



CENTER FOR EXCELLENCE IN DISASTER MANAGEMENT AND HUMANITARIAN ASSISTANCE

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OPERATION SAHAYOGI HAAT

UNITED STATES PACIFIC COMMAND OPERATION SAHAYOGI HAAT JOINT AFTER ACTION REPORT
JANUARY 2016



In Memoriam

Captain Dustin R. Lukasiewicz, USMC

Captain Christopher L. Norgren, USMC

Captain Tapendra Rawal, Nepal Army

Warrant Officer 2C Basanta Titara, Nepal Army

Sergeant Ward M. Johnson IV, USMC

Sergeant Eric M. Seaman, USMC

Corporal Jacob A. Hug, USMC

Corporal Sara A. Medina, USMC



Information about the Center for Excellence in Disaster Management and Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a United States Department of Defense organization that was established by U.S. Congress in 1994. The Center is a direct reporting unit to U.S. Pacific Command and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

CFE-DM was founded due to a worldwide need based on lessons learned in complex humanitarian emergencies and disaster response operations in the early 1990s. The Center filled the requirement for integrated HADR education, training, operational research, and civil-military coordination across the disaster management spectrum. While maintaining a global mandate, the Asia-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice.

The CFE-DM Director is Colonel Joseph Martin, USAF.

Our Mission

The Center's mission is to advise U.S. Pacific Command leaders; enable focused engagements, education and training; and increase knowledge of best practices and information to enhance U.S. and international civil-military preparedness for disaster management and humanitarian assistance.

Vision

CFE-DM exists to save lives and alleviate human suffering by connecting people, improving coordination and building capacity.

Contact Information

Center for Excellence in Disaster Management
and Humanitarian Assistance
456 Hornet Ave
JBPHH HI 96860-3503
Telephone: (808) 472-0518
<https://www.cfe-dmha.org>

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Executive Summary

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) conducted a U.S. Pacific Command directed Joint After Action Review (JAAR) of Operation SAHAYOGI HAAT, the command's response to the 25 April 2015 Nepal earthquake. The purpose for this review is to inform future operations, actions, and activities, and to posture the U.S. Pacific Command to respond more effectively to future regional foreign disaster response events.

This report analyzes the U.S. Pacific Command response by addressing three primary questions:

1. How well did the United States military respond to the devastating Nepal earthquake?
2. How can the United States military improve its capacity to support foreign disaster response operations?
3. How can the U.S. Pacific Command assist the Nepalese Military's efforts to improve its capacity for supporting a whole-of-government disaster response?

As with all Foreign Disaster Response (FDR) Operations, unique and specific circumstances affect the overall execution of the mission. In the case of Operation SAHAYOGI HAAT, these influences had a definite impact on the decision cycle at the Combatant Command level, and the deployment and employment of a Joint Task Force (JTF). The combination of the sensitive geo-political situation in Nepal (India and China military deployments) and Thailand (government transition), the relative inaccessibility of Nepal, and the need for overflight permissions and associated political complexities made Operation SAHAYOGI HAAT a most challenging operation.

Whereas all these influences created strategic and operational challenges and decisions unique to the Nepal situation, the lessons derived from exploring the U.S. Pacific Command's Operation SAHAYOGI HAAT nonetheless provide an opportunity to identify common themes resident to FDR Operations in the Asia-Pacific Theater.

The following paragraphs summarize the most significant findings from the report:

- Nepal's response to the disaster, although constrained by limited resources and a very difficult geography, was largely effective. While international civilian and military efforts filled critical gaps and reinforced the Government of Nepal during the initial crisis, Nepal bore the primary burden for coordinating and responding to this disaster;
- U.S. Pacific Command security cooperation engagements and capacity building exercises were vital in preparing the Nepal Army for its role during a major earthquake response. The Nepal Army's Multinational Military Coordination Center was the primary mechanism for coordinating the Nepali government and the international disaster response efforts during the chaotic first week after the earthquake struck;
- Pre-disaster civilian-military theater engagements with regional partners, organizations, and international agencies facilitated a reasonably collaborative, foreign disaster response;
- Assisting states responded on a bilateral basis. This challenged Nepal Government

coordination and reduced efficiency, particularly during the immediate response to the initial earthquake;

- The multi-year, pre-disaster planning effort led by JTF 505 (III MEF) built situational awareness and positively influenced civil-military coordination. The Ambassador and U.S. State Department country team were familiar with the III MEF commanders and principal staff due to previous planning and senior leader activities;
- The evolution of the USPACOM Foreign Humanitarian Assistance Concept of Operations shaped disaster response planning and execution. Development of a USPACOM Humanitarian Assistance and Disaster Response (HADR) Concept Plan, as the next step in this planning evolution, would improve collaboration and timeliness;
- Commander's guidance remains the key means for facilitating effective staff planning and the transition from the USPACOM functional component command structure to a service-led task force or joint task force;
- A Status of Forces Agreement (SOFA), Logistics Support Agreement (LSA) or Acquisition and Cross-Servicing Agreement (ACSA) with Nepal would have enhanced the USPACOM disaster response;
- The identification and staging of key military enablers (e.g. aircraft, airfield operations capabilities, Operational Contract Support (OCS) stakeholders, etc.) facilitated a more timely and efficient response to the affected state;
- The Intermediate Staging Base at Utapao, Thailand was essential for posturing U.S. forces. Overflight, immigration, and border-nation coordination remain a challenge and require proactive, speedy action by the USPACOM staff and U.S. Country Teams;
- Joint Intelligence Preparation of the Operational Environment is critical for military decision makers and responding units during a disaster response. While there are unique aspects to an HADR operation, the military decision-making and intelligence cycles do not change;
- Building more continuity of knowledge regarding previous Nepal earthquake disaster response planning and the JTF 505 Nepal HADR Concept Plan would have facilitated the initial USPACOM crisis planning and increased situational awareness.

JTF 505 and USPACOM played an important, but supporting role in this disaster response. This report will focus on the U.S. military response to the Nepal Earthquake. The extensive international disaster response and the major USG effort led by the U.S. Agency for International Development (Office of Foreign Disaster Assistance) (USAID/OFDA) are subjects for other reports.

Methodology

The JAAR team employed a mixed methods approach for data collection. This included stakeholder interviews with key USPACOM, service component, Joint Task Force 505, interagency, partner nation, and international organization leaders and staff; discussions with functional experts; archival research and open-source literature reviews; and media analysis. The literature review consisted of evaluations, academic and think tank reports, lessons learned, and existing best practices relating to previous U.S. supported FDR Operations. The references supporting this paper will be shared through the Joint Lessons Learned Information (JLLIS) Program and the CFE-DM Knowledge Management Portal.

A ‘modified’ Joint Warfighting Functions format categorizes observations and discussion under a familiar construct that readily supports the development of follow-on actions. Under each ‘category’ are specific, key findings with an expanded narrative explaining the relevancy of the finding in relation to the report objectives.



JTF-505 MV-22 Osprey aircraft airlifting a Nepal Army team to affected areas in Ramechhap District. Photo by Nepal Army

Impact of the Earthquake

On 25 April 2015, a 7.8-magnitude earthquake devastated the Gorkha District, a central region of Nepal northwest of Kathmandu, followed by a strong aftershock, a 7.2-magnitude earthquake striking on May 12, 2015, roughly 50 miles (80km) northeast of Kathmandu (Figure 1). The focus, or hypocenter, where the initial release of earthquake energy occurred, lies less than 10 miles (15 km) beneath the Earth's surface. Hundreds of aftershocks, magnitude 4.0 or larger followed. Additionally, the earthquake and its aftershocks triggered more than 5,000 landslides, choking many stream channels with sediments.¹ The subsequent overflow of the riverbanks flooded low-lying areas, making the delivery of relief supplies a greater challenge. Left unchecked, the persistent landslide-driven floods could impede infrastructure rebuilding and recovery for years to come.

