Disaster Management in South-east Asia

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South-east Asia is the epicentre of frequent disasters of varying intensity. The damage to life and property caused by these disasters is comparable to that caused by war. Disasters disrupt the national economy and social development. Besides, the world has shrunk and news about the hardship suffered by the people is rapidly disseminated. As such, the management of disasters has become a key concern of governments confronted with an increasingly aware civil society and a shorter reaction time. Often when disaster strikes, it impacts more than one country and sometimes the region as a whole. The intensity and the frequency of such disasters have prompted the ASEAN to evolve its own response mechanism. However, often the scale of the disaster is so huge that only an international response can meet the challenge. In such cases, the international community, acting through the United Nations and its various agencies and other inter-governmental and non-governmental bodies, has provided succour. Although disasters can be natural, technological and conflict-related, this paper addresses only natural disasters in the region.

According to the *International Encyclopaedia of Social Sciences:*

A natural hazard is an extreme natural phenomenon that threatens human lives, activities or property, or the environment of life. Natural disasters are the destructive consequences of extreme natural hazards, and globally there are more than 700 of them each year. Floods are the most common natural disaster. Together with earthquakes and cyclonic storms they are the most destructive of such manifestations.[1]

Despite the efforts at mitigation, natural disasters have not diminished in number or intensity. Natural disasters still take a toll of 140,000 lives each year on an average. More than 280,000 lives were lost in the Asian tsunami of December 26, 2004 while over 5,000 lives were lost during the earthquake in Indonesia in May 2006.

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Conceptual Paradigm of Disaster Management

"A stitch in time saves nine" applies aptly to disaster management. Disaster management cannot be only reactive and centred essentially on post-disaster relief and rehabilitation. Such an approach proves to be more expensive. A holistic response involves an appropriate approach towards:

1) Pre-disaster phase: Prevention/Mitigation/Preparedness.

2) Post-disaster phase: Comprehensive response encompassing rescue, relief, rehabilitation, and recovery.

Disaster relief till recently was equated with fire fighting and the scale of the tragedy in the disasters has also been unusually high primarily because:

(a) Long-term and comprehensive institutional arrangements to address disaster issues have not been put in place.

(b) Lack of emphasis on preventive and sustainable intervention.

(c) Inadequate involvement of the local community.

These are problems faced at the national level. At the regional level, the problem is further compounded due to adherence to principles such as non-interference in the internal affairs of other countries. However, a large number of initiatives have been undertaken at the regional level to establish coordination mechanisms and integrated disaster reduction measures, while improving information sharing and management. At the international level, although the experience is certainly more diverse and longstanding, the attempts to generalise and duplicate experiences elsewhere without due regard to local conditions and susceptibilities have the danger of backfiring.[2]

Maslow's theory of human motivation and the concept of a "hierarchy of human needs" provides some parameters for rendering relief. The "physiological" (food and water) is considered the most basic human need. Next is "safety", personal security and a sense of familiarity, including shelter. The management of disasters requires that throughout the disaster risk management cycle (i.e., the pre-disaster and post-disaster phases) adequate attention is paid to the following: (a) Institutional Framework for managing disasters; (b) Legal Framework for managing disasters; and (c) Financial Framework for managing disasters. These

steps have to be taken with a view to ensure appropriate and effective policy formulation and planning and for evolving best practices for the role of armed forces in disaster management.

Some Recent Disaster Events in Southeast Asia

South-east Asia experiences frequent earthquakes, tsunamis, volcanic activity, floods, and other disasters of varying intensity. The states in the region are, however, at varying levels of economic development and capacity (for instance, Myanmar is yet a less developed country) which tend to limit their disaster management capabilities. While many more actors in the international disaster relief system have emerged (including NGOs), the main source or channel of disaster relief continues to be the national government. Within the government, a nodal ministry is usually assigned the task of coordinating disaster relief[3], which is also helpful for dealing with the multiplicity of donors and agencies.

Aceh (Indonesia) Tsunami, 2004

The tsunami of December 26, 2004 that struck Indonesia, Thailand, and the South Indian coastline (including other countries as far away as Somalia in Africa) was among the biggest natural calamity in recent times. The tsunami waves (which travelled at the speed of 600–800 km per hour) were preceded by an earthquake measuring 9.0 on the Richter scale under the Indian Ocean seabed. It was the most powerful earthquake in the region since 1899.

