# Strategic and Military Ramifications and Lessons of the Japanese Tsunami

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The 8.9 magnitude earthquake and ensuing *tsunami* which occurred just offshore the Japanese city of Sendai, on March 11, 2011, and then struck the north-east coastal region of Japan's main Honshu Island, sent tremors through Japan's — and the trading world's — economic systems. It has, equally, disclosed major areas of strategic vulnerability in societies and military systems.

The event and consequent aftershocks and damage immediately engaged all available civil and military resources and the attention of government. Fortunately, the events occurred at a time of peace, and in a country with a military and civil force more experienced perhaps than any other in the world in disaster response. The damage to infrastructure and population represented the kind of situation which could occur in civil societies in modern, full-scale conflict, in which the strategic rear of a society is targeted.

The economic and political ramifications of the event are gradually unfolding, as are the lessons for emergency management and governance on a strategic level. However, some ramifications and lessons are already beginning to become clear, including the ability to handle environmental or infrastructural chaos at a tactical level, and the consequences which the tactical can have on the strategic.

Studies of this incident should view Japan's situation a watershed lesson in response, and should see the handling in comparison with the tactical approach which the US and some Coalition partners applied to the prosecution of operations in the Iraq and Afghanistan conflicts. The US approached ground operations in Iraq, and then Afghanistan, believing that the full might of a combined "Big Army" approach (and this also drew in the Marine Corps) could prosecute operations with relative impunity. The US designed ground mobility systems to provide maximum apparent protection to troops, so that its forces could — they hoped — conduct operations with minimal loss of life.

It became clear from the outset that casualties were politically unacceptable to the US and Western electorates, and, as a result, the US attempted to impose on the conflict zones the terms of engagement. In order to save the lives of its own troops, it built vehicles which maximized armored protection, but which lacked true nimbleness and mobility away from fixed roadways. The problem was that enemy could not afford to embrace this US code of conduct, and the anti-Coalition forces remained mobile, and were thus able to conduct a low-cost, high-result campaign which caused the US to escalate its spending — and its political cost — on the war.

All of this was a consequence of a military focus on own-force casualty minimization by the US, *without* a commensurate focus on mission success.

In the case of the US approach, it was based on the presumption that wealth could alone ensure success without human cost. Moreover, it grew to assume (*de facto*) that mission success was not of equal priority to casualty reduction, and did not assume that mission success-based thinking could shorten the war, minimize the casualties, and minimize the political/strategic/economic cost. Obviously, mission

success requires social contextual skills which need to be addressed, but for the moment let us dwell merely on the physical responses and doctrines.

To re-cap: ***Nothing reduces the financial, casualty, and political costs of war as much as rapid mission success.***

Now, as we enter a new era of conflict, in which cyber/electrical dislocation will be critical to rear-area (homeland) disruption — jeopardizing the ability of a government to sustain military operations in the forward area because of the collapse of society and economies at home — it will be critical to be able to sustain more nimble and independent tactical operations, linked into a strategic management matrix, which can address both induced chaos at home while prosecuting kinetic and occupation conflict at the front end.

The lessons of the Japanese disaster should be seen as a critical demonstration of rear-area (homeland) challenges and the impact they have on the resources of the military and concentration of the Government. There are, then, broadly based national political and economic (and social) ramifications to consider, and then the operational military responses. Let us look at the current Japanese situation, and then the military lessons.

***Firstly,*** **Energy Ramifications:** Regardless of the realities of the situation, the damage to three of the six nuclear power reactors at Fukushima Daiichi power station in Fukushima Prefecture created a psycho-political result which will ensure that governments around the world will find it difficult to move as easily as had been desired into building more nuclear power stations. While, in Western societies, there will be a short-term emphasis on "green" energy technologies, the realities will soon surface that these approaches in no way could substitute for the

constant, high energy loads which could have been delivered by nuclear power. That will force a return — albeit discreetly in Western societies — to an ongoing reliance on fossil fuel power generation (oil, gas, coal).

