

THE INDIAN OCEAN TSUNAMI

**A CASE STUDY INVESTIGATION BY NATO RTO SAS-065
PART TWO: THE CASE OF ACEH AND NORTH SUMATRA**

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INTRODUCTION

This paper presents *Part Two* of a case study on the Indian Ocean Tsunami of 26 December 2004 meant to support the development of a C2 Maturity Model for networked enabled capabilities (NEC) by the NATO RTO research task group, SAS-065. Together with several other case studies of complex civil-military endeavours it is meant to inform the assessment of the current draft of the maturity model¹ as to what extent the model's assumptions, about C2 maturity levels and transition requirements between maturity levels, are reflected by the observations and experience available from real world operations as a basis for requisite adaptations of the model.

Part One of the Tsunami case study is primarily based on the Synthesis Report of the Tsunami Evaluation Coalition (TEC)² and various web-based accounts that address common problems associated with the emergency response operations throughout the Indian Ocean region. Part two concentrates on the response in the district of Aceh in Northern Sumatra as described by Kirsten Schulze³ and Louise K. Comfort,⁴ and the World Bank review of the post-tsunami communication environment in Aceh.⁵

Aimed at identifying different levels of operational and C2 maturity as defined by the Maturity Model, both parts of the study concentrate on findings related to the coordination of disaster response: Part One on Immediate and Follow-on Relief in the six months period following the disaster covering the reach of the UN Flash Appeal of 5 January 2005;⁶ Part Two on Immediate and Follow-on Relief, as well as Recovery and Reconstruction in the first year after the disaster. None of the underlying reports contain any direct information related to C2 approaches which the Maturity Model describes in terms of the allocation of decision rights, the patterns of interaction between the entities participating in an endeavour, and the extent to which information is disseminated to facilitate sharing of information, intent, planning, and decision making. Hence, C2 maturity levels had to be assessed indirectly from statements about the collaboration and coordination among entities participating in disaster response operations, and descriptions of operational accomplishments and failures that could be attributed to the variables describing C2 maturity.

STRUCTURE OF ACEH CASE STUDY

The Aceh case study summarises, for each of the post-disaster activity phases distinguished by the Generic Disaster Response Model described in Part One (Immediate Relief, Follow-on Relief, Recovery, Reconstruction), the reported facts judged to be relevant for the C2 approach that characterised the Tsunami response enterprise in terms of the following:

¹ SAS-065: NATO NEC C2 Maturity Model Overview. Working Paper, Sept. 2007; SAS-065: Description of Maturity Levels. Working Paper, Sep 2007

² John Telford and John Cosgrave: Joint evaluation of the international response to the Indian Ocean Tsunami: Synthesis Report. Tsunami Evaluation Coalition (TEC), London 2006.

³ Kirsten E. Schulze: *Between Conflict and Peace: Tsunami Aid and Reconstruction in Aceh*. Nov. 2006.

⁴ Louise K. Comfort: *Asymmetric Information Processes in Extreme Events: The 26 December Sumatran Earthquake and Tsunami*. Submitted to Deborah Gibbons (Ed): *Communicable Crises: Prevention, Management and Resolution in an Era of Globalization*, International Public Management Association, Naval Postgraduate School, Monterey, California, May 24, 2006.

⁵ J. Sharpe, I. Wall, "Media Mapping - Understanding Communication Environments in Aceh", Decentralization Support Facility (DSF), The World Bank, April 2007.

⁶ The Flash Appeal focussed on supporting people in Indonesia, Maldives, Myanmar, Seychelles, Somalia and Sri Lanka from January to the end of June 2005, and called for US\$ 977 million to fund the critical work of some 40 UN agencies and NGOs for six months.

- Allocation of decision rights across the enterprise;
- Patterns of interaction between enterprise entities reflecting organisational constraints;
- Dissemination of information flows.

This provides the basis for assessing, and visualising by means of a matrix, the maturity of relationships between the various categories of entities or actors involved in the Tsunami response operations as defined in Part One with regard to:

- Info-Structure
- Information Sharing
- Shared Intent
- Trust
- Shared Awareness / Understanding
- Decision Making
- Actions

THE TSUNAMI RESPONSE IN ACEH: RELEVANT FACTS

The Indonesian province of Aceh was among areas hardest hit by the Indian Ocean Tsunami of 26 December 2004 which was triggered by a massive seaquake some 100 miles off west of northern Sumatra where Aceh is located. Thus, there was practically no warning and little preparedness for responding as Sumatrans had not considered tsunamis to be a major hazard compared to frequent tropical cyclones, tidal surges and earthquakes. Beginning at 00:59 UTC (07:59 local time) and lasting between 500 and 600 seconds, the seaquake was recorded at between 9.1 and 9.2 on the Richter scale. 200,000 of Aceh's people were killed including 2,000 military personnel and 50 percent of the civil service officials. 550,000 people were left homeless and 22 percent of the infrastructure was destroyed including most of the government offices in the coastal areas. Roads and bridges along Aceh's west coast were totally washed out and almost 80 percent of the private livelihoods – trade, farming and fisheries – destroyed. The coastal cities of Meulaboh and Calang were virtually washed away, and the provincial capital Banda Aceh was left in ruins.

