

THE SIGUR CENTER ASIA PAPERS

THE 2004 INDIAN OCEAN
TSUNAMI:
SIX MONTH REPORT

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Prepared by:

**Ambassador Karl F. Inderfurth
The Elliott School of International Affairs
The George Washington University
ambkfi@gwu.edu**

**David Fabrycky
The Elliott School of International Affairs
The George Washington University
fabrycky@gwu.edu**

**Dr. Stephen Cohen
Senior Fellow, Foreign Policy Studies
The Brookings Institution
scohen@brookings.edu**

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The Sigur Center for Asian Studies
1957 E Street, N.W., Suite 503
Washington, D.C. 20052
Tel.: 202-994-5886 Fax: 202-994-6096
<http://www.gwu.edu/~sigur/>

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Introduction and Summary of Findings

The December 26, 2004, earthquake and resulting Indian Ocean tsunami impacted at least 12 countries. Deadly waves caused by the magnitude 9.15 earthquake reached as far as Africa, with the furthest recorded death in South Africa, 5,000 miles away from the earthquake's epicenter off the Indonesian coast.¹ With approximately 225,000 lives lost, it was the most deadly tsunami in recorded history, and one of the worst natural disasters in hundreds of years – comparable to the 1976 Tangshan, China, earthquake and the 1970 Bhola, East Pakistan (Bangladesh), cyclone. The earthquake was the fourth largest since 1900. While the others also caused tsunamis in the Pacific Ocean their death tolls were much lower – in the thousands at most – because of lower population density in affected areas. The last major tsunami in the Indian Ocean occurred in 1883, caused by the eruption of Krakatau off southern Sumatra. Most of the communities currently affected had no experience with tsunamis and were unprepared for such a disaster.² Seismic activity near Indonesia has increased since the December earthquake: volcanoes have become active, and there has been a string of aftershocks and tremors – a March 28 magnitude 8.7 earthquake being the most severe.

This report covers the first six months since the tsunami and is intended to gauge the damage and track the international community's response to the affected countries' estimated needs. The data and text is current as of June 8, 2005; for the most up-to-date information, please see the resources listed at the end of this report.

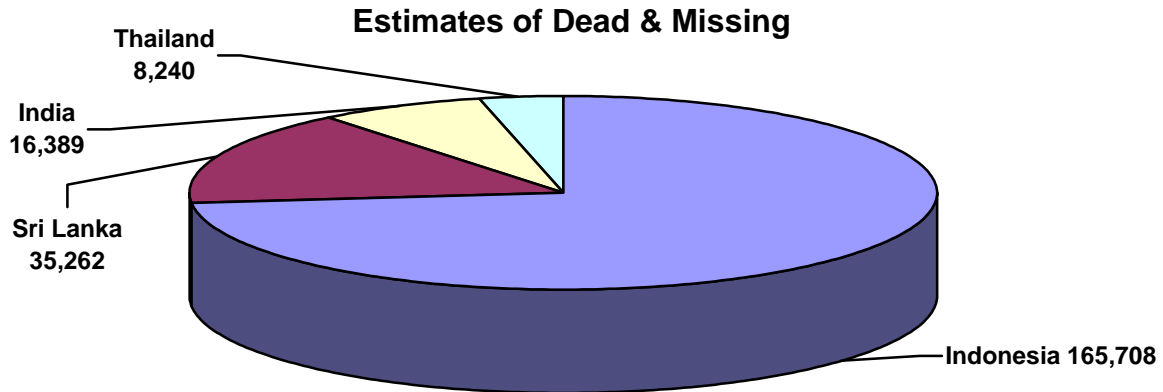
The tsunami disaster prompted an unprecedented outpouring of global goodwill and assistance, and the generous pledges of support offer hope that the devastated communities will be able to rebuild. Experience has shown, however, that initial pledges for natural disasters often go unfulfilled as media coverage wanes and international attention turns elsewhere. Fortunately, aid inflows from international organizations, NGOs, and governments are continuing as of the six-month mark and are being committed to specific projects. Rapid national and international mobilization of relief supplies met the immediate needs of survivors, and the health and food situations remain under control. Reconstruction will probably take five years or more in most seriously affected areas.

Studies by international financial institutions have assessed the costs of the devastation, and while the economic effects are relatively small for countries as a whole,

the effects are devastating for local communities. Indonesia was hit the hardest, while Sri Lanka, India, the Maldives, and Thailand were also significantly impacted. Beyond the loss of life and economic damages, affected communities also face social dislocations and widespread trauma. The tourism industry is rebounding quickly although coastal areas still suffer from a shortage of visitors. Finally, efforts to build a regional natural disaster warning system are moving forward, albeit at a slow pace.

Deaths by the Thousands: Whole Communities Destroyed

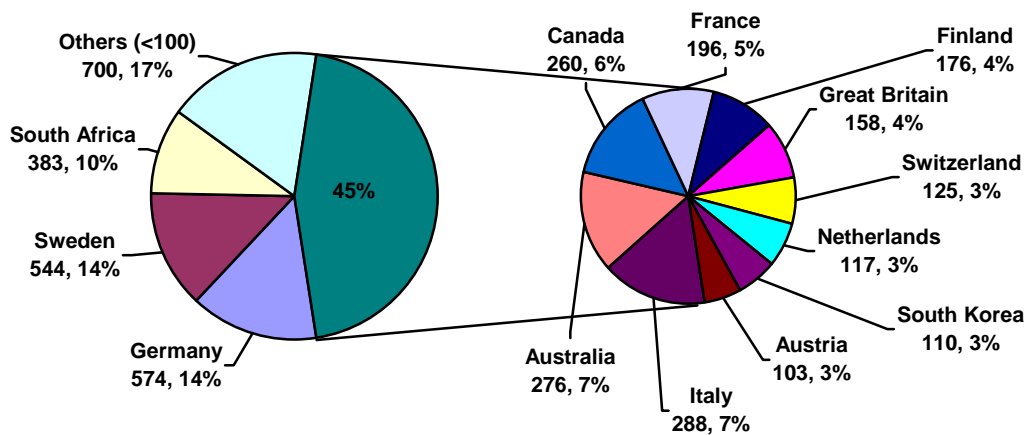
The four countries shown in the chart below lost the most number of lives to the tsunami. Other countries counted dead and missing in the dozens: 150 in Somalia, 108 in the Maldives, 74 in Malaysia, and 61 in Burma (Myanmar). Many states outside the region lost dozens or hundreds of citizens in the tsunamis; approximately 2,500 foreign tourists were killed. Thirty-three Americans died or are missing and presumed dead.



Source: USAID Fact Sheet #38, FY 2005, 6 May 2005.³

Note: Several countries require a person to be missing for a year before they are considered dead. For example, there are 128,645 confirmed dead in Indonesia, but another 37,063 missing indicates the death toll could reach 165,708. This total was revised downwards from around 220,000 because many missing people were found in IDP camps.

