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A Perspective on Functional Aspects of Role, Training and Equipment

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COL OS DAGUR

ABSTRACT

The shift in the approach to manage disasters has once again triggered the debate over the role of the armed forces in fighting disasters. Two divergent views are being voiced in various fora. Whereas one view recommends dampening our response and discourages over-enthusiasm, the other recommends a proactive and more participative role in disaster management. Traditionally, the armed forces have been forming the core of the government response. The new approach to managing disasters at the national level has already made a beginning by launching quite a few initiatives in various fields. The National Disaster Response Force (NDRF) has been raised. Fire services, police, civil defence and home guards are being revived, trained and equipped for a more effective role during disasters. However, the efficacy of these organisations, in terms of training, equipment, culture, ethos, professionalism and, of course, effectiveness will remain suspect, till proved otherwise. The Disaster Management Act 2005 is surprisingly silent on the aspect of assigning a well defined role and responsibilities to the armed forces. There may have not been an explicit articulation in the Act but the military will continue to form part of the "Core Group" for immediate response.

Some of the viable options that can be examined for performance of the role are: status quo, with more focussed emphasis on institutionalised training, earmarking regular units based on composite task forces for specific disaster functions / response, raising territorial army (TA) units manned by ex-Servicemen, and increasing colour service from 17 to 20 years, with mandatory service of last three years with units raised especially for disaster response and relief, extendable to two more years on a voluntary basis.

The skills and expertise required for the traditional role are inherent in military training. Besides the individual skills required for rescue and relief operations in

various contingencies, the military is endowed with the leadership acumen, organising abilities and sense of professionalism that are essential for performance of the role. The military culture in itself provides for the enabling environment and right kind of attitude for performance during crises and disasters. It would, however, be prudent to further hone skills in fields like search and rescue and countering terrorist acts involving weapons of mass destruction. As regards general skills, the armed forces can continue to train the earmarked units at unit and formation levels. It is suggested that the training should be formalised by including disaster relief and response in the curriculum of individual and collective training. The specialist training, however, needs to be institutionalised. Presently, each Service is resorting to training, utilising its integral resources. In this regard, there could be two options; the training could be organised jointly by the Services for common specialist skills like collapsed building search and rescue, slithering, watermanship training, etc. and the training skills specific to a Service e.g. deep-sea diving, scuba diving, etc is organised by each Service. The second option is to have a civilian central academy / establishment having skill specific departments for training, where not only the Services people but personnel from NDRF, civil defence, home guards, police, volunteers and even from corporate organisations are imparted training. The second option would not only facilitate the training to be standardised but this establishment may also be nominated as a single agency to provide certification for all trained personnel. It could function under the National Institute of Disaster Management / National Disaster Management Authority (NDMA). It would be worthwhile to study the system followed in the US where the training is organised by the US Army Corps of Engineers and also by a civil set-up known as Rescue Training Associates.

The armed forces have so far been using their own equipment that is meant for combat operations. The commitment of operational equipment has serious pitfalls. In the long run, it affects the operational preparedness adversely. The Services have expressed this concern many times and have suggested that a separate cache of equipment be maintained for use during rescue and relief operations.The proposal is under the consideration of the government.

We may be well trained and equipped for organising relief activities, but the need to keep ourselves updated is a must. Training is a continuous process and it should take into account the need to improve upon the required skills and expertise, keeping in tune with the advances in such skills and technology the world over. Some of the aspects that need emphasis are formulation of training policy, categorisation of skills and expertise for more meaningful planning for training,

search and rescue, incident command system, formulation of standard operating procedures and training / operating manuals, joint training, establishing linkages with other training institutes, performance audit, capability development, learning from experience, new management techniques, application of management of information system (MIS) and information technology (IT), mock up drills and simulation exercises.

Role of the Armed Forces: The Debate

The role of the armed forces in disaster management has been debated for quite some time now. It has become a regular feature of almost all the seminars on the subject, which are conducted, often with seemingly inevitable certainty. The debate is more pronounced within the establishment. It has resurfaced amidst major changes in the approach to manage disasters. There are two divergent views that are being voiced in various fora. Whereas one view recommends dampening our response and discourages over-enthusiasm, the other recommends a larger, proactive and more participative role in disaster management. Both have their reasons and are backed by some rationale.

It is often wondered if the debate is really justified. As far as role is concerned, it is generally felt that there is no ambiguity. It is secondary and remains in the realm of providing assistance to the civil administration. What is perhaps required is to mutually decipher, interpret and define the nature of tasks that may be need to be undertaken during various contingencies and situations. The idea to dampen the response / discourage over-enthusiasm is not really convincing and the recommendation to be proactive and more participative is not persuasive enough. Notwithstanding the aforesaid, a legitimate response has to be efficient and effective, executed in a professional manner. Being proactive and more participative may not be feasible as the role is limited to immediate response after the disaster has occurred and it does not involve our active participation in the other stages or phases of disaster management which primarily fall in the realm of governance.

Therefore, it may be prudent to opine that the debate on the role *per se* is unwarranted. The armed forces should be content with, and not look beyond, the confines of the secondary role. What is more critical is the in-house deliberation on the implications of the role, in terms of well defined and explicit tasking.

Revisiting the Role for Clarity

Within the confines of the subject, the point that needs to be made is that organising, training and equipping a force or establishment without role clarity, may not be a sensible proposition. It is, hence, necessary to first lay down, in an explicit manner, a well defined role that the armed forces are expected to perform in disaster management. Role clarity would contribute significantly towards better preparedness and, hence, help in responding effectively and efficiently.

Keeping in view the contemporary context highlighted by the changes that are underway to put on track a more holistic framework for managing disasters in India, we may perhaps need to revisit our role and the way we go about performing the same. A reorientation is perhaps justified. It does not in anyway mean that the role of managing disasters be brought into the fold of our primary role. What need to be considered are the implications of our role and the nature of tasks in the present context. It would probably facilitate us to be in step and in sync with the changes that are underway and in conformity with the developments in the fields of new concepts and technology.

Government's Viewpoint

Traditionally, the armed forces have been forming the core of the government response and have been intimately involved in providing immediate rescue and relief to the the affected people. The Raksha Mantri, in his inaugural address, delivered during a seminar on the subject in December 2005, in the backdrop of many disasters to include the tsunami, avalanche and snow storm, followed by the earthquake in Jammu and Kashmir (J&K) had stated,"The world over, without exception, all governments have involved the armed forces whenever a disaster strikes. They are invariably the first to respond and quickest to reach the affected area. As has been increasingly observed in recent cases across the world, the men in uniform have played a stellar role in mitigating and alleviating the suffering caused by disasters. We need to, therefore, strengthen their hands in executing this onerous task by giving them all the support needed in this direction. The armed forces, on their part, need to continuously hone their skills, improve their capabilities and capacity to respond to such situations whether national or international."[1]

In their third report, "Crisis Management – from Despair to Hope," the Second Administrative Reforms Commission, in September 2006, stated, "The armed forces have invariably played an important role in rescue and relief operations in all major disasters in the country. The constitution of specialised NDRF battalions would reduce the pressure on the armed forces, but with widespread presence, availability of highly trained, dedicated and well equipped human resources, and their capability to react within a short time-frame, the armed forces would continue to play a vital role in rescue and relief during all major crises. Territorial Army units should also be incorporated in crisis management planning and operations. The potential of ex-Servicemen available throughout the country should also be tapped for disaster management. They should be mobilised for creating a voluntary disaster task force at the local level."[2]

As given out in the Report of the Working Group on Disaster Management for the Eleventh Five-Year Plan (2007 – 2012), in December 2006, the 10th Plan had made a number of important prescriptions at the operational level. These included institutional arrangements for disaster response to be streamlined by an integrated approach involving civilian and military resources, setting up a modern permanent national command centre or operations room with redundant communications and data links to all state capitals, establishing a quick response team particularly for search and rescue operations, developing a standard operating system for dealing with humanitarian and relief assistance from non-government sources and formulating unified legislation for dealing with all types of disasters. The report in its preface mentions that it is quite clear that even the best of isolated efforts will not bear fruit unless the roles and responsibilities of all stakeholders are clearly spelt out and accountability and sustainability are factored in.[3]

The Paradox

It is evident from the above that the role of the armed forces in disaster management is well recognised by the government and civil establishments. The defence Services, due to their organisation, disposition, training and manpower, are natural partners in any national effort to combat disasters. A need, therefore, exists for more interactive and standardised civil and military procedures that maximise the benefits to the affected population.

