



# The Crisis Response to the Nepal Earthquake: Lessons Learned

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This research paper is the result of a year-long effort to assess the disaster resilience of Nepal leading up to the earthquakes, and the response efforts, domestic and international. It was conducted by the European Institute for Asian Studies (EIAS) asbl. The report is researched, drafted and prepared by an EIAS team comprising – Morten Wendelbo (Associate Researcher), Federica La China (Programme Coordinator), Hannes Dekeyser (Programme Coordinator), Leonardo Taccetti (Associate Researcher), Sebastiano Mori (Associate Researcher), Varun Aggarwal (Junior Researcher), Omar Alam (Fellow), Ambra Savoldi (Junior Researcher) and Robert Zielonka (Programme Coordinator). We would also like to acknowledge all the experts consulted, and the companies and agencies that contributed to this report.

This report expresses the views of the authors and not the views of the European Institute for Asian Studies.



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## **LIST OF ABBREVIATIONS**

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ACDM	ASEAN Committee for Disaster Management
ACTED	Agency for Technical Cooperation and Development
ADB	Asian Development Bank
AEPC	Alternative Energy Promotion Centre
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AJK	Azad Jammu Kashmir
AOC	Air Operations Cell
ASEAN	Association of Southeast Asian Nations
BSNC	Bharat Sanchar Nigam Limited
CAAN	Civil Aviation Authority of Nepal
CAO	Civil Aviation Office
CAP	Consolidated Appeal Process
CARE	Cooperative for Assistance and Relief Everywhere
CERF	Central Emergency Response Fund
CFE-DMHA	Centre for Excellence in Disaster Management and Humanitarian Assistance
CFUG	Community Forestry User Group
CNDRC	Centre Natural Disaster Relief Committee
CSO	Civil Society Organisations
DART	Disaster Assistance Response Team
DDR	Disaster Risk Reduction
DDRC	District Disaster Relief Committee
DNPWC	Department of National Parks and Wildlife Conservation
DoF	Department of Forests
DoSCWM	Department of Soil Conservation and Watershed Management
ECHO	European Community Humanitarian Office
EIAS	European Institute for Asian Studies
EOC	Emergency Operation Centre
ERAT	ASEAN Emergency Rapid Assessment Team
ERC	Emergency Relief Coordinator
ERCC	Emergency Response Coordination Centre
ERRA	Earthquake Reconstruction and Rehabilitation Authority

FAO	Food and Agriculture Organization
FECOFUN	Federation of Community Forestry Users Nepal
FRC	Federal Relief Commission
FTS	Financial Tracking System
GFDRR	Global Facility for Disaster Reduction and Recovery
GLOF	Glacial Lake Outburst Flood
GNDR	Global Network of Civil Society Organizations for Disaster Reduction
GoN	Government of Nepal
GoP	Government of Pakistan
HAS	Humanitarian Staging Area
HFA	Hyogo Framework for Action
IAF	Indian Air Force
IASC	Inter-Agency Standing Committee
ICSO	International Civil Society Organisations
IDRC	International Disaster Response Law
IFRC	International Federation of Red Cross and Red Crescent Societies
INSARAG	International Search and Rescue Advisory Group
KPK	Khyber Pakhtunkhwa
LoC	Line of Control
MNMCC	Multinational Military Coordination Centre
MoCTCA	Ministry of Culture, Tourism and Civil Aviation
MoFALD	Ministry of Federal Affairs and Local Development
MoFSC	Ministry of Forest and Soil Conservation
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
MRE	Meal Ready-to-Eat
MSF	Médecins sans Frontières
MTNL	Mahanagar Telephone Nigam Limited
NATO	North Atlantic Treaty Organisation
NBC	National Building Code
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Framework
NDRRM	National Disaster Rapid Response Mechanism

NDRRM	National Disaster Risk Reduction and Management
NEOC	National Emergency Operation Centre
NPC	National Planning Commission
NPR	Nepalese Rupee Rate
NRB	Nepal Rasta Bank
NRCS	Nepal Red Cross Society
NRF	NATO Response Force
NRRC	Nepal Risk Reduction Consortium
NSDRM	National Strategy for Disaster Risk Management
NSET	National Society for Earthquake Technology
NTNC	Nepal Trust for Nature and Conservation
OCHA	Office for the Coordination of Humanitarian Affairs
OSOCC	On-Site Operations Coordination Centre
PA	Protected Areas
PDNA	Post Disaster Needs Assessment
PDNA	Preliminary Damage and Needs Assessment
PLA	People's Liberation Army
REOC	Regional Emergency Operation Centre
SAARC	South Asian Association for Regional Cooperation
SAR	Search and Rescue
SDMC	SAARC Disaster Management Centre
SDMRAF	SAARC Disaster Management Rapid Action Force
SEARHEF	South East Asia Regional Health Emergency Fund
TIHA	Taiwan International Health Action
TIA	Tribhuvan International Airport
UK DFID	UK Department for International Development
UN	United Nations
UNDAC	United Nations Disaster Assessment and Coordination
UNESCO	United Nations Educational Scientific and cultural organisations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
USAR	Urban Search and Rescue

VDC	Village Development Committees
WFP	World Food Programme
WHO	World Health Organisation
WoT	War on Terror

## **FOREWORD**

Nearly a year ago, the first in a series of destructive earthquakes struck Nepal. In the two largest earthquakes alone, on April 25 and May 12, nearly 9,000 Nepalese lost their lives, and another 22,000 were injured. The many who escaped without physical harm were still likely to see their lives change permanently as more than 800,000 homes were partially or completely destroyed. To this day, millions of Nepalese still live in temporary dwellings, many of them made from the emergency tent materials distributed by international donors, without basic and lifesaving amenities. In the past year, more than 400 major aftershocks have rocked the country, and they continue still.

This report is the result of a year-long effort to assess the disaster resilience of Nepal leading up to the earthquakes, and the response efforts, domestic and international. The report is researched and written with an eye toward informing Nepal's reconstruction efforts, and improving future response efforts, both domestic and international. The majority of the take-away lessons put forward herein are relevant to other disaster-prone countries dealing with all kinds of natural disasters as well – and they are important lessons for domestic governments and international donors alike.

The most salient lesson, perhaps, is the clear evidence that what made Nepal's experience a disaster was not inevitable. With a better response and a higher level of resilience, thousands of lives would have been saved, and millions of people would not have seen their lives transformed. That is, of course, good news. It is indeed possible, through targeted action, to reduce a natural disaster to a mere natural phenomenon. With greater resilience, the next major earthquake to strike Nepal will not go unnoticed, but it also will not change the life of an entire nation.

More than a dozen researchers from a multinational and multidisciplinary team at the European Institute for Asian Studies contributed to this report. Evidence used here is gathered from the academic literature, supported by expert testimonies, expert seminars, conversations with international responders and domestic planners, news sources, primary data collection on the ground in Nepal and many other sources. It is a comprehensive, though by no means exhaustive, look at what caused such high levels of damage in Nepal and surrounding areas, and at what we can learn from it so more lives can be protected from harm in the future.

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## EXECUTIVE SUMMARY

The response to the earthquakes in Nepal was among the strongest in history, seen from an international perspective, and given the severity of the calamities. Dozens of countries came to the aid of Nepal, some of them, such as India and Pakistan, within a few short hours. Nonetheless, an unnecessary amount of people were killed, injured or otherwise had their lives permanently altered. This report details many of the challenges experienced by international and Nepalese actors before, during and after the disaster. Here, the main findings are briefly summarized.

Overall, three major themes are persistent throughout: 1. Insufficient preparation for a natural disaster of this magnitude, 2. lack of information and dissemination thereof, 3. Lack of effective coordination at all levels of resilience and response.

**Planning:** Nepal was actually engaged heavily in planning for resilience to natural disasters, but these efforts did not take off fast enough that it made much of a difference. Across all metrics for disaster resilience, especially for a country as disaster-prone as Nepal, efforts fell well short of what is commonly held to be necessary. The frameworks, rules and regulations that were indeed in place, were neither fully funded nor subsequently fully enforced.

**Building codes:** Nepal has an extensive set of scientifically sound building codes, based on the norms in other disaster-prone countries. However, these building codes are not enforced, even though it is estimated that very few lives would have been lost if most buildings fulfilled even basic building requirements. The building codes, developed with international donor assistance are hollow if the Nepalese government does not possess the capability to ensure their use.

**Household damage:** Despite the international and domestic focus on infrastructure and public facilities, the vast majority of the damage accrued to individual, and often rural, households, and reconstruction efforts should reflect this.

**Conflict:** The majority of the damage occurred in districts that also experienced the majority of the conflict during the 1996-2006 armed conflict in Nepal, where infrastructure and government reach is poor.

**Logistical challenges:** Nepal possesses only one international airport with the capability to receive international aid. International aid was bottlenecked there for so long that rescue efforts were mostly for naught, with some international rescue teams returning home without ever leaving the airport. Other transport infrastructure, even without earthquake damage, was insufficient to support aid entering from outside at this one point alone.

**Communication:** In the case of natural disasters, communication technology is paramount to a coordinated and informed response. Damage estimates must be made locally and transmitted to the central authorities, while instruction for responders and the population must be disseminated from the central authorities. Nepal's communication infrastructure crumbled, both literally and figuratively, during and after the major earthquakes. This was especially troublesome because Nepal's response apparatus is set to operate from local responders, who could not communicate with the authorities. This also meant that international responders entered the country blind, without knowing where their assistance was most needed.

**Domestic Civil Society:** Civil Society Organisations (CSOs) participated extensively and often filled the gaps that

domestic and international responders left. However, although these organisations were crucial and should be supported, the main objective should be to avoid the gaps in the official response. That is, CSOs should not be primary, but rather secondary responders.

**International Civil Society:** International Civil Society Organisations (ICSO) lack local knowledge necessary to respond effectively to disasters. On occasion, entry of certain ICSOs were actually detrimental to the emergency response and recovery efforts by employing responders, drivers and so forth to carry out ineffective and locally inappropriate projects. ISCOs, despite good intentions, should be discouraged from operating within disaster struck countries without oversight or cooperation by local authorities and/or local CSOs.

**Social Media:** Social media was used extensively, to the extent that the communication networks could support the traffic. The central government should use social media to reach out, inform and coordinate emergency management. Much of the damage (and bottlenecking at the international airport) occurred because many Nepalese had access to very little information on how to behave in the immediate aftermath – social media appears to be the most efficient way of disseminating that information, but using social media effectively requires dedicated staff in government departments.

**Regional coordination:** The bottlenecking of international responders in Tribhuvan International Airport was exacerbated by no coordination among the arriving responders – particularly the early arrivals from India, Pakistan and China. Response time is clearly of the essence, but in this case the quick response made coordination difficult. We propose to create a standardized response mechanism, with norms for response coordination – led by trained local staff.

**Politicization of emergency response:** Taiwanese response teams were turned away because of diplomatic hurdles with China in a situation where Nepalese lives were at stake. Humanitarian response should be universally recognized as apolitical under international charters, and countries such as China should recognize the efforts of other entities without pursuing other diplomatic goals, in the interest of saving lives.

**Misplaced response focus:** International responses, whether private or government sponsored, often favour high-visibility response efforts such as K9 rescue dog teams, even while other responses are much more efficient at saving lives and supporting reconstruction. In some cases, these inefficient types of aid have perverse consequences – K9 rescue teams are, for example, very costly in terms of local resources (they need lodging, large amounts of food in an already food scarce situation, require extensive transportation). Greater efforts to support disaster struck countries *based on need* should be emphasized across the board.

**Insincere and unhelpful pledging practices:** After the earthquakes, pledges of support for both resilience and response flooded in – some 4 billion USD within a month or so of the first quake. However, in the vast majority of cases it was unclear which form this support would take. Loans, interest free loans, in-kind aid, tied aid, or some other form. In many cases, the money pledged also did not translate into support delivered. As the Government of Nepal planned recovery efforts, they were severely hampered by a lack of follow-through by international donors, not just because support did not actually arrive, but because the lack of faith in pledged made planning difficult.

**Remittances:** Nepal's economy is already very dependent on remittances from diaspora all over the world, particularly India, Europe, the United States and

Australia. However, in the immediate aftermath remittances significantly increased. In the year since, the level of remittances has remained higher, and they dwarf the financial contributions of international donors. Facilitation of remittances, such as subsidizing transfer fees, establishing local branches of remittance companies, is an effective way of supporting locally driven development because remittances are more likely to flow to individual households to whom the majority of damage accrued.

**Migrant returns:** A large share of Nepal's most skilled labour works abroad temporarily, and is the source of most remittances. In the aftermath of the disaster, many attempted to return home to help out family members and friends – their skilled labour highly valuable to the country – but most were unable to do so. Aid efforts should support these temporary migrant returns. Out-migration

subsequently occurs in the long run because a much higher level of income is necessary for families to recover – and economic opportunities were not available in Nepal. Most of this immigration is temporary and should be encouraged.

**Military-Civilian coordination:** In nearly every country in the world, a single domestic organization has the prerequisite skills and infrastructure to respond to severe disasters: the military. This is particularly true because logistics are of great importance to any response, and militaries, by virtue of their mandate, specialize in logistics, and they have the vehicles necessary to distribute aid. Any civil government coordination bodies, and civil society responders *must* be able to work with the military apparatus. Having clear guidelines for military/civil interaction in place before a disaster is paramount to an efficient response.

## 1. DOMESTIC EMERGENCY RESPONSE

### 1.1 THE FULL SCALE

Nepal is among the twenty most disaster-prone countries in the world. Several factors such as its geophysical structure, complex geology, unfavourable climatic conditions, and frequent tectonic movements make this country extremely vulnerable to a wide range of natural hazards. The most common and most devastating disasters in Nepal are landslides, floods, droughts and earthquakes: in the past hundred years, floods have caused the most in damages, droughts have affected the largest number of people and earthquakes have caused the most deaths.<sup>1</sup> The country's geographical location on the Alpine-Himalayan seismic belt – where approximately the 17 per cent of the world's largest earthquakes occur – makes Nepal the eleventh most earthquake-prone country in the world.<sup>2</sup>

Furthermore, Nepal's geographical location and its adverse topographic setting constitute large barriers for the overall development of the country. The Himalayan mountain range and the perennial rivers in the north, the cold deserts in the inner Himalayan valley, and the lowland plains in the south represent great physical hurdles for upgrading transportation, infrastructure and utilities throughout the country. Furthermore, its terrain makes it extremely difficult to connect the remote rural regions – some of which are not served by any kind of land transportation systems – during regular times, not to mention during post-disaster states of emergency. The 7.8 magnitude earthquake, which struck Nepal on April 25 2015, is a prime example of how challenging it is to provide a reliable disaster needs assessment and implement an effective relief and emergency response in a country such as Nepal.

The estimated total cost of the disaster, comprised of damages and losses, caused by the series of earthquakes amounts to NPR 706 billion (EUR 6.3 billion), of which NPR 517 billion (76 per cent of the total effects) is the value of destroyed physical assets, and the remaining NPR 189 billion (24 per cent) reflects the other losses arising from the disaster.<sup>3</sup> The most affected sectors are the social and economic activity sectors (58 per cent of the total effects), followed by productive sectors (25 per cent), infrastructure (10 per cent) and cross-cutting issues (7 per cent).<sup>4</sup> Furthermore, damages and losses are not evenly distributed between public and private sectors (predominantly individual households), the latter suffering about 3.3 times more than the public sector.

The following section aims at giving a brief overview of the full scale of the disaster, touching upon the infrastructure sectors (community infrastructure, housing, transport, communication and sanitation), social sectors (health, nutrition, education and cultural heritage), productive sectors (agriculture, commerce and tourism), and cross-cutting issues (gender equality and social inclusion).

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<sup>1</sup> According to the Nepal Disaster Management Reference Handbook: "In the past 100 years, earthquakes have caused the most deaths of all natural disasters. However, floods have cost the most in damages at upwards of USD \$1 billion for a total of 50 reported events. In terms of total persons affected, drought is the most severe, affecting nearly 5 million people since 1915." Center for Excellence in Disaster Management & Humanitarian Assistance (2015). *Nepal Disaster Management Reference Handbook*.

<sup>2</sup> The Kathmandu Valley experiences a major seismic activity every 70-80 years.

<sup>3</sup> "The effects of the disasters illustrate that the estimated value of total damages and losses (changes in flows) is equivalent to about one third of the Gross Domestic Product (GDP) in FY 2013-2014". Government of Nepal National Planning Commission (2015). *Nepal Earthquake 2015 Post Disaster Needs Assessment – Volume A: Key Findings*, p. xiv.

<sup>4</sup> Ibidem.

### 1.1.1 Infrastructure sectors

The earthquakes caused extensive housing destruction. About 500,000 houses were destroyed and more than 250,000 were partially damaged. The devastation impacted residential and government buildings, transportation infrastructure, heritage sites, schools and health facilities, water supply systems and hydropower plants. The widespread and large-scale impact resulted primarily from the lack of construction regulations and seismic resistant infrastructure. The majority of the buildings in Nepal do not follow the National Building Code (NBC): despite being approved by the government in 2003, enforced in 2005 and serving as a legally binding document in all 130 municipalities, such regulation is not applied to towns and villages, which follow the Village Development Committees (VDCs).<sup>5</sup> As a result of inefficient implementation, monitoring and a lack of resources, most of the buildings and homes are not in compliance with national regulatory mechanisms and thus extremely vulnerable to damage from earthquakes and other natural disasters.<sup>6</sup> Naturally, this low-cost small-scale 'community infrastructure' is socially and economically linked with the livelihoods of the region, as it ensures basic services and fundamental needs to the community. It is important to note that, because this local micro-infrastructure building process is a community-driven initiative, its post-disaster recovery is dependent on the local populations in the same way. This presents significant challenges and makes the recovery process a complex undertaking.

Legal and procedural requirements present a massive regulatory obstacle in Nepal: despite Nepalese legislation that allows the acquisition and use of land for emergency shelters in the aftermath of a disaster, burdensome bureaucratic processes hinder its efficacy.<sup>7</sup> Although steps have been made over the years to improve construction standards<sup>8</sup> and to spur economic development<sup>9</sup>, little has been done to help the Nepalese government improve the country's inadequate infrastructure and create employment to increase resilience to natural disasters.

Nepal's topography makes internal transportation very challenging. Many hilly regions are devoid of land transportation systems and are very difficult to access, which leaves air connections the most reliable option to link major urban areas. Air transportation in Nepal is well developed with over 50 airports categorised into four types<sup>10</sup>: Remote/high altitude airport, Remote/hilly airports, Terai/Low land airports, and one international airport.<sup>11</sup>

Several institutions and organizations – including the Civil Aviation Authority of Nepal (CAAN), the Tribhuvan International Airport (TIA) and the Civil Aviation Office (CAO) – have been making great strides to ensure better preparedness and immediate post-disaster recovery.<sup>12</sup> However, in the aftermath of the April 2015 earthquake, difficult conditions, logistics problems and coordination challenges hindered aid efforts considerably. In the first hours after the disaster, mostly all the ground search and rescue teams were concentrated in Kathmandu,

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<sup>5</sup> For more information, please visit <http://www.eqclearinghouse.org/2015-04-25-nepal/2015/05/05/nepal-national-building-code-nbc-an-overview/>

<sup>6</sup> Most of them are built by the owner with the help of a local mason and they are made of bricks with either a concrete or mud mortar. *PDNA Guidelines*, Volume B.

<sup>7</sup> Nepal Disaster Management Reference Handbook, p. 78.

<sup>8</sup> National Building Code 1994; Building Act 1998, Disaster Management Reference Handbook (2015), p. 78.

<sup>9</sup> Immediate Action Plan for Economic Development and Prosperity 2012 (2015). *Disaster Management Reference Handbook*, p. 70.

<sup>10</sup> For the full list, please see Disaster Management Reference Handbook (2015), p. 72.

<sup>11</sup> In 2014, The Tribhuvan International Airport, Nepal's only International Airport, was ranked the third worst in the world. For more information, please visit <http://edition.cnn.com/2015/10/19/aviation/worlds-worst-airports-2015/>

<sup>12</sup> Nepal Risk Reduction Consortium (2012). *Tribhuvan International Airport*

*Disaster Response Plan*. Retrieved from

[http://www.flagship2.nrrc.org.np/sites/default/files/knowledge/TIADRP\\_final\\_v1-2.pdf](http://www.flagship2.nrrc.org.np/sites/default/files/knowledge/TIADRP_final_v1-2.pdf)

while the remote rural areas in the central and western regions of the country remained isolated due to road damage and obstructed mobile connectivity. International aid only entered Nepal via Tribhuvan Airport in Kathmandu. Ultimately, timely relief outreach and support of people in danger are crucial factors after the occurrence of a natural disaster, making logistics a key concern.

Among the most critical logistics concerns, telecommunications and ICT are key sub-sectors not only because the ability to communicate is vital in emergency and post-disaster situations, but also because disruption compounds the damage to the economic infrastructure. While telecommunications in Nepal were significantly affected<sup>13</sup>, service providers managed to restore nearly all their networks. For the long-term recovery strategy, the goal is to rebuild a resilient communication infrastructure and a services sector that is capable of meeting the needs of a digital Nepal.

The damages to the infrastructure sector also included water sources and sanitation services.<sup>14</sup> The disruption and dysfunction of water supply and wastewater treatment negatively affected not only the economic activities, but also impacted health standards, especially for women who take on the responsibility of 75 per cent of all household water management.<sup>15</sup>

### **1.1.2 Social sectors**

The health sector suffered severe damages and losses.<sup>16</sup> As over 80 per cent of the affected health facilities are located in the worst hit districts<sup>17</sup>, the ability of these institutions to face the needs of local populations was heavily compromised, with severe consequences for victims requiring immediate treatment, and for post-earthquake recovery in general. Despite poor access to healthcare in Nepal, the country has undergone many positive developments in the past decades. Quality healthcare does, however, still remain out of reach to many sections of the population. Some of the reasons for this include the inaccessibility of remote health facilities, and also inequities inherent to caste and ethnicity-based culture. This ultimately undermines the healthcare of the most marginalised people.

In Nepal, nutrition is inextricably linked to healthcare, as nutrition-specific interventions are often provided through health facilities and community-based services. Under-nutrition has been, and still is, a major and persistent problem for Nepal. Nutrition is dependent on several other sectors including agriculture, water, hygiene and education. According to a post-earthquake assessment, consumption practises devolved into acute malnutrition in the hardest hit districts. However, due to longer-term factors such as food insecurity (chronic malnutrition), poor sanitation and quality of water, insufficient hygiene and disease outbreaks, the consequences tend to manifest themselves gradually in the aftermath of an earthquake. For this reason, the immediate concern goes to those sections of the population that require

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<sup>13</sup> In the field of communications, the total damages and losses in economic flows are estimated at NPR 3.6 billion (USD 36.10 million) and NPR 5 billion (USD 50.85 million), respectively. The cost of recovery and reconstruction is estimated at NPR 4.9 billion (USD 49.39 million). Government of Nepal National Planning Commission (2015). *Nepal Earthquake 2015 Post Disaster Needs Assessment – Volume A: Key Findings*, p. 36.

<sup>14</sup> "The net total value of damages and losses to the water and sanitation sector is estimated at NPR 11.4 billion at pre-disaster prices, of which NPR 10.5 billion pertains to infrastructure and physical assets." Government of Nepal National Planning Commission (2015). *Nepal earthquake 2015 - Post Disaster Needs Assessment - Vol. A: Key Findings*, p. 45.

<sup>15</sup> Ibidem, p. 46.

<sup>16</sup> 446 health facilities were completely destroyed, including five hospitals, 12 Primary Health Care Centers (PHCCs), 417 HPs and 12 others. In the private sector, 16 health facilities were destroyed. PDNA Volume B (2015), p. 21.

