

Armed Forces and Disaster Management

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Abstract

Natural disasters like floods, earthquakes, cyclones, landslides and volcanoes etcetera may strike according to the vulnerability of the area in different parts of the world. Pakistan, due to its diverse range of terrain, is susceptible to wide ranging hazards from droughts to floods and earthquakes to cyclones. Besides above, she also suffers losses from terrorist activities. Pakistan Armed Forces are neither trained nor equipped to undertake such relief operations, yet it has always played an important role with a proactive approach to help the civil machinery overcome natural and manmade disasters in the country. Above in view analyse the role played by Pakistan Armed Forces during various disasters in the past and discuss options available to evolve a strategy and organization, capable of dealing with all types of disasters more effectively and methodically.

Keywords

Hazard, Disaster Management, Armed Forces, Pakistan Army

Received: March 5, 2015 / Accepted: March 21, 2015 / Published online: June 28, 2015

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1. Introduction

Disaster means a catastrophe, or a calamity in an affected area, arising from natural or manmade causes, or by accident which results in a substantial loss of life or human suffering or damage to, and destruction of, property exceeding the ability of the affected communities to cope using own resources^[1]. Disaster management is multifaceted, scientific and an art. It characterizes a systematic approach comprising combination of knowledge, policy and organizational practices to avert disaster or reduce its impact. In other words, it is organization and management of resources and responsibilities to reduce the impact of disasters^[2]. Disaster management is a cyclic, interdependent four phased process i.e. mitigation, preparedness, response and recovery. While mitigation is long term development actions to reduce the underlying risk factors, planning for preparedness and response to put in place the resources to manage the disaster situation. The Yokohama Strategy and Plan of Action for a Safer World 1994 stressed upon state's supreme responsibility to protect its people and national, social or

economic assets from the impact of natural disasters^[3].

With increases in frequency of disaster in 21th century, Armed forces due to their organization capacity have been frequently engaged in humanitarian relief operations. Although the primary task of any military is to defend national borders, however they may act as respondents on domestic front^[4]. Therefore in the event of a natural calamity, military and civil defense assets should complement the relief mechanism to overcome the gap between needs of affected community and corresponding available resources^[5]. Bangladesh cyclone (1991), Hurricane Katrina USA (2005) UK Floods (2007) Sichuan earthquake China (2008) witnessed a huge employment of military resources in relief operation^[6].

Pakistan due to its distinctive geo-climatic conditions is prone to natural disasters. Floods, earthquakes landslides, avalanches and cyclone have been frequent phenomena. Besides it has faced human induced disaster like terrorism, religious confrontation, transport and industrial accidents. Overall vulnerability ranking of Pakistan to disaster oscillates between moderate to severe^[7]. Pakistan Armed Forces, due to its institutional strength has always been regarded as a

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pivotal organization to handle disasters / calamities. Their successful role during the earthquake of 8th October 2005, Floods 2010, Awaran Earthquake 2013 is being regarded as a role model. In this backdrop this paper analyzes the role of Pakistan Armed Forces in disaster vis-à-vis capabilities to respond to a disaster within the confines of national disaster management policy.

2. Pakistan Disaster Profile

Pakistan due to its distinctive geo-political cum climatic conditions is prone to both natural human induced disaster. Floods, earthquakes landslides, avalanches and cyclone have been frequent phenomena. Overall vulnerability ranking of Pakistan to disaster oscillate between moderate to severe. Pakistan lies in extremely active seismic zone due to continuous movement /collision of continental plates. Earthquake of 1935 and 2005 causing havoc in the affected areas give an evidence of Pakistan vulnerability to earthquakes. Furthermore, close proximity of Main Karakorum Thrust has further enhanced the susceptibility of

major population centers of Pakistan e.g Peshawar, Karachi, Islamabad and Quetta^[8].

Contrary to drought posing a unique threat in some parts of the country, floods accounts for 47.5% of total natural disasters in Pakistan affecting 89% of the population and 75% of economic loss^[9]. Generally floods occur in Indus Basin during monsoon and 56% of the Indus basin lies in Pakistan covering approximately 70% of the area^[10]. As per NDMA , the disastrous effects floods of 2010 was greater than combined havoc caused by Indian Tsunami 2004, Earthquake Pakistan 2005, US Katrina 2005, Cyclone Nargis Myanmar 2008, and Haiti Earthquake 2010.

