

DRIED UP, DROWNED OUT

Voices from poor communities on a changing climate

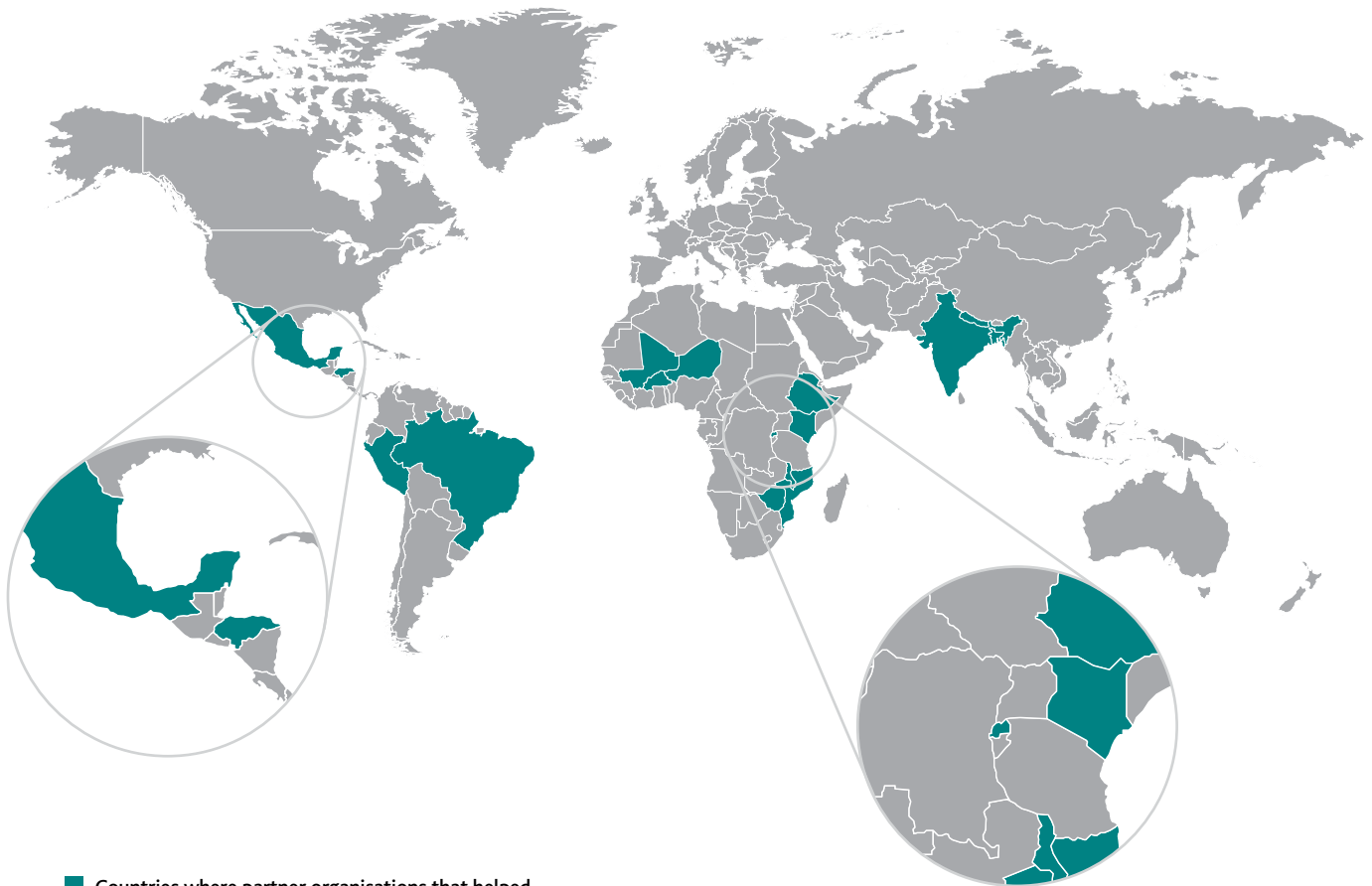
2012 report



tearfund



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■ Countries where partner organisations that helped with this report are based. For a full list of partner organisations involved with this report, please refer to the back cover.

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Full copies of both the original research report and the executive summary are available for download at <http://www.tearfund.org/driedupdrownedout/>

FOREWORD BY SIR JOHN HOUGHTON CBE

In 1988, the Intergovernmental Panel on Climate Change (IPCC) was formed as a UN body and I was privileged to be the chairman or co-chairman of its scientific assessments until 2002. Our job was to assess human-induced climate change and write detailed reports about what we knew and what we didn't know. In this task, we involved hundreds of the best climate scientists in the world from many countries.



We started with no preconceived agenda and formed writing groups in which we argued loud and long about all the data and what it meant. Our work was refereed by other scientists and by governments, and our final summaries were agreed, sentence by sentence, at very tough intergovernmental meetings.

The scientific evidence as presented by the IPCC is therefore very reliable. This is illustrated by the fact that the projections of climate change in the IPCC's first report in 1990 have been largely confirmed and strengthened by three subsequent reports, the last in 2007, for which a great deal more information has become available.

The impacts of climate change over future decades are likely to be extremely serious and we should be doing very much more than we are currently to reduce these impacts.

We know what to do, but we seem to lack the will to do it. There is a danger that, with reduced momentum in the international negotiation process since Copenhagen, the fierce urgency of the need for action now could be lost.

It is encouraging that industries and investors in many countries are keen to grow carbon-free energy projects. But urgent action by governments (acting singly, bilaterally or multilaterally) is needed to create an effective, imaginative long-term policy framework. This is necessary if business and industry are to have the confidence to move forward, in partnership with governments as necessary, with a rapid and effective investment programme to reduce global greenhouse gas emissions.

At Copenhagen and subsequent international meetings, there has been general agreement by the world's nations to set the goal of a maximum global average temperature rise of 2°C above 1990 levels. To achieve this goal, future global emissions must peak well before 2020, then fall as rapidly as possible to below 50 per cent of 1990 levels before 2050. They would then need to fall to close to zero well before the end of the century.