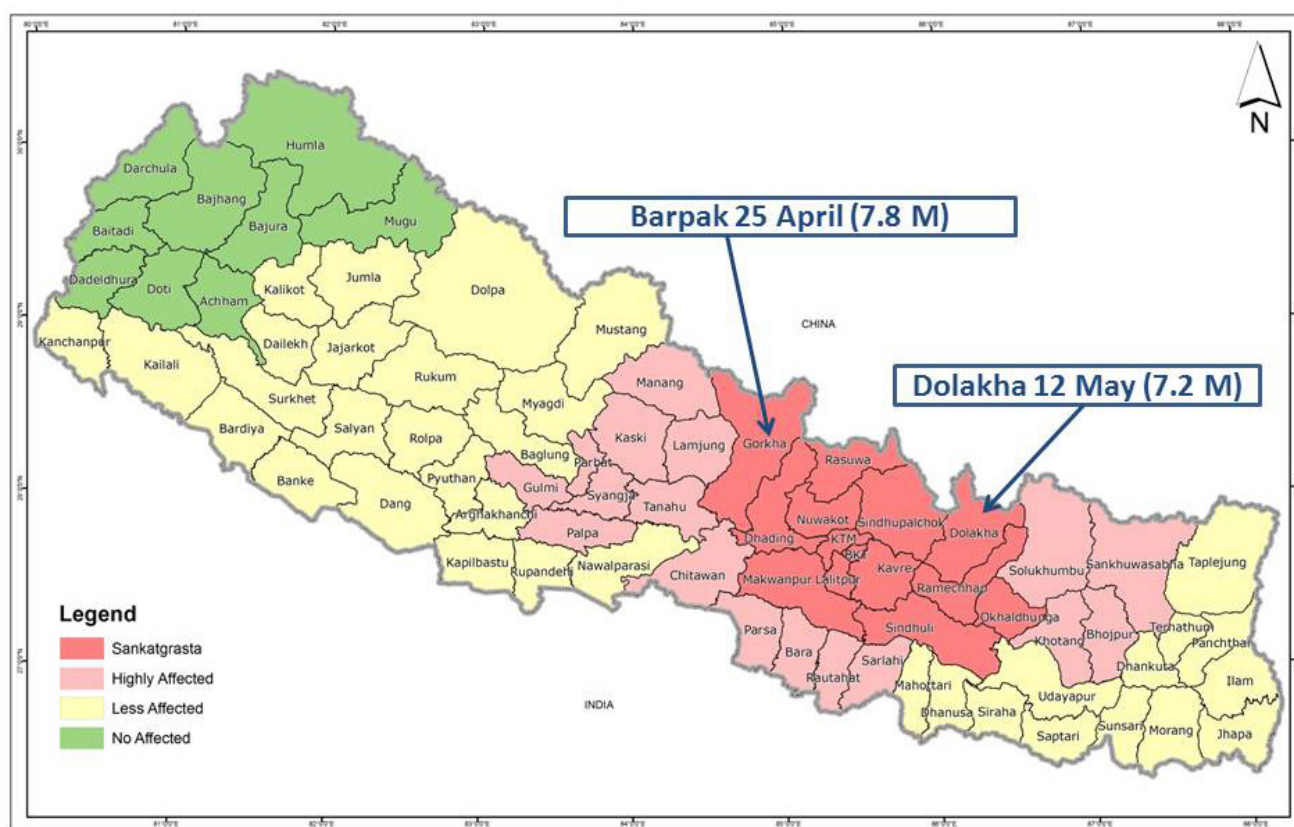


Figure 1: 25 April and 12 May Earthquakes²

While the impact of the 25 April earthquake was tremendous, it was the heavily populated Kathmandu Valley and its vulnerable infrastructure that ultimately made the earthquake catastrophic. Figure 2 depicts the extent of this damage in human capital, economic impact, and cost. The United Nations Development Programme states that the inability of the Nepal government to enforce building code compliance, coupled with poverty, resulted in poor infrastructure development.³ According to the Kathmandu Valley Development Authority there is voluntary vice mandatory compliance with the building codes.⁴ In addition, the soft soils associated with dried-up ancient lakebeds beneath Kathmandu City and its surrounding valley likely amplified the strong seismic

shaking. As devastating as this disaster was, the Government of Nepal recognized that the earthquake could have been much worse if the epicenter of the earthquake was located within Kathmandu City.^{5, 6}

Number of Heavily Affected Districts	14 (National Planning Commission, 2015)
Population Affected	8 Million (National Planning Commission, 2015)
Number of Fatalities	8,841 Reported (Ministry of Home Affairs, 2015)
Number of Injuries	22,309 (Ministry of Home Affairs, 2015)
Most Affected Sectors	Social, Productive, Infrastructure
Number of Private Houses Fully Damaged	602,257 (Ministry of Home Affairs, 2015)
Number of Private Houses Partially Damaged	285,099 (Ministry of Home Affairs, 2015)
Estimated Overall Damage	\$174 Million USD (National Planning Commission, 2015)
Estimated Overall Impact (Damages and Losses)	About 1/3 of GDP (National Planning Commission, 2015)

Figure 2: Impact of the Earthquake⁷

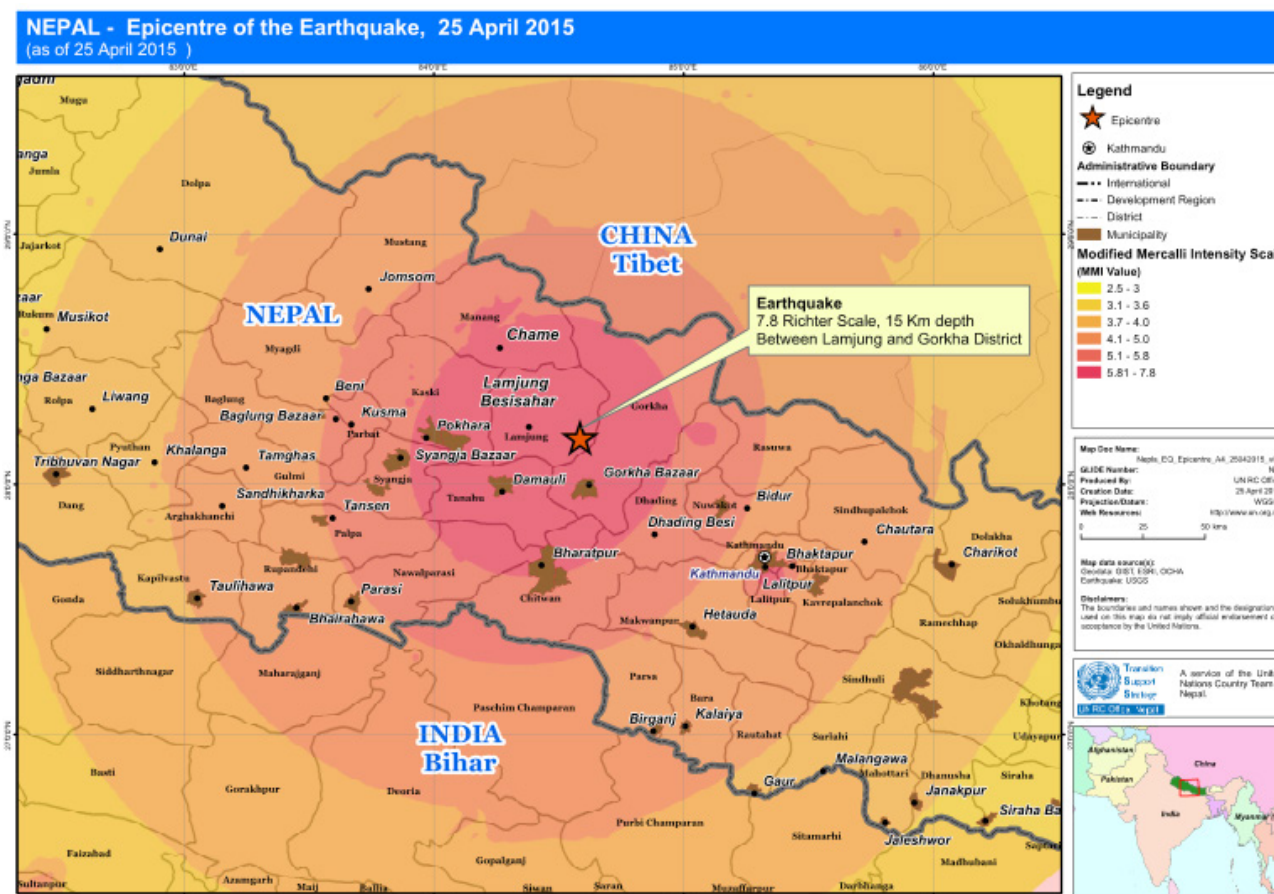


Figure 2.1: Epicenter of the Initial Earthquake⁸

Overview of the Disaster Response

The following section provides a contextual presentation of the facts of the disaster response, to include a timeline of key Government of Nepal, Assisting Nation, and International Humanitarian Actions (Figure 3). Although 34 assisting nations provided military assistance to the international response effort, this section will address the response of India and China. This attention is primarily due to both nations' long-standing historical relationship with Nepal and the major role each played in two of the four designated operational sectors (Figure 4). An in-depth discussion of the USPACOM response will be presented in the “Key Observation” section.

Government of Nepal

The Ministry of Home Affairs (MoHA) spearheaded the government’s response and took the lead in responding to the disaster at the national level. The Natural Calamity Relief Act of 1982 directs MoHA to formulate, implement, and promote disaster related plans, programs and projects.⁹ Using the NDRF 2013 as a guide, the Government of Nepal, through MoHA, mobilized response, search and rescue teams, requested international assistance, activated the cluster framework for disaster response, and coordinated the multiple foreign contingencies for search and rescue assistance.¹⁰ Throughout the initial response operations, the GoN response closely aligned with the mandated response timeline identified below (see Figure 3).

