

**Great Eastern Japan Earthquake, March 11<sup>th</sup> 2011**  
A Preliminary Report on the Japanese Government's  
Disaster Response Management

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## Great Eastern Japan Earthquake

### A Preliminary Briefing on the Japanese Government's Disaster Response Management

#### Main Points

- The events in Japan in March 2011, involving an earthquake and subsequent tsunami, fell exactly within the risk profile of Japan's disaster management programme, and there were no contributing factors to the disaster that could not or should not have been predicted and accounted for.
- The failures in disaster response management came about through systemic weaknesses that were entirely predictable, and had been identified in previous similar events, including the 1995 Kobe-Hanshin earthquake
- The systemic failures of the Japanese government and disaster management system were not unique to Japan. They reflect almost completely the same weaknesses that were identified in America following Hurricane Katrina and 9/11.
- Japan's planning and construction laws have clearly made a difference to the ability of large buildings to survive even major earthquakes, and this can be seen as a major success in their long-term earthquake management policy.
- Despite the fact that individual agencies have developed a high-level of expertise and capability (and often have world-class equipment and technology unavailable to other countries, including US), Japan still lacks a unified Disaster Management framework that allows the swift mobilisation of separate agencies under a unified operational command.
- There needs to be a clear distinction made between 'Major Incidents' and 'National Disasters'. They require a different class of response, and as one US FEMA commentator noted, it is no use responding to a Class 5 Disaster with Class 1 frameworks.
- Failures at the tactical and operational level were reflected in, and in many ways caused by, a lack of leadership at the political level. Disaster management on a national level is a political issue, and responsibility for that needs to be accepted by national political leaders, whether in terms of long-term capability preparation or in the immediate post-incident response.
- Despite these failures, there is a clearly-defined development road-map that would allow Japan to use its existing technical, personnel and organisational resources to create an appropriate, effective and integrated unified Disaster Management framework.
- None of the points above are new or unknown. They reflect almost completely the conclusions reached following the 1995 Kobe-Hanshin earthquake and the Hurricane Katrina Congressional Reports. They were fixable then. They are fixable now. If they are not fixed, the same points will undoubtedly be made following the next disaster....

## Introduction

The recent incidents in Japan in March 2011, involving a major earthquake followed by a devastating tsunami, have once again offered a dramatic reminder of how quickly the world can throw up situations that challenge the fundamental rules and principles that crisis response managers depend on in developing their most basic response management programmes and procedures. Despite the fact that 'The Big One' was an inevitable consequence of Japan's geographical positioning across major tectonic faults, and that earthquakes and tsunamis are at the centre of Japanese disaster planning at every level from Cabinet Ministers to local village disaster committees, the truth is that once the disaster hit, there were major failures at every level of the crisis response management system.

Although the scale of crisis that Japan's earthquake and subsequent tsunami produced was described as unprecedented, the problems of response management that they highlighted reflected similar problems that had been identified in recent previous disaster response programmes across the world, including the 2004 Indian Ocean Christmas Day tsunami (9.2 Richter scale, 231,000 dead), 2010 China Yushu Earthquake (6.9 magnitude, 3,000 fatalities), May 2008 Burma Cyclone Nargis (138,000 fatalities, though it is believed that this was a severe under-estimation), 2005 New Orleans Hurricane Katrina (around 1,900 fatalities) and January 2010 Haiti earthquake (7.1 magnitude, 300,000+ fatalities). Given that the Japanese tragedy, similarly to Hurricane Katrina, took place in an advanced, technologically-enabled nation and was a situation that had had been long predicted and which had been at the center of national disaster response planning for well over 100 years (the Seismology Society of Japan was founded in 1880, twenty-five years before the Seismological Society of America was founded in 1906, following the San Francisco Earthquake and the first professor of seismology chair at Imperial University (Tokyo), Faculty of Science was established in 1886), the question has to be asked as to why government response capability proved to be so ineffective, and whether there are fundamental flaws still existing at the heart of national disaster planning that creates an inevitability of failure when faced with the realities of actual disaster management.

**This paper offers an overview of some of the principle issues that were at the heart of Japanese government disaster management planning, and which led to the relative failure of many of its core components.**

It will also use some of the lessons learned in other similar disaster response programmes (both inside Japan and in other countries) as a benchmark to measure whether there has been progress made based upon previously learned lessons.

Having had the privilege to be involved in Japan for almost thirty years, this paper is offered in the spirit of *Kizuna*, friendship in times of hardship, and in the hope that it will make a small contribution to the prevention of similar crisis response management failures in the future.

**Note:** It became clear very early on in the post-tsunami recovery process that the issues surrounding the breakdown of safety procedures at the Fukushima Nuclear Power Stations in the immediate earthquake zone were creating an almost unique ‘double whammy’, convoluting the needs to deliver and manage the survivor recovery programme with the equally pressing issues of dealing with a potentially major radiation incident. However, I will leave issues of nuclear safety to the experts, and in this paper will only refer to the problems caused by the nuclear and radiation crisis in as much as they play a part in the more general disaster response programme.



## Act of God, or Predictable Event?

*“Hurricane Katrina was the most destructive natural disaster in U.S. history. However, there is no question that the Nation’s current incident management plans and procedures fell short of what was needed and that improved operational plans could have better mitigated the Hurricane’s tragic effects. As President Bush acknowledged from Jackson Square in New Orleans, “the system, at every level of government, was not well-coordinated, and was overwhelmed in the first few days.” A true national preparedness system should ensure that all levels of government effectively work together to keep the American people safe and secure at home.*

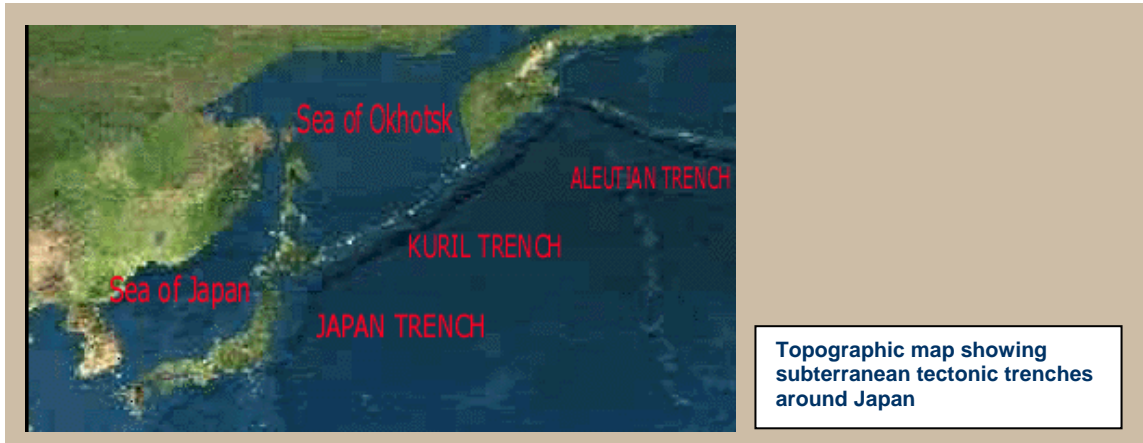
From ‘The Federal Response to Hurricane Katrina: Lessons Learned’, the official Congressional Report into Failures in Hurricane Katrina Disaster Response Management <sup>(1)</sup>

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*‘On the negative side, I saw a lack of interagency planning or coordination, leading me to believe that Japan’s emergency responders will have to cope as best they can in a major disaster with no true comprehensive plan’*

Leo Bosner, FEMA Official, Mansfield Fellow to Japan 1999-2001 <sup>(2)</sup>

The first thing that must be said, whatever the scale of human and national tragedy that was suffered as a result of the earthquake and tsunami, is that none of the problems faced by Japan as a consequence of the events of March 11<sup>th</sup> 2011 should have been unforeseen, and it was exactly these scenarios that national, regional and local crisis managers should have been planning for. Japan is the most earthquake-prone zone in the world, (although it makes up roughly 1 per cent of the world’s surface, Japan and its surrounding waters have been the scene of roughly ten per cent of the world’s 8.0+ magnitude earthquakes since the beginning of the 20<sup>th</sup> century <sup>(3)</sup>), and the subject of when the ‘The Big One’ was going to strike is never far from people’s minds. Based as it is on a major tectonic fault-line, Japan is well accustomed to major earthquakes – there have been 8 separate earthquakes since 1979 that have killed ten or more people. The designation of the 2011 earthquake as a ‘Great Earthquake’ is the third time that this designation has been used, following the 1923 Great Kanto earthquake (7.9 magnitude, 130,000 deaths, the vast majority from fires caused by the earthquake), and the 1995 Great Hanshin (Kobe) Earthquake, (6.9 magnitude and 6,400 deaths).