Geoff Crawford/Tearfund

The world's richest nations have benefited enormously from many decades of cheap energy from coal, oil and gas without realising the damage that would ensue or the disproportionate effect that damage would have on the world's poorest people. Now we know the damage, there is a very strong moral imperative for rich nations to lead in the necessary reductions in emissions and to use their wealth and skills to help poorer nations develop sustainably.

This new Tearfund report enables those most impacted by climate change to speak up for themselves. Their words show that the poorest and most vulnerable communities are already experiencing the impacts of climate change on their lives and livelihoods. They also show that additional, potentially devastating impacts are already inevitable.

A small window of opportunity exists for action to be taken to secure a future that averts very serious climate changes that are most likely to be irreversible. I urge you to use this important new report to press for the strong action by governments, business and industry that is so urgently required.

Sir John Houghton CBE

EXECUTIVE SUMMARY



Peter Caton/Tearfund

'We have seen climate change throughout our country. Both anecdotal and scientific signs show that climate change is characterised by, among other things, shorter cultivation cycles in dry regions, loss of harvest due to flooding, loss of animal biodiversity, and fires in forests that then become even drier.'

Marcelino Lima, Diaconia, Brazil

This report demonstrates clearly that climate change is having an increasingly dramatic and harmful effect on communities in developing countries.

It does so through the voices and experiences of people across the developing world who are living with the reality of climate change.

For them, the effects of climate change are profound: children miss out on schooling; people go hungry; families have to separate to find work; their crops are often ruined; the roads they rely on are impassable. The list goes on.

Why is this happening? Storms, droughts and floods continue to put agriculture – and therefore food production – under threat.

An estimated 325 million people are seriously affected by climate change every year. More than 300,000 people die each year, due to related factors.¹

The number of those affected by climate change is set to double within 20 years. The number of people dying is likely to increase by at least two-thirds.²

What can be done?

Rapid, deep cuts in carbon emissions from rich countries, including the UK, are vital if catastrophic climate change is to be averted.

This has to be the first step. Without it, it will be difficult, if not impossible, for poor communities to adapt to changing circumstances.

International leaders need to take ambitious action on climate change in the immediate future.

The planet, its people and wildlife all need dramatic and immediate action to be taken at local, national and international levels to avert catastrophic climate change.

Tearfund believes that the best way to ensure this is through a legally binding international climate change agreement under the United Nations Framework Convention on Climate Change (UNFCCC).

¹ Global Humanitarian Forum (2009) Human impact report: climate change. *The anatomy of a silent crisis*

² Ibid

Action must not be delayed. We currently have a chance to avert climate catastrophe and to help those who are already suffering from the consequences of global warming.

The current international commitments made in Copenhagen in 2009 and reaffirmed in Cancún in 2010 are for US\$30 billion of fast-start finance for 2010–12, to be put towards mitigation and to help people in developing countries adapt to climate change. There are also commitments for US\$100 billion a year after that until 2020.

We now need governments to put their money where their mouth is. These sums should just be a starting point, not the end game.

NGOs working on climate change have estimated that by 2020 at least US\$200 billion per year will be needed to fund adaptation and mitigation.

And we know that it's going to take much, much more than this to drive low-carbon development before the end of this decade, if we are to stay within a safe temperature threshold.

Yet, despite the urgent need for action, countries have failed to agree where money on this scale will come from.

Tearfund and our partners say that the time for talking is over. The time for action is now. We need countries to commit to post-2012 finance as soon as possible and to agree on innovative sources to provide finance on the necessary scale and avert a gap in funding between the end of this year and 2020.

Tearfund is very keen for money to reach communities that need help to adapt to climate change. But we're not as impatient as those communities are. They live with the day-to-day reality of climate change. They want to adapt. They are trying to adapt. But, to do so successfully and for the long term, they need help.

Now is the time for world leaders to step up to the plate, and put the needs of the world's poorest first.



INTRODUCTION

When we think about what climate change will mean, we often think of its impact on us here in the UK. But Tearfund is concerned about the fact that the biggest impact of climate change will be on the world's poorest people.



Fiona Weatherhead/Tearfund

Back in 2005, we decided to ask some of our partner organisations working with poor communities around the world about their experiences of climate change. We asked them whether, to their mind, the climate was changing and, if so, how it was affecting people's lives.

The result was the first *Dried up, drowned out* report. It showed that poor communities were already suffering the effects of climate change. And it argued that serious international action on climate change was needed to help them.

That was seven years ago. We wanted to find out what had changed since then. Science tells us that climate change has become more extreme over those years. But there should have been signs that things were starting to change for the better in the world's poor communities.

There were no such signs.

We talked to the same communities that we met seven years ago and asked them how things had changed. We also talked to new communities to gain a broader perspective of what is happening.

The news is bad. Today, communities in Africa, Asia and Latin America are experiencing more severe and more dramatic climate change than they were in 2005. Change had begun then, but it has become more intense.

A vicious cycle of floods and droughts has now become normal, reducing people's ability to meet their own needs and forcing many into poverty. Their animals and fish are dying. People are moving away from their homes to find work – sometimes never to return.

Yes, climate change is continuing. But something else is happening. Year-on-year changes in the climate mean that, although people are trying to adapt, it's hard to keep up with the pace of change.

In the last seven years, world leaders have continued to meet to discuss climate change. But this report shows that meetings are not enough. Again and again, the message from the poor communities to whom we spoke is the same: *'We need action now.'*

But there is hope. There is still time to act. Local communities in the developing world want to adapt to climate change: circumstances are forcing them to do this. They want to stay on the land that they have inhabited for generations and know intimately. But they need their own governments and the international community to help them achieve this, or their future is uncertain at best.

We gathered the views of people in 16 countries across Africa, Asia and Latin America (see map on the inside front cover). This was achieved through interviews with partner organisations with whom Tearfund works and there was often input from people in the communities where our partners are working.

The outcome is not a comprehensive or scientific study, but it provides grassroots evidence of climatic changes and the effect on these people's lives.