Natural hazard apart, today the gravest problem faced by Pakistan is terrorism. Irrespective of the causes, it has caused massive havoc, despairs amongst society and seriously jeopardized the affairs of federation. It is estimated that during last two decades Pakistan lost over 50,000 lives along with estimated economic cost of over \$70 billion^[11].

Table below shows ranking of disaster vis-a-vis damaged caused in Pakistan less terrorism^[12]

Table 1. List of major disasters of Pakistan.

Type	Death	Injured	Total Affected	Loss(000 \$)	%age	Rank
Floods	11,702	1,262	47,598,394	2,746,030	86	1
Earthquake	142,812	88,096	4,236,110	5,019,255	8	2
Drought	223		2,269,300	247,000	4	3
Wind Storm	11,654	1,183	1,080,780	4,100	2	4
Landslides	384	114	3,414	-	0	5

3. Existing Disaster Management Structure of Pakistan

Prior to promulgation of PDMA 2010, Pakistan followed a responsive approach to manage an emergency situation.

Besides providing a way forward in achievement of strategic goals and fulfillment of priority actions as set out by HFA 2005-15, the DM Act 2010 along with National Disaster Risk Management Framework provides legal and institutional mechanism for disaster risk reduction and its management. Under the umbrella of NDMC, the structure of DRM in Pakistan is as under^[13]:-

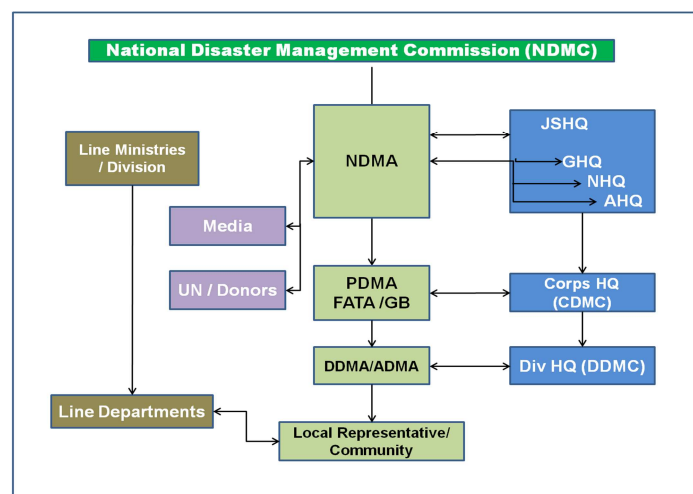


Figure 1. Layout of National Disaster Management Authority of Pakistan.

4. New Military Trends and Role of Contemporary Armed Forces

Nearly all nations have at one time or another used their military assets and capabilities for national disaster relief. Notwithstanding, military assets due to its unique technological and logistical capabilities can be mobilized on very short notice to conduct life saving relief operation .It is therefore important to understand where international armed forces are heading in field of disaster management^[14].

- *Trend 1 – Disaster Management as Part of Military Operations other than War(MOOTW)*. As a paradigm shift from traditional war fighting machine to focus on complex spectrum of MOOTW which includes search, rescue, relief and rehabilitation e.g Austrian Constitution, apart from

traditional military role , delegates responsibility to armed forces to assist in natural disasters and accidents of extraordinary magnitude.

- *Trend 2 – Military or Civil-Military Disaster Response Teams*. Depending upon the peculiar requirements of each country, response teams are adequately equipped to conduct relief operations with varied compositions.
- *Trend 3 – Military Acting as the Communications Hub* due to its inherent mobility and command, control and communication capability.
- *Trend 4 – Foreign Human Assistance (FHA)*.
- *Trend 5 – Military Disaster Training Exercises*e.g The Northern Light, Cooperative Safeguard and Combined Protection Exercises.

Table 2. Various organization dealing with civil-military coordination during disasters.