It was also widely reported that although the earthquake was well-predicted, the fact of the tsunami, and its scale, were so rare as to be outside what would be considered as normal planning parameters. This is actually not the case. The 1983 tsunami that hit the north-east of Japan (the same area as in the 2011 disaster), was the result of a 7.7 magnitude earthquake 100kms off the coast of Japan, and led to a 10-metre tsunami that caused the death of over one hundred people. The 1993 Hokkaido earthquake killed over 250 people, of which 197 died as a result of the tsunami – with one wave reported as reaching 30 metres in height. The great tsunami of 1896, which again resulted from a major earthquake, killed over 27,000 people, though not a single person was reported to have been killed as a direct result of the earthquake itself. This tsunami was also reported to create a wave over thirty metres high <sup>(4)</sup>.

Given the nature of coastal Japan, with small bays funnelling tsunami waves into narrow channels, any underwater tectonic activity could have been predicted to have a high-likelihood of resulting in a tsunami powerful enough to have a major impact on coastal communities.



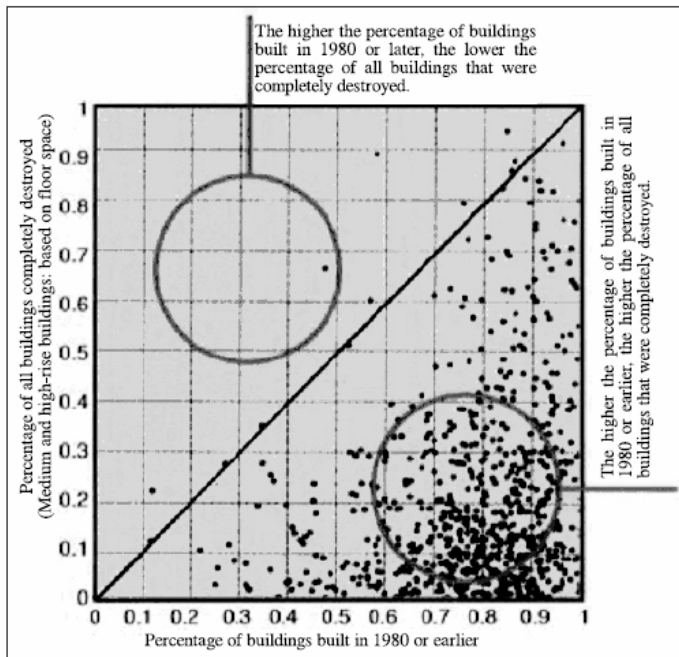
## Four Failures in Planning

The recent disaster clearly highlighted four factors that created a situation where national crisis response management programmes proved themselves to be ineffective, despite the fact that all four of those contributing factors should in fact have been amongst the first assumptions that planning managers factored into their most basic planning models.

### i. Scale of Impact

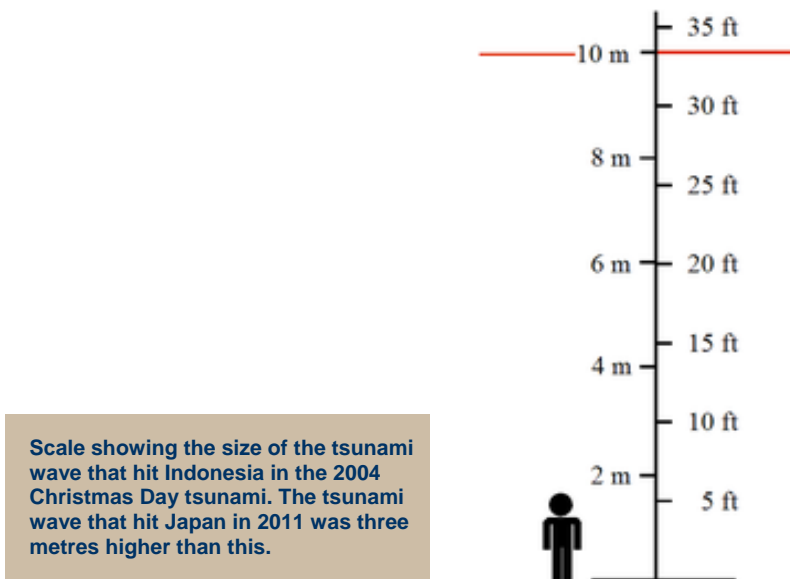
The first factor is the scale of the disaster. In actual fact, in one sense it was this area of planning that proved most successful. Despite the unprecedented scale of the quake itself, national infrastructure proved itself remarkably resilient, with only a very localised area being affected to the extent that power, roads, building and facilities were seriously impacted. Even within the immediate strike zone of the quake, major buildings and facilities remained standing, proving the resilience of Japan's planning laws and earthquake technology. This remarkable resilience in the face of one of the largest earthquakes ever to hit the planet was directly traceable to the measures introduced as part of the 1981 earthquake resistant design code, which covered all new buildings as well as the retro-fitting of previously constructed buildings. The chart below gives a dramatic visual demonstration of how effective planning and design laws can be in creating disaster-resistant environments.<sup>(5)</sup> If the earthquake had been the sole problem, then Japan could have claimed for itself a significant success in planning for the impact of a major earthquake, even one of historically unique size.

Figure 5 : Block-by-block comparison of the percentage of all buildings completely destroyed and the percentage of buildings built before 1981



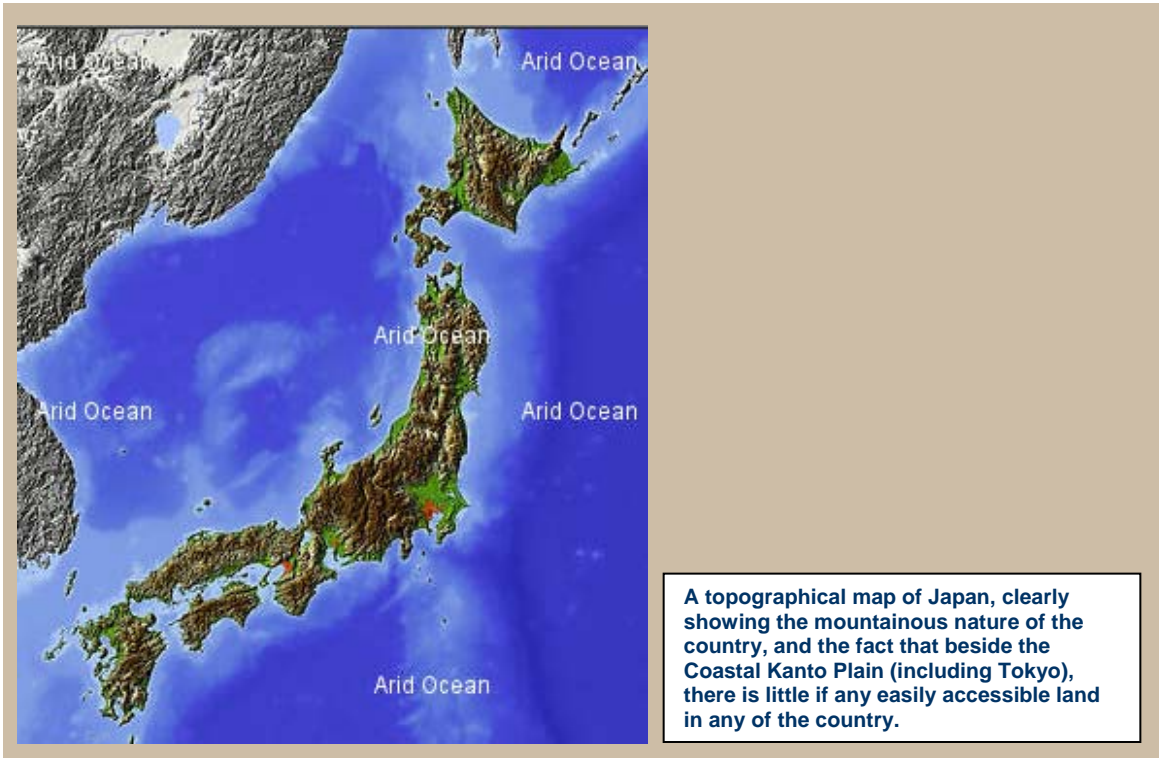
Source: Building Research Institute, "Damage to buildings from the Hyogo-ken-nanbu Earthquake and subsequent response"

The vast majority of the tragic impact was caused by the scale and power of the tsunami, a natural consequence of ocean-centred earthquakes that it is almost impossible to mitigate against. There is no known technology that would provide an effective defence against even a mild tsunami (which is why so much energy and expense is put into developing early warning systems and effective public communication networks, rather than physical defence systems), and it is unlikely that anything that the Japanese authorities could have done would either have lessened the impact of the tsunami itself, or would have improved the ability of the vast majority of the population caught within the tsunami strike zone to have been able to evacuate the affected area in time to avoid the massive amounts of death and destruction.