The people we spoke to are not scientists. So sometimes the changes that they're observing are not due to climate change. But most of what is included here is direct quotes from those who are involved, as we wanted to represent their experience in its entirety and let their voices be heard.

This is their story.

Throughout the document, passages of text are direct quotes from partner organisations involved in the survey. These have largely been left intact, but some have been edited slightly to make them easier to read, without changing their tone or content. Acronyms are used for partner organisation names; for full partner names please refer to the back page.

VOICES FROM AFRICA

African perspectives from Burkina Faso, Ethiopia, Kenya, Malawi, Mali, Mozambique, Niger, Rwanda and Zimbabwe



Severine Flores/Tearfund

'The impacts of climate change are leading to more poverty. Because of the drastic reduction in crop use, it means that communities don't have enough food. They end up selling their assets cheaply. When you can't grow vegetables like you used to, that impacts your nutrition levels.'

Victor Mughogho, Eagles, Malawi

Changing weather patterns

Across Africa, weather patterns are changing dramatically. Both floods and droughts are common, often an annual event. Frequently, communities now experience one followed by the other, in a vicious cycle that makes sustaining life difficult. Traditional seasons are disappearing and with them go former certainties about when to plant and indeed what to plant.

Fifty years ago, droughts mainly affected the Sahel, the Horn of Africa and southern Africa. Now, they are widespread across the continent. By the end of this decade, it's expected that between 75 and 220 million people in Africa will be facing severe water shortages as a result.

Yet, floods and severe storms are also now happening on a regular basis. Flash floods can wash away roads, and kill animals and people.

Temperatures too are rising. Even the cool seasons don't feel cool any more, Tearfund's partners say. Rev Mvula, from Tearfund partner River of Life in Malawi, says, 'We had two weather patterns which could be specified clearly – winter (the cold season) and summer (the hot season). It feels like we have one season (hot) now.' This has a dramatic effect on agriculture and therefore on food security.

▶ What's happening today in Ethiopia:

'For centuries, Ethiopia used to be said to be the water tower to neighbouring countries because of the water potential it was endowed with. But the volume of many rivers has been decreasing. Now the recurrence of drought has increased. It has now become almost a yearly phenomenon.' Tesfaye Legesse, EMWACDO

◀ And in 2005:

'Due to drought in many parts of the country, the crop production is reducing yearly, especially in southern Ethiopia. This is mainly observed in the Boricha area of southern Ethiopia where 20,000, 30,000, 38,000 and 60,000 people were affected by food shortages in 2001, 2002, 2003 and 2004 respectively.' Sahle Mariam Mennamo, MKC

► What's happening today in Mozambique:

'Floods, droughts and storms used to be every three to five years. Now they are every year.' Higino Filimone, CCM

◀ And in 2005:

'Mozambique had the worst floods in the year 2000 in the whole of the southern and central regions. But in all the years since then, Mozambique is experiencing an acute drought.' Pastor Samuel Maunje, MCL

► What's happening today in Rwanda:

'For the last ten years, the frequency of flooding has increased. And there have been frequent storms which have destroyed crops and houses.' Anne Abingeri, Moucecoure

◀ And in 2005:

'The temperatures are becoming higher and higher. The maximum used to be 25°C but these days it goes up to 29°C. The longest drought used to be up to four months and now it can be six to seven months. River and lake levels have also fallen and some swamps have dried up.' Anne Abingeri, Moucecoure

'The main challenges likely to face African populations will emanate from an increase in frequency and intensity of extreme events, as well as events occurring in new areas.'

IPCC³

The impact of changing weather

Africa relies on its agriculture. But agriculture is under threat from the unreliability and intensity of the weather. Deforestation and resultant soil erosion only add to the problem for small-scale farmers.

The amount of land suitable for agriculture is shrinking, as seasons change and the soil becomes less fertile. It's predicted that, in some countries, crop yields could be halved by the end of this decade. Revenue from crops could be down by an astonishing 90 per cent by the end of the century.⁴

Rivers are drying up. The water table is lowering, resulting in empty boreholes, which means that people have to travel further to find water. Deeper wells have to be dug. It is becoming harder to find enough water.

The absence of water means that people aren't able to grow the crops they need to survive. They're selling cattle to try to make ends meet and so losing their security.



Eleanor Bentall/Tearfund

Formerly nomadic people can no longer travel, as they can't rely on traditional water supplies. And, by remaining in one place, they put more pressure on limited water resources, which can result in tension and conflict within communities.

The pattern of life is changing for many people, not just nomads. Girls are forced to leave school early to help in the search for water. Those remaining in school can often struggle to get there during the floods.

And men are leaving their rural villages for cities in the search for work and food. In one village in Niger, which is currently experiencing famine, 75 per cent of the adult population has left.

But the experience across Africa varies widely. The day-to-day reality of climate change differs according to where you live.

► What's happening today in Malawi:

'People have been impacted by water supply. Because there are few boreholes, people scramble to get the first place to get the water. People are struggling for water and others are dying because they are going to the river and being caught by crocodiles.' Rev Mvula, River of Life

³ IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability. Summary for policymakers.* IPCC Special Report, online at www.ipcc.ch

⁴ UNFCCC (2007) *Climate change: impacts, vulnerabilities and adaptation in developing countries.* <http://unfccc.int/resource/docs/publications/impacts.pdf>

◀ And in 2005:

'Rainfall is becoming more erratic and there is less each year. The streams and rivers are drying up – which are the source of drinking water. Many rural areas don't have adequate water.' Rev Mvula, River of Life

▶ What's happening today in Burkina Faso:

'The environment is becoming degraded year by year. We are seeing the disappearance of biodiversity, the drying-up of wetlands, soil degradation and the lowering of the water table.' Pastor Etienne Bazie, ODE

◀ And in 2005:

'There is a change because the weather is becoming hotter year after year. The amount of rain we have is also reducing.' Pastor Elie Kabore, ODE

▶ What's happening today in Mozambique:

'The domestic animals are dying due to lack of water and food. Storms and floods also affect the infrastructure of the community. And the flood affects the crops during the summer season.' Higino Filimone, CCM

◀ And in 2005:

'There are some wells and rivers that in the past have never dried up, but now it is strange to say that they have dried up. Communities live in great difficulty, fetching water from a distance of 10–30 km for drinking and for animals, and sometimes do not wash every day as a way of saving the little water that they find.' Pastor Samuel Maunje, MCL

Living with changing weather

'Those who have lived here for a long time say they are living in a different world,' says Victor Mughogho from Tearfund partner Eagles in Malawi.

