

Disaster Monitor



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Photo: S. Levitt

The Series: Looking at countries in the context of natural catastrophes positions World Vision to better predict, prevent or prepare for the onslaught of disasters. The rationale is simple: disasters can wipe out years of development in mere minutes. Reducing disaster risks is not an optional extra – but an extra obligation. It is at the heart of sustainable development.

Philippines

World Vision

I. The Facts

The Philippines is an archipelago of 7,107 islands, but most Filipinos live on just 11 of them. The country currently has the highest birth rate in Asia. If growth rates remain unabated, the population could double within three decades. Much of the Philippines is mountainous and prone to frequent earthquakes, volcanic eruptions and wind storms. Millions live in poverty. The fast facts follow:

Republic of the Philippines	Population: 84.6 million ⁽¹⁾
Extreme Poverty – Population living below \$1 a day in percent [real figures]	14.8% [12.5 million] ⁽²⁾
Poverty – Population living below \$2 a day in percent [real figures]	43% [36.4 million] ⁽²⁾
Life expectancy at birth, annual estimates (2005)	71 years ⁽¹⁾
Adult illiteracy rate (15 and older, 1995-2005)	7.4% ⁽³⁾
Children underweight for age (under age 5, 1996-2005)	28% ⁽⁴⁾
Population undernourished in percent [real figures]	18% [15.2 million] ⁽⁵⁾
Physicians (per 100,000 people, 2000-04)	58 [equals one doctor per 1724 people] ⁽⁶⁾
Human Development Index (HDI) value [rank]	0.771 [rank: 90 of 177] ^(7,8)
Natural Disaster Index (NDI) value [risk; rank]	1.43 [risk: "extreme"; rank: 11 of 204] ^(9,10,12)

2. The Forces

“Recent forecasts by the Intergovernmental Panel on Climate Change (IPCC) predict ‘more intense’ tropical cyclone activity with ‘larger peak wind speeds and more heavy precipitation.’⁽¹⁸⁾ Millions in the Philippines must be helped to prepare for worsening wind storm disasters.” (Laurence Gray, World Vision Advocacy Director for the Asia-Pacific Region)⁽¹¹⁾

Disaster Environment: The severity of any disaster depends on two factors: the country context within which the disaster occurs, and the nature and force of the onslaught itself. Given a country context like that of the Philippines with more than 36 million people (43% of the population) fighting for survival on less than two dollars a day, and with only one doctor for every 1,700 people, the impact of a catastrophe can be cataclysmic.

Lying within the typhoon belt of the Western Pacific and on the northwestern fringes of the Pacific Ring of Fire, the Philippines is buffeted by frequent wind storms, floods, earthquakes and eruptions from around 20 active volcanoes. On average, the Philippines experiences about 19 typhoons each year, with the northern and eastern parts of the country being most strongly affected.⁽¹⁵⁾

Disaster Definition: The Center for Research on the Epidemiology of Disasters (CRED) defines a disaster as a "situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering." For a disaster to be entered into the EM-DAT⁽¹²⁾ database, at least one of the following criteria must be fulfilled:

- 10 or more people reported killed
- 100 people reported affected
- Declaration of a state of emergency
- Call for international assistance

Past Years: Using this definition, the years 1990-2007 have seen the Philippines impacted by 218 natural disasters. The majority of disasters in the Philippines feature little in international news but amount to great destruction when added together (figure 1). The pie charts show the prevalence of natural catastrophes by disaster types (figure 2) and the number of people affected by them (figure 3).

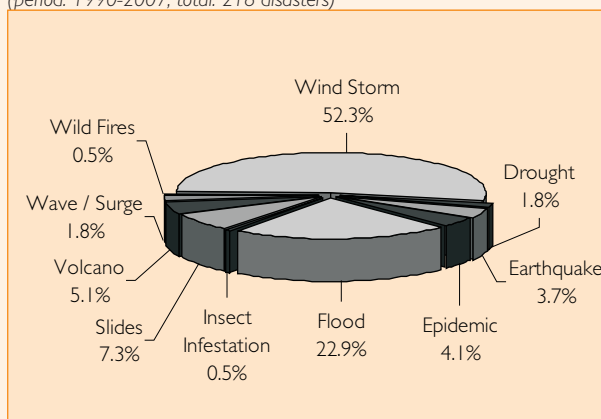
In this period, wind storms have been by far the most prevalent (52.3%), the most deadly (more than 15,000 people killed), the most costly (more than US\$ 4.3 billion in damage caused) and the most destructive (more than 59 million people affected).