<sup>17</sup> For the complete list, please visit <http://karuna-shechen.org/wp-content/uploads/2015/06/list-of-affected-districts.pdf>

special attention because of specific nutritional needs, namely pregnant and lactating women, and children.<sup>18</sup>

The education sector in Nepal – one of the largest government departments both in terms of the total population served and in terms of annual budgetary allocations – has suffered a total of about NPR 28,064 million (about EUR 240 million) in damages to its infrastructure and physical assets, with the impact primarily affecting the public sector.<sup>19</sup> According to the Post Disaster Needs Assessment (PDNA), more than 80 per cent of the damages and losses occurred in the 14 most hit districts: 8,242 public schools have been affected, with 25,134 classrooms fully destroyed and 22,097 partially damaged; private schools also experienced high levels of damage, with 956 classrooms destroyed and 3,983 partially damaged.<sup>20</sup>

It is important to note that the consequences would have been more severe had the earthquakes struck on a weekday, instead of a Saturday afternoon, the weekly holiday. However, while the consequences of the earthquake on physical assets and infrastructure are relatively easy to determine, the assessment becomes more complicated when considering long-term education processes. In the short to medium term, a decline in learning outcomes has been predicted, not only due to the complete closure of schools and colleges for an extended period of time, but also due to psychological ramifications resulting from the displacement of families and the post-disaster emergency situation as a whole. Although much data collection is still necessary, preliminary findings by some researchers show that the earthquakes can account for significant drops in enrolment and attendance in primary and middle schools in some of the hardest hit districts.<sup>21</sup> Nepal does have bright spots despite setbacks caused by the earthquakes. There is improved access, parity and efficiency in school education, including improved levels of gender equity in enrolments at all school levels, and increased overall literacy rate over the past decade. Priorities and strategies for early recovery should now be devoted to strengthening systemic capacity and improving the non-structural aspects of the education system.

During the recent earthquakes, Nepalese cultural heritage suffered its worst loss since the 1934 earthquake. In Kathmandu's seven World Heritage Monument Zones – designated as such by UNESCO the United Nations Educational, Scientific and Cultural Organisation (UNESCO) – major monuments were critically damaged and many were completely destroyed. About 2,900 structures with cultural, religious, social and historical heritage value were affected, and the total estimated damages amount to NPR 16.9 billion (about EUR 157 million).<sup>22</sup> Cultural heritage is a huge draw for tourism in Nepal, and as such its preservation occupies a very important place for the work of the Ministry of Culture, Tourism and Civil Aviation (MoCTCA). However, some urban development programmes have shown a progressive shift from preservation to modernisation recently, causing an accumulation of sites that require restoration. The loss of tangible cultural heritage is linked to the loss of intangible heritage and the country's identity: loss of traditional dwellings will have an impact on people's daily life, just as the damage to temples and religious sites will affect daily worship, rituals, celebrations, and community culture. For this reason, a new rationale is needed for repairing, restoring, reconstructing and protecting all the monuments and sites. Doing so requires reviewing laws and investment procedures, and professional and logistical support.

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<sup>18</sup> 250,000 children and 135,000 pregnant and lactating women were affected by the earthquake in the 14 districts. PDNA Volume B (2015), p. 37.

<sup>19</sup> Of the total effect, 92 per cent is born by the public sector and only 8 per cent by the private sector. Ibidem, p. 49.

<sup>20</sup> Ibidem, p. 52.

<sup>21</sup> Brewer et al. (Forthcoming). Bush School of Government and Public Service, Texas A&M University.

<sup>22</sup> PDNA Volume B (2015), p. 65.

### **1.1.3 Productive sectors**

In the agricultural sector – which constitutes about one-third of the national GDP – roughly one million small farming households across 24 districts were adversely affected, with especially grave consequences for those managed by women and the elderly.<sup>23</sup> Except for the Kathmandu Valley, the regions affected by the earthquake are mostly rural and heavily dependent on agriculture and livestock. This dependency gives us a first indication of what, where and how much should be invested during the recovery and reconstruction phase. Farmers have suffered widespread loss of crops, seeds and agricultural tools, in addition to the estimated 25 per cent of livestock animals lost. Key agricultural and irrigation infrastructure was damaged or destroyed. In the post-disaster context, approximately 3.5 million people required immediate food assistance, drastically increasing the vulnerability of rural communities to food insecurity.<sup>24</sup> The influx of women into the agricultural sector, a necessary consequence of the massive male migration to cities in Nepal or abroad, means that women in rural areas face the toughest challenges in the recovery process. Moreover, their vulnerability is linked to the fact that they have very limited access to land ownership, and almost no other alternative livelihoods from which to choose. The same is true for minorities and caste-based communities.

Industry and commerce sectors are among the major contributors to Nepal's economic development. Prior to the earthquakes, industry and commerce sectors provided the majority of employment opportunities. In a country where services account for over half of the nation's GDP, the disruption of enterprises affected these productive sectors in many ways. On top of the damage to trade-related infrastructure, other disruptions are linked to a decrease in production capacity, lack of labour and reduced demand for goods. Tourism has also been adversely affected after the earthquakes, which occurred during one of the two high seasons of the year. Seven out of ten World Heritage sites and major trekking routes were negatively impacted, destroying tourism-related services and infrastructure, and decreasing the tourist influx. The negative consequences are likely to have an impact on the Nepali tourism industry for the next couple of years, as a tourism contraction of approximately 40 per cent has been predicted for the next 12 months, and 20 per cent for the following 12 months.<sup>25</sup>

### **1.1.4 Cross-cutting sectors**

The 2015 earthquakes not only showed the country's vulnerabilities with regard to human development indicators and weak governance systems, but it also highlighted some of the major inequalities involving gender and social inclusion.

As detailed previously, Nepal's central and western regions are characterised by a high female population due to massive male out-migration. As a result, the responsibility of restoring the economic and social sectors in these areas relies heavily on women. Burdened by a disproportionate amount of responsibilities, women have been heavily affected by the disaster. Addressing the issues of gender equity, social inclusion and social protection becomes very important to help reduce the consequences for the most disadvantaged groups and enhance their resilience.

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<sup>23</sup> Ibidem, p. 79.

<sup>24</sup> Ibidem, p. 81.

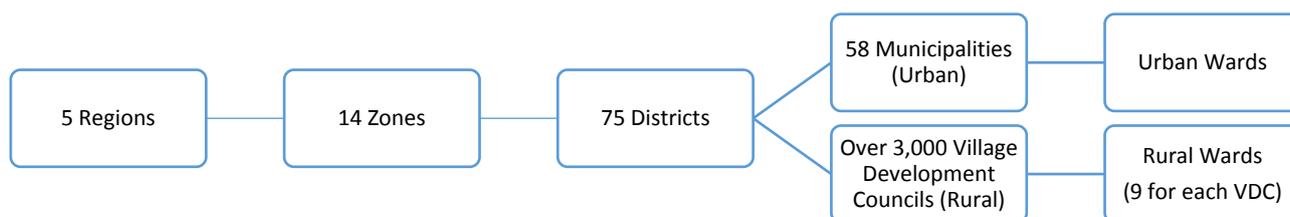
<sup>25</sup> Ibidem, p. 115.

The earthquakes had a negative impact on the livelihoods of approximately 2.29 million households and 5.6 million workers in 31 districts.<sup>26</sup> The worst hit sector was agriculture, followed by tourism, commerce and industry. The reconstruction and recovery phases represent the best opportunity to boost employment growth and create jobs.

## 1.2 THE DECISION-MAKING PROCESS

Nepal's political, legal and administrative structures are extensively equipped with emergency tools and procedures in Disaster Risk Reduction (DRR), a sign that the country learns from and responds proactively to the frequent natural hazards to which it is exposed. Over the past decades, the decision-making process during a state of emergency has been reviewed and improved through constant updating, institutionalising the hierarchy of accountability and assigning responsibility in domestic response. On paper, the framework is comprehensive, as it includes the emergency response management as well as the more long-term, resilience-enhancing countermeasures and prevention projects.

Although Nepal is structured in five developmental macro-regions, the local authorities and smaller governmental bodies have a greater impact and more responsibilities, due to the extensively delegated administrative structure of disaster relief. The administrative structure is thus defined:



Significantly, beyond the actual emergency response, it is at the Village Development Council level that most projects are developed and implemented, even down to Community Based DRR projects.

By delegating arrangements and projects to a local level, Nepal aims to equip even the most rural and remote parts of the country with the right DRR tools and mechanisms. Building community-level capabilities has been a core objective of the Nepalese Ministry of Federal Affairs and Local Development (MoFALD)<sup>27</sup>: it is reported that standardisation of said projects and practices occurred in most municipalities and villages by January 2015, with joint-projects targeting Risk Sensitive Land Use and crop/livestock insurance with the Ministry of Agriculture Development, and finally providing the technology necessary for communication and early warning systems. However, this decentralised approach to decision-making and implementation at a community level has proved lacking in the aftermath of last spring's earthquakes.

As highlighted by the PDNA 2015<sup>28</sup>, although it has been noted how family networks and organizations at a community level have proved valuable in the first stages of recovery, real development of local level resilience is still at an early stage. Low levels of socio-economic development in some areas of the country and Nepal's complex topography have been named as contributing factors. On the one hand, beyond the closed family network, cultural

<sup>26</sup> Ibidem, p. 211.

<sup>27</sup> Center for Excellence in Disaster Management & Humanitarian Assistance, *Nepal Disaster Management Reference Handbook*.

<sup>28</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

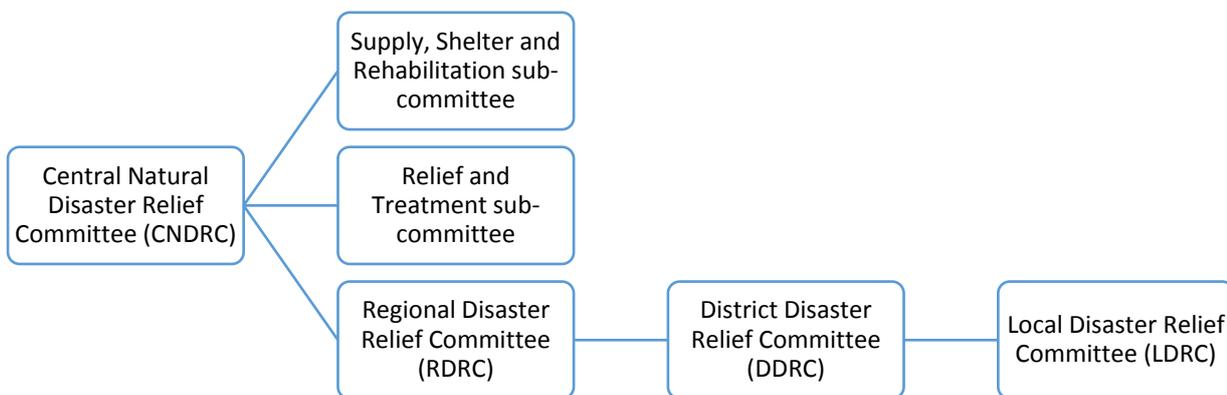
differences and low literacy levels prevent effective implementation of community-based projects; moreover, language and gender discrepancies within communities negatively impact participation of all members in the local level management of DRR projects.

On the other hand, spatial disparities between areas affect the capability of DRR planning across the Nepalese territory. This makes the most remote areas simultaneously the most vulnerable to ill management of projects due to a lack of information and accessibility. Consequently, these rural areas are the most vulnerable to damages caused by natural disasters. In this respect, the most important areas for development in the short and medium term are related to road connectivity and ICT rehabilitation. Decision-making processes rely heavily on the micro-level of community-based projects and organisations. In the long term, this could prove effective at building resiliency once the present social and spatial hurdles are resolved.

### 1.2.1 A tiered structure

From a legal perspective, the first major instrument for disaster management was the **Natural Calamity Relief Act 2039 of 1982**, which was then amended in 1992. Under this law, the Government of Nepal is responsible for formally stating which areas are in danger, labelling them as 'disaster areas' and publishing the list in the Nepal Gazette. Once an area has been labelled through this process, the Government is entitled to emergency jurisdiction over it: for example, it can require any governmental body to assist in the emergency phase or confiscate property (while offering compensation) that could be of use in relief assistance.

Moreover, the Calamity Relief Act created the coordination mechanisms from the Ministry of Home Affairs (MoHA) – the body leading all activities related to DRR by **Work Division Regulation 2064** – to local District officers, pairing them up with equivalent-level Disaster Relief Committees. The legal basis for local response was strengthened by the **Local Self-Governance Act (1999)**.



The Centre Natural Disaster Relief Committee (CNDRC), once briefed, urges the Nepalese Cabinet to declare a state of emergency in order to activate funds and coordination mechanisms. The CNRDC is chaired by the Minister of Home Affairs and counts among its 22 members various Ministers (Finance, Foreign Affairs, Defence, Home and Population, Education etc.), representatives from departments including Meteorology, Health Services, Urban Development, Nepalese Army and Police Forces and other governmental and non-governmental bodies (Nepal Red Cross Society and Nepal Scouts, for example).

A similar tiered structure (National, Regional, District, Local) is used for Emergency Operation Centres, which deal with data collection and analysis during emergencies. The National Emergency Operation Centre in Kathmandu operates as secretariat for the CNDRC. For

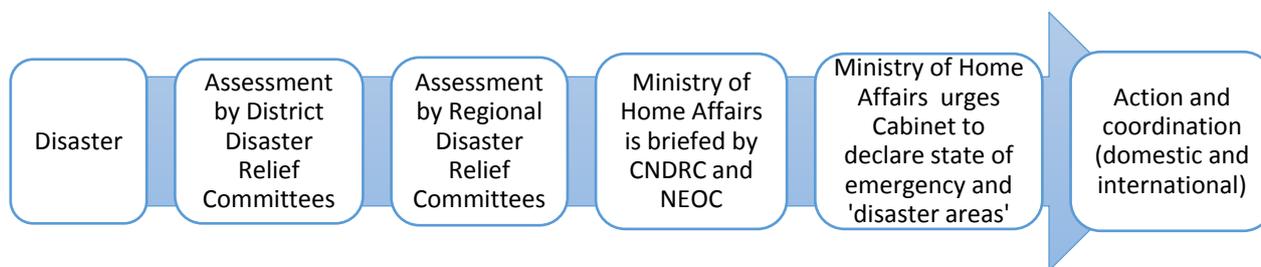
example, it drafts the first recommendations to the committees for response and action, such as search and rescue activities. Finally, the National Emergency Operation Centre (NEOC) is in charge of communication between the CNDRC and other coordinating authorities such as the Onsite Operation Coordination Centre (OSOCC - in charge of domestic and international coordination) and the Multinational Military Coordination Centre (MNMCC), which becomes automatically active during emergencies.

The **National Strategy for Disaster Risk Management (NSDRM)** (2009-2010) was the result of combined efforts and consultations between the National Society for Earthquake Technology (NSET) and a Nepal Risk Reduction Consortium (NRRRC) created for the occasion, with members such as the World Bank, the Asian Development Bank, the International Federation of Red Cross and Red Crescent Societies, the European Commission and the United Nations Development Programme.

The strategy established the National Council for Disaster Management (with the Prime Minister as Chair, the Minister of Home Affairs as Vice-Chair and other ministers as council members) as the node of coordination/monitoring activities through the National Disaster Management Authority (NDMA), which has a secretarial role, equipping it with the power to pressure the government of Nepal to declare a state of emergency and push forward DRR policies.

### 1.2.2 A new framework

Nepal's National Disaster Response Framework (NDRF) of 2013 replaced the previous laws and regulations, including them in a single DRR framework, in order to formulate a "*National Disaster Response Plan that clarifies the roles and responsibilities of Government and Non-Government agencies involved in disaster risk management*".<sup>29</sup> It expands the power of the Ministry of Home Affairs as the main actor for emergency management under this decision-making framework:



### 1.2.3 Other mechanisms

The Prime Minister's Disaster Relief Fund, established by the **Prime Minister Natural Disaster Relief Fund Regulation 2064**, is "*used for rescue, treatment, relief, rehabilitation of victims and restoration of physical infrastructure damaged by natural disaster and calamities.*"<sup>30</sup> The funds are supervised by the Auditor General of Nepal, to ensure accountability and transparency.

All operations undertaken through this fund are guided by the related Regulations (2006) document and managed by the Central level through a Committee, chaired by the Vice-Chair of the National Planning Commission (NPC) and made up of eight secretaries from key

<sup>29</sup> Government of Nepal – Ministry of Home Affairs (July 2013). *National Disaster Response Framework*. Retrieved from [http://www.flagship2.nrrc.org.np/sites/default/files/knowledge/NDRF\\_English%20version\\_July-2013.pdf](http://www.flagship2.nrrc.org.np/sites/default/files/knowledge/NDRF_English%20version_July-2013.pdf)

<sup>30</sup> Nepal Prime Minister's Disaster Relief Fund. *About Prime Minister's Disaster Relief Fund*. Retrieved from <http://pmrelief.opmcm.gov.np/about.aspx>

Ministries. Funds are then established and released following the same structure as the Disaster Relief Committees and Emergency Operation Centres (Central, Regional, District, Local EOCs), after approval of the MoHA.

Finally, a **Government Cluster Mechanism** establishes the coordination between domestic clusters of ministries and international agencies in structuring the emergency response and drafting DRR policies on short- and long-term bases. The 11 clusters are: Health; Water, Sanitation and Hygiene; Shelter; Food Security; Logistics, Education; Protection; Telecommunication; Nutrition; Early Recovery Network; Camp Coordination and Camp Management.

The decision-making process within the domestic response to emergencies in Nepal is highly structured. It is meant to reach all areas of the country, whether urban or rural, once they are affected by a disaster. It attempts to establish an effective network of data sharing, assessment and response at all levels. A balance of power and responsibilities between the leading body in DRR response, the MoHA, and local bodies, in coordination with the Emergency Operation Centres of corresponding level<sup>31</sup>, is achieved through the delegation of projects and assessment.

Improvements in the decision-making process should address the coordination mechanisms and data/knowledge sharing. According to the PDNA, coordination will be achieved and fostered at the different administrative levels within specific governmental clusters, which would then communicate among each other through the EOCs. Moreover, although the local levels are granted extensive powers in times of emergency response and disaster relief, an assessment of effectiveness and scope of their activities should be conducted, in order to further extend the capillarity of intervention and feedback channels in all districts of the country. In fact, in the concluding remarks of the PDNA, the role of local governance is further stressed as critical, and special institutional mechanisms to monitor this process have been promised by the Government of Nepal. Independent monitoring agencies are also mentioned to achieve the best programme management outcomes.<sup>32</sup>

### 1.3 MOBILISATION

The clearest outline of the domestic mobilisation mechanism is found in the NDRF published by Nepal's MoHA in March 2013. The document outlines a detailed timeline for disaster response, listing all the actions that should be carried out during emergencies and appointing governmental bodies as leaders and coordinators on the ground, alongside UN agencies involved in humanitarian relief.

Immediate mobilisation is activated during the first hour after the earthquake and continues for one month after the earthquake.<sup>33</sup> Among the first tasks, information and data about the scale, hazards and priorities must be communicated effectively. The Nepalese National Seismologic Centre is the starting point for all such assessments, drawing from information collected by the District Disaster Committees and other organisations at the lowest administrative level, with a bottom-up framework. The NEOC and the MoHA then take over, calling for meetings and handling media communication to the population about emergency warning and on-going rescue operations.

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<sup>31</sup> The Government of Nepal, *National Disaster Response Framework*.

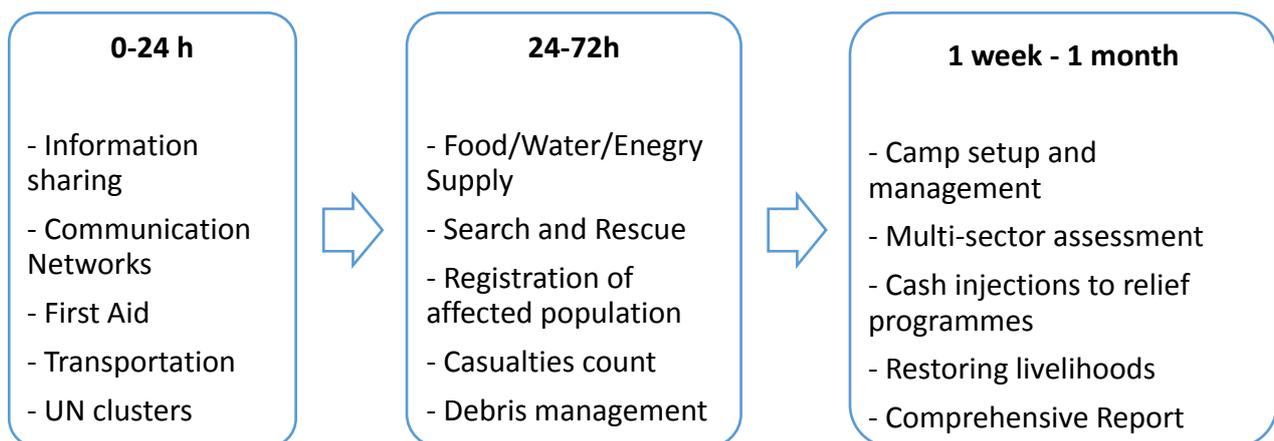
<sup>32</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

<sup>33</sup> Government of Nepal – Ministry of Home Affairs (March 2013). *National Disaster Response Framework*. Retrieved from

<http://www.ifrc.org/docs/IDRL/2011%20National%20Disaster%20Response%20Framework%20%28unofficial%20translation%20%29.pdf>

The first 24 hours are crucial for achieving the best management of earthquake response. Governmental clusters responsible for health emergencies are activated and coordinate with security forces and hospitals to provide emergency first aid; agents of transportation and road safety clusters activate to ensure fire brigades, air and ground security all have access to every area of the country. At the same time, the UN cluster system is allowed to intervene right after the Nepalese Government declares a state of emergency.

Summary of the NDRF Mobilisation Timeline:



Within 48 hours after the earthquake, clusters in charge of supplying food, electricity and water and ensuring transport and movement of goods and people should establish a solid response network. The mechanism is therefore fully active: registration of the affected population and the establishment of camps and emergency centres operate alongside the collection and management of waste, debris and casualties among the human population and livestock. These activities are continuously upgraded and implemented in the week following the earthquake: the clusters communicate with Disaster Relief Committees at local levels, arranging special protection for the most vulnerable – usually children and the elderly – preventing tension in the new camps and fostering equal access to resources and relief items. Meanwhile, the outcomes and hurdles of emergency response are monitored and addressed on the ground, leading to an initial report that is circulated among members of the relief and assistance teams.

Within a month, according to the NDRF, healthcare and education provision should be operational, in order to promote an easy and quick recovery of livelihoods. Moreover, more funding is made available for relief support of the affected population, while the Ministry of Home Affairs drafts and publishes a “comprehensive report of disaster incident, search and rescue operation, relief and immediate assistance, camp management and rehabilitation initiatives”.<sup>34</sup>

### **1.3.1 Availability of critical infrastructure<sup>35</sup>**

It is clear that the NDRF relies heavily on the efficient and complete availability of critical infrastructure, which must be easily accessible and promptly upgraded to support full-scale emergency phases. As evidenced during the earthquakes in 2015, much of this infrastructure

<sup>34</sup> Ibidem.