With regard to C2 maturity, the facts described in the accounts of Schulze, Comfort, Sharp and Wall considered as relevant in the different phases of the disaster response are compiled below. However, contrary to the four phases of the generic process described in Part One of the case study report, only three phases are considered in Part Two because the reference material covering the time period of up to one year after the Tsunami does not permit to draw a clear borderline between recovery and reconstruction. Also the borderline between initial and follow-on relief, and between follow-on relief and recovery, are quite fuzzy. Thus, it was assumed that initial relief covers the time period before the international community's efforts set in, follow-on relief the period up to the end of March when the international militaries had to leave Aceh, and recovery and reconstruction the period up to December 2005.⁷

⁷ Usually, the beginning of the recovery and reconstruction phase is dated to 6 January when a summit (attended by the US, EU, World Bank, Islamic Development Bank, Asian Development Bank (ADB), and the International Federation of Red Cross and Red Crescent Societies as well as other major international organizations) was held in Jakarta to coordinate the recovery efforts and to discuss long-term reconstruction. In this context the issue of accountability and transparency for handling of the cast sums of money pledged by the participants was raised and the Multi-Donor Trust Fund for Aceh and North Sumatra (MDTFANS) was conceived. However, it was only in

RELEVANT FACTS: IMMEDIATE RELIEF

1. Lack of information on the extent of the disaster resulting from the destruction of the communication infrastructure;
2. Means of Communication in the immediate aftermath limited to some military and GAM satellite phones;
3. First telephone lines repaired after one week were available for military communication only; no private communication for two weeks after the tsunami hit;
4. Difficult transportation conditions: wiped out roads and bridges and lack of capacity of local airports (Banda Aceh and Medan);
5. Civil administration decimated: half of the civil servants perished, local government office were destroyed;
6. Immediate relief provided spontaneously by local people;
7. Visiting Aceh on 27 December, the Vice President of Indonesia and his advisors began to fully understand the extent of damage leading to the Indonesian request for foreign assistance and the decision to allow international agencies access to Aceh;
8. Indonesian military (TNI) was first in organising the search for bodies and burying them in mass graves, and taking the lead in coordinating initial aid efforts.

RELEVANT FACTS: FOLLOW-ON RELIEF

1. Foreign militaries from 11 countries eventually deployed 4,500 troops to assist relief operations coordinated by the Indonesian military.
2. Australian defence forces (ADF) received Indonesian permission for C130 transport planes to fly aid from Jakarta and Medan to Banda Aceh and to medevac wounded from Aceh. ADF deployed medical teams and brought water purification equipment to supply drinking water.
3. Singapore military forces (SAF) stationed two helicopter landing ships off the coast of Meulaboh which had been destroyed and cut off. They set up a mobile air traffic control tower each at Banda Aceh and Medan airports to allow more supply and evacuation flights, and assisted with airlift and rescue operations. They also ferried supplies from Singapore to Indonesia for the WHO.
4. The US military deployed the aircraft carrier USS Abraham Lincoln and the hospital ship USNS Mercy from which they ran their relief operations (carrying emergency aid down Aceh's west coast) largely in a self-contained manner and performing emergency surgery.
5. The first UN Disaster Assessment and Coordination Team (UNDAC) dispatched by the Geneva-based UN Office for the Coordination of Humanitarian Affairs (OCHA) reached Banda Aceh four days after disaster had struck.
6. UNDAC teams lacked important C2 functions and procedures and the capacity for coordinating the large number of international organisations and national and international NGO's pouring into Aceh in response to the massive media campaign

May 2005 that concrete steps were taken by the Indonesian government to implants the respective plans developed by its central planning agency.

triggered by the tsunami. By the end of January 3,645 NGO's had registered at the UN compound.

