

DISASTER RECOVERY

Challenges and Lessons



50
YEARS

Empowered lives. Resilient nations.



Contents

THE COST OF DISASTERS IS HIGH	4
EXPOSURE TO DISASTER RISK IS GROWING	10
A FAILED RECOVERY PROCESS UNDERMINES DEVELOPMENT	14
RECOVERY IS AN OPPORTUNITY TO BUILD BACK BETTER	18
SUCCESSFUL RECOVERY IS A PLANNED EFFORT	22
UNDP SUPPORTS RECOVERY AS A PATHWAY TO DEVELOPMENT	26

THE COST OF DISASTERS IS HIGH

Disasters occur on a continual basis across the globe, bringing in their wake large-scale damages and losses to countries and communities. They destroy public infrastructure, disrupt basic services, cause loss of lives and disrupt livelihoods. Disasters often make the world's poor fall further into poverty. In fact, developing countries with highly vulnerable populations face the highest risk. Moreover rapid population growth and more people living in cities than ever before, overcrowded urban centres are putting people, assets and critical infrastructure at extreme risk.

The Impact of Global Disasters

An average of
216 million people are
affected by disasters
each year.¹

40 percent of the world's
population was affected by disasters
between 2002 and 2012, resulting in
1.2 million fatalities and an economic
cost of **US\$1.7 trillion.**²



During 2005-2015, approximately
23 million people
were left
homeless

due to the impact of
disasters.³



As per the Emergency Events Database
(EM-DAT)⁴, an average of

30 earthquakes
occur every year.

Asia experiences the highest number
of earthquakes, with an average of
55 percent of the yearly total, followed
by the Americas with 21 percent.⁵

ASIA

55%

THE AMERICAS

21%

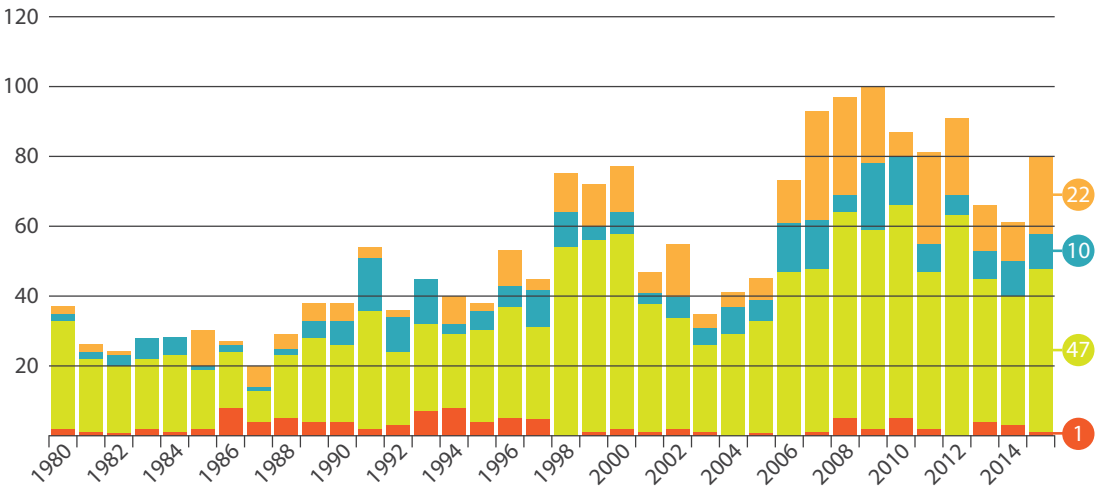
The Economic Cost of Disasters

Losses due to disasters have risen significantly over the last three decades, as seen in the graphs below showing three decades of economic losses.⁶

US Natural Catastrophe Update

Number of events in the U.S. 1980-2015 (January – June only)

- **Geophysical events**
(Earthquake, tsunami, volcanic activity)
- **Meteorological events**
(Tropical storm, extratropical storm, convective storm, local storm)
- **Hydrological events**
(Flood, mass movement)
- **Climatological events**
(Extreme temperature, drought, forest fire)



Source: Munich Re, NatCatSERVICE. © 2015 Munich Re.