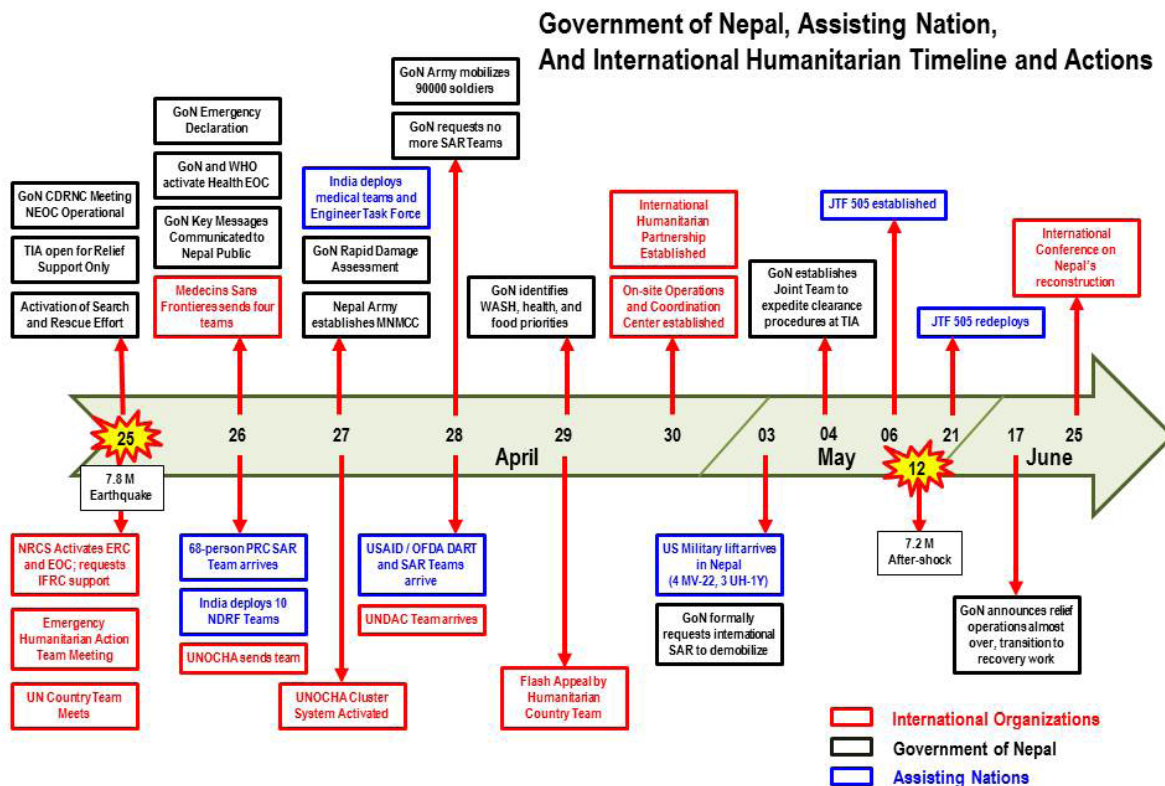


Figure 3: Response Timeline and Actions^{13, 14, 15}

After activating its national emergency operation center and convening a meeting of its Central Natural Disaster Relief Committee (CNDRC) on April 25, the Government of Nepal (GoN) declared a state of emergency and requested international assistance. The GoN initial needs assessment identified several support priorities: search and rescue capacity, medical assistance, rubble removal equipment, and logistical transportation to difficult access areas.¹¹ The GoN used the National Disaster Response Framework's (NDRF) humanitarian response timeline to structure their actions:¹²

- Within 24 hours of the earthquake: Appeal for international assistance and the activation of the UN Cluster System, including Logistics and Emergency Telecommunications Clusters;
- Within 48 hours: Coordinate and deploy Urban Search and Rescue (USAR) teams and relief items, including medical and food;
- Within 72 hours: Distribute lifesaving relief items to severely affected persons;
- 72 hours to 7 days: Distribute non-food items (NFI) including kitchen sets, hygiene kits, family kits and blankets;
- 7 to 14 days: Establish temporary shelters for displaced persons and monitor nutrition in temporary camps;
- 14 to 30 days: Implement stabilized assistance programs and early recovery planning.

The primary responsibility of the Nepal Army in a disaster, as outlined in the NDRF, is the coordination of Multinational/Bilateral Military Humanitarian Assistance.^{16, 17} The Multinational Military Coordination Center (MNMCC) coordinated the activities of military and non-military assets from 34 assisting nations, focusing on Search and Rescue, medical support, epidemic control, air transport and rescue, road clearance, water purification, debris management, and stabilization.¹⁸ The MNMCC was also the initial central coordination body for the GoN until the On Sight Operations Coordination Center (OSOCC) was operational. Outside of the activities of the MNMCC, the Nepal Army mobilized 66,069 service members and deployed seven medium and light helicopters and one fixed wing aircraft, delivering 5,707 tons of material, providing shelter, food, and water to 15,000, and medical services to 35,282 affected people.¹⁹ The actions of the Nepalese Army and other security agencies contributed greatly to the overall GoN rescue and relief effort.

In order to accommodate the bilateral response of India and China, the GoN divided the area of operations into sectors at the beginning of emergency response operations (see Figure 4 on following page). Although the sectors created some coordination challenges at the onset of the response, leading to a mismatch of mission and assisting nation capability sets, the assisting nation militaries quickly adjusted their operations to accommodate the geographical sectoring.^{20, 21, 22}

At the conclusion of their immediate response efforts (Operation SANKATMOCHAN),²⁴ the Nepal Army identified the following lessons learned:²⁵

- Preparedness is the key to successful disaster response. Having a National Disaster Response Framework alone is not sufficient. It has to be rehearsed so that all actors are aware of their responsibilities;
- A sound mechanism for damage and needs assessment is essential for efficient relief;

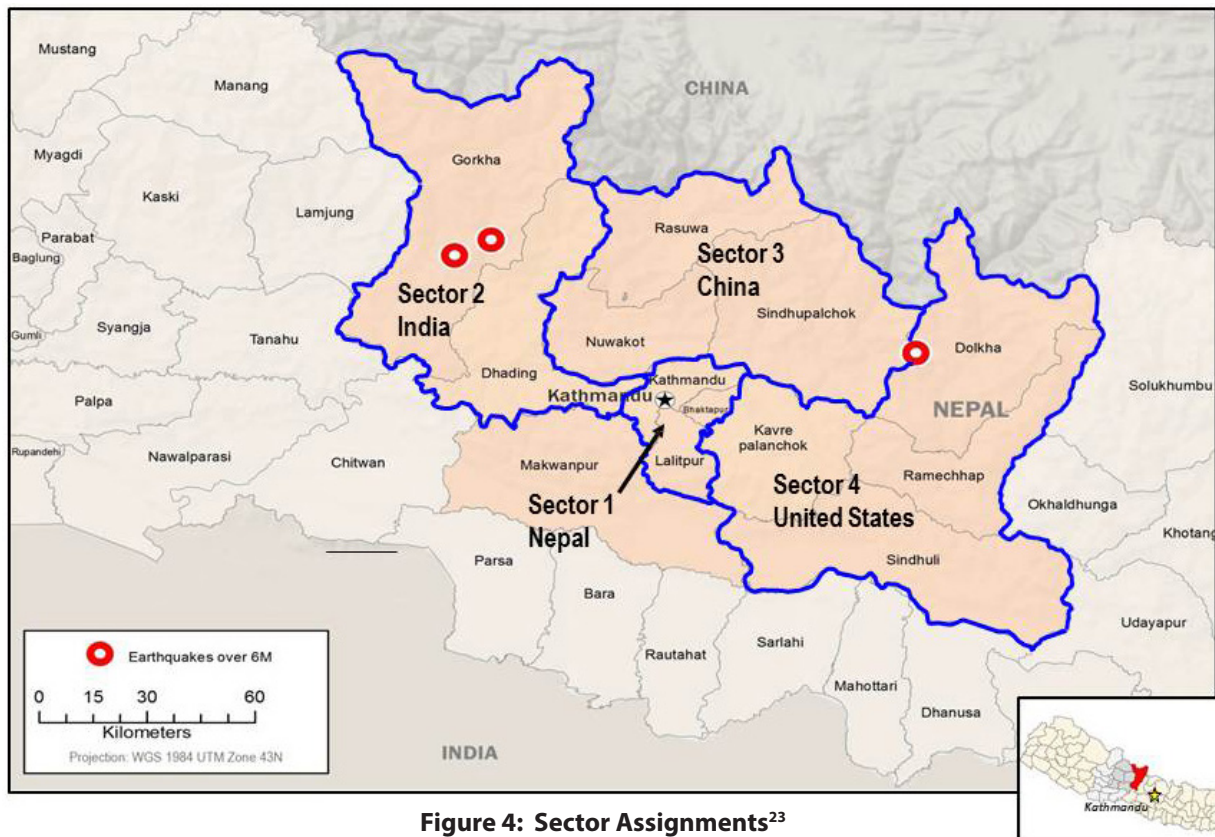


Figure 4: Sector Assignments²³

- International support will not be able to make significant impact in the first 72 hours, hence it is critical to build own capacity;
- Airport management is very important;
- Need to maintain a minimum stock of disaster relief stores as markets will be overwhelmed;
- Need to establish a reception desk at the airport at the earliest;
- Information management;
- Self-sustainment and code of conduct of arriving teams;
- Need to develop better hazard anticipation including mapping capabilities.

While international civilian and military efforts filled critical gaps and reinforced the Government of Nepal during the initial crisis, Nepal bore the primary burden for coordinating and responding to this disaster. As an example, the Nepal Army's leadership in the MNMCC was a highlight noted by many responders. Simply stated, Nepal's response to the disaster, although constrained by limited resources and a very difficult geography, was largely effective.

India

The Government of India (GoI) responded immediately to the crisis, launching a full-fledged rescue and relief operation named Operation Maitri (Operation Friendship).²⁶ India responded to the disaster within four hours, and believed that their four-hour response was an appropriate

response time “for the rescue of their neighbors.”²⁷ The timeliness of the Indian military response is commendable and based on several factors:²⁸

- Open and shared border – 1850 Kilometers, abutting five Indian states;
- Cultural and religious ties – “Nepal toh pariwar hai,” Nepal is family;
- Over 600,000 Indians reside in Nepal;
- Relationship amongst the armed forces: 39 battalions of the seven Indian Gorkha Regiments have troops from Nepal; 125,000 ex-servicemen are from Nepal;
- Bilateral, pre-disaster planning and training.

Figure 5 depicts the Indian disaster response.

