PARTNERING FOR RESILIENCE
REDUCING DISASTER RISKS THROUGH EFFECTIVE PARTNERSHIPS

POVERTY

christian aid

A selection of case studies from Asia, Africa and Central America demonstrating the impact of successful disaster risk reduction partnerships between government, scientific and technical institutions and civil society.

CONTENTS

FOREWORD

Work on disaster reduction has greatly advanced since the 10-year Hyogo Framework for Action (HFA) was conceived in 2005. Since the 2004 tsunami, many positive advances have been made in areas of preparedness and more effective response, but there is still much to be achieved and we face ever-shifting goalposts. Evidence shows that disasters and disaster losses are increasing and more and more people are being affected, amplifying poverty levels.

In 2010, the Centre for Research on the Epidemiology of Disasters recorded 373 natural disaster events that killed over 296,800 people, affected the lives of 208 million, and cost nearly US$110bn.

Statistics like this are alarming, but are set to worsen. Year on year, risk drivers such as rapid, unplanned urbanisation, population growth, environmental degradation and climate change are increasing the exposure to and impact of hazards such as earthquakes, cyclones, floods and droughts. When these hazards and risk drivers combine, they lead to death, destruction and massive human misery.

The midpoint of the HFA offers the opportunity to take stock, reevaluate and accelerate action. If we are to meet the challenge of halving disaster losses by 2015, we need to significantly scale up our work reducing disasters. We need to innovate to find solutions to new and complex problems. We need to collaborate to maximise resources. We need to link the national to the local and ensure the involvement of governments, technical experts and citizens. We need to learn and share our knowledge and form new partnerships to solve problems.

Over the past five years Christian Aid embarked on an innovative project called Building Disaster Resilient Communities, funded by the UK government's Department for International Development. The focus of the project was to strengthen local capacity to anticipate, prepare for, cope with and respond more effectively to disasters.

Through this, we helped to facilitate dialogue and action between poor and marginalised communities, local civil society organisations, local authorities and government bodies, the private sector and scientific institutions to bring about the necessary collaborative action for tackling disasters. This approach encouraged strong local ownership, deepened capacity and delivered practical help to vulnerable communities, as well as advocating for better risk reduction policies and laws.

Christian Aid has also implemented a number of preparedness projects in Malawi, India, Nicaragua and Kyrgyzstan with funding from the European Commission Humanitarian Aid department's Disaster Preparedness Programme (DIPECHO).

The following case studies capture the innovation and impact of these projects in nine countries, across Africa, Asia and Central America, and show how significant achievements can be made at both local and national level through developing strong partnerships between NGOs, governments, scientists and civil society. It suggests that these multi-stakeholder partnerships are a crucial step forward in tackling disasters and climate change.

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INTRODUCTION

Christian Aid aims to change the lives of some of the world's poorest people by helping them to challenge the major issues that keep them in poverty. One such issue is disasters. There is a high correlation between being poor and the chances of being harmed by disaster. Taking just one example, 81 per cent of the people killed by tropical cyclones per year live in low income countries.[1]

It *should* follow that development work, which reduces poverty, should also reduce vulnerability, but unfortunately this is often not the case. The seemingly common sense approach of reducing risk is not often included in many projects or development plans. Ironically, well-intentioned development can sometimes increase risk if it is not designed with an appreciation of potential hazards in mind. Unfortunately, there are countless examples of well-intentioned development or humanitarian projects which have led to increased risk. For example, a new piped water system built in Thyolo, Malawi, resulted in another community's water supply being cut; and the over-distribution of fishing boats following the Indian Ocean tsunami led to reduced catches for fishermen and undermined already difficult livelihoods.

More importantly, Christian Aid does not just believe in *reducing* poverty or just assisting communities to survive in the short term, but in the *eradication* of poverty. We aim to increase the ability of poor people to create and retain wealth and be able to reinvest it to improve the lives of their families and communities – paying for their children's education, keeping their families healthy and acquiring technology and infrastructure to improve their homes and services.

Hazards such as hurricanes, droughts and earthquakes have been known to wipe out nationwide development gains overnight and plunge people into a downward spiral of poverty and vulnerability. Additionally, more localised disasters – those which occur regularly and even annually – can have very devastating effects on the communities involved. A family relying on a single crop of maize can have their annual income wiped out by a period of drought or a flash flood.

Although these phenomena cannot be prevented, the level of destruction and their impact on people's health, wellbeing and economic status can be greatly reduced. Importantly, development gains can be protected and retained. This can often be achieved with relatively low financial inputs in comparison to the cost of humanitarian response assistance. Even very poor people can take action to build their resilience to these hazards.

With this in mind Christian Aid established the Building Disaster Resilient Communities project in January 2006. Working in seven countries across Asia, Central America and Africa, it set out to build relationships between communities, civil society and local government to improve the level of social protection and increase participation in the preparation of local and national development and disaster plans.