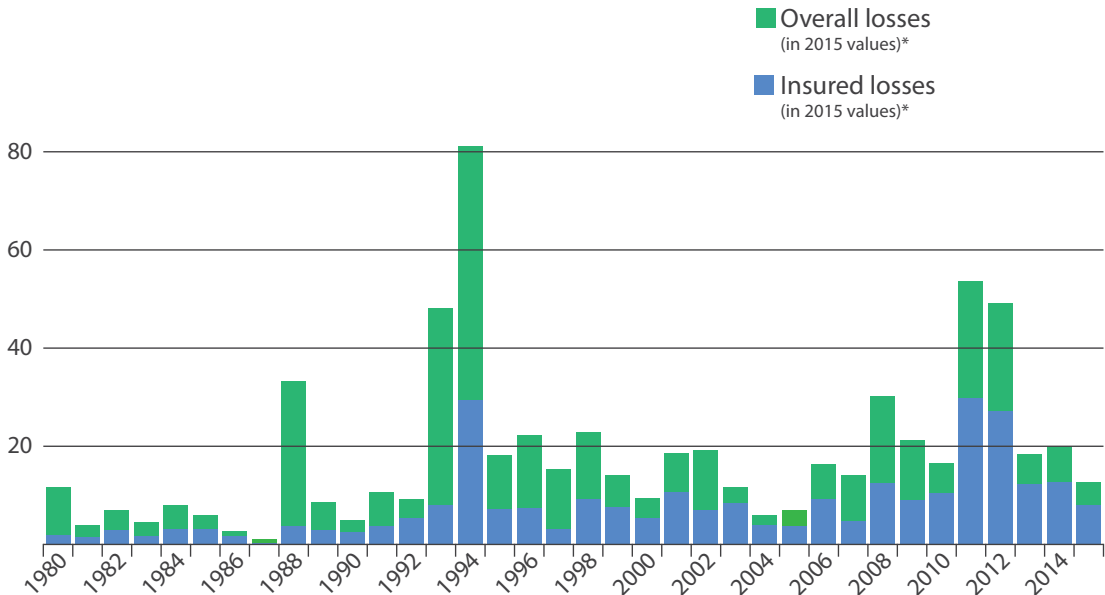
First Six Months
in 2015
80 Events

Overall losses totalled
US\$ 12.6bn
Insured losses totalled
US\$ 8.2bn

US Natural Catastrophe Update

Overall and insured losses in the U.S.

1980-2015 (January – June only)



Source: Munich Re, NatCatSERVICE. © 2015 Munich Re.

* Losses adjusted to inflation based on country CPI



Earthquakes, tsunamis, hurricanes and floods now cause economic losses that average between **US \$250 and US \$300 billion each year.**⁷

Wildfires are a growing problem with annual losses reaching **US \$190 billion a year.**⁸



Global economic losses from **weather-related disasters** increased by **US \$2.7 billion a year** in real terms between 1980 and 2009.⁹

Disasters Affect Livelihoods and Business Sustainability

The port of Kobe, Japan was the world's sixth busiest before the 1995 Great Hanshin earthquake. By 2010, it had fallen to 47th place, despite major investments in reconstruction and efforts to improve competitiveness.¹⁰

THE PORT OF KOBE



In Thailand, tourism contributes to 5-6 percent of the country's GDP. Most of the areas worst hit by the 2004 Indian Ocean Tsunami have economies that depend on tourism. For example, Phang Nga, Phuket and Krabi contribute to approximately 50 percent of the country's tourism-based GDP. With an array of informal and home industries (e.g. fishing, food vendors, handicraft making) connected to tourism, an estimated 64.4 percent of the population's livelihood depends on tourism and related industries. Following the 2004 Tsunami, hotels, restaurants and souvenir shops closed, leaving 5,000 people unemployed. In Phang Nga alone 3,638 claimed unemployment insurance, but this amounted to only 10 percent of their monthly salaries.¹¹