<sup>35</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

was still unplanned or unavailable. An example of the key role that critical infrastructure plays is the Tribhuvan International Airport in Kathmandu: a new Humanitarian Staging Area was opened in March 2015, as a joint project between the MoHA, the Civil Aviation, the UK Department for International Development (DFID) and the World Food Programme (WFP).<sup>36</sup> Designed to serve as a hub for delivering humanitarian assistance and goods specifically designed for emergencies, it facilitated distribution in the aftermath of April's earthquakes. Another example is the efficient usage of public spaces for setting up transit shelters near Kathmandu, as outlined in the DRR plans.<sup>37</sup>

At the same time, infrastructure is also one of the most vulnerable sectors during natural disasters, as it is easily disrupted when events such as an earthquake occur. Therefore, its availability and *quality* are the foundations of good disaster prevention and response, since most human casualties from natural disasters are linked to the persistence of unsafe infrastructure.<sup>38</sup> In Nepal's case, public infrastructure suffered relatively little compared to the damages and losses in the private sector (overall, the PDNA calculated losses for the latter to be 3.3 times higher than that of the public sector).<sup>39</sup> This can be seen in the fact that most public infrastructure, concentrated in urban areas, has been frequently upgraded through DRR plans. In comparison, rural areas received less support in pre-disaster times, and showed worse resilience capability during emergency, suffering the largest damage in terms of infrastructure, economic and human losses.

This explains the renewed importance of resilience building and infrastructure strengthening at all administrative levels and in all areas of the country, with a more evenly distributed approach to resources. Projects targeting the reconstruction of physical and non-physical infrastructure are, in fact, also at the heart of the efforts pledged to rebuild after last spring's earthquakes: examples of this are an emergency telecommunications network strategy and an integrated ICT network to cover rural areas.<sup>40</sup>

According to the PDNA (2015), critical infrastructure sectors include electricity supply, communications, community infrastructure, transport infrastructure and water and sanitation supply. To this list, it is possible to add other physical infrastructure – either private or public – such as buildings and emergency camps that should be made available in the first hours, days and weeks of disaster response phases. After the earthquakes, it became immediately clear that most critical infrastructure was not adequately ready for a disaster of such magnitude: many infrastructure sectors of affected districts in rural areas were damaged to the point of non-recoverability.<sup>41</sup> Roads, bridges and trails suffered the most damage, making search and rescue and transportation operations difficult to complete; in more rural areas, water resources were disproportionately disrupted, further highlighting how the availability of critical infrastructure is varied across the country. This must be targeted through projects enhancing connectivity and communication between areas.

As detailed in the NDRF, the availability of ICT and Telecommunications is key to emergency management and information sharing; at times of disaster relief, other infrastructure sectors need to be ready and equipped to provide emergency-contingent services and products. In order for this to happen, constant renewal, transparent maintenance and inspection must be

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<sup>36</sup> World Food Programme (2015). *Nepal Opens First Humanitarian Staging Area, Built With Government & UK Aid Support*. Retrieved from <https://www.wfp.org/news/news-release/nepal-opens-first-humanitarian-staging-area-built-government-uk-aid-support>

<sup>37</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

<sup>38</sup> World Economic Forum, The World Bank, United Nations International Strategy for Disaster Risk Reduction (2008). *Building Resilience to Natural Disasters: A Framework for Private Sector Engagement*.

<sup>39</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

<sup>40</sup> Ibidem.

<sup>41</sup> Ibidem.

put into place in the resiliency-building phases of reconstruction, inevitably linking this aspect of disaster management to good governance, accountability and transparency at the political level.

#### 1.4 CIVIL AND PUBLIC RESPONSE

Civil society and public responses played a key role during all phases of the earthquake aftermath, starting from the search-and-rescue efforts to the resiliency-building stage. It is worth noting that civil society organisations (CSOs) tend to be extremely proactive in educating the public about disaster preparedness and community-based risk management, empowering the local population, creating spaces for dialogue and interaction, and by promoting self-help mechanisms.<sup>42</sup>

In fact, CSOs usually cover the gap between national policies and local implementation, by reducing costs, making change acceptable to communities and improving the overall human capital. Moreover, domestic groups such as those active in Nepal, are usually embedded in a network of partnerships at the international level, which improves the quality of their work on the ground. For example, the Global Facility for Disaster Reduction and Recovery (GFDRR) is a network that proved valuable in coordinating and channelling donations to Nepalese CSOs in the past years and in times of emergency.<sup>43</sup> Another network affiliated with GDRFF, the Global Network of Civil Society Organisations for Disaster Reduction (GNDR), lists among its members 18 local civil society organisations in Nepal.<sup>44</sup> Finally, another believer in the power of domestic institutions is the World Bank, which has a dedicated Social Resilience and Climate Change Group.<sup>45</sup>

Among the CSOs that were active on the ground, the Nepal Red Cross Society (NRCS) was part of said partnerships and had an important impact during last spring's events. They initially coordinated with Nepalese authorities (as also envisaged in the NDRF, CSOs and international organisations to provide emergency services such as healthcare, shelter and basic household items, and then became the channel for cash distribution and restoration of livelihoods.<sup>46</sup>

On 12 June 2015, the NRCS held an earthquake-planning meeting in Kathmandu to assess the quality of the intervention up until that point, together with the government and other stakeholders from the world of CSOs.<sup>47</sup>

Another important role of CSOs in times of emergency is that of managing communication between humanitarian organisations and the public. Traditional and social media became the

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<sup>42</sup> Sanderson, D. and Ramalingam, B. (2015). Nepal Earthquake Response: Lessons for Operational Agencies. *ALNAP Report*. Retrieved from <http://www.alnap.org/resource/20140>

<sup>43</sup> Among the partnerships and strategies aimed at domestic civil society organizations in Nepal, for example, between 2010 and 2012, "GFDRR awarded a USD 600,000 contract to the International Federation of Red Cross and Red Crescent Societies and the Nepal Red Cross Society to build flood resilience using a community-based approach, benefitting at least 70,000 people in the Kosi Basin." Global Facility for Disaster Reduction and Recovery (2014). *Annual Report*.

<sup>44</sup> The list includes: Mercy Corps Nepal, National Society for Earthquake Technology, Disaster Preparedness Network Nepal, Plan Nepal, Handicap International, OXFAM Nepal, DanChurchAid, Friends Service Council Nepal, Narayan Municipality, The Lutheran World Federation Nepal, Focus ED Nepal, Youth UNESCO's Club, Tribhuvan University, Home And Life Foundation, AIN Task Group On Disaster Management & Climate Change, Sajha Foundation, Practical Action Integrated Effort For Development Nepal, Human Rights Social Awareness And Development Center. Global Network of Civil Society Organisations for Disaster Reduction (2015). DRR Data Mapping Project. Retrieved from <http://gndr.simbiotica.es/#ASS/NPL>

<sup>45</sup> The World Bank (2015). *Social Development*. Retrieved from <http://www.worldbank.org/en/topic/socialdevelopment>

<sup>46</sup> Nepal Red Cross Society (2014). *World Disasters Report. Focus on local actors, the key to humanitarian effectiveness*. International Federation of Red Cross and Red Crescent Societies. Retrieved from [http://www.nrscs.org/sites/default/files/resources/World-Disasters-Report\\_2015.pdf](http://www.nrscs.org/sites/default/files/resources/World-Disasters-Report_2015.pdf)

<sup>47</sup> Nepal Red Cross Society (2015). *Earthquake Planning Meeting Started*. Retrieved from <http://www.nrscs.org/updates/earthquake-planning-meeting-started>

channels to share disaster-related information with affected people. For example, NRCS updated its Facebook page consistently to engage affected and non-affected communities: for the first group, by sharing practical advice on healthcare and immediate disaster response concerns, and explaining how to register missing people or search for relatives and friends.<sup>48</sup> For the latter group, CSOs websites such as that of NRCS were (and still are) mobilised to share updated news and establish online donation payment systems.

Covering the more traditional means of communication, local CSOs had access to radio coverage, although on a rather limited basis: NRCS broadcasted twice a week on its frequencies<sup>49</sup>, although these channels were often shared among different organizations and the public to 25 community radio stations. Nepal Telecom, one of Nepal's leading telecommunication companies, reacted with an early warning text message service for earthquake survivors to better prepare for the coming monsoon season. Similarly, Facebook launched a Nepal Earthquake Safety Check status update for users in the area and a 'friends finder option', while messaging and chatting giants Viber and Skype provided similar coverage and services. Two State-run Indian Telecom companies (which also cover Nepal), Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL), as well as a private one, Idea Cellular, decided to charge local rates for calls to Nepal.<sup>50</sup>

The response of domestic CSOs in Nepal was often compared to that of international organizations on the ground, and some key areas of tension and room for improvement were quickly identified. The main issue has been the lack of contextual understanding on the international organisations' side, an area where domestic CSOs could have directed teams and expertise on the ground, had communications between the domestic and international sides been clearer and more structured.<sup>51</sup>

This was visible in the most remote areas, where better coordination could have meant better service to those in need, and where cases of duplication or under-distribution of aid and effort occurred. The lack of coordination and communication also resulted in a lack of coherence in responding to the crisis. For example, international medical staff were not adequately trained or briefed on the local context. In other situations, different teams neglected some isolated areas to cover others with additional distribution of goods and healthcare, unaware of the efforts already undertaken.<sup>52</sup> The level of inequality in assistance and aid received is also clear when considering those areas that are closer to main roads or transportation networks compared to remote communities. In order to avoid what happened last spring, domestic CSOs should call for an inclusive response, with NGOs pulling in different directions, so as to establish an efficient and streamlined relief mechanism.

An important pre-requisite for an effective recovery programme is continuous engagement with the affected communities. Given the fact that the people of Nepal demonstrated a high level of self-awareness and resilience capabilities in their reaction to the disaster, recovery should follow a people-based approach relying on local skills and expertise. The participation of the community as a whole will also increase the inclusion of women in the consultations, improving their role in local Nepalese society. As highlighted by the PDNA 2015, involving

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<sup>48</sup> Nepal Red Cross Society (2014). *World Disasters Report. Focus on local actors, the key to humanitarian effectiveness*. International Federation of Red Cross and Red Crescent Societies.

<sup>49</sup> Ibidem.

<sup>50</sup> NDTV Gadgets (2015, April 26). *Earthquake in Nepal - How Tech and Telecom Companies Are Extending a Helping Hand*. Retrieved from <http://gadgets.ndtv.com/internet/news/earthquake-in-nepal-how-tech-and-telecom-companies-are-extending-a-helping-hand-685816>

<sup>51</sup> CIVICUS (2015). *State of Civil Society Report*. Retrieved from <http://reliefweb.int/report/world/2015-state-civil-society-report>

<sup>52</sup> Nepal Red Cross Society (2014). *World Disasters Report. Focus on local actors, the key to humanitarian effectiveness*. International Federation of Red Cross and Red Crescent Societies.

youth and overseas migrants will be extremely beneficial during the recovery and reconstruction phase. Nepal is in the process of developing an efficient people-based resilience system. In fact, Nepal implemented the community-based early warning system for hazards, which demonstrated their effectiveness in facing floods and glacial lake outbursts. Notwithstanding the institutional commitment in this regard, the early warning system at national and local levels still did not achieve comprehensive or substantial results in responding to the earthquakes.<sup>53</sup>

Finally, the public response in Nepal has been subject to many news headlines and insight reports, showing how pervasive the culture of resilience and response is in the Nepalese society. Rhetoric focused on how “small, independent initiatives have flourished”, including private and volunteer efforts.<sup>54</sup> Therefore, it should be concluded that CSOs need strengthening from government authorities and support from international organisations, with the latter recognizing the guidance role that domestic actors from the civil society can assume in the recovery process during times of emergency and resilience building.

## **2. INTERNATIONAL EMERGENCY RESPONSE**

### **2.1 THE FULL SCALE**

#### **2.1.1 The regional intervention**

Nepal’s neighbouring states, lacking the regional infrastructure to act together, were forced to respond to Nepal’s disaster on their own. National Disaster Forces Response teams were deployed by several states in a short time. India was the first to send rescue teams and aid in massive quantities within six hours of the event. From April 25 to June 4, the “Operation Maitri” (Friendship) was critical in deploying an immense amount of relief material and forces to Nepal. The Indian Air Force (IAF) immediately intervened, airlifting thousands of stranded persons and landing tonnes of relief material and equipment.

Likewise, Pakistan sent aircraft forces with relief and assistance packages in the immediate aftermath of the disaster.<sup>55</sup> However, good intentions on the part of both countries and the rivalry between them ensued in a sort of “aid race”. This resulted in negligent errors, including the delivery of MREs (Meal Ready-to-Eat) by Pakistani forces containing beef, which is forbidden for consumption in the predominantly Hindu nation of Nepal.<sup>56</sup> Fostering greater coordination and cooperation on disaster responses at the SAARC level could avoid such potential mistakes resulting in a more effective delivery of humanitarian aid and avoiding an offensive image of the overall relief support.

Also Chinese Search and Rescue (SAR) forces intervened in the first 24h to provide aid to Nepalese population. The rescue team arrived on Sunday morning, together with a group from the People’s Liberation Army (PLA) and a second 58-members medical team arrived on

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<sup>53</sup> Center for Excellence in Disaster Management & Humanitarian Assistance (2015). *Nepal Disaster Management Reference Handbook*. Retrieved from <http://reliefweb.int/sites/reliefweb.int/files/resources/disaster-mgmt-ref-hdbk-2012-nepal.pdf>

<sup>54</sup> Prashant, J. (2015, May 5). Recovery in Nepal. *The New Yorker*. Retrieved from <http://www.newyorker.com/news/news-desk/recovery-in-nepal>

<sup>55</sup> An army field hospital, doctors, 3,000 meals ready-to-eat (MREs), 1,725 tents and 15 community shelters were provided by Pakistan during the initial phase of disaster relief. Jinnah Institute (2015, May 14). *Jinnah Institute’s Roundtable on ‘Natural Disasters and SAARC Protocols: Lessons for Pakistan’*. Retrieved from <http://jinnah-institute.org/jinnah-institutes-roundtable-on-natural-disasters-and-saarc-protocols-lessons-for-pakistan/>

<sup>56</sup> Khan, O. F. (2015, April 30). Pakistan sends food with beef masala to Nepal, blames Indian media for row. *The Times of India*. Retrieved from <http://timesofindia.indiatimes.com/world/pakistan/Pakistan-sends-food-with-beef-masala-to-Nepal-blames-Indian-media-for-row/articleshow/47111961.cms>

Monday.<sup>57</sup> However, the deployment of Taiwanese rescue teams was refused, even if the country has strong capabilities in disaster recovery and relief. Instead, Nepal accepted a team from Taiwan International Health Action (IHA) and medical equipment.<sup>58</sup>

**Table 1. Neighbouring States' Initial Intervention**

Neighbouring States	Initial Funds	Aid Provided	Time Frame
Bangladesh	-	6 medical teams; relief material; 100,000 tonnes of rice; drinking water <sup>59</sup>	0-24h
Bhutan	USD 1 million	37-member medical team <sup>60</sup>	0-48h
China	USD 3,2 million (CNY 20 million)	62-member SAR team <sup>61</sup>	0-24h
India	-	One C-130J aircraft, two C-17 and one IL-76, airlifting 295 NDRF personnel, 46.5 tonnes of load and five sniffer dogs. <sup>62</sup>	6h
Maldives	USD 50,000 <sup>63</sup>	-	0-48h
Sri Lanka	-	First rescue contingent: 44 army personnel, including 4 civil medical consultants. <sup>64</sup>	0-24h
Pakistan	Set-up a specialized Relief Fund	04 C-130 plane-load of relief assistance, 50 doctors, 38 member SAR team and a 30-bed hospital <sup>65</sup>	0-24h

### 2.1.2 The international intervention

The international assistance will be provided only after an explicit request by the disaster-affected country in order to respect its sovereignty. According to the UN General Assembly resolution 46/182, a number of UN mechanism facilitate the coordination and deployment of international aid, such as the Central Emergency Response Fund (CERF), the Consolidated Appeal Process (CAP), the Emergency Relief Coordinator (ERC) and the Inter-Agency Standing Committee (IASC).<sup>66</sup> The international emergency response provided in the initial 24h from the disaster is essential to save more lives and bring relief supplies to displaced people.

<sup>57</sup> China Daily (2015, April 27). *4,000 Chinese stranded, army sent to help Nepal*. Retrieved from [http://www.chinadaily.com.cn/china/2015-04/27/content\\_20553895\\_2.htm](http://www.chinadaily.com.cn/china/2015-04/27/content_20553895_2.htm)

<sup>58</sup> Rauhala, E. (2015, April 27). *China Rushes Aid to Nepal After Deadly Earthquake; Taiwan Is Turned Away*. *The Time*. Retrieved from <http://time.com/3836182/china-nepal-earthquake-taiwan-geopolitics/>

<sup>59</sup> Bangladesh Military Forces (2015, April 26). *Bangladesh sends aid for Nepal Earthquake victims*. Retrieved from <http://www.bdmilitary.com/bangladesh-forces-international-deployments/bangladesh-sends-aid-nepal-earthquake-victims/>

<sup>60</sup> Royalista (2015, April 27). *Bhutanese King sends medical team to Nepal*. Retrieved from <http://royalista.com/99490/bhutanese-king-sends-medical-team-nepal/>

<sup>61</sup> Xinhua News Agency (2015, April 26). *China search & rescue team leaves for Nepal*. Retrieved from [http://news.xinhuanet.com/english/2015-04/26/c\\_134184830.htm/](http://news.xinhuanet.com/english/2015-04/26/c_134184830.htm/)

<sup>62</sup> NDTV (2015, June 4). *India's 'Operation Maitri' in Earthquake-Hit Nepal Ends*. Retrieved from <http://www.ndtv.com/india-news/indias-operation-maitri-in-earthquake-hit-nepal-ends-768795>

<sup>63</sup> The Presidency of the Republic of Maldives (2015, April 28). *Maldives' Government to donate to Nepal's recovery efforts*. Retrieved from <http://www.presidencymaldives.gov.mv/Index.aspx?lid=11&dcid=15501>

<sup>64</sup> Sri Lanka Ministry of Defense (2015, April 26). *Army Rescue & Relief Contingents Fly to Nepal to Assist Earthquake Victims*. Retrieved from [http://www.defence.lk/new.asp?fname=Army\\_Rescue\\_Relief\\_Contingents\\_Fly\\_to\\_Nepal\\_to\\_Assist\\_Earthquake\\_Victim\\_s\\_20150426\\_02](http://www.defence.lk/new.asp?fname=Army_Rescue_Relief_Contingents_Fly_to_Nepal_to_Assist_Earthquake_Victim_s_20150426_02)

<sup>65</sup> Pakistan Ministry of Foreign Affairs (2015, May 3). *Earthquake in Nepal - Pakistan's Response, Relief Assistance*. Retrieved from <http://www.mofa.gov.pk/pr-details.php?mm=Mjc1NQ>

<sup>66</sup> U.N. General Assembly Resolution, 78<sup>th</sup> Plenary Meeting (1991, December 19). *Strengthening of the coordination of humanitarian emergency assistance of the United Nations (A/RES/46/182)*.

The table below shows the full scale of the international intervention by the main actors comparing the initial aid with a three-months-after snapshot. The data highlights how the international community moved rapidly in providing assistance to Nepal. During the initial phase several funding possibilities were offered immediately to support the intervention and to help Nepalese people. In addition to the neighbouring states, also the international community strongly contributed in sending rescue teams in the first 24h after the earthquake. It was a large-scale intervention with a massive amount of equipment and supplies that gave a hard time to Nepal government to coordinate the assistance. Taking a look at the outcomes after three months, UN agencies and international actors continued in providing assistance and adapting it to the growing needs of the affected population. The large number of international actors intervening in the aftermath of the crisis posed a huge challenge to coherence and integrated approaches.<sup>67</sup> However, as it will be shown in the following paragraphs the quantity of relief and assistance support is not the only important thing. On the contrary, the quality of aid and the coordination in meeting the needs of the population in accordance with the timeframe for action is the most crucial part.

In order to “Build Back Better”, the resource mobilisation supporting the reconstruction and recovery should not falter. A realistic timeframe for a complete recovery and an effective resilience system is from five to seven years. The private sector and the international actors’ support will be of utmost importance to sustain rehabilitation and rebuilding of resilient infrastructures in the long-term.<sup>68</sup>

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<sup>67</sup> ACAPS (2015, April 27). *Lessons Learned for Nepal Earthquake response*. Retrieved from [http://acaps.org/img/documents/l-acaps\\_lessons\\_learned\\_nepal\\_earthquake\\_27\\_april\\_2015.pdf](http://acaps.org/img/documents/l-acaps_lessons_learned_nepal_earthquake_27_april_2015.pdf)

<sup>68</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

**Table 2. The international response**

	Initial Funds	Aid provided	Timeframe	Three-months-after Snapshot
<b>ADB</b>	USD 3 million	-	0-24h	Pledged to donate USD 200 million to the rehabilitation phase
<b>EU</b>	EUR 3 million	Activation of EU Civil Protection Mechanism: mobilisation of rescue team, medical team and relief supplies <sup>69</sup>	0-24h	EUR 12 million in Humanitarian assistance; Humanitarian aid and civil protection experts deployed; Large number of member states offered assistance coordinated by the ERCC. <sup>70</sup>
<b>IFRC</b>	CH 500,000 from Disaster Relief Emergency Fund <sup>71</sup>	1,500 volunteers and 300 staff member; Hygiene kits, blood supplies, 2,000 tents <sup>72</sup>	0-24h	109, 678 emergency shelters; 697, 765 WatSan items; food for approx. 1,200,000 people; Access to safe water to 60,111 people. <sup>73</sup>
<b>SAARC</b>	-	Member states acted individually. Lack of a Disaster Rapid Response Mechanism and Force.	-	-
<b>UN OCHA</b>	USD 15 million provided by CERF <sup>74</sup>	UNDAC team set up an On-Site Operation Cooperation Center (OSOCC) <sup>75</sup>	0-24h	
<b>US</b>	USD 10 million	DART sent <sup>76</sup>	0-24h	USD 64.5 million of humanitarian funding; support shelter intervention and safe house reconstruction; USD 3.1 million to WASH needs; support emergency food assistance <sup>77</sup>
<b>WFP</b>	-	Humanitarian Staging Area (HAS) at the Tribhuvan airport; provided 3 million emergency biscuits also in remote mountain areas <sup>78</sup>	-	Food for more than 2 million people; More than USD 1 million cash to people for cash-to-work projects; Aiming to build 50 temporary health clinics with the WHO <sup>79</sup>
<b>WHO</b>	USD 175,000 from SEARHEF	Health kits and medical supplies for 40,000 people for three months <sup>80</sup>	6h	99% of the destroyed health facilities resumed service; In partnership with Nepal's Ministry of Health and Population deployed 141 Foreign Medical Teams (FMs), 50 Medical Camps Kits (MCKs), 80 Medical Tents and 26 tons of medical equipment. <sup>81</sup>

<sup>69</sup> European Commission (2015, April 26). *Nepal Earthquake: EU mobilises all emergency response means*. Retrieved from [http://europa.eu/rapid/press-release\\_IP-15-4859\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4859_en.htm)

<sup>70</sup> ECHO (2015, June 25). *Nepal Earthquake Factsheet*. Retrieved from [http://ec.europa.eu/echo/files/aid/countries/factsheets/nepal\\_earthquake\\_en.pdf](http://ec.europa.eu/echo/files/aid/countries/factsheets/nepal_earthquake_en.pdf)

<sup>71</sup> IFRC (2015, April 25). *Red Cross volunteers in action following 7.8 magnitude earthquake in Nepal*. Retrieved from <https://www.ifrc.org/news-and-media/news-stories/asia-pacific/nepal/earthquake-in-nepal-68486/>

<sup>72</sup> IFRC (2015, April 27). *Nepal: Red Cross rushes help to quake affected population as needs escalate*. Retrieved from <http://www.ifrc.org/en/news-and-media/press-releases/asia-pacific/nepal/nepal-red-cross-rushes-help-to-quake-affected-population-as-needs-escalate/>

<sup>73</sup> IFRC (2015, July 7). *Nepal: Emergency Appeal Operation Update*. Retrieved from <http://adore.ifrc.org/Download.aspx?FileId=92320>

<sup>74</sup> UNOCHA (2015, April 27). *Nepal: A race against time*. Retrieved from <http://www.unocha.org/top-stories/all-stories/nepal-race-against-time>

<sup>75</sup> UNOCHA (2015, April 26). *Nepal: UN and partners scale up emergency response activities*. Retrieved from <http://www.unocha.org/top-stories/all-stories/nepal-un-and-partners-scale-emergency-response-activities>

<sup>76</sup> White House (2015, April 27). *America's Response to the Earthquake in Nepal: What We Can Do to Help*. Retrieved from <https://www.whitehouse.gov/blog/2015/04/27/america-s-response-earthquake-nepal-what-we-can-do-help>

<sup>77</sup> USAID (2015, September 2). *Nepal Earthquake Factsheet #23*. Retrieved from [https://www.usaid.gov/sites/default/files/documents/1866/nepal\\_eq\\_fs23\\_09-02-2015.pdf](https://www.usaid.gov/sites/default/files/documents/1866/nepal_eq_fs23_09-02-2015.pdf)

<sup>78</sup> Beck, L. (2015, May 12). *WFP flies emergency biscuits to earthquake survivors*. World Food Programme. Retrieved from <https://www.wfp.org/stories/bangladesh-wfp-flies-emergency-biscuits-earthquake-survivors>

<sup>79</sup> WFP (2015, July). *WFP's Nepal Earthquake Response*. Retrieved from <http://documents.wfp.org/stellent/groups/public/documents/newsroom/wfp276670.pdf>

<sup>80</sup> WHO (2015, May). *Nepal Earthquake 2015: Country Update and Funding request*. Retrieved from <http://www.who.int/emergencies/nepal/nepal-donor-may.pdf>

<sup>81</sup> WHO (2015, August). *Nepal Earthquake 2015: Medical Resources Delivered*. Retrieved from <http://www.searo.who.int/entity/emergencies/crises/nepal/5f.pdf?ua=1>

## 2.2 DECISION MAKING PROCESS

### 2.2.1 *The international framework*

The international response to the earthquakes in Nepal operated in accordance with the principle “Build Back Better” enshrined in the Sendai Framework for Disaster Risk Reduction 2015-2030, the recent updated version of the Hyogo Framework for Action 2005-2015 (HFA). However, the HFA was still under implementation in Nepal, as the National progress report issued by Nepal’s MoHA highlighted on 23 April 2015.<sup>82</sup> According to the Sendai Framework, seven new global targets to be achieved over the next 15 years have been established: substantially reduce global disaster mortality; lower the number of affected people; reduce the economic loss in relation with to global GDP; reduce disaster damage to critical infrastructure; increase the number of countries with national and local disaster risk reduction strategies; enhance international cooperation to developing countries and increase the availability of and access to multi-hazard early warning systems.<sup>83</sup>

In Nepal, the states and international organisations worked with national and local NGOs and authorities in order to improve the coordination of the international assistance and funding. Since there is no international core binding treaty on disaster response, global cooperation and coordination is based on regional and non-binding regulatory agreements.