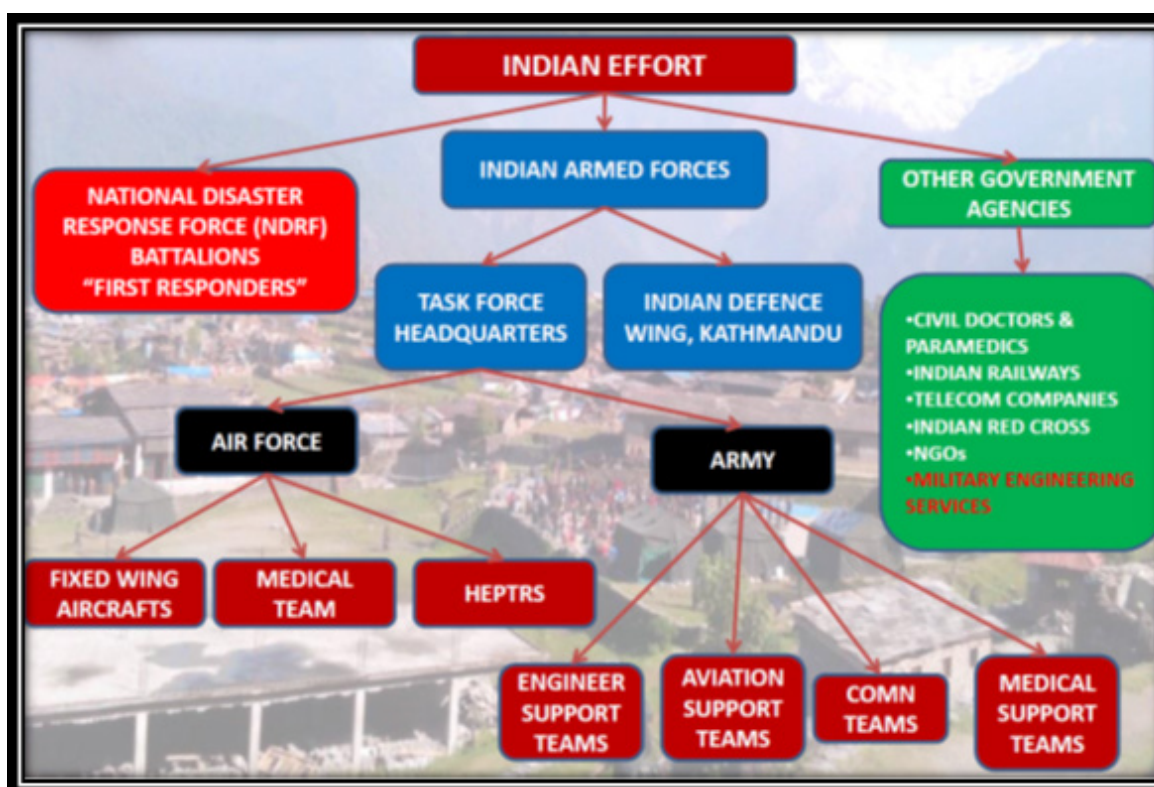


Figure 5: Indian Organization for HADR Operations²⁹

India initially deployed 10 National Disaster Response Force (NDRF) teams, comprising 450 people, to assist with emergency relief efforts in Nepal.³⁰ The teams included 90 NDRF personnel internationally trained in search-and-rescue operations. The GoI also deployed a team of medical professionals and an engineer task force to assist the GoN with power grid assessments to delivering emergency relief commodities, including blankets, medicines, and safe drinking water, to support affected populations.³¹

The India Military conducted relief operations from 25 April – 31 May, deploying over 1,400 personnel, plus Mi-17, ALH, C-17, Il-76, An-32 and C-130J aircraft.³² The Indian response organized along these lines of operation:³³

- Search and Rescue / First Responders;
- Fixed Wing support delivering materials, relief supplies, and personnel to Nepal and repatriating Indians back to India;
- Rotary Wing support for casualty evacuation and provision of supplies;
- Engineer support for road clearance, dead body removal, providing civic amenities, salvaging personal belongings, and debris clearing;
- Medical support to administer emergency first aid and provision of medical supplies.

China

Like India, China shares a border with Nepal. The People's Republic of China commenced disaster response operations at the request of the Nepal government. The 62-member Government of the People's Republic of China (PRC) search-and-rescue team arrived in Nepal on April 26. The People's Liberation Army quickly deployed three Il-76, four Shaanxi Y-8, and three Mi-17 helicopters.^{34, 35} Over 900 Chinese military deployed to Nepal.³⁶

Within the designated sectors set up by the GoN, China operated either unilaterally or bilaterally with the Nepalese Army, to deliver aid and assistance within its assigned sector.³⁷ China's coordination with other assisting nation militaries, and with the international community through the MNMCC, was limited in scope.

The deployment of military personnel and members of armed police forces was the largest group the People's Liberation Army (PLA) and armed police forces have sent to foreign soil for a humanitarian aid mission since 1949. The PLA and armed police forces also mobilized more than 6,000 personnel to Tibet Autonomous Region, which was also affected by the quake.³⁸

International Humanitarian Organizations

The United Nations Country Team and Emergency Humanitarian Action Team convened their initial meetings within hours of the earthquake; simultaneously the Nepal Red Cross Society activated their Emergency Response Center and Emergency Operations Center, and requested assistance from the International Red Cross/Crescent Society. On 26 April, the GoN and the World Health Organization activated the Emergency Health Operations Center, immediately followed by activation of the UN Cluster System on 27 April, with a flash appeal for international assistance issued by the United Nations Country Team two days later. On 30 April, concurrent with the establishment of the On Site Operations and Coordination Center, the International Humanitarian Partnership was established. The first meeting of the United Nation's Humanitarian-Military Operation and Coordination Center (HuMOCC) convened on 3 May with over 30 representatives from the GoN, humanitarian operational agencies, assisting states, and international military forces.

The International Search and Rescue Advisory Group (INSARAG) operated at the forefront of the earthquake response. For the Nepal earthquake response, 53 USAR teams (1,872 personnel and 177 search dogs) from 23 countries worked across seven districts, making 16 live rescues, recovering

178 bodies and providing 1,182 people with medical assistance.³⁹ Additionally, more than 100 Foreign Medical Teams (FMTs) deployed to support the relief operation. During the first week of the response, over 10,000 health cases were treated by FMTs. Field hospitals were established in Dhunche (Rasuwa District), Chautara (Sindhupalchowk District), Bidur (Nuwakot District), and Ramechhap District to provide medical care including surgical and obstetric services for about six months.⁴⁰

U.S. Agency for International Development (Office of Foreign Disaster Assistance)

The United States Agency for International Development (Office of Foreign Disaster Assistance) (USAID/OFDA) is the lead federal agency for coordinating the United States government response to a foreign disaster. The USAID/OFDA Disaster Assistance Response Team led by Bill Berger arrived in Kathmandu on 28 April aboard U.S. Air Force C-17 aircraft. As of 22 July 2015, USAID/OFDA provided over \$34,000,000 in humanitarian funding to the Nepalese Government.

All JTF 505 tasks were included in the USAID OFDA Mission Tasking Matrix. This included tasks for helicopter assets and the 36th Contingency Response Group. During the 22 days of Operation



Marine Brig. Gen. Paul Kennedy and Lt. Gen. John Wissler speak with Bill Berger, USAID disaster assistance response team leader, at Nepal's Kathmandu airport May 4, 2015. Photo by U.S. Marine Corps

SAHAYOGI HAAT, JTF 505 delivered 113.8 short tons of aid to remote villages, transported 550 personnel (including 63 casualties), flew 152 sorties, and provided stopgap airfield logistics support (1,813 short tons from 63 flights).

The sustained, close relationship with the 3d

Marine Expeditionary Brigade Commanding General and staff spans multiple disasters in the Philippines and Nepal. To quote Brigadier General Kennedy: "Our interaction with USAID, the Office of Foreign Disaster Assistance, is, at least from our perspective, solid. And that relationship works very well."

USAID/OFDA staff members are assigned to USPACOM and subordinate commands like III MEF. Scott Aronson, assigned by OFDA to support the III MEF leaders and staffs, deployed from Okinawa

with the JHAST to Nepal. This presence and the OFDA Joint Humanitarian Operations Course given to military audiences dozens of times per year, has increased the utility of DOD support to disaster responses.

Besides training and staff support to USPACOM, USAID/OFDA decision-support products like their Disaster Fact Sheets, Program Maps, and situation reports inform the decision-making process.

Key Observations

Response Timeline

The "tyranny of distance" challenges timeliness for any military or logistics operation in the Asia-Pacific Region. The purpose of this section is to discuss key USPACOM decisions and actions in relation to the unfolding U.S. disaster response.

The event timeline (Figure 6) depicts the deployment of key enablers, the establishment of command and control, and the commencement of operations. On 26 April, the Department of State requested Department of Defense (DOD) humanitarian disaster assistance to airlift U.S. Government and non-DOD relief supplies and people; conduct airfield assessment, management, and