Past Century: Mega-disasters – sometimes called "disasters of the century" – occur less frequently, but their destructive force can overpower a vulnerable nation. Figures 4 and 5 show two perspectives of the top three natural disasters in the Philippines since record-keeping began in 1900. [Data based on ⁽¹²⁾.]

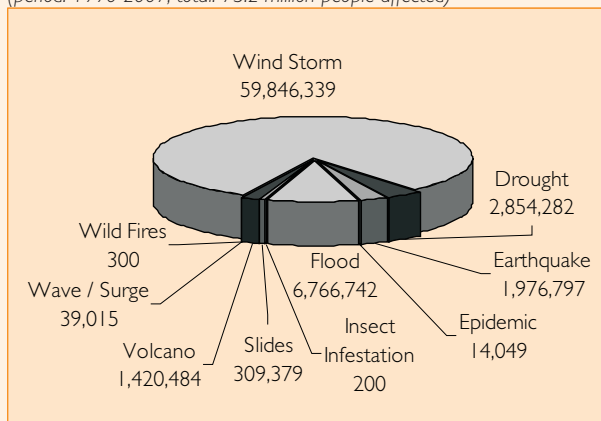
■ Figure 1: Impact from 218 natural disasters (summary for 1990-2007)

Human Impact	Cumulative Total	Annual Average
1. People killed	22,718	1,262
2. People affected	73.2 million	4.1 million
3. Damage caused	US\$ 5.8 billion	US\$ 322 million

■ Figure 2: Prevalence of natural disasters by types (period: 1990-2007; total: 218 disasters)



■ Figure 3: Number of people affected by natural disaster types (period: 1990-2007; total: 73.2 million people affected)




■ Figure 4: Worst disasters (by people killed; period: 1900-2007)

Top Three Disasters (Date)	People killed
1. Earthquake (16 August 1976)	6,000
2. Wind Storm (5 November 1991)	5,956
3. Earthquake (16 July 1990)	2,412

■ Figure 5: Worst disasters (by people affected; period: 1900-2007)

Top Three Disasters (Date)	People affected
1. Wind Storm (10 November 1991)	6.5 million
2. Wind Storm (12 November 1990)	6.2 million
3. Wind Storm (21 October 1998)	3.9 million



“When it rains, children stop playing. You see fear in their eyes as they recount in detail the day Typhoon Durian hit – clouds, winds, rains, floods, boulders, cries and deaths.”

—Rowena Passilan, World Vision programme officer for children

Photos: G. J. Lamigo

3. The Faces

Wind storms kill the most people in the Philippines. Between 1990 and 2007 wind storms killed 15,794 people and affected 59.8 million. ⁽¹²⁾ Typhoon Durian – the “strongest typhoon” to hit Bicol region in 40 years ⁽²²⁾ – struck on 30 November 2006, killing 1,399 people, causing US\$ 66.4 million in damage, ⁽¹²⁾ and making 240,000 homeless. ⁽²⁴⁾

Songs and laughter replaced the dismal atmosphere at the evacuation sites in Binitayan, Busay and Lidong. With the establishment of World Vision's Child Friendly Spaces (CFS) programme, children giggled, danced, and prayed, able to regain the cheerfulness that the typhoon had taken from them. The friendly spaces are an integral part of World Vision's response in disaster-affected communities. Within the safety of these sites, children can express their feelings and fears through creative means such as singing, dancing, storytelling, painting and playing. For children aged 2-8, in particular, most activities are play and storytelling. For older children, activities include competitive games such as volleyball and basketball. In the wake of Typhoon Durian, close to 1,000 children aged 2-17 attended classes run in these spaces.

Many village officials and parents welcomed World Vision's efforts to establish child-friendly sites as part of the humanitarian NGO's psycho-social rehabilitation work. Facilitator Rowena Passilan said: "Child Friendly Spaces provide a protective environment for children. The spaces give them a sense of safety, structure, and continuity amid their overwhelming experiences. We heard so many stories of how these children survived. One child shared how her father put her and her three siblings in separate sacks so that he could carry them to a safer place. Another child was traumatised after seeing a dead person eaten by a dog." At times realities can be very difficult to explain. One young boy asked his mother about his father's coffin: "Why is it that Papa is sleeping in the wooden box? What time will he wake up?" When told by his mother that his father was dead, he only looked at her and asked: "What do you mean that Papa is dead?"