This report presents case studies from this project and the DIPECHO projects, which demonstrate the impact of disaster risk reduction work at all levels and offer some examples for replication and scale-up. All examples involve partnerships between communities, NGOs, scientific or technical institutions and different areas of government.

But the challenge is immense. If we are to halve disaster losses and achieve the millennium development goals by 2015, then we have to get ahead of the curve and achieve more and reach more communities. To achieve this, we must work together to maximise resources, link the local to the international and innovate to find solutions to complex problems, such as climate change. This means that a shift in thinking and a change to current practices – to move from a reactionary response to disaster risk to one of partnership and prevention.

Endnote

1. *World Disasters Report 2010: Focus on Urban Risk*, International Federation of Red Cross and Red Crescent, p11, www.ifrc.org/Global/Publications/disasters/WDR/WDR2010-full.pdf

HYOGO FRAMEWORK FOR ACTION PRIORITY AREA 1

1. MAKE DISASTER RISK REDUCTION A PRIORITY

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation

Disasters have the potential to wipe out decades of national development overnight as well as causing misery and suffering for individual families – destroying homes, assets and crops and deepening levels of poverty. It is essential that disasters become a priority at national and local level if we are to halve disaster losses and achieve the millennium development goals by 2015.

To create the right enabling environment for disaster risk reduction (DRR) to take place, countries must therefore develop or modify policies, laws, organisational arrangements, plans and projects. They must also make a commitment to setting up and maintaining resources. This includes actions such as:

- creating effective, multi-sector national platforms to provide policy guidance and to coordinate activities
- integrating DRR into development policies and planning, for example, poverty reduction strategies.

To ensure these policies have the right impact at local as well as national level, governments must ensure civil society participation throughout.

Establishing strong commitment and action at both national and local level is the first step toward significantly reducing the threat to millions of lives and livelihoods from natural hazards.

Christian Aid's Building Disaster Resilient Communities (BDRC) project, funded by the UK's Department for International Development (DFID), had a large governance focus aimed at building relationships between communities, civil society and local government. The project's purpose was to improve the level of social protection and increase participation in the preparation of local and national development and disaster plans. The project was structured around three main areas of intervention: political advocacy, small physical infrastructure projects for mitigation of disasters at the level of individual communities, and improving livelihood resilience. These three areas reinforced each other and created synergies towards reducing national and local vulnerability to disasters.

The case studies in this chapter detail how governments and civil society have worked together to improve national and provincial disaster policies and activities in Honduras, the Philippines and El Salvador.

Governments and civil society work together to improve national and local disaster policies and laws in Honduras and the Philippines

Honduras

Introduction

According to 2008 figures, 62 per cent of the population of Honduras lives in poverty and 42 per cent in extreme poverty.[1] In recent years, increasingly devastating disasters have led to the loss of thousands of human lives and livelihoods, exacerbating poverty levels among the population, and posing an obstacle to development. Many poor communities live in inadequate housing in perilous places such as on or below slopes or on flood plains, and contribute to deforestation and erosion through poor farming practices. These actions and settlement locations increase their vulnerability to heavy rainfall, landslides and wind storms.

Over four years, Christian Aid partners were able to help reenergise national structures for DRR and play a key role in the development of a new national DRR law for Honduras, which has the potential to benefit millions of people.

Why new national disaster policies were needed

Successful DRR is about building a sustainable safety culture with the appropriate legal frameworks and policies to support this over the long term. Advocacy is instrumental in raising awareness and for gaining acceptance and the political will necessary to make changes at all levels to reduce risks.

In Honduras, the legal framework for ensuring DRR and a coordinated response in case of emergencies was still weak and incomplete 10 years after the country was devastated by Hurricane Mitch. The existing National Contingencies Law (1991) and the 1999 reforms focused too narrowly on humanitarian response after the event, rather than addressing prevention and risk management. An institutional basis already existed in Honduras, but this was not functioning well. There was little support for education on DRR or for civil society organisations (CSOs) to implement community-centred DRR and response. There was a clear need for the law to be strengthened.

Honduran national structures for DRR

The principal institution responsible for disasters in Honduras is the Permanent Commission on Contingencies (COPECO), established in 1991. It is a public body with wide duties set out in law relating to both emergency response and prevention. The 1999 reforms narrowed the focus on emergency response and caused some confusion in relation to the functioning of the commissions and the committees at different levels. COPECO has jurisdiction over the national territory and was required, on paper, to maintain a presence at all levels: national, regional, departmental, municipal and community. In practice, the detailed hierarchy of commissions at each level had not functioned adequately for some time. In particular, the departmental commissions at provincial government level had not operated well.

