Experience in Responding to the Great East Japan Earthquake and Lessons for India*

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Introduction

Amagnitude 9 earthquake occurred off the Tohoku region of North-Eastern Japan at 14:36 hours on 11 March 2011. This earthquake triggered a tsunami that hit approximately 480 km of coastline with a wave of 30m height in places. The maximum depth inland to which the tsunami reached was approximately 30 km in river mouths and 10 km in the Sendai plains. The tsunami resulted in many towns, fishing villages and communities being completely wiped off the map and ultimately in over 21,000 dead and missing persons with more than 750,000 buildings destroyed or damaged. At one time 480,000 internally displaced people were housed in evacuation centres. It also resulted in extensive damage to the Fukushima Daiichi nuclear power plant leading to significant radiation leakage from the power plant.

The Government of Japan was faced with three concurrent crises in this natural disaster. Though it is one of the best-prepared countries in the world and a fully developed country, it had limited previous experience of receiving international assistance, as it has been a donor country for many decades. Therefore, it requested the UN Office for the Coordination of Humanitarian Affairs (OCHA) for a UN Disaster Assessment and Coordination (UNDAC) team to assist it. I was selected by the United Nations to lead this multinational UNDAC team, which consisted of : Arjun Katoch, Team Leader, India; Sebastian Rhodes - Stampa, Deputy Team Leader, UN OCHA; Per-Anders Berthlin, Sweden; Kim Yong Sang, Korea; Olivier Brouant, European Commission Humanitarian Office (ECHO); Akiko Yoshida & Kirsten Mildren, UN OCHA; Yosuke Okita, Japan; Sebastien Sivadier & Clinton Smith from Telecomn Sans Frontieres (TSF) and Anne Frankland & Nick McWilliam from MapAction.

This article is based on my experiences as the Team Leader of the UNDAC team in Japan and is necessarily a subjective viewpoint; it does not by any means claim to be a comprehensive account of the overall response to the Great East Japan earthquake.

Terms of Reference of the UNDAC Mission

The terms of reference of the mission were finalised on 14 March at a meeting of the UNDAC team with the Director of the Humanitarian Assistance and Emergency Relief Division of the Ministry of Foreign Affairs. The tasks given to the UNDAC team were:

(a) To report to the outside world on the emergency situation resulting from the earthquake and tsunami in Japan.

(b) To advise the Ministry of Foreign Affairs on how to respond to the numerous offers of assistance being received by the Government of Japan.

(c) To assist, from Tokyo, in the handling of the international urban search and rescue teams which were deploying to Japan.

Government of Japan Coordination Structure

The Government established a very centralised coordination structure. A disaster management committee, located in the Prime Minister's office, headed by the Prime Minister, took all decisions. All ministries reported directly to this committee and all Prefectures (roughly equivalent to Indian States) also reported to this committee. This resulted in all decisions having to go to the very top and very little inter-ministerial coordination below that level.

This centralised coordination structure resulted in difficulties in coordination and in the fact that in the initial days the Government's primary focus (rightly so) was on the radiation leak at the Fukushima Daiichi nuclear power plant and therefore, there was less focus on the humanitarian relief issues of the population affected by the tsunami.

International Urban Search and Rescue (USAR) Response

The UNDAC team established itself and set-up an On Site Operations Coordination Centre (OSOCC) at the Japan International Cooperation Agency (JICA) International Training Centre in Tokyo. In addition three Sub -OSOCCs were set up at Ofunato, Sendai and Minami-Senriko. 20 International USAR teams were deployed by 15 countries to the affected area from 12 to 21 Mar, 2011 with a total of 890 rescuers and 38 dogs. The international teams were integrated and coordinated by the authorities in the respective Prefectures along with national response units. The OSOCC maintained an overview of the international USAR response. There were considerable difficulties in communication between the OSOCC in Tokyo and Sub-OSOCCs due to the distance and disrupted road and rail communications between Tokyo and the Tohuku region. A table showing the deployment of international USAR assets as on 23 March is at Appendix A.

India had decided to send a USAR team from the National Disaster Response Force (NDRF) to assist but by the time relevant decisions were taken by the Government, it was almost a month from the earthquake and by then all other international USAR teams had long since returned from Japan. Ultimately, the NDRF team of 46 men was finally deployed at Miyagi Prefecture on 28 March to assist in recovery and rehabilitation operations.