The only existing working framework in the world, related to HFA, is the legally binding ASEAN Agreement on Disaster Management and Emergency Response (AADMER). Ratified by all ASEAN member states in late 2009, it was implemented during the period 2010-2015, establishing an ASEAN Committee for Disaster Management (ACDM), an ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) and a fully functional ASEAN Emergency Rapid Assessment Team (ERAT). The AADMER was put into action already three times in 2013, after the disasters caused by the Typhoon Haiyan and the Bohol Earthquake in the Philippines and after the floods in Lao People’s Democratic Republic.<sup>84</sup>

The SAARC established the other legally binding regulatory agreement on disaster preparedness and response action – the Natural Disaster Rapid Response Mechanism (NDRRM). It could have reinforced the emergency response from the member states in Nepal, if it was not still in the process of being ratified. This regional mechanism represents a significant help in assisting countries affected by disasters in the region. However, due to the lack of one member state’s ratification, it could not be activated.<sup>85</sup> The NDRRM was signed by member states in 2011, but after four years Afghanistan has not ratified the resolution yet. Following the 2014 Summit in Kathmandu, Nepal, SAARC member states once again failed to set up a SAARC Disaster Management Rapid Action Force (SDMRAF), deeply needed in case of natural disaster as the recent earthquake in Nepal demonstrated. The absence of an effective collective response mechanism in the region drove the states to act individually, overlapping their capacities and efforts, increasing the risk of duplication and Nepal’s dependence on the international community. Improvements of the SAARC Disaster Management Center (SDMC) and its capabilities to rapidly and efficiently respond to natural disasters are necessary in order

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<sup>82</sup> Nepal’s Ministry of Home Affairs (2015, April 23). *National progress report on the implementation of the Hyogo Framework for Action*. Retrieved from [http://www.preventionweb.net/files/41755\\_NPL\\_NationalHFAprogress\\_2013-15.pdf](http://www.preventionweb.net/files/41755_NPL_NationalHFAprogress_2013-15.pdf)

<sup>83</sup> United Nations (2015, March 18). *Sendai Framework for Disaster Risk Reduction 2015-2030*. Retrieved from [http://www.preventionweb.net/files/43291\\_sendaiframeworkfordrren.pdf](http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf)

<sup>84</sup> AHA Centre (2012). *AADMER, The Framework for Effective Disaster Management Initiatives in ASEAN*. Retrieved from <http://www.ahacentre.org/about-aadmer>

<sup>85</sup> Acharya, G.C. International Response to Nepal Earthquake. *Nepal Foreign Affairs*. Retrieved from <http://nepalforeignaffairs.com/international-response-to-nepal-earthquake-overwhelming-yet-inadequate-and-patronizing-2/>

to be able to deploy a SAARC rapid action forces to mitigate the effects of the calamity immediately.<sup>86</sup> Nepal's earthquake proved that a collective regional response in a zone highly vulnerable to various kinds of natural catastrophes could have a significant role in helping the affected-areas rather than acting on a mere bilateral basis. Coordination would have been better and pooling and sharing of resources would have definitely improved the quality of the aid provided. Moreover, Nepal was chairing SAARC since the 18<sup>th</sup> SAARC Summit in Kathmandu, held in November 2014, and despite this fact, it was not able to activate the NDRRM in the aftermath of the earthquake.<sup>87</sup>

A model that could be used by SAARC in order to develop an efficient regional disaster management mechanism is, indeed, the AADMER, despite its lack of effectiveness in several cases in South East Asia.<sup>88</sup> If another natural disaster hits the region, the implementation of the NDRRM will be critical to respond adequately to the needs of the people affected by the calamity.

## **2.3 MOBILISATION**

### **2.3.1 Time horizon and mobilisation main issues**

The mobilisation of international technical teams can be achieved during the first 24/48h in the aftermath of a natural disaster. Depending on the extent of the emergency, different scales of tools and services are made available to the requesting country. The earthquake in Nepal was a self-evident large-scale disaster, which required the deployment of heavy Urban Search and Rescue (USAR) teams and the involvement of other UN agencies. The rapid intervention of technical response teams is essential to make an initial assessment. Furthermore, a Virtual OSOCC exists under the umbrella of the UN and the European Commission, which aim is to facilitate the mobilisation of USAR teams and the Office for the Coordination of Humanitarian Affairs (OCHA)-managed International Search and Rescue Advisory Groups (INSARAG). Following a disaster an OSOCC is set up to coordinate the activities of international relief efforts on the ground. The mobilisation of bilateral technical response teams follows the request by the disaster-affected country of assistance to make an assessment of needs for contribution.<sup>89</sup> United States Agency for International Development (USAID)'s Disaster Assistance Response Teams (DART) and European Community Humanitarian Office (ECHO)'s Civil Protection and Rapid Response teams were deployed immediately in Nepal to cover this role.

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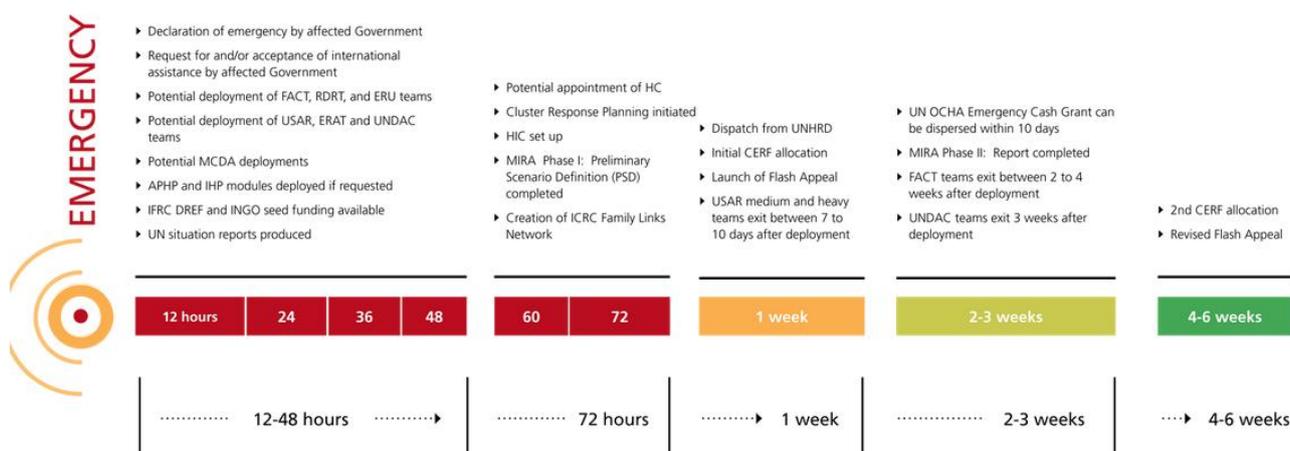
<sup>86</sup> Institute for Defense Studies and Analysis (2015, June 2). *The Nepal Earthquake: Could SAARC have been Effective?*. Retrieved from [http://www.idsa.in/idsacomments/TheNepalEarthquakeCouldSAARC\\_nnayak.html](http://www.idsa.in/idsacomments/TheNepalEarthquakeCouldSAARC_nnayak.html)

<sup>87</sup> Republica (2015, May 18). *SAARC invisible as Nepal struggles in post-quake situation*. Retrieved from <http://www.myrepublica.com/politics/story/21128/saarc-invisible-as-nepal-struggles-in-post-quake-situation.html>

<sup>88</sup> White, S. (2015). *A critical disconnect: the role of SAARC in building the DRM capacities of South Asian countries*. Brookings Institution.

<sup>89</sup> UNOCHA. *Tools and Services for Disaster Response*. Retrieved from <http://www.unocha.org/publications/asiadisasterresponse/ToolsAndServicesForDisasterResponse.html>

**Table 3. Time horizon of the international intervention**<sup>90</sup>



International organisations and UN agencies strongly contributed to financial assistance and provision of relief supplies within the first 24 hours. Flash appeals for donors were launched and spread on the web to rapidly mobilise flows of financial support for the affected communities. As the previous table shows, in 24/48h DARTs and Search and Rescue Teams (SAR) were deployed by several states in the area.

Under the ECHO Civil Protection Mechanism established in 2011, EU member states offered their assistance, which was coordinated by the EU Emergency Response Coordination Center (ERCC). In support of the relief and rescue operations the Copernicus Emergency Management Service was activated to provide maps and satellite images.<sup>91</sup> However the coordination at the European level was not reflected in the international framework. For example, the congestion faced by the Belgium rescue team after arriving at the Tribhuvan International Airport represented a huge challenge. The Belgian “B-Fast” rescue team could land on Nepalese territory only four days after the earthquake. While managing the landing and taking off at the airport is a domestic problem, the coordination and mobilisation of the needed assistance in due time is a problem of international cooperation. Belgian “B-Fast” rescue team arrived late and with the wrong equipment.

The Indian Air Force also faced the same problem once it arrived at the Tribhuvan International Airport. Four IAF heavy lift aircrafts were forced to return to Delhi, but India could manage to alleviate the congestion by sending several Mi-17 helicopters to a nearby site, thanks to its proximity to the affected territory.<sup>92</sup> A luxury that most international responders did not have.

Another example of trouble managing the huge inflow of foreign assistance in the country is the one of NYC Medics, a Harlem-based charity. Due to a mix of misunderstandings and coordination problems, the medical team was unable to find an area where its help was required for several days. At that time the local health office’s priorities changed from medical

<sup>90</sup> UNOCHA. *Tools and Services for Disaster Response*. Retrieved from <http://www.unocha.org/publications/asiadisasterresponse/ToolsAndServicesForDisasterResponse.html>

<sup>91</sup> ECHO Nepal Earthquake Factsheet (2015, June 25). *The EU is operating in Nepal since 2001, contributing for over EUR 80 million of humanitarian aid*. Retrieved from [http://ec.europa.eu/echo/files/aid/countries/factsheets/nepal\\_earthquake\\_en.pdf#view=fit](http://ec.europa.eu/echo/files/aid/countries/factsheets/nepal_earthquake_en.pdf#view=fit)

<sup>92</sup> Hindustan Times (2015, April 28). *Nepal earthquake: Operations at Kathmandu airport hit by congestion*. Retrieved from 2015, <http://www.hindustantimes.com/world-news/nepal-earthquake-operations-at-kathmandu-international-airport-hit-by-congestion/article1-1341680.aspx>

care to the provision of food and shelter. They managed to assist hundreds of people, but the operation was highly cost-inefficient. If the NYC Medics team had arrived earlier, the contribution they could have made to the people in need would have been greater.<sup>93</sup>

These examples only highlight the importance of arriving at the disaster-affected location with forces that meet the needs of the affected-people in a specific time frame – coordinated in advance. On the contrary, rushing to help stranded and injured people with the wrong equipment is an inefficient use of experts and funds that could otherwise save a greater number of lives. Heavy USAR teams are, for example, only useful if deployed within 32h of the disaster. Past that point, other kinds of assistance are required (such as non-emergency medical assistance, and provision of food and shelter).

### **2.3.2 International Funding**

“There is no material you can send that has the flexibility that a cash donation has.”  
*Juanita Riling, Director of the Center for International Disaster Information at USAID*

Cash donation is fundamental for addressing – in the short and long term – the needs as they arise. In case of Disaster relief operations, cash donation is the most efficient tool for NGOs and the easiest for donors.<sup>94</sup>

Regarding the funding provided by the states or intergovernmental organisations the reasoning does not change. Within four months of the 25 April 2015 UN OCHA Financial Tracking System (FTS) registered increasing commitments by several countries, while a huge gap still existed between the current funding of USD 241.2 million provided and USD 422 million requested. Furthermore, if we consider the total humanitarian funding – USD 471.1 million were provided – while over USD 322 million pledged remain uncommitted. The ADB should provide a large part of the last amount - USD 200 million - for project in the first phase of the rehabilitation of the country.<sup>95</sup> The outstanding commitment of the ADB is in fact a soft loan with an interest rate of one per cent repayable in 40 years.<sup>96</sup> In addition to this provision of financial assistance, ADB further increased the amount of funding by allocating other USD 400 million – of which USD 3 million went from disaster relief grant, USD 30 million budget support for rural finance and USD 15 million grant from the Japan Fund for Poverty Reduction.<sup>97</sup>

As the above data shows, even if UN-coordinated appeals represent the largest collective request for humanitarian assistance, significant demands and requests are not included and their responses operate through other channels (notably IFRC and Médecins sans Frontières). These appeals outside of the UN umbrella usually aim to specific and small-scale crisis or disaster relief missions, which are not covered by UN-coordinated appeals (ex: IFRC appeals for the drought in Kenya or floods in Bangladesh and Pakistan). In some cases there are overlaps between the largest UN and non-UN appeals, such as for recent crisis in CAR, Iraq,

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<sup>93</sup> McDonell, N. (2015, August 18). Dollars to Disasters: the gamble of emergency relief. *The New Yorker*. Retrieved from <http://www.newyorker.com/business/currency/dollars-to-disasters-the-gamble-of-emergency-relief>

<sup>94</sup> Igoe, M. (2015, April 28). To help Nepal, choose a sector and do your homework. *Devex*. Retrieved from <https://www.devex.com/news/to-help-nepal-choose-a-sector-and-do-your-homework-86011>

<sup>95</sup> UNOCHA (2015, April). *Financial Tracking System: Nepal Earthquake – April 2015*.

<sup>96</sup> Republica (2015, June 12). *US\$ 200 million ADB soft loan to rebuild schools, road, governmentt offices*. Retrieved from <http://www.myrepublica.com/politics/story/22649/200-million-adb-soft-loan-to-rebuild-schools-roads-govt-offices.html>

<sup>97</sup> ADB (2015, June 25). *ADB Offers US\$ 600 million Assistance to Help Nepal Rebuild After Earthquake*. Retrieved from <http://www.adb.org/news/adb-offers-600-million-assistance-help-nepal-rebuild-after-earthquake>

South Sudan and Syria between the appeals from UN and the International Committee of the Red Cross.<sup>98</sup>

Problems with funding were registered during the first month in the aftermath of the earthquake. Comparing the financial commitment with other similar disaster-affected situation like Haiti (2010) and Philippines (2013), the amount of funding received by UN OCHA is of a significantly lower scale. Only USD 92.4 million were donated within a month from the earthquake, while in Haiti USD 735 million had been committed.<sup>99</sup> The availability of the required amount of funding in the aftermath of a disaster is fundamental to "Build Back Better". Without the needed financial aid, it is tough or nearly impossible for the affected country to improve its preparedness and to invest in DRR policies. In areas prone to disaster risk, countries have to heavily invest in reconstruction programs aimed at reinforcing the resilience of the existent structures and building destroyed ones anew respecting the standards to make them earthquake-resistant. Investing upfront in disaster preparedness strongly helps saving money later on in reconstruction and rehabilitation. In light of the recent events and taking into consideration the amount of funding required and what was received, stronger efforts and an increase in the donations by the international community are necessary in order to make Nepal adequately prepared for the next big quake.

## 2.4 CIVIL AND PUBLIC RESPONSE

The civil society's contribution to the crisis in Nepal was huge and fundamental. Both private companies and no-profit international organizations strongly supported the humanitarian aid, financially and by donating drinkable water and food. Communication companies, namely T-Mobile, Sprint, Verizon, Vodafone Time Warner Cables and others, offered free calls from and to Nepal. Payment providers such as Apple, PayPal and Square Cash waived their fees to ease the donations process. The search engine Google and the social network Facebook enabled useful tools to help the search for missing and displaced persons.<sup>100</sup> The instrument that these two huge companies created provided substantial help in finding people and in spreading news about the ongoing situation in Nepal. The impact of social media such as Facebook or Twitter in the aftermath of a natural disaster deeply contributed to keeping people aware of the rapid changes in the situation and in keeping them informed about the assistance provided. In fact, in August in Myanmar these practices were used again successfully.<sup>101</sup> Finally, private companies, such as UPS<sup>102</sup>, DHL<sup>103</sup> and FedEx<sup>104</sup>, helped strengthening the on-the-ground logistic support and reinforced the coordination among other organisations in order to provide assistance for long-term recovery needs. Beside funding and the important provision of drinkable water and food supplies, in post-disaster situation a fully functional and reliable

<sup>98</sup> Global Humanitarian Assistance (2015). *Global Humanitarian Assistance Report*. Retrieved from [http://www.globalhumanitarianassistance.org/wp-content/uploads/2015/06/GHA-Report-2015\\_-Interactive\\_Online.pdf](http://www.globalhumanitarianassistance.org/wp-content/uploads/2015/06/GHA-Report-2015_-Interactive_Online.pdf)

<sup>99</sup> Newar, N. (2015, May 26). Lives at risk as Nepal earthquake funding dries up. *IRIN*. Retrieved from <http://www.irinnews.org/report/101542/lives-at-risk-as-nepal-earthquake-funding-dries-up>

<sup>100</sup> Petroff, A. and Rooney, B. (2015, April 28). Nepal earthquake donations: Who's sending what. *CNN Money*. Retrieved from <http://money.cnn.com/2015/04/27/news/nepal-earthquake-donations/>

<sup>101</sup> Palatino, M. (2015, August 12). How Social Media Moved People to Act in Flood-Ravaged Myanmar. *Aid & International Development Forum*. Retrieved from <http://www.aidforum.org/disaster-relief/how-social-media-moved-people-to-act-in-flood-ravaged-myanmar>

<sup>102</sup> UPS (2015, April 29). *UPS Commits \$500,000 and Logistics Expertise in Support of Nepal Earthquake Recovery*. Retrieved from <https://www.pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=PressReleases&id=1430334323852-733>

<sup>103</sup> DHL (2015, April 28). *Deutsche Post DHL Group sends Disaster Response Team to Nepal within 48 Hours after earthquake*. Retrieved from [http://www.dhl.com/en/press/releases/releases\\_2015/group/dpdhl\\_group\\_sends\\_disaster\\_response\\_team\\_to\\_nepal\\_within\\_48\\_ours\\_after\\_earthquake.html](http://www.dhl.com/en/press/releases/releases_2015/group/dpdhl_group_sends_disaster_response_team_to_nepal_within_48_ours_after_earthquake.html)

<sup>104</sup> FedEx (2015, April 28). *FedEx Response to Nepal Earthquake*. Retrieved from <http://about.van.fedex.com/blog/nepal-earthquake/>

logistic makes the difference. The increasing commitment of civil society organizations and the private sector to disaster-affected people during the last decades drastically improved the quality and the effectiveness of aid provided. They efficiently represent the link between the action of states and international organization and the needs of local communities affected by disasters. Like in the above-mentioned cases, civil society can fill the gaps in logistic and communication that governments and intergovernmental organisations could not cover. The NGOs and non-profit organisations like Water International, BRAC<sup>105</sup>, Cooperative for Assistance and Relief Everywhere (CARE), ActionAid, AmeriCares and Red Cross societies played a significant role in giving a comprehensive approach to the humanitarian crisis in Nepal, thanks to their sectorial specialisations and to their longstanding presence on the ground. At the same time they are involving people from all over the world to contribute by donation to sustain the on-going operations in the long-term.<sup>106</sup> A major task that civil society has to accomplish is to foster and increase confidence among the actors present on the ground to avoid futile duplication of their efforts and work. Coordination with the government and local community is essential in order to achieve this outcome.

In fact, one of the major challenges faced by the NGOs, such as Médecins sans Frontières (MSF), was how to reach the mountain and rural communities, in particular if we consider that the monsoon season was coming towards the end of May. Huge inflow of NGOs and international assistance provoked several coordination problems and affected the mobility at the airport. Delays were common due to the congestion and chaos engendered by thousands of people trying to leave the country and hundreds attempting to arrive and provide help. Four MSF teams reached Gorkha district by road from northern India in order to avoid being entrapped getting out of Kathmandu airport and to deliver aid faster.<sup>107</sup> The international NGOs often cooperated with local communities and national NGOs efficiently, but sometimes lack of information and chaotic organisation hindered an adequate management of medical and rescue teams. As mentioned before, NYC Medics wasted several days looking for the right spot where their assistance was highly needed.

Maita Nepal NGO, an organisation that fights against women and children trafficking, strictly cooperating with UNICEF and Friends of Maiti Nepal, which is the US representative, complained about the government inefficiency and entangled bureaucracy to approve the delivery of commodities and relief packages.<sup>108</sup> Therefore, there is a need to strengthen the cooperation and coordination among these different three actors: the national government, the local CSOs and the international CSOs.