"Their stories were heartbreaking," Passilan said. But she finds working with traumatised children gratifying. "Children deserve to be happy and live normal lives again. This is our chance to help them do that," she said.

World Vision's response included food and non-food items for 6,000 families, food and cash-for-work programmes for 4,612 families, psycho-social counselling and activities for 2,000 children, and the setting up of six Child Friendly sites.



Photo: D. Gacosta

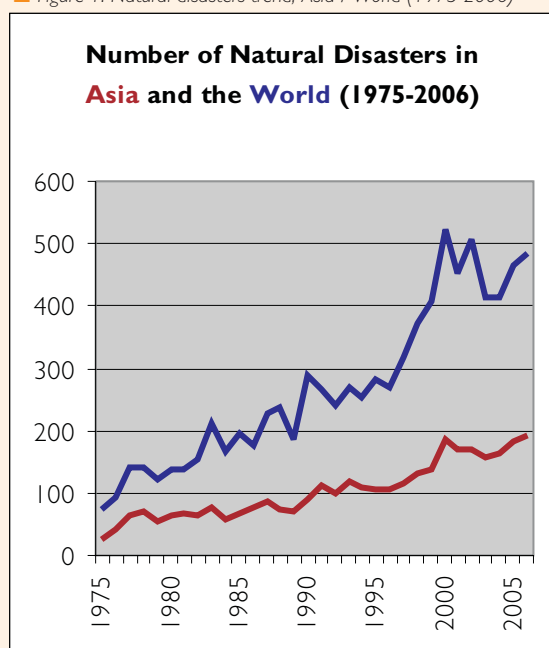
World Vision Child Friendly Spaces provide children temporary relief from the painful conditions they experienced during the typhoon and also space to face their fears. The project also keeps children safe from post-disaster dangers. ■

4. The Forecasts

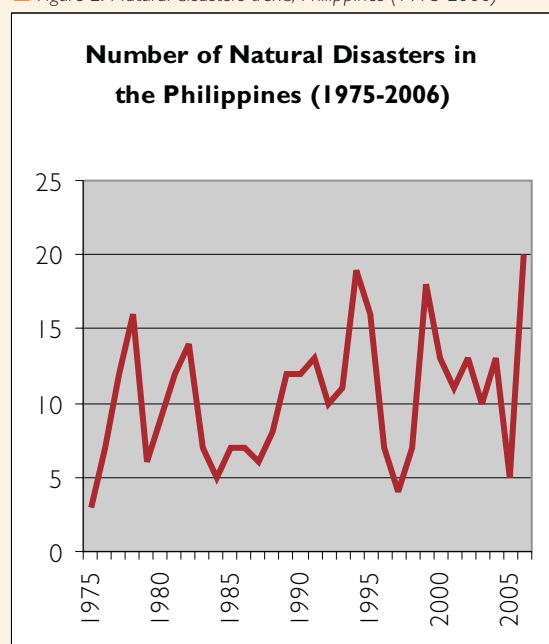
“As an archipelagic state with a complex coastline roughly equivalent to the earth's circumference, the Philippines is hugely vulnerable to climate change-induced sea level rises. According to a recent Greenpeace study, a one-meter rise in sea level is projected to affect 64 out of 81 provinces and inundate 700 million square metres of land area. Urgent action is needed to promote preparedness.” (Richard Rumsey) ^(17, 26)

The Trends: Over recent decades, the number of natural disasters has steadily risen, both globally, regionally (figure 1) and nationally (figure 2). Past progressions (below) and future forecasts (right) speak the same language.