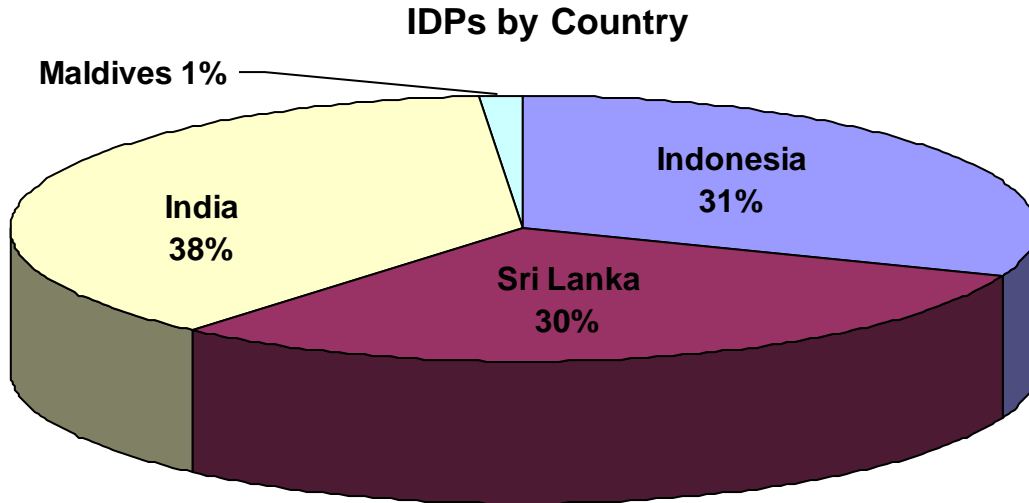
Estimates of Dead & Missing from Non-Indian Ocean Countries



Source: Tsunami Laboratory (Russia), as of March 1, 2005. <http://tsun.sssc.ru/tsulab/20041226fat.htm>.

Internally Displaced Persons

Over 1.7 million people were reportedly displaced by the tsunami. Many are staying in internally displaced person (IDP) camps or temporary shelters, while the rest are staying with family or friends. Estimates have been revised several times since the tsunami as more data has become available and double counting is eliminated. Construction of new homes and repair of damaged ones has been hampered in many coastal communities by new building codes and regulations, a shortage of housing materials, and property ownership disputes. The UN reported that many IDPs are returning and erecting temporary structures for fear they will lose their land.



Sources: USAID compilation of government reports, as of April 28, 2005.⁴

Note: Data on Thailand is not available. In mid-January, the UN estimated there were 8,000 IDPs in Malaysia and 5,000 in Somalia, but it is unknown if these numbers are still accurate. The UN estimated that an additional 34,000 people were displaced in Indonesia after the March 28, 2005, earthquake.

Economic Impact and Estimated Needs: Losses Small Nationally but Huge Locally

The tsunamis devastated coastal communities in the affected countries. Fishing, small-scale agriculture, and tourism were particularly hard hit. Infrastructure and private assets were lost or damaged along the coasts. While the overall economic impact on most countries will be relatively small, studies have shown that the poor have been particularly hard hit. The Asian Development Bank (ADB) estimated that two million people are at risk of sinking deeper into poverty because of the tsunami and its aftermath.⁵ Much of the losses were to uninsured private assets – estimates of insurance payouts range from \$2.5 to 5 billion. In comparison, the 2004 Florida hurricanes cost insurers \$21.6 billion.⁶

The World Bank, ADB, United Nations, and Japan Bank for International Cooperation have conducted a series of assessments, in cooperation with the governments of several tsunami-affected countries, to estimate damages from the tsunami and reconstruction costs. The reports try to quantify both replacement costs (i.e. how much it would cost to replace lost assets and income at their original location and specifications) and reconstruction costs, which may be higher as government plans emphasize building in different locations or to different specifications. Most of the current estimates are for medium-term reconstruction (i.e. the next three years). Costs will be higher over the full reconstruction period of 5-10 years.⁷

The Paris Club of Creditors announced on March 10, 2005, the extension of a conditional moratorium on debt repayments by affected countries until the end of 2005, as long as freed resources go for tsunami relief and reconstruction.⁸ Sri Lanka immediately accepted the offer for \$4.6 billion of debt owed to the group, and said it would lobby to extend the moratorium to 2006 or 2007. On March 14, Indonesia said that it would also accept the offer, which will delay payments on \$2.6 billion worth of debt.⁹ It is unclear if debt relief will substantially help the affected countries, as those most

The March 28 Earthquake: A Massive Aftershock

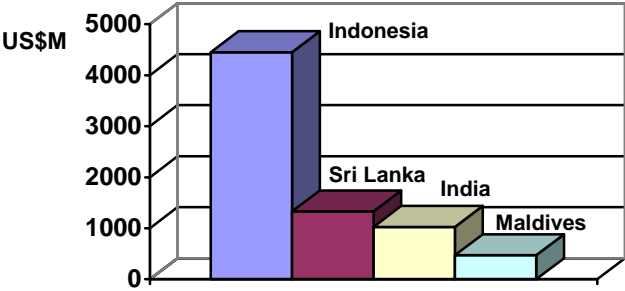
The magnitude 8.7 earthquake struck off the Indonesia coast on March 28 did not cause any tsunamis. The earthquake did, however, kill as many as 626 Indonesians on the islands of Nias and Simeuleu and may have damaged or destroyed 80% of the buildings there. On April 8, the Indonesian government said \$326.4 million was needed to rebuild damaged areas. Food and other relief materials in the vicinity helped meet emergency relief needs. Tsunami alerts were issued shortly after the earthquake, and thousands in Indian Ocean rim countries fled coastal areas. The false alarms and disorganized alerts underscore the need for an effective regional tsunami warning system and better government planning.
Source: Press, USAID

in need of debt rescheduling, such as the Maldives, owe the most to non-Paris Club creditors.

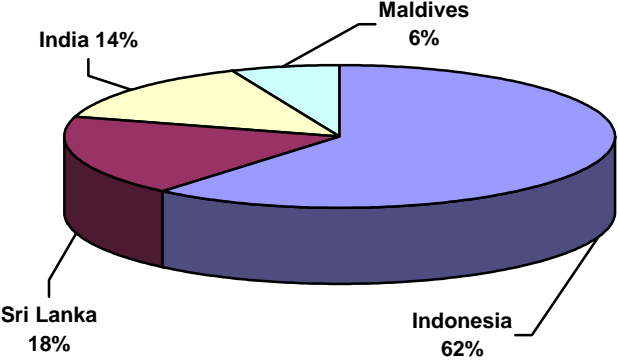
Indonesia: Total material damages and losses were estimated at \$4.45 billion.¹⁰ The disaster primarily impacted private assets and revenues. 66% of the loss represents damage to assets, while 34% represents lost income flows to the economy. Since the tsunami only hit coastal regions, the impact on Indonesia's national economy will be moderate, but huge for the devastated provinces' local economies. The total losses amount to about 2.2% of Indonesia's GDP, but almost the entire GDP of Aceh province. The Indonesian government released a master reconstruction plan in mid-April and established a special agency to head reconstruction shortly thereafter.

