

Disaster Management: The WMD Dimension

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Disaster management measures pertaining to WMDs and, more particularly, biological weapons have been influenced by the change in perception regarding bioweapon attack after 9/11. As a response to disaster, several organisational arrangements in India are in place. The problem in respect of disaster management in India is that little concerted effort is being made, and no political pressure is being exerted for the implementation of the national policy.

Some Preliminary Observations

Armed forces across the world are closely involved in handling natural calamities, which is accepted as part of their non-military duties, and are no less important for the nation as defending the frontiers against external aggression and maintaining internal security. Indeed, 'aid-to-civil' functions were recognised as integral to the duties of the Indian armed forces during colonial rule, and this tradition has continued after Independence. These "aid-to-civil" functions of the Indian armed forces have four dimensions; they include the maintenance of law and order, manning essential services, handling natural calamities and performing select developmental tasks. Clearly, the training, specialised equipment and discipline under stress of the armed forces is being drawn upon here. The operating thesis, however, is that the civil administration will preferentially use its own assets to handle these situations in the first instance, and the armed forces will only be called in as a last resort. In practice, however, the civil administration has often shirked its own responsibilities, and called in the armed forces at the first available opportunity. This has eroded the credibility of the civil administration, especially in regard to the maintenance of law and order, while the armed forces feel they are basically providing an alibi for inaction. Why does this happen? Does the civil administration lack the confidence or resources or training or past experience to handle such duties? A combination of all these circumstances is obtaining, plus a cavalier attitude to handling these situations, since the armed forces are available.

Disasters, obviously, can be natural, but also manmade. Natural disasters include floods,

earthquakes, cyclones, famines and disease; manmade disasters would encapsulate major industrial accidents and the accidental or deliberate use of weapons of mass destruction (WMDs). This distinction between natural and manmade disasters is not rigid. Reckless deforestation, for instance, accelerates soil erosion and floods; similarly, global warming caused by the excessive use of fossil fuels hastens climate change, and is leading to increased water requirements but dwindling supplies. It is difficult to classify these disasters, present and impending, as being natural or manmade. Famines are traditionally believed to be natural disasters. But, the Bengal famine in 1943, leading to an estimated death of some four million people, was manmade, since food supplies were available, but could not be transported, as river boats were destroyed by the British to deny them to the advancing Japanese troops. It is not possible within the space of this paper to discuss all the aspects of disaster management. It is proposed to focus attention on disaster management pertaining to WMDs and, more particularly, biological weapons.

An Explanation

The debate in India has equated WMDs with nuclear weapons, which is unfortunate, since the acronym includes biological and chemical weapons, but also radiological weapons — the so-called ‘dirty bomb.’ There is little doubt that the use of nuclear weapons can inflict incalculable destruction, instantaneously due to heat, blast and immediate radiation effects. More horrendous is the still uncharted territory of secondary radiation within weeks and tertiary radiation that could last for years after the nuclear incident. The most horrific aspect of nuclear weapons is the largely unknown effects of their use that might be at least of equal importance to their known effects. For instance, the breakdown of civil society might lead people to try and survive in near-

anarchical conditions. Public health and municipal systems would break down, especially if the first responders become the victims of the nuclear attack, and take weeks to restore. All these possibilities, supplemented by studies made and simulation exercises conducted, have privileged nuclear disasters over those that might occur due to the use of chemical, biological and radiological weapons.

These perceptions began to change after 9/11. There is a growing realisation that radiological weapons could become the real WMD threat since radioactive materials are widely dispersed over research laboratories, hospitals, industrial enterprises and so on, quite apart from their generation by atomic power plants. The Bhopal gas tragedy offers a good example of what might happen after a chemical weapons attack. The use of biological or radiological weapons in a WMD mode has not occurred yet, but there is little doubt that they could be used by terrorist organisations. In fact the “Doctrine for Sub Conventional Operations” issue by MOD’s Integrated Defence Headquarters recognises that: “Advances in biotechnology, molecular biology and genetic engineering and the availability of such technology in the public domain would be used with malicious intent to cause widespread panic and breakdown of public health systems.” The Doctrine includes biological agents and technologies within asymmetric warfare. A recent National Intelligence Estimate in the United States has assessed that terrorists have an interest in these unconventional weapons, and specifically that, “the interest they [al Qaeda] have shown in weapons of mass destruction is real and needs to be taken seriously.”