The COPECO national council is chaired by the president and seven ministries are represented (but not the Ministry of Natural Resources and the Environment), alongside other public bodies and some CSOs. The law requires COPECO to take measures for coordination of the actors involved in DRR. The municipal emergency committees (CODEMs), and the local emergency committees (CODELs) are at the next level. Many of these had ceased to function due to lack of training and resources.

Advocating for improved disaster laws

At the end of 2004, civil society created regional roundtables for DRR as regional bodies to advocate for effective DRR policies to be agreed and implemented by government. Christian Aid partner the Association of Non-Governmental Organisations (ASONOG)[2] was part of this process and trained and supported the seven regional roundtables and the national roundtable to understand and advocate for DRR. Moreover, four of these roundtables – Mesas Paraíso, Olancho, Occidente and Yoro – were in areas where communities received practical assistance on DRR as part of Christian Aid's project BDRC.

ASONOG's members strengthened the CODELs and CODEMs by providing training sessions and essential equipment, and by helping communities organise themselves to reduce risks and also to be able to respond effectively to disasters. This work acted as a catalyst for discussions relating to the relevant laws on emergencies and what improvements were needed. It provided the strong institutional basis to raise awareness, strengthen buy-in at community level and undertake disaster risk reduction actions.

In 2006, ASONOG started to advocate for improvements in the disaster law. It worked with the regional roundtables and agreed a three-year plan.[3]

During this time representatives of the regional roundtables, partners and communities were all trained in DRR and advocacy strategies. The regional roundtables were used for 'downward' advocacy to build awareness and strengthen links between civil society and local government. Members of the regional roundtables worked directly with communities, providing DRR education and taking issues from the communities – such as riverbank erosion due to unregulated extraction of sand and stone – to the roundtable discussions.

During year one, ASONOG worked to show that the existing laws did not sufficiently address community needs or address DRR or climate change adaptation, and that a

revised law was needed. The regional roundtables met with the national roundtable to define their political position, national advocacy plan and activities. These discussions led to the proposal of a new law.

During year two, two regional roundtables started drafting what became known as the SINAGER[4] Law and advocating directly with government. The western regional roundtable lobbied the national roundtable to take SINAGER on board and present it to congress.

The BDRC project provided additional support and momentum. Christian Aid partners ASONOG and Mennonite Social Action Commission produced training materials and trained 11 partners and four regional roundtables on how to carry out effective advocacy. They then helped the groups organise and plan their advocacy work. ASONOG and BDRC partners participated in five consultation meetings to discuss and analyse draft versions of the SINAGER law and they reviewed and commented on at least 10 drafts of the law before it was passed in 2009.

The national roundtable took the SINAGER draft to congress and together with ASONOG accompanied its discussion and modifications in 2007 and 2008. The other BDRC partners worked with the regional roundtables to maintain pressure. The BDRC project and Christian Aid partners significantly contributed to the passing of the SINAGER law and strengthened disaster structures at all levels in Honduras. It provided step-by-step awareness raising, organisational training, community involvement and advocacy support over a sustained period, allowing sufficient time for the law to be developed, revised and ratified.

Challenges

In 2009, there was a constitutional crisis in Honduras caused by a political dispute over plans to rewrite the constitution – which culminated in the forced exile of President Manuel Zelaya by the Honduran military and the swearing in of Roberto Micheletti as interim president. This created a 'state of exception', suspending civil liberties

Below: former COPECO commissioner Marco Burgos, during a public forum on DRR accountability hosted by Christian Aid. Marco played an important role in promoting the SINAGER law

ASONOG

and delaying all pending parliamentary matters, including the passing of the SINAGER law. During this period BDRC partners had to redouble their efforts to make congress restart the discussion of the SINAGER law.

In addition, during 2008/09, Honduras was affected by one tropical cyclone (Alma); flooding in the Colón, Comayagua and Copán areas; an earthquake in the Roatán, Guanaja and Puerto Cortes areas that affected 50,136 people; and a severe drought spell affecting 250,000 people:[5] these helped to raise the profile of disasters and subsequently advocacy efforts. Therefore congress was forced to act. The roundtables organised and lobbied to ensure strong wording in the clauses of the law relating to disaster prevention, mitigation and preparedness. They also secured agreement for the civil society national roundtable to be institutionalised in law, permitting civil society representation on the main SINAGER executive committee. Civil society representatives for SINAGER would be selected by the president from three organisations proposed by the national roundtable.

Impact of the action

The SINAGER law was finally passed in August 2009 and implemented in October 2010. The objectives set out in ASONOG's original advocacy plan were achieved, as follows:

- All government institutions are required to consider DRR in their plans and projects.
- Local governments must designate a budget for DRR in their constituencies.
- The Ministry of Education must incorporate DRR into educational plans.
- COPECO must focus on disaster prevention (preparedness and risk reduction) as well as emergency response.
- The regional and national civil society roundtables are part of SINAGER executive committee and they decide how the law will be implemented.
- Greater coordination between government bodies responsible for emergency response and COPECO has been seen during recent emergencies.