CONTRIBUTION
TO COUNTRY'S
TOURISM-BASED GDP



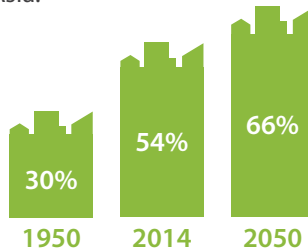
50%

EXPOSURE TO DISASTER RISK IS GROWING

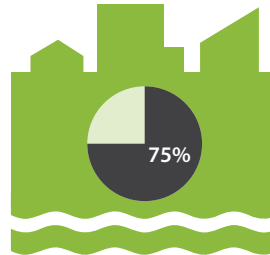
As a result of climate change, the frequency and intensity of weather-related disasters are increasing. Changing temperatures, extreme weather patterns, variations in precipitation and rising sea levels are modifying hazard levels and exacerbating disaster risks. Heat waves, droughts, floods, cyclones, wildfires and other such disasters are taking a heavier toll on human and natural environments. Future predictions suggest that these trends will not only continue, but dramatically worsen. Across the globe, these trends threaten to increase poverty levels, fueling more rural to urban migration and further destroying the ecosystems to new dangerous and unpredictable levels.

How Risks are Increasing

Compared to only 30% in 1950, 54% of the world's population resided in urban areas as of 2014. This is predicated to increase to 66 percent by 2050.¹² Unplanned urbanization, particularly of the rural poor to cities, often results in people living in slums with inadequate civic amenities and housing, thus exposing more people and assets to risks of loss in a disaster. Estimates suggest that by 2050, 40 percent of the global population will live in river basins exposed to severe droughts or floods, mostly affecting countries in Africa and Asia.¹³



Almost 3.6 billion people, or two-thirds of the world's population, live on or within 100 miles of a coastline. Estimates project that nearly 75 percent of the world's population (6 billion people) will live along coasts in the next three decades. Much of this coastal population growth is occurring in Southeast Asia, Latin America and other parts of the developing world.¹⁴ This exposes a huge number of people to storm surges, typhoons, floods and tsunami.



52 percent of all coastal wetlands were lost between 1980 and the early 2000s and

natural storm surge barriers such as mangrove forests and coral reefs **are in rapid decline.**¹⁵

2 to 11 percent increase
in the intensity of
tropical cyclones—meaning a

Renewable surface water and groundwater resources, already under strain, will decline further

The productivity of fisheries and farming (wheat, rice and maize) is predicted to drop in coming decades due to temperature increases of 2°C or more above 1990s levels. Temperature rises of 4°C or more combined with continued population growth and increased demand will negatively impact food security.¹⁷

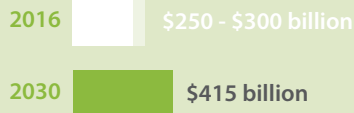


The Cost of Future Disasters

The global average for annual **economic losses due to natural disasters** is projected to increase from the current US \$250 - \$300 billion to

US \$415 billion
by 2030¹⁹ for urban

infrastructure alone.



By 2030, **climate risks** could cost countries up to **19 percent** of their total gross domestic product.²⁰



In the Caribbean, hurricane wind damage is projected to cost an **additional US\$ 1.4 billion** in average annual losses.²¹



A FAILED RECOVERY PROCESS UNDERMINES DEVELOPMENT

The failure to recover adequately from a disaster in any context may result in secondary disasters, with equally grave effects.

A failed recovery can contribute to disasters becoming endemic, as it derails development gains and results in widespread losses.

When combined with poorly carried out recovery processes, recurrent disasters increase vulnerability and create chronic conditions of risk.