**ii. Topography**

The second consideration that would have been at the centre of any crisis response management programme would be the fact that Japan is an extremely mountainous country, characterised by steep ravines, and largely made up of inaccessible hamlets and villages that are, even in the best of times, often cut off from the rest of the world in the winter months. Given that these communities are in almost all cases accessible by only one road, which in times of earthquake or flooding would have a high-likelihood of being rendered impassable, the ability to deliver first-response and emergency relief services to these areas should have been a problem easily identified, and with a clearly established structure of response options.



### iii. Nuclear Implications

The third factor that should have been a fundamental aspect of the crisis planning model was the fact that Japan has the third largest number of nuclear reactors in the world (after US and France), and that there was always a high likelihood that any earthquake on a scale to demand national crisis management in response to it would have an impact, either directly or indirectly, on these nuclear facilities. Actually, this area of planning would itself have needed to be divided into three sections, each of which is easily identifiable, and each of which should have had well-developed contingency plans in place, namely firstly, the possibility that there would be damage to the reactors themselves, requiring specialist intervention; secondly the impact on public safety of any potential radiation leakage, and thirdly the impact on national infrastructure of a possible loss of significant power-generating capability (nuclear generators account for 25% of Japan's power output).

The fact that the response to the nuclear crisis was characterized by lack of political leadership, conflicting messages concerning public safety, and the clear inability of the responsible party (in this case, TEPCO, the Tokyo Electric Power Company which owned the Fukushima generators) to identify appropriate management programmes for the continuously escalating nuclear and radiation crisis, suggests that despite almost fifty years of planning for dealing with exactly such a situation, there was in fact no structure in place that would have allowed a speedy, appropriate and, most importantly, coordinated crisis management programme to be triggered.

This in fact reflects an institutionalised pattern of behaviour on the part of both the Japanese nuclear industry, which has a long history of falsifying data concerning safety breaches within its facilities, and Japanese political leadership, which even in this incident downplayed the danger to public safety on the grounds of ‘ensuring public safety and confidence’.

#### **iv. Weather**

The fourth factor that became a significant impact on the incapacity of national response management programmes was the weather, though it is hoped that national civil contingency planners had taken into consideration the extra burden that would have been thrown onto emergency response teams by the fact of winter conditions, sub-freezing temperatures and the contribution this made to the inability of rescue teams to reach remote rural communities.

None of the above factors could by any means be considered exceptional, unpredictable or outside the remit of emergency planning requirements. In fact, it might be said that these were exactly the consequences of Japan’s vulnerability to earthquakes that should have placed them at the absolute centre of national, regional and local emergency disaster planning.

The above points make it clear that, once again, the root cause of the failure to respond effectively to what are well-modelled and highly predictable disaster is the inability of crisis managers (whether local or national) to face up to what are the true nature of the threats that they are facing, and instead to restrict their pre-event response management planning to what they can comfortably deliver, rather than to what will actually be required.



## Preparing for the Response

Yoshiaka Kawata, a professor at the Research Centre for Disaster Reduction Systems, Kyoto University, Japan explained in his 2001 paper looking at the implications of the next big earthquake (which he thought would happen around 2035): *'Quality Control in regional disaster prevention plans includes the specific goals, practice drill programmes to achieve these goals, a progress evaluation system, and the determination of decision makers...In essence, there is concern that the regional disaster prevention plans that have been created to satisfy those involved in local government will be useless when put into action. [Specific programmes] are just that, over produced systems that cannot be easily operated or revised. Ironically, these deficiencies are obvious to the governments that paid for them.'*<sup>(6)</sup>



**Michael D. Brown, FEMA's director, offered an emphatic defense of the federal response [to Hurricane Katrina], saying that his agency prepared for the storm but that the widespread, unexpected flooding kept rescuers out of the city**<sup>(6)</sup>

However effective our pre-event planning may be, it is in the nature of any 'post-bang' scenario that our immediate response will take place within chaos, confusion, and fast-changing scenarios hampered by lack of real-time information. Any first-response programme should be built around the need to gather information, assess needs and utilise resources in order to deliver first-response capabilities to the heart of the crisis. Whether it is a natural disaster such as an earthquake or tsunami, a major public health scare or a flat tyre on a family journey, our incapacity to respond effectively to what is in essence an 'unwanted event', is based on the same failures in crisis management, whatever the nature of the operation we are managing.

It should be clear that, from a crisis management perspective, an earthquake, or any other similar 'natural disaster', is not necessarily a crisis in itself. To call it so demonstrates a misunderstanding of the nature of a 'crisis'. There are three separate stages in the development of a crisis, whatever its nature and whatever its scale. Any crisis will start off as an incident that has occurred. That 'Incident' will only be considered a 'Problem' to the extent that it will impact on our ability to maintain normal operational capability.

If we have the capabilities to deal with it then it falls within the realms of 'Incident Management', and it should be possible to use previously developed response management options and 'Standard Operational Procedures' to deal with the situation effectively in order to bring it to a managed and controlled conclusion. It is only if we do not have the capabilities to deal with it that any incident, however small and simple or large and complex, has the potential for becoming a crisis.

In its simplest terms, a crisis is not defined by the outside event, but by our lack of capability to respond effectively. **On this basis, in theory Japan had all of the attributes that should have allowed it to respond speedily and effectively to the earthquake/tsunami and in doing so should have been able to prevent it from escalating into a crisis situation.**

Just as the 'crisis components' developing from the earthquake/tsunami were entirely predictable, and indeed almost inevitable, so the components required in order to create a robust response capability should have been clearly identified, and structured in such a way as to give Japanese authorities the greatest chance to respond speedily and effectively to whatever situation a natural disaster such as this would throw up.

Firstly, Japan has a well-developed administrative framework, based on a national-regional-local set-up that should, in theory, allow effective crisis management capabilities to be developed and delivered across strategic-tactical-operational levels. This is in contrast, for example, to the 2005 Christmas Day Indian Ocean tsunami and the 2010 Haiti earthquake, which took place in environments where there was little if any integrated or centralised response-delivery capability even before the disasters struck.

Although a common theme of comments relating to the Japanese Government's inability to develop a speedy, effective and appropriate response to the disaster was that there was no clear decision-making structure that would allow the disparate stakeholders on disaster recovery to work together in what where clearly chaotic – though entirely predictable – conditions, the Japanese government does in fact have a clearly developed framework of disaster management that, in theory at least, should allow all participants to be able to make an effective contribution based on their own capabilities and specialist knowledge, whether at national, regional or local levels.

Every level of Japanese administration, whether national, prefectural or local, has a clearly delineated disaster management (or more correctly, Disaster Prevention – *Bousai*) organisation, with a range of policies that are regularly reviewed and communicated to the local community. (Although only available in Japanese,