This will cause strain on the present energy delivery architecture, cause oil and gas prices to remain fairly high, and — in the coming few years — lead already overburdened Western power grids facing possible additional stress. Despite this clearly-identifiable outcome, few Western governments — with the possible exception of France — will likely push for the construction of new nuclear power plants, or even investigate the possibility of using thorium reactors, which do not share the risks inherent with uranium powered reactors.

Those countries which do opt for new nuclear power plants will be the societies which best address energy needs and stable economic situations. In this regard, then, the People's Republic of China (PRC) will likely emerge stronger because of its will to take appropriate steps to retain nuclear power.

Japan, while it may see a spurt of investment to rebuild in the wake of the earthquakes and *tsunami*, will be hampered by the difficulty it will face, politically, in reinivesting in new nuclear technologies, and will face a higher strategic penalty as a result of its ongoing and increasing dependence on imported fossil fuels. Countries exporting oil, gas, and coal to Japan should benefit from this situation, although the Japanese economy will to some extent be penalized, and Japan's global lines of supply will remain vulnerable in times of crisis.

As noted, the PRC is likely to compound its economic/strategic advantage because of its commitment to push ahead with the use of nuclear power. At best, the

disaster may lead the PRC and others to consider research into modern applications of the proven, safe thorium fuel option for reactors.

It is not insignificant that, despite the thoroughly proven efficacy of the safer thorium reactor fuel models (indeed, proven by the US Government with viable operating thorium reactors), no Western politician (and particularly those presently in power) believes that he or she can "educate" their electorates into what is desirable nuclear power thinking, and what may be less desirable.

***Secondly,* Economic Ramifications:** The full scale of economic ramifications of the March 2011 earthquake/*tsunami* may never be identified, but it is clear that, at the least, Japanese global companies seem likely to repatriate investments abroad so that they can rebuild at home. This will negatively impact the overall global capital formation arena, and compound the sluggish economic growth in major Western economies, but to a degree which is not yet able to be determined.

What is equally unknown at this stage is whether the event could become a catalyst for the creation of a new breakthrough in Japanese economic thinking. The stagnation of the Japanese economy in the past decade clearly proved impervious to adjustment through incremental means. It now remains to be seen whether the Government and public in Japan can use this new catalyst as an opportunity to create a new approach to economic regeneration.

It is already evident that the US Hurricane *Katrina* model of post-disaster investment does not apply to Japan. The many billions of dollars invested in the recovery of Louisiana and adjacent states in the US in the wake of *Katrina* were essentially either lost or poorly utilized, largely due to corruption, and there was no macro-planning framework put in place to do other than "rebuild" New Orleans

and other cities damaged by that hurricane. There was no attempt to utilize the opportunity for clean-sheet planning.

How the Japanese Government tackles the process of post-*tsunami* "re-birth" will determine whether it resumes its economic growth, or whether it becomes increasingly subordinate — as an economy — to the PRC and even, eventually, to the Republic of Korea (RoK).

In the shorter-term, however, the global economic distortion occurring as a result of the *tsunami* will damage Western economic recovery.

***Thirdly*, Operational Military Lessons:** The Japanese Self-Defense Forces operated with speed and efficiency to undertake emergency disaster relief operations in the wake of the *tsunami*. Japan, as its operations to aid rescue in Christchurch, New Zealand, following the major earthquake there just before the Japanese incident, showed that it is a world leader in disaster relief operations.

The immediate physical response to the March 2011 disaster was not, then, the major area for military lessons. Rather, the scope of the disaster highlighted the *kind* of disruptions which could challenge societies in major conflict situations.

Clearly, conventional military forces project power with "conventional" systems and structures, but increasingly in actual conflict situations, governments will be challenged by threats to the viability of urban societies — even down to township levels — which will determine ultimately whether a society can sustain itself in competition with its adversaries. These situations will replicate in many respects — and exceed in many other respects — the situation which Japan began to face with the March 2011 natural disaster.

The target area of the disaster in Japan was able, across large swathes of territory, to access at least some supply of electricity, despite major disruptions. This enabled many aspects of society to continue to function during the chaos, using cellphones, accessing (electrically-powered delivery of) fuel for motor vehicles, delivering some water supplies, and so on. Had the power disruption been more widespread, societies would have been restricted to utilizing only the power they had in motor vehicles or associated with stand-alone generators, and the like.