Sri Lanka: Damage was estimated at about \$1 billion, or 4.5% of GDP, with an additional \$330 million lost in income flows. Most of the affected assets were in the private sector, particularly fisheries and tourism. As in Indonesia, the impact on the national economy is minimal, but the impact on the affected areas is huge. The Sri Lankan government established a joint public-private Task Force for Rebuilding the Nation to monitor and coordinate reconstruction, and in February released a draft Action Plan.

Estimated Losses by Country



Comparison of Losses by Country



India: Four mainland states and the Andaman and Nicobar Islands were affected by the tsunami, and over \$1 billion was lost in assets and incomes. The largest losses were in housing (\$490 million) and fisheries (\$285 million).¹¹ The overall impact on India's national economy is negligible.

Estimated Losses and Reconstruction Costs			
Country	Asset Losses	Productivity Losses	Reconstruction Cost
Indonesia	\$2.92b	\$1.531b	\$4.722b
Sri Lanka	\$970M - \$1b	\$330M	\$1.5-6b
India	\$575M	\$448M	\$1.213b
Maldives	\$298M	\$172M	\$406M

Maldives: The economic impact of the tsunami will be more substantial in the Maldives than in other countries. Total damages and income losses are estimated at \$470 million, or 62% of GDP. Direct losses amount to about \$298 million, or 8% of the replacement cost of the national capital stock.¹² The macroeconomic impact will largely depend on how fast the country's tourism industry recovers, as it is the country's main engine of economic growth. The government released a National Recovery and Reconstruction Plan in March and the Ministry of National Planning and National Development head the effort.

Economic Section Sources: World Bank, ADB, UN, and Japan Bank for International Cooperation studies.

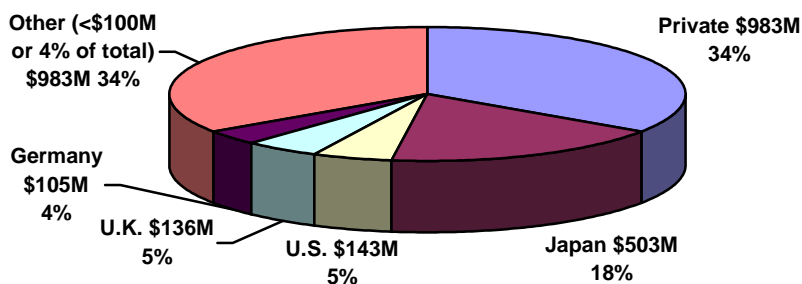
Notes: The reconstruction estimates are sometimes higher than damages as they take into account replacement of damaged assets and upgrades to services and infrastructure to meet higher standards and reduce vulnerability to natural disasters. In addition, the reconstruction costs are only for the short to medium term (up to three years); longer-term needs are still being assessed and are expected to be significant in infrastructure areas. Productivity losses are separate from asset losses and represent such things as lost incomes, reduced production, and increased expenditure until assets are replaced. They cannot be recovered or rebuilt like physical assets. At the Indian government's request, the assessment for India did not include estimated losses in the Andoman and Nicobar islands, but just for the four mainland coastal states impacted by the tsunami. The government's preliminary estimate of reconstruction needs for the islands is \$850 million. Other tsunami-affected countries not included in this table, such as Thailand, Malaysia and Myanmar, have either not sought international assistance or studies have not yet been completed, so there are no loss and reconstruction cost estimates for these countries.

External Funding: Generous Pledges but Slow Delivery

The scale of the tsunami disaster prompted an unprecedented outpouring of sympathy and support from governments and people around the world. Monetary pledges quickly added up to over six billion dollars. There is no one tool that can effectively track aid for tsunami-affected countries, and although the UN and ADB are both trying to establish comprehensive tracking mechanisms, accurate accounting remains difficult. External reconstruction aid must go through a cumbersome process before it actually helps those in need on the ground. Foreign governments or international organizations pledge money, which must then be committed to specific projects, disbursed to the government or partner organization, and then finally spent or distributed at the local level.

It is safe to say that the estimated needs outpace the pledges, that only some of the pledges have been committed or disbursed, and that only a fraction of potential aid has reached needy communities. For example, Indonesia's new director for reconstruction said on May 9, 2005, that he was shocked by how little has been done at the local level, and that hardly anything has been spent so far on reconstruction.¹³ In Sri Lanka, the government announced in mid-April that donors had pledged \$2 billion for tsunami assistance, but that only \$750 million had been made available, and the government had only spent about \$130 million.¹⁴

Binding Commitments and Paid Contributions by Donor



Source: UN Office of the Coordinator for Humanitarian Affairs; compiled from information provided by donors and appealing organizations as of June 8, 2005. Note: Commitments refers to a contractual obligation between the donor and recipient, and paid contributions indicate money or in-kind goods already transferred. Not included in this chart are pledges, which are non-binding announcements of an intended contribution.

A Persistent Problem: Holding Governments Accountable for Pledges

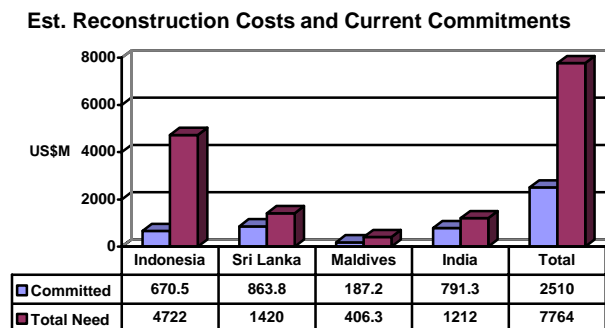
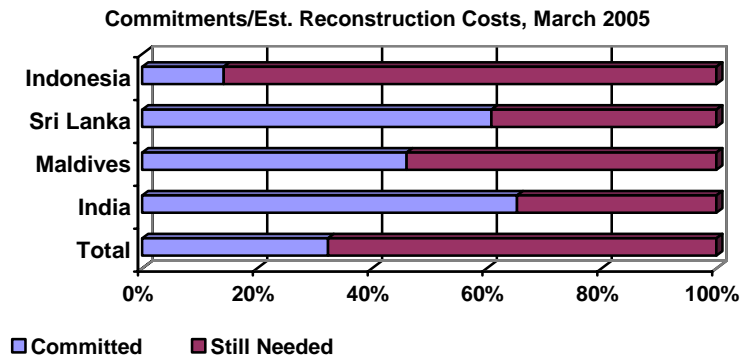
National governments have historically pledged generously for disaster relief and reconstruction assistance, only to backtrack on initial pledges once media and world attention wanes. Over the past two years, the United Nations has had a \$3 billion shortfall in funding for relief and reconstruction efforts following civil conflicts or natural disasters. Many times, countries have simply not followed through on their pledges. For example, many of the pledges for assistance to Iran following the 2003 earthquake in Bam remain unfulfilled. According to Roberta Cohen, a senior fellow at the Brookings Institution, the United Nations is trying for the first time to develop a system that will show funding pledges and receipts to try to hold pledging governments accountable. Cohen doubts the UN will be able to expose and shame governments into following through on their pledges.
Sources: *The Washington Post*, Brookings Institution

There is also increasing awareness in the international community of the need to ensure that reconstruction funds are not lost to corruption. Governments of affected countries have pledged transparency in their reconstruction efforts, and the UN is working with PricewaterhouseCoopers to monitor disbursement of its \$1 billion tsunami relief fund. A website has been established to track how the money is spent.