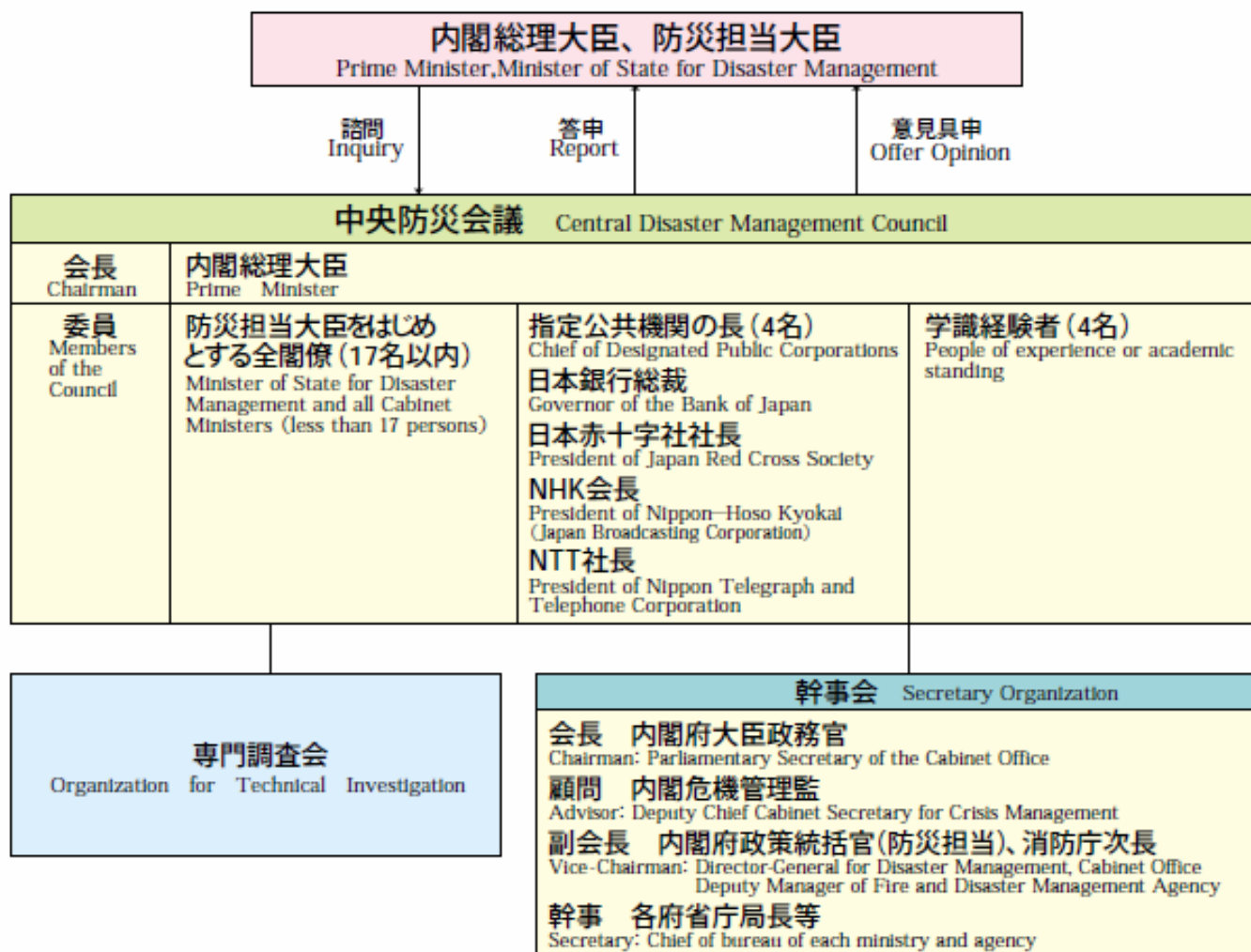
see <http://www.bousai.go.jp/> for the Japanese Cabinet Office Disaster Management Homepage). As well as policies and guidelines, there are clearly identified refuges, each of which should have the capability of supporting the local population in the event of natural disasters, and regular training days that should ensure that everyone, from the youngest nursery school student to the oldest inhabitant of the city hospital, should know exactly what to do in the event of an earthquake or tsunami. National Disaster Awareness Week, and National Disaster Training Day (on the anniversary of the 1923 Great Kanto Earthquake), and Disaster Management and Volunteer Day (January 17) and Disaster Management and Volunteer Week (January 15-21) are significant dates in the national calendar <sup>(8)</sup>, ensuring that every school child and office worker should be able to tell you exactly what they should do when the word 'Earthquake' is shouted out.

The need for a coordinated Disaster Response Management capability at the centre of the government was recognised following the 1995 Kobe Earthquake, before which the Japan Government's Disaster Management Bureau had only 36 people to coordinate the entire national disaster management programme. Although this was increased to fifty after the Kobe earthquake, and placed within the Cabinet Office, its numbers do not compare with 2,600 full-time staff for FEMA, with a support of 4,000 on-call disaster reservists, many of them with many years of specialist disaster management experience <sup>(9)</sup>.

The Central Disaster Management Council (Chuo Bousai Kaigi) is chaired by the Prime Minister, or in his absence by the Minister of State for Disaster Management, consists of all Cabinet Ministers, plus 4 leaders of designated Public Corporations (Governor of Bank of Japan, President of Japan Red Cross Society, President of NHK (Japan Broadcasting Association), President of Nippon Telegraph and Telephone Corporation) plus 4 academic or corporate members who have expertise in disaster management.

The Council in turn is supported by a Secretariat, chaired by the Parliamentary Secretary of the Cabinet Office, advised by the Deputy Chief Cabinet Secretary for Crisis Management, and consisting of the Director-General for Disaster Management, Cabinet Office, the Deputy Manager of the Fire and Disaster Management Agency, and the Chief of Bureau of each Ministry and Agency.

## 中央防災会議組織図 Organization of Central Disaster Management Council



- 〔Duties〕
- Prepare and promote implementation of the Basic Disaster Management Plan and draft the Earthquake Disaster Management Plan.
  - Prepare and promote implementation of the urgent measures plan for major disasters.
  - Deliberate important matters pertinent to disaster management according to requests from the Prime Minister and/or Minister of State for Disaster Management (general coordination of basic disaster management policies and disaster management measures, declare emergency situations caused by disasters etc.)
  - Offer opinions regarding important matters pertinent to disaster management to the Prime Minister and Minister of State for Disaster Management.

From National Report of Japan, Disaster Risk Management Profile UNISDR-2005  
[www.unisdr.org](http://www.unisdr.org)

However, as the Japan Policy Research Institute Report into the 1995 Hanshin – Kobe earthquake identified, the existence of such a Council does not in itself solve the traditional problems of Japanese decision-making - lack of clearly-defined leadership, mixed with a culture of *tatewarigyousei* (stove-piping, or lack of cross-ministry or cross-agency communications), and *nawabari* – turf-based bureaucracy where the priority of ministries and agencies is to protect their own access to information and decision-making. This leads to a ministry-centric or agency-centric view of response management, rather than the development of an integrated response capability. Thus, individual government agencies continue to ask the question: “What should my agency do for disaster management” when the much more important question is: “What is needed to manage this disaster?”<sup>(10)</sup>.

One Japanese researcher wrote that ‘*Japan’s national strategies are created and managed by the bureaucracy, which means that in reality, Japan’s disaster management system is governed by one large bureaucracy.....*’<sup>(11)</sup>. The impact of bureaucratic management on service delivery is a major problem at every level of Japanese administration, and has been at the centre of government and party political strategy for many years. It’s main philosophy was set out by Mitoji Yabunaka, a 41-year veteran of the Japanese civil service, who retired in 2010 as Vice Minister for Foreign Affairs, making him the top civil servant in the Foreign Ministry, when he wrote (concerning trade policies) ‘*There is something specific to Japanese government bureaucratic system....The Japanese government bureaucracy gives greatest weight to continuation of policy. There is nothing wrong in doing our own work, and we can make necessary adjustments if required, but it can be said that the most important thing is continuity*’<sup>(12)</sup> (DR translation).

This point was reinforced by Leo Bosner, a senior director of the US FEMA, who spent a year in Japan studying its emergency management procedures.

*‘[Five years after Kobe], I heard this refrain again and again from Japanese emergency planners: excellent work within individual agencies, but still a lack of government-wide disaster response planning. Interagency coordination is still weak, and in most cases the government’s disaster response plans are woefully short of detail. Most agencies are unfamiliar with the disaster response plans and capabilities of other agencies, impeding efforts to develop well-coordinated plans. Underlying all of this is the Japanese government system, which does not appear to encourage rapid decision making or interagency coordination.’*<sup>(13)</sup>

'The preparation for and response to Hurricane Katrina show that we are still an analog government in a digital age. We must recognize that we are woefully incapable of storing moving, and accessing information – especially in times of crisis. Many of the problems we have identified can be categorized as 'information gaps' – or at least problems with information-related implications, or failure to act decisively because information was sketchy at best. Better information would have been an optimal weapon against Katrina. Information sent to the right people at the right place at the right time. Information moved within agencies, across departments, and between jurisdictions of government as well. Seamlessly. Securely. Efficiently. The [US] federal government is the largest purchaser of information technology in the world, by far. One would think that we could share information by now. But Katrina again proved we cannot'.

(From 'Executive Summary of Findings', Congressional Report 'The Federal Response to Katrina: Lessons Learned')

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The biggest lesson we learned from the Tokyo gas attack and the Matsumoto Incident was that when something major strikes, the local units may be extremely swift to respond, but the overall picture is hopeless. There is no prompt and efficient system in Japan for dealing with a major catastrophe. There is no clear-cut chain of command. It was exactly the same with the Kobe earthquake'.