7. OCHA established a Humanitarian Information Center (UNHIC) in an effort to have some oversight over the hundreds of INGOs and provide them with information on who was doing what and where. However, this was of little use for advance planning since the UNHIC was not accessible from the outside.
8. UNHIC's multi-level daily coordinating meetings were "very unwieldy" and "internal coordinating meetings were a shambles."⁸
9. The national and international militaries held their own daily coordination meetings under the lead of the Indonesian Major-General Dharmono.
10. Coordination and cooperation was generally difficult between militaries and INGOs as well as between US and UN organisations.
11. Coordination between INGOs and local government was an issue. Some INGOs treated Indonesia like a failing state.
12. US agencies did not coordinate with UN. They had the perception that the UN is useless.
13. Coordination between INGOs and Indonesian NGOs was non-existent. Indonesian NGOs were not invited to coordination meetings by INGOs.
14. Lack of coordination resulted in duplication and overlap of aid in some regions, whereas other regions were neglected.
15. Inappropriate aid was the result of poor and uncoordinated needs assessment and unsolicited help disregarding the expertise and capabilities of local populations and organisations.

RELEVANT FACTS: RECOVERY AND RECONSTRUCTION

1. On 7 January 2005, the World Bank and the Indonesian Government signed a Memorandum of Understanding for reconstruction and rehabilitation activities aimed at rebuilding communities and physical infrastructure through investments in housing, health, education, roads, and important social assets. The consultation of the population was thought to be a key in the success of the recovery operation.
2. Indonesia's Central Planning Agency BAPPENAS (together with experts from Indonesian universities and international agencies) defined the "blueprint" for the reconstruction of Aceh. Local contractors would handle smaller projects, while foreign investors would handle the big infrastructural projects.
3. At a meeting of Indonesian and Acehnese NGOs involved in the Tsunami relief and reconstruction in Jakarta on 28 March, the organisations complained that the Acehnese populations and local authorities had not been consulted about their needs. The UN agencies expressed similar concerns. Some concerns raised by some NGOs regarding the corruption-prone nature of the blueprint defined by BAPPENAS, revealed the mistrust between NGOs and the Indonesian government agencies.
4. In May 2005 the Indonesian government established the Aceh and Nias Rehabilitation and Reconstruction Board (BRR), headed by former Minister of Mining and Energy, Kuntoro Mangkusubroto and composed of 11 members belonging to government

⁸ Quoted by Kirsten Schule from an interview with Rodd McGibbon, USAID, UNHIC, Jakarta, 22 March 2005.

departments as well as the acting governor of Aceh. This board was to launch the reconstruction activities, but the government failed to provide the agreed funding with the agreed deadlines and soon, the head of the BRR started to point the finger at the Indonesian government.

5. Flora and Fauna International accused the Indonesian military forces as well as the GAM of collecting taxes on cutting illegal timber to overcome the lack of building materials.
6. In August, the Anti-Corruption Movement (GeRAK) denounced the BRR for spending too much money on salaries of its 100 executives and staff members.
7. In October, donor countries and international aid agencies also criticised the way of slow progress of the BRR's activities. NGOs were blamed for lack of coordination and were urged to operate in a more coordinated manner to help people out of the refugee camps and into permanent homes.
8. Aceh Institute researcher Lukman also believed that the problem was not just with the BRR but also with the international donors. Namely, he claimed that ADB and MDTFANS were delayed in the realisation of their pledges. ADB was still revising its program, since it had not met the BAPPENAS requirement that construction projects had to be community-driven, while the money from MDTFANS had not been disbursed.
9. It took nearly nine months of negotiation just for the government and the aid agencies to agree to a building code setting out the standard measurements and requirements for new homes. Other problems faced by the reconstruction process were the unrealistic expectations by the Indonesian displaced people (IDP) causing accusations of slowness on part of both the Indonesian government and INGOs, lack of information, the sheer scale of reconstruction compared with the amount of available materials, and finally the land title issue.
10. Construction of barracks was seen by the IDPs as a contractor/military project to make money. Their unrealistic expectations were partially due to a lack of accurate information on the reconstruction process.
11. Lack of information fuelled disappointment. Research by the UN Development Program (UNDP) of 82 communities across 12 districts showed that only 7% of the community felt very informed and further 15% sufficiently informed, leaving 78% insufficiently informed and confused about the projects, who they should talk to about housing, which INGO was doing what, what the BRR was or indeed what it was doing.
12. Lack of information was another factor that undermined coordination, as pointed out by human rights activist Aguswandi. In his opinion, coordination and planning existed only internally in the groups/agencies operating in Aceh.
13. Before the tsunami, only 5-10% of all land ownership was registered with the National Land Registry or Badan Pertanahan Nasional (BPN). The rest was either in the form of traditional or communal land, land obtained through inheritance or certified by the local police or through sales certificate. The tsunami washed away most of the ownership documents rendering it very difficult to verify land ownership. This also contributed to paralyse the construction of permanent housing on the part of Indonesian government and foreign aid organisations. To make it worse, 30% of the people made homeless by the tsunami were renting their properties, and again there were no registrations.