This sentiment is repeated across Africa. Communities are worried about the changes they're facing and, in some cases, they're at a loss to know how to adapt. Often, the first response is to leave the village. Men particularly are leaving home and looking for work in the towns in order to send money home.

But climate change is also affecting children in many ways. Their school attendance is down due to the impacts of natural disasters and malnutrition. This puts the future of a generation at risk.

For example, in Mozambique, Pastor Samuel Maunje from Tearfund partner MCL says, *'There are so many children who are not going to school because the natural disasters like cyclones have damaged schools and they have no way to have an education.'*

Anecdotally, there are reports of rising crime.

But some positive changes are also being made. Growing drought-resistant maize, quick-maturing crops, potatoes and cassava is helping communities to adapt. Others are rearing camels, hens and goats, rather than cows. All of these can live on less water. And, in some places, rainwater is being harvested.

For instance, in Malawi, Richard Sulu of Tearfund partner CCAP reports, *'People have devised water conservation techniques so that they may be able to hold water for plant use. In most communities, they are looking at how they can keep water longer.'*

So what's holding communities back from adapting fully? The problem is clearly not a lack of will to change, but the cost of change. Plus, there's a need for education to help local communities deal with the new realities they face.

▶ What's happening today in Mozambique:

'It is extremely difficult for people to adapt to this situation because it happens unexpectedly. They need someone well trained to train them, so that they can be aware of the unexpected.' Pastor Samuel Maunje, MCL

◀ And in 2005:

'The lack of rain has provoked a movement of communities in recent years in search of fertile areas for agriculture, principally around low-lying areas or gathering in the cities in search of better living conditions.' Pastor Samuel Maunje, MCL

▶ What's happening today in Ethiopia:

'People are very concerned about climate change. The absence of rain is putting a serious threat on their livelihood. They want to change their attitude towards environmental degradation and to know more about drought-resistant crops and plants.' Tesfaye Legesse, EMWACDO

◀ And in 2005:

'Our farmers are totally dependent on rain-fed agriculture, thus any slight change in climate will result in food shortage and migration.' Sahle Mariam Mennamo, MKC

On Africa, the IPCC states: 'Increasing aridity and prolonged spells of severe drought could accelerate abandonment of the rural economy and migration to urban centres.'⁵

⁵ IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability. Summary for policymakers.* IPCC Special Report, online at www.ipcc.ch

Facing the future

The situation in Africa is expected to continue, with warmer temperatures, less rainfall and more frequent floods and droughts. Along with this, sea levels are expected to rise by the end of the century, threatening low-lying areas. The cost of adaptation to rising sea levels alone could be as much as five to ten per cent of the continent's GDP.⁶

Deforestation brings with it a loss of diversity. There are predictions that between 25 and 40 per cent of animal species in sub-Saharan Africa's famous national parks will become endangered.⁷

Communities report feeling frustration and uncertainty about the changes in climate that they're experiencing. There is a profound lack of confidence about the future. Their message is clear: we can adapt, but we need help to do so. *'The people have the ways and means,'* says Tearfund partner Richard Sulu from CCAP in Malawi, *'but, if they can have something to back them up, then they will have the ability to adapt to the future challenges.'*

Their suggestions for how communities could be assisted include local training and radio programmes to inform people.

Local, national and international leaders need to take this situation seriously and act now, communities say. The message to world leaders from Tearfund partner Jemed in Niger sums it up: *'Get serious about cutting emissions.'*

Across Africa, local people are issuing a wake-up call to world leaders. Change needs to happen fast to help them to continue to stay in their communities.

'There is wide consensus that climate change will worsen food security in Africa, mainly through increased extremes and temporal/spatial shifts; increased droughts could seriously impact the availability of food in Africa.'

IPCC⁸

Silas's story

Fifty-two-year-old Silas Ndayisaba lives in Rukiri village in the east of Rwanda. He has been a farmer since he was 16. He's seen a lot of change in that time.

'When the weather is good, I have produce to sell. But this year the harvest wasn't good because of the flash floods,' he says. 'The weather is less predictable and the drought means that we have a lot less food.'

'Things have changed in the last 20 years. Thirty years ago, we had good harvests and could predict the weather patterns.'

'In those days, beans cost 40 RWF (4p), but now they cost 450 RWF (47p),' he says. This represents a more than tenfold increase in a country where the average income is about £320 per year.

'Twenty years ago, we could plan,' says Silas. 'Today we can't. Prices have gone up. I buy less and I only eat twice a day.'



Eleanor Bentall/Tearfund

⁶ *Climate change 2007: impacts, adaptation and vulnerability*. Working Group II contribution to the Fourth Assessment Report of the IPCC. Summary for policymakers and technical summary

⁷ UNFCCC (2007) *Climate change: impacts, vulnerabilities and adaptation in developing countries*. <http://unfccc.int/resource/docs/publications/impacts.pdf>

⁸ IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability*. Summary for policymakers. IPCC Special Report, online at www.ipcc.ch

VOICES FROM ASIA

Asian perspectives from Bangladesh, India and Nepal



Peter Caton/Tearfund

'There is a strong linkage between food security and weather patterns in Nepal. Agriculture makes up 30 per cent of the national economy and 60 per cent of the population [work in it]. Small alterations in weather patterns, especially rainfall, threaten the livelihood of almost half the population.'

Suresh Bhattarai, United Mission to Nepal

Changing weather patterns

About 75 per cent of the world's major natural disasters between 1970 and 1997 happened in Asia and the Pacific. Though clearly not all are climate-related (such as Haiti and Fukushima), many are. Storms and cyclones continue to increase both in number and intensity in the region.