Dr Nobuo Yanagisawa, Head of School of Medicine, Shinshu University <sup>(14)</sup>

Secondly, Japan has a crisis/emergency response delivery capability that is second to none. Given the nature of its post-WW2 Peace Constitution, which forbids absolutely the use of arms even for the purpose of its own national defence, Japan has offered itself as a specialist support nation for UN and other peace development programmes and initiatives, even though the number of people taking part in such operations is relatively limited. It has sent Search & Rescue teams and other support equipment and personnel to recent disasters such as the Myanmar cyclone (2008) and the China earthquake (2010), and it is of course experienced in dealing with its own major earthquakes.

Specialist Search and Rescue (SAR) teams are attached to all of their regional military commands, and these '*Kyunantai*' are widely respected for their capability and professionalism. They are regularly deployed for local, small-scale incidents, and over the years have been deployed 32,000 times, with a total deployment of 7,400,000 personnel.  
<sup>(15)</sup>

The authoritative textbook used by aspiring Japanese government administrators, diplomats and military leaders 'Japan's National Security' (Nihon no Anzen Hoshou),

gives three paragraphs (out of 305 pages) to the military response to natural disasters (one paragraph each to natural disasters, one to earthquakes and one to nuclear disasters). The main point it makes is that in the event that military response is appropriate in any given situation, they would only be deployed on the order of the police commander <sup>(16)</sup>. This requirement for an official request from a regional police commander can in itself lead to a breakdown in capability delivery under the stress of a chaotic disaster situation. The reason why the Hyogo Prefecture (the administrative area where Kobe is situated) took so long in asking the JSDF for support in 1995 was because they spent valuable time in facilitating the official process. The law required that the request to the JSDF should be done with official documentation, yet the officers in Hyogo prefecture found this problematic as their administrative building had collapsed and there was a complete breakdown in operational functionality. <sup>(17)</sup>

The fact that Japan is largely made up of mountainous regions, coupled with the extremely isolated nature of many of the communities that suffered from the second stage deprivations caused by the tsunami and the total destruction of local facilities that would be needed to support any other sort of aircraft, or even wheeled vehicles, meant that access to *Kyunantai* helicopters was the single factor that should have allowed the Japanese government to get trained military personnel on the ground within hours of the event. These trained First Responders would then have been able to take responsibility for gathering information on the local situation, and establishing a control and coordination capability for both immediate and secondary rescue and on-going support missions.

Once this initial 'presence on the ground' had been achieved, national and regional authorities would then have been able to ensure an immediate supply of the four basic requirements of any post-disaster situation: food, water, fuel and shelter. The fact that a week after the event (which we must remember, had only a limited effect on the rest of Japan outside the immediate shock-zone - Narita airport and the Tokyo underground system were both working within forty-eight hours of the earthquake), there were still communities that had not received such aid, and who were without Crisis Response Team Leaders on the ground to take control, is a serious indictment of the failures of the Japanese government to plan effectively for such a well-predicted event.

These immediate Crisis Response Protocols should have been triggered automatically and should really be able to be initiated at the level most able to respond effectively, i.e. the regional military command centres. The supply of tents, medical facilities, food and water, heating fuel and some sort of administration facility to register survivors, the wounded and the missing are all steps that enable a structured management

framework to be put in place, even in the midst of the greatest chaos, and allow the fastest possible to return to some sort of managed response. As well as delivering on-ground capability speedily and effectively such measures also demonstrate to the public that the authorities have a pre-formed plan to respond to the disaster, and that they are able to ensure the continued safety and well-being of citizens, both in terms of actual service delivery as well as national political leadership.

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The military mounted a massive response to Hurricane Katrina that saved many lives and greatly assisted recovery efforts, but many lessons are emerging. Prior to Hurricane Katrina, disaster plans and exercises did not incorporate lessons learned from past catastrophes to fully delineate the military capabilities needed to respond to a catastrophe. For example, the governments National Response Plan made little distinction between the military response to a smaller regional disaster and its response to a catastrophic natural disaster. In addition, DOD's emergency response plan for providing military assistance to civilian authorities during disasters lacked adequate detail.

The plan did not: account for the full range of assistance that might be provided by DOD, divide tasks between the National Guard and the Federal responders, or establish adequate response time frames. National Guards state plans were also inadequate, and did not account for the level of outside assistance that would be needed for a catastrophe, and they were not synchronized with federal plans. Moreover, plans had not been tested with a robust exercise programme. None of the exercises that were conducted prior to Katrina called for a major deployment of DOD capabilities in response to a catastrophic hurricane. As a result, a lack of understanding exists within the military and among federal, state and local responders as to the type of assistance and capabilities that DOD might provide in the event of catastrophe, the timing of this assistance, and the respective contributions of active-duty and National Guard forces.

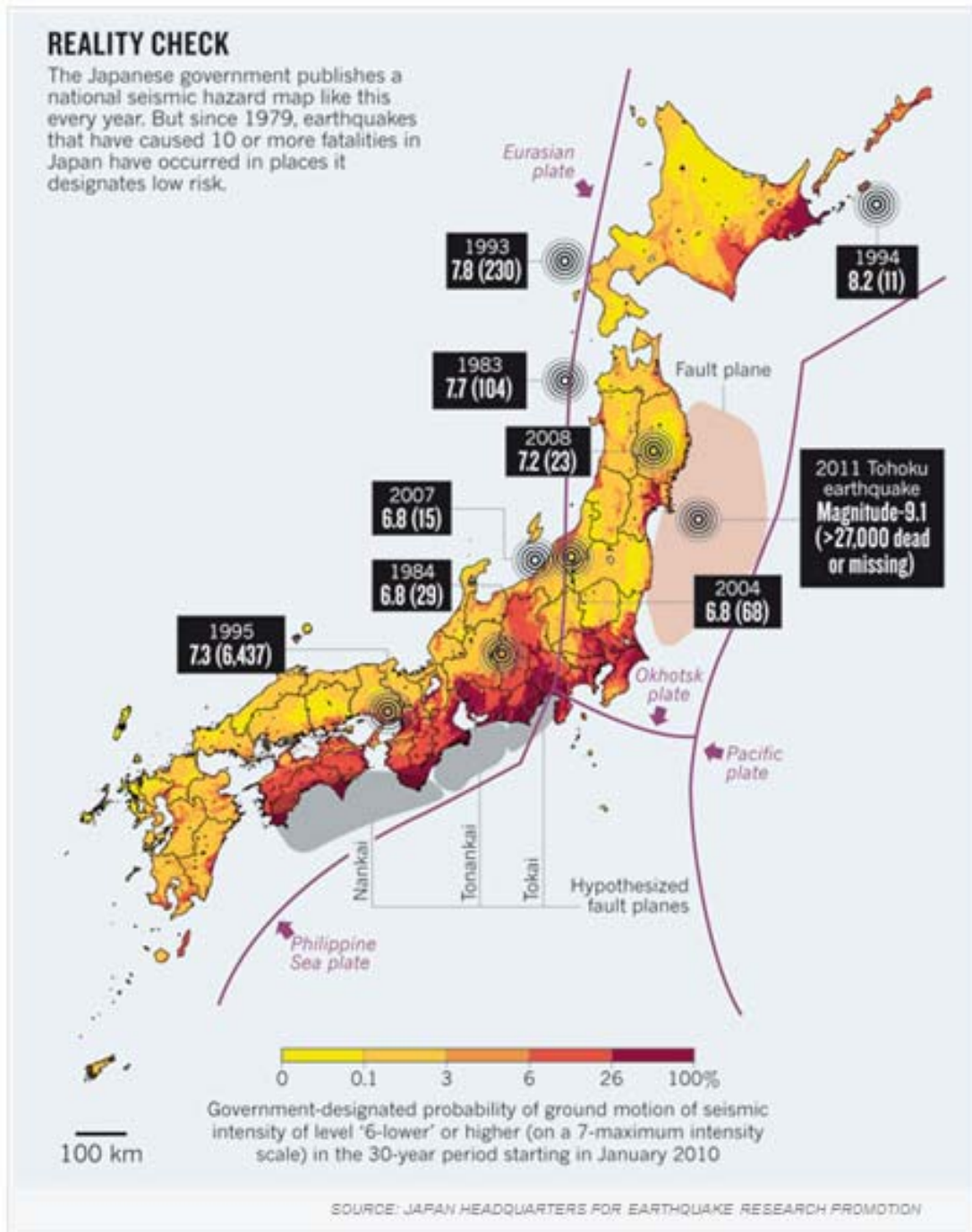
**From 'Hurricane Katrina: Better plans and exercises needed to guide military's response to catastrophic natural disasters', Government Office of Accountability, May 2006 Report to the Congressional Committee <sup>(18)</sup>**

## Politicization of Japan's Earthquake Management System

Although it is almost a truism accepted across the world that Japan is the country most prepared to deal with a large-scale earthquake, there have in fact been some detailed criticisms both of Japan's earthquake preparedness from a technical perspective, as well as the political implications of using earthquake preparation as a political football.