How probable is a WMD disaster? And, what are its parameters? Three scenarios are possible: an attack could be launched by states or non-state actors (terrorists) or by

a state equipping a non-state actor-as possible in South Asia. Are these scenarios unrealistic? By general consent it is believed that state actors are unlikely to use WMDs due to its political and strategic implications. There is less assurance, however, that states falling in the genre of 'states of concern' or 'failing states' might use non-state actors to launch a WMD attack against their adversaries. But, there is little to suggest that non-state actors would eschew WMDs in the knowledge that they are too amorphous to be counter-attacked. In that sense, non-state actors cannot be deterred, since they have no territory or valuable asset to defend that could be placed at risk.

It is further arguable that there is little reason why a terrorist organisation should choose the extraordinarily difficult route of acquiring and using a WMD to gain its objectives when they could employ the traditional tools of terrorism viz. bombs, landmines, improvised explosive devices, vehicles and, increasingly now, suicide bombers. There are reports that Osama bin Laden believes the acquisition of weapons of mass destruction is a "religious duty", and has been threatening to use such weapons. Documents retrieved from al-Qaeda facilities in Afghanistan contained information on CBRN [chemical, biological, radiological, nuclear] materials. George Tenet, former Director of the CIA, writes in his memoirs that, "I am convinced that this is where Osama bin Laden and his operatives desperately want to go...They understand that bombings by cars, trucks, trains and planes will get them some headlines, to be sure. But if they manage to set off a mushroom cloud, they will make history."

The problem I have with this logic arises from technical considerations, which is the difficulty a terrorist organisation would have to "set off a mushroom cloud." The only way

it could acquire a nuclear weapon is to steal one, or manufacture one after acquiring weapons-grade fissile material. These are no easy tasks given the tight security surrounding facilities storing nuclear weapons and/or weapons-grade fissile materials. But, there are serious further difficulties in establishing the facilities and acquiring the "shape technology" to manufacture a nuclear device. Strategic opinion has veered to suggesting that a terrorist group intent on using WMDs is unlikely to undertake these onerous exercises, but, instead, acquire radioactive materials, and disperse with conventional explosives to cause damage and spread panic. The same is true about terrorists using chemical and biological weapons. They cannot use them as weapons of /mass destruction/, but only to target limited and/or isolated targets like a populated locality, ships, or military bases as weapons of /mass disruption. Some consternation was recently caused when Ayman al Zawahiri, second-in-command to Osama bin Laden, identified India, along with the United States and Israel, as future targets identified by the al Qaeda. The Government of India, as reported in the press, is taking this threat seriously and heightening its preventive measures, although it needs recollecting that Osama bin Laden had identified India as being his chief enemy as far back as 1999. A new danger arises from religious terrorists like the Lashkar-e-Toiba and the Hizbul Mujahideen, who believe that sacrificing oneself to a higher cause through violence is a way to fulfill spiritual, emotional and financial needs. Suicide bombings thus offer posthumous fame and rewards in the afterlife. Inspired by such mystical and divine motives, or driven by blind hatred, such individuals are beyond the pale of rational discourse and cannot be deterred.

Organisational Arrangements in India

Following the international decade of natural disaster reduction, it was realised by India that disaster response is insufficient, because it only provides temporary relief at high and recurring costs. Prevention, mitigation, preparedness and relief were preferable to disaster response and management. Indeed, prevention and mitigation add to integrated disaster management by providing lasting improvements to safety.

The Government of India has adopted mitigation and prevention as essential policy to promote development strategy. The Tenth Five Year Plan document has a detailed chapter on Disaster Management, emphasising the reality that development is not sustainable without mitigation being incorporated into the developmental process. Each State is exhorted to prepare a scheme for disaster mitigation in line with the approach outlined in the Plan. In other words, mitigation is being institutionalised within developmental planning.

The Government of India's detailed approach to disaster management, which includes WMD-related emergencies, finds mention in the Annual Reports of the Ministry of Home Affairs (MHA). Currently, planning and coordination is undertaken in its Disaster Management Cell, which has evolved out of the Civil Defence Organisation established by MHA before Independence. It replicated the organisation in UK, and was designed to save life, minimise damage to property, but also to maintain industrial production during war. The border conflict with China in 1962 and the Indo-Pak war in 1965 necessitated fresh thinking on this policy, for which legislation was passed in 1968. Several more Civil Defence Organisations were established, but only in areas assessed to be vulnerable to enemy

attack. They were raised primarily on a voluntary basis with a small paid core staff that would be augmented during emergencies. A three-tier administrative set-up was envisaged at the local/ town, State and National level. Apart from imparting training and demonstrations, these Civil Defence Organisations were employed for relief and rescue work during natural calamities like floods, earthquakes, cyclones and drought.