14. Trying to clarify the issue of land ownership, NGOs started to foster community-mapping projects, which were quite successful. The resulting maps were agreed by the whole community. This, however, did not address the problem of rented properties.
15. In course of 2005, the communications infrastructure was still in bad shape making communications with the local populations very difficult. At the same time, the UNHIC provided suitable collaboration platform between and among INGOs and UN agencies. The Indonesian military held satellite voice communications capability. Among the local population, few had fixed or mobile telephones of their own. Community telephones were available in no more than 20% of the villages, which could be used for outgoing calls. In Aceh, television is a communication medium most difficult to harness for outreach, largely because favoured stations are based in Jakarta. TVRI, the only station carrying local Acehnese content, has good coverage but is remarkably unpopular. Household radio ownership, for example, is solid but not ubiquitous. Half of the communities surveyed in the Sharpe study reported that at most 40% of village households owned a radio set. But it was less likely that they owned television sets.

C2 APPROACHES OF THE TSUNAMI ENTERPRISE

The NATO C2 Conceptual Model developed by SAS 050 describes the C2 approach space in terms of three characteristic dimensions:

- ***Allocation of Decision Rights*** describing the way in which decision rights are allocated across an enterprise: unitary (person at the *top* decides) ⇔ peer-to-peer (actors at the operational level decide within the scope of their responsibilities and at the operational level);
- ***Patterns of Interaction*** describing the way in which entities interact within the enterprise, and between enterprise entities and others outside the enterprise reflecting organisational constraints like in hierarchical organisations (tightly constrained interactions) or in small businesses (unconstrained interactions);
- ***Information Dissemination*** defining the way information flows are disseminated within the enterprise: tight control ⇔ broad dissemination.

Reviewing the facts compiled above we arrive at the following conclusions regarding the C2 approaches adopted during the three phases of the Tsunami Response Enterprise:

IMMEDIATE RELIEF

There was no structured C2 during the immediate relief phase as the communication infrastructure was wiped out, government offices destroyed, and 50 percent of the civil service personnel had perished. However, the self-organised response by local populations and local NGOs was highly collaborative showing responsiveness and adaptability in many cases.

Allocation of Decision Rights

Because of the loss of civil servants and destroyed lines of communication there was no official authority available to make decisions. Rather, decision rights were allocated locally to coordinate neighbourhood rescues and relief efforts based on private initiatives and using face to face communication.

Patterns of Interaction

Interactions remained local as the information and transportation infrastructure was destroyed. The pattern of interaction can be described as locally self-synchronised based on voice communication.

Information Dissemination

Information dissemination was restricted to the local level and slow due to the destruction of the information infrastructure.

FOLLOW-ON RELIEF

The C2 approach emerging in the follow-on relief phase was heterogeneous, its maturity ranging between de-conflicted and coordinated for the military response operations, and between conflicted and, to a lesser degree De-Conflicted for the non-military humanitarian community. As will be seen in the description below, the low maturity is mainly caused by insufficient information dissemination, lack of emerging interaction and unwillingness of many of the large number of organisations involved to coordinate their efforts.

Allocation of Decision Rights

With the involvement of the Indonesian military, decision rights became more institutionalised and coordinated by them. Foreign militaries were permitted to deliver aid and provide help within specified areas of responsibility. Because of established operating procedures in military communities the respective agreements worked seamlessly. However, because of not being considered trustworthy by the Indonesian military INGOs were largely excluded. The UNDAC teams trying to coordinate international (non-military) aid were overwhelmed by the number of arriving international agencies. Besides, INGOs did not show much interest in coordination. Attempts by the UN to coordinate the activities of these organisations through negotiating the allocation of decision rights failed because of their competing operational objectives.

Patterns of Interaction

Interactions between national and international militaries were organised ad hoc in a cooperative manner. Civil-military coordination officers established critical operations coordination links between the civilian humanitarian community and the nations that provided military assets for the international effort. At the operational level, however, interaction between the military and non-military humanitarian actors, especially INGOs, was generally weak. Thus, emerging interaction patterns were strong within the military “coalition”, but weak between militaries and others. Some mutual interaction emerged between national NGOs and INGOs provided that they were familiar with each other from previous working relationships. Because of competition between them, mutual interaction between INGOs remained generally conflicted.