■ Figure 1: Natural disasters trend, Asia / World (1975-2006) ⁽¹²⁾



■ Figure 2: Natural disasters trend, Philippines (1975-2006) ⁽¹²⁾




Global Forecasts: Recent assessment reports by the UN Intergovernmental Panel on Climate Change (IPCC), the recognised global authority on climate change honoured with the Nobel Peace Prize 2007, have released substantive scientific forecasts about global climate change: ⁽¹⁸⁾

- Probable temperature rise by 2100: 1.8-4.0° C
- Possible temperature rise by 2100: 1.1-6.4° C
- Probable sea level rise: 18-59 cm
- Increase in droughts, tropical cyclones and extreme high tides: "likely" (>66%)
- More frequent warm spells, heat waves and heavy rainfall: "very likely" (>90%)

Rising sea levels mean more and more severe floods as higher sea levels provide a higher base for wind storm-induced surges. The trend is not only expected to continue but to accelerate. During the last century, global sea levels rose 10-25 cm which – given the predictions – amounts to a two- to five-fold acceleration. ⁽¹⁴⁾ The effects are undeniable. In 2006 the world was impacted by a record 226 floods (up from an average 162 over previous years). ⁽¹⁹⁾ Pacific islands and low lying countries are particularly vulnerable, and the world's first recorded climate - change-related evacuation of low-lying islands is now underway in Papua New Guinea's Carteret Islands. More evacuations are certain as storm surges and floods continue to erode low-lying land. ⁽²⁰⁾ About 1.5 billion people were affected by floods in the last decade of the 20th century. ⁽²¹⁾

National Forecasts: Due to its vast coastline, which at 36,289 km is roughly equivalent to the earth's circumference, ⁽²⁵⁾ rising sea levels pose a significant threat to the Philippines. Even diminutive rises in sea level vertically lead to enormous erosion horizontally. Reports by the IPCC state that a rise in sea level of one centimetre results in beach erosion of one metre horizontally. ⁽²⁸⁾ This puts extreme strain on developed beaches and densely populated coastal areas. In light of accelerating sea level rises projected by the IPCC for the 21st century, the loss of low lying land to coastal erosion and submersion will have a particularly grave effect on the Philippines where 64.7 million people live in coastal areas – 2,467 persons per kilometre of coastline. ⁽²⁵⁾ A recent study put the Philippines among the top ten countries in the world with the largest number of people living at or under 10 metres above sea level – a high-risk zone for storms and floods. ⁽¹³⁾

Climate change has the potential to undo the last 50 years of development work. The poorest will be hit first and worst. Policy makers and NGOs must help the Philippines prepare itself. ■



Typhoon Durian (1,399 fatalities) and the Landslide in Guinsaugon, Leyte (photo, 1,112 fatalities), were classified as the world's second and third-deadliest disasters in 2006. ⁽¹⁶⁾ The two catastrophes highlight the interplay between extreme weather events and worsening disasters.

Photo: J. Luetz

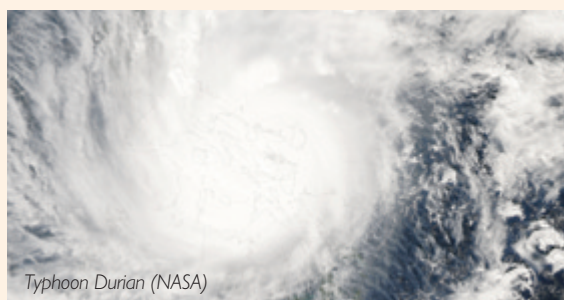
5. The Focus

“Current scientific evidence strongly suggests that hurricanes and typhoons tend to become more destructive as ocean temperatures rise. Extreme weather events that [the Philippines] experienced recently have one thing in common – persistent torrential rains, causing landslides and flash floods, killing people and destroying the environment along its path.” (Leoncio Amadore, PAGASA Meteorologist, Philippines) ⁽¹⁷⁾

Leyte Landslide: Recent years have made it clear: extreme weather events and climate disasters mutually reinforce each other, exacerbating the overall fallout. The photo (above) depicts the devastating effect of the landslide disaster in Guinsaugon, Southern Leyte (17 February 2006), which buried an entire village beneath a collapsed mountainside. The slide was triggered by five days of persistent moderate-to-heavy rainfall, “equivalent to almost three months of the area's average annual precipitation.” ⁽¹⁷⁾

Climate Disaster Interrelation: Recent reports by the Intergovernmental Panel on Climate Change (IPCC) have issued a corpus of projections, including: “intense tropical cyclone activity increases” and “heavy precipitation events.” Major predicted impacts are: “soil erosion; inability to cultivate land due to waterlogging of soils; windthrow (uprooting of trees), [and] increased risk of deaths, injuries, ... post-traumatic stress disorders.” ⁽¹⁸⁾ The science shows that warming oceans act as engine rooms for cyclones – the warmer the ocean, the stronger the storms and the faster the wind speeds. ⁽³⁰⁾ Typhoon Durian is a case in point.