However, some of the recent developments and the indicators projected by the government agencies in the public domain present a strange paradox. The Disaster Management Act 2005, which is supposed to be an important instrument to rationalise the role and functions of various establishments and a tool to bring in a sense of accountability and responsibility, merely includes the mention of "deployment of naval, military and air forces, other armed forces of the Union or any other civilian personnel as may be required for the purposes of this Act" under the heading "Measures by the Government for Disaster Management." There is no amplification or mention of the role of the armed forces with a view to offer legal support and back-up. The Act is surprisingly silent on the aspect of assigning a well defined role and responsibilities to the armed forces.

The prime minister, during the First India Disaster Management Congress, held in November 2006, emphasised that "our disaster management administration is an integral part of overall administration. We cannot improve the quality of disaster management in isolation. Nor should we create parallel structures at the cost of regular administration. An improvement in disaster management has to be an integral part of the improvement in governance at all levels, especially in district administration. What we need are better support structures, which can make our responses to disasters more efficient, more rapid and more effective."

A reasonable inference that can be drawn from the above facts is that though the government / bureaucracy lauds the role of the military, it is not keen to formally and legitimately give it to the armed forces..…for whatever reasons.

Interestingly, the military establishment itself is desirous to focus on the primary role and has been against the roles that can be performed by the paramilitary and other forces and establishments in terms of internal security as well as aid to civil authorities.

Role of US Army and Posse Comitatus: Another Case of Contradiction

The Unites States of America too has a similar case of contradictory perceptions with regard to the role of the military in managing disasters. It may help us in drawing an appropriate frame of reference and lay down at least a broad scope of supporting functions that the armed forces may be

called upon to perform during major disasters.

Due to the overall ineffective response during Hurricane Katrina, a larger role of the army in managing disasters was contemplated. The subject was extensively covered by the media. Picking through the lessons learned from Hurricane Katrina, there was a growing conviction that the only organisation with the skills, expertise, and resources needed to respond quickly to a catastrophe of such magnitude is the American military – as stated in one of the media reports.[4] Some of the excerpts from the report are quoted below:

> As officials look at what went wrong — and wonder what to do if a future disaster similarly eviscerates local responders — their attention has turned to the military. Clearly, the armed forces are best prepared to deploy quickly to devastated areas, bringing not only a clear command structure, but an array of resources ideally suited for difficult work — from mobile communication systems to troops trained for the most taxing conditions. Mr. Bush called the armed forces "the institution of our government most capable of massive logistical operations on a moment's notice."
>
> The framework rests on *Posse Comitatus* (1878) as well as the Insurrection Act, which together bar active-duty troops from engaging in domestic law-enforcement activities, unless there is essentially an open rebellion. In the Constitution, the framers made specific provision to check military power by declaring that America's armed forces be directed by civilian authority — namely, the various Secretaries of Defense.
>
> *Posse Comitatus* goes even further, giving only National Guard units the authority to act as law enforcement, because they are under the control of governors. Active-duty troops are being used in the Gulf relief efforts but only for humanitarian efforts and logistical support. The move to amend *Posse Comitatus* would likely give them law-enforcement powers.
>
> Yet the military has traditionally been among the strongest opponents, wary of any move that would take training time or money away from its fundamental mission: preparing for, and waging, war.

A White House report on the lessons of Hurricane Katrina said the military and the coast guard proved to be the only federal entities capable of turning the president's orders into prompt action on the ground.[5] A key recommendation of the report was for the Pentagon and Department of Homeland Security to plan for "those extraordinary circumstances when it is

appropriate for the Defense Department to lead the federal response." The military brought communications, logistics and planning capabilities that were critical to the Katrina relief operations. But the report said the response was slow and bureaucratic because federal agencies had to make specific requests for help for the military to act. As a result, critical needs were not met. "One could imagine a situation in which a catastrophic event is of such a magnitude that it would require an even greater role for the Department of Defense," the report said.

The study concluded that the military's role can be enhanced without changing *Posse Comitatus*. The National Response Plan has now included specific role and responsibilities of the Department of Defence in various Emergency Support Functions.[6]

It is surprising to know that in one of the responses to a question in September 2005 as to, "Should Congress authorise the use of active duty troops after domestic emergencies like hurricanes?" 70.8 per cent of readers voted "No", stating that changing laws meant to protect civil liberties isn't the way to solve a management problem, while only 29.2 per cent voted "Yes", stating that the scope and depth of disasters like Katrina mandate a greater military response.

A Poised Perspective

Notwithstanding the role of the military, it is beyond any doubt that disaster management is a function of governance. Disaster management comprises not only rescue and relief but a more complex process linked with overall development. The role of the military, therefore, is secondary, as part of aid to civilian authority. The armed forces have always been in the forefront for rescue and relief operations and will continue to remain the first responders in all critical disasters in the future. The fact that the ex Chief of the Army Staff and other retired senior officers are the main key position holders in the NDMA is an indicator of the acceptability of the expertise that the armed forces possess. There may have not been an explicit articulation in the Disaster Management Act 2005,but the military will continue to form part of the "Core Group" for immediate response, which will remain one of the most important aspects of disaster management after a disaster has occurred. It requires an organisation which has a well nurtured culture of quick decision-making and

professionalism and is a repository of skills and equipment required for meeting the challenges. The army's readiness, culture, presence, and its reach and accessibility lend it a unique and versatile nature to react efficiently and effectively. The presence of the armed forces in the disaster ravaged areas has always provided to the civilians a sense of the desired comfort level.

Another aspect that needs to be considered is taking of the mid and long -term perspectives of the role that the armed forces the world over may be expected to play in the changing regional and global scenarios. The militaries are gradually becoming an important political tool by way of actively participating in not only forging defence cooperation with other countries but also directly or indirectly playing the role of a facilitator in the conduct of foreign policy. The ever increasing spectrum of operations is slowly including counter-terrorism at regional and global levels, peace-keeping operations, out of area contingencies and fields of joint concern like providing disaster relief not only within the national boundaries but also beyond. So, we may find that the expertise that is essentially viewed as 'combat specific' may deliver itself very effectively in other fields too. This is quite evident from the recent endeavours in establishing strategic ties amongst nations, including a meeting of army chiefs of 19 nations in Sydney in mid-August 2007 in the lead-up to an Asia-Pacific Summit, to discuss counter-terrorism, peace-keeping and other areas of joint concern such as disaster relief.[7] It was opined that the talks should lead to better cross-military ties, more cooperation with the different armies to make sure that our soldiers are more culturally aware, linguistically attuned and able to deal in these very complex environments.

In view of the above, it may not be entirely incorrect to assume that the armed forces, even in the absence of explicit formal and legal support would continue to be an important stakeholder in the national endeavour to manage and fight disasters. We may discourage over-enthusiasm, may dampen our response and may decide to be the first responders as a last resort but our response should never become ineffective and inefficient. Hence, we should continue to train and equip ourselves for a befitting response.

Case for a Larger Role

The role of the armed forces is presently restricted to augmentation of rescue and relief operations as part of the immediate response after the disaster has occurred. The military has had no role in prevention and mitigation of disasters (pre-disaster) and long-term rehabilitation measures (post-disaster) in the past. Now, in the changed scenario, where prevention of disasters and mitigation of adverse effects of disasters to include vulnerability and risk assessment, risk reduction and capacity building with the aim of achieving resilience to disasters is more important than post-disaster relief and rehabilitation, should the armed forces be given a larger role?