Information Dissemination

Within their organisational constraints, information dissemination worked well within and between Indonesian and international militaries. However, due to the lack of capability and willingness to organise collective C2, information dissemination was limited within the humanitarian community, especially at the operational level. To facilitate information dissemination, OCHA set up a Humanitarian Information Centre (UNHIC) tasked to provide the many international organisations operating in Aceh with information on who was doing what and where. But this was of little use for advance planning as UNHIC was not accessible from the outside. Eventually UNHIC established a website to facilitate gathering, distribution, and exchange of information and create a link between the field and the rest of the world. However, because of competition between INGOs information sharing in the international humanitarian community remained limited. And UNHIC’s multi-level daily coordinating meetings were “very unwieldy” and many of the Indonesian NGOs were excluded.

RECOVERY AND RECONSTRUCTION

The maturity level of the collective C2 approach practiced after the international military had left Aceh can be characterised as De-Conflicted.

Allocation of Decision Rights

From May 2005 onward, the BRR was tasked by the Indonesian government to design and implement, based on the blueprint for the reconstruction of Aceh developed by the government’s central planning agency BAPPENAS, a coordinated, community driven reconstruction and development program, including the definition of the roles of players (namely national and international NGOs) as well as the allocation of donor money to projects. Implementation of projects, including the coordination between participating national and international organisations and local agencies was left to the initiative and the responsibility of the organisations themselves.

Patterns of Interaction

According to the planned reconstruction policy the Indonesian government would interact primarily with national and international NGOs to provide them with instructions and guidance. National and international NGOs, in turn, should coordinate between themselves and link up with local organisations in order to implement recovery activities and reconstruction projects.

The analysis of Louise Comfort reveals that in practice the patterns of interaction evolved in parallel networks operating almost independently:

1. **An international network operating under United Nations standards for humanitarian assistance.** The primary hubs of this network were the Association of Southeast Asian Nations (ASEAN), the Office of the President of Indonesia, the Government of Indonesia, and the Military of Indonesia. The United Nations, Indonesian Red Cross and US Department of State also played important linking roles.
2. **A national network that operated under the legal authority of the Government of Indonesia.** This network had four main hubs: The President of Indonesia, Vice President of Indonesia, Government of Indonesia and the Indonesian Military. Other important linking nodes were Ministry of Health, Indonesian Red Cross, Indonesian National Police, Gadjja Mada University, and the Bali Hotel Association. A study on the centrality of this network is presented by Comfort [2006]. She concludes that it lacked connectivity, being a very loosely connected network with many sub-networks and several nodes operating independently.

Regarding interaction initiative among organisations, the study Comfort concludes that it was highly asymmetric. International organisations seem to have initiated more than half of the interactions while provincial and local organisations played a very limited role.

Information Dissemination

From the leadership statements, namely from Indonesian Government officials, one concludes that information dissemination was meant to be broad. On one hand the local population and organisations should be aware of the progress of the recovery activities and reconstruction projects, and on the other they should provide continuous feedback to the program leadership in order to assure that recovery implementation took into account their real needs and expectations.

In practice, however, information dissemination during the recovery phase reflected patterns of interaction with little or no communication between the local entities and the Indonesian Government agencies managing the recovery program. Even among national and international NGOs there was a lack of information exchange, with subgroups or even single organisations operating in isolation from each other.

QUALITATIVE ASSESSMENT OF DETERMINANTS OF C2 MATURITY

In order to substantiate the above conclusions regarding the C2 approach, an attempt is made to assess, based on the identified facts relevant for each phase of the Aceh disaster response, the aspects and variables underlying the tenets of NCW⁹ which capture the NEC vision against which the maturity of given C2 capabilities is measured:

- Info-Structure (robustness of information network)
- Information Sharing / Shared Information
- Shared Intent
- Trust
- Shared Awareness / Understanding
- Decision Making
- Actions.

However, the assessment of these aspects may differ, depending on the interacting entities participating in the disaster response operations. Thus, C2 maturity is assessed for each pair of actor categories to the degree that the relevant facts, identified in chapter 3 for each phase of the operation from the reference material, do support the assessment as visualised in a relations matrix using the colour code proposed by Paul Phister:

Interacting Entities (see Annex C in Part One)

- LIAN: Local Individuals, Agencies, NGOs
- RAPN: Regional and Provincial Agencies, National NGOs
- NMF: National Military Forces
- IMF: International Military Forces
- UNRC: United Nations and Red Cross/Red Crescent
- IGGA: International Governments and Government Agencies
- INGO: International NGOs
- NGGA: National Government and Government Agencies

Legend	
	Agile
	Collaborative
	Coordinated
	D-conflicted
	Conflicted

IMMEDIATE RELIEF

Info-Structure

The civilian communication infrastructure was nearly completely destroyed. For that reason only voice communication mainly between local volunteers was possible which turned out to be quite efficient to support their collaboration in saving lives for search and rescue of missing persons.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 1, 2, 3, 6, 8

⁹ See David S. Alberts and Richard E. Hayes: *Power to the Edge; Information Age Transformation Series*. CCRP, June 2003, p. 108.