National and International Military Response

The mainstay of the Japanese response to this emergency was the Japanese Self Defence Forces (SDF) supported by the US military. The Japanese military had between 80,000 -106,000 troops in the affected area and they were responsible for the delivery of food, water and other relief supplies to the affected population. In addition, the US Armed Forces in Japan and the US Seventh Fleet were deployed to assist the Government of Japan, providing an additional 20,000 US troops and immense logistics capabilities in the US named 'Operation Todomachi'. UNDAC also established direct links

with the US military, which was a major player on this mission. One of the biggest lessons that ought to be drawn from this mission is the fact that 'humanitarian military coordination needs to be practised and strengthened' as most of the response to major disasters relies heavily on domestic military resources, probably supported by international military resources.

Assisting the Government of Japan in Managing the Crisis

The major assistance that the UNDAC mission provided to the Government of Japan was in reporting to the world the events surrounding this emergency and the response to it. In Japan all work, data, and actions are in the Japanese language. Had it not been for the UNDAC team gathering data available in Japanese and presenting it in English Situation Reports, there would have been very little accurate information about the emergency available to the world. This has especially to be looked at in the context of the intense and often sensationalist media coverage of the disaster and its aftermath. The Japanese Government was very appreciative of this function performed by UNDAC.

The Japanese Government also sought the advice of the UNDAC team on how to deal with the numerous offers of assistance received from countries as well as NGOs and other international organisations. There was a need to prevent any uncontrolled influx of international teams and organisations with limited utility to assist in the Japanese response. A map showing the deployment of international agencies and NGOs as on 20 March made by MapAction (a British NGO deployed with the UNDAC team) is at Appendix B.

Impact of the Radiation Issue on UNDAC Operations

The radiation issue related to leakage from the Fukushima Daiichi nuclear power plant was the event on which the international media concentrated almost exclusively. It had a major bearing on humanitarian operations as it generated approximately 240,000 internally displaced people once the Government of Japan established an evacuation zone of 20 km radius and a safety zone of 30 km radius. In addition, the US authorities set-up a precaution zone for their own nationals of 80 km radius in which the US rescue and relief units were not allowed without specific safety procedures. UNDAC followed the US precautions. The US Government also provided to Japan very significant technical capabilities from both the US Armed Forces and the US Department of Energy to assist the Government in dealing with the nuclear radiation situation.

The UNDAC team carried out its own monitoring for changes in level of radiation. The levels of radiation recorded with our own intensimeter in the OSOCC in Tokyo were 0.07-0.18 iSv/hour. This level of radiation was within the levels of normal background-radiation (0.10-0.20 mSv/hour). Comparatively, the radiation exposure during a trans Atlantic flight from Europe to the Americas is many times higher (3-80 mSv).

Lessons for India

This international response was an unusual response in that it was conducted in a rich, developed country, which could have handled the emergency from within its own resources and had never accepted international systems before. It was also a mission in which we were dealing with three crises in one emergency. These observations are an attempt to bring out some of the lessons that could be drawn by India from this unusual mission.

Sustained Risk Reduction Works. Japan is the one country in the world, which has devoted a lot of time and attention to disaster risk reduction. It obviously works. The 9 magnitude earthquake resulted in less than 100 deaths from collapsed structures. This is a remarkable achievement. All other deaths were because of the tsunami. While we were in Tokyo, during the first week alone, there were 262 aftershocks of greater than 5 magnitude, of which 49 were greater than 6 magnitude and three greater than 7 magnitude. Not a single building collapsed. Imagine if a similar earthquake and aftershocks happened in North India. Since building codes are not followed in most constructions, it would result in tens of thousands of deaths. The lesson for us is to take risk reduction seriously on a sustained basis.

Effective, Integrated Use of the Military is Essential in Response to Major Disasters. The response to the earthquake in Japan was primarily a military response utilising almost 106,000 troops of the Japanese SDFs. In addition there was extensive assistance from the US military. The scale of damage, the difficult terrain and challenging weather conditions combined to make it a task that only the military with its extensive logistics could perform. This is normally the case in most countries including India. The military was integrated into the response at the Prefecture level, quite similar to what it would be in India, if a state were affected. It is essential that in India we integrate and practise the military in disaster response between disasters. Unfortunately, this is not the case right now as the military is not a member of the disaster management committees at the state or district levels. This needs to be rectified at the earliest.