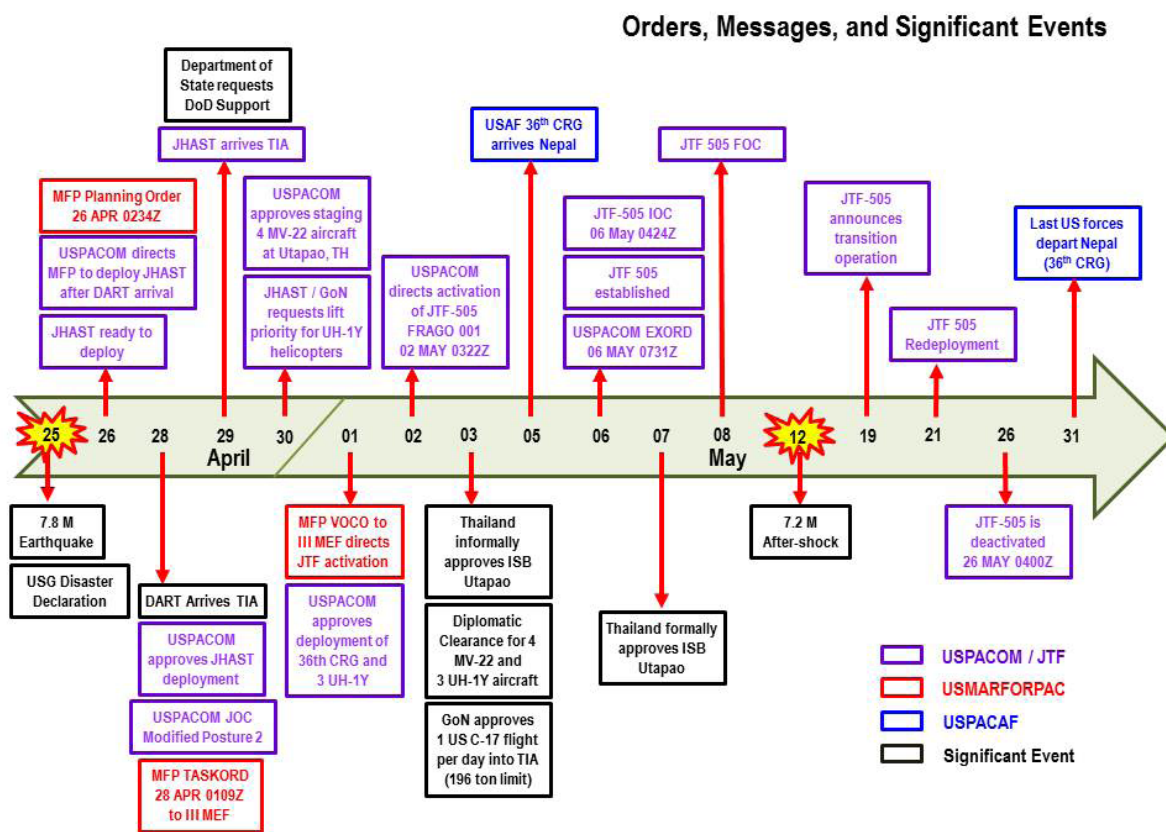


Figure 6: USPACOM Orders / Messages / Significant Events^{41, 42}

operations; and provide logistics support such as commodity repositioning to a third-party staging area.⁴³ On 28 April, the Deputy Secretary of Defense formally approved the request to provide transportation support and provision of relief supplies.⁴⁴ USPACOM received the authority to expend up to \$10 million of Overseas Humanitarian Disaster and Civic Aid (OHDACA) to provide airlift, airfield, and logistical support as requested by the Department of State.⁴⁵

As this timeline depicts, the initial deployment of USPACOM assets to support the response was delayed. It took four days after the earthquake for the Joint Humanitarian Assessment and Survey Team (JHAST) to arrive in Nepal. Another three days passed (2 May) for USPACOM to issue a Fragmentary Order activating JTF 505, changing the command and control from Marine Forces Pacific, and it required six days (8 May) for JTF 505 to achieve full operational capability (FOC).^{46, 47} Between crisis inception and FOC there were a number of actions that may have contributed to the extended timeline. Delay in the arrival of the OFDA Disaster Assistance Response Team (DART); the decision not to deploy or forward stage forces until the completion of the DART and U.S. Embassy Kathmandu assessment; requesting and receiving overflight permission; receiving approval for the use of Utapao Air Base, Thailand; and the complex geo-political circumstances of India's and China's disaster response operations.^{48, 49, 50, 51}

The impact of these delays on this operation did not prove to be critical. The Government of Nepal, the U.S. Embassy Kathmandu, and USAID/DART believed that the U.S. military response was

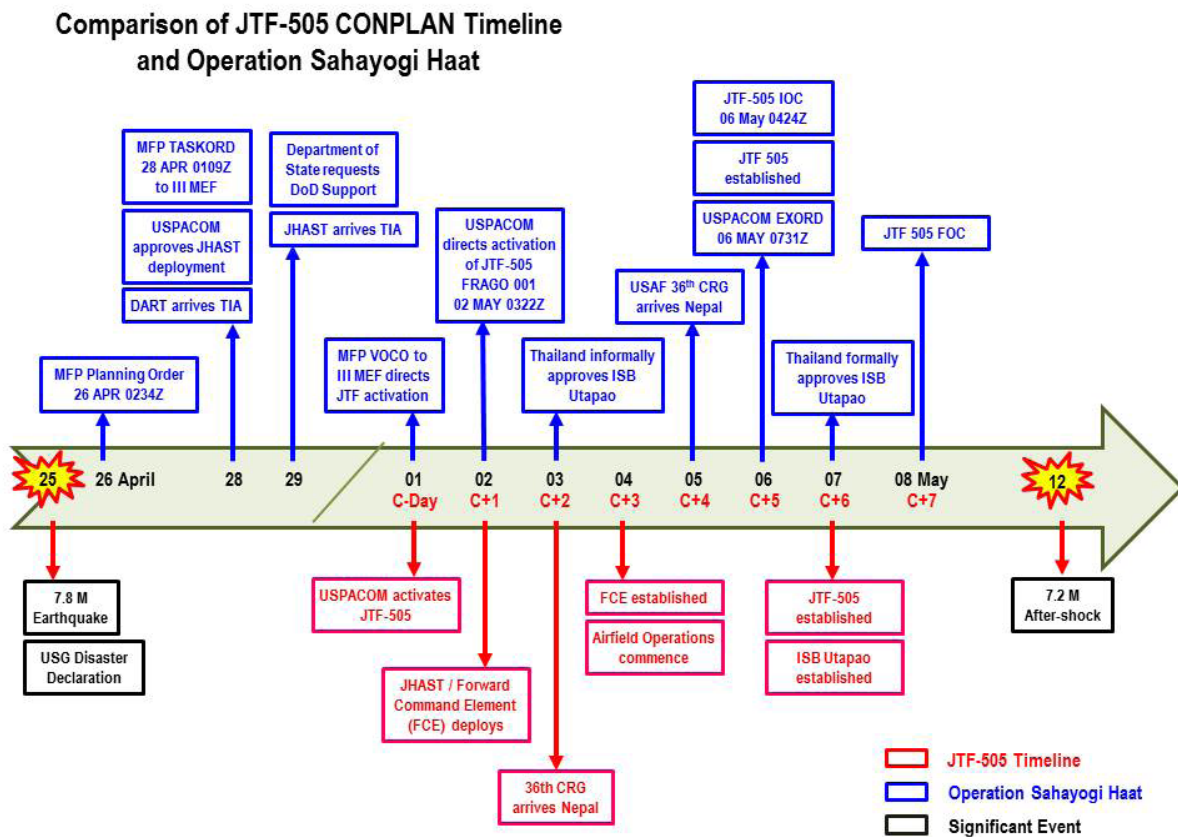


Figure 7: JTF 505 CONPLAN and Actual Timeline Execution^{59, 60, 61}

timely and effective.^{52, 53, 54, 55} That said, the forward staging of key joint force enablers prior to the U.S. Embassy Kathmandu and DART assessments could have shortened the deployment timeline.⁵⁶ ⁵⁷ Furthermore, on 25 April, the 3d Marine Expeditionary Brigade Command Element, as the designated USPACOM Alert Contingency MAGTF Headquarters, was poised to respond within six hours of an execution order from USPACOM.⁵⁸

Figure 7 (see previous page) depicts the execution timeline as defined by the JTF 505 Nepal HADR CONPLAN superimposed on the actual timeline executed by the U.S. Government and USPACOM. As this timeline demonstrates, upon activation of JTF 505 (C-Day in the JTF CONPLAN) by USPACOM, the actual key command and control, force flow, and force generation events closely aligned with the CONPLAN. Where the delay in execution occurred was the events prior to the activation of JTF 505 and the commencement of the flow of forces. Thus, the gap between the disaster and the activation of the JTF is an area where USPACOM needs to focus on closing if the response time of USPACOM is to be improved.

Engagement

USPACOM Theater Security Cooperation initiatives with Nepal's Government, Army, international humanitarian organizations, and the U.S. interagency facilitated an integrated, coordinated, and collaborative disaster response. There were hundreds of engagements with Nepal over the previous six years and although staff and participants changed, the U.S. military investment



Brig. Gen. Paul Kennedy greets Lt. Gen. Netra Behadur Thapa at the closing ceremony of the Pacific Resilience Disaster Response Exercise and Exchange field training exercise Sept. 12, 2013. Pacific Resilience is a civil-military disaster preparedness and response initiative between the Nepal Army, the Government of Nepal, III MEF and U.S. Army Pacific.

of time and resources established a network of mutual trust.⁶² The engagements between the U.S. and Nepal militaries created familiarity with one another's procedures and provided opportunities to learn how international humanitarian disaster response organizations operated.⁶³

The Nepal Army and the Government of Nepal credit the 2009 USPACOM/Multinational Planning Augmentation Team (MPAT) Tempest Express Exercise as the eye-opening event that introduced to them the complexities associated with responding to a complex earthquake in the Kathmandu Valley.^{64, 65} The Nepal Army highlighted the U.S. Army Pacific's (USARPAC) Disaster Response Exercise and Exchange (DREE) and the USPACOM/Multinational Communications Interoperability Program's (MCIP) Pacific Endeavor Exercise, along with the frequent III MEF leader and senior staff engagements, as specific examples that improved their disaster response capacity.⁶⁶ Follow-on national, interagency, and multinational planning efforts, disaster response training and capacity building, tabletop exercises, and international humanitarian organization seminars and key leader engagements further enhanced important relationships, while familiarizing stakeholders with the nuances of an integrated response effort.

Future engagements with the Indian and Chinese militaries might reduce the coordination challenges experienced during the Nepal Earthquake response.^{67, 68} The Royal Thai Armed Forces desire a process to expedite government-to-government requests for using Thailand as a support location for future HADR missions.⁶⁹ Other specific problems such as the coordination of over-flight permissions, expediting diplomatic clearances, customs, airfield and port operation, and collaboration with the UN cluster system merit inclusion in future engagements. All of these topics should be practiced in future HADR engagement activities.^{70, 71, 72}

The Nepal Army identified three specific areas where future United States military Security Cooperation activities could help improve their disaster response development: (1) streamline U.S.-Nepal bilateral cooperation procedures; (2) assist Nepal Army in upgrading disaster response capabilities; and (3) continue joint planning exercises.⁷³

Training and Exercises

FDR Operations will remain the 'most likely' U.S. military crisis response in the USPACOM AOR. Currently, there is no USPACOM-level, HADR-focused command post exercise or senior leader seminar designed to streamline staff actions and decisions. There is an assumption, stated by many staff officers, that USPACOM does not need to practice for a mission it executes regularly. Given the turnover of staff and leaders, this assumption is probably not valid.