Typhoon Durian: Unleashing violent winds and heavy rains, the Category IV typhoon (30 November 2006) caused enormous damage in the Philippines before veering off to Vietnam. With wind gusts up to 320 km/h, ⁽²²⁾ Durian caused huge loss of life when torrential rains dislodged “car-sized” boulders, ⁽³²⁾ triggering massive mudslides which completely buried several villages on the slopes of the 8,000-foot Mayon volcano. Aside from houses, Durian also destroyed vast tracks of coconut and abaca plantations, felling and strewing coconut trees “like matchsticks.” ⁽²²⁾



Typhoon Durian (NASA)



Photo: G. Marcelo

Typhoon Durian: One Disaster – Many Faces

In the final analysis, it was the compounded effect of various wind storm-related disaster manifestations working in concert which made Typhoon Durian so deadly: gale-force winds, torrential rains, flash floods, and catastrophic slides. The majority of people – more than 1,000 persons – were killed by the mudslides. ■

“Use knowledge, innovation and education to build a culture of safety and resilience at all levels.”

—Hyogo Framework for Action 2005-2015



“We cannot stop natural calamities, but we can and must better equip individuals and communities to withstand them. Those most vulnerable to nature's wrath are usually the poorest, which means that when we reduce poverty, we also reduce vulnerability.” ⁽²⁹⁾

—Kofi Annan, International Day for Disaster Reduction 2005

Photo: A. Badayos

6. The Future

“We, the human species, are confronting a planetary emergency – a threat to the survival of our civilization that is gathering ominous and destructive potential even as we gather here. But there is hopeful news as well: we have the ability to solve this crisis and avoid the worst – though not all – of its consequences, if we act boldly, decisively and quickly.” (Al Gore, Nobel Peace Prize Laureate 2007, Nobel Lecture) ⁽³¹⁾

Disaster Homelessness: The net effect of the many disasters that ravage the Philippines is disaster homelessness. It constitutes a major challenge for much of the developing world. A recent World Bank study found that 97.7 percent of people made homeless worldwide by natural disasters live in developing countries, highlighting the correlation between levels of *development* and natural disaster risk. The same study found that the Philippines is the country with the fourth-highest prevalence of disaster homelessness in the world. Between 1980 and 2000, 12.3 percent of the population – 9.3 million people – were made homeless by disasters. ⁽²⁷⁾ Over 3 million of them were children. ⁽¹⁾

Preparedness Investment: Reducing poverty means reducing vulnerability, a conclusion drawn by Kofi Annan on the International Day for Disaster Reduction 2005 ⁽²⁹⁾ with the theme “Invest to prevent disaster” (see quote above). Recent years have seen a shift from disaster response to *readiness*. Increasing resilience means promoting *preparedness*. This is one of the most critical challenges facing the development community in the 21st century. By positioning to reduce the impact of disasters *before* they occur, unnecessary harm can be averted and years of developmental achievements protected. Reducing risk is at the heart of sustainable human development – predict, prevent, prepare, protect. Reaping the benefits of disaster preparedness requires *investment*.

The Pay-off: One study found that for every dollar invested in pre-disaster risk reduction activities in developing countries seven dollars in losses can be averted. ⁽²³⁾ However, most donor funding comes in response to appeals *after* major disasters, making the shift from post-disaster recovery to pre-disaster preparedness an urgent priority.

Education: Disaster preparedness in the Philippines calls for urgent action in a number of key areas to halt habitat loss and reverse destructive trends. Poor land use planning and uncontrolled deforestation have contributed to increased run-off and soil erosion, exacerbating flash floods and slides. Rapid demographic growth and reduced mangrove forest cover have made coastal communities more exposed and vulnerable to typhoons. Mangrove swamps which protect coasts from storms, erosion, and floods and serve as feeding sites for fish have declined from 450,000 hectares (1918) to 120,000 hectares (1995). ⁽²⁵⁾ Their decimation has greatly reduced the natural habitats of many fish, making fishing activities increasingly “non-viable.” ⁽²⁵⁾ Dynamite fishing has aggravated the situation by destroying coral reefs and jeopardising income from tourism. The significance of raising awareness among children through education was recently recognised in the 2006-2007 UN/ISDR Campaign on Disaster Reduction: “Disaster risk reduction begins at school.” ⁽³³⁾ More school-based risk reduction activities are planned by World Vision. ■