At present ASONOG and COPECO are working together to disseminate and improve understanding of the SINAGER law and its requirements. As such, the regional roundtables, local authorities, CODELs, CODEMs and communities are much more aware of their responsibilities according to the new law and now have the knowledge to take action.

The new SINAGER law is more holistic and addresses prevention, mitigation, adaptation and emergency response and makes government institutions more accountable to citizens. It provides the institutional basis for organised collective action and participation from all levels of society. It benefits all citizens in a number of ways:

- The most direct impact is the budget increase that municipalities now have to allocate to DRR. This will translate into infrastructural mitigation work, training on preparedness and risks mitigation and the organisation of communities and municipal teams to respond in an organised manner in the event of a disaster.
- Communities are now appropriately represented through the CODELs and CODEMs, so they can have a say on how SINAGER is implemented. CODELs work with the relevant mayor who can take their concerns to COPECO. This has enabled better linking of the concerns of remote communities to a dedicated department of the president's office.
- The eastern regional roundtable in El Paraíso has introduced DRR into the school curriculum and issued municipal ordinances to prevent communities building in high-risk areas such as slopes or flood plains. Households have also been instructed to manage waste better and to reforest degraded slopes.

'You cannot talk about development processes without talking of disaster risk and vulnerability reduction. If you don't factor this in, development gains are lost… you need to tackle tactical and structural issues at the same time. Civil society can help communities with the tactical and practical things they can do to reduce risks, but if the government does not take care of the technical and structural factors, DRR is not effective, as the particular community gains are lost. Local and national level progress are equally important.'
Ramiro Lara, manager, ASONOG

The Philippines

Introduction

The Philippines is an archipelago consisting of more than 7,100 islands. Due to its geographical location and topography it has numerous active volcanoes and faultlines, and is frequently exposed to typhoons and storms, leading to flooding and landslides. The country is also affected by the El Niño climactic pattern. This warming of the surface water of the eastern and central Pacific Ocean occurs every four to 12 years and causes unusual weather patterns globally.

According to official figures, 26.5 per cent of the population (24.38 million people) live in poverty.[6] Many of these are subsistence farmers or unskilled labourers. A high number of natural hazards combined with vulnerable communities has resulted in high incidences of death, injury and loss of assets in the Philippines, trapping many people in a cycle of disasters and poverty.

Why new national disaster policies were needed

Prior to 2010, Philippines legislation treated disasters as inevitable and was primarily focused on emergency relief, which was heavily centralised. Therefore very little action was taken by the government to reduce the risk of disasters or prepare communities for an impending hazard. As a result, many people died or lost valuable assets in the immediate aftermath of a disaster.

In the event of a disaster, the Philippines president would declare a State of Calamity. As government funds for relief efforts could only be mobilised 24 hours after this declaration, vulnerable people had to wait for a disaster to occur before they could get any help.

In addition, the intensity and frequency of storms, typhoons and droughts are increasing in the Philippines, so the need for a change in the national law became even more pertinent. Decentralisation of processes was necessary, given that the Philippines consists of so many scattered islands. Communicating the disaster to and waiting for action from central government can cause a significant time delay in supplying relief.

Advocating for new DRR laws

One of the first steps in improving the Philippines law in relation to DRR was changing the mindset of key decision-makers in congress. There were legislative bills on DRR filed in 1998 and while none were passed into law, these bills did help to move thinking towards preparedness and risk reduction as opposed to the principal focus of response.

In 2007, Christian Aid partners engaged government agencies in formulating the Strategic National Action Plan (SNAP) as the country's commitment to DRR; this plan was based on the Hyogo Framework for Action (HFA). The SNAP was a roadmap detailing where the Philippines wanted to be in 10 years. It had a clear direction and set indicators to measure progress. This was presented to congress as a proposal for DRR policy.

The DRR Network of the Philippines (DRRNet)[7] – a network of more than 300 institutions and individuals – was convened in 2008 to advocate for more national and local commitment to DRR and for law reforms. Christian Aid partners were instrumental in convening DRRNet, which includes members from international and local NGOs, communities, practitioners, academics and government agencies. The Ateneo School of Government provided key support by acting as the secretariat and providing a legal adviser to the network. World Vision in the Philippines and Buklod Tao later took on the role as lead conveners of DRRNet.

The network reached a shared position on reform and identified key non-negotiables such as:

- the mandatory participation of CSOs in national and local DRR policymaking
- civil society being recognised as key actors in supporting the implementation of the law
- a focus on people and community-centred DRR
- decentralisation of DRR so that local government, communities and CSOs could have more responsibility and resources for DRR in their areas.

DRRNet targeted key DRR champions in congress to advocate for these non-negotiables to be incorporated into the drafts of the new law.