Why Do Recovery Efforts So Often Fail?

- Recovery needs are not properly identified through a formal assessment process.
- Recovery programming is ad hoc and not based on an overarching recovery strategy and clear set of recovery priorities.
- Recovery strategies do not take into account vulnerabilities and cultural considerations.
- Recovery is not supported by adequate financial resources. Aid for disasters is typically provided for immediate humanitarian relief with few resources for longer-term recovery needs.
- Recovery favours rebuilding infrastructure over social and household recovery needs.
- Recovery efforts often fail to encourage local participation and ownership.

How Disasters Increase the Incidence of Poverty

A large-scale disaster can cause economic slowdown, loss of employment and decreased entrepreneurial activity, pushing more people into poverty. The Post-Disaster Needs Assessment (PDNA) conducted following the earthquakes in **Nepal** in April and May 2015 estimated that as a result of the disaster the number of poor people would increase an additional 2.5 to 3.5 percent (estimated to represent at least 700,000 people).

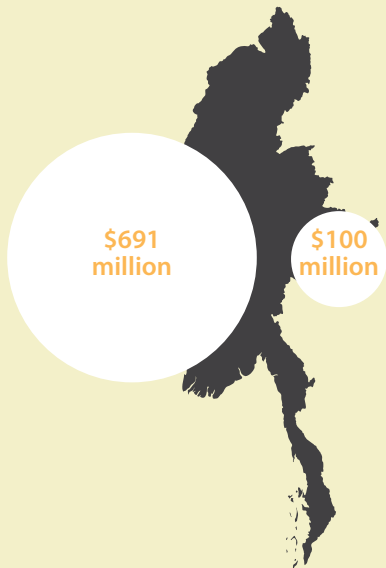


If a disaster recovery programme fails to restore livelihoods and assets, people find themselves even more vulnerable in the face of future disasters and climate events. Data collected from **Rizal Province in the Philippines**—which was affected by typhoons Ondoy and Pepeng in 2009—showed poverty almost doubled within three years.



A Persistent Funding Gap in Recovery

Furthermore, when recovery efforts are not well funded, a country or region can continue to suffer long after the disaster is over. A recovery and preparedness plan drafted following Cyclone Nargis that hit **Myanmar** in 2008²² presented a budget for US \$691 million in recovery needs, but **only US \$100 million had been raised one year later.**



Following Typhoon Haiyan in the **Philippines** in 2013, the Office of the Presidential Assistant for Rehabilitation and Recovery reported an average **funding gap of 67 percent** for key sectors of the recovery process.²³



RECOVERY IS AN OPPORTUNITY TO BUILD BACK BETTER

Disaster recovery periods are opportunities for reflecting on the root causes of a disaster and recasting development priorities to reduce human vulnerability to natural hazards. Simply reinventing pre-disaster conditions is a wasted opportunity.

United Nations Department of Economic and Social Affairs (UN DESA).
World Urbanization Prospects: The 2014 Revision.

Disaster recovery efforts aim to restore peoples' lives and livelihoods, re-establish institutions and social networks and foster sustainable development. And, importantly, disaster recovery work offers an opportunity to build back better—meaning it is a time to not only restore conditions to pre-disaster levels, but to improve them by addressing the underlying risks and vulnerabilities that caused the natural hazard to turn into a disaster in the first place.

For recovery processes to be efficient and effective, it is critical that recovery institutions have strong management capacities and enabling policies in place. To this end, governments are placing greater emphasis on shoring up institutional capacity, adopting supportive policies and securing resources for recovery. Several disaster prone countries—Bolivia, Ecuador and Indonesia—have established institutions with dedicated personnel and resources, making recovery assistance more predictable and better tailored to local needs and contexts.

UNDP's Support to Building Back Better

After the 2004 Tsunami in the **Maldives**,
**UNDP built
harbours and jetties**
to restore sea transport of essential
supplies and resume business with the
mainland and other islands.