Increasing the participation of senior USPACOM and component staff at the OFDA sponsored JHOC Course, the CFE-DM sponsored HART Course, and UNOCHA sponsored CMCOORD Course would improve understanding of the multinational, multi-agency, and interagency FDR environment. Brief, focused senior leader, HADR tabletop exercises would further identify decision points, refine critical information requirements, and increase familiarity with the most likely disaster scenarios.^{74, 75}

The knowledge of bilateral agreements and military response plans was limited amongst Nepal's many partners. The inclusion of border nation militaries into future bilateral TTXs and DREEs will

improve understanding, identify knowledge gaps, and emphasize the necessity for a coordinated regional response.^{76,77}

Assessments to measure the internal capacity of the most likely affected states can inform future training engagements and increase response timeliness. These assessments, conducted in conjunction with the affected state's military and national disaster management organizations, are essential to designing effective capacity-building programs. These assessments can focus USPACOM bilateral engagements and HADR exercises.⁷⁸ A number of organizations assess HADR capacity (e.g. CFE-DM and the J2 JIOC HADR Center for Excellence), but it is unclear how these assessments are integrated into training and exercise planning.

Command and Control /Cooperation and Collaboration

JTF Stand-up

The Commander, USPACOM designated MARFORPAC as the lead service component responsible for coordinating the combatant command's disaster response. After discussions with Lieutenant General Wissler, the Commanding General, III Marine Expeditionary Force (III MEF), Admiral Locklear activated JTF 505 and designated Lieutenant General Wissler as the JTF Commander.^{79, 80}

This decision differed from the initial USPACOM OPG staff estimate, which recommended employing a service task force to lead the disaster response. Discussing this decision with the JTF Commander after the operation, Lieutenant General Wissler said that he believed that the complexity of the Nepal disaster response warranted a JTF. A JTF provided greater authorities over assigned U.S. forces and enhanced coordination with U.S. government agencies, international organizations, and other supporting nations. The establishment of a JTF also streamlined command and control, allowing the JTF commander to address the unfolding operational situation directly with the Commander, USPACOM.^{81, 82, 83}

Furthermore, III MEF (JTF 505) had invested three years in developing the U.S. military response to an earthquake in Nepal, was familiar with key Nepal Army, Government of Nepal, and international leadership, and had conducted a set of detailed briefings in Nepal during November 2014 to review the alignment, synchronization, and expectations of the requisite plans.^{84,85,86} Therefore, it made sense, from an operational perspective, for the Commander, USPACOM to activate III MEF as JTF 505 to coordinate and execute the U.S. military response in Nepal.

Functional Component Command Structure

The United States Pacific Command transitioned to a Joint Functional Component Command structure in late 2013. However, the combatant commander did not employ the joint functional command structure during the planning for, and execution of, the U.S. military response in Nepal.⁸⁷ This may be due to circumstances where practice and staff process did not catch up to the new command structure. For example, the standing USPACOM Foreign Humanitarian Assistance

Concept of Operations did not address the responsibilities or authorities of the USPACOM Functional Commands in disaster response operations.⁸⁸ Executing disaster response operations using familiar, proven practices and organizations made sense.

For the future, is a joint force component command or a designated JTF a more appropriate structure during a rapidly developing crisis? Doctrinally, either option is feasible. Given the enduring role of the joint functional command structure during USPACOM Phase 0, Steady State Operations, senior-level discussions must address the scope of authorities, responsibilities, command relationships, and breadth of control for a functional command during the transition to a crisis response. Minimizing command disruptions during crisis response planning and execution, and increasing timeliness should be the primary decision criteria.

Interagency Coordination

The interaction between key leadership within USPACOM and the United States Agency for International Development/Office of Foreign Disaster Assistance (USAID/OFDA), coupled with the familiarity associated with conducting recurring foreign disaster response operations, enhanced coordination, collaboration, and alignment between all parties.^{89, 90, 91, 92, 93} The senior leadership within the JTF, U.S. Embassy Kathmandu, and USAID/OFDA praised the strength of this relationship for successfully addressing and resolving complex issues, and for ensuring the American response met the Nepalese requirements.^{94, 95, 96}



Lt. Col. Kenneth Hoffman, joint liaison officer, Bill Berger, DART team leader, and the U.S. Ambassador for Nepal Peter W. Bodde witness the 36th Contingency Response Group arrive bringing in a 28-man team May 5 at Tribhuvan International Airport. Photo by U.S. Marine Corps

The attendance of both the 3d Marine Expeditionary Brigade and III MEF staffs at the USAID/OFDA sponsored Joint Humanitarian Operations (JHOC) Course greatly enhanced their understanding of the roles and responsibilities of all parties operating in support of an FDR operation. Furthermore, the experience they gained responding to other regional disasters

strengthened their knowledge of FDR doctrine. The collective conclusion is that the real-world application of the doctrinally based processes for interagency coordination, and the understanding of roles and responsibilities therein, significantly streamline, and contribute to, an enhanced, synchronized, and aligned USPACOM response.^{97, 98, 99, 100, 101}

Improving collaboration between USPACOM and the Country Team is an area that bears

attention. Inviting the Senior Defense Officials/Defense Attaches (SDO/DATT) or the Office of Defense Cooperation (ODC) to participate in the USPACOM Operational Planning Group (OPG) (by phone or VTC) during the initial planning efforts can provide a platform to communicate a mutual understanding of the situation.¹⁰² A clear understanding of the roles, responsibilities, and expectations of the SDO/DATT and ODC during a disaster response would improve lines of communication between USPACOM and the Country Team. Furthermore, the USPACOM standing FDR JMD should address augmentation of the ODC as a means of assuaging the increase in operational tempo within the Embassy and enhancing communication with the Country Team. A case for augmenting the U.S. Embassy mission at the start of a disaster occurred during the Nepal disaster response. Two SOCPAC Operational Detachment-A Teams training in Nepal prior to the earthquake quickly transitioned to direct support of the U.S. Embassy staff. These professionals immediately identified where their expertise could assist the Embassy, providing organizational support that allowed the staff to gain and maintain continuity of operations.¹⁰³

USPACOM Foreign Humanitarian Assistance Concept of Operations

The USPACOM Foreign Humanitarian Assistance Concept of Operations provides the Combatant Commander's intent for the employment of military support in response to a foreign disaster within the command's area of operations. The evolution of this Concept of Operations created a general understanding within the USPACOM staff and component staffs, which positively influenced disaster response planning and execution in support of Operation SAHAYOGI HAAT. The next step in this planning evolution would be the development of a USPACOM Humanitarian Assistance/Disaster Response Concept Plan.

Arguments against the development of a concept plan point out that the GEF does not direct USPACOM to do so. An alternative to a USPACOM FHA Concept Plan is for the USPACOM Commander to direct components to develop country specific concept plans, similar to the JTF 505 Nepal HADR Plan. Aligning these country-specific concept plans with UNOCHA and USAID/OFDA planning for the most dangerous regional mega-disasters, would improve civil-military collaboration and planning during a disaster response.

Nepal, Myanmar, Bangladesh, the Philippines, and Indonesia are likely subjects for this planning.¹⁰⁴ The development of country specific plans facilitates creation of detailed information products, identifies capability gaps within the affected nation and the international humanitarian community, and ascertains requirements that USPACOM military forces might meet during a response. This planning effort would also influence security cooperation priorities and security assistance efforts.

The designation of a standing FDR JTF HQs is another issue that USPACOM leadership may want to discuss when updating the current FHA Concept of Operations. There is consensus among the service component leadership interviewed for this report that USPACOM should identify, train, and exercise a permanent standing foreign disaster response force or JTF HQs.^{105, 106, 107, 108} Although there is no consensus as to which functional or service component, or sub-component commands should receive this designation, the identification of JTF HQs to execute the most likely crisis response

operation in the Pacific Theater will reduce risks associated with ‘ad hoc’ joint force staffs, and will increase crisis response time.^{109, 110, 111, 112}

The development of an updated USPACOM FHA CONOPS, a new USPACOM HADR CONPLAN, or country specific HADR CONPLANS should be informed by the following:

- Definition of the USPACOM Functional Commands’ roles, responsibilities, and authorities from Phase 0 Steady State HADR-centric engagements through transition to FDR Crisis Response Operations;
- The U.S. Army Pacific effort to develop ‘Activity Sets’ in several South and Southeast Asian nations and the Marine Forces Pacific Proof of Concept to preposition and sustain equipment sets of military equipment in support of anticipated future FDR operations in the Philippines;^{113, 114}
- USPACOM Joint Lessons Learned Information System (JLLIS) comments identifying operational level shortfalls during the Nepal disaster response.

JTF 505 Nepal HADR Concept Plan

A USPACOM PLANORD dated 30 July 2010 directed development of the JTF 505 Nepal HADR Concept Plan.¹¹⁵ Production of the concept plan required an international, civil-military planning effort. A number of disaster readiness and tabletop exercises conducted with the Nepal Army, Government of Nepal Ministries and Agencies, international humanitarian organizations, and USAID/OFDA helped refine and align the American response with the projected Nepal Government requirements.^{116, 117}

By the time the JTF 505 JHAST arrived in Kathmandu, the Nepalese Army made adjustments in their coordination approach to support the reality of the response. Examples included the establishment of national operational sectors,^{118, 119} the Nepal Government decision to operate with assisting nations on a primarily bilateral basis,^{120, 121, 122, 123} and the Tribhuvan International



Royal Thai Gen. Surapong Suwana-adth, deputy chief of staff of the Royal Thai Armed Forces, shows U.S. Air Force Brig. Gen. Michael Minihan, commander of the Joint Air Component Coordination Element of Joint Task Force 505, the flightline during a visit to Utapao Royal Thai Navy Airfield, Thailand, May 9, 2015. A long-term USPACOM-Royal Thailand Armed Forces relationship allowed for a rapid standup of the Intermediate Staging Base. Photo by U.S. Air Force

Airport airfield management plan for coordinating the arrival, slot spaces, and departure of relief deliveries.¹²⁴ The flexibility of the responders and trust developed among the civilian and military participants during five years of planning surmounted these and other changes.