In this study, Tearfund partners report dramatic changes in weather patterns. Seasons are changing. The winter is becoming shorter. *'Bangladesh is the country of six seasons, but it has reduced to three,'* explains George Mithu Gomes from Bangladesh Nazarene Mission.

Rainfall comes late and, when it does come, there is less of it. But, equally, the rain can be more intense, causing flooding.

Temperatures are rising, leading to hotter summers year on year, which makes droughts a more frequent occurrence.

► **What's happening today in Bangladesh:**

'We do not get enough rain in time. It is coming late and the last three years there was almost no rain. Then, last year, rain came later and caused an unbearable flood.'

Sunil Raphael Boiragi, Salvation Army

◀ **And in 2005:**

'Frequency of flooding is increasing, due to water coming from surrounding countries. This brings heavy siltation to the country's rivers and river bank erosion not experienced ten years ago.' Sunil Raphael Boiragi, Salvation Army

Archona and Priambandhu's story

Archona and Priambandhu have been married for 28 years. They live in Kaya Benia village in Bangladesh.

They used to have 11 acres of land. Cyclones and floods have reduced that to two acres. They used to have a rice paddy that produced 2,000 kg of rice. That's all gone.

Farming is no longer viable for them, so they've turned to fishing and growing a few vegetables for themselves. But salination means that the land is now poor, which means that the vegetables are poor quality too.

For four months of the year, the whole of their land is flooded, meaning that they can't grow anything.

'We are suffering, losing our land and house,' says Archona. *'We don't know the future, but we can assume that we will lose it all. Can we get anything from the world to help us survive this situation?'*

'We are losing our home. We have lost our livelihood and we are fighting [to have enough] food and water for each day. If we just had the land beneath our feet, then we could adapt to climate change.'

The impact of changing weather

Tearfund partners report widespread problems as a result of changing weather. Deforestation is also leading to soil erosion, less fruit, food and wood production, and fewer medicines. Cattle are dying from lack of food and water, as the area that people can farm shrinks dramatically.

Rivers are drying up, so it's harder for families to get enough water for themselves or their land. Fish stocks are dying, as well as farmers' herds.

Destruction of the natural habitat means that wild animals are increasingly forced into populated areas, where they destroy crops in their search for food.

For families, all this means selling livestock to try to stay afloat. But they're selling at low prices and so are slowly losing their livelihoods. Sometimes, this can mean people leaving their land for the city in the search for work and food. But food prices are up. Children are dying of malnutrition and there is little safe water to drink.

In India, TK Joy of Tearfund partner Eficor says, *'We have erratic rainfall. There isn't enough water to cultivate, so there's no food, no grain. Food is not available in the villages. Children die.'*

► What's happening today in India:

'Life becomes miserable. Cattle die without water. The situation has worsened since 2000 and no improvement is seen in the near future. I've also seen people fighting over water a number of times.' TK Joy, Eficor

◀ And in 2005:

'During floods, all the boreholes get damaged by mud. People have to go far away to a river for water – even to drink. People get sick with diarrhoea.' TK Joy, Eficor

► What's happening today in Bangladesh:

'Recently, the frequency of floods, droughts, temperature, rainfall patterns, storms [and] seasonal weather patterns has affected our agriculture. Food production is becoming less day by day.' Rev Liton Mrong, Garo Baptist Convention

◀ And in 2005:

'Crop failures, loss of capital investment, failure to replenish the inputs essential for recovery not only increase food insecurity, but also loss of household assets. These events increase not only vulnerability but push more people into the vicious cycle of poverty.' Heed



Peter Caton/Tearfund

Rafiqsa's story

Thirty-eight-year-old Rafiqsa Shikari is a boatman living in the Bangladeshi village of Bijon Bayen Kalinagar. His family lost everything in the floods and have lived in their current home for just two months.

'God knows what will happen in the future,' says Rafiqsa. 'It is tough for our family's livelihoods. The government should take the initiative and help.'

His wife adds, 'I used to have a vegetable patch here. We had 26 chickens and goats. Now everything is gone, washed away. We dread for our future. Where will the future generations live? We are dreaming of moving to town, but it would be very painful to leave the area.'

'Food insecurity appears to be the primary concern for Asia. Crop production and aquaculture would be threatened by thermal and water stresses, sea-level rise, increased flooding and strong winds associated with intense tropical cyclones.'

IPCC⁹

Living with changing weather

Communities across the region are raising their concerns about climate change. *'The water for irrigation is getting less each year. What will life be like in five years' time?'* was one typical response. Across Asia, there's a real concern about the impact of more extreme weather patterns on day-to-day life.

However, communities are already starting to adapt to the change in weather that they're facing. This can be through a range of measures. In Bangladesh, this includes

⁹ IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability. Summary for policymakers.* IPCC Special Report, online at www.ipcc.ch

establishing floating gardens, raising the sides of ponds, putting houses on raised plinths to avoid flooding, and establishing kitchen gardens. Tree-planting schemes are also taking root.

In Nepal, farmers are growing their vegetables under polytunnels to protect them from extreme temperature swings and maintain a relatively constant environment. Solar water-heaters and solar electricity generally are becoming popular in Kathmandu.

Communities say that they need both education to understand what's happening to their environment and help with resources to adapt to climate changes.

Rev Liton Mrong from Tearfund partner Garo Baptist Convention in Bangladesh says, *'Adaptation is hindered by a lack of proper resources, a lack of knowledge at the local and national level and an unwillingness of international countries to provide support.'*

Facing the future

Predictions are that Asia will continue to face environmental change. Glacial melt in the Himalayas is projected to increase flooding and rock avalanches and to affect water resources within the next 30 years. The amount of water in rivers will decrease as glaciers recede.¹⁰

Tens of millions of people in coastal areas continue to be at risk of flooding as sea levels rise and the intensity of cyclones increases.

Droughts are expected to increase in the summer months.