In **India, Indonesia and several other countries**
following major disasters, UNDP provided
technical assistance
to review building codes and develop land use
plans for reconstruction and recovery.

Following major disasters in **Bangladesh, India, Indonesia, Maldives, Nepal, Pakistan and Sri Lanka**, UNDP supported local governments to design and build
low-cost disaster resilient houses.

This included training masons in disaster-resilient technologies that could help structures to withstand future impacts.

In **Haiti, Malawi, the Philippines and Vanuatu**, UNDP gave livelihood assistance that helped thousands of families
restore existing businesses and start new ones.



UNDP's Support to Pakistan's Earthquake Reconstruction and Rehabilitation Authority

Following a 7.6 magnitude earthquake in Kashmir in 2005, the Government of Pakistan set up the Earthquake Reconstruction and Rehabilitation Authority (ERRA), a dedicated agency to manage and coordinate the recovery process. Over a three-year period, UNDP supported this agency with funds from the Government of Germany and the UK Department for International Development (DFID). UNDP donated equipment to set up

the institution, worked with ERRA to identify and recruit national and international experts to lead recovery work and provided project technical assistance. UNDP also funded positions within the agency to support government coordination and oversee recovery programmes in housing, livelihoods, legal aid and education. UNDP's contributions to the functioning of ERRA helped establish it as a strong technical entity with clear operating procedures.



SUCCESSFUL RECOVERY IS A PLANNED EFFORT

Effective recovery interventions require conducting a needs assessment across all affected sectors of society and using this information to create a recovery strategy. A good assessment provides a clear picture of the damages, losses and needs of all affected people and sectors. It also identifies existing capacities of affected populations so that local resources, abilities and knowledge can play a primary role in recovery processes. Effective recovery interventions help affected communities address early recovery challenges at the same time as they tackle longer-term issues in sustainable and innovative ways. Interventions that focus on measures such as capacity development, coordination and information management can make recovery much more effective.

What Underlies Successful Recovery Efforts?

- Needs are assessed in order to design an actionable recovery strategy.
- Recovery efforts focus on reducing risk and vulnerabilities.
- Recovery efforts draw on and learn from past experiences.
- Policy frameworks and clear institutional roles and responsibilities are established.
- Robust resource mobilization strategies ensure adequate financial resources.
- Recovery actors and organizations communicate openly with the public and encourage participation.
- Information management and continuous monitoring and evaluation of recovery progress is supported.
- Dedicated personnel and resources are critical for delivering successful recovery programmes in an effective and timely manner.
- Recovery processes are transparent and accountable.

UNDP's Support to Recovery Planning Around the World

UNDP has been instrumental in supporting governments and regional bodies across the globe to develop frameworks and guidelines for recovery. UNDP helped the Government of Indonesia with its Guidelines for Formulation of Post-Disaster Reconstruction Plan, the Government of India to prepare a Recovery Framework, the Government of Rwanda with a Recovery Strategy and the Association of Southeast Asian Nations (ASEAN) with a Disaster Recovery Guidance Note. UNDP is also working with the governments of Angola, Cape Verde and Niger to develop recovery frameworks.





UNDP SUPPORTS RECOVERY AS A PATHWAY TO DEVELOPMENT

As the lead implementing agency in the area of recovery in the United Nations system, UNDP plays a vital role in disaster recovery, providing advisory and technical support to governments so that they can establish institutions and design recovery interventions that lay the foundation for future resilience. UNDP assists in the following areas:

- assessments and analysis,
- recovery planning and resource mobilization,
- early recovery interventions,
- assistance to national and local governments,
- technical and financial support for medium to long-term recovery programmes,
- coordination and information management,
- strengthening disaster risk reduction systems,

- promoting community participation and social cohesion in recovery,
- monitoring and evaluation for recovery, and
- South-South cooperation and sharing of international best practices.