At the same time, the network generated public support by providing clear information and educational materials that campaigned for good DRR to be taken on by congress. This was done through media briefings, news articles, films and documentaries that drove home the urgency of the new law.

Key events in the Philippines helped to raise the profile of disasters and the need for a new DRR law. For example, the flooding of Metro Manila and surrounding areas by Typhoon Ketsana in September 2009 placed national policymakers face-to-face with disasters and public opinion. This combination of public and popular pressure led to political change.

Allan Vera

Above: Representatives Rozzano Rufino Biazon (left) and Teofisto Guingona III (centre), DRR champions and principal authors of the DRRM bill in the House of Representatives, together with DRRNet's Sharon Taylor (right), at the first Bicameral Conference Committee Meeting on the DRRM bill, held in January 2010 at the Philippine Senate

Challenges

There were some challenges to this process. Decision-making was often slow, given the nature of a consensus-based network. Working at all levels and regions across the Philippines often meant that information was slow to arrive. However, the Metro Manila-based members had the benefit of engaging with central government officials on a day-to-day basis and built and utilised informal ties with key leaders in congress.

Impacts of the action

In May 2010 the new Disaster Risk Reduction Management (DRRM) Act was passed in the Philippines. The law has now moved from emergency response as the main focus of disaster management towards prevention, protection and empowerment. It identifies building resilience as a national commitment and it also adopts and adheres to the principles and strategies consistent with international frameworks such as the HFA.

The results have been a more decentralised approach to DRR and disaster response, with CSOs, NGOs, communities and the private sector recognised as key stakeholders for implementing the law, in addition to government. This is recognition that effective DRR requires decentralised decision-making structures and strengthened links amongst villages, municipal, provincial, regional and national levels. The impacts of this include:

- The expansion of the National Disaster Risk Reduction and Management Council, which comprises heads of different executive agencies of government, government institutions, local government associations, CSOs and the private sector, and is mandated to oversee DRR from a national level. The Office of Civil Defence is the implementing government agency for DRR.

- The mandatory inclusion of civil society in DRRM councils, which will work with local, regional and national governments for implementation and

monitoring of the DRRM law. This is recognition of the valuable contribution of CSOs in representing and developing capacities of communities, identifying risks, accessing resources for DRR and relief, and managing volunteers during times of disaster.

- Local Government Units (LGUs) have been recognised as the front line of emergency response, poverty reduction and development planning. LGUs are now mandated to initiate DRR work through the creation of local DRRM offices. They have been given the responsibility for implementation of the law, have been provided more flexibility in the allocation of resources to do this and can be held to account by being penalised if they do not adhere to the law.

The DRRM Act imposes penalties on local government officials if DRR work is not carried out, including fines of P50,000-P500,000 (approximately US$1,150-11,500) and imprisonment of six to 12 months. Government officials can also be disqualified from public office. This is a wake-up call to local officials who now face serious consequences if they do not put DRR into practice at a local level. The law also gives LGUs ownership and flexibility in DRR programming. For example, rather than waiting for a disaster and the declaration of a State of Calamity to tap the Calamity Fund, LGUs can now utilise up to 70 per cent of the local DRRM Fund for disaster preparedness and mitigating measures.

The capacity of local government has significantly increased. Staff receive training in DRR so they understand the complexities of vulnerability and resilience. Local DRR management offices have been established which now set the direction and coordinate DRR work in their jurisdictions.

The DRRM Act is a big step in the right direction for disaster risk management in the Philippines. It establishes political commitment, recognises the need for more decentralised resources for DRR and empowers a range of stakeholders at national and local levels to be involved in decision-making.

Disasters can wipe out development gains, therefore DRR must become a national priority

Hurricane Mitch in 1998 caused such massive and widespread damage in Honduras that the president at the time, Carlos Roberto Flores, claimed it destroyed 50 years of development progress.[8]

An estimated 70 to 80 per cent of the transportation infrastructure of the entire country was wiped out, including nearly all bridges and secondary roads, and existing maps were rendered obsolete. Across the country, 33,000 houses were destroyed and 50,000 others badly damaged.

There were severe crop losses, affecting more than 29 per cent of the country's arable land and causing losses of between US$1-2bn. Shrimp production, which had become an important export, faced nearly complete destruction.

Over 20 per cent of the country's population (1.5 million people) were left homeless. In total the hurricane left 7,000 people dead and caused US$3.8bn of damage.[9]

More recently in January 2010, Haiti's Trade and Industry Minister Josseline Colimon Féthière estimated that the earthquake's toll on the Haitian economy would be massive, with one in five jobs lost.

Prime Minister Jean-Max Bellerive estimated that 250,000 homes and 30,000 commercial buildings were severely damaged and needed to be demolished, including many government and public buildings such as the Palace of Justice, the National Assembly and the Supreme Court.