The west coast of Sumatra was hit, affecting a 500 km stretch of Aceh province coastline. The death toll of the tsunami was put at 2,89,944 (including those missing) in South and South-east Asia. Table 1 shows the numbers of dead and missing persons of four main countries affected by the 2004 tsunami.

Table 1: 2004 Tsunami: Dead and Missing

Country	Dead	Missing	Total
India	10,744	5,669	16,413
Indonesia	2,28,429*	--	2,28,429
Sri Lanka	30,957	5,637	36,594
Thailand	5,388	3,120	8,508
	2,75,518	14,426	2,89,944

*Dead and Missing

*Source***:** Commodore (Retd.) R.P. Pruthi, "Tsunami and their Impact on Human Civilisation", *Agni*, Volume VIII, No.1, January–March 2005.

The west coast of Sumatra, which was about 100 km from the epicentre of the earthquake, suffered the most, and, in turn, reduced the impact on Malaysia. Thailand's tourist resort of Phuket was badly hit. Indonesia estimated a damage of US $4.45 billion.[4] All important road links collapsed and the local government apparatus was affected with the death of many officials and destruction of government buildings.

According to Edward Aspinall: "The tsunami opened up the province [Aceh] to the outside world in a way that was previously unimaginable."[5] The disaster attracted an unprecedented level of aid. "Thirty-five states contributed 75 helicopters, 41 ships, 43 fixed-wing aircraft and more than 30,000 personnel, including air traffic controllers, medical teams and engineers, to the affected countries."[6] Relief efforts continued for three months in Aceh in which 14 UN agencies, armed forces of 16 foreign countries, and 195 foreign voluntary groups participated. Relief work was, however, hampered because roads and airstrips had been washed away, communication networks compromised, and because of the conflict between the pro-independence Free Aceh Movement (Gerakan Aceh Merdeka, GAM).

When the disaster occurred, Indonesia did not have in place an effective disaster response mechanism. The entire task was entrusted to Indonesia's Coordinating Body for Disaster Management (Badan Koordinasi Nasional Penanggulangan Bencana dan Penanganan Pengungsi, Bakornas PBP). At the regional level, the ASEAN convened, within 11 days, an international summit to address the situation. At the international level, the then UN Secretary General, Kofi Annan, was hands on as was the European Commission president, Jose Manuel Barroso.[7]

All the three wings of the Indian armed forces were able to render timely aid to the tsunami victims, before other relief arrived. Under Operation Gambhir in Indonesia, Indian aid included two ships (one hospital); 40 tonnes of relief material; 25 tonnes of medical stores; one helicopterdeployed; 20 helicopter sorties executed; one medical camp and 1,750 patients treated.[8] However, the post-tsunami relief effort mounted by the Indian military went totally unrecognised in the US and European media.[9]

Indonesia Earthquake, 2006

Indonesia's Jogjakarta and parts of central Java were struck by an earthquake (5.9 on the Richter scale) on May 27, 2006. The disaster took 6,000 lives and destroyed most infrastructure. Having suffered earlier from the devastating tsunami,

Indonesia sought support for two disaster prevention and mitigation activities earlier mandated by the Special ASEAN Leaders' Meeting: (i) a regional instrument for disaster management and emergency response; and (ii) the establishment of a tsunami early-warning system for the Indian Ocean Rim and South-east Asia. ASEAN states rushed relief teams to Indonesia and also sent food and cash.

As one of the most disaster-prone countries, and one which has great national resilience, Indonesia has undertaken following policy measures:

• It established the National Agency for Disaster Management (BNPB) in 2008 and is establishing local disaster management agencies (BPBD) at the provincial and district/municipality levels.

• The BNPB routinely conducts disaster simulation exercises (involving various agencies).

• The Indonesia Disaster Rapid Response and Assistance Force (INDRRA) has been established.

Philippines: Mudslide, 2006

A landslide occurred in on February 17, 2006 in the southern Leyte island of the Philippines following two weeks of sustained rain and a mild earthquake. It buried an entire village leaving as many as 1,800 dead. Leyte island had witnessed a landslide in 1993 when 133 people died, and in 1991 as well, when as many as 5,000 were killed.[10]

Myanmar: Cyclone Nargis, 2008

Cyclone Nargis struck the Ayeyarwady delta region of lower Myanmar on May 2, 2008. It left an estimated 140,000 dead or missing, and disrupted the lives of 2.4 million people. With wind speeds reaching over 200 km per hour (108 knots) and storm surge of up to 3.6 m (12 ft) homes, infrastructure, and agricultural produce were all destroyed. Although the Myanmar military junta went ahead with a planned constitutional referendum soon after the cyclone (May 10), the severity of the destruction cannot be underestimated.