In order to meet the needs of the local population to “build back better” and to avoid wasting resources and efforts, the international NGOs have to collaborate closely with the national NGOs. Engaging with local communities and organisations allows a better managing of the relief efforts and better coordination with the local chief district officers and village development committees. Working alongside local communities and understanding their own way of thinking strongly contributes to increasing people’s awareness and commitment to DRR. For instance some affected communities refused to move in new style buildings and prefer to continue living in the traditional houses. Listening to them strongly helps the international

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<sup>105</sup> The Daily Star (2015, May 21). *Brac plans to spend Tk 117 core in two years to help earthquake victims in Nepal*. Retrieved from <http://www.thedailystar.net/backpage/brac-spend-15m-nepal-quake-victims-84976>

<sup>106</sup> Barcia, L. (2015, May 11). Global NGOs supporting earthquake relief efforts in Nepal. *Devex*. Retrieved from <https://www.devex.com/news/global-ngos-supporting-earthquake-relief-efforts-in-nepal-86102>

<sup>107</sup> Matthew, P. (2015, May 1). Nepal Earthquake Response: reaching people in remote areas. *MSF*. Retrieved from <http://blogs.msf.org/en/staff/blogs/nepal-earthquake-emergency-response/nepal-earthquake-response-reaching-people-in-remote>

<sup>108</sup> Herman, S. (2015, May 2). *Nepal Official Slammed Over Aid Response*. VOA. Retrieved from <http://www.voanews.com/content/nepal-government-faces-criticism-for-quake-aid-response/2745909.html>

community efforts to be tailored for specific needs and to be time and cost-efficient for “building back better”. Also technology transfer needs to be contextualized due to the high variety of conditions in the 14 worst affected districts.<sup>109</sup>

The real problem is that the numbers claimed by the International NGOs are often misleading and take credit for activities they did not commit. The relationship among international NGOs in responding to a disaster is complex and not transparent. Often, several organizations that are working together attribute to themselves the results that they achieved together. In this way the international response quadruple-count the aid and the assistance provided. It is really difficult for donors to understand how many actors on the ground are taking credits for the same activity. For instance, let’s examine the relation between three actors in Nepal for the provision of tarps. The real distribution chain is the following: USAID donated 6,200 tarps to IOM; then IOM gave 350 to ACTED, a French organization, which distributed them to Nepalese people. Each actor claims to have alone reached by itself an outstanding number of people while in reality it is the total number they reached together, virtually multiplying the real aid provided. This intertwined cooperation not only gives the wrong figures of the reality of the international response, but also hides the real costs of the operation. In addition, the international funding is directed mainly towards international organisations and only in a second place to local Nepalese NGOs, which are usually sub-contractors. The impact of the donations will thus affect slightly Nepal, respect to what a more direct donation will do.<sup>110</sup>

### **3. THE ROLE OF MIGRANT REMITTANCES<sup>111</sup>**

The Nepalese economy is highly dependent on remittances from its diaspora abroad. All reliable estimates peg 30 per cent of GDP to be based on remittance receipts – this does not factor in informal remittances such as transfers made through *hawala* or *hundi*,<sup>112</sup> and other forms of unrecorded remittances such as hand delivered cash from India, which potentially can increase the magnitude of this dependency further. Moreover, the Nepalese Government estimates that the incidence of poverty would increase from 19 to 35 per cent if remittances stopped. This dependency has had critical implications for the affected households and communities during the earthquake in terms of preparedness and recovery. The widely reported increase in remittances during the aftermath – about 30 per cent according to surveys conducted – illustrates the relationship between migration and disaster resilience in Nepal.

#### **3.1 REMITTANCES AND PREPAREDNESS**

The broader literature seems to indicate that migration and remittances can foster disaster preparedness through improved economic and social resilience. Surveys conducted by Sijapati et al. suggested that a large number of households with external migrants reported being better prepared for the earthquake.<sup>113</sup>

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<sup>109</sup> Francis, A. (2015, June 2) *Local partners key to building back better in Nepal*. Retrieved from <https://www.devex.com/news/local-partners-key-to-building-back-better-in-nepal-86271>

<sup>110</sup> Troutman, E. (2015, June 19). What Happened to the Aid? Nepal Earthquake Response Echoes Haiti. *Aid Works*. Retrieved from <http://aid.works/2015/06/nepal-haiti/>

<sup>111</sup> For the purposes of this section, remittances are defined as money or in-kind transfers from household members abroad. The transfers made by internal/domestic migrants are not discussed, though they also have a critical role to play. In general, this section focuses only on external migration. For more on internal migrants’ role, see Bandita et al. (2015).

<sup>112</sup> Informal value transfer systems operating outside of official financial channels.

<sup>113</sup> Sijapati, B. et al. (2015). Migration and Resilience. Experiences from Nepal’s 2015 Earthquake. *ILO Research Paper VII*. Retrieved from [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms\\_379082.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-kathmandu/documents/publication/wcms_379082.pdf)

Though there is some evidence that excess cash received by households with migrants abroad helped them cope with the earthquake better than those with no migrants or internal migrants, evidence also suggests that a lack of information regarding seismic resistant construction standards and a general lack of awareness regarding disaster preparedness hampered resilience-related efforts amongst the affected households. Given their traumatic experiences with the earthquake, it is expected that the above knowledge gap will be addressed inevitably; but the role of policymakers and other institutional stakeholders in disseminating information for better preparedness for future disasters is essential. These efforts along with the various prescriptions for facilitating the transfer of remittances are crucial for fostering the relationship between migration and resilience.

### **3.2 REMITTANCES AND DISASTER RECOVERY**

Unlike the linkages between remittances and resilience, the recovery efforts of households that receive remittances was profound. Transfers received beforehand and those received after the earthquake equally contributed towards easing recovery efforts. The provision of cash, food, liquid assets like jewellery provided a much-needed safety net to affected households. Despite the damage to financial infrastructure, remittance agencies indicated that there had been a sudden overall surge in remittance inflows following the earthquake. One of the largest formal remittance agencies, the International Money Express, reported a 20 per cent increase in remittance inflows. Nepal Rastra Bank (NRB) data on formal and informal remittance flows confirms this trend, with a 35 per cent year-on-year increase between mid-April to mid-May and from mid-May to mid-June. This is far above the 7 per cent increase recorded in the months prior to the earthquake.<sup>114</sup>

Some of the remittance flows were likely channelled to civil society and individuals organising relief, as opposed to covering household spending. This increase in transfers is consistent with observations of the broader literature on remitting behaviour. Remittances have consistently been used as insurance or emergency funds in the face of disaster, Haiti being a poignant example. During the first month after the earthquake, official remittance companies lowered – or sometimes temporarily suspended – service charges. As a result, remittance flows through informal channels such as *Hundi* decreased.<sup>115</sup>

However, remittances did not increase in all the affected areas. Findings from Sijapati et al.'s assessment also point to several counterintuitive factors, which help explain why remittances did not increase immediately after the earthquake: i) the burden of loans that the migrant families might have taken to finance the migration costs to begin with could have dissuaded migrants from sending money home; ii) the possibility of migrants selectively sending remittances to certain family members (e.g., to the wife and children living in urban areas rather than parents back in the village); iii) unavailability of funds amongst the migrant workers themselves, especially since they generally hold low-paid jobs and the salary level of migrant workers would have limited their ability to send additional amounts to their families; iv) affected households' family members advising the migrants against it; and v) destruction of transfer facilities making the sending of money impossible.

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<sup>114</sup> Nepal Earthquake Assessment Unit (2015, July 24). *Note on Migration and Remittances*. Retrieved from [http://reliefweb.int/sites/reliefweb.int/files/resources/150724\\_assessment\\_unit\\_-\\_migrants\\_and\\_remittances.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/150724_assessment_unit_-_migrants_and_remittances.pdf)

<sup>115</sup> Sijapati, B. et al., *Migration and Resilience. Experiences from Nepal's 2015 Earthquake*.

The crucial takeaway from a policy perspective is that the low levels of disaster preparedness amongst migrant households – as well as non-migrant households – are an indication that simply having an inflow of cash is not sufficient. There is greater need for other information that focuses on awareness-raising, information dissemination about seismic-resistant standards, access to disaster-preparedness programmes, and financial literacy on better management of remittances to fulfil the immediate recovery needs, as well as sustainable rehabilitation.

Despite the efforts on the part of the government to support the return of migrant workers whose families were affected by the earthquake, many were unable to return because they were not aware of government arrangements to facilitate their return, or because they were unable to take time off from their employers. Better management of labour migration and information dissemination channels continues to be an urgent need.

Moreover, in some instances individuals and households in the severely affected districts have begun to consider migration as the only option for recovering from the consequences of the earthquake. It is possible that such desperation could lead many potential migrants to adopt 'illegal' channels or pay exorbitant fees to recruitment agents and agencies, thus increasing their vulnerability to exploitation and abuse. While the potential to leverage migration and remittances has become highly significant in the post-disaster context, the need to protect migrant workers in general has become more important, especially in light of the fact that families and households are urging their migrant members not to return since their earnings will become more important in the recovery phase. Nonetheless, there is a critical need for all the institutional stakeholders involved – the Nepalese government, the civil society, and private money transfer operators and banks – to facilitate remittances, not just during emergencies. This involves engaging with destination countries where the diaspora resides, and also helping maintain ties with migrants themselves. It can be argued that poverty was the biggest roadblock towards effective disaster resilience in Nepal, thus given the proven role of remittances in reducing poverty, it is essential to promote and catalyse them.

## **4. COORDINATION**

### **4.1 THEORETICAL FRAMEWORK**

Among the different components of natural disasters resilience, coordination is probably one of the most important. Within the aftermath of a great calamity, the response of the many entities involved in the humanitarian relief system must be coordinated. In particular, synchronisation of the several organisations involved in relief efforts appears as a key factor during the first hours. Indeed to obtain a high level of response, the plethora of organisations with different tasks and duties have to be managed. When many actors are involved, relief efforts entail minimizing the duplication of humanitarian services.<sup>116</sup>

Even if the importance of coordination is widely recognized among scholars, there are different approaches on how coordination must be optimized during interventions: While the NGOs are keener to use a less centralised approach to preserve their humanitarian goals, the intergovernmental bodies usually prefer a central and hierarchical structure. In particular, accordingly to Eric James, non-governmental bodies, "*tend to regard the centralization as a*

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<sup>116</sup> Gillmann, N. (2010). Interagency Coordination During Disaster: Strategic Choices for the UN, NGOs, and other Humanitarian Actors in the Field. *The United Nations and Global Change*.

*means of control over actors and focus on how diversity of efforts and approaches can ensure success if one fails, all do not fail.”<sup>117</sup>*

The debate between the two different schools of thought seemed to find a compromise in the so-called Cluster Approach. Applied for the first time during the Pakistan Earthquake in 2005, the approach was instituted in 2006 as part of the UN Humanitarian Reform process, with the scope of coordinating relief efforts and preventing or minimizing the duplication of humanitarian services.<sup>118</sup> The World Health Organization (WHO) defined the cluster as “a group of agencies that gather to work together towards common objectives within a particular sector of emergency response”.<sup>119</sup>

Differently from the other coordination methods, the Cluster Approach shows hierarchical aspects but also drives group of organizations to cooperate in a spirit of partnership and inclusivity.<sup>120</sup> The peculiarity of this method is that it appoints a lead agency to plan the coordination phase, strengthen preparedness and operate as the last resort provider for each response area.<sup>121</sup> Designated by the Inter-Agency Standing Committee (IASC), all the clusters have a focal point called Cluster Lead Agencies. These bodies are in charge to develop surge capacities, technical guidance, training, stocks, tools and operational support and have two main goals:

1. To provide systematic, timely and predictable support to country level clusters;
2. To ensure predictable leadership and accountability.<sup>122</sup>

Once the clusters are activated locally after a natural disaster, they ensure that humanitarian activities are coordinated and make a difference to people in need.<sup>123</sup> To achieve this objective each sector must have a designated lead agency. According to the IASC, the aim is ensuring a coherent and effective response by mobilising humanitarian actors in a strategic way across all sectors.<sup>124</sup>

Although it is widely recognized that the Cluster Approach has brought an innovative change in the humanitarian relief, there are still debates on its effectiveness and limits. In particular, several NGOs believe that the actual coordination mechanisms restrain the principles of independence, impartiality and neutrality.

The harsh debate on coordination seems to find also divisions on the modalities applied in the field. According to the Red Cross, three types of coordination modalities are applied in the field:

1. A one-door distribution system of all humanitarian relief;
2. A distribution of roles and responsibilities of assisting actors in comprehensive relief and recovery packages;

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<sup>117</sup> James, E. (2008). *Managing Humanitarian Relief: An operational guide for NGOs*. Warwickshire: Intermediate Technology Publications Ltd.

<sup>118</sup> Family Care Foundation (2013). *The Cluster Approach to Humanitarian Relief*. Retrieved from <http://family-care-foundation.net/the-cluster-approach-to-humanitarian-relief/>

<sup>119</sup> World Health Organization (2007). *Humanitarian Health Action, Cluster Approach*. Retrieved from [http://www.who.int/hac/techguidance/tools/manuals/who\\_field\\_handbook/annex\\_7/en/](http://www.who.int/hac/techguidance/tools/manuals/who_field_handbook/annex_7/en/)

<sup>120</sup> Shepherd Barron, J. (2009). Clusterwise: Everything you wanted to know about cluster coordination but were afraid to ask. *Aidessentials survival series*, p. 6.

<sup>121</sup> Humphries, V. (2013, April 30). Improving Humanitarian Coordination: Common Challenges and Lessons Learned from the Cluster Approach. *The Journal of Humanitarian Assistance*, p. 3.

<sup>122</sup> Maxwell, D. Parker, J. (2012). Coordination in food security crises: a stakeholder analysis of the challenges facing the global food security cluster. *Food Security*, p. 26.

<sup>123</sup> Niels, S. (2012, May). *OCHA on Message: The Cluster Approach*. Retrieved from [https://docs.unocha.org/sites/dms/Documents/120320\\_OOM-ClusterApproach\\_eng.pdf](https://docs.unocha.org/sites/dms/Documents/120320_OOM-ClusterApproach_eng.pdf)

<sup>124</sup> Inter Agency Standing Committee (IASC) (November 2006). *Guidance Note on Using the Cluster Approach to Strengthen Humanitarian Response*.

3. A distribution to affected areas of relief and recovery services among the service providers.<sup>125</sup>

However, even considering all the different points of view, in order to face natural disasters in an efficient way, the constant element appears to be the necessity to facilitate the coordination among the different actors involved at local and international levels.

#### 4.2 COORDINATING HUMANITARIAN RELIEF EFFORTS

Many news reports on the Nepal 2015 earthquake discussed a number of issues related to a lack of post-disaster coordination. A team of the NYC Medics' for instance had to wait several days before a helicopter from the Nepalese or Indian army was available to transport them to an emergency area. Upon arriving, they discovered that a large number of people had already been evacuated. When they decided to focus their attention to the desolate village of Paticho, it became clear that several doctors of MSF had previously passed through to provide help.<sup>126</sup>

Most of the foreign medical teams initially focused on urban search and rescue, even though the majority of deaths happened in remote villages. The Nepalese government was overwhelmed by their logistical demands. Therefore, foreign teams heading to Nepal were asked to change their plans, but apparently no one listened, as the sign-in sheet at the airport indicated. Besides, many of the foreign teams left Nepal without reporting what they did.<sup>127</sup> As we already mentioned, the Belgian "B-Fast" rescue team could enter Nepal only four days after the earthquake and once arrived, their USAR support was no longer needed. Nepal's UN Resident Coordinator even issued a warning: "Since several agencies are fielding needs assessment teams, a need for better coordination is necessary to avoid overlap and misunderstanding."<sup>128</sup>

One could argue that Nepal may have experienced difficulties dealing with the disaster due to the still ongoing recovery phase from the political instability of the past. The work towards a constitution was after all still in progress at the time of the earthquakes.<sup>129</sup> Nevertheless, the country has made considerable efforts in establishing a disaster risk management framework. The Executive Government adopted a NSDRM in 2010, of which one of the four guiding principles was the acceptance of a cluster approach, in line with the UN IASC policy.<sup>130</sup>

Moreover, several key elements of the NSDRM are foreseen to be implemented through international cooperation, with the establishment of the Nepal Risk Reduction Consortium. Its high level Steering Committee takes place on a quarterly basis and is chaired by the Home Secretary and the UN Resident Coordinator. The members are comprised of 15 international ministries and agencies, including but not limited to the ADB, World Bank, International Federation of Red Cross and Red Crescent Societies (IFRC), UNOCHA and USAID.<sup>131</sup>

From a legal point of view, the Government of Nepal has been working on the draft of a new Disaster Management Act, aligned with the NSDRM. The new act will better describe

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<sup>125</sup> International Federation of Red Cross and Red Crescent Societies (2011). *International Disaster Response Law (IDRL) in Nepal: a study on strengthening legal preparedness for international disaster response*.

<sup>126</sup> McDonell, N. (2015, August 18). Dollars to disasters: the gamble of emergency relief. *The New Yorker*. Retrieved from <http://www.newyorker.com/business/currency/dollars-to-disasters-the-gamble-of-emergency-relief>

<sup>127</sup> Troutman, E. (2015, June 19). What Happened to the Aid? Nepal Earthquake Response Echoes Haiti. *Aid Works*. Retrieved from <http://aid.works/2015/06/nepal-haiti/>

<sup>128</sup> McDonell, *Dollars to disasters: the gamble of emergency relief*.

<sup>129</sup> CFE-DMHA (2015). *Nepal Disaster Management Reference Handbook*, p. 11.

<sup>130</sup> International Federation of Red Cross and Red Crescent Societies (2011). *Analysis of legislation related to disaster risk reduction in Nepal*, p. 32.

<sup>131</sup> CFE-DMHA (2015). *Nepal Disaster Management Reference Handbook*, p. 55-56.

stakeholders' roles - including those of NGOs - than the 1982 Calamity Relief Act. In combination with this new legislation, the MoHA established the disaster management division. This institution encompasses a wide range of domestic and international actors, such as the CNDRC, several ministries, UN agencies, relevant clusters and even NGOs.<sup>132</sup>

In 2013, the MoHA created the NDRF, which was designed to deliver a more effective and coordinated national response to large scale disasters. It accurately details the governmental process to request international support and the coordination features for the national and international disaster assistance.<sup>133</sup>

Alongside the foregoing coordination mechanisms, it is essential to point out that Nepal, as a disaster prone country, created several domestic coordination structures since it established the 1982 Calamity Relief Act. The CNDRC, the NEOC and their counterparts on lower policy levels each bear a great responsibility in disaster risk management and its coordination.

There seems to be consensus amongst experts on the need for better coordination between aid providers and stakeholders.<sup>134</sup> This is not a new issue, as the 2010 Haiti earthquake humanitarian assistance experienced similar problems, for instance. Nonetheless, Nepal has made tremendous efforts to increase its resilience to possible disasters and coordination mechanisms. Therefore, an assessment of the existing disaster relief coordination institutions and their functioning in dealing with the 2015 earthquake may teach us lessons for the future and may even expose gaps in the actual disaster risk management framework. However, we find it necessary to first point out which specific types of problems could have caused the coordination deficiencies that occurred during the 2015 Nepal earthquake relief efforts.

## 4.3 COORDINATION OBSTACLES

### 4.3.1 Logistical causes

Several logistical issues made the coordination of relief efforts fairly difficult. First elements were the complex geographical conditions of Nepal as a mountainous and earthquake-hit area. The landslides, poor weather conditions<sup>135</sup> and continued aftershocks hampered relief operations.<sup>136</sup> According to Ertharin Cousin, executive director of the World Food Programme (WFP), Nepal posed a challenge different from the disasters in the Philippines or Haiti, as eight of the 14 highest peaks in the world are in Nepal.<sup>137</sup>

The second logistical element, which was detrimental to the post-disaster relief and its coordination, is an infrastructural component. A poor transportation network<sup>138</sup> and the loss of power and telephone<sup>139</sup> connections in parts of the country made it tough to search for survivors and to distribute supplies in the remote regions far from Kathmandu.<sup>140</sup> Furthermore, the Tribuvan airport, Nepal's single international airport, revealed to be a bottleneck due to

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<sup>132</sup> Ibidem, p. 51.

<sup>133</sup> Ibidem, p. 60-61.

<sup>134</sup> Pokharel, R. M. (2015, June 30). *Post-Disaster aid to Nepal: From Need to Response*. EIAS Briefing Seminar.

<sup>135</sup> BBC News (2015, May 3). *Nepal quake: Airport customs holding up aid relief – UN*. Retrieved from <http://www.bbc.com/news/world-asia-32564891>

<sup>136</sup> Scott, M. (2015, April 26). *Nepal Earthquake Poses Challenge to International Aid Agencies*. *The New York Times*. Retrieved from [http://www.nytimes.com/2015/04/27/world/asia/nepal-earthquake-international-aid-agencies.html?\\_r=3](http://www.nytimes.com/2015/04/27/world/asia/nepal-earthquake-international-aid-agencies.html?_r=3)

<sup>137</sup> Daniel, F.J. and Mahr, K. (2015, May 7). *Nepal, aid agencies trade blame as confusion mars quake relief*. *The Sydney Morning Herald*. Retrieved from <http://www.smh.com.au/world/nepal-aid-agencies-trade-blame-as-confusion-mars-quake-relief-20150506-ggv4hp.html>

<sup>138</sup> BBC News (2015, 3 May). *Nepal quake: Airport customs holding up aid relief – UN*.

<sup>139</sup> Deutsche Welle (2015, April 29). *Nepal urges better international aid coordination*. Retrieved from <http://www.dw.com/en/nepal-urges-better-international-aid-coordination/a-18416369?maca=en-rss-en-all-1573-rdf>

<sup>140</sup> Scott, *Nepal Earthquake Poses Challenge to International Aid Agencies*.

the simultaneous inflows of rescue teams and materials and huge outflows of survivors and tourists.<sup>141</sup> The fact that Nepalese customs initially applied their regular inspection routines to the relief packages did not make things easier.<sup>142</sup> In the end, the airport forcibly had to close to big airplanes as its only runway was deteriorating under the weight of large aircraft.<sup>143</sup>

Thirdly, although more than sufficient manpower, supplies and aid material were available, there were difficulties distributing them to rural areas because there was a shortage of helicopters<sup>144</sup>, supply trucks and drivers.<sup>145</sup> As the population in some remote areas had not received any relief in the first days or even weeks after the disaster struck, their frustration increased. As a consequence, organised groups of locals, including representatives of political parties, reportedly obstructed and hijacked aid material on the way.<sup>146</sup>

Fourthly, similar to what happened after the 2010 Haiti earthquake<sup>147</sup>, simply the sheer number of humanitarian organisations and relief goods put pressure on the logistical capacities of the Nepalese government and on the coordination and coherence of the relief efforts.<sup>148</sup> This is part of a wider trend, with an increasing worldwide number of humanitarian actors and organisations, all with different missions, mandates and agendas, posing a number of great challenges to the relief system.<sup>149</sup>

Fifthly, the very seat of the Nepalese government itself was within the disaster zone, inevitably<sup>150</sup> limiting the government's capacity to coordinate the rescue efforts more efficiently.<sup>151</sup> The Post Disaster Needs Assessment indicated that 1,711 central, district, municipal and village structures were fully or partially damaged, including army structures, police buildings, VDCs, DDCs, MNCs, central ministry buildings and so on. Besides, also the Nepalese DRR system, comprising SAR assets and EOCs were affected.<sup>152</sup> Although local government structures immediately reoriented their work after the earthquake to coordinating the relief efforts, it does not come as a surprise that the scale of devastation compromised their abilities to coordinate relief operations, especially if we also consider the precarious political situation of Nepal at the time of the earthquakes.

#### **4.3.2 Lack of communication and consultation**

News reports on post-earthquake disaster relief also pointed to difficulties related to communication. Nepalese government officials, for instance, stated that they were not even consulted by donors about which goods were needed.<sup>153</sup> Finance Minister Ram Sharan Mahat

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<sup>141</sup> Deutsche Welle, *Nepal urges better international aid coordination*.

<sup>142</sup> Moroney, J. (2015, May 7). *Don't Wait for Disaster to Strike*. US News. Retrieved from <http://www.usnews.com/opinion/blogs/world-report/2015/05/07/nepal-earthquake-response-shows-need-for-better-international-planning>

<sup>143</sup> Associated Press (2015, May 3). Nepal earthquake aid fears after main airport shut to big planes. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/may/03/nepal-forced-to-shut-main-airport-to-big-planes>

<sup>144</sup> Bell, T. (2015, May 3). Nepal earthquake: Many survivors receiving no help despite relief effort. *The Independent*. Retrieved from <http://www.independent.co.uk/news/world/asia/nepal-earthquake-many-survivors-receiving-no-help-despite-relief-effort-10221693.html>

<sup>145</sup> Associated Press, Nepal earthquake aid fears after main airport shut to big planes.