Minister of Education Joel Jean-Pierre stated that the education system had 'totally collapsed' with half the nation's schools and the three main universities in Port-au-Prince affected. More than 1,300 schools and 50 healthcare facilities were completely destroyed.

Statistics like this remind us of the devastating losses disasters can cause and their serious impact on development achievement. Unless disaster risks are taken seriously by government and addressed at all levels, losses like this will continue.

Ensuring disaster risk reduction is a local government development priority in El Pito and Rio Viejo in El Salvador

El Salvador

Introduction

El Salvador's position on the Pacific Ocean makes it subject to severe weather conditions, including heavy rainstorms and droughts. These are made more extreme by the El Niño and La Niña effects.[10] It is also located within an earthquake zone. The country's history has been marked by political violence, including a 12-year civil war that left around 70,000 people dead and caused over US$2bn in damage. However, many of the social and economic problems that led to war still remain unresolved.

El Pito community is located in the Santiago Nonualco municipality, an area heavily affected by floods caused by the Jalponga River and the El Pito Stream. The communities of the San Luis La Herradura municipality are in the Jaltepeque Estuary, which receives waters from the Jalponga and Viejo Rivers. Approximately half the population is engaged in agricultural activities such as growing sugar cane, corn and rice. Tropical storms and hurricanes are typical and when the rivers flood, housing, assets and crops can be destroyed and drinking water polluted. In addition, the Rio Viejo community was isolated during floods because the access route was precarious and weak.

Why advocacy was needed

During heavy rains these two rivers often have to deal with unmanageable volumes of water coming from dams located upstream. The communities identified that this was being made significantly worse by heavy silting and damaged drains and the depletion of natural barriers due to deforestation for privately-owned cotton plantations. The government had carried out a number of infrastructure works in the early nineties to protect the cotton-producing areas, such as constructing levees and drainage systems, but had not provided ongoing maintenance.

The need to enlarge, raise, and strengthen the access route to Rio Viejo was essential to ensure the safety of the families living in the community and access for delivering essential supplies. The construction of this raised road and its corresponding drainage system required technical and financial investment that the community could not provide on its own because the project required the use of heavy machinery, specialist technical assistance and funding.

Typically resources available to local government are not sufficient to pay for this type of work. It was therefore essential for the local community to build strategic alliances with the local and national government in order to discuss and find a solution to the problem. And while a civil protection law existed that could help, many people were unfamiliar with this law or how it could be used to leverage the necessary action from government and civil society.

Advocating for essential disaster risk reduction work

Christian Aid partner Unión Ecológica de El Salvador helped partners and communities to understand watershed management and the causes of flooding. It provided some guidance on advocacy and planning. Communities then took requests for technical assistance, access to heavy machinery and funding for de-silting the river and clearing drainage channels to the Santiago Nonualco municipality. They carried out several lobbying actions to put pressure on the different governmental bodies, including:

- lobbing key players: legislative assembly, Ministry of Agriculture, local municipalities and private companies with interests or investment in the area
- peaceful public demonstrations on highways or main roads near the affected areas to attract media attention
- press conferences to highlight the problems faced by communities and present their requests and proposed solutions
- holding a 'Walk for Life' in which community members affected by flooding walked 120km to the presidential palace to demand action. On the last day social organisations and hundreds of residents of the affected communities joined the walk, attracting media and government attention
- gaining additional lobby support from local rural groups and associations, such as the National Movement of Rural Communities Affected by Flooding, which advocated in the National Legislative Assembly to demand the inclusion of protection works in the national general budget
- raising funds to contribute to improving the road by negotiating with Moto Taxis owners in Rio Viejo to pay a levy for using the access road.

Impact of actions

These actions and negotiations brought together different stakeholders from government, private sector, NGOs and local community members to provide the resources, technical knowledge and labour necessary to carry out the proposed work. Funding came from Christian Aid's BDRC project and the local private sector. Local government provided the equipment and technical help and communities

provided their labour. Working together in this way enabled the construction of 2.4km of levees, the cleaning of eight main drains, and the repairing of two holes in the flood defences, which were caused by the floods in 2008. This could not have been achieved without this collective action.

Achievements of the BDRC project such as these have positioned Christian Aid and its partners in El Salvador as a reference actor for DRR. As a result, the government has extended an invitation to partners to be included in the national DRR plan. This will allow them to participate and represent the communities they work with in national and local DRR planning in the country.

Below: Christian Aid partners organised a peaceful 120km Walk for Life to the presidential palace to put pressure on the government to commit resources to DRR work

ACUDESBAL/Alfiño Nuñez

Conclusion

Successful DRR is not just about avoiding risks; it is also about building a sustainable culture of safety with the appropriate legal frameworks and policies to support this in the long term. It requires good governance – a collective effort, and is the responsibility of governments, civil society, communities, international development agencies, and private companies alike. This joint approach can be difficult to nurture and often advocacy can be extremely useful in raising awareness and profile of disaster risks and acting as a catalyst for negotiations.