India was quick to respond with aid for the cyclone-affected. Unlike the 2004 tsunami, when the Indian coastline and islands were also affected, this time Myanmar was the lone victim. Myanmar, which had refused international aid in the wake of the tsunami, did not hesitate this time. It is interesting that then US First Lady Laura Bush acknowledged that Myanmar was more likely to accept aid from a neighbour like India than from the United States. India's relief effort was appreciated by Myanmar. India sent two naval vessels (INS Rana and INS Kirpan) and two AN-32 aircraft carrying relief supplies on May 7, 2008. Two other IL-76 aircraft reached Yangon on May 8 and May 10. As there was a fear of an epidemic in the post-cyclone period, India dispatched two medical teams to the affected Myanmar towns in the Ayeyarwady division. A comprehensive relief package under Operation Sahayata, under the oversight of the Integrated Defence Staff included 124 tonnes of relief material costing Rs 6 crore.[11] According to reports, Myanmar's Department of Meteorology and Hydrology had advance information (a week) about the impending cyclone from at least two sources: the Indian Meteorology Department and the Asian Disaster Preparedness Centre, Bangkok. Although Myanmar's disregard of India's warnings is puzzling, it is conceivable that the State Peace and Development Council (SPDC) did not want to disrupt the scheduled referendum, which and hence chose not to give the warning the publicity it deserved.[12]

At the regional level, it was at the ASEAN Secretary General Surin Pitsuwan's initiative that the ASEAN Emergency Rapid Assessment Team was sent, followed by the formation of a coordinating mechanism—the Tripartite Core Group—to channel international aid. This regional initiative facilitated aid from international organisations to come in because the SPDC did not perceive the ASEAN as a threat. The Bush administration airlifted relief supplies worth US $ 75 million from Bangkok to Yangon in US Air Force planes, which made 180 flights as US ships were not allowed to enter Myanmar ports.[13]

Thailand: Floods, 2011

Floods in Thailand, the worst in 50 years, have claimed nearly 700 lives since July 2011 apart from having serious economic and political consequences. The disaster dented Thailand's reputation as a strategic location for business with world-class infrastructure, cheap factors of production (including a labour-force with good skill sets) which attracted big MNCs like Hewlett Packard, Dell, and Apple (producing hard-drives), and Japanese car manufacturers (rolling out 1.6 million vehicles in 2010). The newly elected Prime Minister Yingluck Shinawatra was criticised for

inexperience in managing the situation; the Flood Relief Operations Centre (FROC) led by Police General Pracha Promnok was criticised too. Thailand's image as a manufacturing hub as producer of component products and goods for export took a beating as industrial parks (set up with the Board of Investment's efforts) were inundated, affecting 20,000 businesses and 780,000 jobs.[14]

The floods brought to the fore political differences and, potentially, civil–military divisions. As the Bangkok Metropolitan Area, a bastion of the opposition Democrat Party and led by Bangkok Governor Sukhumbhand got flooded, the centre led by the PM was blamed. The leader of the Democrat party, Abhisit Vejjajiva, wanted emergency to be declared and a greater role accorded to the Army. However, the Army Commander General Prayuth Chan-ocha spoke of the "People's Army", and has not joined the controversy despite the Red Shirts' contention that the Army is looking for an opportunity to stage a "water coup". Yingluck instead invoked a natural disaster law that put her at the top of the chain of command, but she deferred to the monarch, King Bhumibol, who happens to be an expert on water management issues.[15] Interestingly, Thailand has sought to promote military–civilian coordination in Humanitarian Assistance and Disaster Relief since its ASEAN Chairmanship in 2009. It also organised the 2nd ASEAN Defence Establishments and Civil Society Organisations Cooperation on Non-Traditional Security Disaster Management in 2010.

The Indian government showed its solidarity to the Thai people with $200,000 worth of aid.[16]

Philippines: Flash floods, December 2011

At least 650 people were confirmed dead in the Philippines as flash floods and landslides spawned by Tropical Storm Sendong (international codename, Washi) hit Mindanao island in December 2011. Soldiers from the 4th infantry division helped recover the dead bodies. The Western Mindanao Command based in Zamboanga City was involved in search and rescue operations in Mindanao.[17] The Red Cross said about 808 persons were listed as missing.

