

Planet Prepare: Report summary

Tens of millions of people living in coastal communities across the Asia-Pacific are facing devastating and large-scale disasters brought about by climate change.

A combination of human forces that include coastal migration, intensive urbanization, weak infrastructure and poverty are going to clash head on with devastating man-made climate changes that result in sea level rises and more frequent and violent storms. As the world warms coastal communities become increasingly vulnerable to disaster.

The great challenge for the Asia and the Pacific in this century is how to PREPARE for what is coming and prevent things from worsening. Millions are already certain to be impacted, with experts warning that destructive climate-related disasters like Cyclone Nargis, in Myanmar, may be the “new normal” - curtain-raisers on what the world will increasingly experience.

Planet Prepare collates up-to-date scientific thinking, expert views and World Vision’s own experience and looks at what needs to be done to help coastal communities prepare for climate change impacts. Some of these impacts are already built into the earth’s atmospheric system and they will already impact and displace millions of people.

What makes the report unique is that the author Johannes Leutz and other contributors talked to many people now being impacted by climate change. Some of their stories are in the report.

Authored by Johannes Leutz, the report also highlights the dire consequences should the world fail to urgently do more to alter activities that promote global warming. The window of opportunity to act is closing.

The following is a summary of key facts and findings of the report:

The climate is warming - fast:

Atmospheric carbon dioxide and greenhouse gas levels are fast rising due to our heavily carbonized economy. Key facts:

- Every five to seven years the number of cars on Asia's roads doubles. In Beijing over 400,000 new cars drove onto the roads in 2006;
- Between 1970 and 2004 annual emissions of carbon dioxide rose 80%. One third of carbon dioxide remains in the atmosphere after a century; one-fifth after 1,000 years.
- Global greenhouse gas emissions rose from 23 gigatonnes in 1990 to an estimated 32 gigatonnes in 2008;
- Power generation accounts for 40% of global carbon dioxide emissions. In 2006, China built two coal-fired power stations every week.

At the same time deforestation is reducing the earth's ability to soak up carbon dioxide:

- More than half the Amazon forest could be logged by 2030, releasing 20.5 billion tons of carbon dioxide and overall rainforests are shrinking by five percent a year;
- Vietnam lost 51% of its remaining primary forests between 2000 and 2005;
- Every hectare of forest slashed and burned releases up to 500 tonnes of carbon dioxide into the atmosphere.

What does a warming world mean for coastal communities?

Coastal communities are increasingly at risk due to:

Rising sea levels:

The Greenland Ice Sheet is disappearing at the rate of 240 cubic kilometers per year and Antarctica at 152 cubic kilometers per year; the Wilkins ice shelf (13,680 square kilometers) in West Antarctica has begun to collapse; West Antarctic glaciers are melting at 20 times their former rate. Ice sheet disintegration could lead to sea level rise of more than five metres this century.

Accelerated thawing of the permafrost in the Arctic, Siberia and Alaska is releasing vast amounts of methane – a powerful greenhouse gas (the permafrost regions contain an estimated 450-730 billion tones of methane) that accelerates polar melting and sea warming.

Even if serious political measures are taken now the warming of the earth will not peak until 2050. The poor will have to live with climate change that is already built into the system.

Land loss:

Land and homes are succumbing to sea level rise, and stronger sea surges: Islanders from Papua New Guinea (Matsungan, Petats, Torotsian, Pororan) are now losing their homes, land and drinking and farming water sources; Globally sea levels are rising at an average of 3mm a year according to the latest satellite observations. In Papua New Guinea it is now 6.2-8.1mm a year. A sea level rise of 1mm can lead to a loss of land of one metre.

In Bangladesh, coastal areas are being hit by double erosion - from sea level rise and increased glacial meltdown. The Bangladesh Island of Bhola (population two million) measured 6,400 sq km in the 1960s. By 2004 it was down to 3,400 sq km.

Forced migration:

The world's first evacuation is taking place in the Cateret Islands, which at their highest are only 1.2 metres above sea level and could be submerged by 2015. The village of Labutali on Papua New Guinea's Huon Gulf Peninsular moved inland in 2005. This trickle is only the beginning.