All this means that it's likely that crop yields could drop by as much as 30 per cent in Central and South Asia by the mid-21st century, putting millions at risk of hunger.¹¹

Yet, many communities say that they feel confident to face a changing future and believe that they can overcome these challenges. But they need more support to do so, particularly from local and national government.

'Since the problems of climate change, people cannot live peacefully,' says TK Joy of Tearfund partner Eficor in India. *'Every year they are thinking, "This year, what is going to happen? What will we do?" They sit together in the depth of the night and think about what course of action to take in the future.'*

'They are not getting proper training from any organisation or from the government. If they were trained for two or three years, it would be different.'

In Bangladesh, India and Nepal, Tearfund partners report that their governments have established climate change plans. What they want to see next is implementation of these plans at a local level, concentrating in particular on training for communities – turning theory into practice.

George Mithu Gomes from Tearfund partner Bangladesh Nazarene Mission in Bangladesh summed up the mood, saying, *'It's time to act and take appropriate measures or the next generation will suffer.'*

- Climate change and variability would exacerbate vulnerabilities to extreme climate events eg typhoons, droughts, floods.
- Increased precipitation intensity, particularly during the summer monsoon, could increase flood-prone areas in temperate and tropical Asia, and there is potential for drier conditions in arid and semi-arid Asia during the summer, which could lead to more severe droughts.
- Low-lying areas of Asia would be inundated by sea-level rise.

Source: IPCC¹²

Ram's story

Farmers in Nepal have noticed the changes in weather patterns but don't know the causes. Glaciers are melting fast. Rainfall comes later and is heavier. These changes have contributed to floods and changes to harvest patterns.

Ram Chandra Budathoki, 44, from Letanga village in Sunsari, is one such farmer. He says, *'Now it rains a lot when it used to be dry and it is dry when it used to rain. This changes the harvest patterns for crops such as rice.'*

Ram's community used to rely on fertile land and abundant harvests. Now they are living with climate change.

He says, *'Our harvests have decreased because of drought. We have had to plant rice paddy a month later this year. This means we will be short of food.'*

Tearfund partners have worked with Ram's community to help build embankments to protect the village from flooding. They are also helping rice farmers, including Ram, to find alternative sources of income.

¹⁰ *Climate change 2007: impacts, adaptation and vulnerability*. Working Group II contribution to the Fourth Assessment Report of the IPCC. Summary for policymakers and technical summary

¹¹ *Ibid*

¹² IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability*. Summary for policymakers. IPCC Special Report, online at www.ipcc.ch

VOICES FROM LATIN AMERICA

Latin American perspectives from Brazil, Honduras, Mexico and Peru

'We have seen climate change throughout our country. Both anecdotal and scientific signs show climate change that is characterised by, among other things, shorter cultivation cycles in dry regions, loss of harvest due to flooding, loss of animal biodiversity, and fires in forests that then become even drier.'

Marcelino Lima, Diaconia, Brazil

Changing weather patterns

Across the continent, Tearfund partners report significant changes in weather patterns. Traditional, familiar seasons have been replaced by new, unfamiliar and unexpected weather patterns.

The former wet seasons are now dry, and the dry seasons have become wet, which is having severe impacts on agriculture and food security. Floods often follow droughts.

Floods are now frequent, as are droughts. In Peru, extremes of temperature are common, both cold and hot.

Hurricanes are now far more familiar than in the past and are increasing in intensity.

'Some regions of Latin America will experience increased rainfall; there will be increased risk of floods and droughts associated with El Niño events in many different regions. (El Niño is responsible for a large part of the climate variability on inter-annual scales in Latin America.)'

IPCC¹³

► What's happening today in Mexico:

'In the last few years, the communities are experiencing an intense rise in temperatures and are suffering from droughts. Some regions haven't seen any rainfall for two years.' Eugenio Araiza, Amextra

◀ And in 2005:

'Over the last few years, we have recorded extraordinary results regarding the coldest and hottest days. For example, in the Valley of Mexico, we have had temperatures ranging from -6°C up to 34°C. The annual average would be 22°C.' Eugenio Araiza, Amextra



Layton Thompson/Tearfund

► What's happening today in Honduras:

'The seasons have changed more than we would have expected. Farmers are waiting for the dry season to plant certain kinds of food and there is no dry season: it is quite wet. And then when they expect the rainy season, it doesn't come: it remains dry.' Osvaldo Munguía, Mopawi

◀ And in 2005:

'Over the past five years, the rainfall has been variable. Previously, the rains fell during six months of the year (June–December). Nowadays, the rains come together at one time, causing floods and droughts.' Carlos Santos, OCDIH

The impact of changing weather

The rise in temperature and resultant drop in rainfall have hit agriculture hard. According to Eugenio Araiza from Tearfund partner Amextra in Mexico, some 3.4 million tonnes of maize are estimated to have been lost due to drought. One region lost 70 per cent of its crops. Also, some 40 million cows have died due to lack of water, causing massive food insecurity.



Because of lack of rain, crops that do grow are often stunted and poor.

The rivers are also drying up, so fish are dying. And people, their land and their animals are badly affected. In Mexico, people are spending up to 30 per cent of their monthly income (up to \$70) on buying fresh water, Araiza says.

'All the funds they have are focused on survival,' he adds.

All this means that household budgets are tighter, and so frequently children are no longer sent to school.

The heat has caused roads to subside, meaning that farmers can't get their produce to market. And in Brazil, the rainforest – viewed as the lungs of the world – is getting drier, with the increasing risk of forest fires.

'The implications of climate warming on the hydrological cycle and its consequences for precipitation distribution, intensity and timing, surface runoff, and underground water resources, will be aggravated in certain areas by population growth and unsustainable development of water-consuming activities.'

In some Latin American regions, global warming will substantially change the availability of fresh water, estimates of availability in Mexico and Central America indicate that about 70% of their populations will live in areas with low water supply as soon as the first quarter of the 21st century.'