Info Sharing/ Shared Info

Information sharing based on face to face basis worked very effective in local areas. It is assumed that all necessary information to provide effective aid (taking the available into account) resources were shared.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 1, 2, 3, 6, 8

Shared Intent

It seems to be obvious that providing first aid, water, food and shelter to the affected survivors was the shared intent of the first responders.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 6, 8

Trust

Bonding between neighbours is fairly common when severely challenged by disaster. Thus it can be assumed that the trust between interacting first responders was high.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 6, 8

Shared Awareness / Understanding

Regarding the local circumstances shared awareness and understanding was probably high. Locals were able to coordinate themselves to provide effective aid.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 6, 8

Decisions / Actions

Because of the responsive help of the first responders it is assumed that their actions and decisions were rather effective considering the possibilities they had.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 6, 8

FOLLOW-ON RELIEF

Info-Structure

Due to the damage to the civilian communication infrastructure most organisations were depending on military lines of communication.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 1, 4, 5, 6, 7, 9

Info Sharing / Shared Info

The technical facilities and coordination meetings of the UNHIC notwithstanding, info sharing was generally poor within the international humanitarian community, and between the militaries and humanitarians.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN	Yellow							
RAPN	Yellow	Green						
NMF	Yellow	Yellow	Green					
IMF	Orange	Orange	Yellow	Yellow				
UNRC	Red	Red	Orange	Orange	Yellow			
IGGA	Red	Red	Orange	Orange	Orange	Orange		
INGO	Red	Red	Red	Red	Red	Red	Red	
NGGA	Orange	Orange	Orange	Orange	Red	Orange	Red	Orange

Supporting facts: 6, 7, 8, 9, 10

Shared Intent

While all entities may have shared the intent to help, shared intent on the operational level was severely limited within the humanitarian community because of the emerging inter-agency competition.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN	Green							
RAPN	Green	Green						
NMF	Green	Green	Green					
IMF	Yellow	Yellow	Yellow	Green				
UNRC	Yellow	Orange	Orange	Orange	Yellow			
IGGA	Yellow	Orange	Orange	Yellow	Yellow	Green		
INGO	Red	Red	Red	Red	Red	Red	Red	
NGGA	Yellow	Yellow	Orange	Orange	Orange	Yellow	Red	Green

Supporting Facts: 7, 14, 15

Trust

Given that trust is to a large part based on shared information and shared intent, it can be safely concluded that whenever trust emerged between entities it was limited the more the less they were familiar with each others culture. Thus, trust was probably higher between and among military entities than humanitarian entities, and not existent in most cases between humanitarian and military entities.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN	Green							
RAPN	Yellow	Green						
NMF	Yellow	Yellow	Green					
IMF	Yellow	Orange	Green	Green				
UNRC	Orange	Orange	Orange	Orange	Yellow			
IGGA	Orange	Orange	Orange	Yellow	Orange	Green		
INGO	Red	Red	Red	Red	Red	Red	Red	
NGGA	Yellow	Yellow	Orange	Orange	Orange	Orange	Red	Green

Supporting facts: 10, 11, 12, 13, 14, 15

Shared Awareness / Understanding

With the exception of both national and international militaries not much shared awareness/understanding did emerge among humanitarian organisations.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN	Green							
RAPN	Orange	Green						
NMF	Orange	Orange	Green					
IMF	Orange	Orange	Yellow	Green				
UNRC	Orange	Orange	Orange	Orange	Yellow			
IGGA	Orange	Orange	Orange	Yellow	Orange	Green		
INGO	Red	Red	Red	Red	Red	Red	Red	
NGGA	Orange	Yellow	Orange	Orange	Orange	Orange	Red	Green

Supporting facts: 10, 11, 12, 13, 14, 15

Decisions / Actions

An integrated decision making process involving all entities did not exist. Among military forces involved decision making process followed established procedures, emerging from de-conflicted to coordinated and collaborative in some cases. Concluding from the facts reported about overlap, duplication, and inappropriate aid, competition between INGOs, and between INGOs and local organisations, the decision making among non-military entities characterises a De-Conflicted and even Conflicted C2 maturity level in some cases.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN	Green							
RAPN	Yellow	Green						
NMF	Yellow	Orange	Green					
IMF	Orange	Orange	Yellow	Yellow				
UNRC	Orange	Orange	Orange	Orange	Yellow			
IGGA	Orange	Orange	Orange	Yellow	Orange	Yellow		
INGO	Red	Red	Red	Red	Red	Red	Red	
NGGA	Orange	Yellow	Orange	Orange	Orange	Yellow	Red	Green