The proponents of the debate over the larger role are perhaps influenced and motivated by the models followed by other countries. For instance, in the US, the National Response Plan applies a functional approach that groups the capabilities of federal departments, agencies, and the American Red Cross into Emergency Support Functions (ESFs) to provide the planning, support, resources, programme implementation, and emergency services that are most likely to be needed during Incidents of National Significance. The Department of Defence is involved in many primary and support functions.[8]

Seeking a larger and proactive role in any of the other spheres like prevention, mitigation and long-term rehabilitation of disaster management may not be rationally justifiable as these basically fall in the realm of the civil administration as a function of governance. The armed forces should continue to perform their traditional role of rescue and relief in support of the civil administration. The proponents of the school of thought demanding a more proactive role need to exercise caution. In this era of super-specialisation and expertise, organisations need to focus on the core competencies and shed the obsession with learning skills that are otherwise readily available with other establishments as their core competencies. Outsourcing is the outcome of such an endeavour. The armed forces must put an end to the temptation to become a jack of all trades. The new organisations in the form of the National Disaster Response Force (NDRF) at the national level and composite task forces with armed police, fire services, engineers and medical teams being raised at state level should be provided specialist training, as already planned.

The armed forces can, however, contribute towards mitigation as an

intrinsic part of immediate response to arrest and prevent escalation in loss of human lives and damage to property by being better trained and prepared for effective and efficient post-disaster rescue and relief operations. Assistance in terms of providing training to impart select skills to paramilitary forces, civil defence teams, home guards and the teams from the corporate organisations could also be offered. Training in some of the aspects like slithering and counter-measures with respect to radiation, biological and chemical related disasters is already being imparted. Assistance in terms of providing equipment, advice and other resources has been rendered in the past and will continue to be available in the future too. The Indian armed forces do not need legislation to offer aid, that too humanitarian in nature, during disasters. But, of course, the planning at the national level must include the scope and limitation of the assistance.

Organising Armed Forces for Disaster Management

Major Initiatives

It would be prudent to first reflect on the salient aspects of the institutional mechanism that is being put in place by the government as part of the fresh approach to disaster management. The new approach to managing disasters at the national level has already made a beginning by the launching of quite a few initiatives in various fields. Eight battalions of central police forces have already been earmarked under the director general NDRF, for development of fully trained and equipped special response teams, by the Centre. Two each of these eight battalions are being raised by the Border Security Force (BSF), Central Reserve Police Force (CRPF), Indo-Tibetan Border Police (ITBP) and Central Industrial Security Force (CISF). The BSF has already raised these two battalions at Guwahati, for the northeast, and at Calcutta, for the plains and coastal areas. Further, the BSF has also initiated training in disaster management at the Training Academy at Tekanpur. The ITBP too has raised one battalion at Panchkula, while an additional battalion is to be raised at Greater Noida. The balance battalions of this NDRF are expected to come up shortly. The force would have 144 teams, 72 of which would cater for nuclear, biological, chemical (NBC) related hazards. The central government is now in the process of training and equipping these eight battalions of central

paramilitary forces (CPMFs) as specialist response teams. Each team consists of 45 personnel, including doctors, paramedics, structural engineers, etc and, thus, there will be 144 specialist search and rescue teams in the earmarked eight battalions. The process of training and equipping of the 144 specialist search and rescue teams, etc has begun. These teams are being trained in collapsed structure search and rescue, medical first response, rescue and evacuation in flood and cyclone, underwater rescue, etc. In effect, they will have the capability to operate in all types of terrain, in all contingencies/disasters. These specialist response teams are being provided modern equipment and also dog squads for search and rescue. They will be provided with special uniforms made of fire retardant materials, with enhanced visibility in low light and having equipment carrying capacity. Apart from specialist search and rescue units, it has been decided that all personnel of central police organisations should also be imparted training in search and rescue so that they can be requisitioned to the site of incident without loss of time. Pending arrival of the specialist teams, the battalions located near the site of incident would be deployed immediately. For this purpose, a curriculum has already been drawn up and integrated into the training curriculum of CPMFs.[9] States too have been advised to set up such a force comprising a composite task force to include a company each of armed police and engineers and the required medical staff. The states have been advised to set up their own specialist teams for responding to disasters. The Ministry of Home Affairs will provide assistance for the training of the state trainers. Many states/UTs (union territories) have initiated action for setting up of specialised search and rescue (SAR) units. They have also identified trainers who will be imparted training at CPMF training institutions. Some states e.g. Maharashtra, Orissa, Gujarat and Delhi, have trained search and rescue teams. It has been provided that 10 per cent of the annual inflows into the Calamity Relief Fund (CRF) can be used for the procurement of search and rescue equipment and communication equipment. States have been advised to include training in search and rescue in the training of state armed police. Fire services are being organised and equipped as multi-hazard response units. These would be named the Fire and Rescue Services. The police is also being trained and equipped to perform a more comprehensive role. Home guards and civil defence are also being geared up, with better awareness and training to help them in rendering a meaningful role with more participation and contribution during disasters.

Questioning the Credibility of Restructured Forces

As has been mentioned by the Second Administrative Reforms Commission in their report on Crisis Management, the initiatives mentioned above would reduce the pressure on the armed forces, which as of now are the main part of the core response of the government. However, the efficacy of these forces and teams, in terms of availability, training, equipment, culture, ethos, professionalism and, of course, effectiveness will remain suspect, till proved otherwise. These structures, duly revived for their more committed role, are yet to relate themselves with the reality and gain the confidence of the people. There are reasons for apprehension and anxiety as regards the efficacy of these organisations in fighting disasters. Reviving the existing organisations, restructuring, training and equipping them for an effective response during disasters is a promising proposal. But what is going to make these organisations effective and really work is the culture and work ethos, the main drivers of performance through commitment. Unfortunately, these organisations would still remain part of an old and deep-rooted culture that prevents efficiency. It would be appropriate here to substantiate this malady through an interesting incident: all districts that are flood prone are required to maintain equipment like boats, life jackets and other such material to be used during the floods. In one of the military stations, the column commander of an infantry unit was tasked to liaise with the district collector to organise a rehearsal, along with the equipment. The district administration, when asked to provide details of the equipment, was found casual in its approach, and could not trace the details. The funds were released but the new equipment was missing and the equipment that was produced was unserviceable. The administration was banking entirely on the military aid. This reflects on the kind of accountability, commitment and response of the trained and equipped (funds provided) government officials who are required to respond in crisis situations. The episode is a real, and not an imaginary one. This is, in fact, the state of affairs throughout the country, where the utter disregard for human life is neither a matter of shame nor of any significance. It is unfortunate that we as a nation have no value for life and remain quite fatalistic. Responding to disasters is a challenging and demanding set of activities. It requires not only a sense of highest commitment and dedication to the well-being of our people but also

a very high degree of professional competence in managing a highly complex set of functions requiring varied skills and expertise in many fields. The organisation would not only be required to be well prepared always and every time so as to mobilise at the earliest but would also be expected to function in adverse situations requiring a very high quality of leadership at all levels and motivation. Such an organisation can only be developed and nurtured in an environment which is conducive and enabling. Ideally speaking, the organisation for such a response has to be dedicated for the purpose – an organisation with a vision that can be translated into achievable missions and objectives. Response to disasters is a complex and multifaceted task, and needs a professional approach. We need not confine ourselves to reviving existing organisations with a negative culture. There is an urgent requirement to connect with future challenges now, before it is too late. Like the nation has armed forces for waging war (a rare situation) on aggressors, there is a need to have an organisation to fight disasters. War and disasters are both counter-productive to the development of a nation, consume resources and retard growth. Notwithstanding the aforesaid, let us hope that India has a better apparatus in these institutions to combat disasters in the future.