Future efforts to update and refine the JTF 505 Nepal HADR Concept Plan may want to explore expanding the identification of Intermediate Staging Bases beyond Utapao Air Base, Thailand to include airfields in and around Dhaka, Bangladesh.^{125, 126} Secondly, increasing the joint capacity of JTF 505 through the direct alignment of Air Force, Army, and SOF crisis response capabilities resident within USPACOM will further expand the joint operational reach of the command.^{127, 128, 129}

Effects and Strategic Communication

The USPACOM Strategic Assessment Working Group (SAWG) provided a timely and useful estimate of HADR tasks and conditions. No staff estimate or brief can perfectly assess an operational situation, but the SAWG assessment offered a concise, “snapshot” summary of how well the mission progressed. The SAWG tailored the FHA CONOPS assessment framework to meet the specific requirements of Operation SAHAYOGI HAAT.

Strategic messaging to the international public from USPACOM and its components included appropriate language and an accurate visual representation of the U.S. military response. USPACOM products supported the broader USAID/OFDA and U.S. Embassy Nepal messages.¹³⁰ At the outset of the JTF 505 response, the Public Affairs Officer for JTF 505 (Forward) initiated contact with the Director for Public Affairs for USAID in Washington, D.C. to ensure all parties were communicating the same themes and messages, and using the same social media tools, thus conveying U.S. objectives accurately and in a timely manner.¹³¹ This process encouraged a positive, trusting, and mutually beneficial partnership between all parties – to include the Nepalese Army Public Affairs staff.¹³²

Intelligence and Information Sharing

Intelligence Preparation of the Operational Environment (IPOE) is critical for decision makers and responding units during a disaster response. While there are unique aspects to an HADR operation, the military decision-making process and intelligence cycles do not change. Timely and accurate information remain fundamental to mission success, both for civilian and military leaders. The basic question “What is the situation?” drives all operations, to include a disaster response.

The first reporting after the 25 April 2015 earthquake was chaotic, similar to initial contact reports during a combat operation. First-hand reports conflicted, and the initial media coverage tended toward the sensational.¹³³ As is always the case during a major disaster, critical first responders and their families became victims, breaking the reporting chain and adding to the uncertainty experienced by national decision-makers. Maybe most importantly, the severe geography between the epicenter of the earthquake and Kathmandu complicated efforts to produce an effective estimate of the situation.

Previous planning identified critical information requirements needed to frame the situation for

USPACOM leaders.¹³⁴ For example, Daily Information Summaries published by JTF 505 included these standing Priority Information Requirements:¹³⁵

- Are there any forecasted weather events that may disrupt HADR operations or threaten Coalition Forces in the area of operations?
- What are the locations of concentrations of affected population in need of HADR support?
- What is the status of key infrastructure (HLZs, APODs, SPODs, LOCs, Bridges) needed to support HADR operations in the affected area?
- What are the threats (criminal, insurgent, terrorist, or medical) to Coalition Forces and the population within the affected areas?
- What are the Hazardous Material threats (industrial waste, environmental damage) to Coalition Forces and the population within the affected area?

The JTF 505 information requirements are similar to more detailed indications and warnings, and friendly force and priority information requirements published in the USPACOM FHA CONOPs.¹³⁶ Another set of information requirements for a major earthquake response is contained in the Multinational Guidelines for Information Support to Military Disaster Relief Operations.¹³⁷ While slightly different, all of these generic, standing information requirements seek to frame the disaster response problem for decision-makers and improve collaboration amongst the responding militaries and governments. However, given the extensive, pre-disaster planning conducted for a Nepal earthquake and response, a single set of specific information requirements linked to decision points ought to have been developed and shared.

A draft Annex B, information requirements, and various products developed to support the JTF 505 CONPLAN were produced prior to the recent disaster and available on III MEF NIPR and SIPR share portals.¹³⁸ There were excellent maps, images, and other products on the JIOC HADR GEOINT Center of Excellence portal (SIPR). The CFE-DM Nepal HADR handbook summarized the Nepal National Disaster Management Organization and plan. Unfortunately, many USPACOM staff officers were not aware that this information existed and it did not inform their planning.

There are other challenges associated with producing an effective IPOE for a rapid-onset disaster. Prior to the arrival of the United Nations UNDAC Team, USAID/OFDA Disaster Assessment and Response Team, and the USPACOM Joint Humanitarian Assessment Support Team, the most useful first-hand reporting came from disparate international humanitarians, the American Embassy Team in Kathmandu, and the USSOCPAC ODA Teams training in country. As expected, their direct observations proved invaluable, but limited.

Accurate, direct reporting improved as the Nepali government made contact with the more isolated areas and the communications chain reestablished itself with the deployment of more first responders. Commercial imagery, aircraft over-flights, and national technical means also broadened the HADR information collections effort for the JHAST and JTF.¹³⁹ Also, III MEF deployed a geospatial analysis team, including a qualified terrain analyst and imagery analyst, to provide time-sensitive geospatial analysis to the JTF Forward.

JTF 505 did not use the All Partners Access Network for unclassified information sharing and

collaboration during Operation SAHAYOGI HAAT. The majority of information sharing, planning, and reporting was performed on email and the JTF 505 NIPR SharePoint Portal.¹⁴⁰ The USPACOM and JTF information management plans, and the use of APAN as the primary DOD collaborative tool for unclassified information sharing during an HADR operation need clarification.

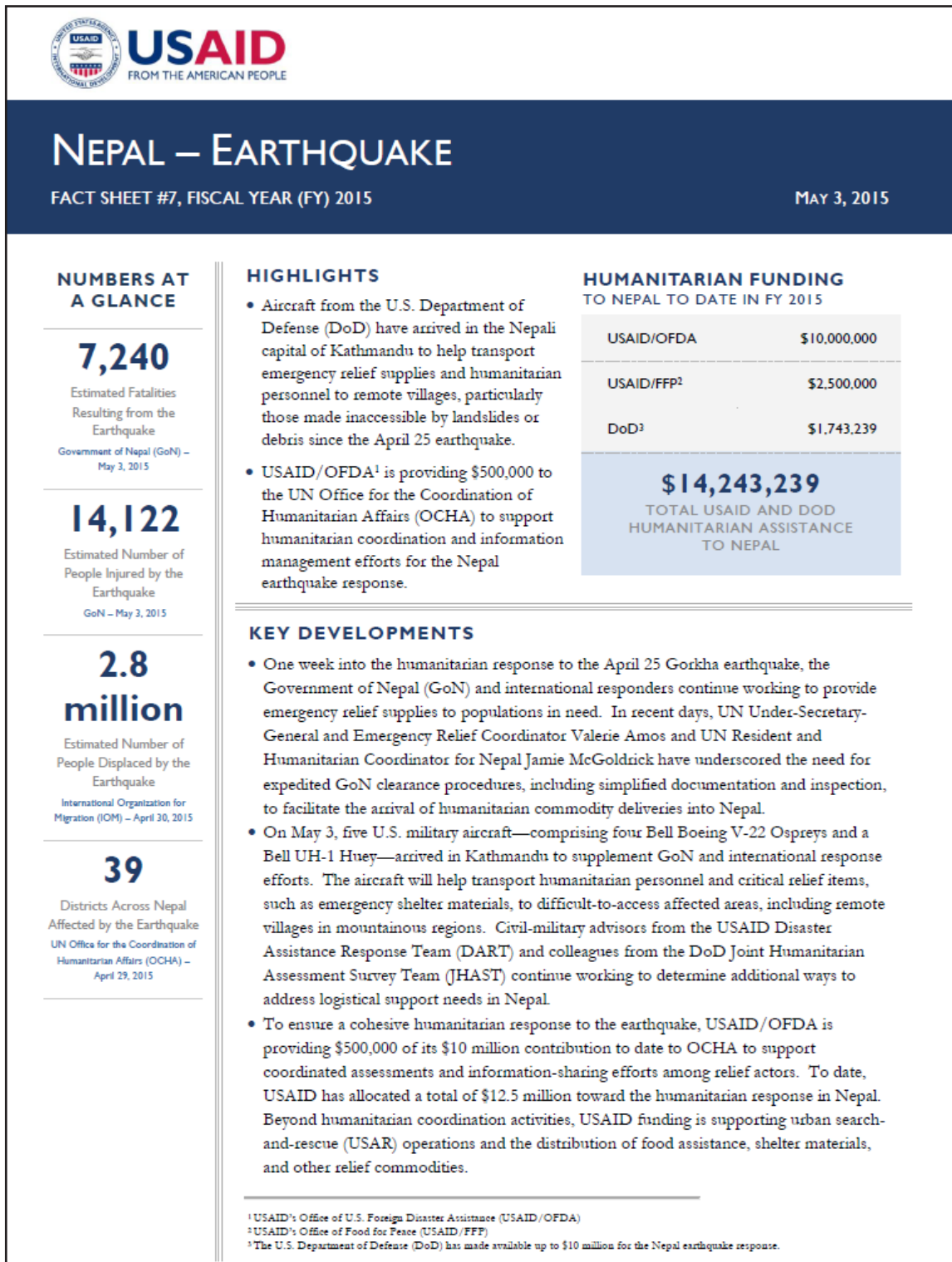


Figure 8: USAID/OFDA Information Summary

Other information sources improved understanding of the overall picture in Nepal and were available to support civilian and military decision-makers. The Pacific Disaster Center Emergency Operations (EMOPS) website provided continuous support for militaries, government agencies, non-governmental organizations, and private corporations. The USAID Fact Sheets (see Figure 8 example) summarized the situation on the ground very well. UN OCHA products provide another useful summary and served as models for HADR decision-support products. The CFE-DM Disaster Information Report performed a similar summarizing function. Sites like Humanitarian Response (humanitarianresponse.info) provided access to international humanitarian, governmental, and non-governmental reports regarding the post-earthquake situation.