In the mid-1970's it was predicted by a number of Japanese researchers that the area most likely to see a magnitude-8 earthquake was the Tokai district, lying as it did on a recognised seismic fault, or join between two tectonic plates. Two other areas adjacent to Tokai, namely Tonankai and Nankai, were also identified as being high risk. Although this was no more than a theoretical model, the phrase 'Tokai earthquake' has entered into the language as a short-hand for 'the next big earthquake', and for many people, both in the general public and in the commentariat in the media and press, as well as amongst academics and government spokesmen, it began to be presumed that Tokai was actually the place where the earthquake was most likely to happen. However, of the eight earthquakes in Japan since 1975 that have caused more than ten deaths, all of them occurred in areas that were classified as 'low risk'.





This presumption that ‘the big one’ is predestined to take place in Tokai is actually enshrined in the Japanese government’s own Large-Scale Earthquake Counter-Measures Act (LECA), introduced in 1978. As Robert Geller, a professor in the Department of Earth and Planetary Science, Graduate School of Science, University of Tokyo put it in a widely-reported article in the 11<sup>th</sup> April 2011 issue of nature.com<sup>(19)</sup>: ‘The law, which has no precedent in any other country, presumes that reliable precursors [indicators of imminent seismic activity] exist. In particular, on the basis of one report of a geodetic precursor of an earthquake in Japan in 1944, geodetic slip is the main target of JMA observations.....’

*Basing even a large-scale programme of observational research on the 1944 data [which was later discredited] would be uncalled for. It beggars belief, then, that the Japanese government operates a legally-binding earthquake-prediction system on this basis. The JMA's official home-page says (Geller's translation): "At present the only place a system for predicting earthquakes exists is for a magnitude-8 earthquake with an epicentre offshore Suruga Bay i.e. the 'Tokai earthquake'. Science and technology have not progressed sufficiently to allow other earthquakes to be predicted." But there are many more observatories now than in 1978. If it really were possible to predict the 'Tokai earthquake' then, surely it would be possible to predict all magnitude-8 earthquakes now.....It is time to tell the public frankly that earthquakes cannot be predicted, to scrap the Tokai prediction system and to repeal the LECA system.....We should instead tell the public and the government 'to prepare for the unexpected', and to do our best to communicate both what we know and what we do not. And future basic research in seismology must be soundly based on physics, impartially reviewed, and be led by Japan's top scientists rather than by faceless bureaucrats'.*



## Political Leadership and Public Confidence

In 2006, the author, Takashi Nagata, met with Mr. Leo Bonser [*senior FEMA official, on a one-year fellowship to study Japanese emergency management systems*] and James Lee Witt, the former director of FEMA in Clinton administration, and asked them “What should we Japanese learn the lesson from Hurricane Katrina?”, and interestingly, they gave the same answer, “Leadership”.<sup>(20)</sup>

It is a common feature of modern disasters that governments often claim an inability to deliver personnel and support to stricken areas, certainly in the first few days after the original disaster has struck, whilst international news stations can get reporters and film crews on the ground within hours, who will then bring the reality of the scale of destruction and human suffering to the world’s living rooms at the same time that the government is shown to be incapable of delivering their personnel to exactly the same areas.

The inability of the government to deliver effective assistance to the stricken population often results in the fact that within a few days, if not hours, rather than concentrating on delivering aid to the affected regions, the government is forced into a defensive stance, having to publicly justify their actions (or lack of them), which in turn becomes a major political and media management issue.

The lack of faith in the ability (or even interest) of the government to support its citizens in their time of greatest need also had an effect on the famous Japanese quality of *gaman*, or fortitude. It was widely reported that only in Japan, following such horrendous destruction and in the face of such huge personal loss, would the qualities of *gaman*, discipline and the overwhelming respect for the public good have been able to be maintained, in clear contrast to the scenes of looting, mass hysteria and general breakdown in social cohesion that had been witnessed in New Orleans following Hurricane Katrina.

Although this was an aspect of Japanese society that was actively promoted in the mass media and official government statements, there is evidence that all was not as well ordered as it might have seemed.

In an article in the UK’s Guardian newspaper, entitled ‘For Japan disaster survivors, trust is as badly destroyed as the landscape’<sup>(21)</sup>, journalist Suzanne Goldenberg described the situation in Ishinomaki, a city on the coastal plain that was wrecked by the tsunami, and which nine days after the tragedy was still without heat, electricity, running water or regular meals. Although Ishinomaki was at the centre of the tsunami, with a quarter of its 160,00

inhabitants displaced, 1,000 confirmed dead and many more missing, even three days after the event the authorities were unaware of the gravity of the situation, due to all roads and communication being cut off. In one of the designated shelters, a local school, 500 survivors had to wait three days until they received their first hot meal, and even that – rice, vegetables and miso soup – was provided by local volunteers, rather than government agencies.

Such pressures bring out a side of human nature that might be expected in western countries, but which is inimical to the Japanese tradition of silent forbearance, and Goldenberg reported local stories of a burglar being stabbed, a sexual assault and the raising of tension due to the lack of food. "I've seen people fighting over a biscuit", she reported the mother of a three year-old child in the shelter saying. The lack of electricity meant that traditional Japanese safety could no longer be counted upon. One man who used a ladder to gain access to his own house was followed by someone who then stole his bank card and cheque book – though he was convinced that only an outsider would have behaved in that way. Another young mother in the shelter was too fearful to even go the short way to her own home. *'I survived this earthquake and tsunami and I'm still alive. I can't die now because of some criminal out there'*.

Martha A. Madden, former secretary of the Louisiana Department of Environmental Quality, said she believes a critical systemic breakdown occurred the moment the [New Orleans] levee broke. She said contingency plans have been in place for decades but were either ignored or improperly executed. Madden, now a national security and environmental consultant, said the lack of immediate federal help, specifically in the form of military assistance, was "incomprehensible....They can go into Iraq and do this and do that, but they can't drop some food on Canal Street in New Orleans, Louisiana, right now? It's just mind-boggling."<sup>(22)</sup>

The issue of selective reporting by the mass media in incidents that did not reflect well on the Japanese character was one that was identified in the authoritative Japan Policy Research Institute Report on the aftermath of the 1995 Kobe Earthquake.

*'For instance, there was evident bias by the Japanese media in their focus on positive stories of cooperation , discipline and perseverance by the victims, as well as on the orderly and mannerly manner of their rescue, relocation and care. Meanwhile, eyewitness accounts unfiltered by the Japanese mass-media (through phone-calls, letters and visits) painted a less rosy picture of the arguments, fist-fights, looting, price-gouging, hoarding of merchandise, and other conflicts one would expect in most societies struck by such massive destruction and temporary loss of legal order. Whether or not encouraged by the authorities, Japanese journalists engaged in considerable wishful thinking by reporting the Japanese response to the disaster as uniformly characterized by docility, obedience and resignation'.<sup>(23)</sup>*

Whilst there was certainly not the level of social breakdown that was seen in New Orleans, or in less developed countries such as Haiti, where the immediate aftermath of the natural disaster was characterised by a total breakdown of law and order, and a descent into anarchy where a proliferation of armed gangs meant that public safety was no more than a vague concept (so that, for example, US military aid convoys were themselves targets of attacks, with the food and other basic necessities that they were carrying being freely looted before they could be delivered to distribution centres), the inability of Japanese national and local agencies to respond effectively created their own tensions.

This lack of ability to adapt and respond to unexpected and rapidly developing situations went right down to the local levels. It was widely reported during the 1995 Kobe Earthquake that the first organisations to respond and provide immediate assistance – clothing, soup kitchens, etc-were the extreme right-wing *u-kyoku* political groups, and the local *yakuza*. Over 1,000 members of Kofuku no Kagaku, a community-based Buddhist group, established 7 refuge centres, at the same time that pallets of instant noodles, crackers and canned drinks that had been delivered to the local government office by various manufacturers and retailers stood in the rain, as the Ward office didn't know what had come in, how much, and had no plan to distribute it.<sup>(24)</sup>

A related aspect of the Japanese disaster was the effect that the impact of the earthquake had on major conurbations, and in particular Tokyo.