The World Bank says in this century hundreds of millions of people can expect to be forced to move by sea level rise. These climate change movements may be sudden – creating waves of migration. Currently climate migrants are not recognised as “refugees” under international law and so do not receive the aid that comes with that recognition.

Fifty million Bangladeshis live below five metres above sea level and are extremely vulnerable to any rise in sea levels. Waves of mass movements will be into the cities – often towards risk.

Increasingly violent disasters:

In 2007, 74.8 percent of people killed by natural disasters were in Asia. In the period 1990-2007 Asia was hit by 2,501 natural disasters (affecting 3.5 billion people). Floods, which made up 35.7% of the disasters (affecting 2.2 billion people) and wind-storms (27.1%) were the most prevalent types. During the last decade over 96% of people affected by floods globally lived in Asia. Every year on average 196 million people in Asia are affected by natural disasters resulting in US\$34.4 billion in damage.

However, globally over the past two decades the number of disasters has risen from approximately 200 to over 400 per year. Nine out of ten disasters are now climate related.

Sixty percent of World Vision's community development programmes are affected by disasters.

Scientific climate models are now underestimating what is happening in the real world: Data shows a warming of the tropical sea surface of 0.5C has increased hurricane energy by 70%.

Sea level rise means the threat of associated sea surges will be far greater this century.

Rapid urbanisation:

Worldwide, 634 million people live in coastal areas at or below 10 metres above sea level – 10 percent of world’s population. Seventy-five percent of them live in Asia. But Asia’s urban population will grow from 1.36 billion in 2000 to 2.64 billion by 2030. Much of this growth will be in coastal urban and slum settlements. One of the largest coastward migrations in history has been towards the Chinese coast. Meanwhile thousands of climate migrants are moving into Dhaka’s slums. Every year an average of 300,000-400,000 mostly poor migrants move to Dhaka. The poor often end up living on land that is most susceptible to flooding.

Dhaka, Mumbai, Kolkata, Manila, Shanghai, Jakarta (40% below sea level) all lie within the “low elevation coastal zone” (below 10 metres above the sea) and are therefore at risk. Significant sea level rise could ultimately de-urbanise major population centres in the region.

Coastal mega-cities like Jakarta area also subsiding: Jakarta dropped from 3.42 metres above sea level to only 2.4 metres above in 2005. Sinking cities include Tokyo, Osaka, Bangkok, and Manila.

Poor infrastructure:

In Bangladesh Cyclone Sidr destroyed 500 schools and damaged more than 2,000; in Myanmar Cyclone Nargis destroyed or damaged more than 4,000 schools. The damage to schools is emblematic of the damage wrought in communities with weak buildings, inadequate flood or storm defences, and fragile water, power and sanitation systems that are unable to survive the onslaught of a disaster.

Environmental destruction:

Natural barriers like forests and reefs are being lost. Bangladesh has already lost 25-40 percent of the Sundarbans – the largest mangrove forest in the world – while globally 2,834 square kilometers of mangroves are being lost each year. Researchers estimate

that 83 percent of the mangroves in Myanmar's Irrawaddy Delta were destroyed between 1924 and 1999.

Coral reefs can break down storm surges but 20% of them are now severely damaged and unlikely to recover, with 70 percent destroyed, critical or threatened.

A failure to adapt:

Past carbon emissions have left us with unavoidable climate change that even very tough emissions cuts will not avert. Poor countries cannot afford to pay to adapt and will need support from donor governments. The UNDP says that for the world's poorest countries consequences of related disaster impacts could be "apocalyptic".

Examples of such future scenarios are already apparent: the February floods of 2007 in Jakarta left 450,000 homeless and caused US\$879 million in damages. By 2050 the capital of Indonesia may be forced to move, warn some.

Weak leadership:

Piecemeal policy changes are failing to deliver the global commitments needed to tackle climate change. Politicians both at the international and national level are either failing to address the issue with the comprehensive and urgent attention demanded, or are unclear about the challenges. The challenge is stark: According to the UN Intergovernmental Panel on Climate Change global emission reductions of 50-85% are needed by 2050. However, the world is on a very different trajectory. The International Energy Agency says that global carbon dioxide emissions are projected to rise from 28.1 billion tonnes in 2005 to 42.3 billion tones in 2030 – a growth of 51 percent. The Panel warns that a two-degree Celsius warming threshold must not be crossed. Some experts say even this is too much.