The challenge for the USPACOM staff and other responding organizations was organizing this information, analyzing it, and turning it into useful decision-support products. A more formal IPOE, starting upon the first warnings or report of a major disaster, would better inform initial decision-making by both military and civilian U.S. Government decision-makers.

Developing an IPOE for a disaster is a labor-intensive process and takes time. One way to mitigate these challenges is to identify the most likely mega-disasters and build estimates during pre-disaster, Phase 0 activities. The JOC and JIOC would use these existing estimates to jump-start operational planning after a major disaster struck. Making this information available to USAID/OFDA and other partners would provide a valuable service, even if the U.S. military did not deploy.

Sustainment

Logistics/Contract/Agreements

A Status of Forces Agreement (SOFA), Logistics Support Agreement (LSA) or Acquisition and Cross-Servicing Agreement (ACSA) with Nepal would have enhanced the USPACOM disaster response.¹⁴¹ Responding nations employed their own logistics chains to support their contingents, increasing the required throughput at the Tribhuvan International Airport. Use of ACSAs to share logistical support amongst responding nations could have potentially reduced the overall footprint of the international response force. Furthermore, these agreements would enhance the ability of the joint force commander to provide military-to-military support during a disaster response.

Based on demonstrated success (e.g. support to the Armed Forces of the Philippines during multiple disaster responses), USPACOM needs to emphasize the value these arrangements offer.¹⁴² Getting an ACSA in place with Nepal, as well as other eligible, disaster-prone countries is a prudent measure. For countries that already have these agreements, USPACOM should ensure that they are current, appropriate (for example, there may be a SOFA but no ACSA), and that all deploying units are fully aware of them.^{143, 144, 145}

III MEF deployed a contracting team (contracting officer, disburser, and comptroller chief) as part of the JTF 505 Forward command element. This facilitated immediate contracting of critical services and supplies for the JTF Forward, including ground transportation, drivers, IT equipment, and bulk fuel.

Pre-disaster coordination and integration between the logistics and operational contract support community of interest provided for a timely, effective, and appropriately measured response. The enduring USPACOM Joint Contracting Support Board (JCSB) and stand-up of a daily Nepal response JCSB allowed for expedited posturing of forces/supplies while avoiding unnecessary competition of resources between responding agencies on the ground. This collaboration ensured effective consideration of second and third order effects across the political, social-economic, and operational landscapes.

Diplomatic Clearances/Overflight Restrictions

The JTF 505 Nepal HADR CONPLAN anticipated the over-flight coordination requirements needed to execute a disaster response operation (Vietnam, Cambodia, Thailand, Burma, Malaysia, China, India, and Bangladesh).¹⁴⁸ Upon initiation of FDR operations, the issue of diplomatic clearances and over-flight permissions should not be the responsibility of the deploying JTF

or service/functional components to coordinate, but should be addressed by the USPACOM staff. There was confusion during the USPACOM JPG as to whether the responsibility to coordinate over-flights permission fell on the USPACOM J5 Staff or JOC Air Operations.¹⁴⁹

The Oslo Accords specifically addresses the responsibility of transit nations

to assist and facilitate movement to an affected nation, which includes over-flight permissions and ground support (if necessary).¹⁵⁰ USPACOM should pursue with regional signatories to this accord the development of a more rapid support process. Concurrently, USPACOM may also want to pursue a blanket diplomatic clearance for humanitarian operations, similar to the ongoing ASEAN Regional Forum-Volunteer Response Force efforts.¹⁵¹



U.S. Marine V-22 Ospreys fly into Tribhuvan International Airport in Kathmandu, Nepal, May 3. Photo by U.S. Marine Corps

Intermediate Staging Base (ISB)

The Thai Cabinet officially approved on 7 May the use of Utapao as an intermediate staging base and the establishment of a Thailand – United States HADR Combined Coordination Center (CCC) for Nepal HADR Operations.¹⁵² The establishment of the HADR CCC for Nepal enhanced the U.S. and Thailand teamwork during the response.¹⁵³ Utapao, with existing Air Mobility Command (AMC) and support infrastructure, easily sustained large-scale and timely operations. More importantly, the skills and experience fostered from a long-term USPACOM-Royal Thailand Armed Forces (RTARF)

relationship allowed for a rapid stand-up of the ISB. This success with our ally grew from many years collaboration during Cobra Gold and other exercises.¹⁵⁴

The JTF 505 Joint Air Component Coordination Element (JACCE) worked closely with their Thailand Air Force counterparts to coordinate air operations. They also coordinated delivery of Thai logistics support to Nepal. U.S. military aircraft carried 14 pallets of blankets weighing over 30,000 pounds on two flights (U.S. C-130 and C-17) to Kathmandu on 20 and 21 May.¹⁵⁵

At the conclusion of operations, a combined JTF 505 and Royal Thailand Armed Forces After Action Review identified the following:^{156, 157}

- Include an Air Terminal Operations Center (ATOC) capability to improve the in-transit visibility of the cargo, and a staging manager for C-17 crews to better coordinate crew and aircraft operations;
- RTARF and the U.S. agreed that the integration of Thailand and American staff personnel in the combined coordination cell enhanced shared information and interoperability;
- The cooperation from RTARF and assistance for Thailand flight clearances and operations from Royal Thailand Navy (RTN) Air Division at Utapao and Royal Thailand Air Forces (RTAF) HQ were critical to the JTF-505 operational air bridge given the difficulty of gaining over-flight approval from India, Bangladesh, and Vietnam;
- RTARF plans to use Thailand-U.S. HADR Combined Coordination Center (CCC) for Nepal as an example to discuss the CCC concept in future operations and training events.

Conclusions

Nepal bore the primary burden for coordinating and responding to this disaster. The success of the response is strong testimony to the value of Nepali, International, USAID, and USPACOM pre-disaster preparations. As we plan future engagements, we need to keep this idea in mind: international civilian and military efforts filled critical gaps and reinforced the Government of Nepal during the initial crisis, but Nepal saved itself.

No plan survives first contact and the Nepal disaster response proves that old adage again. The civilian national disaster management structures functioned, but the initial international response coalesced around the Nepal Army's Multinational Military Coordination Center. Five years of USPACOM Theater Security Cooperation initiatives with regional partners, U.S. government organizations, and international agencies paid off. The pre-disaster planning effort built situational awareness and established positive relationships amongst the key participants. It is safe to say that these relationships allowed for swift adaptation and collaborative action when things did not go as planned.

As noted in this report, there are lessons to be learned and improvements to be made. However, in the end, U.S. Pacific Command ably supported the U.S. Ambassador to Nepal, USAID/OFDA, and the Nepal Army; and JTF 505 accomplished its mission.

Abbreviations and Acronyms

Acronym	Definition
3d MEB	Third Marine Expeditionary Brigade
III MEF	Third Marine Expeditionary Force
AAR	After Action Report
ACSA	Acquisition and Cross-Servicing Agreement
APAN	All Partners Access Network
APOD	Aerial Port of Debarkation
CFE-DM	Center for Excellence in Disaster Management
C2	Command and Control
COC	Command Operations Center
CONOPS	Concept of Operations
CMCOORD	Civil-Military Coordination
CMOC	Civil-Military Operations Center
DART	Disaster Assistance Response Team
DJFAC	Deployable Joint Force Augmentation Cell
DMHA	Disaster Management and Humanitarian Assistance
DOD	Department of Defense
ERC	Emergency Response Committee
FDR	Foreign Disaster Response
FHA	Foreign Humanitarian Assistance
GCC	Geographic Combatant Commands
GEF	Global Employment of the Force
HADR	Humanitarian Assistance and Disaster Relief
HART	Humanitarian Assistance Response Training
ISR	Intelligence, Surveillance, and Reconnaissance
JCBS	Joint Contracting Support Board
JHOC	Joint Humanitarian Operations Course
JIOC	Joint Intelligence Operations Center
JMD	Joint Manning Document
JMET	Joint Mission Essential Task
JOC	Joint Operations Center

Acronym	Definition
JPG	Joint Planning Group
JTF	Joint Task Force
JLLIS	Joint Lessons Learned Information System
LFA	Lead Federal Agency
LGU	Local Government Units
LOE	Lines of Efforts
MARFORPAC	U.S. Marine Forces Pacific
MITAM	Mission Tasking Matrix
MNMCC	Multinational Military Coordination Center
NOAA	U.S. National Oceanic and Atmospheric Administration
NRCS	Nepal Red Cross Society
OAA	Operations, Actions, and Activities
OCD	Office of Civil Defense
OFDA	Office of Foreign Disaster Assistance
OPG	Operational Planning Group
PLANORD	Planning Order
PRC	People's Republic of China
SITREP	Situation Report
SOP	Standard Operating Procedure
UN	United Nations
UN OCHA	UN Office for the Coordination of Humanitarian Affairs
UNDAC	United Nations Disaster Assessment Coordination
USAID	United States Agency for International Development
USG	U.S. Government
USPACOM	United States Pacific Command
WFP	World Food Program

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456 Hornet Avenue, JBPHH, Hawaii 96860-3503
(808) 472-0518 • (315) 472-0518 (DSN) • (808) 472-0382 (Fax)