A Clear Chain of Control from the Highest Level to the Community is a Must. No Silos!. One of the shortcomings of the Government's response in Japan was the fact that at the Central level, Government departments worked somewhat in isolation to each other. The disaster management committee in the Prime Minister's office was the place where everything was centrally controlled. This slowed down decision-making and while attention of the Government was on Fukushima Daiichi, it resulted in a slower response to the affected population in other areas affected by the earthquake and tsunami. The lesson learned here is that there should be a clear, delegated chain of control in which there is interaction at all levels between all departments of the government as well as NGOs and other responders. No silos should be permitted.

All Levels of Government must Participate in National and State Disaster Response Exercises Mandatorily Once in a Year. All levels of Government, including the political and military leadership, must participate in mandatory National and state level disaster response exercises at least once in a year. Otherwise the response is ad hoc and unprofessional since the decision-makers have had no prior experience of a large-scale response to disasters. These exercises should also endeavour to include in them non Governmental responders such as NGOs, civil society organisations and the Red Cross family that will be made available in communities in any disaster.

Government Institutional Preparedness to Receive Foreign Assistance, including Foreign Military Assistance is Needed. No country, no matter how advanced and wealthy, can handle such major disasters on its own as proved by the Japan earthquake and Hurricane Katarina in USA. As such, the Indian government must be institutionally prepared to receive foreign assistance including foreign military assistance. This is a lot more complicated than it appears and requires pre-established structures and procedures at the Central, state and district levels familiar with humanitarian – military coordination. Our Government does not have such structures in place and should establish them at the earliest.

Community Preparedness and Functioning Emergency Services Key to Saving Lives. While the tsunami took 21,000 lives, community preparedness saved thousands more. In Japan, children from a very early age are taught about earthquakes and tsunami preparedness. Every community practices evacuation drills. These drills undoubtedly saved thousands of lives. In India the concept of community preparedness and drills is almost non-existent. An almost complete neglect of the emergency response sector has left the communities with hardly any effective 'Fire and Emergency Services' capability. There is very little community preparedness. A major lesson to be learnt by us from the Japanese earthquake is that community preparedness and functioning Fire and Emergency Services are absolutely essential to save lives.

Handling the Media Requires Professional Training and Preparation. There was intense international and national media interest in the event. However, there appeared to be no real thought through Japanese Government media policy in the initial aftermath of the disaster. As a result, media speculation was rife and 'social media' was very active. A major lesson of this disaster was that all governments must have a very clear media policy and trained people reaching out and constantly briefing the media as well as posting this on the social media. It is not clear that decision-makers in the Government of India are fully cognisant of the ramifications of the spread of the mobile phone and social media on the speed of formation of public opinion in such events.

Nuclear Accident Response and Wider Effects of Radiation Leaks Need Serious Consideration. While observing and dealing with issues of Fukushima Daiichi and the radiation leak from it, one fact struck me. Plutonium 239, which was one of the isotopes that leaked from the nuclear fuel used in the power plant, has a half-life of 24,000 years. That is almost three times the length of recorded human civilisation. The larger question to be discussed is: do we really want to create power plants in densely populated India that may possibly result, through completely unforeseen circumstances, in part of the land being poisoned for 24,000 years? This is not a pro or anti nuclear position, it is a thought the Indian public should have an opinion on.

Conclusion

India is a very disaster prone country and is especially earthquake prone. It is only a question of time when an earthquake of such magnitude will strike to test our preparedness. At present we are certainly not prepared for such an event and it appears that the decision-makers in the Government do not even comprehend the scale of damage and casualties such an event can cause. It is hoped that this experience of the Japanese earthquake will result in a certain awakening within the Government, resulting in action being taken on some of the lessons learned from this event.

No discussion on the response to the Great East Japan earthquake can be complete without a tribute to the resilience of the Japanese people. Their fortitude, discipline and community spirit in the face of such a major disaster was an outstanding example to all of us. One only hopes we could emulate them, should we ever be faced with such an unfortunate situation.