Organisational Aspects: Viable Option

The armed forces do not reorganise themselves for performing rescue and relief tasks during disasters, except for some specialist teams that are especially organised for disasters involving radiation, biological and chemical related crisis situations. The inherent capabilities of the organisation in terms of training, equipment and more importantly, professionalism, have been effectively utilised for fighting disasters too and have been quite successful in the past. All units located in areas which are prone to recurring natural disasters have detailed relief plans worked out in conjunction with the civil administration. These tasks are frequently rehearsed. The task of coordinating aid to civil authority is generally given to static headquarters like Area and Sub-Area Headquarters. The Indian armed forces have rendered yeoman service during times of natural disasters. They are probably the best organised and managed services, which can respond to a calamity in the shortest possible time. They are structured to undertake a full range of activities such as quick mobilisation of personnel and stores to

the incident site, search, rescue, evacuation, emergency medical services and other support activities. An almost immediate response by Engineers, in clearing the devastated structures, and assistance in rescue of buried individuals; and by Medicos, in provision of medical aid and assistance, is well known. They are generally self-sufficient, well trained and, above all, very responsive. Therefore, their potential in assistance during disasters is immense. A joint Services operation during the tsunami undertaken for providing rescue and relief, including to neighbouring countries, and the assistance during the J&K avalanche and earthquake is also well known. Notwithstanding the above, some of the viable options that can be examined keeping in view the new approach are as follows:

- Status quo with more focussed emphasis on institutionalised training (augment local / state / central rescue and relief efforts).
- Earmark regular units based on composite task forces for specific disaster functions / response under Non-Field Force Headquarters (NFF HQs) in disaster prone areas / districts in conformity with hazard risks and vulnerability assessment. Units to be trained and equipped for envisaged role. The units can be stationed and managed in terms of tenure-based rotation. This option will provide dedicated, trained and equipped task forces to augment the district / state / central resources.
- Raise TA units, manned by ex-Servicemen. During non-disaster periods, these battalions can be effectively used in various developmental projects. The force can be a partially embodied force, which can be fully embodied during disaster periods.
- Increase colour service from 17 to 20 years, with mandatory service of least three years with units raised especially for disaster response and relief, extendable to two more years on a voluntary basis; specialised training to be provided on the lines of existing resettlement training during the sixteenth/seventeenth year of service. It will offer the advantages of a dedicated unit and also offset the disadvantage of earmarking regular army units. The relatively higher age profile should not be seen as drawback but an asset, viewed in terms of experience and leadership.

Training for Disaster Management

Adequate Acumen

The skills and expertise required for managing disasters are inherent in military training. Besides the individual skills required for rescue and relief operations in various contingencies, the military is endowed with the leadership acumen, organising abilities and sense of professionalism that are essential for the performance of this role. The military culture in itself provides for the enabling environment and right kind of attitude for performance during crises and disasters. By their nature, military leaders are excellent crisis managers and adept at fighting through all kinds of adversities. It would be pertinent to understand the strengths of the armed forces, which make them adaptable to get readily deployed and employed for disaster management. The fountainhead of these intangible qualities is the credo: *"The safety, honour and welfare of your country come first, always and every time. The honour, welfare and comfort of the men you command come next. Your own ease, comfort and safety come last, always and every time."*

Need for Honing Select Skills in Present Context

The viewpoint and the notion that the armed forces, by virtue of their organisation, equipment, training, ethos, discipline and culture are well poised to render assistance during natural calamities and other disasters, may still hold good but it would be prudent to further hone skills in the fields where conceptual and technological development has improved the capacities manifold, especially in the present context where the science of managing disasters has rapidly evolved. Disaster management in the past few years has graduated into a specialised field. The nations, governments and communities have been sensitised by the United Nations (UN) initiatives that commenced with the International Decade for Natural Disaster Risk Reduction. A large number of programmes and projects, including training, have taken off at all levels. It is felt that the army too requires reviewing the quality of support that it may be expected to provide in future disasters. Reflecting on the past, one easily gets reminded of the Bhuj earthquake where specialised teams from abroad had done a good job in search and rescue operations. An excerpt from "Disaster Management in India – A Status Report," by the Ministry of Home Affairs in August 2004 would be in order elucidate the point. "The Bhuj earthquake in January, 2001 brought out several inadequacies in the system. Professionally trained search and

rescue teams were not available; specialised dog squads to look for live bodies under the debris were not available; and there was no centralised resource inventory for emergency response. Although the army played a pivotal role in search and rescue and also set up their hospital after the collapse of the government hospital at Bhuj, the need for fully equipped mobile hospitals with trained personnel was felt acutely. Despite these constraints, the response was fairly well organised. However, had these constraints been taken care of beforehand, the response would have been even more professional and rapid which may have reduced the loss of lives. Specialist search and rescue teams from other countries did reach Bhuj. However, precious time was lost and even with these specialist teams, it was not possible to cover all the severely affected areas as quickly as the government would have desired. It was, therefore, decided that we should remove these inadequacies and be in a stage of preparedness at all times."[10]

The armed forces continue to lack the desired expertise required for such operations. Whereas support in terms of organising relief camps for distribution of aid, transportation of relief supplies, provision of medical aid, providing engineering equipment and plants, traffic control, provision of rehabilitation camps for a short period and other such tasks and actions can be provided by the already trained army personnel, there is a need to train Quick Reaction Teams (QRTs) for specialised tasks such as search and rescue in various contingencies and operating environments to include collapsed structures, high altitude, sea-rescue and such other difficult situations. Terrorist acts like the use of dirty bombs, biological or chemical devices, kidnapping, hijacking and suicide bombings would also need to be countered in a highly specialised and professional manner. Training would be required for fighting disasters in such an environment. The overall responsibility of managing major nuclear, biological, chemical (NBC) and terrorism related disasters is that of Ministry of Home Affairs, as laid down in the Union War Book. The National Security Guard (NSG) has an important role to play in most of these situations. The National Disaster Response Force and paramilitary forces are being organised, trained and equipped to perform these tasks in the future. Since it is inbuilt in the charter and role of the defence Services to provide aid to civil authorities during all types of calamities and disasters, they are prepared to respond to a contingency involving NBC related disasters / acts of terrorism. The armed

forces have earmarked QRTs to be deployed in such contingencies. The salient aspects of the same are educidated in the succeeding paragraphs.

There are ten QRTs and nine Quick Reaction Medical Teams (QRMTs) deployed *ab initio* at pre-designated areas in the country. The army has deployed six of each QRT team, the navy three each and the air force, one. QRTs are based on existing bomb disposal units, and QRMTs on available medical resources. Each QRT is composed of one officer, one junior commissioned officer / equivalent and twenty other ranks. The team has detachments required for detection and identification, neutralisation and decontamination. It is provided with coopted troops from the local formation for evacuation and cordon. The QRMT is composed of one officer, two junior commissioned officers and eleven other ranks. It is organised for establishing a Decontamination Centre, a Treatment Centre and two First Aid Posts (FAPs). Evacuation of casualties from the site of incident to the FAP and to the DTC (Decontamination and Treatment Centre) will be done by personnel of the QRT and coopted troops. Decontamination of casualties at the DTC will be assisted by the Decontamination Detachment of the QRT. Training of teams is presently being carried out under arrangements of each Service HQ. Training of key personnel of teams in the army is carried out initially at the Faculty of NBC Protection (FNBCP) at the College of Military Engineering, Pune. Subsequently, refresher and continuity cadres are conducted at the Command NBC Schools. Concurrently, selected officers, junior commissioned officers (JCOs) and non-commissioned officers (NCOs) are detailed to attend the regular familiarisation and NBC Basic Course being run at FNBCP. The earmarked field ambulance conducts the following types of training for the QRMT:

- Technical training of the members of the team.
- Training of members of QRT, coopted troops and civil defence organisation on the following aspects of the medical management of the casualty:
- Use of autoinjectors.
- First aid.
- Evacuation of casualties.
- Use of casualty bags.
- Use of resuscitators (NBC).