World Vision Capacity

- **Developed Community Disaster Preparedness Plan** for disaster-prone areas (Zamboanga City, Capiz and Surigao del Norte)
- **National Emergency Preparedness Fund** with PhP 1M (US\$ 25,000.00) immediately available for rapid disaster responses
- **3 Regional Disaster Management Team members** are on stand-by for deployment in emergency responses in the Asia-Pacific region
- **7 Humanitarian & Emergency Affairs Response Team** personnel at national / field office level are available within 24-72 hours of rapid on-set disasters to conduct assessments and distribute relief goods
- **9 Crisis Emergency Management Team members** assist National Director in managing emergencies by providing counsel and advice in critical decision-making processes
- **18 Community Owned Vulnerability and Capacity Assessment** staff and partners trained to integrate disaster risk reduction into World Vision programme design
- **30 Operational field staff and partners** trained in Children in Emergencies and Child Friendly Spaces programming
- **109,677 World Vision sponsored children** (and 6,139 children in special projects) are steered for natural disasters through education and health care (some are also undergoing school-based disaster risk reduction training)
- **Coordinating Networks:** World Vision Philippines is an active member of UN cluster groups (food, health, shelter, protection), the National Disaster Coordinating Council and the Philippine INGO Network for emergency response and disaster mitigation