<sup>146</sup> Ghimire, Y. and Khan, H. (2015, May 5). Nepal aid getting 'hijacked'. *Indian Express*. Retrieved from <http://indianexpress.com/article/world/world-others/aid-getting-hijacked/>

<sup>147</sup> Acaps (2015, April 27). Lessons Learned for Nepal Earthquake Response, p. 2.

<sup>148</sup> Deutsche Welle, *Nepal urges better international aid coordination*.

<sup>149</sup> Humphries, Improving Humanitarian Coordination.

<sup>150</sup> GFDRR, World Bank Group, EU and UN. *Disaster Risk Reduction*, p. 9.

<sup>151</sup> Ambassador Pokharel at EIAS Briefing Seminar (2015, June 30). *Post-Disaster aid to Nepal: From Need to Response*.

<sup>152</sup> Government of Nepal National Planning Commission, *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

<sup>153</sup> Daniel and Mahr, *Nepal, aid agencies trade blame as confusion mars quake relief*.

gave the example to “[...] have received things like tuna fish and mayonnaise. What good are those things for us? We need grains, salt and sugar.”<sup>154155</sup>

In addition to the previously mentioned experiences of the Belgian USAR team and the NYC Medics, the Netherlands USAR team also worked together with crews from four other nations, including the Nepal army.<sup>156</sup> Frustrated by a lack of coordination, some donors circumvented the government and sent aid directly through non-governmental organisations for distribution, adding to disagreements.<sup>157</sup>

Previous disasters taught the lesson that, after a large influx of organisations, coordination and relief efforts must be tailored to the local context.<sup>158</sup> In Haiti, for instance, UN coordination meetings were conducted in English, which prevented many French-speaking Haitians from joining the recovery process.<sup>159</sup> A large share of the aid workers did not even speak the local language, and many NGOs were operating in the country without ever consulting the local authorities.<sup>160</sup> Apart from the topic of coordinating efforts, this also raises the issue of transparency and accountability of the contributing organisations. The inclusion of local communities into recovery operations contributes to a sense of ownership, gives information on their real needs and keeps the learning processes within the country.<sup>161</sup>

Unfortunately, similar mistakes were made in Nepal. It is said that only few Nepalese were present at cluster meetings<sup>162</sup> and a large number of foreign teams even left the country without reporting what they did.<sup>163</sup> Dan Schwarz, a global health resident who has worked in Nepal for years with a non-profit called Possible, reportedly said, “Many international partners have been trying to develop their own, parallel relief or reconstruction programmes, outside of the central government mechanisms. We have watched as countless well-intentioned groups from NGOs and governments around the world arrive in Kathmandu with their own plans and priorities, having never consulted local Nepali communities or authorities.”

Situations like these would arguably not have occurred if there were sufficient and adequate consultations between relief organisations and the Nepalese agencies that were responsible for the coordination of relief efforts in the field. However, it seems that one other aspect is preventing this to happen, namely a clear lack of trust and understanding between the actors involved.

#### **4.3.3 Lack of trust and understanding**

The Nepalese government decided to route earthquake donations through the bank account of the Prime Minister’s Disaster Relief fund, trying “to provide a one-window service to the affected people by consolidating amounts, avoiding duplication of effort and ensuring proportional and equitable access to relief by needy victims in all areas”, as the secretary of

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<sup>154</sup> BBC News (2015, May 3). *Nepal quake: Airport customs holding up aid relief – UN*.

<sup>155</sup> Ratcliffe, R. (2015, May 2). Nepal customs holding up earthquake relief efforts, says United Nations. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/may/02/nepal-customs-holding-up-relief-jamie-mcgoldrick-united-nations>

<sup>156</sup> Daniel and Mahr, *Nepal, aid agencies trade blame as confusion mars quake relief*.

<sup>157</sup> Ibidem.

<sup>158</sup> Sanderson, D. and Ramalingam, B. (2015). Nepal Earthquake Response: Lessons for Operational Agencies, *ALNAP Lessons Paper*, p. 9.

<sup>159</sup> Raymond, P. (2015, May 6). Building a new Nepal: why the world must heed the lessons of Haiti. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2015/may/06/earthquake-building-a-new-nepal-why-the-world-must-heed-the-lessons-of-haiti>

<sup>160</sup> Khalid, A. (2015, April 25). How Nepal Relief Efforts Can Learn From Our Mistakes With Haiti. *Bustle*. Retrieved from <http://www.bustle.com/articles/78930-how-nepal-relief-efforts-can-learn-from-our-mistakes-with-haiti>

<sup>161</sup> Ibidem.

<sup>162</sup> Bell, *Nepal earthquake: Many survivors receiving no help despite relief effort*.

<sup>163</sup> Troutman, *What Happened to the Aid? Nepal Earthquake Response Echoes Haiti*.

the PM's Disaster Relief Fund, Naraya Gopan Malego, stated.<sup>164</sup> Although previously registered NGOs and community-based organisations were said to be unaffected by this ruling, the measure was severely mistrusted and criticised by Western media and a UN source as a way of trying to politicise the distribution of funds.<sup>165</sup> According to an NGO worker, the government only appeared to care about "harvesting the golden wave" of relief aid.<sup>166</sup> Like we already mentioned, some donors circumvented the government and sent aid directly through NGOs for distribution.

The Nepali Minister of Finance, Ram Sharan Mahat, on the other hand claimed that, although the country had received helicopters and relief material, "not a single dollar of the sums pledged by international donors had been placed in government accounts"<sup>167</sup> despite promises from the ADB and others.<sup>168</sup> This sequence of events clearly indicates that there is little trust from the international humanitarian community towards the Nepalese government.

The lack of trust does not come unexpectedly. News reports indicated that in Nepal, "corruption is seen as endemic".<sup>169</sup> Kenichi Yokoyama, Director of the Asian Development Bank in Nepal, said that building codes are widely ignored, caused by poor law enforcement and even the possibility to buy an approval for building designs.<sup>170</sup> Because of corruption and bureaucracy, donors such as DFID deliberately channelled their donations through NGOs and UN agencies. Dr Govind Pokharel, vice-chairman of Nepal's National Planning Commission, reportedly confirmed that the system is indeed corrupt.<sup>171</sup> Several witnesses and victims explained that also during the post-earthquake humanitarian response, corruption and red tape have hindered relief efforts. Doctors would have refused to treat a wounded man after the second earthquake on May 12 because he had no official victim stamp, whereas customs officials would have demanded bribes to allow relief goods coming from India into the country.<sup>172</sup>

However, a mixed group of four Nepalese, international anthropologists and aid workers put the criticisms into perspective, testifying that although there was a reality of villagers in rural communities not receiving any relief (in time), they personally experienced the "constant and legitimate efforts of the Nepali government and registered NGOs", by participating in the coordination efforts led by the authorities. In their point of view, the Nepalese government actually wanted to put lessons from Haiti and other disasters into practice by doing what they could and attempting to coordinate the flow of goods and money, despite being weakened after decades of instability.<sup>173</sup> On top of that, the overwhelming impact of the scale of the disaster on governmental structures<sup>174</sup> should not be underestimated, as we already indicated. Kishor Pradhan and Dibya Gurung, two experts volunteering as part of the relief efforts, were

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<sup>164</sup> Anyadike, O. (2015, May 5). Nepal Quake Fund Move is PR Fiasco. *IRIN News*. Retrieved from <http://www.irinnews.org/report/101452/nepal-quake-fund-move-is-pr-fiasco>

<sup>165</sup> Ibidem.

<sup>166</sup> Bell, Nepal earthquake: Many survivors receiving no help despite relief effort.

<sup>167</sup> Ibidem.

<sup>168</sup> Heanue, S. (2015, May 3). Nepal earthquake: Government rules out possibility of finding more survivors as frustration grows over aid distribution delays. *ABC News*. Retrieved from <http://mobile.abc.net.au/news/2015-05-02/unlikely-more-survivors-will-be-found-after-nepal-earthquake-gov/6439554>

<sup>169</sup> Cox, S. (2015, May 21). Where is Nepal aid money going? *BBC News*. Retrieved from <http://www.bbc.com/news/world-asia-32817748>

<sup>170</sup> Ibidem.

<sup>171</sup> Ibidem.

<sup>172</sup> Francis, A. (2015, May 19). Nepal earthquake: Anger as corruption, red tape holds up aid delivery in remote areas. *ABC News*. Retrieved from <http://www.abc.net.au/news/2015-05-19/corruption,-red-tape-holds-up-nepal-earthquake-aid-delivery/6479052>

<sup>173</sup> Sanders, C.; McKay, K.H.; Lama, A. and Dhakal, P. (2015). "Pro-Government" is not "Pro-Corruption" in the Aftermath of the Nepal Earthquakes. *Anthropology News*. Retrieved from [www.anthropology-news.org/index.php/2015/06/10/pro-government-is-not-pro-corruption-in-the-aftermath-of-the-nepal-earthquakes/](http://www.anthropology-news.org/index.php/2015/06/10/pro-government-is-not-pro-corruption-in-the-aftermath-of-the-nepal-earthquakes/)

<sup>174</sup> Raymond, *Building a new Nepal: why the world must heed the lessons of Haiti*.

interviewed by the Huffington Post and stressed the need for a more nuanced perspective on the role of the Nepalese government in coordinating the operations. The Nepalese government really was trying to coordinate - and not control - the activities, in order to avoid mistakes that were made in the past. In their opinion, "the international media should have taken some time to listen to the government, rather than just listening to the version told by the aid missions and donors".<sup>175</sup>

As a matter of fact, the disagreement on how to distribute relief goods and to coordinate the efforts can also be explained by taking the different theoretical approaches to coordination into consideration. The one-door policy, endorsed by the Government of Nepal, tried to coordinate the operations through a centralised and hierarchical structure. NGOs on the other hand are generally in favour of more decentralisation, tending to regard a one-window policy as an attempt to control their diverse work methods<sup>176</sup>, whether there is a government or a UN agency on top of this hierarchy. It is therefore plausible that some NGOs in the field were already prejudiced against the idea of centralising relief efforts. Logistical bottlenecks and suspicions of corruption and mismanagement may have enforced their beliefs, which could have diminished their incentives to cooperate with the government even more. Mr Tirtha Raj Bhattarai, secretary of Kathmandu's DDRC confirms this notion, as he believes that NGOs were indeed criticising the government to sidestep its one door policy, since they were required to submit proposals to local authorities and were allocated areas to work in.<sup>177</sup>

Although the concerns expressed by several NGOs may be understandable, the Natural Calamity Act still reserves the Nepalese government the right to "coordinate, regulate and monitor disaster relief and recovery assistance, which includes control of access by foreigners and foreign agencies".<sup>178</sup> On top of that, International Disaster Response Law (IDRL) guidelines instruct that assisting actors and their staff "should abide by the laws of the affected state and applicable international law [and] coordinate with domestic authorities".<sup>179</sup>

Whether suspicions of bad governance, red tape and corruption were grounded or not, the fact that the government was circumvented by donors individually pledging aid directly through NGOs - who were not always keen on following government's instructions - raises questions about how these efforts could be coordinated at all. Besides, international search and rescue teams often had their own agendas and set up a parallel relief or reconstruction programme. The Nepalese government eventually adjusted its policy of a one-door distribution system, when the three major political parties agreed to allow anyone interested to distribute relief materials as per need in the quake-affected areas, however, still under the government's coordination.<sup>180</sup> The lack of trust was also mutual, as the GoN seemed to have had little faith in the supplies that were provided by donors, insisting to an inspection of all the relief packages that arrived in the Kathmandu airport, which led to frustration for many humanitarian organisations.<sup>181</sup>

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<sup>175</sup> Lam, A. (2015, May 9). Nepal Needs More Than Tarps for Reconstruction. *Huffington Post*. Retrieved from [http://www.huffingtonpost.com/andrew-lam/nepal-needs-more-than-tar\\_b\\_7248422.html](http://www.huffingtonpost.com/andrew-lam/nepal-needs-more-than-tar_b_7248422.html)

<sup>176</sup> James, *Managing Humanitarian Relief: An operational guide for NGOs*.

<sup>177</sup> Francis, A. (2015, May 19). Nepal earthquake: Anger as corruption, red tape holds up aid delivery in remote areas. *ABC News*. Retrieved from <http://www.abc.net.au/news/2015-05-19/corruption,-red-tape-holds-up-nepal-earthquake-aid-delivery/6479052>

<sup>178</sup> CFE-DMHA (2015). *Nepal Disaster Management Reference Handbook*, p. 60.

<sup>179</sup> Nepal Red Cross Society and the International Federation of Red Cross and Red Crescent Societies (2015). *International Disaster Response Law (IDRL) in Nepal*, p. 23.

<sup>180</sup> Kathmandu Post (2015, May 3). *Three parties agree to allow all to distribute relief to quake survivors*. Retrieved from <http://kathmandupost.ekantipur.com/news/2015-05-03/three-parties-agree-to-allow-all-to-distribute-relief-to-quake-survivors.html>

<sup>181</sup> BBC News (2015, May 3). *Nepal quake: Airport customs holding up aid relief - UN*.

The UN cluster approach, which has long been established in Nepal<sup>182</sup>, could have proven to be a solution as it allows the government, UN agencies and humanitarian partners to come together and synchronise their efforts. The approach is Nepal's primary response mechanism, utilising 10 established clusters.<sup>183</sup> Each cluster meets on a monthly basis to discuss key issues of concern and is tasked with developing a contingency plan based on a large-scale disaster scenario, which is then combined into an IASC Contingency Plan. In turn, the cluster leads also a monthly meeting to discuss disaster response efforts and share information.<sup>184</sup> Nevertheless, a report by the Independent raised concerns over how these clusters are functioning, because few Nepali are present at these meetings, which are largely attended by "foreigners with only a few days' experience of the country."<sup>185</sup> In the aftermath of the earthquake, police officers in the village of Langarche were protractedly not authorised to distribute a pile of supplies, as international organisations preferred that relief operations were coordinated by these clusters where foreign officials and the Nepali government work together.<sup>186</sup> The exact role that these clusters have played in improving the coordination of relief efforts is subject to further investigation.

Apparently, not only the GoN missed credibility in the eyes of the international donor community, but also – very similarly to what happened after the 2010 Haiti earthquake<sup>187</sup> – local Nepalese organisations were largely neglected when it came to the allocation of funds, since only 0.8 per cent of the total USD 442 million donated were reportedly directed to Nepalese NGOs.<sup>188</sup> The largest share of the cake went to large organisations such as the WHO, Oxfam and CARE.<sup>189</sup> According to an op-ed by Rafia Zakaria, a lesson from disasters like Haiti and Nepal is that "international relief agencies operate on the principle that effective and expert help can only come from abroad".<sup>190</sup> The existence of a mindset that neglects or even rejects the importance of consulting and engaging affected communities and their organisations, could form another explanation for the fact that some agencies, despite their good intentions, did not feel the need to consult local authorities.

Even if the GoN, its local NGOs and the international humanitarian community had a sincere aim to improve and to coordinate the disaster relief efforts, be it through providing a one-window 'donation' service, through a cluster approach or through decentralised operations, a lack of trust and communication led to a situation where good intentions were wronged, enforced by conflicting approaches on how to carry out and coordinate relief operations.

#### **4.3.4 The role of media & motives**

The role of the media after a natural calamity cannot be underestimated. International media in Haiti as well as Nepal mainly focused on search and rescue, whereas the real needs were shelter, food, water and medication.<sup>191</sup> In Nepal, only few people were rescued from the rubble by international USAR teams, whereas the media reports gave a different story, depicting

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<sup>182</sup> Sanderson, D. and Ramalingam, B. (2015). Nepal Earthquake Response: Lessons for Operational Agencies. *ALNAP Lessons Paper*, p. 9.

<sup>183</sup> CFE-DMHA (2015). *Nepal Disaster Management Reference Handbook*, p. 61.

<sup>184</sup> Nepal Red Cross Society and the International Federation of Red Cross and Red Crescent Societies (2015). *International Disaster Response Law (IDRL) in Nepal*, p. 17.

<sup>185</sup> Bell, Nepal earthquake: Many survivors receiving no help despite relief effort.

<sup>186</sup> *Ibidem*.

<sup>187</sup> Khalid, *How Nepal Relief Efforts Can Learn From Our Mistakes With Haiti*.

<sup>188</sup> Troutman, *What Happened to the Aid? Nepal Earthquake Response Echoes Haiti*.

<sup>189</sup> Zakaria, R. (2015, July 2). The Deceptions of Disaster Relief in Nepal. *Al Jazeera America*. Retrieved from <http://america.aljazeera.com/opinions/2015/7/the-deceptions-of-disaster-relief-in-nepal.html>

<sup>190</sup> *Ibidem*.

<sup>191</sup> Raymond, *Building a new Nepal: why the world must heed the lessons of Haiti*.

foreign aid agencies as heroes while ignoring the support and solidarity given by the Nepalese.<sup>192</sup>

Another factor that comes into play is represented by the motives of the actors offering emergency aid. Although there is no reason to question the sincerity of the initiatives undertaken by international donors, NGOs and Western civil society, the way in which these initiatives are executed is influenced by a range of different motives, interests and agendas.

A high media exposure of a disaster can add pressure to donors and organisations to act quickly and visibly, without necessarily spending a lot of attention to the coordination of their efforts.<sup>193</sup> For a national politician, it may be important to be seen by the electorate as a decisive leader. In that case, the visibility of the efforts and the media attention it gets is crucial. Therefore, giving support through in kind aid, national USAR teams and military manpower could be seen as the most attractive option, whether it is urgently needed or not. Invisible financial donations to an allegedly corrupt government are then a less alluring idea. In Nepal, the government and OCHA had to request foreign donors to stop sending SAR and foreign medical teams<sup>194</sup>, as more than sufficient staff was already deployed in the field. Nevertheless, some donors and organisations reportedly ignored the advice and continued sending teams, which complicated coordination efforts.<sup>195</sup>

The response by New Zealand is a positive example in this regard. Its government kept the local situation in mind when assessing the support it wanted to give. As a number of neighbouring countries such as China and India had already deployed USAR teams, New Zealand decided not to send its USAR team and to make a contribution of USD 1 million to agencies that were active on the ground.<sup>196</sup> However, New Zealand eventually sent the USAR team anyway, but only because the Nepali government had requested it to do so.<sup>197</sup>

#### **4.4 INSTITUTIONAL AND PROCEDURAL IMPERFECTIONS**

##### **4.4.1 Domestic**

The Nepali government and international aid organisations have been preparing for years in case of natural calamities such as the earthquakes that struck in April and May 2015. In this context, meetings about earthquake preparedness took place very regularly and global donors invested millions of dollars to improve Nepal's resilience.<sup>198</sup> Furthermore, Nepal boasts an encompassing network of natural disaster relief institutions, implemented a NDRF in 2013 and has continuously been working on an update of its disaster relief legislation.

A good disaster management infrastructure with clear procedures, institutions and role divisions can help overcome logistical problems, can improve the communication and consultation between the actors involved, can build trust between different organisations and is definitely beneficial to the coordination of relief operations. Although Nepal and the international community established those needed institutions and procedures, the 2015 earthquakes have proven that there is still space for improvement and that it is probably going to be a long-term effort.

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<sup>192</sup> Ibidem.

<sup>193</sup> D.P. Moroney, J.; Pezard, P.; E. Miller, L.; Engstrom, J.; Doll, A. (2015). Lessons from Department of Defense Disaster Relief Efforts in the Asia-Pacific Region. *Rand Corporation*, p. 112.

<sup>194</sup> Office of the Resident Coordinator (2015, April 25). *Nepal Earthquake Situation Report 05*, p. 1-2.

<sup>195</sup> Troutman, *What Happened to the Aid? Nepal Earthquake Response Echoes Haiti*.

<sup>196</sup> McCully, M. (2015, April 26). *NZ to provide \$1million in aid to Nepal*. The Official Website of the New Zealand Government. Retrieved from <http://www.beehive.govt.nz/release/nz-provide-1million-aid-nepal>

<sup>197</sup> Ibidem.

<sup>198</sup> Daniel and Mahr, *Nepal, aid agencies trade blame as confusion mars quake relief*.

One example in this regard is the fact that Nepalese customs officials performed their regular inspection routines to relief packages, which led to a piling up of resources at the Kathmandu airport. This met fierce criticism from humanitarian teams.<sup>199</sup> UN humanitarian chief Valerie Amos said that Nepal “had a duty to provide faster customs clearance to relief supplies”; whereas UN representative in the country Jamie McGoldrick stated that, the Nepalese government “should not be using peacetime customs methodology”.<sup>200</sup> The tensions between the international humanitarian community and the GoN further increased as the UN accused customs of holding up relief materials coming by truck from across the border.<sup>201</sup> Despite the existence of a NDRF, there were apparently no procedures or agreements in place on customs clearances after a natural disaster. Later on, Nepal lifted import taxes on tarpaulins and tents, but all goods from abroad still had to be inspected since officials complained that many relief workers arrived without proper documents to enter the country.<sup>202</sup>

John Bevan, a former senior UN official with experience in Nepal and Haiti stated that, although the government was said to be well prepared to cope with an earthquake, almost nothing seemed to have been put in place for dealing with the current circumstances.<sup>203</sup> Most projections for example foresaw a catastrophe in Kathmandu, while the actual disaster occurred in rural areas.

As a matter of fact, the 2010 floods in Pakistan proved that the existence of a comprehensive framework is good-for-nothing without being backed by an actionable system where stakeholders account for their responsibilities.<sup>204</sup> The question can be raised whether this was the

## Clusters

*As defined by the United Nations Office for the Coordination of Humanitarian Affairs, clusters are groups of humanitarian organizations – both UN and non-UN – that focus their activity on each of the main sectors of humanitarian action. Established with an ad-hoc structure during the emergencies by the Inter-Agency Standing Committee (IASC), all the clusters have a focal point called Cluster Lead Agencies:*

- *Camp Coordination and Camp Management (UNHCR, IOM, Samaritarian’s Pursue);*
- *Early Recovery (UNDP, Concern Worldwide, Relief International);*
- *Education (UNICEF, Save the Children, Mercy Corps);*
- *Emergency Telecommunications (WFP);*
- *Food Security (FAO, WFP, Care International);*
- *Health (WHO, Emergency, MSF, AmeriCares);*
- *Logistics (WFP, Plan International);*
- *Nutrition (UNICEF, ActionAid);*
- *Protection (UNHCR, World Vision);*
- *Shelter (UNHCR, IFRC, Oxfam);*
- *Water, Sanitation and Hygiene (UNICEF, Lutheran World Relief).*

*Once the Government decides to activate the Clusters, there are different core functions available for these bodies adhering to common standards and guidelines: firstly the support to service delivery, which offers the necessary platform to ensure Humanitarian Response Plan and strategic priorities. Secondly, informing the Humanitarian Country Team by preparing needs assessments and formulating priorities based on the analysis of gaps. Thirdly, Clusters can also develop objectives to support the realisation of the overall disaster response. Furthermore, the monitoring and reporting of the performances to evaluate the progress is also another fundamental responsibility for the Clusters. Once all this information is gathered, it is mandatory for humanitarian organizations to build the national capacity and prepare contingency plans.*

<sup>199</sup> Moroney, J. (2015, May 7). Don’t Wait for Disaster to Strike. *US News*. Retrieved from <http://www.usnews.com/opinion/blogs/world-report/2015/05/07/nepal-earthquake-response-shows-need-for-better-international-planning>

<sup>200</sup> BBC News (2015, May 3). *Nepal quake: Airport customs holding up aid relief – UN*.