- Decontamination of casualties.

Subsequently, joint training of the QRTs and QRMTs is carried out regularly in order to improve coordination and drills so as to reduce time for mobilisation and deployment which in effect would be the vital aspect in any such operation. Command-wise rehearsals, therefore, are mandatory and should be carried out at least once a year under the directions of the respective commands. A completion report of the same is submitted by the commands once a year, after completion of the training year. The army is also providing specialist training to paramilitary forces teams. Training in NBC related aspects is being conducted at the College of Military Engineering, Pune.

Options for Training

As regards general skills, the armed forces can continue to train the earmarked units at unit and formation levels. However, it is suggested that the training should be formalised by including disaster relief and response in the curriculum of individual and collective training. The detailed syllabus and content of the training should conform to the type of probable disaster and the envisaged role in the given circumstances. The specialist training, which will essentially include search and rescue operations in varied contingencies,[11] however, needs to be institutionalised. It should be planned within the framework of a holistic and systems approach supported by a sound training philosophy. The philosophy must be guided by the environment that must be created while engaging in search, rescue and relief operations during disaster management. Presently, each Service is resorting to training, utilising its own integral resources. In this regard, there could be two options: the training could be organised jointly by the Services for common specialist skills like collapsed building search and rescue, slithering, watermanship training, etc; and the training skills specific to a Service e.g. deep-sea diving, scuba diving, rescue techniques in snow-bound and high altitude areas, etc organised by the respective Service. The second option is to have a civilian central academy / establishment having skill specific departments for training, where not only the Services people but personnel from NDRF, civil defence, home guards, police, volunteers and even people from corporate organisations are imparted training. The second option would not only facilitate the training to be standardised but this may also be nominated as a single agency to provide certification for all trained personnel.

This establishment could function under the National Institute of Disaster Management/National Disaster Management Authority. It would be worthwhile to study the system followed in the US where the training is organised by the US Army Corps of Engineers and also by a civil set-up known as Rescue Training Associates.[12]

Equipment for Rescue and Relief Operations

With seismic studies revealing sizeable portions of the Indian subcontinent prone to earthquake(s), it is desirable for India to be equipped with disaster management equipment at all times. The country is also prone to other calamities like cyclones, droughts, floods, fires, etc. In a report by the UN Office for the Coordination of Humanitarian Affairs (OCHA) on the Gujarat earthquake, it is mentioned that in such situations, for saving of lives and rehabilitation to be taken up on a war-footing, it is imperative to develop on priority disaster management equipment such as for cutting concrete slabs, mobile communication equipment, etc. which can be deployed for clearing debris (UN Office for the Coordination of Humanitarian Affairs , 2001).

The armed forces have so far been using their own equipment that is meant for combat operations. The commitment of such operational equipment entails serious pitfalls. In the long run, it adversely affects their operational preparedness. The Services have expressed this concern many times and have suggested that a separate cache of equipment be maintained for use during rescue and relief operations. Besides the equipment and stores used for transportation, organising relief camps, medical camps and other administrative purposes, operational equipment, especially engineering equipment like bridges, plants, boats, dozers, generators and other such equipment which comprises critical operational stores gets utilised and committed on the ground almost every year, especially during the monsoon season. This has serious implications for the availability of equipment and its serviceability needed for operational readiness.

The equipment will essentially be required, firstly, for the rescue workers for their own administration and, secondly, for search, rescue, relief, medical aid and rehabilitation of the victims of the disaster. In the case of incidents related to nuclear, biological and chemical disasters, the inventory of equipment will be far too varied and complex. Part of the equipment is common to the military inventory, but of late, a variety of equipment has been developed for use during disasters, and this may not be available with

the military. Such equipment which is not in use within the armed forces would have to be inducted separately. The team members and the units earmarked for the immediate response during disasters would have to be trained not only to use such equipment but also to maintain it and keep it in a serviceable condition.

The equipment needed for disaster response has to be kept in adequate quantities and should be readily accessible, in working condition, at very short notice. It should ideally be in the charge of the organisation that is going to utilise it. The same organisation should also be made accountable for the availability of the equipment and its serviceability.

Before proceeding further, it would be in order to highlight some of the recent initiatives at the national level.

India Disaster Resource Network

A web-enabled centralised database for the India Disaster Resource Network (IDRN) has been operationalised. The IDRN is a nation-wide electronic inventory of essential and specialist resources for disaster response, both specialist equipment and specialist manpower resources. The IDRN lists out the equipment and the resources by type and by the functions they perform, and it gives the contact address and telephone numbers of the controlling officers in-charge of the said resources. The IDRN is a live system providing for updating of inventory once every quarter. Entries into the inventory are made at district and state levels. The network ensures quick access to resources to minimise the response time in emergencies. The list of resources to be updated in the system has been finalised. The system will give, at the touch of a button, the location of specific equipment/specialist resources, as well as the controlling authority for that resource so that it can be mobilised for response in the shortest possible time. The database will be available simultaneously at the district, state and national levels.

Development of a GIS-Based National Database

The Geographical Information System (GIS) database is an effective tool for emergency responders to access information in terms of crucial parameters for the disaster affected areas. The crucial parameters include location of the public facilities, communication links and transportation network at national, state and district levels. The GIS database, already available with different

agencies of the government, is being upgraded and the gaps are proposed to be bridged. A project for this purpose is being drawn up with a view to institutionalise the arrangements. The database will provide multi-layered maps on a district-wise basis. These maps, taken in conjunction with the satellite images available for a particular area, will enable the district administration as well as state governments to carry out hazard zonation and vulnerability assessment, as well as coordinate response after a disaster. Recognising the crucial importance of the GIS as a decision support tool for disaster management, the Ministry of Home Affairs proposes to establish a GIS database,the National Database for Disaster Management (NDDM), which will assist in hazard zonation, risk assessment, preparedness and emergency response management.

Regional Response Centres

Fourteen Regional Response Centres (RRCs) are being set up across the country to enable an immediate response to floods, cyclones, earthquakes, landslides, etc. The standard cache of equipment and relief materials will be kept in these RRCs and specialist response teams will be stationed during the flood/cyclone seasons for immediate assistance to the state governments. Caches of equipment are being procured and all RRCs will be operational soon.

Health Preparedness

A 200-bed mobile hospital, fully trained and equipped is being set up and attached to a leading government hospital in Delhi. Three additional mobile hospitals, with all medical and emergency equipment, are proposed to be located in different parts of the country. These mobile hospitals will also be attached to the leading government hospitals in the country. This will enable the mobile hospitals to extend assistance to the hospitals to which they are attached in normal times. They will be airlifted during emergencies, with additional doctors/paramedics taken from the hospitals to which the mobile hospitals are attached, to the site of disaster.

Pre-Contract for Supplies

It is seen that the relevant departments start constituting teams/mobilising resources only after the crisis/disaster has struck, leading to delays. The relevant departments/agencies have been asked to draw up Emergency

Support Function (ESF) Plans and constitute response teams and designate resources in advance so that response is not delayed. Ministries/ departments have drawn up their ESF Plans and communicated it these to the Ministry of Home Affairs. States have also been asked to take similar steps. Similarly, states have been advised to finalise pre-contract/agreements for all disaster relief items so as to avoid delays in procuring relief items after disaster situations occur.