7. The Footnotes

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 - 2 UNDP. Human Development Report 2007/2008. Philippines. {Source: World Bank. 2007b. World Development Indicators 2007. CD-ROM. Washington, D.C. (Data refers to most recent year available during period specified, 1990-2005.)}
 - 3 UNDP. Human Development Report 2007/2008. Philippines. {Source: adult literacy rates from UNESCO (United Nations Educational, Scientific and Cultural Organization) Institute for Statistics. 2007a. Adult and youth literacy rates. May. Montreal.}
 - 4 UNDP. Human Development Report 2007/2008. Philippines. {Source: UNICEF (United Nations Children's Fund). 2006. State of the World's Children 2007. New York. Data refers to the most recent year available during the period specified.}
 - 5 UNDP. Human Development Report 2007/2008. Philippines. {Source: FAO (Food and Agriculture Organization). 2007a. FAOSTAT Database. [http://faostat.fao.org/]. Accessed May 2007. Data refers to average for years specified.}
 - 6 UNDP. Human Development Report 2007/2008. Philippines. {Source: WHO (World Health Organization). 2007a. Core Health Indicators 2007 Database. Geneva. [http://www.who.int/whosis/database/]. Accessed July 2007. Data refers to the most recent year available.}
 - 7 UNDP. Human Development Report 2007/2008. Fighting climate change: Human solidarity in a divided world. Published 2007. New York. USA
 - 8 The Human Development Index (HDI) is a composite index that measures the average achievements in a country in three basic dimensions of human development: a long and healthy life (measured by life expectancy at birth); knowledge (measured by adult literacy rate and enrollment ratio for primary, secondary and tertiary schools); and a decent standard of living (measured by GDP per capita in purchasing power parity (PPP) US dollars). While the concept of human development is much broader than any single composite index can measure, the HDI offers a powerful alternative to income as a summary calculation measure of human well-being and development. It is used to distinguish whether a country is a developed, developing, or under-developed country. The index was developed in 1990 by Pakistani economist Mahbub ul Haq and has been used since 1993 by the United Nations Development Programme in its annual Human Development Report.
 - 9 The Natural Disaster Index (NDI) is a composite index developed by Maplecroft. The NDI measures the relative risk to human health from natural disasters. The NDI incorporates the following types of natural disasters: hydro-meteorological disasters (droughts, extreme temperatures, floods, slides, wildfires, and wind storms); geological disasters (earthquakes, tsunamis, and volcano eruptions); biological disasters (epidemics and insect infestations). To calculate the risk to human health from natural disasters, the NDI analyses the following indicators: number of deaths; number of people injured; number of people made homeless; number of people otherwise affected. By using the indicators above, rather than the number of deaths alone, the NDI renders a holistic perspective of the risks posed by natural disasters.
 - 10 Data for the NDI has been obtained from two sources. First, *natural disaster data* has been obtained from the EM-DAT database (2005). Second, *population and economic data* comes from the World Development Indicators (2005), compiled by the World Bank Group. A disaster must fulfill at least one of the following criteria: 10 or more people reported killed (incl. 'persons confirmed dead or presumed dead'); 100 people reported affected (covering those 'requiring immediate assistance'); declaration of a state of emergency; call for international assistance.
 - 11 Laurence Gray. World Vision Regional Advocacy Director for the Asia-Pacific region. Laurence_Gray@wvi.org
 - 12 The EM-DAT International Disaster Database, Université Catholique de Louvain, Brussels, Belgium [www.em-dat.net] is a joint project of the Centre for Research on the Epidemiology of Disasters (CRED) and USAID's Office of Foreign Disaster Assistance (OFDA). According to EM-DAT classification, natural disasters comprise droughts, earthquakes, epidemics, extreme temperatures, floods, insect infestations, slides, volcanoes, waves / surges, wild fires, and wind storms.
 - 13 New Scientist Environment. Coastal living – a growing threat. C. Brahic. 28 Mar. 2007.
 - 14 Maplecroft Map Issue Report. Climate Change. Feb. 2007. Page 14.
 - 15 United Nations University. The transformation sub-system. <http://www.unu.edu/unupress/unupbooks/80346e/80346E06.htm>
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 - 20 World Vision Policy Brief: Climate Change and Poverty. Nov. 2007.
 - 21 World Meteorological Organization (WMO). Natural hazards. http://www.wmo.ch/pages/themes/hazards/index_en.html
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 - 23 Cited p. 176 in (7) {Source: Jha, S. Kumar. 2007. "GFDRR. Track II. Multi-donor: Trust Fund for Mainstreaming Disaster Reduction for Sustainable Poverty Reduction." ISDR and the Global Facility for Disaster Reduction and Recovery. The World Bank Group.}
 - 24 ReliefWeb. Typhoon Dorian leaves 240,000 homeless in Philippines... 8 Dec. 2006.
 - 25 Philippines Environment Monitor 2005. Coastal and Marine Resource Management. The World Bank Group. Washington, USA. December 2006. <http://go.worldbank.org/5PWO1WKQL0>
 - 26 Richard Rumsey. Regional World Vision Humanitarian and Emergency Affairs (HEA) Director, Asia Pacific. Richard_Rumsey@wvi.org
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 - 28 Regional Impacts of Climate Change (IPCC). North America. 1998. {Source: Bruun, 1962.} <http://www.grida.no/climate/ipcc/regional/221.htm>
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 - 30 An Inconvenient Truth. A Global Warning. Al Gore. DVD. Paramount Pictures. 2006.
 - 31 Nobel Lecture. Al Gore (IPCC). Oslo. 10 Dec. 2007. http://nobelprize.org/nobel_prizes/peace/laureates/2007/gore-lecture_en.html
 - 32 Typhoon Dorian sends red-hot boulders into villages. Lee Garen. CNN.
 - 33 ISDR Disaster Reduction in Asia & Pacific. Education Issue ISDR informs. Issue 3, 2007. <http://www.unisdr.org/asiapacific/ap-informs/ap-informs.htm>
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exploring new horizons:

highlighting
vulnerabilities, risks and
opportunities for improved
pre-disaster preparedness!

“Prevention is not only more humane than cure; it is also much cheaper. Above all let us not forget that disaster prevention is a moral imperative...”

—Kofi Annan

Issues highlighted in this fact sheet are discussed in more depth in the World Vision annual disaster reports.

Mayon volcano two weeks after Typhoon Durian. (Photo: T. Tam)

■ **World Vision** is a Christian humanitarian organisation dedicated to working with children, families and communities to overcome poverty and injustice. Motivated by our Christian faith, World Vision is dedicated to working with the world's most vulnerable people. World Vision serves all people regardless of religion, race, ethnicity or gender.

■ **Fact Sheets:** The Asia-Pacific fact sheet series is a joint initiative by regional World Vision players. Partnering together, Advocacy, Communications and Humanitarian and Emergency Affairs (HEA) are aiming to position for heightened disaster preparedness in the Asia-Pacific region.

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