<sup>201</sup> Sriram, *Hopes dim for survivors*.

<sup>202</sup> Daniel and Mahr, *Nepal, aid agencies trade blame as confusion mars quake relief*.

<sup>203</sup> Bell, *Nepal earthquake: Many survivors receiving no help despite relief effort*.

<sup>204</sup> GFDRR, World Bank Group, EU and UN, *Disaster Risk Reduction*, p. 15.

case in Nepal. A testimony by an NGO disaster response leader in Dolakha raises concerns, stating that the planners of Nepal's NSDRM in 2010 were not experienced enough. Plans were indeed made on paper but lacked any strategy, with dire consequences.

#### **4.4.2 International**

On an international level, there are no established treaties or institutions providing clear procedures or role divisions to Nepal and its international and regional counterparts. In 2008, SAARC announced to develop a NDRRM, facilitating a coordinated approach to calamities in the region. All its member states signed the SAARC Agreement on Rapid Response to Natural Disasters in 2011, which is still awaiting full ratification before it can come into force.<sup>205</sup> However, a recent Brookings Institution report pointed to a significant disconnect between the SAARC Centre for Disaster Management and Preparedness (SDMC) and the member states. For instance, although a Regional Emergency Operation Centre (REOC) is planned to be established in Kathmandu as part of the NDRRM, no one of the Nepalese interviewees for the Brookings report was aware of this development.<sup>206</sup>

## **5. PAKISTAN 2005 TO NEPAL 2015: A LEARNING TRAJECTORY?**

### **5.1. BACKGROUND**

#### **5.1.1 Overview of the Earthquake**

On the morning of October 8, 2005, an earthquake measuring 7.6 on the Richter scale – the most devastating in the recent history of the region – struck the Himalayan region of northern Pakistan and the disputed territory of Kashmir, causing extensive damage to cities and villages in Pakistan's Azad Jammu Kashmir (AJK) and Khyber Pakhtunkhwa (KPK)<sup>207</sup>, and in India's western and southern Kashmir. The epi-centre of the earthquake was located approximately 19km northeast of the city of Muzaffarabad, the capital of KPK, though the affected area extended more than 30,000 km<sup>2</sup> across nine districts – approximately the size of Belgium (See Figure 1).<sup>208</sup> The main shock was followed by hundreds of aftershocks over several weeks following the initial earthquake<sup>209</sup>, exacerbating the extent of the destruction and greatly complicating relief efforts.

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<sup>205</sup> White, S. (2015). The Role of SAARC in Building the DRM Capacities of South Asian Countries. *Brookings Institution*, p. 12-13.

<sup>206</sup> Ibidem, p. 13.

<sup>207</sup> KPK was formerly known as the North-West Frontier Province (NWFP).

<sup>208</sup> EERI (2005, December). *Special Earthquake Report*; EERI (2006, February). *Special Earthquake Report*.

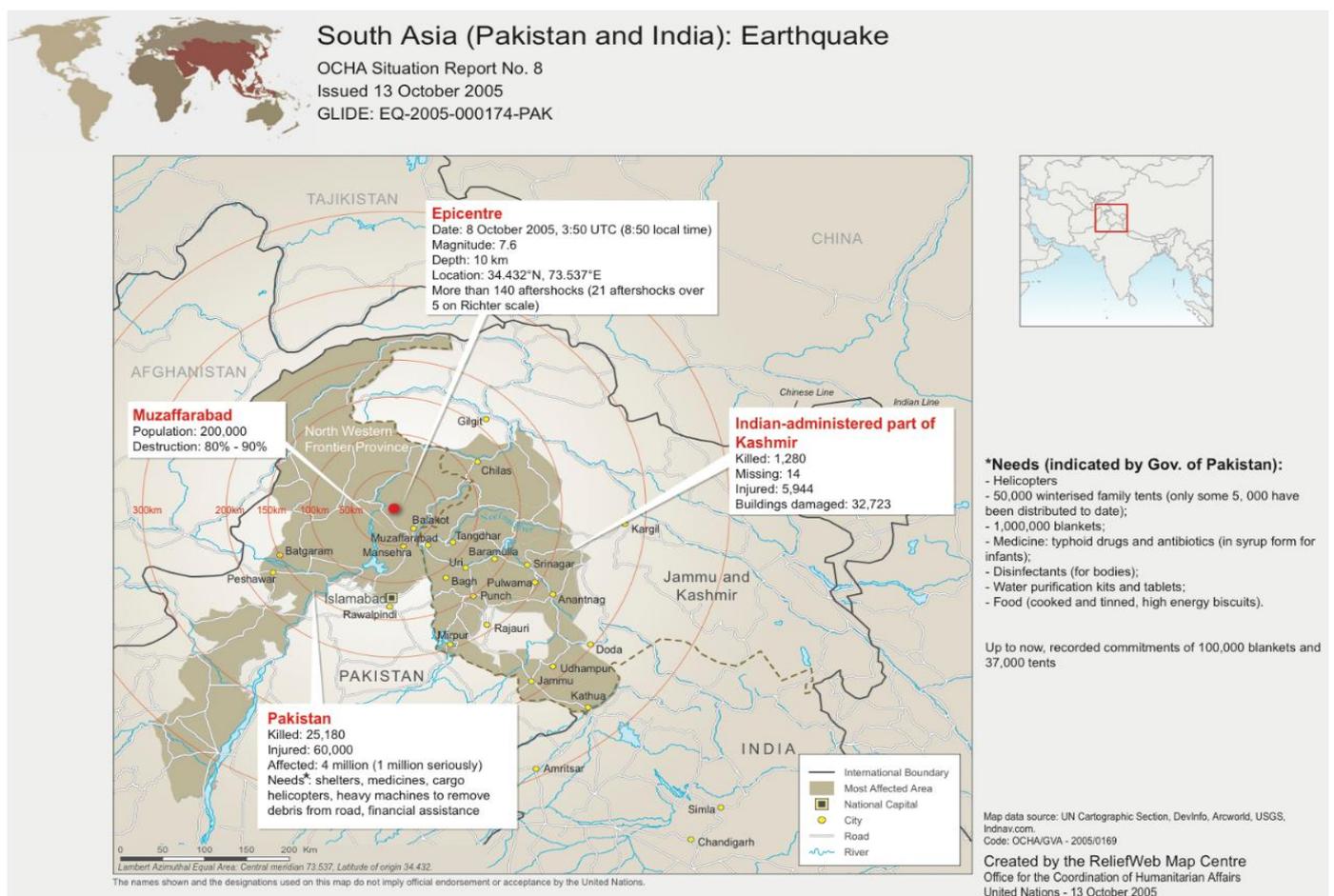
<sup>209</sup> EERI (2005), *Special Earthquake Report*.

### 5.1.2 Extent of Damage

Despite the characteristic resilience of the local population, the impact of the calamity was overwhelming and devastating. The timing and geographic location of the disaster – which occurred at the onset of the harsh Himalayan winter and in remote, rugged terrain – caused serious concern about the vulnerability of the affected populations and their ability to survive. Official statistics quantify the extent of human loss caused by the earthquake at 73,338 dead and 128,304 severely injured. Moreover, the disaster caused tremendous physical damage to Pakistan’s infrastructure, destroying health facilities, schools, government buildings,

transportation, power and telecom networks, water and sanitation schemes and innumerable homes. The economic loss was colossal, leaving behind a reconstruction bill in excess of USD 5 billion<sup>210</sup> (See Table 1).

**Figure 1 – Source: Feinstein Report**



<sup>210</sup> ERRA (2005, October). *Pakistan Earthquake 2005*. Retrieved from <http://www.erra.pk/eq2005.asp>

TABLE 1 - KEY STATISTICS ON DAMAGES SUFFERED

Human Loss	Fatalities	73,338
	Severely Injured	128,304
	Displaced Persons	3.5 million
Physical Loss	Houses Destroyed	600.000+ (76% of entire housing stock)
	Education Facilities Severely Damaged / Destroyed	6,298
	Health Facilities Severely Damaged / Destroyed	796 (80% of primary level facilities)
	Government Buildings Destroyed	715
	Roads Damaged	6,440 Km
	Water-Sanitation Schemes Destroyed	4,020
	Economic Loss	Estimated Overall Damage
	Estimated Overall Impact (% GDP, based on damage)	2.91%
Sources: ERRA, "Annual Review", 2005-06; ERRA & IASC, "ERRA-UN Early Recovery Plan", 2006 ; World Bank GDFRR, 2014; NDMA, 2005.		

The Preliminary Damage and Needs Assessment (PDNA) carried out by the Government of Pakistan (GoP) identified the private housing sector as the one requiring the lion's share of reconstruction costs (USD 1,522 million), followed by education (472 million), transport (416 million), health (303 million), and agriculture and livestock (300 million).<sup>212</sup>

## 5.2 THE RESPONSE: OVERVIEW AND EVALUATION

### 5.2.1 Rescue Phase

Most accounts concur that the first on the scene to assist in rescue efforts operations were individual Pakistani citizens. In an unprecedented outburst of public sympathy, private citizens from all over the country donated relief supplies and thousands of volunteers swarmed to the disaster-affected areas to lend a hand in rescue and relief operations. However, while the public response was undoubtedly well meaning and enthusiastic, its organisation was far from optimal. Well-meaning volunteers transporting relief supplies for earthquake victims soon found themselves blocked in traffic jams, often blocking the few roads leading into the relatively isolated earthquake zone. Furthermore, while certainly sent as kind-hearted gestures, many of the donations turned out being effectively useless, even complicating relief efforts in some instances. For example, within a few days of the calamity there were reports of piles of inappropriate second-hand clothing cluttering the streets or being burned as fuel. Regardless, the work of these voluntary responders played a crucial role in the rescue and relief operations in the immediate aftermath of the earthquake.<sup>213</sup>

<sup>211</sup> Official estimates by the Pakistani government amount to USD 5 million, whereas World Bank estimates are more conservative, calculating an economic damage of USD 3.5 million.

<sup>212</sup> World Bank (2014, May). *Pakistan Earthquake 2005*.

<sup>213</sup> Wilder, A. (2008, February). Perceptions of the Pakistan Earthquake Response. *Feinstein International Center*. Retrieved from <http://fic.tufts.edu/publication-item/humanitarian-agenda-2015-perceptions-of-the-pakistan-earthquake-response/>

The initial surge of private volunteers was soon followed by workers from a vast array of national and international organisations. There were several reports that the first organisations to respond were the “*jihadi*” Islamic groups already stationed in the area, at camps used to train anti-Indian Kashmiri militants.<sup>214</sup> Within the first couple of days the staff of national and international NGOs and UN agencies that were already based in Pakistan actively joined the rescue and relief efforts. The first international search and rescue team deployed by the Turkish Red Crescent Society arrived in Islamabad in less than 24 hours of the earthquake, as did the UN Disaster Assessment and Coordination (UNDAC), which managed to prepare and issue a Flash Appeal within three days to finance a six-month emergency response. It was in these initial days of the relief effort that the decision to implement the “Cluster Approach” was made.<sup>215</sup> On the basis of this deliberation, an array of UN agencies were selected to coordinate different sectoral and thematic clusters operating in Islamabad as well as in the “humanitarian hubs” within the area affected by the earthquake.<sup>216</sup>

### 5.3 DOMESTIC RESPONSE

The GoP responded rapidly to the 2005 earthquake, as warranted by an emergency of such scale. Within 12 hours, the Government extended an open invitation to humanitarian agencies around the world, expediting their arrival, registration and access. For instance, some of the cumbersome bureaucratic procedures required for international agencies to obtain access to some areas were lifted, allowing unrestricted international access to areas along the sensitive Line of Control (LoC) with India for the first time in decades.<sup>217</sup>

Despite the widespread praise the GoP received for the speed of its response in the immediate aftermath of the earthquake – noted by the UN, amongst other international organisations – it was similarly widely recognized that the country was ill-prepared to deal with a calamity of this magnitude<sup>218</sup>, particularly in spite of warning signals in previous years regarding potential seismic activity.<sup>219</sup> Prior to the earthquake, no disaster response organisation existed to respond to major natural disasters, and therefore it was the army, the country’s most powerful institution, that took charge of relief operations.

The day after the earthquake, President Musharraf appointed a serving military officer to establish and oversee a Federal Relief Commission (FRC).<sup>220</sup> Just a few weeks later, the accepted need for a central oversight body to coordinate the activities of the broad spectrum of actors participating in the reconstruction led to the establishment of the Earthquake Reconstruction and Rehabilitation Authority (ERRA). Lieutenant-General Nadeem Ahmad – first appointed as the director of FRC and later of ERRA and widely esteemed for planning and coordinating the relief and reconstruction non-combatant military operations after the earthquake – identified the following shortcomings in the GoP’s disaster preparedness:

- Lack of an institutional framework for disaster management and planning.
- Absence of disaster-resistant building codes, hence no compliance.

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<sup>214</sup> *Ibidem*

<sup>215</sup> The term refers to the framework for humanitarian coordination developed by the UN Inter-Agency Standing Committee (IASC) that includes nine clusters: Health, Food and Nutrition, Water and Sanitation, Logistics, Camp Management, Emergency Shelter, Emergency Telecommunications, Protection of Vulnerable Groups, and Early Recovery. Following the 2005 Pakistan earthquake, a tenth cluster, Education, was added.

<sup>216</sup> The four principal hubs were located in the towns of Muzaffarabad, Mansehra, Battagram and Bagh. Wilder, A. (2008, February). Perceptions of the Pakistan Earthquake Response. *Feinstein International Center*.

<sup>217</sup> Cochrane, H. (2008, October). The Role of the Affected State in Humanitarian Action: A Case Study on Pakistan. *HPG Working Paper*. Retrieved from <https://www.odi.org/publications/2554-role-state-humanitarian-action-pakistan>

<sup>218</sup> *Ibidem*

<sup>219</sup> IRIN (2006, June 29). Pakistan: The role of the military in the Pakistan earthquake. ReliefWeb. Retrieved from <http://reliefweb.int/report/pakistan/pakistan-role-military-pakistan-earthquake>

<sup>220</sup> IRIN (2006, June 29). Pakistan: The role of the military in the Pakistan earthquake.

- No hazard assessment or mapping.
- Nonexistence of a dedicated information management/decision support system.
- Dearth of community preparedness and awareness.<sup>221</sup>

Indeed, the impact of the earthquake could have been vastly minimized had a disaster management framework been in place prior to the calamity.<sup>222</sup>

The presence of an effective, well-resourced and influential military establishment in Pakistan offers considerable prospects as well as significant challenges for coordinated and efficient disaster response efforts. Many of the complications can be ascribed to the balance between military and civilian authorities, as well as between the local and national government.<sup>223</sup>

### **5.3.1 Military vs Civilian Response**

Given its superior logistical and technical capacity as well as its pre-earthquake presence in the disaster-affected areas, the military intervened very and assumed a role of leadership in the relief response, thus diminishing the influence of the civilian authority to some extent.

A report by the Feinstein International Centre on the response to the 2005 earthquake highlights how the local perceptions on the role played by the army were vastly divergent. The military initially received severe criticism in the local and international media for doing relatively little to rescue civilians in the first few days following the disaster, prioritizing the rescue of its own military personnel instead.<sup>224</sup> The initial condemnation turned into commendation, however, for the army's successful management of the ensuing relief phase, where its decision-making competence, coordination skills, logistical capacity, and willingness to adapt to new circumstances contributed to one of the most effective humanitarian responses to a large-scale natural disaster.<sup>225</sup> For instance, IASC states in its real-time evaluation of the cluster approach that 'it was unanimously confirmed that the success of the overall relief effort to the earthquake turned on the extraordinary performance of the Pakistan's Military and their effective adoption of the cluster system'.<sup>226</sup>

Conversely, the perceptions of the military's role in the subsequent reconstruction phase were far less encouraging. The army received widespread criticism for prolonging its central role into the reconstruction phase instead of handing power back to civilian authorities, leading to conspicuous public frustration, which was compounded by the shortcomings of the reconstruction efforts. This civil-military tension during the reconstruction phase became all the more apparent following the increasing anti-military sentiment in the country and the escalation of tensions between the army and extremist militant groups in the country. The military found itself party to a conflict that spilled over into the earthquake-affected area, making the military's role in the post-disaster reconstruction efforts much more complex and controversial.<sup>227</sup>

<sup>221</sup> Nadeem, A. (2005). Pakistan Earthquake: Lessons Learnt. *U.N. Nepal Information Platform*. Retrieved from <http://un.org.np/attachments/presentation-lessons-learnt-pakistan-earthquake-2005-lt-genretd-nadeem-ahmed-chairman-nd>

<sup>222</sup> Cochrane, H. (2008, October). *The Role of the Affected State in Humanitarian Action: A Case Study on Pakistan*.

<sup>223</sup> *Ibidem*

<sup>224</sup> ICG Asia Policy (2006, March 15). *Pakistan: Political Impact of the Earthquake*. Briefing no. 46. Retrieved from <http://www.crisisgroup.org/en/regions/asia/south-asia/pakistan/B046-pakistan-political-impact-of-the-earthquake.aspx>

<sup>225</sup> One senior USAID official was even quoted in a report as identifying the Pakistani government's response as the most competent he had witnessed in Asia.

<sup>226</sup> Inter Agency Standing Committee (2006, February). *Real Time Evaluation of the Cluster Approach – Pakistan Earthquake*. Retrieved from [https://docs.unocha.org/sites/dms/Documents/Cluster\\_Field\\_Real-Time\\_Evaluation\\_\(RTE\)\\_in\\_Pakistan,\\_Evaluation\\_Report\\_\(Final\\_Draft\),\\_WG64,\\_20060314-67.pdf](https://docs.unocha.org/sites/dms/Documents/Cluster_Field_Real-Time_Evaluation_(RTE)_in_Pakistan,_Evaluation_Report_(Final_Draft),_WG64,_20060314-67.pdf)

<sup>227</sup> IRIN (2006, June 29). Pakistan: The role of the military in the Pakistan earthquake.

### 5.3.2 Local vs National Response

Another tension that emerged in the effectiveness of the response to the 2005 earthquake was the divergence between state capacity at the national and local (i.e. provincial) levels. While the disaster undoubtedly had a devastating impact on affected areas, it did not significantly jeopardize the central government, state structure or national economy. Conversely, the destruction of government infrastructure or loss of life caused by the earthquake critically compromised the capacity of the local government in AJK and to a lesser degree in KPK. Consequently, it is generally agreed that the national state response overshadowed that of the local state. During the relief phase, the great loss of local state capacity caused by the earthquake was initially invoked as a justification for the preponderance of a centralized response. Lacking a dedicated disaster management agency prior to the earthquake, the national government established the FRC to oversee the relief effort and coordinate the plethora of national and international humanitarian organisations, UN agencies, government institutions and military departments. By working through ERRA, the humanitarian community – both domestic and international – served to reinforce the centralized response, for instance with key meetings being held in Islamabad rather than at the provincial or district levels.<sup>228</sup>

### 5.4 INTERNATIONAL RESPONSE

Less than a week after the earthquake struck, UN-OCHA released a multi-agency flash appeal for urgent humanitarian assistance, securing pledges for \$312 million, subsequently revised to USD \$550m following a High Level Ministerial Meeting in Geneva.<sup>229</sup> Analysts have described the UN flash appeal as “vastly underfunded”, prompting some to conclude that the confused and inadequate nature of the UN’s initial response prompted donors to commit their resources to other agencies.<sup>230</sup> On 19 November 2005, an International Donor conference, held in Islamabad to secure financing for relief and reconstruction efforts, was attended by over 75 nations and international organisations. The Conference was more effective than the flash appeal, securing \$6.2 billion in cash, soft loans and material goods.<sup>231</sup>

National authorities, particularly military institutions, were in charge of the lion’s share of disaster relief and response for the 2005 earthquake, overshadowing civilian and local authorities. This centralized state decision-making structure had profound consequences for the international humanitarian agencies as well. Indeed, these agencies often found themselves entangled in the midst of power struggles between national, provincial and district-level authorities. Most international agencies and humanitarian actors adhered to the rationale that by supporting the central government – principally in the form of ERRA – the benefits would trickle down to the sub-national levels. From this perspective, international actors further entrenched the existing political balance of power, fortifying the capacity of the central state at the expense of local state capacity.<sup>232</sup>

One of the characteristic features of the 2005 Pakistan earthquake was the important role played by international military forces in the rescue and relief phases. In addition to domestic

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<sup>228</sup> Cochrane, H. (2008, October). *The Role of the Affected State in Humanitarian Action: A Case Study on Pakistan*.

<sup>229</sup> CRS (2005). *The Earthquake in South Asia: Humanitarian Assistance and Relief Operations*; IRIN (2006). *When disaster strikes: the response to the South Asian earthquake*. Retrieved from <http://www.irinnews.org/indepthmain.aspx?InDepthId=6&ReportId=34377>

<sup>230</sup> Ibidem.

<sup>231</sup> The most generous bilateral donors included Saudi Arabia (USD 593 million); the United States (USD 510 million); China (USD 320 million); Iran (USD 200 million) and the United Arab Emirates (USD 200 million). Among multilateral donors, the World Bank and the Asian Development Bank committed USD 1 billion in grants and soft loans, and the Islamic Development Bank pledged USD 500 million in soft loans.

<sup>232</sup> Cochrane, H. (2008, October). *The Role of the Affected State in Humanitarian Action: A Case Study on Pakistan*.

military forces, at least other 19 nations contributed troops to the relief effort. Moreover, Pakistan's geostrategic significance in the context of the US-led "War on Terror" (WoT), along with the proximity of US and other NATO forces and equipment in neighbouring Afghanistan, contributed to the substantial involvement of US and NATO forces in the response to the 2005 earthquake. The NATO Response Force (NRF) deployed around 1,200 specialist personnel, including medical staff and engineers, to participate in NATO's first exclusively humanitarian mission.<sup>233</sup> Moreover, NATO airlifted almost 3,500 tons of relief supplies provided by NATO member and partner countries as well as the UN High Commissioner for Refugees (UNHCR) via two air bridges, from Turkey and Germany.<sup>234</sup>

Feinstein International Center's Report on the response to the earthquake identifies the helicopter relief operation – which ended up being the largest helicopter airlift of relief supplies in history – as one of the principal successes of the response, and one of the best examples of effective civil-military collaboration in the context of a humanitarian relief operation. The Pakistan Army, US Navy and UN Humanitarian Air Service managed an effective Air Operations Cell (AOC) to coordinate helicopters in delivery of relief supplies to the earthquake zone and transportation of the injured to medical facilities outside the earthquake zone.<sup>235</sup>

Conversely, the "Cluster Approach", adopted by the UN, implemented in Pakistan for the first time since it was recommended in the August 2005 Humanitarian Response Review, was widely criticized as ineffective, particularly in the early stages of the response. For instance, USAID DART has been critical of the cluster approach for two principal reasons. One is structural, arguing that it is unclear that the cluster approach is the most efficient method for disaster management, due to the competing demands placed on cluster leaders, who are expected to liaise with the host government and collecting and disseminating data, while concurrently responding to immediate needs and coordinating relief activity. On the other hand, some of DART's criticism reflected a more specific concern that several UN agencies were not effective in their response to the earthquake, in some cases prompting USAID to look to NGOs instead of the UN system to carry out relief operations. However, some point to the fact that unlike some NGOs, which operate in a more informal manner, the UN is expected to coordinate all of its activities with the GoP. From this perspective, the Pakistani government's initially sluggish and confused response may have affected the efficacy of the UN operations as well.<sup>236</sup> Despite these criticisms, the UN cluster approach later developed to become an important organizing expedient in support of the burgeoning FRC.<sup>237</sup>

#### **5.4.1 Challenges in Response**

Given the unprecedented scale of the 2005 earthquake, compounded by the general lack of preparedness for such a disaster, it is no surprise that numerous challenges hindered the response to this calamity. First and foremost among these was the rugged, inhospitable terrain of the earthquake-affected area, compounded by its large size – roughly the same size of Belgium. The harsh weather conditions further complicated the response, seeing as the earthquake struck just as the unforgiving Himalayan winter was setting in. Moreover, the degradation or destruction of infrastructure critical to the swift movement of affected

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<sup>233</sup> Wilder, *Perceptions of the Pakistan Earthquake Response*.