Initiatives by Technology Information, Forecasting and Assessment Council (TIFAC)

After the Gujarat earthquake disaster on January 26, 2001, TIFAC, New Delhi (under the Government of India), has taken initiatives to help the nation in the design and development of equipment in the country. In this context, TIFAC has commissioned projects for the development of two different types of equipment, namely, disaster management equipment and radio control system[13] with Bharat Earth Movers Limited (BEML), a public sector company in India that has expertise in developing such equipment. In earthquake-hit areas, disaster management equipment will demolish the affected buildings that are prone to collapse or big blocks that are required to be removed to save the trapped people, and then a radio control system will enable the removal of the debris from a remote distance. Presently, such equipment is not manufactured in the country, and its unavailability causes a huge loss to the country in such situations. The post-disaster management demands action in several areas like immediate relief measures in terms of saving the lives of the injured/affected people, property, rehabilitation (quick) programmes and also a mass awareness programme to make the people understand what to do and what not to do to mitigate the effects of disaster. In the wake of the disastrous damage by the earthquake in Gujarat, the Advanced Composites Mission of TIFAC has contributed to the national effort of rebuilding and rehabilitation. A wide array of innovative composite products suitable for low-cost building and the construction sector, and bio-medical appliances has been developed to help the people. Jute-coir composite boards, rice husk particle boards, fibre reinforced plastic (FRP) toilet blocks, multipurpose FRP handcarts and composite artificial limbs address the crucial need of the hour post-disaster relief in the quickest possible time (TIFAC, 2002).

Type and Composition of Bricks: Armed Forces

The armed forces have proposed to maintain equipment based on bricks for use during rescue and relief operations. The proposal is under the consideration of the government. The army has proposed two types of bricks: basic and incremental. The navy has proposed one basic brick comprising four packs for different functions and one incremental brick with four diving packs. Two composite bricks comprising four packs each and two types of incremental bricks are proposed to be introduced by the Andaman and Nicobar Command (ANC).

Equipment Management

The success of disaster rescue and relief operations as part of emergency response would most importantly depend on the standard of training and equipment. The equipment must always be readily accessible and in a state of serviceability. Ideally speaking, the only way to ensure the availability and reliability of equipment is to make the people who have to use it accountable for the same. Though it may not be always possible to plan it out in this manner, the endeavour should be to ensure that this arrangement is adhered to, to the extent feasible. It is desirable that personnel likely to be detailed for emergency response are adequately trained on the equipment that is not part of the Services' inventory but is specifically acquired for disaster rescue and relief. As and when the task force members are changed or rotated, they must be put through orientation training to ensure that the required training standards are maintained in terms of skills and use of equipment. The rotation of the equipment should be planned based on the life of the equipment and its serviceability condition. The bricks could be maintained in terms of training and Service equipment; the newly acquired equipment being first retained in the Service category and later downgraded to the training category. The broad principles of equipment management, as applicable in the armed forces, should be made applicable to this equipment to ensure its maintenance, reliability and availability. The details of the equipment should be shared on the web as part of IDRN.

Aspects for Emphasis / Recommendations

We may be well trained and equipped for organising relief activities, but the

need to keep ourselves updated is a must. Training is a continuous process and it should take into account the need to improve upon the required skills and expertise, keeping in tune with the advances in such skills and technology the world over. Our own research and development (R&D) in this regard should seek improvements in the equipment with a view to enhance efficiency and effectiveness during such operations. Some of the aspects that need to be given importance are enumerated in the succeeding paragraphs. These are specifically related and restricted to our role in disaster management.

Training Policy

There is a need to lay down a policy to streamline the training needs for the performance of our stipulated role in disaster management. Broadly, the policy should include the following:

- Role and functions.
- Training goals and measurable objectives.
- Institutionalisation of training.
- Curriculum and course structuring to include general and specialised training.
- Joint training.
- Mock-up drills, exercises and rehearsals.
- Performance assessment and appraisal.
- Qualification and certification standards.
- Implementation of systems approach to training.

Categorise Skills and Expertise

These need to be examined in the context of various contingencies and disasters in varied terrain. For example, separate skills would be required for search and rescue in glacier/high altitudes/ mountainous regions. Similarly, to neutralise terrorists using a dirty bomb with consequent radiation hazard would require a different set of skills – the armed forces as of now may only be required to provide assistance to more qualified teams from the Ministry of Home Affairs, but it will still amount to working in a hazardous environment and will require trained people.

Search and Rescue

Whereas other tasks and activities, as part of the immediate response may

not require much updating and new skills / training, search and rescue capabilities will need to be reviewed. There have been many developments in terms of expertise, concepts and skills in this field. We need to appraise the subject holistically and critically assess the gaps with reference to desired capabilities and lay down pragmatic training objectives for acquiring these capabilities in terms of organisational structures, resources and training needs. There is a need to commence formal training for search and rescue in varied contingencies. The success of any relief and mitigation effort will depend on being organised and trained to operate in adverse conditions, with very little resources, so as to be able to search for the affected people, rescue them from their agonising circumstances and then be able to evacuate them safely to friendly surroundings.

Incident Command System

Since India is, by and large, drawing upon the US framework for management of disasters and as of now we have many similarities, it would be prudent to understand their concept of National Incident Management System, Incident Command System, Incident Support Team, Emergency Support Functions in general and ESF #9 (Urban Search and Rescue) in particular which lays down in specific terms the role and functions of the Department of Defence and US Army Corps of Engineers. The knowledge of these fields in advance, that is, prior to being applied in our context, will provide us with a more informed perspective. In order to professionalise emergency response management, it is proposed to introduce the Incident Command System (ICS)in the country. India is already working with the US Forest Service for institutionalising the Incident Command System which, when implemented, will have all the resources coming under a unified command system. This system provides for specialist incident command teams with an incident commander and officers trained in different aspects of incident management – logistics, operations, planning, safety, media management, etc. The LBSNAA, Mussoorie, has been designated as the nodal training institution. Programmes for the training of trainers have so far been held at LBSNAA, and officers have been trained in the Basic and Intermediate ICS course and in the Planning Sections module. We may need to examine the interoperability and compatibility of our own role and functions in the overall framework of this system, as and when it gets operationalised.

Formulation of SOPs and Training / Operating Manuals

Presently, since there is no structured training, standard operating procedures (SOPs) and manuals for individual functions and activities do not exist. We need to formulate these for training, mobilisation and all kinds of contingencies. Operation manuals for each type of search and rescue operation need to be formulated on the lines of SOPs and manuals for our operational roles. Training manuals also need to be prepared for different functions.

Joint Training

We need to identify aspects that require jointness and integration for an effective joint response. Though we did extremely well during the tsunami relief operations, there may still be grey areas which require improvement through joint training and coordination. Joint training with the new organisations that are being raised like the NDRF and others to include the paramilitary forces, civil defence, home guards, fire and rescue services and police should also be planned. This would not only help in them knowing each other well but also facilitate coordination.

Links with Specialised Training Facilities

Linkages with training institutes and facilities like the National Institute of Disaster Management should be established to draw from their experience and from the latest conceptual, training and equipment perspectives.

Performance Audit

There is a need to put in place a formal performance assessment of units / teams earmarked for missions during disasters. Units need to be assessed periodically with a view to improve the efficiency. Inefficient and poorly trained people involved in disaster response are not only counter-productive but add on to the disaster. Relief work without meticulous planning, coordination and training can prove to be a 'second disaster'.

Capability Development

The focus must be on capability development which is essentially a function of availability of trained manpower and equipment. Preparedness for quick response during disasters is of paramount significance as it would otherwise

result in avoidable loss of life and property.

Learning from Experience

Unfortunately, woeful inadequacy of documentation of disasters has led to a lack of information for any kind of study and analysis. The importance of statistics to study the response to disasters needs no emphasis. Our capacity to learn from previous disasters is almost negligible and needs to be improved.

New Management Techniques

There are a number of new management concepts, techniques and tools that can enhance the decision-making processes and also contribute toward efficiency in response in terms of mobilisation, allocation of resources and quick response. The PERT (Programme Evaluation and Review Technique) and CPM (Critical Path Method) are important techniques dealing with the development of integrated planning, scheduling and control systems of programmes and projects. These help the management in getting the projects completed in time through rescheduling or deploying additional resources. The PERT methodology is a scientific, systematic, logical and mathematical basis to provide the means for bringing about a common understanding of what is to be done, by whom, when and for what purpose amongst all personnel associated directly or indirectly with the programme / project. The CPM can be of great use in disaster management operations as it identifies the critical activities to be given top priority. These network techniques are particularly effective control devices for urgent disaster projects, especially in cases of large devastations. Techniques will help in making rational decisions for relief operations.