Twigg explains that governance, which is made up of legal/regulatory, policy and institutional components, requires political consensus on the importance of DRR to make it a policy priority, then the development of a clear strategy and implementation plans at national and sub-national government levels with understanding of and support for a community vision.[11]

It is important to remember that this takes time and requires planning, commitment and continuity. Major advocacy gains are not accomplished within a typical one to two years project timeframe, for example. The five years of the BDRC project provided a longer timeframe for overarching advocacy work and helped to maintain the momentum of this work over a longer period.

The skills acquired by partners, communities and those involved in this process will outlive the life of the project and continue to contribute to good governance for DRR and reducing vulnerability to disasters.

Changes to the law signify political commitment to DRR, yet this is a starting point. It is usually the practical implementation of policies and laws that fall short of their promises. International studies such as the UN International Strategy for Disaster Reducation *2009 Global Assessment Report*[12] and the Global Network of CSOs for Disaster Reduction report *Views from the Frontline*[13] state that progress fades as activities get closer to vulnerable people – overall progress at community level is often very limited. This means that while appropriate policies are vital they are not enough. There need to be clear plans, budgets and institutional structures for implementation and putting policies into practice.

Endnotes

1. IDB Country Strategy Honduras, 2008, p1, www.iadb.org/en/countries/honduras
2. Members of ASONOG are: ADEVAS (Agencia de Desarrollo del Depto Ocotepeque Valle de Sensenti), ADROH (Asociación para el Desarrollo Rural de Honduras), AESMO (Asociación Ecológica de San Marcos de Ocotepeque), APDI (Asociación Popular de Desarrollo Integral), ATRIDEST (Asociación del Trifinio para el Desarrollo Sostenible), CASM (Comisión de Acción Social Menonita), COPRAOL (Cooperativa Regional Agrícola Ambiental de Occidente Limitada), COPROCAA (Comité para la protección del Cerro Azúl), DIA (Desarrollo Integral Alternativo), Hermandad de Honduras, OCDIH (Organismo Cristiano de Desarrollo Integral), ODECO (Organización para el Desarrollo de Corquín), PILARH (Proyectos e iniciativas locales para el Autodesarrollo Regional de Honduras), and UTC (Unión de Trabajadores del Campo).
3. In the end it took four years to implement the plan due to political instability in 2009.
4. SINAGER is the Spanish acronym for the National System for Disaster Risk Management.
5. EM-DAT – The International Disaster Database, Centre for Research on the Epidemiology of Disasters, www.emdat.be/database
6. '2009 Official Poverty Statistics', Philippines National Statistical Coordination Board, 2011, www.nscb.gov.ph/poverty/2009/Presentation_RAVirola.pdf
7. Christian Aid Partners involved in DRRNet include Social Action Center (SAC) Infanta, Fellowship for Organizing Endeavors Inc (FORGE), Panay Rural Development Center Inc (PRDCI), Social Action Ministry (SAM) Ipil, Marinduque Council for Environment Concerns (MACEC), Coastal Core Sorsogon (CCS), Community Organization of the Philippines Enterprise Foundation (COPE), Manila Observatory, Ateneo School of Government (ASoG), and Unlad Kabayan.
8. 'Mitch: The Deadliest Atlantic Hurricane Since 1780', National Climatic Data Center, 2004, http://lwf.ncdc.noaa.gov/oa/reports/mitch/mitch.html
9. Ibid, and 'Central America after Hurricane Mitch – Honduras', Inter-American Development Bank, 1998, www.iadb.org/regions/re2/consultative_group/backgrounder2.htm
10. The El Niño phenomenon is the warming of the surface water of the eastern and central Pacific Ocean. It occurs every four to 12 years and brings about unusual weather patterns globally. La Niña is the counterpart of El Niño and is a cooling of the sea surface in the equatorial eastern and central Pacific Ocean.
11. John Twigg, *Characteristics of a Disaster-Resilient Community*, DFID, 2007, p12, www.proventionconsortium.org/?pageid=90
12. *2009 Global Assessment Report on Disaster Risk Reduction*, UN, 2009, www.unisdr.org/publications/v.php?id=9413
13. *"Clouds but Little Rain...": Views from the Frontline*, Global Network of Civil Society Organisations for Disaster Reduction, 2009, www.globalnetwork-dr.org/images/reports/vflfullreport0609.pdf

HYOGO FRAMEWORK FOR ACTION PRIORITY AREA 2

2. KNOW THE RISKS AND TAKE ACTION

Identify, assess and monitor disaster risks and enhance early warning

Understanding risk is critical for reducing vulnerability to natural hazards. It is essential that communities and countries understand the cause and effect of risk, that they can identify risks and have the knowledge of how they can reduce risks. It involves observing, forecasting, recording, analysing and mapping of hazards and vulnerability at all levels – from village to national level – in order to inform appropriate evasive actions. Tools are needed to enable this to be done in a way which is inclusive and fully involves citizens and government alike, in decision-making and design.