“Unfortunately, the 1985 Kobe earthquake was the first gateway to the next Nankai earthquake. If it will occur in or around 2035, the earthquake magnitude will be a full 8.4 or more. This earthquake will be accompanied by huge tsunamis which will hit densely populated coastal areas with a population of more than ten million facing the Pacific. In this tsunami disaster we will have primarily urban tsunami disasters. According to new damage scenarios, loss of human life may be over ten thousand and property loss over ten billion U.S. dollars”.<sup>(25)</sup>

Yoshiaka Kawata, Research Centre for Disaster Reduction Systems, Kyoto University, Japan (2001)

Although much of Japan is still rural in nature, and it is in the nature of such communities that they are relatively self-sufficient in the short-term at least - they have rice and vegetables in the garage, wood for burning and community storerooms where surplus stock is held before sale - one of the abiding images of the Japan earthquake is tens of millions of urban dwellers, dependent on supermarkets for any food over and above what is likely to be held in the fridge, realising that stocks of food, water and basic amenities were fast running out, and there didn't seem to be any plan in place to ensure that they were replaced. For citizens of Tokyo to be in danger of surviving on starvation rations within a few days of an earthquake 200 miles away, was a shocking indictment of government inaction, as well as the level of disruption that the quake had caused to Japan's usually orderly daily life, perhaps even more so than the what had by then become almost routine pictures of the level of destruction caused by the earthquake and tsunami.

As Lord Julian Hunt, a former Director-General of the UK Meteorological Office wrote in a Wall Street Journal article<sup>(26)</sup>, one major issue in modern disaster management is the ability to provide care and support to the millions of people who may face dislocation in the aftermath of a natural disaster. All major cities face massive growth, and it is often the largest cities that have the least infrastructural frameworks that could be most affected in times of major disruption – one need only think of Lagos, Mexico City or Calcutta, to name but three. Japan, in particular, faces this problem, as only 5% of the population lives in rural areas, and two-thirds of Japans population of 120 million are concentrated in the Pacific shore region of Honshu Island – the region where Tokyo is situated.

**Positives...**

It is easy in a report like this to focus purely on the failures, and certainly, taken from an over-all perspective, there is little in the disaster response management that the Japanese government can be proud of. However, there are clear indications that with a more focussed and well-led development programme, Japan’s disaster management capability can in fact create a framework that will give it the required robustness to respond speedily and effectively to whatever situation might arise in the future.

**Learning to Respond....**

It is a simple truism that the best way to learn how to respond to a major disaster is to live through one, and the likelihood is that the response to any subsequent disasters will be more effective. Figures put out by a Harvard Research Project show the change in time needed to respond on a governmental level between the 1994 Kobe Earthquake and the 2004 Niigata Earthquake (6.9 Richter scale, 40 fatalities, 3,000 injuries, over 100,000 displaced persons).<sup>(27)</sup>

| The action of the central government agencies        | The Kobe Earthquake in 1995 | The Mid Niigata Prefecture Earthquake in 2004 |    |
|--|-----------------------------|---|----|
| Setting up the headquarters in the designated agency | 3hours 14minutes            | 0 minute                                      | *1 |
| Setting up the headquarters in the cabinet           | 4hours 14h                  | 4 minutes                                     | *2 |
| The scouting by the JSDF                             | 1hours 28 minutes           | 36 minutes                                    | *3 |
| The initial meeting in the cabinet                   | 12hours 44 minutes          | 1hour 4 minutes                               | *4 |
| The initial media briefing                           | 10 hours 14minutes          | 1hours 24minutes                              | *5 |
| The government mission group departure               | 8hours 44 minutes           | 3hours 18minutes                              | *6 |

Table 4. The response time of the central government to the two earthquakes in

- \*1: In Fire Disaster Management Agency, staffs are always stand-by for disaster.
- \*2: The central government has a special protocol for large scale earthquake.
- \*3: The law for JSDF was implemented, and JSDF could move easily and quickly.
- \*4: The cabinet was designated to be a lead agency, and organize the meeting.
- \*5: The central government promises the media to provide quick information about disaster.
- \*6: The central government intends to send the mission group to collect the information especially in the case of large disaster.

Although this did not guarantee actual delivery of first-response support to the disaster areas themselves, it does show that the government has the possibility of learning on an institutional basis, and can create a system that could allow it to demonstrate its readiness to respond in an effective manner.

## Foreign Assistance

One lesson that had been learned from the 1995 Kobe earthquake is the need to accept the help of other countries. One of the outstanding characteristics of the 1995 earthquake was the extreme reluctance of the Japanese government to accept aid from abroad. This could be put down to two main causes. Firstly, the unwillingness by Japanese leaders to be seen to be accepting help from what seen as less-developed countries, and secondly the inability to by-pass normal bureaucratic and administrative needs – drugs and medicines offered by other countries were not accepted because they had not undergone Japanese testing procedures to check for Japanese ‘uniqueness’, and specialist Search-and-Rescue dogs were turned back at the airport because they would have had to go through normal quarantine procedures.

Within two weeks of the 2011 tsunami, Prime Minister Naoto Kan officially acknowledged the offers of help that his government had received from over 130 countries, 30 international organisations and 670 NGO’s, <sup>(28)</sup> and on the 11<sup>th</sup> April the Prime Minister’s office published a letter thanking the global community for their support and friendship, which was published in every major newspaper in the world. <sup>(29)</sup>

In 1995, the Japanese government had specifically rejected offers of help from the US military, a decision in a large part based on deep national memories of post-WW2 dependency and perceived feelings of national inferiority. In this case, the support of American military was actively invited, and Operation Tomodachi (‘Friend’) eventually involved over 18,000 US military personnel and 20 vessels, including the nuclear-powered USS Ronald Reagan. <sup>(30)</sup>

One highlight of the support was the work of the USAF 353<sup>rd</sup> Special Operations Unit, that specialises in going into hostile or disaster territory and opening up runways for the US military. When the unit made an initial helicopter survey of Sendai airport on the day after the tsunami, it was still under 8 feet of water and had been written off. The unit drove in 3 days later from a neighbouring Japanese airbase, and having opened up enough of a runway for aircraft to land, then cleared more than 5,000 vehicles that had been washed into the airport by the tsunami waves, and established a landing control capability based on backpack radios. By April 13<sup>th</sup>, Sendai Airport was re-opened to commercial flights, management had been handed over to Japanese authorities, and the US unit had returned to base.



Sendai Airport in the immediate aftermath of the tsunami

### Surviving the Tsunami – A Happy Ending...

Although it is widely perceived that although earthquakes can be survived, there is little if anything that once can do to survive a tsunami, the experiences of school children in Kamaishi, Iwate Prefecture suggest that that is not necessarily true. As reported in Asahi newspaper on 24<sup>th</sup> March <sup>(31)</sup>, of the 2,924 junior high and elementary school students in the city, only five were reported dead or missing – of whom four were either not in school that day or had left early, and one who disappeared after being reunited with their family. All of the others survived by the simple expedient of running to high ground immediately the seriousness of the earthquake was realised. Toshitaka Katada, a professor specialising in disaster social engineering, had been advising the Kamaishi city government for the previous year, had authored a teachers manual, and had introduced a programme of ten hours per year in disaster preparedness education. The three key points that underpinned the success of the programme were simple: when an earthquake occurs, don't try and go home but head for high ground; don't place blind faith on previously prepared disaster programmes – evaluate the situation with your own eyes, and always assist others.

The problem in many cases was not that survivors of the initial earthquake didn't manage to follow pre-planned survival guidelines, but rather the fact that the 'safe ground' that they reached proved to be not safe at all. The designation of 'safe refuge' had simply not taken into account the size and range of the tsunami, and once they had achieved 'safety', the survivors of the initial impact they then relaxed and stopped moving rather than assessing the situation based on the evidence of their own eyes.

## Lessons to be Learned

In its crudest sense, the basic lesson that needs to be learned is 'Learn your lessons!'. The systemic failures that led to the breakdowns in the response to the 2011 Japanese earthquake/tsunami, just as with the systemic failures that led to the breakdowns in the federal, state and local responses to Hurricane Katrina in 2005, were not problems caused by any outside agency, including the natural disasters themselves, but were rather the direct results of in-built systemic weaknesses **that were known and had been identified previously**.