Supporting Facts: 10, 14, 15

RECOVERY AND RECONSTRUCTION

Info-Structure

In the course of 2005, the communications infrastructure was still in bad shape, making communications with the local populations very difficult. At the same time, the UNHIC provided a suitable collaboration platform between and among INGOs and UN agencies.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 15

Info Sharing / Shared Info

In addition the lack of communications infrastructure, mistrust and absence of common intent between and among Indonesian government agencies, national and international NGOs, and between INGO and local authorities and NGOs, caused information sharing to be poor at all levels but local.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 2, 7, 9, 11, 12, 13, 14

Shared Intent

Lack of information sharing between the LIAN and NGGA did not allow the development of a common understanding of the intent above the local level. The NGGA and aid agencies also took a long time to agree on guidelines of reconstruction. To make it even worse, NGOs had independent agendas, making it virtually impossible to build a shared intent.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 2, 7, 9, 10, 11, 12, 14

Trust

BAPPENAS and BRR did not manage to capture the trust of the LIAN or of the aid agencies. On the other hand, by being kept in the dark about the reconstruction process, the populations felt deceived by both the NGGA and INGOs. The only exception to this general mistrustful environment was at the local level, where community-mapping projects to solve issue of land ownership was quite successful.

	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 2, 3, 4, 8, 9, 10, 14

Shared Awareness / Understanding

Lack of information sharing led to a lack of common awareness and understanding about the reconstruction process.

	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 2, 7, 9, 10, 11, 14

Decision Making

Due to the lack of common situational understanding between the LIAN, NGGA and INGOs, and despite there being a de-conflicted C2 structure in place with decision making centralised by the NGGA, the characteristics of decision making fits a conflicted C2 level except at the local level, where the population and local agencies were able to coordinate and even collaborate.

From/To	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 2, 7, 9, 14

Actions

Conflicted decision making led to conflicted actions, causing inefficiency in the reconstruction process which in turn reinforced the feeling of deception prevailing among the local population.

	LIAN	RAPN	NMF	IMF	UNRC	IGGA	INGO	NGGA
LIAN								
RAPN								
NMF								
IMF								
UNRC								
IGGA								
INGO								
NGGA								

Supporting facts: 7, 8, 12

CONCLUSIONS: OVERALL ML CLASSIFICATION AND OVERALL PERFORMANCE

The above analysis leads to the conclusion that the C2 Maturity Level for the Tsunami Response operation depended on the phase of the operation and the acting entities involved and ranged from conflicted to collaborative:

- *Immediate Relief*: There was no structured C2 during this phase. However, the self-organised response by local populations and local NGOs was highly **Collaborative** showing responsiveness and adaptability in many cases. National military took the lead in *coordinating* the initial aid efforts.
- *Follow-on Relief*:
 - Military Organisations: **Coordinated / Collaborative**
 - Humanitarian Organisations: **Conflicted** and, to a lesser degree, **De-Conflicted**
- *Recovery and Reconstruction*: **Conflicted / De-Conflicted** and, with some exceptions **Collaborative** at the lowest level where local entities found it easier to collaborate for mutual benefit.

These conclusions are corroborated by the observed mission performance:

- *Immediate Relief*
 - Immediate relief of affected communities (search and rescue, saving lives) was self-organised and relatively effective regarding the possibilities they had.
 - National military were the first institutions providing organised help and coordinating the initial help.
- *Follow-on Relief*
 - Follow-on Relief was well organised and executed primarily by the national and international military forces whereas the lack of coordination within the numerous INGOs and local NGOs resulted in duplication and overlap of aid, partially inappropriate aid and not respecting local needs.
 - Emerging competition between the civilian organisations – up to hostility – was the main reason for the lack of information sharing and coordination which in the end led to a lack of trust towards the international aid organisations.