SARS and Avian Flu

In addition to the natural disasters mentioned above, many ASEAN states were hit by epidemics of serious infectious diseases, such as Severe Acute Respiratory

Syndrome (SARS) and Avian Flu, which posed grave security implications for each of them.[18] When SARS hit the region in early 2003, it exposed the vulnerability of South East Asian nations. ASEAN members had to again coordinate their efforts with those of international agencies when avian flu struck a year later.[19]

These, in essence, were some of the challenges faced by South East Asian nations and certain measures were taken to build national resilience.

National Initiatives

A national platform for disaster risk reduction for the purpose of advocacy, coordination, analysis, and advice on disaster risk reduction, was a concept which took birth at the 2005 World Conference of Disaster Reduction, where the Hyogo Framework for Action 2005–2015(HFA) was adopted with the aim of building national and regional resilience to disasters. However, a dearth of national platforms for disaster risk reduction in Asia, despite strong leadership, has hampered this. Moreover, the national platforms are traditionally more oriented towards disaster response or management rather than disaster preparedness, prevention, and mitigation. Table 2 lists the various national platforms and their achievements in the region. Indonesia's critical location on the Eurasian and Australian tectonic

Table 2: Appraisal of National Platforms Established and in Process in South-east Asia

Countries	National Platforms: Name & Nature	Accomplishments
Cambodia	National DRR Platform	Strategic National Action Plan for DRM 2008–2015 (SNAP) evolved with help of multiple stakeholders.
East Timor	[National Disaster Management Office]	The National Plan for Disaster Risk Management has been revised for adoption by the govt along lines of HFA.
Indonesia	PLANAS (Platform Nasional)	Consultations with multiple stakeholders.
Laos	---	No consensus on a National Platform. Mandates overlap and duplication of effort.
Malaysia	[National Security Council]	The National Security council Directive No. 20 (NSC No. 20): The Policy and Mechanism for National Disaster and Relief Management is the main guideline for disaster management in Malaysia.
Philippines	National Disaster Coordinating Council with a UN cluster approach	A new DRM Act; "Strengthening DRR in the Philippines: Strategic Action Plan 2009-2019"; Strategic Plan on Community-Based DRM (SP-CDBRM) 2007-2011.
Singapore	[Singapore Civil Defence Force]SCDF	SCDF is incharge of the multi-agency response under the Operations Civil Emergency Plan or "Ops CE", viz., national contingency plan to manage large-scale civil and natural disasters.
Thailand	Department of Disaster Prevention and Mitigation	DDPM was mandated to develop the SNAP for Thailand, with involvement of other stakeholders.
Vietnam	National Disaster Management Partnership	Multi-stakeholder involvement (government agencies, NGOs, and donors) in the area of DM and DRR.

Source: Abridged from Anshu Sharma, *Progress Review of National Platforms for DRR in the Asia Pacific Region,* United Nations ISDR, Secretariat Asia and the Pacific, Bangkok, 2009.

plates has given it volcanic volatility which means that preventive steps must be taken: for this Indonesia is using a web-based spatial information system with high resolution. This spatial information system would aid Indonesia in all aspects of disaster prevention and management once Internet bandwidth and connectivity improves and bureaucratic bottlenecks are removed. With a "very forward looking Geospatial Information Act", it is hoped that Indonesia will be able to overcome these limitations and accelerate its economic development.[20]

Thailand is the other South East Asian nation which, after its recent brush with disaster, has focused on upgrading disaster management and prevention in its Tenth Plan. This disaster management plan would cover the pre-disaster phase, the occurrence of the disaster, and the post-disaster phase with an emphasis on emergency rescue and impact prevention. Table 3 lists the projects in disaster management undertaken by the Thai government.

Table 3: Thailand: Projects in Disaster Management

Project	Status	Value of project
Flood monitoring	Project implemented in 2010	US$ 1.5 mn
Earthquake project—Monitoring faults	Project is in pipeline	US$ 642,000

Source: *Geospatial World,* October 2011.

According to the *Geospatial World* magazine, "In Thailand too, geospatial technology, especially satellite imagery is playing a significant role in various aspects of disaster management."[21]

Other ASEAN states like Malaysia, Singapore, and Vietnam (starting 1995) have been using geospatial technology for disaster management.