The portfolio of "Disaster Management" was transferred in 2002 from the Ministry of Agriculture that was mainly concerned with providing drought relief, to the Ministry of Home Affairs. This change is significant, in that "The focus is now on prevention, mitigation and preparedness to ensure that in the event of a calamity striking, casualties are kept to the minimum and post-calamity response is professional and better organised. For this purpose, a strategic roadmap has been framed." The mechanisms and capabilities of the Disaster Management Cell have been reviewed to deal with different disasters, including WMDs. The policy orientation has changed from "management of damage against conventional weapons to also include threat perceptions against (sic) Nuclear weapons, Biological and Chemical warfare and Environmental disasters."

A National Civil Defence College was established to conduct courses in both civil defence and disaster management. Over the years it has become the premier institution for training administrators, civil defence personnel, training of trainers, and conducting courses on disaster management, including "Nuclear/Biological/Chemical emergencies, Incident Command System, first Responder for Biological emergencies and Training of Trainers (TOTs) on Radiological emergencies." The college is the nodal training institute in India for WMD-related emergencies, and has evolved a first

responder training programme for biological incidents since 2005 to train paramilitary forces to handle biological terrorist incidents.

The Public Health Ministry and the National Institute of Communicable Diseases (NICD) are naturally involved, and are primarily concerned with the outbreak of epidemics that occur due to either natural or suspicious causes. These bodies coordinate their activities closely with the World Health Organisation and the Centre for Disease Control in the United States. This approach towards ascertaining the etiology of the disease before prescribing the line of treatment lays stress on coordinating local, regional, national and international efforts to discover any suspicious outbreak of disease; it may ultimately be tracked to natural causes, but could also indicate a bio-attack. Expeditious reporting of incidents, accurate plotting, and assessing this information at various levels in the public health system is of the essence to deal with either natural or suspicious outbreaks of disease.

A National Disaster Management Force with some 8,000 paramilitary personnel would be set up as part of the National Disaster Management Authority (NDMA) to formulate plans and policies for disaster management. It is headed by the Prime Minister, and has a former army chief as its vice chairperson, emphasising the role of the armed forces in the management of natural and manmade disasters. Disaster management organisations in the districts are headed by the district magistrate. Disaster Management Committees are also being constituted at village/urban local body/ward levels comprising elected representatives, civil society members and Government functionaries. The key points being addressed under this programme are the need to ensure sustainability of the programme; development of training modules, manuals and codes; focusing

attention on awareness generation campaigns; institutionalisation of disaster management committees and disaster management teams; disaster management plans and mock-drills; and establishing techno-legal regimes. However, greater realisation must dawn on the need to mitigate the impact of natural and manmade disasters by including them within development planning and poverty alleviation programs. For creating greater awareness about disaster management this subject has been introduced into the social science courses of the Central board of Secondary Education (CBSE). Other school boards are to follow.

The Ministry of Home Affairs (MHA) and its Disaster Management Cell remain the nodal agency to deal with bioattacks by States and non-State actors. Eight battalions of the Central Police Forces (two each from the CISF, ITBP, BSF and CRPF) have been earmarked for being trained and deployed as specialist response teams. Of them, half are also being trained for responding to WMD (including biological) emergencies. An entire response strategy has been drawn up with a manual on Standard Operating Procedures (SOPs) for responding to a bioterrorist attack. These SOPs lay down the sequence of actions to be taken by different agencies in the event of a BW attack. A Crisis Management Group is envisaged that would be established under the MHA, with its membership drawn from the concerned Ministries. It would be advised by a Technical Advisory Committee. A Central Control Room would be set up to coordinate the actions required. The National Institute of Communicable Diseases (NICD) would be the nodal agency for carrying out epidemiological investigations and formulating strategies to deal with deliberately induced outbreaks.

Overall Approach

India's precise concerns with 'strengthening and broadening national and international institutional efforts' to deal with the BW threat can be gauged from the working papers presented by it and interventions made to the second (2004) meeting of experts, called by the parties to the Biological Weapons Convention for strengthening its provisions.