At least \$6.7 billion has been pledged for tsunami aid by governments and private organizations,¹⁵ but by early June 2005 only \$2.85 billion has been turned into specific commitments or paid contributions, according

to the UN Office for the Coordination of Humanitarian Affairs (OCHA) Financial Tracking Services system. Japan, the U.S., and European countries are the major donors. Some of the offered aid is being diverted from development programs already planned for those countries, and some other aid is actually loans, albeit at concessional rates.

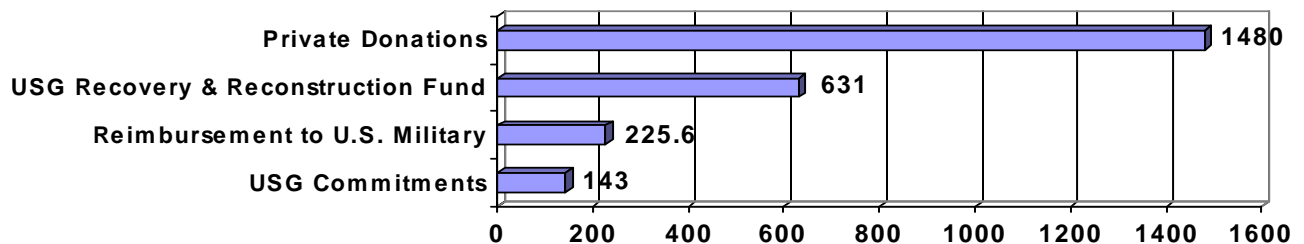
Another estimate of the status of relief aid was presented by the ADB at a mid-March conference it organized in Manila (this data is displayed in the next two graphs).¹⁶ Attendees at the conference agreed to establish country-level matrices and an international mechanism to monitor the delivery of aid, but there is no word on when such a system will come online.¹⁷ An ADB spokesman said the below data is “not definitive” but intended to be used as a fundamental planning tool. Indeed, the figures do not always include bilateral commitments (and have not been revised since March 2005) so total commitments to countries in need are certainly higher.



U.S. Assistance: Generous Promises Moving Ahead

The U.S. government will spend about \$857 million on tsunami-related aid. In addition to reimbursing the \$225.6 million in expenses incurred by the Defense Department during the provision of relief goods and services, a supplemental appropriations bill signed by President Bush on May 11, 2005, earmarks \$631 million for tsunami aid in a “Recovery and Reconstruction Fund.” As of June 8, \$143 million had been committed to specific projects.¹⁸ On May 8, U.S. Deputy Secretary of State Robert Zoellick signed a memorandum of understanding with the Indonesian government for a \$245 million road project in Aceh. U.S. NGOs have raised at least \$1.48 billion in private funds and in-kind gifts, \$254.2 million of which was spent in the three months immediately following the disaster.¹⁹

U.S. Tsunami Aid (in millions)



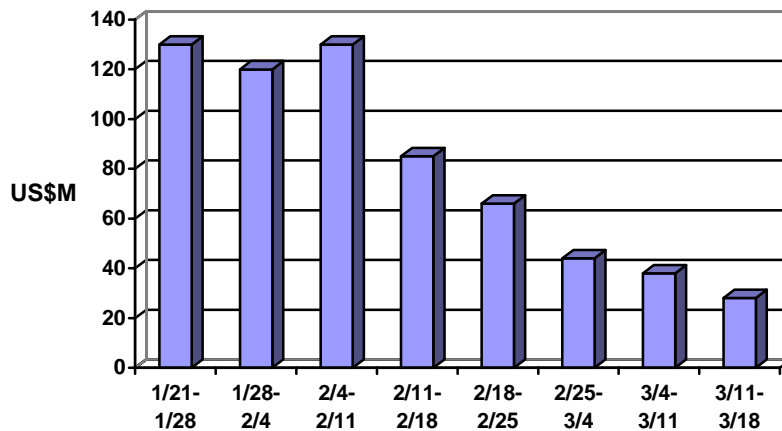
Source: USAID, InterAction, and “Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005”. Note: The \$245 million cost of the Aceh road project is not included in the committed figure as it has been offered but not officially committed. The supplemental bill also includes \$25 million for the USGS and NOAA for research and construction of a tsunami warning system for the United States, and another \$25 million in the USG Recovery and Reconstruction Fund earmarked for a program to prevent the spread of the avian influenza virus. Since these two items are not tsunami aid for the Indian Ocean countries they are not included in the above graph. Total approved funds for tsunami-affected countries are \$857 million, or \$93 million less than President Bush’s \$950 million request (debt relief for affected countries was excluded).

The U.S. military and 14 other foreign militaries were key contributors to relief efforts. At the height of operations, over 15,000 U.S. service members, 25 ships and 94 aircraft were involved in providing assistance.²⁰ The U.S. military ceased tsunami relief operations on February 14, having treated 2,238 patients and delivered over 24 million pounds of supplies.²¹ A small number of ships and personnel remain in the area to assist as needed. A U.S. Navy hospital ship provided humanitarian assistance off the coast of Nias for 25 days following the March 28 earthquake.

Private Donations: Hard to Track but Generosity Still Obvious

Counting private donations is difficult due to the various sources of funding and systems used for tracking donations. Private binding commitments and paid contributions tracked by the UN amount to \$983 million, or about a third of the amount pledged thus far. InterAction, an alliance of 160 U.S.-based international development and humanitarian NGOs, reported that \$1.48 billion in cash and in-kind gifts has been given to its member organizations.²² Trends in donations were consistently high through early February, when giving rates began to decline. The most recent weekly figures indicate that only \$28 million was given March 11-18. Despite some high-profile commitments by firms and other groups, private donations are tapering off and may be hard to sustain over the next few months.²³

Weekly Private Donations to U.S. Charities



Source: InterAction (data only available through mid-March)

The Forgotten Emergencies

While world attention and government aid commitments have focused on the tsunami aftermath, several other complex humanitarian emergencies have gone relatively unnoticed. In early April, UN Emergency Relief Coordinator Jan Egeland said that governments have given or committed most of the over \$1 billion requested by a UN flash appeal for tsunami aid. However, several other emergencies, particularly in Africa, remain under-funded and current commitments have not been fulfilled. Apart from the successful appeals for Sudan and tsunami aid, only 9% of requested funds for other emergencies have been committed in the first quarter of 2005. This is about 25% lower than funding levels for such appeals one year ago, suggesting governments may be diverting aid for other emergencies to the highly publicized tsunami effort. Egeland noted that "the money we ask for all of these other forgotten and neglected emergencies is one-fifth of what Europe spends on ice cream per year. It is two-and-a-half fighter jets." Source: UN News Service, 4/6/2005; Refugees International, 4/28/2005