Application of MIS and IT

We need to include training in the management of information system (MIS) and information technology (IT) in the context of rescue and relief operations. Modern technology will be able to make a major contribution towards improved disaster management practices, with respect to information systems.

Mock-Up Drills and Simulation Exercises

These should be planned with the civil administration and other organisations that would be participating in rescue and relief operations. The planning and

conduct of such events must lead to better coordination with a view to facilitate interoperability. There would be a need to maintain a fine balance between flexibility and standardisation in terms of standard operating procedures, commonality of equipment essentially for ensuring compatibility, and organisational structures. Infrastructure to cater for carrying out training in a near-realistic environment will require to be developed to include collapsible structures / high rise buildings to simulate crises situations and contingencies for practising search and rescue. Similarly, some kind of simulation modelling could also be developed to facilitate study of structural collapses and evolve / improve extrication and rescue procedures and mechanisms.

Conclusion

As of now, the armed forces form the core of the national response immediately on occurrence of any major disaster. The government functionaries have surmised that with the raising of the National Disaster Response Force (NDRF), training of paramilitary forces, civil defence, home guards, police and restructuring of the fire services, and with other initiatives being taken by the central and state governments, the pressure on the armed forces will be reduced. However, the credibility of these forces, as of now, is suspect, until proved otherwise. As discussed, a dedicated organisation with a vision, missions and objectives would be ideal for the tasks involved in rescue and relief work. No matter how we reorganise, restructure, train and equip the existing paramilitary forces, civil defence, home guards, police and fire services, it would not be easy for these to shed the culture they have been used to, in the past. Motivation, zeal and enthusiasm are much more important than training and equipment. The organisational values and attitudes cannot be expected to be changed overnight through training and equipment. Hence, ideally the government should consider raising a special force for disaster management and not concocting something like the NDRF.

It is unlikely that the role of the armed forces will ever become redundant or that the pressure is ever going to reduce because of other resources being prepared to deal with the crises emerging on the occurrence of major disasters. It is believed that the armed forces, with their inherent culture and capabilities would continue to perform a vital and crucial role in search, rescue and relief operations during all major disasters, in support of the national endeavour to contain the loss of lives and property. The debate on

the rationalisation of the role and explicit mention in the Disaster Management Act 2005 is unwarranted, firstly, because the role of the armed forces is secondary—in support of the civilian administration; and, secondly, the armed forces have no role otherwise in prevention, long-term mitigation and rehabilitation or in the developmental process linked with disaster management in a larger and more inclusive perspective. Disaster management is very much a part of the overall development process and is a function of governance, cutting across many fields and disciplines and with a wide range of stakeholders. The armed forces comprise one of the many tools, but a vital one, used by the government for the purpose of managing a crisis.

Preparedness to respond effectively, in adverse situations, should not be relegated in importance. Training and equipping, hence, should become a key result area and a significant part of training objectives of units and formations, as and when earmarked for the role. Since it would be an emergency response, there will be no time for even orientation and, hence, preparedness on a routine basis is a critical requirement, especially for those teams and task forces that are required to perform a specialist role.

As regards training, the needs must be assessed and ascertained more realistically. The training for search and rescue should be institutionalised. It should follow a systems approach with effective feedback for improvement. The training should be standardised and there should be a foolproof process for evaluation and certification. The model being used by the US can be studied and suitably tailored for our needs. There is no harm in learning from others' experiences. Training needs to be organised centrally and in the states under the arrangements of the central government / NDMA through the armed forces and or civil establishments, including the NIDM. There is also a need to develop adequate infrastructure for training, including about buildings that are collapsed or semi-collapsed, and for training in search and rescue operations involving collapsed structures.

The equipment should be organised in bricks and the stocks located at various centres as planned. The units and formations earmarked for response should always be holding separate stocks for training and for use during disaster relief for the purposes of ensuring the availability, reliability and maintainability of the equipment, as is the practice for operational equipment and stores by the armed forces. Separate additional bricks should be maintained at depots spread all over the country, especially in

hazard prone areas. Rehearsals and mock exercises should involve mobilisation, collection of stores and equipment, reporting at the planned departure area, move to incident site, establishment of base and launching of search and rescue operations and organising relief and short-term rehabilitation of the affected people.

Notes

1. Press Release, Ministry of Defence, Government of India, December 6, 2005, International Seminar on Disaster Management.
2. Third Report of the Second Administrative Reforms Commission, "Crisis Management – From Despair to Hope", September 2006.
3. Report of the Working Group on Disaster Management for the Eleventh Five-Year Plan (2007-12), December 2006, Government of India, Planning Commission.
4. Mark Sappenfield "Disaster Relief? Call in the Marines," *The Christian Science Monitor*, September 19, 2005.
5. Jim Mannion, "Military to Plan for Larger Role in Disaster Relief," *Terra Daily*, Washington DC (AFP), February 23, 2006
6. The National Response Plan, November 2004, issued by the US Department of Homeland Security / FEMA lays down in detail the emergency support functions and the role of various departments and ministries in each function. The Department of Defence, keeping in view the varied resources that exist, has been assigned roles in many functions; the US Army Corps of Engineers alone is responsible for providing various resources and services to include training in search and rescue. An excerpt from the National Response Plan is as follows:-

   "DOD has significant resources that may be available to support the Federal response to an Incident of National Significance. The Secretary of Defense authorizes Defense Support of Civil Authorities (DSCA) for domestic incidents as directed by the President or when consistent with military readiness operations and appropriate under the circumstances and the law. The Secretary of Defense retains command of military forces under DSCA, as with all other situations and operations. Concepts of 'command' and 'unity of command' have distinct legal and cultural meanings for military forces and operations. For military forces, command runs from the President to the Secretary of Defense to the Commander of the combatant command to the commander of the forces. The 'Unified Command' concept utilized by civil authorities is distinct from the military chain of command. Nothing in this plan impairs or otherwise affects the authority of the Secretary of Defense over the DOD, including the chain of command for military forces from the President as Commander in Chief, to the Secretary of Defense, to the commander of military forces, or military command and control procedures. The Secretary of

Defense shall provide defense support of civil authorities for domestic incidents as directed by the President or when consistent with military readiness and appropriate under the circumstances and the law. The Secretary of Defense shall retain command of military forces providing civil support."

7. *The Times of India*, August 15, 2007, Reuters
8. Department of Defence / US Army Corps of Engineers happens to be the Lead Agency for ESF – 3 (Public Works) responsible for providing technical advice and evaluations, engineering systems, construction management and inspection, emergency contacting, emergency repair of wastewater and solid waste facilities, removal and handling of debris, and the opening and maintaining of roadways.

   Similarly, in ESF – 9 (Urban Search and Rescue) the Department of Defence (DoD) serves as primary source for assistance in providing fixed-wing and/or rotor-wing transportation to US&R Incident Support Teams and task forces and other assistance laid down specifically in the National Response Plan. The U S Army Corps of Engineers (USACE) provides following assistance:

   - Assists the IST Engineering Cell and task forces with urban search and rescue efforts.
   - Provides structural engineering analysis, recommends hazard mitigation, recommends shoring, ascertains structural integrity and assesses whether buildings are safe to enter, and provides building stability monitoring.
   - Provides training services for the DHS/EPR/FEMA task force and IST structures specialists, as well as for USACE structures specialists.
   - Provides trained structures specialists and technical search specialists (TSS) teams to supplement the US&R task forces and ISTs.
   - Provides pre-incident training for the US&R task force and IST structures specialists.
   - The DoD also serves as a secondary source for the following assistance as part of ESF - 9:

   — Ground transportation of US&R task forces and ISTs within the affected area;
   — Mobile feeding units for US&R task forces and IST personnel; and
   — Portable shelter (e.g. tents) for use by the US&R task force and IST personnel for eating, sleeping, and working.
9. Four National Level Training Institutes have been designated as nodal centres for SAR related training. Trainers have been trained by international experts in India and abroad. International training curricula is being made applicable. Stringent QRs have been laid for trainers and team members. The capsule in SAR is integrated into post-

induction training of CPMFs.