Takeshi identified six commonalities between the breakdown in response management in both Hurricane Katrina and in the 1995 Kobe Earthquake. <sup>(32)</sup>

- These were:**
1. The lack of political leadership
  2. Delayed response of the central/federal government to the disaster
  3. The importance of the military response
  4. The effectiveness of non-governmental response
  5. Inefficient communication system, and
  6. Socially vulnerable people

When listed like this, it becomes immediately clear that these are exactly the areas where any half-trained crisis response manager would be looking to identify potential vulnerabilities in management capability, and that without fixing these problems it would never be possible to develop an effective response framework, whatever other processes are put in place.

If, as Albert Einstein famously said, insanity is doing the same thing over and over and expecting a different result, then government disaster management plans clearly come under that heading. A lack of coordination, a lack of communication, a lack of ability to make decisions are all fundamental systemic flaws that need to be faced up to and resolved if an effective response management capability is to be developed, independent of whatever particular crisis may be involved in any particular situation.

“In essence, we found that while a national emergency management system that relies on state and local governments to identify needs and request resources is adequate for most disasters, a catastrophic disaster like Katrina can and did overwhelm most aspects of the system for an initial period of time. No one anticipated the degree and scope of the destruction the storm would cause, even though many could and should have.

The failure of local, state, and federal governments to respond more effectively to Katrina, - which had been predicted in theory for many years, and forecast with startling accuracy for five days – demonstrates that whatever improvements have been made to respond to natural or man-made disasters, four and a half years after 9/11, we are still not fully prepared. Local first-responders were largely overwhelmed and unable to perform their duties, and the National Response Plan did not adequately provide a way for federal assets to quickly supplement, or, if necessary, supplant first responders.

The failure of initiative was also a failure of agility. Response plans at all levels of government lacked flexibility and adaptability. Inflexible procedures often delayed the response. Officials at all levels seemed to be waiting for the disaster that fit their plans, rather than planning and building scalable capacities to meet whatever Mother Nature threw at them. We again encountered the risk-averse culture that pervades big government, and again recognized the need for organizations as agile and responsive as the 21<sup>st</sup> century world in which we live.

One-size-fits-all plans proved impervious to clear warnings of extraordinary peril. Category 5 needs elicited a Category 1 response. Ours was a response that could not adequately accept civilian and international generosity, and one for which the Congress, through inadequate accounting and oversight of state and local use of federal funds, must accept some blame”.

From 'Executive Summary of Findings', Congressional Report The Federal Response to Katrina: Lessons Learned

## Creating Transformational Change: A Case Study

New operational concepts—the end-to-end stream of activities that define how force elements, systems, organizations, and tactics combine to accomplish military tasks—are critical to the transformation process.”

Deputy Secretary of Defense Paul Wolfowitz during testimony before the Senate Armed Services Committee, April 9, 2002 <sup>(33)</sup>

If the need in the modern world is to be flexible, adaptable and fast moving, then one organisation that has accepted the responsibility to re-create itself as a fully-functioning fast-response organisation is the US military, which has undergone a decade-long self-directed transformation process. Given that this has been a well-planned and managed transformation on every level of the organisation from doctrinal and strategic to operational and the individual unit level, the thinking behind those changes, as well as the steps that were required to implement them, should be of interest to anyone involved in or responsible for developing a truly effective, unified national disaster response capability. These steps are well documented, and are freely available to interested researchers, and come under the heading of Revolution in Military Affairs (RMA). RMA came about as a result of the realisation by the US military high command that the structure-bound, slow-moving and highly regimented large-scale military units were no longer appropriate to the fast-escalating, highly localised threats that the modern world threw up. It would be these fast-escalating, highly-localised situations that would increasingly become seen to be the major threats to the US, rather than war-based scenarios predicated on defending mainland US from an invading foreign power, or the need to deliver US forces en masse in an invasion force on far-distanced continents. The prescient nature of the thinking behind this transformation has been clearly evidenced in recent months through the activities in Egypt, Libya and across the rest of the Middle East.

The characteristics of such fast-response units were well thought out, and had as their basic concept the idea that such units should be:

**Self-contained**, utilising the ability of specialist teams from across the military to be combined on an ad hoc basis with a high level of inter-operability, based on combined forces operations.

**Fast-moving**, able to be deployed in a matter of hours, if not minutes, and as such able to carry with them all of the basic equipment that would allow them to establish a forward command position that would then act as the central command position for subsequent operations and activities.

**Multi-skilled** The purpose of such units is not so much to do specific jobs, but rather to deliver capability. Therefore, it should be in-built into their nature that they should be able to adapt and respond to whatever is required of them, rather than to be confined to a limited number of highly-defined pre-set response options that are likely to have only limited relevance to any situation that they may be facing.

**Self-directing** It is in the nature of such units that they are likely to be distanced from their up-line command and control managers, and as such they will need to make fast decisions based on their own assessment of the environment that they are in. If the command structure dictates that they have to relay information up-line, and then wait while fresh orders are issued and relayed back to them from commanders who are not actually in the crisis zone itself (what was referred to as the 'six thousand mile screwdriver', when on-ground commanders in Iraq were being micro-managed by military and political decision-makers in Washington), they are likely to find themselves suffering from the three basic rules of Distance Management, namely, the further away the decision makers are from the actual site.

- i. The less likely they are to understand the actual requirements on the ground
- ii. The more likely any decision they do make is going to be ineffective or inapplicable, and
- iii. By the time they do make the decision, the situation will have changed, any commands that do come through are not relevant, and there will be a whole new set of problems to deal with.

It is clear that all of the issues identified in the RMA doctrine outlined above are applicable in equal measure to the disaster response management issues highlighted throughout the rest of this paper. The way that this has been achieved through RMA has been to identify three separate requirements in order to create the possibility of institutional and capability transformation – transforming culture, transforming processes and transforming capabilities (ie service delivery), and to build these transformation on four pillars:

- i. Strengthening joint operations capability
- ii. Increasing the advantage gained from use of cutting-edge technology
- iii. Changing conceptualisation – introducing different ways of doing things, being open to new ideas and even experimentation, or, as the DoD report puts it 'Pillar Three involves experimentation with new approaches to warfare, operational concepts and capabilities, and organizational constructs (e.g., the

- U.S. Army's Interim Brigade Combat Team) through war gaming, simulations, and field exercises focused on emerging challenges and opportunities', and
- iv. Developing transformational capabilities – creating new roadmaps including recruitment, training, promotion, skill and career-building, exercising and capability-development in order that the transformed military can deliver its role in line with the threats and challenges of the 21<sup>st</sup> century <sup>(34)</sup>.

The fact that the RMA process has been widely recognised as a major success in transforming and modernizing what had been seen as a hide-bound and in many ways barely functional mega-organisation holds out hope for anyone involved in developing disaster response capability whether at local or national levels. This is not the place to go deeper into the intricacies of RMA (and it is a process that requires long-term political and institutional leadership, as well as an adequate supply of resources and funding – it is not a cheap option, though it will pay off many times over the course of the institutional life-time). However, I would recommend anyone involved in these issues to look into RMA, and how those concepts were developed and delivered.



## Conclusions

As has been demonstrated by the quotes relating to Hurricane Katrina, the true tragedy in terms of human suffering following natural disasters, if not always immediate loss of life, is almost always more down to the inability of local, regional and national leaders to respond to the initial incident than it is to the incident itself. The quotes also demonstrate that ‘there is nothing new under the sun’, and the systemic failures in disaster response management are entirely predictable – and solvable – if only there is effective leadership, clear vision and appropriate levels of support and funding.

Japan cannot claim that it did not have time to prepare for the Great Eastern Earthquake of 2011. The inevitability of its occurrence, coupled with the impact of its consequences, were highly predictable. The fact that, despite its technological, financial, administrative and military resources, the Japanese government was unable to create an effective response management capability should be taken as a lesson to everyone involved in crisis management, at whatever level and in whatever role – the world does not wait for us, and it is our responsibility to take all measures possible today, in order to prevent disaster tomorrow.

Glenn Fukushima concluded his 1995 JPRI Report on the Great Hanshin-Kobe Earthquake with the following: ‘One can only hope that the Japanese government and public will draw constructive lessons from this tragedy so that at least the most egregious errors will not be repeated in future encounters with natural disasters <sup>(35)</sup>’. Ditto 2011.

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