Employment: Job Prospects Dim Along the Coasts

The International Labor Organization (ILO) estimated in January that one million jobs might have been lost due to the tsunami.²⁴ According to the ILO, about 600,000 people in Indonesia may have lost their sole source of livelihood, particularly those who worked in fishing, small-scale agriculture, and small business. The unemployment rate in affected provinces could be 30% or higher, up from 6.8% before the tsunami. In Sri Lanka, over 400,000 workers have lost their jobs, mostly in fishing and tourism. The unemployment rate in affected provinces probably rose from 9.2% before the tsunami to over 20% afterwards. On a positive note, the ILO notes that the rapid aid and support mobilized after the disaster could result in between 50-60% of affected workers being able to earn a living again by the end of 2005 and, further, that about 85% of jobs could be restored by the end of 2006. Many people in coastal communities have found temporary employment through work-for-cash or work-for-food programs sponsored by governments and foreign aid groups.

Education: Damage to Infrastructure is Major Complication

The tsunamis destroyed or damaged hundreds of schools in coastal areas. UNICEF reported in early April that up to 90% of children in the most affected communities have returned to school, most within the first month after the disaster. Many of these schools are being held in temporary accommodations such as tents, and long-term reconstruction is needed.

Indonesia: Over 2,000 schools were destroyed or damaged, and some 45,000 students and 1,870 teachers were killed.²⁵ Most of these losses are to the public sector, and the local and provincial infrastructure that supports school services has been severely damaged.

Sri Lanka: The tsunami damaged 168 public schools, 4 universities, and 18 vocational/industrial training centers. Primary and secondary schools were hardest hit.²⁶

India: Preliminary estimates indicate that 332 public schools will need repair or rebuilding.²⁷

Maldives: 37% of the schools require some degree of repair to be functional. Six schools were completely destroyed; however, all schools started their current academic sessions on time.²⁸

Food Security: Food Aid Needed and Being Provided

The UN World Food Program (WFP) announced on March 24, 2005, that the potential for a post-tsunami food crisis had been averted,²⁹ and the UN Food and Agricultural Organization (FAO) has said that food availability in the affected regions is adequate to cover current needs. In January, the WFP launched a six-month \$256 million emergency operation,³⁰ and as of early April was providing food aid to 1.75 million people.³¹ Despite the quick provision of emergency food aid, undernourishment remains a problem throughout the region. For example, the FAO estimated in 2004 that 4.1 million of Sri Lanka's 18.8 million people are undernourished. Moreover, a survey in Aceh by the Indonesian government and aid agencies found that acute malnutrition was present in 11.6% of displaced children and 11.4% of the region's other children.³²

Health Issues: So Far, a Good-News Story

The widespread devastation caused by the tsunamis prompted fears about disease outbreaks in affected areas due to damaged medical infrastructure, loss of service providers, and contaminated water supplies. So far, however, there have not been any serious outbreaks, and the quick national and international response has helped meet the affected communities' emergency medical needs. The World Health Organization (WHO) reports that the health situation remains under control, with no outbreaks identified, although many clusters of cases and rumors have been investigated.³³ International agencies have made steady progress in providing clean drinking water, but sanitation and waste disposal remain a problem in some areas. In early May, health officials at an UN-sponsored conference in Thailand concluded that the key lessons learned from the tsunami were the need for a global network of health experts, clear procedures on handling psychological trauma and mass fatalities, and a focus on the special health issues for women, such as pre- and post-natal care.³⁴

The medical infrastructure was severely impacted in many coastal communities, a problem compounded by the deaths of doctors and other health providers. The greatest health threat remains that of communicable diseases, and people are at risk of water-borne and vector-borne diseases such as cholera, malaria, and dengue.

The WHO estimates that up to half of all residents in affected areas will require some psychosocial interventions. Indeed, dealing with widespread trauma may prove to be one of the biggest health and social challenges in the tsunami's wake. There has been little research on the

impact of trauma on children, for example, but studies of the September 11 terrorist attacks indicate that these may be severe, especially for those close to the disaster. Most assessments indicate that community-based interventions are more useful than professional help, and one priority will have to be training those community workers who have relevant language skills.

Human Rights and the Displaced

The tsunami did not lead to any known international migration, but it did create a large number of internally displaced persons in the most affected areas. Experience elsewhere shows that the longer displacement caused by natural disasters lasts, the greater the risk of discrimination and violation of human rights, especially of poor and marginalized groups. Indeed, there have already been some reports in this regard. The national human rights commissions of India, Indonesia, the Maldives, Sri Lanka, and Thailand met in March to discuss strategies to address human rights problems arising from the tsunamis.³⁵

Tourism: Open for Business but Foreign Tourists Hesitant to Return

Since the tsunami was a coastal disaster, the region's tourism industry was hit hard. Most hotels, however, have rebounded quickly and other disasters like the SARS virus have posed bigger challenges to the industry. While the industry's physical infrastructure was either spared or is being quickly rebuilt, the primary challenge is convincing foreign tourists that the area is safe and open for business. Tourist arrivals are slowly picking back up after a sharp drop right after the tsunami. As of March, however, tourist arrivals in tsunami-affected countries are still down 30-40% compared to last year,³⁶ and a string of earthquakes and aftershocks have contributed to another tourism slump since April. Tourism elsewhere in Asia remains strong, and the financial impact can be minimized if tourists can be brought back quickly.

Environmentalists hope that reconstruction in the tourism industry will be more environmentally considerate than it has been in the past. Mass tourism has taken a toll on many countries' coastal resources, and ensuring reconstruction does not replicate the mistakes of the past will be a major challenge. Prior clearing of mangrove forests to open up beachfront properties removed a major natural barrier that in many places could have helped prevent the tsunami waves from moving inland with such ferocity. Another concern is that a shortage of building materials could lead to widespread clearing of forests.

Indonesia: Aceh and North Sumatra were not major tourist destinations so the impact on tourism in Indonesia should be negligible.

Sri Lanka: About one-quarter of the island's hotels were affected, for \$200 million in damages, while \$50 million in damages was caused to other tourist-related assets.³⁷ The World Travel and Tourism Council (WTTC) estimated in early April that Sri Lanka could lose \$201 million dollars and 66,840 jobs this year, but that many of these could be regained if visitors return.³⁸

Maldives: A senior Tourism Ministry official called the tsunami "the worst disaster we've had." Hardest hit of all economic sectors, tourism directly represents one-third of the Maldives' GDP, and indirectly supports 60-70% of national GDP. The industry suffered direct losses of \$100 million, half of which was insured.³⁹ Most of the resorts are operational but WTTC estimates the Maldives will lose \$55 million and 10,440 jobs.