For UNDP, recovery efforts begin in the immediate aftermath of a disaster during the relief phase and continue until full recovery is achieved.

UNDP's approach involves planning for recovery in **three stages – early, medium and long-term recovery**. Fundamental to UNDP's work in recovery is the application of principles that reduce the risk of future events, decrease the vulnerability of impacted populations, promote 'building back better' and ensure sustainability of recovery efforts.

UNDP's Key Achievements in Support of DRR and Recovery

UNDP Country Offices have provided **technical and financial assistance** for recovery programming after major disasters in **112 countries**.

UNDP has supported **recovery preparedness and PDNA training** and capacity development for recovery in **25 countries**.

UNDP's **financial investment in disaster recovery in the Asia Pacific region** has totalled **US\$ 50 million** since the year 2000 covering **17 countries**.

UNDP has supported **more than 40 Post-Disaster Needs Assessments** (PDNAs) after catastrophic events across the globe.

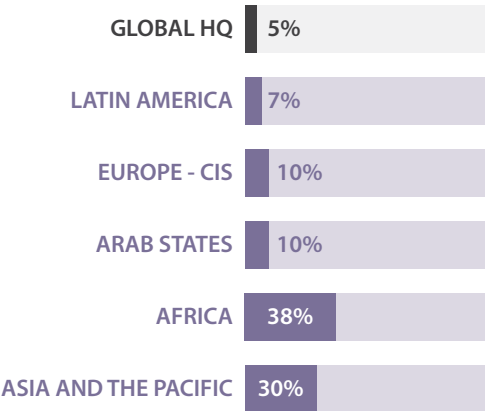
UNDP has set up **early recovery coordination structures**, including working groups on livelihoods, governance, community infrastructure and other areas of recovery. These working groups were established in **19 countries for 22 disasters** and helped to coordinate recovery efforts and manage successful recovery operations.

UNDP's Disaster Risk Reduction Efforts

Working toward the adoption of disaster risk reduction measures and building resilience is a major focus of UNDP. Building resilience can be defined as *“a transformative process of strengthening the capacity of men, women, communities, institutions and countries to anticipate, prevent, recover from, and transform in, the aftermath of shocks, stresses and change.”*²⁴

UNDP is a leading implementer of Disaster Risk Reduction programmes with **\$1.7 billion invested** in the ten years from 2005 to 2014 **in 163 countries.**

UNDP's disaster risk reduction investment by region is:



The breakdown of UNDP's disaster risk reduction work by focus area is:



Building a Resilient Habitat in Bangladesh²⁵

In the aftermath of Cyclone Sidr in 2007, UNDP teamed up with architects from BRAC in Bangladesh to design and build a disaster-resilient habitat that would protect property against cyclones striking the Bay of Bengal with increasing frequency. A habitat in Shyamnagar consists of 43 houses built on two metres (six feet) concrete stilts designed to withstand a tidal surge of up to two metre and winds of up to 235km/h (150mph). Trees close to the village help prevent topsoil from washing away, while taller trees in the distance act as windbreaks. Primary and secondary embankments protect livestock and assets against high sea levels. Over the course of two years, UNDP constructed 25,000 core family shelters in five districts affected by Cyclone Sidr.



Reducing Gender-Based Vulnerability in India

Recovery provides an opportunity to redress gender disparities and empower women by targeting them to receive livelihoods assets, access to credit and skills training. Following the Odisha Super Cyclone, Gujarat earthquake, and tsunami in Tamil Nadu, land and property titles were given directly to women or to both husband and wife. This changed the status of women in communities where men traditionally held exclusive land tenure and property rights.