- Cooperation between Indonesian and the Australian military forces was exemplary because of longstanding bilateral training and exchange programs, whereas cooperation between the US forces and the Indonesian military was in some way hampered because the United States had terminated similar programs five years ago.
- *Recovery and Reconstruction*
 - Lack of collaboration in the information domain was the reason for the implementation of a recovery process that was in conflict with the real needs and aspirations of the local populations. The perception of the local populations of being deceived was magnified by the fact that they were kept in the dark about the goals and progress of the recovery operation. The lack of communication is well illustrated by the fact that one year after the Tsunami nearly 60,000 people were still living in barracks which, in general, did not provide room for privacy (namely for women) and were without water or sanitation in some cases. Apparently, nobody in the Indonesian government agencies managing the recovery programs felt responsible to divert resources from the permanent housing program to improve the temporary accommodations of dislodged people.
 - Even among the implementing organisations there was a lack of communication and common intent, which led to a lack of coordinated actions. The fact that it took nearly nine months of negotiation just for the government and the aid agencies to agree on a building code setting the standard measurements and requirements for new homes is illustrative of this situation.
 - Reconstruction of private homes was greatly facilitated by local NGOs which fostered community-mapping projects to establish property ownership where homes had been wiped out.

GENERAL OBSERVATIONS ON THE INTERNATIONAL RESPONSE

International emergency response was complicated by the fact that the province of Aceh was under emergency law due to the longstanding separatist conflict between the Free Aceh Movement (GAM) and Indonesia. The Indonesian military (TNI) was suspicious of international nongovernmental organisations (INGOs) from the very beginning seeing them as spies and supporters of the Acehnese independence. Vice versa, INGOs did not approve of the TNI's involvement in the relief effort claiming TNI was actively hindering the aid effort and directing aid away from GAM areas.

INGO hostility also applied to foreign military contingents which cooperated more or less closely with the TNI to coordinate aid delivery. Conversely, the militaries saw the INGOs as uncoordinated and ineffective “do-gooders” seeing humanitarian aid as the prerogative of civilians and anyone in uniform as the enemy. As many of them showed up without support they became a burden because they needed to be fed and supplied with water.

INGOs also had problems among themselves. There were turf wars between them because they had to show their donors that they were doing something for the unprecedented amounts of money coming in. Competition between the INGOs undermined coordination and cooperation.¹⁰ Moreover, they competed over local staffs and housing thus distorting the economy by creating prosperity gaps between that part of the local population employed by INGOs and those that were not and increasing almost tenfold the local rents of house not destroyed.

Relations between INGOs and Indonesian NGOs were strained as well. Most local NGOs could not compete with the vast resources of the INGOs. They felt excluded from coordination meetings organised by the UN in Banda Aceh either because they had not been invited at all or could not follow the proceedings because the meetings were in English. Thus, despite having been among the first – together with local populations and the military – to assist disaster victims NGOs were largely pushed out of the follow-on relief effort.¹¹

The observations above suggest that the international disaster response system as described in part one of the case study, is ill-suited for responding efficiently to sudden disasters on the scale of the Indian Ocean Tsunami. In fact, an officer from a European military is quoted with the assessment that “*the UN and NGO system is fundamentally flawed. It needs dismembering and complete rebuilding... They are incapable of coordination... They did not have a mechanism by which funding was dispensed in a meaningful an effective way.*”¹²

¹⁰A senior UN official explained “There was so much money around they did not know what to do with. There was no coordination of objectives.” Competition also had a geographic implication. Because it provided them with a platform to promote their projects for the benefit of their donors, most INGOs based themselves in and around Banda Aceh where all the lights and cameras were.

¹¹ Visiting Aceh in Jan. 2005, Australian Academic Ed Aspinall stated: “Attending the UN coordination meetings for international agencies in Banda Aceh is like stepping into a parallel universe: it is as if no Acehnese remain alive to do anything. The big agencies divide the task among themselves, with little attempt to coordinate with local groups” (Aspinall: Paranoia and Politics in the Disaster Zone: Sydney Morning Herald, 3 Feb 2005).

¹²Kirsten E. Schulze: Between Conflict and Peace: Tsunami Aid and Reconstruction in Aceh. Nov 2006.

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GLOSSARY

ADB	Asian Development Bank
ADF	Australian Defence Forces
BAPPENAS	Indonesia's central Planning Agency
BPN	Badan Pertanahan Nasional (comparable to the National Land Registry)
BRR	Aceah and Nias Rehabilitation and Reconstruction Board
GAM	Free Aceh Movement
GeRAK	Anti-Corruption Movement (Gerakan Demokrasi dan Anti-Korupsi)
IDP	Indonesian Displaced People
INGOs	International Non-Governmental Organisations
MDTFANS	Multi Donor Trust Fund for Aceh and North Sumatra
NEC	Network Enabled Capabilities
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
SAF	Singapore Armed Forces
TEC	Tsunami Evaluation Coalition
TNI	Indonesian Military Forces
UNDAC	United Nations Disaster Assessment and Coordination Team
UNDP	United Nations Development Program
UNHIC	United Nations Humanitarian Information Center
WHO	World Health Organisation