Thailand: The Thailand Tourism Authority in New York said that reconstruction of coastal resort infrastructure would be largely completed by mid-summer 2005. As of early May, however, Thailand had lost an estimated \$278.5 million in tourism revenue, as there were 800,000 fewer tourists than expected.⁴⁰ For the year, WTTC estimated that Thailand would lose \$1.2 billion and 94,780 jobs.

Tsunami Warning System: Coordination the Problem, Not Science

The Indian Ocean countries did not have an effective warning system in place on December 26, so the tsunamis hit most affected areas without any advance notice. Countless lives were lost as a result. For example, the tsunami took between 90 minutes and two hours to reach Sri Lanka, Thailand, and the east coast of India. The waves did not reach Somalia until seven hours after the earthquake. In the wake of the tragedy, nations around the world called for the establishment of a warning system for the Indian Ocean and also placed renewed emphasis on developing systems along their own coastlines. Existing tsunami warning systems like the one established for Japan in 1968 by the UN Educational, Scientific, and Cultural Organization (UNESCO), have proven effective in saving countless lives.

UNESCO has tried to organize global efforts to build a worldwide early warning system that would warn against tsunamis and other natural disasters like floods, typhoons, hurricanes, and volcanic eruptions. It hopes to have such a system in place by 2007.⁴¹ UNESCO is also trying to guide efforts by Indian Ocean countries toward the goal of establishing a region-wide tsunami-warning network by mid to late 2006. After an April meeting in Mauritius attended by 250 officials and experts from 25 countries, the UN announced that \$11 million has been committed toward the system but that \$12 million is still needed.⁴² Earlier this year, a mechanism was established for Indian Ocean countries to receive tsunami warnings from the Pacific Tsunami Warning Center in Hawai'i and the Japan Meteorological Agency.⁴³ These distant centers are not, however, always able to accurately assess conditions in the Indian Ocean. These centers will also be used to analyze data and issue warnings from an interim system that UNESCO plans to establish by October 2005.⁴⁴ This basic system will upgrade existing sea gauges to detect tsunamis and is intended as a stopgap until the regional network is created.

Sixteen of 27 involved countries have identified a national tsunami focal point to work with each other and the UN on coordinating a regional network. Disagreements among the countries have hampered efforts to plan a truly shared, region-wide system, and several

governments are vying for the privilege of hosting a regional center. A number of these countries want to play the key coordinating role and negotiations are needed to remove political roadblocks, according to Salvano Briceno, the UN's Director of International Strategy for Disaster Reduction.⁴⁵ The UN is trying to finesse the issue by having each government take the lead on a different function within a comprehensive system, such as transmission of data, research, and training.

Several national governments have proceeded with individual plans for warning systems: Germany is helping Indonesia install a \$60 million system that may be ready by October 2005,⁴⁶ Thailand has begun to establish a national system which will reportedly have a center in Bangkok and coverage of coastal areas by August 2006,⁴⁷ and India has announced it will work with Norway on a system slated for completion by 2007. These individual projects will give some coastal communities coverage, but many countries are still without the capacity to monitor ocean levels.

The UN is optimistic that a regional early warning system will be in place by late 2006, and the scientific and funding challenges appear fairly easy to overcome as connecting a regional system and building national capacities will only cost an estimated \$23 million. Resolving coordination differences among Indian Ocean countries is, however, an outstanding requirement.

Regional Conflicts: Long-term Reconstruction Threatened by Ongoing Tensions

Separatists of the Free Aceh Movement (GAM) have waged a low-intensity insurgency against the Indonesian government in Aceh province for the past 29 years. The conflict has claimed the lives of some 12,000 people and displaced an estimated 35,000.⁴⁸ Before the tsunami, Aceh had been under martial law, but after the disaster the Indonesian government scaled-down its control to civil emergency status, and on May 18, 2005, lifted those restrictions as well. There is no formal ceasefire, but the military and GAM are reportedly operating under a "gentlemen's agreement" not to disrupt relief efforts. The military remains in control of incoming aid, and 40,000 Indonesian troops are stationed in Aceh with more planned. The Indonesian government and GAM have held four rounds of peace talks in Helsinki, Finland, since the tsunami, and have agreed to a fifth round to be held in mid-July. Mediators seek to have a peace agreement soon, one that will overcome entrenched differences over political control in the province.⁴⁹ Meanwhile, sporadic clashes between GAM and the military continue.

In Sri Lanka, the Liberation Tigers of Tamil Eelam (LTTE) have fought a separatist war against the government in the north and east of the country for 22 years in a conflict that has claimed over 60,000 lives.⁵⁰ A fragile ceasefire has, however, been in place since 2002 and the government and international community had been making plans to rebuild the hard-hit Tamil areas. Unfortunately, these conflict-affected regions were also those worst hit by the tsunami. Grassroots coordination helped ensure the provision of immediate relief, but the LTTE's de facto control over portions of the country complicates the government's reconstruction plan and the administration of external aid. The conflict also poses additional challenges for reconstruction: there have been accusations of government discrimination against Tamils in the distribution of aid,⁵¹ and UNICEF said in late May that the LTTE has recruited some 137 children as soldiers since December 26, including nine displaced by the tsunami.⁵²

Both the LTTE and President Kumaratunga have expressed their support for a proposal to use a "joint mechanism" to manage and distribute aid in the conflict areas. The proposal is designed to help the government, and international donors like the United States that have designated the LTTE a terrorist organization, to work on reconstruction in Tamil areas. The plan is strongly opposed by the People's Liberation Front (JVP), a hard-line nationalist party with 39 seats in Parliament that opposes working with the LTTE.

In both Indonesia and Sri Lanka, sustainable long-term reconstruction depends on the warring parties reaching successful peace agreements, or at least maintaining ceasefires and using mutually accepted mechanisms to administer aid in conflict areas.

For Further Information

The World Bank, ADB, United Nations, and Japan Bank for International Cooperation have produced a series of in-depth assessments on the human and economic destruction wrought by the tsunami, and estimates of needed reconstruction costs. Find the reports and other tsunami-related economic information at:

<http://www.worldbank.org/tsunami/> and

<http://www.adb.org/tsunami/default.asp>

In early February, the World Bank and IMF released preliminary estimates of the macroeconomic impact of the tsunami on seven affected countries. Find their report here:

<http://www.imf.org/external/np/oth/2005/020405.htm>

The UN Office for the Coordination of Humanitarian Affairs (OCHA) runs a website named ReliefWeb which serves as an information hub on humanitarian emergencies and natural disasters. The special page on the tsunami has updates and reports from the UN and other international organizations, national governments, NGOs, the media, and academia. To access the special Tsunami portal visit their website at:

<http://www.reliefweb.int>

The UN-established website to track tsunami funds is also available through ReliefWeb.