India suggested special attention being devoted to:

- (a) Ensure that national disease surveillance systems cover the whole of the country.
- (b) Animal disease surveillance and control; help from international laboratories and vaccine banks; and dissemination of technology.
- (c) Enhance bilateral and international collaboration for disease surveillance and response to address cross-border disease events.
- (d) Animal disease surveillance and control; national campaign on emergency diseases.
- (e) Animal disease surveillance and control; harmonisation of test methodologies; enactment of statutes and the provision of directives.
- (f) Continue efforts to strengthen laboratory capabilities.
- (g) Develop additional capabilities to ensure early detection and response to epidemic emergencies.
- (h) Develop additional national response capabilities.
- (i) Surveillance is the key to early detection of disease outbreaks and for rapid and effective response.

Two underlying aspects of the Indian viewpoint become clear from the above recital viz. its emphasis on surveillance to ensure early detection and response, and the concern with animal disease in the light of India's dependence on its agricultural economy, providing some 25-30 % of its Gross Domestic Product. They would frame the administrative and legislative steps taken by India to dissuade, deny and detect inappropriate biological weapon activity in the country, which includes measures like regulating research into dangerous pathogens, multi-layered inspection arrangements, tightening export controls, and evolving an ethical code to guide scientific work.

Surveillance for detecting bioterrorist attacks is an intrinsic part of the overall national arrangements established for this purpose, which is linked to Rapid Reaction Teams located in identified districts within the country. Hospitals for treating bioterrorism cases are to be designated, as also laboratories to identify the biological agents used for enabling physicians to devise appropriate treatment regimes. Managing the after-effects of a bioattack requires a coordinated response by several agencies, suggesting the need for regular meetings, resource sharing and information exchanges between them. All these measures established and under contemplation cater for an ideal situation with no problems besides the bioattack attack supervening.

As a matter of practical experience, such ideal situations rarely, if ever, exist. Nor are they likely to obtain in future. For example, the first responders might be disabled at the very beginning. In a bioweapons attack a surge effect would obtain since the need for medicines, vaccines and hospital facilities would be immediate, and become too huge and overwhelm the local responders. There are other contingencies that may arise like the affected population fleeing the area under

attack in panic, carrying the infection further into the country or across countries. Any attempt to quarantine them could become a serious law and order problem. The experience with the Surat plague epidemic; tsunami in the Bay of Bengal; and past experience with earthquakes in India and elsewhere should warn us against expecting ideal conditions obtaining to deal with the bioweapons attack, or that carefully devised plans shall work as anticipated. Still, there is an obvious advantage in undertaking contingency planning before the crisis and in conducting mock drills to hone up skills among the various responders.

Problems, Suggestions and Conclusions

Against the above backdrop let us examine the problems in respect of disaster management in India with special reference to biological agents, the suggestions made for mitigating them, and the conclusions, if any, that can be drawn.

(A) **Guiding Policy:** A national policy is in place for disaster management. But there is little concerted effort being made, and no political pressure being exerted for its implementation. Augmenting communications, constructing roads and highways for the rapid evacuation of the affected population and transportation of relief materials; networked ambulance services with global positioning system, including air ambulance services, radio communications; and co-ordination amongst governmental agencies is required, but little is known about achievements made to date. Lack of action on these, among other relevant issues, results in a society unprepared for either natural or manmade calamities, including chemical and biological incidents. Undoubtedly, most disasters are unplanned or unanticipated. But there is no reason why disaster response should not be planned and rehearsed by the State.

(B) **Public Health:** Much the same could be said about the public health service. The need to associate health care personnel with disaster management efforts at all levels of planning and execution is obvious. Further, efficient arrangements need being established for surveillance of disease, coordination between authorities at different levels from the village to *talhsil* to district to state and national level, as also between government and private health facilities and practitioners. This would enable the State to purposefully handle both natural and induced disease, since there is little difference in the response required to deal with both these contingencies. Currently, a situation obtains where a natural or manmade biological incident may go unrecognised and spread unchecked due to lack of awareness of this event until it reaches pandemic proportions. This emphasises the need for a more purposive surveillance system, but also ensuring a two-way flow of information and instructions from the national level to the periphery, and between government and non-government health providers at all levels. Establishing a national management information system to allow the swift reporting and flow of information about disease is imperative.