<sup>234</sup> NATO (2010, October 27). Pakistan Earthquake Relief Operation. Retrieved from [http://www.nato.int/cps/en/natohq/topics\\_50070.htm](http://www.nato.int/cps/en/natohq/topics_50070.htm)

<sup>235</sup> IRIN (2006, June 29). Pakistan: The role of the military in the Pakistan earthquake, pp. 15-16.

<sup>236</sup> CRS (2005). *The Earthquake in South Asia: Humanitarian Assistance and Relief Operations*, p. 24.

<sup>237</sup> Center of Excellence in Disaster Management and Humanitarian Assistance (2006). *Pakistan Earthquake: A Review of the Civil-Military Dimensions of the International Response*.

populations, aid workers, soldiers and humanitarian supplies added an extra dimension of difficulty to the already convoluted relief operations.<sup>238</sup>

With the presence of such a diverse array of international and domestic actors and agencies on the ground, one of the most significant challenges was the coordination of relief activity. Indeed, the GoP was sluggish to organise its own response to the earthquake, let alone coordinate the host of international actors involved in the earthquake. However, effectiveness of coordination at the macro-level improved considerably following the establishment of the FRC.<sup>239</sup>

#### **5.4.2 Civil-Military Coordination**

Given the Pakistani military's predominant and relatively efficient role in coordinating the earthquake response, combined with the influx of numerous humanitarian organisations and the presence of a large number of international military forces, civil-military coordination was a critical issue for all sectors of the response. This was an area in which most of the complications to the earthquake response were encountered. For instance, a report by the Center of Excellence in Disaster Management & Humanitarian Assistance (CFE-DMHA) highlights how numerous responders from both military and civilian institutions were ill prepared and/or reluctant to collaborate, having little or no prior coordination experience. Another factor that inhibited the effectiveness of the response was the high turnover of civilian personnel, which impeded the continuity of institutional relationships - particularly when liaising with the comparatively stable military counterparts.<sup>240</sup>

#### **5.4.3 Humanitarian Needs Assessment**

One of the biggest hindrances encountered early on in the rescue operation was the lack of a clear and cohesive situational understanding of the humanitarian needs and outstanding requirements. Numerous organisations were carrying out assessments in parallel without adequate coordination, thus resulting in conspicuous assessment data discrepancies and in an inefficient use of resources, with an excess of aid resources being allocated to more accessible areas to the detriment of more isolated areas. This was compounded by the lack of a cohesive data collection/management system. Public, private and international partnerships were established to assist in the GoP's humanitarian needs data collection efforts. However, there was no standardization of data collection and reporting, often leading to duplication of efforts and incompatibilities between systems.<sup>241</sup> Similarly, much of Pakistani communication was dependent on fax, whereas other responders relied primarily on e-mail.<sup>242</sup>

### **5.5 FROM PAKISTAN TO NEPAL: LESSONS LEARNED?**

South Asia is one of the most earthquake-prone regions in the world, so the Pakistani experience of 2005 is far from an isolated case. In April 2015, another earthquake struck Nepal. Despite the comparable magnitude of the two quakes - which required a comparable international humanitarian intervention - there are other notable continuities between the experiences in Pakistan and Nepal.

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<sup>238</sup> *Ibidem*

<sup>239</sup> CRS (2005). *The Earthquake in South Asia: Humanitarian Assistance and Relief Operations*.

<sup>240</sup> Center of Excellence in Disaster Management & Humanitarian Assistance, *Pakistan Earthquake*.

<sup>241</sup> For instance, there were incompatibility issues between ArcView, the USAID software, and FalconView, used by the US military.

<sup>242</sup> Center of Excellence in Disaster Management & Humanitarian Assistance, *Pakistan Earthquake*.

Firstly, the affected areas of the two countries share a similar geography, characterized by hilly, rugged and mountainous terrain. Secondly, most of the population of both countries lives in rural areas, particularly in the earthquake-affected zones. Additionally, there is a large number of migrants of both countries sending remittances home, especially from Gulf states. The similarities between the two earthquake experiences present a convenient opportunity to gauge whether there was a constructive learning process in natural disaster resilience and response in the decade between the two South Asian earthquakes.

With regards to disaster preparedness, one decidedly positive development in the Nepalese case was the establishment of a comprehensive disaster management framework prior to the earthquake, a feature that was notably lacking in Pakistan 2005. The absence of an institutional framework for disaster management and planning meant that, in the Pakistani case, the military played a very active role in the disaster response and subsequent reconstruction. Thanks to its hierarchical and clearly delineated institutional structure, the Pakistani military was able to largely avoid the problem of duplication of efforts and unclear leadership hierarchy. However, the military received considerable criticism for its purportedly inefficient management of the reconstruction phase, where it was accused of seeking to overstep and prolong its role to the detriment of civilian authorities. Conversely, the problems of confused leadership and duplication of efforts often presented themselves in the case of Nepal 2015, where the civilian authorities assumed the leadership of the relief and reconstruction operations. Nonetheless, the civilian management of the reconstruction phase ensured that the process was comparably more effective, seeing as the civilian authorities had greater expertise and technical knowledge required for reconstruction.

One hindrance from the Pakistani experience that persisted in the Nepalese relief efforts was the failure to keep the transportation and logistics system operating at the increased pace warranted by the severity of the disaster. In both cases, transportation hubs became congested, with non-essential cargo often blocking crucial relief supplies. Similarly, both disaster response operations were hampered by the lack of a cohesive humanitarian needs assessment, with many different organisations and institutions carrying out their own needs assessment without an adequate exchange of information.

## 6. ENVIRONMENTAL IMPACT IN NEPAL: PREVENTION AND RECOVERY<sup>243</sup>

Issues of environmental conservation (or destruction) are closely linked to economic and human development. Lower levels of economic development in poorer or developing countries lead to under-investments in protection of the environment and natural resources. This underinvestment contributes to the severity of disaster impacts as a consequence of natural hazards. Multiple linkages between environment and disasters are of interest while undertaking a Post Disaster Needs Assessment (PDNA). These linkages include:

1. Environmental degradation increases disaster risk;
2. Disasters have environmental and economic effects, which in turn affect people;
3. Healthy ecosystems can play an important role in disaster risk reduction and hence could be part of future strategies for DRR in the country;
4. Disasters disrupt access to environmental goods and services;
5. Disasters increase strain on environmental governance;
6. Recovery efforts after a disaster may also leave an environmental footprint.

Some environmental effects may occur immediately after the disaster, like the washing away of forests due to landslides, or the land and water pollution caused by breaking down of sewage systems. These are called immediate effects. The 1995 Kobe earthquake, for instance, generated an amount of dioxins equal to the amount generated by a 1976 agrochemical plant explosion in Seveso, Italy.<sup>244</sup> Effects that take some time to manifest after the disaster may be referred to as additional effects and may not be able to be captured as part of the assessment as the estimate has a specific start and end time. In the aftermath of the 2005 Pakistan earthquake river blockages caused by landslides created dams' breaks, which resulted in serious threats to those dwelling close to riverbeds. However, it is not realistic to predict every possible environmental impact in a disaster situation due to the diversity and large number of disasters and ecosystems in the world.

Nonetheless, post-disaster geographical and political settings offer opportunities to build back greener. There are multiple opportunities to keep in mind:

- a. Utilisation of greener building materials and energy sources for reconstruction;
- b. Changing to cleaner production technologies in damaged industries;
- c. Establishing better urban services, such as landfills and sewage collection and treatment systems;
- d. Promoting ecosystem-based approaches to disaster risk reduction.

The magnitude of the Nepal earthquake was devastating for the country. In the short term, the focus has been on the humanitarian response and rehabilitation. However, another essential aspect that has to be taken into consideration for an all-encompassing assessment of disaster prevention and recovery strategy is the restoration of environment and natural resources. Despite occupying only 0.1 per cent of the world's area, Nepal harbours 3.2 per cent and 1.1 per cent of the world's known flora and fauna. Many of these species are endemic and critically threatened; the natural forests protecting them cover 23.3 per cent of the country.

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<sup>243</sup> Nepal Earthquake 2015 Post Disaster Needs Assessment and Global Facility for Disaster Reduction and Recovery (GFDRR) were utilised for the construction of this section.

<sup>244</sup> Fujinaga, N. and Gotoh, T. (2005). *Lessons from the Great Hanshin Earthquake: Impact on the Environment*. Hyogo Research Center for Quake Restoration. Retrieved from [http://www.shinsaiken.jp/oldweb/hrc-e/publish/lessons\\_ghe/lghe18.html](http://www.shinsaiken.jp/oldweb/hrc-e/publish/lessons_ghe/lghe18.html)

The country experiences intense monsoons that trigger floods, landslides, debris flow and other hazards. Landslides cause considerable soil erosion and sedimentation, polluting waters and blocking waterways as well as destroying agricultural fields and threatening settlements. More intense rainfall due to increased climate variability may also be a contributing factor. In addition to the conventional environmental drivers, climate change is expected to increase the frequency and severity of natural hazards such as floods, including glacial lake outburst floods (GLOF), avalanches, drought and storms.

The 2015 Nepal earthquake impacted the natural environment in a twofold manner: 1) Destruction of forests including protected areas; 2) Destruction of infrastructures and technologies installed for environmental protection. The size of the devastation and the crucial nature of the natural ecosystems to Nepal require steps to increase cognisance of the impact on the nature and the incorporation of environmental concerns into any disaster relief efforts in Nepal. As the UN emphasises in its PDNA Report, within disaster management, much of the focus is on immediate humanitarian relief, for both pre-disaster preparedness, and for post-disaster response. Concerns for the environment have proven to be elusive.

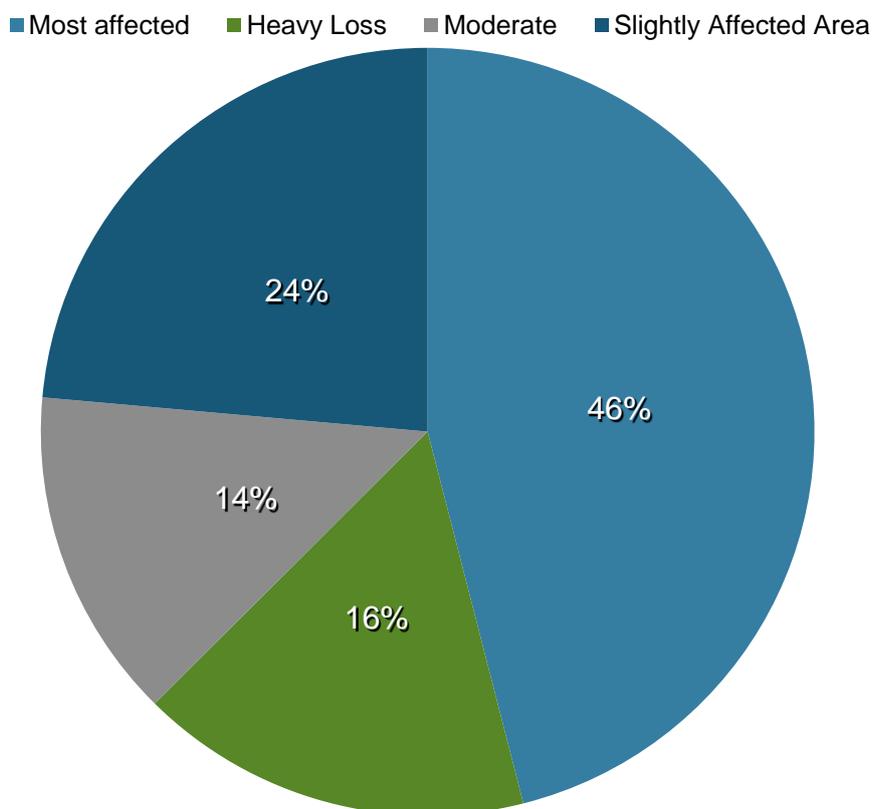
The UN report also highlights other losses comprising of increased costs in managing solid and hazardous waste and reducing pollution from brick manufacturing to meet the post-earthquake demand for reconstruction. Major impacts include reduced capacity for forest and environmental governance by the government and local communities in the affected districts. Beyond that, the earthquakes have enhanced the magnitude of several existing environmental hazards such as avalanches, floods, especially GLOFs, and landslides.

#### **6.1 DAMAGE TO FOREST AREA**

The Food and Agriculture Organization (FAO) carried out a systematic analysis of pre- and post-earthquake satellite imagery. Based on this, a forest loss rate of 2.2 per cent was estimated for the earthquake-affected districts. The value of damages and losses deriving from the destruction of these forests has been computed using an economic valuation study of the goods and services of forests carried out by Ministry of Forest and Soil Conservation (MoFSC) in 2005. The direct use values have been taken as damages, and total damages of NPR 29,258.7 million is estimated.

Seven Protected Areas (PAs) were affected by the earthquakes. Amongst these were Sagarmantha National Park, a sacred landscape and world heritage site, as well as two Ramsar sites (Gosaikunda and Gokyo). These PAs provide refuge to several endangered fauna of global significance. Pressures on PA resources are likely to increase. Localised illicit activities, including poaching of wildlife and illegal wildlife trade, may also likely increase as several security posts are damaged and vigilance and monitoring activities hampered.

**Figure 2: Impact on Forest Area in the 31 Earthquake Districts (Total Forest Area: 2,393,535 hectares)<sup>245</sup>**



There was no damage reported to the wetlands, however, sedimentation, landslides and other changes are likely to have an impact on them. These may include eutrophication of lakes and damage to the habitat of aquatic flora and fauna, which will ultimately affect the livelihoods of the rural communities, the poor and other marginalised sectors of society. Further, if landslides block the Trishuli/Narayani or Koshi rivers during the monsoon season and result in large floods, this will impact endangered wildlife species and their habitats downstream in Chitwan National Park and Koshi Tappu Wildlife Reserve.

## 6.2 DAMAGE TO ENVIRONMENTAL INFRASTRUCTURES

A rapid assessment by Alternative Energy Promotion Center (AEPC) and its partner network reveals that 146,767 ICS units, 16,721 domestic biogas installations and 70,000 solar installations have been destroyed. These need to be replaced to prevent environmental impacts, including CO<sub>2</sub> emissions.

The earthquakes have significantly worsened waste management, particularly in campsites where affected communities have been residing. Whereas household waste generation was somehow managed and most rural waste is recycled or composted, the current concentration of people in camps has led to considerable generation of waste without a proper waste management system in place. Waste generation per camp is estimated to be around 37.66 kilograms, on average, per day. Building waste from 31 affected districts is expected to

<sup>245</sup> Government of Nepal National Planning Commission (2015). *Nepal earthquake 2015 - Post Disaster Needs Assessment*.

contain up to 2.7 million litres of paint. Lead in paint may escape into the environment through paint dust and contaminate soil, which can lead to poisoning. Similarly, mercury from damaged buildings (e.g., in light bulbs and hospital equipment) may be contaminating the environment.

The earthquakes greatly reduced the capacity of government and local communities in the affected districts, impacting monitoring and stewardship of PAs, wildlife, forests and natural resources. A large number of Community Forestry User Group (CFUG) members and executive members were directly affected by the disaster. Tragically, at least 1,536 CFUG members (731 male, 805 female) and around 150 CFUG executive members (69 male, 81 female) died in the earthquakes. Consequently, management of government and community managed forests, and PAs will be greatly affected at a time when demand for fuel, food and shelter from forests is likely to increase. This will intensify the risk of unsustainable and illegal harvesting of forest produce and poaching of wildlife.

### **6.3 OTHER POTENTIAL IMPLICATIONS**

The most significant environmental hazards are the threats deriving from glacial lake outburst floods (GLOFs). While no major damage has been reported to moraine dams of the three largest and dangerous lakes, small cracks have been observed on the moraine dam of the Tsho Rolpa Lake. Previously constructed channels to siphon out water may be blocked or damaged. A recent outburst following the earthquakes was reported in one of the supra glacial lakes located above Imja Lake, causing a temporary increase in water flow in the river. These indicate serious risks of GLOF in the future. This risk may further be exacerbated by the impacts of climate change.

Prior to the earthquake, the brick manufacturing industry was booming; according to Mahendra Chitrakar, president of the Federation of Nepal Brick Industries, "Each and every man wants to come to Kathmandu and build a house here."<sup>246</sup> As a result, brick kilns were the leading causes of air pollution. According to the calculations by the housing sector, more than a billion bricks will be required for reconstruction. Manufacture of these bricks will require coal imports of 1.58 million tons, which will lead to around 39,000 tons of CO<sub>2</sub> emissions. In addition, brick firing to generate the required bricks will emit around 2,800 tons of suspended particulate matter. The total cost of air pollution for the 1.12 billion bricks that will be required for reconstruction is calculated to be around NPR 737 million. In addition, brick making will also deplete and pollute top soil in areas around the brick kilns, affecting agricultural productivity and health of local communities. Chimneys of many brick kilns were damaged. Production of a large number of bricks in brick kilns without adequate pollution control mechanisms such as chimneys may significantly increase air pollution and lead to health impacts. Mercury emission from burning coal in brick kilns will also impact human health and the environment.

The total estimated reconstruction and recovery needs for the environment and forestry sector is NPR 25,197 million. This estimate is based on wide consultations among sector experts, representatives of the two ministries, NGOs and development partners.

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<sup>246</sup> Patisson, P. and Kelly, A. (2015, February 12). How Nepal is trying to solve its blood brick problem. *The Guardian*. Retrieved from <http://www.theguardian.com/global-development/2015/feb/12/how-nepal-is-trying-to-solve-its-blood-brick-problem>

### **6.3.1 Institutions Involved for the Environmental Assessment**

Department of Forest (DoF), Department of National Parks and Wildlife Conservation (DNPWC), Nepal Trust for Nature and Conservation (NTNC) and Department of Soil Conservation and Watershed Management (DoSCWM) undertook rapid assessments to collect information on loss of infrastructure in PAs, DFOs and range posts, and district soil conservation and watershed management offices. Federation of Community Forestry Users Nepal (FECOFUN) provided data on loss of life and injury to CFUG members as well as CFUG infrastructure.

### **6.4 RESILIENCE IN NORTH EAST INDIA: ENVIRONMENTAL IMPACT**

Natural disasters can lead to a series of environmental problems, which are preventable, or at the very least manageable if specific measures are taken. This study analyses the problems related to soil erosion, landslides and flooding, as well as the effects of earthquakes and tsunamis on the environment, identifying measures that can limit these effects.

As a case study, the 2012 Brahmaputra floods in Assam will be presented. These floods are one example of a situation where the human footprint increased the environmental impact of natural disaster. Therefore, it is relevant to outline problems that hold for much of the South Asian region – also being applicable to the Nepali and Pakistani experience.

The 2012 floods in Assam were unprecedented, and led to the loss of 124 human lives along with the displacement of six million people. Similar magnitudes of environmental disasters are expected to take place in the years to come, and the key word now is disaster prevention rather than disaster remedy. Indeed, floods have become more frequent and devastating in the last decades, and have raised alarm in the local population that is now looking for integrated and durable solutions.

Floods and landslides in the Northeast of India are indirectly the effects of human activity. Therefore, creating natural resilience to disaster is key to containing the effects of natural hazards. In particular, the jhumming practices are often indicated as a leading human cause of natural disasters. It is crucial to understand how jhumming practices lead to deforestation, and how that results in soil erosion, landslides, siltation and flooding; as well as how jhumming and deforestation are also, indirectly, a main reason for climate change.

Jhumming is the traditional shifting cultivation techniques in Northeast India. The practice is particularly widespread in the Garo Hills, in the state of Meghalaya. Jhumming enjoys a crucial position in the tribal societies of the hilly Northeast of India, and the system is deeply rooted in the tradition and culture of the people who have been living there for centuries. Jhumming practices include, apart from the cyclical rotation of crops, also the periodical burning down of a portion of land, in order to have a more fertile land to cultivate in the following cycle. Traditional jhum cycles last between 15 and 30 years, which enables the regeneration of luxuriant vegetation before the same land is cultivated again. However, with an increase in population, jhum cycles have been drastically shortened, up to as little as two years, which is not enough for natural regeneration to take place.<sup>247</sup> Furthermore, this also makes productivity much lower as the soil's fertility decreases due to excessively short Jhum cycles. Thus, this practice has not only become economically counterproductive, but it also contributes to degrade the ecosystem. Indeed, it is also responsible for deforestation, which is a major contributory cause for climate change and soil erosion in the Northeast of India.

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<sup>247</sup> Rawat, J.S. et al. (2010). Jhumming: a traditional lifestyle than merely a cultivation method. *Current Science*, 98(8), p. 998.

Deforestation increases the environmental impact of potential natural disasters. Not only does it destroy flora and fauna, it also deteriorates the quality of air. Deforestation also makes the topsoil more vulnerable to heavy rainfall and high sunlight, which makes the soil less fertile in the long run. In addition, deforestation takes the roots and shoots of trees away, and especially of bamboo, while these are the best possible natural cement to keep soil together and prevent landslides. In particular, deforestation contributes to increased run-off of rainfall and intensified soil erosion in the Brahmaputra region. Landslides are indeed becoming very common in the area, devastating roads and villages – they caused the deaths of 150 people in the state of Meghalaya only last year. Finally, deforestation is also a major cause of siltation, as soil erosion leads to the increased concentration of floating sediments and to the increased accumulation of fine sediments on the bottom of rivers where these are undesirable.<sup>248</sup> Together with the accumulation of waste and pollution, siltation causes the water level to rise in the Brahmaputra – one of the world’s most sediment prone rivers –, and its tributaries, as well as in many deep water pools. Not only does it lead to a decline in habitat for the local fauna, but it also dramatically increases the risk of flooding.

However, the effects of deforestation are not limited to the soil alone: it also causes the climate of the whole region to change rapidly. It is estimated that deforestation has already caused temperatures to rise by up to 7 degrees Celsius in Assam.<sup>249</sup> Furthermore, it is causing monsoons to become extreme with increasing heavy rainfall in what is already one of the world’s wettest regions. The current shores of the Brahmaputra and its tributaries are often not strong enough to contain all the water flowing down the mountains, so inundations are frequent in the rainy season (June-October). Moreover, global warming has made the mean temperature rise in the Himalayas, where glaciers are retreating since 1850. The Brahmaputra and its tributaries are among the several rivers in the Northeast of India, which are being fed by snow and glacial melt, and an acceleration of the retreat of Himalayan glaciers clearly adds even more water to the total flow of these rivers. While nothing can be done to slow down the melting of the Himalayan glaciers in the short run, it is important that the people living along the shores of the rivers streaming down from the Himalayas are aware of the threats deriving from climate change and rising water levels, and that they are provided with the tools for preventing water from overflowing.

Just like an adequate maintenance of forestall heritage is key for preventing landslides and floods, a compact and high quality soil – thanks to the presence of tree roots and bamboo shoots – might even reduce the impact of devastating earthquakes.<sup>250</sup>

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<sup>248</sup> Rao, M.G. et al. (2013). *A Vision Document for the State of Meghalaya 2030*. New Delhi: National Institute of Public Finance and Policy, p. 76.

<sup>249</sup> The Assam Tribune Online (2013, June 19). *Deforestation to blame for rising temperatures*. Retrieved from <http://www.assamtribune.com/scripts/mdetails.asp?id=jun1913/state07>

<sup>250</sup> Zaragoza, S. (2013, July 24). *Preventing Earthquake Damage*. *UT News*. Retrieved from <http://news.utexas.edu/2013/07/24/preventing-earthquake-damage>

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