Country-specific OCHA sites can be found for Indonesia at:

<http://www.humanitarianinfo.org/sumatra/>

and for Sri Lanka at:

<http://www.humanitarianinfo.org/srilanka>

Development issues in affected areas are also covered in a special webpage by Development Gateway, an independent NGO affiliated with the World Bank:

<http://topics.developmentgateway.org/special/tsunami>

Several U.S. government agencies provide tsunami-related information. The U.S. Agency for International Development (USAID) has a special web portal with the most comprehensive coverage, including reconstruction updates and information on U.S. projects:

http://www.usaid.gov/locations/asia_near_east/tsunami/

The U.S. Department of State's website has a page with related press releases, officials' comments, and links to websites for U.S. embassies in Indian Ocean countries:

<http://www.state.gov/p/sa/tsunami/>

The status of international pledges and commitments can be tracked daily through the UN Financial Tracking Service:

<http://ocha.unog.ch/fts/index.aspx?PageID=tsunamiHomePage>

A "first of its kind" online tracking system intended to provide "unprecedented transparency" for donors to see how the money they give to the UN for tsunami aid⁵³ is available at:

<http://ocha.unog.ch/ets/>

Reuters also has a special site which tracks the financial contributions of the 10 biggest donors, including a breakdown of each donor's aid package:

<http://www.alertnet.org/thefacts/aidtracker/>

Governments of affected countries also have tsunami-related websites with some English content: Indonesia National Disaster Management (Bakornas):

<http://www.bakornaspbp.go.id/aceh/>

Indonesia's Website for Reconstruction (includes Master Plan): <http://www.e-aceh.org/>

Sri Lanka Task Force for Rebuilding the Nation (TAFREN): <http://www.tafren.gov.lk/>

India National Disaster Management: <http://www.ndmindia.nic.in/>

Maldives National Disaster Management Center: <http://www.tsunamimaldives.mv/>

Thailand Tsunami and Disaster Center: <http://www.thaitsunami.com/wps/portal>

UNESCO is tracking the efforts of individual countries and UN agencies to establish a tsunami warning and mitigation system in the Indian Ocean. Find information and key documents from related events at:

<http://ioc.unesco.org/indotsunami/>

The World Health Organization is tracking public health conditions in tsunami-affected areas and has worked with governments to develop plans for rehabilitating medical infrastructure and providing medical and psychosocial services to affected populations. Find country-specific reports and health assessments at:

http://www.who.int/hac/crises/international/asia_tsunami/en/

The World Food Program (WFP) provides information on food assistance following the tsunami:

<http://www.wfp.org/index.asp?section=2>

Several major news organizations maintain special websites devoted to tsunami coverage. The Asia Regional Information Center, an Internet news site sponsored by the ADB and government of Australia, has a special webpage with well-organized links to hundreds of tsunami-related press articles:

<http://aric.adb.org/asiantsunami/index.asp>

Finally, the UN News Center has a special page with UN-related tsunami news:

<http://www.un.org/apps/news/infocusRel.asp?infocusID=102&Body=tsunami&Body1>.

Endnotes

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- ¹ “2004 Indian Ocean Earthquake,” Wikipedia Online, http://en.wikipedia.org/wiki/2004_Indian_Ocean_earthquake.
- ² “Tsunamis—Where Next?” *National Geographic*, April 2005.
- ³ Several overall estimates of the death toll exist; the figures presented here are from a USAID summary on May 6, 2005 of country-level data through April 28. Country-level statistics are available through: Bakornas (Indonesian Government), Sri Lankan Centre for National Operations, Government of India Ministry of Home Affairs, Maldives National Disaster Management Center, and the International Committee of the Red Cross.
- ⁴ “USAID Fact Sheet #38, Fiscal Year 2005,” *USAID Online*, 6 May 2005, http://www.usaid.gov/locations/asia_near_east/tsunami/pdf/Indian_Ocean_EQ_and_TS_FS38-05.06.05.pdf.
- ⁵ Anthony Faiola, “Poorest in S. Asia Face New Hardship,” *The Washington Post*, 13 January 2005.
- ⁶ Robert Hartwig, chief economist at the Insurance Information Institute, estimated insurance claims due to the tsunamis of less than \$5 billion. Lisa Kalis and James Brooke, “After the Tsunami, Hoping for the Balm of Tourism,” *The New York Times*, 16 January 2005, p. TR3. London-based Guy Carpenter and Company Inc. estimated total insured losses from \$2.5 to 4 billion, with life and health costs of \$1 billion. “Tsunami Losses Could be Less than \$4B,” P&C National Underwriter, *NU Online News Service*, 16 March 2005.
- ⁷ UN technical experts estimated that reconstruction of affected communities would take 5-10 years, despite the influx of international aid. “Post-tsunami recovery will take about a decade: UN agencies,” *AFP*, 23 May 2005.
- ⁸ “Paris Club Communiqué on Tsunami Affected Countries,” *Paris Club Online*, 9 March 2005, http://www.clubdeparis.org/en/news/page_detail_news.php?FICHIER=com11104547960.
- ⁹ “Indian Ocean Earthquake and Tsunami Emergency Update,” *Center of Excellence in Disaster Management and Humanitarian Assistance Online*, 23 March 2005, <http://www.coe-dmha.org/Tsunami/Tsu032305.htm>.
- ¹⁰ “Indonesia Damage Assessment,” *World Bank Online*, 19-20 January 2005, http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-1106130305439/damage_assessment.pdf.
- ¹¹ “India: Tsunami Reconstruction to Cost \$1.2 Billion, Says World Bank-ADB-UN Joint Assessment Report,” *World Bank Online*, 14 March 2005, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,contentMDK:20392153~menuPK:34463~pagePK:64003015~piPK:64003012~theSitePK:4607,00.html>.
- ¹² “Republic of the Maldives, Tsunami: Impact and Recovery,” Joint Needs Assessment by the World Bank, Asian Development Bank, and UN System, 8 February 2005.
- ¹³ “Indonesia: Aceh tsunami chief ‘shocked’ at slow reconstruction,” *Reuters*, 9 May 2005.
- ¹⁴ “Rs. 12,950 m spent on tsunami relief so far,” Government of Sri Lanka, *ReliefWeb*, 11 April 2005.
- ¹⁵ “Indonesia, Sri Lanka, Maldives, Somalia: Earthquake and Tsunami OCHA Situation Report No. 36,” *UN OCHA*, 15 April 2005.
- ¹⁶ “Funding shortfall of 5.25 billion dollars for tsunami reconstruction: ADB,” *AFP*, 18 March 2005.
- ¹⁷ “Tsunami Conference Backs Transparent Mechanism to Track Flow of Aid,” *ADB Online*, 18 March 2005, <http://www.adb.org/Documents/News/2005/nr2005036.asp>.
- ¹⁸ “USAID Fact Sheet #36, Fiscal Year 2005,” *USAID Online*, 22 February 2005, http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/countries/indian_ocean/fy2005/indian_ocean_et_fs36_02-22-2005.pdf. As noted elsewhere in the paper, UN FTS figures continue to show that about \$125 million has been committed or paid by the United States.
- ¹⁹ Estimate of \$1.48 billion includes funds or gifts received by InterAction members, and may exclude some U.S. NGOs. “InterAction Member Tsunami Response Accountability Report,” *InterAction Online*, http://www.interaction.org/files.cgi/3987_Tsunami_Final_Report.pdf.
- ²⁰ “Americans Respond to Tragedy,” *U.S. Department of State Online*, <http://usinfo.state.gov/products/pubs/tsunami/>.
- ²¹ “DoD Relief Efforts Factsheet Summary,” *Defenselink*, 14 February 2005, <http://www.pacom.mil/special/0412asia/factsheet.html>.
- ²² “InterAction Member Tsunami Response Accountability Report,” *InterAction Online*, http://www.interaction.org/files.cgi/3987_Tsunami_Final_Report.pdf.
- ²³ A private sector summit on the tsunami was held in Washington, DC on May 12 to discuss ways for companies to help in the reconstruction process. The U.S. Chamber of Commerce representative reported that over \$500 million has been raised or donated by U.S. firms. One-third of this aid was in-kind donations, while another two-thirds are in direct financial assistance. 130 companies have made donations of over \$1 million each. The response to the tsunami