Past development gains will be reversed:

The impact of climate change is not just an environmental problem but strikes at the heart of attempts to tackle poverty. The poor are least able to adapt to climate impacts, they can't top them happening and may be unable migrate away from trouble

when they do strike. Those hit by disasters suffer economic, social and psychological losses from which they may never recover. Decades of work by humanitarian and development agencies may be lost to climate-change related disasters plunging millions back into poverty or keeping generations trapped there.

The world must prepare for the future by:

Investing:

Investment in disaster preparedness, rather than channeling the vast bulk of aid funding to disaster responses, can reap many times its return on investment. One study shows that for every dollar invested in pre-disaster risk reduction activities seven dollars in losses can be prevented. The current global preparedness engagement of 4% of the US\$10 bill in annual humanitarian assistance needs to be vastly increased. World Vision's Humanitarian and Emergency Affairs division currently spends 45% of its budget on preparedness and 55% on disaster response. Governments also need to invest billions in adaptation measures.

Educating children:

Children are disproportionately impacted by disasters and therefore must be actively involved in preparing for them. Schools need to creatively teach disaster preparedness and resilience as part of the curriculum at all grades. Schools need to be built or fitted to protect children from disasters

Strengthening communities:

They are the first responders to disasters and are essential partners for aid agencies. Training in disaster risk mapping; ensuring grassroots ownership of readiness and response activities, especially involving women and children; and seeing that communities get critical disaster and early warning information are all key if communities are to be empowered to meet the challenges facing them.

Combating poverty also helps the poor become more resistant to the shock of disasters. With stronger homes, spare income and better living conditions they become

more resilient whereas those in extreme poverty are often unable to recover from disasters.

Providing access to micro-insurance and micro-credit also help to protect families from losses to life, health, crops, property, and livestock.

Protecting and promoting forests and reefs:

Protecting forests and undertaking large-scale reforestation are about the most effective way of reducing the world's carbon footprint.

As natural barriers forests are also potential lifesavers. The Sunderbans helped protect major Bangladesh cities from severe devastation when Category Five Cyclone Sidr hit in November 2005.

Reefs are also urgently in need of better protection.

Controlling development:

Controlling the growth of haphazard urbanisation in low elevation coastal zones with proper planning, zoning and building codes, and putting in place adaptive infrastructure makes for safe development.

Strengthening infrastructure:

Helping communities to build stronger homes, schools, communities; ensuring trees are planted to prevent erosion, or to slow waves; erecting sea walls or dykes, and building escape routes, are just some of the ways of strengthening infrastructure.

In addition, putting in place a global early warning system that gathers information on a range of risks and that can feed relevant and easily understood information all the way down to grassroots level is a key piece of information sharing architecture.

Adapting:

Adapting to increasingly severe weather means finding creative solutions, like in Bangladesh where schools double as cyclone shelters, or where school classes are held

on boats. It may even mean finding new ways of making a living, using new flood resistant crops or changing farming techniques.

Adaptation also means drawing up contingency plans should there be a rapid rise in sea levels for the relocation of people and an assessment of the viability of coastal facilities – like ports – and whether defensive or remedial action is needed.

Being well positioned: Disasters are going to become more common. Governments and the international community need to better coordinate professional responses, making use of pre-positioned goods, logistic and expert capabilities, allied with long-term disaster recovery and rehabilitation efforts to ensure responses are stronger, faster, smarter.

World Vision is reinforcing its global positioning capacity to by 2012 be able to respond to four large-scale emergencies twice a year and reach up to 500,000 disaster victims within 72 hours.

Strong leadership and partnerships:

Strong leadership is needed to put in place the range of measures needed to meet the challenge of the impact of climate change on coastal communities. Leaders need to be willing to make tough and urgent decisions and to be held accountable for past commitments.

Leaders must commit to cutting greenhouse emissions by 25-40 percent by 2020 and by 80-95 percent by 2050 (based on 1990 emissions). De-carbonising the global economy needs whole government and international government involvement.

Strong leadership is needed at every level – international, regional, national and local – as well as effective partnerships between and among leaders at all levels.