Country	Rapid Response Teams	Composition
US	DART (Disaster Assistance Response Team)	Civil-Military
Canada	DART	Military
Russia	EMERCOM’s 23,000 Emergency Response Troops	Military
EU & NATO	EADRU (Euro-Atlantic Disaster Response Unit) EADRCC (Euro-Atlantic Disaster Response Coordination Centre)	Civil-Military
Austria	AFDRU (Armed Forces Disaster Response Unit)	Military
Malaysia	SMART (Special Malaysian Rescue Team)	Civil-Military

5. Armed Forces and Disaster Management

USA. Ministry of Defense has delegated primary responsibility for conduct of disaster relief. US Army. Corps of Engineers serves as the lead agency for Public Works and Engineering in the National Response Plan. Normally request for military assistance by state or local administration is routed through State governor however, Area commander on receipt of an emergency request will undertake immediate action to save life prevent destruction or damage to property. In case President declares a national disaster, all requests from state / local administrations follow through t Federal Civil Defense Regional Administrator to the corresponding military commander^[15].

Russia. While dividing Russia into 9 geographically regions, EMERCOM maintain its dedicated aviation, engineers, communications, transport, assets along with 23,000 troops to meet any calamity. Regular Armed forces may be employed to augment these resources if required^[16].

China. Effective response to Wenchuan earthquake 2008 is an evidence of effective disaster management system in

China. As per Emergency Response Law of 30 August 2007, the Government has established a three level emergency response system. While most of disasters are managed at state level, Ministry of Civil Affairs organize and coordinates the disaster relief mechanism. The Constitution and legal framework enables armed forces to act as the backbone of disaster response system. In peace time, the PLA conducts risk/hazard assessment, disseminate /exchange information with local governments, prepares relief plans followed by conduct of field training and exercises^[17]

India. Local Administration under the supervision of the State Government is responsible to execute Disaster management. The Central Government supplements the efforts by providing financial and logistic support. The Ministry of Home Affairs is the nodal ministry for disaster relief in India. With promulgation of DM Act 2005 a multi-disciplinary, multi-skilled, high-tech NDRF of Eight Battalions has been set up for dealing with all types of disasters. This is a military related response force. Each battalion (approximately 1,158 strength) will provide 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics. W Based on vulnerability assessment vis a vis response mechanism in different parts of

the country, NDRF battalions have been located at nine different locations^[18].

6. Role of Pakistan Armed Forces in Disaster Management

History of Pakistan consists of an unending series of natural calamities. Floods, cyclones, earthquakes and other calamities hit Pakistan with terrible frequency where Pakistan Armed Forces have always been at the forefront of national disaster response and management^[19]. Recent Kashmir earthquake 2005, Floods 2010 Attabad Lake disaster and Awaran Earthquake 2013 signify the role played by Pakistan Armed forces in emergency management. Notwithstanding the frequent requisitioning of Armed Forces in disaster management, a comprehensive organizational setup has been developed in the process and its role can be grouped into following:-

- Search, rescue & relief.
- Medical services.
- Engineering and technical support.
- Maritime disaster management.
- Command and control.

Earthquake 2005 (Case Study). The Pakistan Armed Forces in general and the Pakistan Army specifically, provided the backbone for the operationalization of multi-agency and multi-organizational relief efforts^[20]. As soon as the magnitude of the disaster was realized, the Armed Forces were moved to the affected areas with Army Aviation being the first to get into action. Overall, responsibility to deal with earthquake lied with Army, which acted as a nerve centre to control and manage the crisis^[21].

The earthquake response by the armed forces followed three distinctive stages^[22]:

Emergency Phase. The immediate priority was search and rescue, evacuation of casualties and provision of emergency supplies to the survivors – a massive logistic operation. Road clearance was integral to this, as well as mobilization of all available air transport (especially helicopters) and removal and burial of the dead.

Sustained Operation. Once the emergency phase was over, the next issue was creating a stable environment. This stage of the response entailed the continued supply of relief goods and assistance to help people survive the winter, restoration of communications and basic amenities like electricity and clean drinking water, and support to help the civil administration to get 'back on its feet'. It also entailed

ensuring the maintenance of law and order.