End Notes

- ¹ Guha-Sapir, D., Hoyois, Ph., Below, R. 2014. *Annual Disaster Statistical Review 2013: The Numbers and Trends*. Brussels: Centre for Research on the Epidemiology of Disasters (CRED).
- ² The United Nations Office for Disaster Risk Reduction (UNISDR). "Disaster Impacts 2000-2012" (chart). www.preventionweb.net/files/31737_20130312disaster20002012copy.pdf
- ³ United Nations. 2015. *Sendai Framework for Disaster Risk Reduction 2015-2030*. www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf
- ⁴ Database managed by CRED, Brussels.
- ⁵ Guha-Sapir, D. *Human Casualties in Earthquakes: Progress in Modelling and Mitigation*.
- ⁶ Munich Re. 2015. *Loss events worldwide from 1980-2015*. www.munichre.com/site/mram-mobile/get/documents_E336591247/mram/assetpool.mr_america/PDFs/4_Events/MunichRe_III_NatCatWebinar_071415_pdf.pdf
- ⁷ UNISDR. 2015. *Global Assessment Report on Disaster Risk Reduction: Making Development Sustainable: The Future of Disaster Risk Management*.
- ⁸ UNISDR. 2013. *Global Assessment Report on Disaster Risk Reduction: From Shared Risk to Shared Value: The Business Case for Disaster Risk Reduction*.
- ⁹ Ward, R. and Ranger, N. 2010. Insurance Industry Brief: "Trends in Economic and Insured Losses from Weather-Related Events: A new analysis." The Munich Re Programme of the Centre for Climate Change Economics and Policy, Munich, Germany.
- ¹⁰ UNISDR. 2013.
- ¹¹ Rego, Loy. "Social and Economic Impact of December 2004 Tsunami." Asian Disaster Preparedness Center. http://cmsdata.iucn.org/downloads/social_and_economic_impact_of_december_2004_tsunami_apdc.pdf
- ¹² United Nations Department of Economic and Social Affairs (UN DESA). 2014. *World Urbanization Prospects: The 2014 Revision*.

¹³ UNISDR. 2015.

¹⁴ The National Academies of Science. 2007. Ocean Science Series: “Coastal Hazards”. National Academies Press, Washington, D.C.
http://dels.nas.edu/resources/static-assets/osb/miscellaneous/coastal_hazards.pdf

¹⁵ UNISDR. 2015.

¹⁶ Geophysical Fluid Dynamics Laboratory/National Oceanic and Atmospheric Administration (NOAA). 30 September 2015.
“Global Warming and Hurricanes: An Overview of Current Research Results.”
www.gfdl.noaa.gov/global-warming-and-hurricanes

¹⁷ Intergovernmental Panel on Climate Change (IPCC). 2014. “Climate Change 2014: Synthesis Report Summary for Policy Makers. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the IPCC.” [Pachauri, R.K. and Meyer, L.A. (eds.)].

¹⁸ Ibid.

¹⁹ UNISDR. 2015.

²⁰ Swiss Re. 2009. Report of the Economics of Climate Adaptation working group (ECA). *Economics of Climate Adaptation (ECA) - Shaping climate-resilient development, A framework for decision-making.*

²¹ UNISDR. 2015.

²² Fan, Lilianne. November 2013. HPG Working Paper: “Disaster as opportunity? Building back better in Aceh, Myanmar and Haiti.” Humanitarian Policy Group – Overseas Development Institute: London.

²³ Office of the President of the Philippines, Office of the Presidential Assistant for Rehabilitation and Recovery,
<http://oparr.gov.ph/progress>

²⁴ <http://www.undp.org/content/undp/en/home/presscenter/speeches/2013/08/21/helen-clark-speech-at-cawthron-institute-on-bending-without-breaking-building-resilience-for-sustainable-development-.html>

²⁵ UNDP. 2012. *Empowered Lives, Resilient Bangladesh: Results achieved with our partners, 2006-2011.*

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in nearly 170 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations.



50
YEARS

Empowered lives. Resilient nations.

United Nations Development Programme

Bureau for Policy and Programme Support

One United Nations Plaza

New York, NY, 10017 USA

Tel: +1 212-906-5000

For more information: www.undp.org

Copyright 2016, UNDP