These, in essence, are the efforts being made to build up national resilience. However, these efforts at the national level would have to be supplemented by efforts at the regional level also.

Regional Initiatives

The Hyogo Framework for Action 2005-2015 (HFA) emphasised the need for regional support of the national platforms. The UNISDR Asia Pacific and the UNDP Regional Centre have sought to give an impetus to the national platforms.

The Centre for Humanitarian Assistance on Disaster Management (AHA Centre) was inaugurated on November 18, 2011 to forge cooperation among the 10 ASEAN states. The Jakarta-based Centre is linked to an office in every member country to foster cooperation in disaster risk management and mitigation as well as post-disaster recovery and rehabilitation. The ASEAN Secretary General's role was expanded to include all mechanisms and instruments available to the grouping; this is in addition to the decision taken at the ASEAN Defence Ministers' Meeting at Pattaya in February 2009 that allowed the Secretary General to use ASEAN's military assets for humanitarian assistance and disaster relief.[22]

The ASEAN's efforts to coordinate disaster management date back to 1976 when five ASEAN states issued the Declaration on Mutual Assistance on Natural Disasters.[23] It, inter alia, stated:

The Member Countries shall, within their respective capabilities, cooperate in the:

a. improvement of communication channels among themselves as regards disaster warnings;

b. exchange of experts and trainees;

c. exchange of information and documents; and

d. dissemination of medical supplies, services and relief assistance.

The experts group (set up after the declaration was adopted) was elevated to the level of an ASEAN Committee on Disaster Management in 2003.[24] It adopted the ASEAN Regional Programme on Disaster Management for 2004–2010 and set about drafting the ASEAN Agreement on Disaster Management and Emergency Response (AADMER).

The AADMER, signed on July 26, 2005 and which entered into force in 2009, is the first and only legally-binding agreement for regional disaster management (see Table 4 below). Although signed post-tsunami, work on it had begun much earlier. An ASEAN Disaster Management and Emergency Relief Fund, with voluntary contributions, was also set up. Disaster-related specialised training was imparted, a database was set up, technical cooperation established, training institutes linked, technical cooperation instituted and, more importantly, simulation exercises conducted. Lessons learnt were incorporated into the ASEAN Standby Arrangements and Standard Operating Procedures.

Table 4: Regional Institution building

Initiatives	Details
AADMER	Features of ASEAN Agreement on Disaster Management and Emergency: Proactive with emphasis on prevention and mitigation; and deriving lessons from recent disasters (tsunami and Nargis) and DRR based on HFA. It provided basis for AHA Centres.
AHA Centre	The AHA Centre is operationalised by the ASEAN Committee on Disaster Management (ACDM) with assistance from ASEAN Secretary General who serves as the ASEAN's Humanitarian Assistance Coordinator when requested.
ARDEX	To improve response capacity, ASEAN Regional Disaster Emergency Response Simulation Exercise was launched in 2005.
ARPDM	The ASEAN Regional Programme on Disaster Management served as ASEAN's programme for regional cooperation for the period 2004-2010: (i) Establishment of an ASEAN regional disaster management framework: cooperation through joint projects, research and networking; (ii) strengthening capacity building in priority areas and based on a country's needs; (iii) the promotion of the sharing of resources, information, expertise and best practices; (iv) the promotion of collaborations and partnerships among various stakeholders
AADMER WP 2010-2015	AADMER Work Programme is a continuation of the ARPDM. Its main is early warning, preparedness, prevention and recovery. This objective is achieved through institutionalisation of AADMER; partnership strategies, resource mobilisation, outreach, training and knowledge management, and communication technology.

Disaster management formed a subject of discussion in the ARF as well[25], especially in the ARF Inter-sessional Meetings on Disaster Relief (ISMDR). The ARF General Guidelines on Disaster Relief Cooperation were adopted at the 14th ARF Meeting in 2007. Indonesia and Japan co-chaired the ASEAN Regional Forum Disaster Relief Exercise (ARF DiREx) 2011, held from March 15–19, 2011 in Manado, in North Sulawesi Province in Indonesia; it was held to enhance coordination among various stakeholders. Indonesia will co-chair the ARF ISM-DR for the Inter-sessional year 2011–2012.