(C) **Health Infrastructure Upgradation:** Hospital preparedness is critical to deal with a pandemic. Capacity building and improvement of hospitals and public health facilities in the country is essential; so is the need for augmenting the health infrastructure and training of health personnel to deal with emergencies and mass casualties. This becomes important since there is a current anxiety that pandemic influenza like the 'Asian flu' that decimated some 50 million people in the last century could be the next big killer disease. A mutant form of bird flu could set off this pandemic. Hence, there is a great need to upgrade and improve the public health system.

(D) Recognising Biowarfare Diseases:

This leads to the need for acknowledging another problem, which is the recognition of diseases associated with biowarfare like anthrax, smallpox, plague and botulism. Take the case of smallpox. It has been eliminated in nature and a whole new generation of doctors, nurses and paramedical personnel have never seen or handled any case of smallpox. How will they recognise a smallpox case and deal with it, especially since the first responders need being trained to operate while wearing breathing masks and protective gear? These problems get infinitely more complex in the case of surveillance programs designed to monitor agriculture and livestock? This highlights the need for introducing greater knowledge of biowarfare diseases in curricula for doctors, nurses and paramedical personnel.

(E) The Awareness Dilemma: This brings us to a difficult area of planning and conjecture, which is creating greater awareness of BW hazards that could save lives in an emergency. But, seeking to create awareness of these dangers, the elements of risk, and the need for detecting a possible attack, while not creating panic, is a delicate operation. It would become counter-productive if heightening awareness about esoteric diseases in the population leads to neurotics being produced. However, awareness generation regarding disaster mitigation is unavoidable. The community is the first responder and must be made the nodal centre for disaster management. A middle path can be sought by raising the knowledge of biological weapons in medical institutions and among public health officials, while disseminating greater information about the prophylactic and curative measures available in the general population.

(F) Surveillance Issues: The link between disease surveillance and disaster

management is evident, though it may be technically difficult to determine if an outbreak is natural or intentional. It also takes time to get to the molecular level of pathogens to make this determination, and this process can be vitiated if pathogen samples are contaminated. Besides, isolating the cause of an outbreak of disease is a complex exercise, requiring several validations in central laboratories. Weak public health systems and mechanisms for collaboration between public health officials and national security officials need radical improvement to improve surveillance standards. But the best way to protect against biological weapons from a disaster management perspective is strengthening the public health system at all levels.

(G) Quarantines: Another question of vital importance for dealing with a natural or induced bio-incident is how long it would take the Government to decide on quarantining a potentially infected population. Standard operating procedures for quarantines after a natural or induced outbreak of disease must be laid down.

(H) Simulation/Modeling Exercises: Emergency response exercises to test the capabilities of first responders are an area to which the government must devote attention. For instance, to gauge what ensues in the event of a BW attack? How would local, regional, and national political leaders interface with each another? How would stockpile supplies—water, medicine, vaccines, and so on—be transported from stockpiles to affected areas? There are obvious advantages in simulating a biological weapon attack to understand where the system is weak and could fail.

Modeling exercises are also possible to chart the course of disease through an infected population, but also the impact of remedial measures. A word of caution is appropriate here. There are obvious limitations to such

exercises, since they cannot take into account complex realities like the infected population fleeing to other parts of the world, or the possibility of infected livestock roaming around and spreading disease. After evolving a comprehensive biological threat assessment and conducting such exercises, India should also decide what vaccines and medicines it needs to stockpile and in what quantities.

(J) Biosafety and Biosecurity Issues: A particular danger that is growing in the United States relates to research having expanded on dangerous pathogens to devise new biodefence measures for protecting the armed forces and general population against older diseases, but also newer emerging diseases like pandemic flu. Much of this work has to be conducted in high biosafety level laboratories since an escape of these pathogens into the general population could lead to disastrous consequences. This problem would affect India since its burgeoning pharmaceutical and biotechnological industries are currently establishing several more high biosafety level (BSL-3 and BSL-4) laboratories all over the country. Some control and regulation over the numbers of high biosafety level laboratories, and the technical ability of the organisations concerned must be exercised.

(K) Training Customs Officials: By way of pro-active measures, India needs to redouble its efforts to detect and intercept efforts to smuggle biological agents into the country that could be used for malicious purposes. It should also upgrade its efforts to prevent such materials from being taken out of the country. What are the arrangements in place for this purpose? Customs officials confess to having little knowledge or the wherewithal to detect the entry of such contraband into India. The need for training customs officials in recognising bioagents is essential so that they might

intercept their passage by ships and airplanes.