IPCC¹⁴

► What's happening today in Peru:

'The soil is heating up, which is ruining the crops. The crops grow up quickly in the sun, but without water they wither and die. People are eating less and they can't store food.'
Victoria Diaz, Shalom

◀ And in 2005:

'Crop growth is affected by the irregularity of rains and often the hailstorm which damages them and they don't obtain the ideal level of growth that is expected.'
Victoria Diaz, Shalom

► What's happening today in Honduras:

'The local infrastructure is washed away in the floods. Roads are also subsiding in the heat of the dry season, meaning that it is increasingly hard for rural communities to reach their local towns to obtain the items that they need and to take what they do have to sell to market.'

'Homes are also being destroyed by flooding, leading families to become homeless. Local authorities do not have the resources to repair the damage, so the problem remains.'

'Water rationing is now in place to try to ensure that everybody has enough water to survive, but not to be able to irrigate their crops sufficiently.'
Neri Gómez, Paz y Esperanza (Peace and Hope)

¹⁴IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability. Summary for policymakers.* IPCC Special Report, online at www.ipcc.ch



Layton Thompson/Tearfund

◀ And in 2005:

'A number of communities installed a drinking water system. Right now, they have stopped using it because water has become so scarce. There is a higher mortality rate in these communities, as well as the fact that families are moving away from the area.' Carlos Santos, OCDIH

Living with changing weather

Communities are very aware of the changing weather patterns and the increased poverty and illness that have arisen as a result. In some parts of Peru, Tearfund partners report that stagnant water has led to an increase in water-borne diseases for both humans and animals. This has put an unbearable strain on communities' limited health services.

'Stagnant water is becoming contaminated and dangerous for animals and children,' says Shalom's Victoria Diaz. *'More children die every year from pulmonary diseases caused by the huge changes in temperature. And, without clean water, they also suffer from parasites.'*

Displacement is becoming a problem in Peru as men in particular go to the cities to find work. Many don't return, causing family breakdown.

This is having a knock-on effect: families are sending girls as young as eight into domestic service.

Meanwhile, in Honduras, there are reports that crime – notably theft – is on the increase.

Across the region, there is a willingness to adapt, particularly among indigenous people. But deforestation is making adaptation much harder.

Farmers are altering their growing patterns, using different crops, digging wells for their cattle and, in some areas, planting trees. But these schemes are limited.

In Brazil, the 'one million cisterns' scheme has guaranteed families enough water to drink and cook with for a year. But, overall, fresh water is becoming more scarce and people are eating less because they cannot buy or grow as much food.

Marcelino Lima of Diaconia in Brazil says, *'The increased severity of the droughts in the Brazilian semi-arid areas has led to greater vulnerability of food production for rural families.'*

And in Peru, Neri Gómez of Paz y Esperanza reports that the staple crops are *'all badly affected by climate change'*. She says: *'This means that families are surviving largely on potatoes and tend to go for the easiest and cheapest option for feeding their families, not the most nutritious.'*

In both Peru and Brazil, communities say that it's simply a lack of knowledge that's holding them back from adapting to climate change. But in Brazil, Marcelino Lima from Tearfund Partner Diaconia reports, *'Adaptation to climate change, in our understanding, depends not only on people's resources, but also and especially on resources from governments or government programmes, as well as on international cooperation.'*

Martín's story

Martín lives on the edge of a river, close to the coast in Honduras. He's now beginning to feel the effects of climate change on his day-to-day life.

'I've seen the climate here change in the last 15 to 20 years,' he says. *'The dry season has got hotter and burns up the crops that I plant.'*

'When the rains come, now the floods are heavier than before, more frequent, and the waters rise higher.'

'We have more problems with insects and rats because the weather's changed and that also affects my crops.'

Facing the future

There is a high risk that much of the Amazon rainforest will be lost by the middle of this century, first to deforestation and then to subsequent fires. This will affect the whole planet, but will have a particular effect on those who live in the region.

A hike in temperatures, a reduction in rainfall and increases in extreme weather, such as floods and heatwaves, will all affect Latin America over the coming years.

This is likely to lead to a halving of the land available for agriculture by 2050 as salination and desertification take their toll.

So what's needed to help local communities face this bleak prospect? According to Tearfund partner Amextra in Mexico, the answer is education and support from NGOs and government.

'A common characteristic of people around the world who live on the poverty line is resistance,' says Eugenio Araiza from Amextra. 'They have faced great traumas, injustices and abuse in the past and this has bred a resilience into them and they believe they will survive anything.'



Geoff Crawford/Tearfund

'The communities are strong and they are fighting, but the situation is increasingly complicated and they don't necessarily understand everything about the situation. They need organisations and their government to come alongside them and help to find solutions.'

'The dry season is expected to become longer and more intense in many parts of Latin America. Predicted increases in temperature will reduce crop yields in the region by shortening the crop cycle.'

IPCC¹⁶

Joao's story

Visually stunning, yet economically devastating, the golden-brown landscape of north-east Brazil is stricken by drought.

The relentless heat means family breakdown and hunger for poor communities across the region who struggle to live through global warming.

'The last four years have been getting hotter and now almost the whole day is hot. It only cools for one or two hours at midnight,' says 19-year-old father-of-four Joao Evangelista Silva.

'It used to be cool for much longer. We get up for work at 4am as the heat makes it difficult to sleep.'

Joao lives with his 26-year-old partner, Luiza, her two children from a previous relationship plus two children of their own. Their home is in the semi-arid district of Patos.

Joao is not familiar with the term 'climate change', but is living with the reality of it. He explains how long periods of drought are leading to water scarcity, leaving him and his family no choice but to share with their cows a contaminated water pool near their home.

'The water pool is one kilometre away,' he says. 'We are lucky as we live nearby, but when it dries up we have to walk three kilometres to another community. The cows urinate in the water and contaminate it. Sometimes, we get ill. We do not want to die.' His eyes glaze with tears.

¹⁶ IPCC (1997) *The regional impacts of climate change: an assessment of vulnerability. Summary for policymakers.* IPCC Special Report, online at www.ipcc.ch

CONCLUSION AND RECOMMENDATIONS

'My message to policy-makers is that we are losing millions of people. We need to adapt. We need resources. Let's have a policy that can help people, especially those poor countries in Africa and other developing countries. Things are changing: they are getting out of hand. We have to move at high speed.'