The East Asia Summit (EAS), which is fast becoming an important forum has discussed disaster management. Also relevant in this context is the Cha-Am Hua Hin Statement on Disaster Management on 25 October 2009 in Thailand.[26] The statement endeavoured to:

1. Support efforts to strengthen the [disaster management] capacity of countries in the region.

2. Cooperate to develop integrated preparedness and disaster risk reduction capacities for transboundary, multi-hazard disasters, among others, end-to-end early warning systems and enhance the linkages and networks among the local, national, regional disaster management agencies, in cooperation with international organisations.

3. Provide support for natural disaster preparedness and building tsunami early warning capacities in a multi-hazard approach.

4. Support the effortsof ASEAN for enhancing humanitarian coordination and strengthening leadership to respond to major disasters.

5. Enhance post-disaster management and recovery efforts, and encourage greater integration of early recovery activities in the immediate post-disaster phase.

International Initiatives

While disasters were occurring in South-east Asia, and the region was devising ways to cope with them, developments at the international level also provided direction.

The United Nations observed the 1990s as the International Decade for Natural Disaster Reduction (IDNDR) with a view to generate public awareness.[27]

The UN Disaster Relief Organisation (UNDRO) was established in 1971 at Geneva[28] with the aim of mobilising, directing, and coordinating the relief efforts of various UN agencies, inter-governmental, and non-governmental organisations. When the Department of Humanitarian Affairs was created on April 1, 1992, the UNDRO was subsumed into it.[29] A further reform programme instituted in 1998 led to the reorganisation of DHA into the Office for the Coordination of Humanitarian Affairs (OCHA). The UN International Strategy for Disaster Reduction (UNISDR) was created in 1999 as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among disaster reduction activities. It issues the Global Assessment Report on Disaster Risk Reduction every two years.[30] The UN disaster risk reduction chief, Margareta Wahlström, speaking at the Fourth High Level Forum on Aid Effectiveness in Busan, Republic of Korea, noted:

The costs of disasters are borne by developing countries with no help from the international community. With annual losses of up to 20 per cent of their gross domestic product, countries often expend their entire development budget to address disaster impacts.[31]

Conclusion

South-east Asia has, over the years, gathered enough experience in disaster management, but new technology and management techniques will need to be applied in the times to come. As India shares a similar disaster-prone terrain, and due to its proximity to South-east Asia, it could take a leadership role in disaster mitigation and prevention so that over a period of time India and its neighbourhood streamline the instruments and mechanisms for providing advance warnings for some of the likely natural disasters. Given its scientific know-how, satellite technology, geospatial technology, IT base, and scientific manpower, India's disaster relief diplomacy should be forward-looking with an emphasis on regional institution building and foolproof networking. This is an area of soft power which needs to be pursued aggressively.

India must to capitalise on its strong points and not fritter away her gains. We need to devise the most effective ways of networking and disseminating advance information about an impending disaster (a case in point is the high casualty rate due to Cyclone Nargis inspite of the information provided by India). Equally, we

need to meticulously spell out the objectives of our relief diplomacy in the case of each country, being in most cases the first responders in times of a crisis (for example, the tsunami); these objectives should not be lost sight of, as others join in the relief effort later.

Notes:

1. *International Encyclopedia of the Social Sciences,* 2nd edition, Thomas Gale, New York, 2007.

2. For this section, the author has largely relied on information contained in O.S. Dagur, *Disaster Management: An Appraisal of Institutional Mechanisms in India*, Knowledge World, New Delhi, 2011.

3. This is the trend in most ASEAN States.

4. Sharon Wiharta et al, *The Effectiveness of Foreign Military Assets in Natural Disaster Response*, SIPRI, Solna, 2008.

5. Edward Aspinall, "Indonesia After the Tsunami", *Current History*, vol. 105, no. 680, March 2005.

6. Sharon Wiharta, et al, n. 4.

7. Rodolfo C. Severino, ASEAN*, Southeast Asia Background Series No. 10*, ISEAS, Singapore, 2008.

8. Vice Admiral Raman Puri, "Tsunami Relief Operations by Indian Armed Forces", *Journal of the United Service Institution of India*, vol. CXXXV, no. 560, April-June 2005, pp. 200-214.

9. Ashutosh Sheshabalaya, "Tsunami Relief: The Great Indian Absence?", available at http://www.theglobalist.com/StoryId.aspx?StoryId=4378, accessed on November 29, 2011.

