaps were filled by the spontaneous, dedicated efforts of different stakeholders, especially locally. While this is certainly a part of the strength of Japanese society, in some cases it ended up placing additional burdens on local people in disaster-affected areas.

Some experts insist that the unexceptionally large scale of the disaster was responsible for many of these issues as manifested by "the magnitude of the disaster and the disruption of communication tools, it was practically impossible at earlier stage to match the offered supports with actual needs of the disaster-affected area" [20]. This may be true to some extent, but must not be a reason – if not an excuse – for delays in progress toward a more effective system.

Analysis results show clear differences between the Japanese system and other systems examined in this study and suggest that more effort is necessary in the following areas:

First, the nature and scope of the system must change. As discussed, the Japanese system was designed mostly for government disaster management headquarters. The manual is not intended to be an open document for a wider audience, including local authorities, even though they are in the forefront working with international SAR teams. US and New Zealand systems are clear that government agencies are tasked with managing international SAR teams, hence activities of local authorities are not covered. The Dutch system covers both national and regional management. In comparison, the Japanese system is judged to be incomplete, so the system must cover the activities of local authorities if they are still to be responsible for managing international SAR teams. Otherwise, government agencies themselves must take responsibility for managing international SAR teams throughout all phases of operation.

In addition, the system was not originally intended to be shared with international society. It is not compatible with international standards and practices. Given that it is now a common practice for countries to prepare for incoming international SAR assistance based on international standards, the Japanese system must be redesigned to make it compatible with international standards, especially INSARAG guidelines, and to enable it to be shared with international society.

Second, the content of the manual, as a major supporting document, must be changed. It must be complemented by SOPs, either as part of the manual or as a separate document. SOPs must:

- Cover requesting assistance, accepting and declining offers, managing incoming foreign teams from entry to exit, logistics and transport, on-site command structure, etc.
- Integrate international standards and practices, especially INSARAG Guidelines, in the domestic response mechanism.
- Contain templates for requesting support, detailing incoming SAR team capability, and other logistical needs.
- Be clear and straightforward so that it is easily shared among stakeholders both domestically and abroad, and between different levels of government.
- Be used for training and exercises to confirm its content and enhance common understanding sharing among relevant stakeholders well in advance.

Third, the management structure of the system must change. As discussed, diplomatic considerations often deviate from actual needs. The composition of actors for a response to a domestic disaster is different from that for a response to an overseas disaster. There is also a clear division of labor in disaster response between the government and local authorities. All of these differences stem from the overall government administrative structure. This complex structure and the division of labor often hinder ownership of the system and prevent it from becoming really a common and effective tool. A single organization responsible for both domestic and international disasters and capable of covering both administrative and operational elements would be a desirable option, although difficult to realize easily. As the second best option, the government must create a new system that enables all relevant actors to work together, as if they all belonged to a single team, based on common and practical SOPs.

5. The United Nations Disaster Assistance and Coordination (UNDAC) Team helps the United Nations and governments of disaster-affected countries during the first phase of a sudden-onset emergency. UNDAC also assists in the coordination of incoming international relief at national level and/or at the site of the emergency (http://www.unocha.org/what-we-do/coordination-tools/undac/overview).

Last, the system must be based on a clear recognition of the value of support extended by international SAR teams. As stated, negative opinions about international support have been emphasized more than positive opinions. As a result, the question has often been raised if Japan requires support by the international SAR teams at all. Despite such negative views, it must be noted that domestic resources would not be sufficient if an extremely large disaster, such as the Nankai trough earthquake and the Capital Region earthquake,[6] occurred. In such a case, the government is likely to request international assistance, including SAR teams, or international assistance would be offered and accepted anyway, so the system must prioritize the acceptance of international support from SAR teams who add proven value to the domestic capacity, thereby precluding as much unsolicited support as possible. Some argue that only international SAR teams classified by the INSARAG External Classification (IEC) as "Heavy USAR Teams"[7] must be requested, and it is certainly a way forward. More importantly, however, the system must integrate international SAR teams well in the domestic response system without adding to the workloads of local stakeholders already overwhelmed by daunting tasks of their own. This means that the system must enable the national government to take more responsibility and roles throughout the process.

7. Conclusions

This study has analyzed the ability to manage international SAR assistance in a domestic disaster by applying root cause analysis to issues that are reorganized as lessons learned from the response to the Great East Japan Earthquake and by applying comparative analysis to compare the Japanese system to selected leading practices of other developed nations. Analysis results have suggested ideas on how to improve the system in relation to its nature and scope, its content, and its management structure.

The methodology and information applied in this study have been validated to the extent possible. Still, the methodology could be further improved if it is critically examined from practitioners' viewpoints. Likewise, it could be further enhanced if issues related to armed forces and nongovernmental actors are considered.

Over 3.5 years have passed since the 2011 Great East Japan Earthquake. Based on valuable lessons learned, progress is seen in many areas, such as disaster research, disaster-resilient infrastructures, and disaster response equipment, but a system for managing international assistance is one of the areas lagging. As one of the members within the government responsible for SAR operations and international cooperation, the author intends to use study results when further improving the system, hence strengthening Japan's disaster management capacity and making it better prepared for future disasters.

6. Both are evaluated to occur with high probability in the next 30 years by the Headquarters for Earthquake Research Promotion of the Ministry of Education, Culture, Sports, Science and Technology.
7. IEC classifies international USAR teams based on their operational capabilities. "Heavy USAR Teams" have the operational capability for difficult and complex technical SAR operations, which "Light" an "Medium" UASR Teams do not have.