Monitoring. The third stage was focused on monitoring the on-ground situation to ensure sufficient supplies of food, shelter and medical support, as well as preparation for the transition/recovery phase.

The Army's implementation strategy in the earthquake response had a number of key features: coordination at operational levels, effective decision making, establishment of an effective logistics chain^[23], outreach to all affected areas; the systematic, timely and equitable provision of relief goods and services and speedy construction of temporary shelters.

Coordination at Operational Level. It entailed frequent and extensive interaction / regular coordination meetings involving all stakeholders (including UNOCHA, NGOs, cluster representatives, civil administration and local people) at Divisional Headquarters; and sharing of an information database with all relief actors. The three Divisional HQs at Mansehra, Muzaffarabad and Bagh became the hub of all activities in the affected areas – including by foreign military contingents, civil society and international aid organizations. The Army facilitated the deployment of relief agencies and all other^[24].

Logistics Control / Chain. The Army Logistics Control HQ at Chaklala received processed and dispatched relief goods to forward areas however, as an immediate relief ration and other ordinance stocks of Pakistan Army was dispatched^[25]. A logistics chain was established which operated from abroad to Pakistan, then from across the country to forward bases in the affected areas, and thereafter to survivors at the grassroots level. For onward transport to affected areas all available means of transport were used: PAF, helicopters (Average 72 sorties per day)^[26], vehicles, mules and human 'porters'.

Outreach to All Affected Areas. Equitable distribution of efforts was achieved through the Divisional HQs and the systematic creation of relief bases at lower tiers mostly located with helipads. Aviation support played a vital role in the relief operation, particularly in the emergency phase to access cut-off areas^[27]. UN OCHA Guiding Principles were followed in setting up of camps to accommodate internally displaced persons (IDP). Military alongside civilian teams were employed to erect shelters along with training of affected population. The camps themselves fell into three categories: Planned Camps, Spontaneous (Self-settled) Camps and Scattered settlements.

Restoration of Infrastructure. After conducting a damage assessment work Army Engineer's began immediately to restore the road and telecommunications networks, electricity

and water supplies.

Road Networks. In mountains road damage is mainly attributed to landslides. It is estimated that 2551 km and 3754 km of road network was damaged due to earthquake in AJ&K and KPK respectively^[28]. In order to expedite relief efforts the three main arteries for road were opened for light traffic within first three days while for heavy traffic in a week time. Army employed 12 Engineer Battalions to restore road network and bridges^[29].

Telecommunication Networks. In AJK, 36% of exchanges and 18% of lines were affected but were made operational within a week by special communication organization (SCO). Particular efforts were made to provide telecommunications services to *those engaged in rescue and relief operation by setting up of mobile/satellite public call Offices(PCO)*^[30].

Electricity Supply. Substantial restoration of electricity by WAPDA and Military Engineering Services was achieved within days in urban areas and within 30 days in rural areas.

Casualties Management and Health Care Provision. It was carried out in three spheres: Emergency medical care, public health care and revival and restoration of health services. Sensing the gravity of situation, Pakistan Army provided the lead role in mass casualty management. The Army also had a key role in the supply and management of medicines and other items. In later stages, the combined resources of station health organizations of different garrisons were mobilized to place preventive/public health teams in Muzaffarabad, Bagh, Rawalakot and Mansehra. The Expanded Program of Immunization (EPI) and Disease Early Warning System (DEWS) were used by teams of AMC units with WHO, UNICEF and other foreign agencies^[31].

Education. It is estimated that over 18000 students lost their lives due to earthquake along with complete collapse / major damage to 6298 education institutions (67% damaged)^[32]. While on one hand, Army restored the education facilities by carrying out repair of damaged schools, it also organized running of schools in camps.