The earmarked battalions have been located strategically to reach to the site of disaster within a few hours, 14 Regional Response Centres of CPMFs are being equipped for rapid response.

The following Training Modules have been planned:

- Medical First Responder (MFR) Course
- Collapsed Structure Search & Rescue (CSSR)
- Proficiency in Swimming for Flood Rescue.
- Deep Water Diving (Select Teams)
- Slithering (Select Teams)
- Training for Response to Industrial Accidents (Select Teams)
- States have been advised to set up specialist search and rescue teams. The proposal envisages:

  —Earmarking of companies of armed battalions for emergency response

  —Identification and designation of a state level training institute, preferably a police/civil defence/fire services training institute for SAR related training initiative.

  —Identification of a minimum of 12 trainers for undergoing training in Medical First Response (MFR) and Collapsed Structure Search and Rescue (CSSR).

  —Procurement of training equipment for training in MFR and CSSR

The provision has been made in the CRF that 10 per cent of the funds can be used for purchase of search and rescue equipment. Team structure, QRs for trainers and list of training equipment have been circulated. The identified trainers will undergo training of trainers (ToTs) programme in MFR and CSSR at the state level nodal institutes. The trainers of the states will impart training to the state level search and rescue teams. The Ministry of Home Affairs will extend support in organising ToTs at the state level nodal training institute. Reasonable progress has been made by many states thus far.

Each state will have one or more companies/units as per requirement of the armed battalion/police services/fire services trained and equipped for disaster management. Twelve trainers of the state will be able to train 36 personnel at a time. One cycle of training in MFR and CSSR will take 8 weeks. Training of one company in MFR and CSSR only will take 24 weeks. The team personnel will also need regular refresher training.

10. Disaster Management in India – A Status Report, Ministry of Home Affairs,

Government of India, August 2004

11. In the case of the US, for instance, the resource for search and rescue cater for the following:
    - Air Search Team (Fixed-Wing).
    - Airborne Reconnaissance (Fixed-Wing).
    - Canine Search and Rescue Team – Avalanche Snow Air Scent.
    - Canine Search and Rescue Team – Disaster Response.
    - Canine Search and Rescue Team – Land Cadaver Air Scent.
    - Canine Search and Rescue Team – Water Air Scent.
    - Canine Search and Rescue Team – Wilderness Air Scent.
    - Canine Search and Rescue Team–Wilderness – Tracking/Trailing.
    - Cave Search and Rescue Team.
    - Collapse Search and Rescue Teams.
    - Mine and Tunnel Search and Rescue Team.
    - Mountain Search and Rescue Team.
    - Radio Direction Finding Team.
    - Swift Water/Flood Search and Dive Rescue Team.
    - Wilderness Search and Rescue Team.

12. **The US Army Corps of Engineers Urban Search and Rescue Programme** (US&R) provides technical and operational support to the Federal Emergency Management Agency *(FEMA*), US&R programme and other state, local and International urban search and rescue programmes. The corps leads the training for structures specialists, and maintains a cadre of structures specialists who are deployed as part of the Incident Support Team Engineering Cell, and US&R Task Forces. Formally tasked by the Department of Defence Forces Command (FORSCOM) in 1991, to build and maintain an urban search and rescue engineer programme, structural engineers from the US Army Corps of Engineers were solicited for participation in US&R structures specialist training. The pilot training course was held in 1992, and the formation of the Structures Specialist Cadre was initiated. This training has become required for all structure specialists who are members of FEMA US&R Task Forces, and the ones who are part of the corps cadre. An advanced structures specialist training class has also recently been developed and is now mandatory. **Urban search and rescue is a dangerous undertaking conducted in buildings that are fully or partially collapsed.** Typically, these structures are multi-storeyed and contain heavy debris, with a high potential for additional collapse. Engineers trained as structures specialists can evaluate a damaged building in order to reduce the risks to rescue personnel and victims. Currently, the corps

provides US&R training courses for the structures specialists from both the USACE and FEMA. In addition, other agencies attend the aforementioned training course, such as the Army's Military District of Washington (MDW) Heavy Rescue Company, local fire departments, engineering consultants and foreign countries involved with urban search and rescue. The Structures Specialists Cadre comprises USACE personnel with at least 5 years of engineering experience consisting of structural design and basic construction techniques for wood, masonry, concrete, and steel. Structure specialists design shoring systems to stabilise structures for rescuers to gain safe access to the victims. The structures specialists are trained in Rescue Systems I (a basic rescue skills course), Critical Incident Stress Awareness and Management, and Hazardous Material (HAZMAT) Awareness. They also receive instruction in structural collapse patterns, hazard identification and buildings monitoring, rapid assessment of buildings, building triage and marking systems, advance shoring and shoring calculations. Mission durations are short, usually 8 to 10 days. The Corps Structures Specialist Cadre is an essential component of the Urban Search and Rescue Task Forces and the IST, with the ability for fast deployment in a life saving mission. The structures specialist brings engineering expertise to the Urban Search and Rescue Task Force. Responsible for evaluating the immediate structural conditions at the incident and recommending the appropriate hazard mitigation, the structures specialist serves a vital function to the task force.

Rescue Training Associates, Inc. (RTA) is headquartered in Pompano Beach, Florida. Initially created in 1998 to improve disaster management and technical rescue training within the United States, RTA now travels throughout the world assisting local, state, federal and international clients establish emergency response and technical rescue training programmes. They are committed to preparing students for all types of specialised emergencies by offering the most comprehensive techniques, tactics and procedures training programmes anywhere in the world. RTA is a multidisciplined team of technical experts focussed in the areas of technical rescue, disaster management, hazardous materials, CBRN/WMD Emergency Response Operations and professional and technical consulting. The team comprises active firefighters, paramedic personnel, hazardous materials technicians/specialists, National Fire Academy (NFA) and Emergency Management Institute (EMI) instructors, former military personnel and manufacturer equipment trainers. The team's knowledge is founded on extensive experience in both civilian disaster management and specialised federal chemical, biological, radiological and nuclear (CBRN) emergency response teams. Personnel experience includes the following specialties and government programmes:

- Fire, EMS and Hazmat Emergency Service Professionals.
- National Fire Academy Instructors.
- Civil and Military Emergency Response Specialists.
- US Army Technical Escort Unit.
- US Customs and Border Patrol.
- National Guard Civil Support Teams.
- Marine Corps Enhanced NBC Programme.
- Navy First Responder Programme.
- Joint Service Installation Protection Programme.
- US Army Pacific Command WMD Response Programme.
- US ARMY Chemical School.
- United Nations Inspection and Verification Teams.
- Oklahoma City Bombing.
- World Trade Centre Bombing.

13. **Disaster Management Equipment-Excavator with Attachments (BEML, 2001):** It is a 30-ton class excavator with requisite attachments like the combi-cutter and hydraulic hammer and scrap grappler. The objective of the equipment is to demolish buildings which are hanging precariously, at a faster rate, so that new buildingscan be built, so that people are rehabilitated at the earliest.

Radio Control System (BEML, 2001): This is an unmanned dozer that can be used for removing the debris in dangerous areas such as damaged multi-storeyed buildings, bridges, etc. The objective is to provide a of control machine withouta physical connection between the operator and the machine. It can also be used for handling toxic materials. It enables the operator to perform all vehicle operations from a distance at any time from any position. Hence, radio control technology, when integrated with the vehicle, makes it possible for deployment in a hazardous environment with no risk to the operator. The operating system mainly comprises a hand-held transmitter and vehicle mounted receiver.

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