10. See at www.guardian.co.uk/environment/2006/.../feb/18/naturaldisasters.frontpagenews, accessed on November 29, 2011.

11. "Operation Sahayata: IAF IL-76 Airlifts More Relief to Myanmar", May 12, 2008, available at http://pib.nic.in/newsite/erelease.aspx?relid=38784, accessed on November 29, 2011.

12. Udai Bhanu Singh, "Referendum for Myanmar's Constitution in the Wake of Cyclone Nargis", May 12, 2008, *IDSA Strategic Comments*, available at http://idsa.in/idsastrategiccomments/ReferendumforMyanmarsConstitutioninthewakeofCycloneNargis_UBSingh_130508, accessed on November 29, 2011.

13. Lex Rieffel (ed.), *Myanmar/Burma: Inside Challenges, Outside Interests,* Brookings Institution Press, Washington DC, 2010.

14. Karl Wilson, "Thailand Faces Formidable Task of Rebuilding After Floods", *China Daily- Asia Weekly*, December 16–22, 2011.

15. Shawn W. Crispin, "After the Flood in Thailand", *Asia Times*, available at http://wwwatimes.com/atimes/Southeast_Asia/MK19Ae04.html, accessed on December 9, 2011.

16. "India to Give 200,000 USD Aid as Flood Relief to Thailand", available at http://www.newkerala.com/news/2011/worldnews-92333.html, accessed on November 7, 2011.

17. "278 dead, 200 Missing as Storm Batters Mindanao, Negros", available at http://newsinfo.inquirer.net/112849/180-dead-nearly-400-missing-in-storm, accessed on December 17, 2011.

18. Mely Caballero-Anthony argues in support of securitizing infectious diseases in order to mobilize resources and strengthen regional cooperation, which could threaten the very survival of nation-states and is in line with the concept of comprehensive security. For details see, Mely Caballero-Anthony, "SARS in Asia: Crisis, Vulnerabilites and Regional Responses", *Asian Survey*, Vol. 45, No.3, May/June 2005, pp. 475–495.

19. The ASEAN Health Ministers (AHMM), and ASEAN Ministers of Agriculture and Forestry (AMAF), and the ASEAN Expert Group on Communicable Diseases (AEGCD) were some of the groups tasked with mitigation efforts. The ASEAN Highly Pathogenic Avian Influenza (HPAI) Task Force or the ASEAN HPAI was established in October 2004 to coordinate multi-agency effort to combat avian flu at the regional level.

20. Arup Dasgupta, " Indonesia: G-readiness for future", *Geospatial World*, Vol. 2, No.3, October 2011

21. Arup Dasgupta, "Thailand: Getting back on track', *Geospatial World*, Vol. 2, No..3, October 2011.

22. "Asean Disaster-management Centre Officially Inaugurated", available at http://www.asianewsnet.net/home/news.php?id=24046&sec=1, accessed on November 29, 2011.

23. The Agreement was signed on June 26, 1976 by the Foreign Ministers of Indonesia, Malaysia, Philippines, Singapore, and Thailand. For complete text see the ASEAN website: http://www.aseansec.org/1431.htm.

24. The Committee was composed of heads of national agencies dealing with natural disasters.

25. ARF has 27 members: 10 ASEAN members and 17 dialogue partners.

26. EAS has 10 ASEAN members and also includes Australia, China, India, Japan, Russia, New Zealand, South Korea, and the United States.

27. The Word Conference on Natural Disaster Reduction (Yokohama, May 23–27, 1994) was organized as part of IDNDR's awareness drive. The Yokohama Strategy and Related Plan of Action noted the sovereign responsibility of each country to protect its citizens from natural disasters. It sought to promote sub-regional, regional, and international cooperation to prevent, reduce, and mitigate natural disasters.

28. UN General Assembly Resolution 2816/XXXVI, December 14, 1971.

29. UN General Assembly Resolution 46/182, December 19, 1991 sought to "mobilize and coordinate the collective efforts of the international community, in particular those of the UN system, to meet in a coherent and timely manner the needs of those exposed to human suffering and material destruction in disasters and emergencies. This involves reducing vulnerability, promoting solutions to root causes and facilitating the smooth transition from relief to rehabilitation and development."

30. See URL http://www.unisdr.org/who-we-are/mandate for more details.

31. At http://www.unisdr.org/archive/23893.