7. Conclusion

Today, natural disasters are part of the environment in which we live. Though most people now understand that disasters like earthquakes, flood or cyclone are not arbitrary expressions of the wrath of God, yet they are not fully prepared to help themselves when it occurs. The recent disasters however have given us clearer perceptions and taught ways to overcome worst effects through positive responses. Over the years Pakistan Armed Forces have been participating in disaster related activities. Our efforts were primarily directed to relief, rehabilitation and reconstruction

activities. Increasingly alarmed by the recent disasters and our involvement, it is realized that greater emphasis should be given on preplanning and preparedness so as to effectively manage disasters when they strike.

References

- [1] National Disaster Management Act 2010, www.na.gov.pk
- [2] Disaster management - IFRC , www.ifrc.org
- [3] World Conference on Natural Disaster Reduction in Yokohama in 1994
- [4] IDSA COMMENT Role of the Indian Military in Disasters P. K. Gautam
- [5] Guidelines on The Use of Foreign Military and Civil Defense Assets In Disaster Relief - "Oslo Guidelines" Updated November 2006)
- [6] Military responses to natural disasters: last resort or inevitable trend? by Charles-Antoine Hofmann and Laura Hudson, British Red Cross www.odihpn.org
- [7] Government of Pakistan National Disaster Risk Management Framework March 2007, www.ndma.gov.pk
- [8] Government of Pakistan National Disaster Risk Management Framework March 2007, www.ndma.gov.pk
- [9] Disaster recovery and business continuity after the 2010 flood in Pakistan: Case of small businesses, Ali Asgar, Muhammad Imtiaz Anjum , Noored din Azimi International Journal of Disaster Risk Reduction
- [10] Government of Pakistan National Disaster Risk Management Framework March 2007, www.ndma.gov.pk
- [11] Fatalities in Terrorist Violence in Pakistan 2003-13, South Asia Terrorism Portal
- [12] NDMA Annual report 2010, www.ndma.gov.pk
- [13] Government of Pakistan National Disaster Risk Management Framework March 2007, www.ndma.gov.pk
- [14] Crises and Disaster Management, NDC Journal 2006, Volume – 1
- [15] The Armed Forces in Disaster Relief Author(s): Carter L. Burgess Source: Annals of the American Academy of Political and Social Science, Vol. 309, Disaster sand Disaster Relief (Jan., 1957), Published by: Sage Publications, Inc. in association with the American Academy of Political and Social Science
- [16] Search and Rescue Service of Emercom Russia, www.en.mchs.ru
- [17] China
- [18] NIDM , www.nidm.gov.in
- [19] www.pakistanarmy.gov.pk
- [20] THE SAGA OF 8/10; CHALLENGES AND RESPONSE, Major General Farooq Ahmad Khan, HI (M), NDC Journal 2006, Volume – 1

- [21] Perceptions of the Pakistan Earthquake Response Humanitarian Agenda 2015 Pakistan Country Study by Andrew Wilder February 2008 www.fic.tufts.edu
- [22] www.pakistanarmy.gov.pk
- [23] Perceptions of the Pakistan Earthquake Response Humanitarian Agenda 2015 Pakistan Country Study by Andrew Wilder February 2008 www.fic.tufts.edu
- [24] Stakeholders Practitioner's Hands and Academic Eyes: A Practical Approach to Improving Disaster Preparedness and Response by Wiley C. Thompson. www.ir.library.oregonstate.edu
- [25] [25] Perceptions of the Pakistan Earthquake Response Humanitarian Agenda 2015 Pakistan Country Study by Andrew Wilder February 2008 www.fic.tufts.edu
- [26] A Journey from Scratch to Nuclear Power www.pakistanarmy.gov.pk
- [27] Converting Adversity into Opportunity, Annual Review 2006-2007, www.erra.pk
- [28] Converting Adversity into Opportunity, Annual Review 2006-2007, www.erra.pk
- [29] The Kashmir Earthquake of October 8, 2005: Impacts in Pakistan , EERI Special Earthquake Report — February 2006 , www.eeri.org
- [30] A Journey from Scratch to Nuclear Power www.pakistanarmy.gov.pk
- [31] MEDICAL SUPPORT IN EARTHQUAKE DISASTER – 2005 Pakistan Armed Forces Medical Journal - www.pafmj.org
- [32] ERRA-Review-2005-06 www.erra.pk