Richard Sulu, CCAP, Malawi

This report reveals that climate change is having an increasingly dramatic and harmful effect on communities in developing countries.

Scientific studies show that the effects of climate change are set to worsen. Unless global emissions are cut dramatically and quickly, the impacts of climate change are set to continue. The world's glaciers are retreating and getting thinner, with a severe knock-on effect for the environment and communities.

This also influences sea levels, threatening the well-being of around one-sixth of the world's population.

The Amazon rainforest, considered to be the lungs of the world, is under threat from increased temperatures and changes in rainfall, as well as logging and deforestation. By the middle of this century, there is a real risk that much of the Amazonian rainforest could be lost. This will only accelerate to climate change.

With the rainforest will go wildlife and human habitats, people's livelihoods and food security. And with that will come a massive increase in the release of carbon into the atmosphere, accelerating climate change.

Agriculture is already more limited, resulting in poorer harvests, which ultimately pushes people further into poverty and hunger.

What, then, is to be done?

Those people we interviewed were asked to suggest any action that they would like to see richer countries take in relation to climate change. The responses they gave have been collated and summarised below in the following categories.

Mitigation and justice

Rich countries and their leaders are urged to take climate change seriously. To do this, Tearfund partners argue, they need to fulfil the Kyoto Agreement, support the achievement of the Millennium Development Goals and cut their own carbon emissions.

Furthermore, they need to put serious levels of funding into green energy and the protection of the world's forests, which act as the lungs of the planet.

World leaders need to have the imagination to invest in building the new, green, sustainable economy that is needed by all people everywhere – especially the poorest people.

To do this, rich nations will need to reduce their own emissions dramatically in line with existing commitments. And they'll have to help developing countries get ahead of the game and find greener ways of developing sustainably.

In summary, poor communities living with climate change urge rich nations and their governments to:

- Get serious about cutting emissions globally
- Respect the commitments made for the reduction of greenhouse gases and finance sustainable development
- Commit to investments on the necessary scale and in the long term. NGOs working on climate change have estimated that by 2020 at least US\$200 billion per year will be needed for adaptation and mitigation
- Follow through on internationally binding agreements
- Face the truth: climate change is happening. It's not science fiction.

'World leaders should accept that climate change can be counteracted with well defined, concrete actions that strengthen economically viable and ecologically sustainable production systems.'

Marcelino Lima, Diaconia, Brazil



Geoff Crawford/Tearfund

'Local people in the villages have lots of wisdom. If you are really interested to take decisions and bring down the crises, then involve the local people.'

TK Joy, Eficor, India



Marcus Perkins/Tearfund

So, rich nations and their leaders are being urged to support initiatives aimed at tackling both the causes and effects of climate change. They are also being called upon to address more over-arching, structural problems that exacerbate poverty and hinder communities from being able to adapt to climate change. Tearfund partners urge rich nations to tackle injustice, both at a national and international level, in the following ways:

- Think about how their lifestyles, industry and livelihoods are impacting the rest of the planet
- Ensure delivery of climate finance at the scale needed for poor countries who are not directly responsible for carbon emissions but are living with their consequences
- Work to combat the values of consumerism that destroy the environment
- Consider that power is not for self-enrichment, but for serving others

'Richer countries have to take a step in the way they use chemicals, machinery, so many things that are destroying our environment. They have to reduce what they are doing, and also think about us by helping us to respond.'

Abdoul Azize-Sarki, UEEP, Niger

Adaptation

Tearfund partners agree that local communities in developing countries are willing to adapt and in many cases are eager to do so. But they need the resources and funds to make often significant, costly changes. It is also important, they say, that local and national governments as well as NGOs listen to the views and experience of local people when planning adaptation techniques.

Governments and NGOs should:

- Involve local people in the development of workable policies to help them adapt
- Educate people about climate change
- Give local communities the resources and funding that they need to adapt to climate change
- Finance agricultural research centres and renewable energy
- Prioritise soil conservation and sustainable food security production
- Actively protect the world's remaining forests, rather than allowing deforestation to continue unchecked.

Compiled using input from the following partner organisations:

AFRICA

Burkina Faso: Office of Evangelical Churches (ODE)

Ethiopia: Ethiopian Mulu Wengel Amagnoch Church Developmental Organisation (EMWACDO), Wolaitta Kale Heywet Church – Terepeza Development Association (WKHC-TDA), Meserete Kristos Church (MKC)

Kenya: Christian Community Services (CCS)

Malawi: Church of Central Africa Presbyterian (CCAP), Assemblies of God Relief and Development Services (AGREDS), River of Life, Eagles

Mali: Tahanint N'Massinag E Tinbuktu (TNT), Agence Evangélique de Développement du Mali (AEDM)

Mozambique: Ministerio Centro de Louvor (MCL), Christian Council of Mozambique (CCM)

Niger: Jeunesse en Mission Entreaide et Développement (Jemed), Union des Eglises Evangéliques Protestantes du Niger (UEEPN)

Rwanda: Le Mouvement Chrétien pour l'Évangélisation, le Counselling et la Réconciliation (Moucecoure)

Zimbabwe: River of Life

ASIA

Bangladesh: Salvation Army, Bangladesh Nazarene Mission, Church of Bangladesh, Garo Baptist Convention, Baptist Aid, LAMB Hospital, Heed

India: The Evangelical Fellowship of India Commission on Relief (Eficor)

Nepal: United Mission to Nepal (UMN)

SOUTH AMERICA

Brazil: Diaconia, Ação Evangélica (ACEV)

Honduras: Mosquitia Pawisa (Mopawi), Proyecto Aldea Global (PAG), Organismo Cristiano de Desarrollo Integral de Honduras (OCDIH)

Mexico: The Mexican Association for Rural and Urban Transformation (Amextra)

Peru: Shalom (Association for International Development), Paz y Esperanza



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