is probably the largest private sector response to a disaster in U.S. history. For example, one participant said that previously the largest private U.S. commitment had been to Hurricane Mitch, when \$70 million was donated.

²⁴ ILO Press Release, *ILO Online*, 19 January 2005, <http://www.ilo.org/public/english/bureau/inf/pr/2005/3.htm>.

²⁵ "Indonesia Damage Assessment," *World Bank Online*, 19-20 January 2005, http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-1106130305439/damage_assessment.pdf, p. 28.

²⁶ "Sri Lanka: Preliminary Damage and Needs Assessment," *World Bank Online*, 5 February 2005, <http://siteresources.worldbank.org/INTSRILANKA/Resources/233024-1107313542200/SLNA0205Final-E.pdf>, p. 15.

²⁷ "India Post-Tsunami Recovery Program: Preliminary Damage and Needs Assessment," *World Bank Online*, 8 March 2005, <http://siteresources.worldbank.org/INDIAEXTN/Resources/295583-1110791780048/India-tsunami-namr14-2005-all.pdf>, p. 17.

²⁸ "Republic of the Maldives, Tsunami: Impact and Recovery," Joint Needs Assessment by the World Bank, Asian Development Bank, and UN System, 8 February 2005.

²⁹ "USAID Fact Sheet #37, Fiscal Year (FY) 2005," 1 April 2005, *USAID Online*, http://www.usaid.gov/locations/asia_near_east/tsunami/pdf/Indian_Ocean_EQ_and_TS_FS37-04.01.05.pdf.

³⁰ "WFP Moves Into Reconstruction Phase of the Tsunami Disaster," WFP Press Release, 3 March 2005.

³¹ "100 Days After the Tsunami, The Number of Natural Disaster Victims Grows," WFP News Release, 4 April 2005.

³² "Aceh Survey Shows Almost 12% of Displaced Children Malnourished," *Bloomberg*, 15 April 2005.

The WFP press release on 4 April provided the following information on their efforts in affected countries:
Indonesia: Of 2.8 million people affected, WFP estimated that up to 790,000 people require emergency food aid. WFP mobilized resources to feed these people until the end of June 2005. However, WFP is now curtailing general food distribution and transitioning to targeted assistance for 350,000 primary school children, 55,000 pregnant women and nursing mothers, and 130,000 children under 5 years of age.

Sri Lanka: As of early April, WFP was feeding 915,000 people, almost the entire amount of initial estimates of the 1 million affected.

The Maldives: WFP is providing food aid to some 42,000 people.

³³ "Tsunami Health Bulletin," *World Health Organization Online*, 2 February 2005, http://w3.who.sea.org/EN/Section23/Section1108/Section1835/Section1872_8695.htm.

³⁴ "UN conference on tsunami response calls for more health-oriented disaster preparedness," *UN News Centre*, 6 May 2005.

³⁵ "Protection of Internally Displaced Persons in Situations of Natural Disaster, a Working Visit to Asia by the Representative of the U.N. Secretary General on the Human rights of Internally Displaced Persons, Walter Kalin," Office of the UN High Commissioner for Human Rights, Geneva, <http://www.ohchr.org/english/issues/idp/index.htm>.

³⁶ Yi Hu, "Tsunami fails to sink tourism outlook," *South China Morning Post*, 18 April 2005.

³⁷ "World Bank Response to the Tsunami Disaster," *World Bank Online*, 2 February 2005, <http://siteresources.worldbank.org/COUNTRIES/Resources/tsunamireport-020205.doc>, p.4.

³⁸ Ray Marcelo, "Tsunami could cost Dollars 3bn to tourism," *Financial Times*, 9 April 2005.

³⁹ "Republic of the Maldives, Tsunami: Impact and Recovery," Joint Needs Assessment by the World Bank, Asian Development Bank, and UN System, 8 February 2005, p. 9.

⁴⁰ "Thailand loses around US \$278.5 million in tourism revenue in Q1," *Asia Pulse*, 5 May 2005.

⁴¹ James Brooke, "U.S. Vows to Attain Global Warning System," *The New York Times*, 20 January 2005, p. A10.

⁴² "Early warning system in the Indian Ocean – 'We are moving ahead,' says Salvano Briceno," *ReliefWeb*, 20 April 2005.

⁴³ "Meeting in Mauritius for a tsunami early warning system in the Indian Ocean," *ReliefWeb*, 12 April 2005.

⁴⁴ Bill Tarrant, "Interim Indian Ocean tsunami warning system by Oct.," *Reuters*, 19 May 2005.

⁴⁵ "Indian Ocean: Plans for tsunami warning system advancing well, ISDR," *ReliefWeb*, 18 April 2005.

⁴⁶ "Indonesia to install tsunami early warning system," *Associated Press*, 15 March 2005.

⁴⁷ "Thailand's Proposed Tsunami Early Warning System Moves Ahead," *Financial Times*, 11 February 2005.

⁴⁸ "Key facts on the Free Aceh Movement (GAM)," *Reuters*, 26 May 2005.

⁴⁹ Gael Branchereau, "Indonesia: Aceh mediator to draw up draft for peace deal at Helsinki talks," *AFP*, 31 May 2005.

⁵⁰ Amal Jayasinghe, "Sri Lanka rebels recruiting fewer child soldiers," *AFP*, 25 May 2005.

⁵¹ Roberta Cohen, “Statement given at a meeting hosted by Women in International Security – ‘Warning Systems, Reconstruction and Stability: Durable Solutions in the Aftermath of the Tsunami Tragedy’,” 21 March 2005, http://www.brookings.edu/fp/projects/idp/20050321_rcohen.pdf.

⁵² Jayasinghe.

⁵³ Lindsey Iorg, “New Web Component Tracks Pledges for Tsunami Relief,” United Nations Association of the United States of America, Press Release.