In a major conflict situation, cyber and physical attacks would aim to disrupt these networks far more comprehensively than the *tsunami* did in the relatively low-density population areas of Japan. A major intervention in the computer controls of electrical grids — quite apart from interfering with the electrical grids themselves — could severely impact major urban areas (such as the interconnected urban groupings of the north-east of the North American continent). It could, after a very few days, inhibit the delivery of food and water through pipeline, road, and rail systems, bearing in mind the computer/power dependency of the logistical systems. Within a short period of time, major military logistical systems would need to be deployed to help stave off widespread chaos, starvation, water shortages, etc., diverting the bulk of the armed forces from their military missions.

The earthquake/*tsunami* damage in the March 2011 event in Japan had, in less than a week, already been shown to have caused tens of thousands of casualties, billions of dollars' worth of losses, and the diversion of all government resources. The impact of a strategic-level targeted denial of service attack on cyber and electrical facilities in a dense urban region could be far more significant.

What lessons, then, does this portend for strategic planners and warfighters?

1. Maintaining life and productivity in civilian population areas will be as critical as prosecuting offensive military operations, because a breakdown of rear-area population control will pre-determine the outcome of any conflict. Tomorrow's major war, as strategist Stefan T. Possony presaged in his book, *Tomorrow's War* (1938), will be "total war" in the very real sense that it will be as pervasive at the rear area as it will be at the kinetic spearpoint of uniformed military operations. As Possony highlighted in his forward looking analysis of the lessons of World War I, because of logistical and social disruptions (including disruptions to food supply), a vulnerable strategic rear can render forward area military operations strategically meaningless as to the outcome of the war;

2. Ruggedized, highly-mobile, grid-independent, fossil-fuel-independent electric power generation will become critical for warfighters and relief operations alike. This capability will need to be married closely to the provision of water purification/extraction systems which are also totally independent of fixed electrical power supplies or fuels which require heavy transportation. Ideally, highly-mobile electrical power generation and water purification/desalination/handling systems need to be matched in a new logistical capability which would be the center of communications and support for mobile formations;

3. Transitional storage devices — batteries, for the most part — would be at the core of the capability of new systems. Lighter, more capable batteries would need to be developed to enable truly sustainable use of solar and wind-generated electricity for a mobile force. In other words, it will be necessary to capture energy on the move. This implies that a key area of

future capability must be improved electrical storage devices, as part of the development of lighter weight forward area power generation and water handling systems;

4. The ability to create power and water independently of a logistical train of vehicles, pipelines, and powerlines will be critical in locations which are either physically remote (as in, for example, forward-deployed military forces) or "artificially remote" (as in areas rendered difficult because of disaster or other disruption). This means that power/water management vehicles will need to be light, off-road capable, and able to remain in operation without a diesel fuel supply train for long periods. These vehicles — which could be developed in a range of sizes for a range of missions — would form the basis of a forward military HQ or a community reconstruction/relief site. The ability to have power and clean water would make the units the core of the sustenance of forward military operations or disaster relief, including nuclear washdown, and the like, as well as the ability to sustain life in devastated areas;

5. The Honshu disaster, as well as the wars in Iraq and Afghanistan, have highlighted the reality that the heavy logistical train required for diesel fuel and water greatly hampers operations and adds unacceptably to the economic and political cost.

The entire approach to handling a complex military operation — whether in support of disaster relief or the prosecution of kinetic operations — requires a new approach to planning and must be able to ensure that all functions of "society under pressure" (hit by natural or cyber-war-caused disaster) and military

operations can be sustained in independent modules. In other words, the new approach must think in some respects in diametric difference to the 20th Century approach of total and organic integration. Yes, the ability for overarching command, control, and communications (C3) must be retained, but this must be achieved by units capable of independent operations.

This means that redundant strategic capabilities must be created one module at a time. Only in this way can major military systems remain effective in the face of the kind of disruptive operations which new-generation warfare will generate.

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