References:

[1] A. Koresawa, "Evidence-Based Analysis of Search and Rescue Operations Following the Great East Japan Earthquake," Journal of Disaster Research, Vol.8, No.sp, pp. 746-755, 2013.

[2] The Extreme Disaster Management Headquarters, "2011 Earthquake off the Pacific coast in Tohoku" (in Japanese), http://www.kantei.go.jp/saigai/pdf/201403131700jisin.pdf [accessed March 21, 2014]

[3] The Committee for Policy Planning on Disaster Management, "Final Report: Towards the reconstruction for sound and unwavering Japan," http://www.bousai.go.jp/kaigirep/chuobou/suishinkaigi/english/pdf/Final%20Report.pdf [accessed Nov. 1, 2013]

[4] The Central Disaster Management Committee, "the Basic Disaster Management Plan" (in Japanese), http://www.bousai.go.jp/taisaku/keikaku/pdf/kihon_basic_plan.pdf [accessed on Nov. 1, 2013]

[5] Cabinet Office, "the Interim Report of Task Force on Emergency Response" 2011 (in Japanese).

[6] H. Banzai, "Issues of receiving foreign assistance in the Great East Japan Earthquake," The Bulllention of Waseda Institute of the Policy of Social Safety, No.4, 2011 (in Japanese).

[7] M. Sakamoto, "The Coordination System to Receive International Assistance in the Great East Japan Earthquake – Focusing on the Coordination of Disaster Stricken Municipalities for Receiving International US&R Team," Journal of Social Safety Science, No.21, 2013 (in Japanese).

[8] United Nations Office for the Coordination of Humanitarian Affairs, International Search and Rescue Advisory Group, "Guidelines and Methodology," http://www.insarag.org/images/stories/INSARAG_Guidelines-2012_ENG-_Read_version.pdf [accessed Dec. 1, 2013]

[9] L. Collins, "USAR Response to Japan Earthquake and Tsunamis, Part 2," Fire Engineering http://www.fireengineering.com [accessed on Dec. 1, 2014]

[10] S. Asazuma, "Emergency Aid for the Great East Japan Earthquake," Int. Affairs, No.608, pp. 47-51, 2012 (in Japanese).

[11] FEMA, "2012 International Search and Rescue (SAR) Workshop Summary Report," 2012 (unpublished).

[12] M. Tsuji, "Joint activities with international SAR teams," Kindai-Shobo (The Firefighter), No.612, 2012 (in Japanese).

[13] FEMA, "National Response Framework," http://www.fema.gov/national-response-framework [accessed Nov. 1, 2013]

[14] FEMA, DOS and USAID, "International Assistance System: Concept of Operations," http://www.ifrc.org/docs/idrl/748EN.pdf [accessed on Nov. 1, 2013]

[15] National Crisis Management Centre, "International Assistance Cell: Standard Operating Procedures," http://www.ifrc.org /PageFiles/100077/NZ_2012_NCMC_International%20Assistance%20SOP_31%20August%202012_Generic%20.pdf [accessed Feb. 27, 2014]

[16] Australia Government, "Arrangement for International Reception" (unpublished).

[17] National Operation Centre (The Netherlads), "Assistance Manual Volume 3; Incomng Foreign Assistance," http://www.ifrc.org/PageFiles/100077/Netherlands_2009_Manual%20for%20incoming%20Foreign%20Assistance%20during%20FloodEx%20exercise.pdf [accessed Dec. 1, 2013]

[18] Government Offices of Sweden, "Sveriges möjligheter att ta emot internationellt stöd vid kriser eller allvarliga händelser i fredstid," http://www.regeringen.se/sb/d/15759/a/191851 [accessed on Jan. 27, 2014]

[19] European Comission, "EU Host Nation Support Guidelines," http://ec.europa.eu/echo/files/about/COMM_PDF_SWD%20201201 69_F_EN_.pdf [accessed Dec. 1, 2013]

[20] A. Tsuji, "Case studies, Lessons Learned, Best Practices – the Great East Japan Earthquakes –," presend to the Int. Search and Rescue (SAR) Workshop on Nov. 13-14, 2012 (unpublished).

Name:
Atsushi Koresawa

Affiliation:
Chubu Regional Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Address:
2-5-1 Sannomaru, Naka-ku, Nagoya 460-8514, Japan

Brief Career:
1988 National Land Agency, Prime Minister's Office, Government of Japan
1991-1994 UN-HABITAT, Research and Development Division
1997-2000 OECD, Territorial Development Service
2001 Cabinet Office, Government of Japan
2004 Ministry of Land, Infrastructure and Transport, Government of Japan
2009 Asian Disaster Reduction Center
2012 Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications, Government of Japan
2014 Chubu Regional Bureau, Ministry of Land, Infrastructure, Transport and Tourism

Selected Publications:
• "Strengthening the Asian System for Disaster Risk Reduction," RISK RETURNS, UNISDR, 2011.
• "HFA Implementation in Asia and the Pacific," Asian Disaster Management News, Vol.16, No.2, 2010.
• "Main Features of Government's Initial Response to the Great East Japan Earthquake and Tsunami," Journal of Disaster Research, Vol.7, No.1, 2012.
• "Government's Response to the Great East Japan Earthquake and Tsunami," Journal of Disaster Research, Vol.7, No.sp, 2012.
• "Evidence-Based Analysis of Search and Rescue Operations Following the Great East Japan Earthquake," Journal of Disaster Research, Vol.8, No.sp, 2013.

Academic Societies & Scientific Organizations:
• Institute of Social Safety Science (ISSS)
• Japan Association for Real Estate Science (JARES)