Most importantly, countries and people need to use this knowledge to develop effective early warning systems. When effective early warning systems provide information about a hazard to a vulnerable population, and plans are in place to take action, thousands of lives can be saved. Early warning is therefore widely accepted as a crucial component of disaster risk reduction (DRR).

Identifying and assessing disaster risks through participatory assessments in Malawi, Mali and Burkina Faso

Introduction

At the beginning of the Building Disaster Resistant Communities (BDRC) project, Christian Aid developed participatory vulnerability and capacity assessments (PVCA), based on the Department for International Development (DFID) livelihoods framework and other participatory rural appraisal (PRA) tools such as the Red Cross' VCAs.

We found that the PVCA process enabled communities and those most vulnerable within them to analyse their own problems and risks and to find solutions. It also helped organisations and local authorities to understand community level risks and how community members perceive and respond to these threats to their lives and livelihoods. It supports the identification of key resources and capacities available in an area to help reduce risks and encourages locally owned action plans and collaboration.

PVCAs are tools which can complement and verify baseline information, to aid with measuring progress and the impact of a project. They strengthen the participation of beneficiaries in decision-making and optimise the relevance and appropriateness of the action or project and as such promote value for money. We have found it to be an empowering tool which reinforces people's capacity for collective action. An independent evaluation praised the PVCAs for increasing participation in decision-making processes.[1]

Malawi

Why were PVCAs important in Malawi?

'Before we were giving goats when they wanted maize seed. Now we are providing what they want.'
Field coordinator, Christian Aid partner ELDS

Prior to the BDRC project in Malawi, partners had often based interventions on assumed historic norms and on symptoms such as food scarcity, rather than investigating with communities the many underlying factors contributing to disasters. They felt bound to respond to project plans predetermined by donor agreements. As such, previous assessments tended to focus on bringing in additional resources to fix a single problem, rather than approaching it holistically and looking at what resources and capacities were available locally to help tackle the problem.

PVCAs significantly changed local NGOs' approach towards a more holistic multi-stakeholder partnership approach, with beneficiaries' views becoming an essential element of decision-making. They became an important steering element for the DRR work. It was a truly participatory process that was introduced at an early stage, opening dialogue channels between community members, local authorities and partner organisations and subsequently informing the design of the project.

How they did it

PVCAs comprised two major steps, a team-building workshop followed by community assessments.

The team-building workshops were an essential part of a successful PVCA. They helped to:

- define the role of team members in the process of vulnerability assessments
- create a common understanding of the basic DRR concepts such as hazard, disaster, risk and resilience, and how to present these concepts in an accessible way in local languages
- develop a methodology for facilitating vulnerability assessments at community level.

This was done through an interactive process which encouraged the sharing of lessons and experiences from previous assessments. Assessment tools were adapted, taking into account various community development challenges such as community project ownership and sustainability, incentives and motivation, community expectations and dependency.

After this preparation, PVCAs were conducted in a number of villages in four districts, Chitipa, Salima, Nsanje and Phalombe, by Christian Aid partners Central Church of Africa Presbyterian (CCAP), Churches Action in Relief and Development (CARD), Evangelical Lutheran Development Service (ELDS) and Senga Bay Baptist Medical Clinic (SBBMC).

The findings

Communities identified the obvious risks they faced, such as drought and food insecurity, but also highlighted other hazards such as floods, HIV/AIDS, pestilence and underlying factors such as poverty and poor health that were contributing to disasters.

For example, the residents of Machemba village, Nsanje, in southern Malawi said that in the event of drought, food becomes scarce, resulting in hunger and malnutrition. Households then sell off their livestock and assets at a cheap price, providing instant cash to access food, men travel for months on end to find piecemeal work and children are withdrawn from school. As a result, many families break up due to strained relationships. Following drought, food prices often spiked which made it more difficult to access food. Poor nutrition reduces immunity and

many people fall sick and become incapacitated, especially those with HIV, which reduced their productivity. Disasters made them poorer and increasingly more vulnerable to future disasters. This pernicious cycle made the community feel very vulnerable and disempowered.

However, through doing the PVCA the village also identified its strengths – good local leadership at village level, land available for cultivation, manpower and local springs to provide water. Based on the risks they faced and the strengths they had, the villagers developed an action plan with the help of the partner organisation. They were able to fund some of the activities themselves and others required funding from Christian Aid. This included building grain banks, setting up savings schemes, water harvesting and irrigation and new agricultural practices.

Impact of action

Communities developed action plans to address the underlying problems they had identified. For example, in Phalombe, spring-fed irrigation schemes and water-harvesting ponds and treadle pumps now provide year-round water supply so that communities are not so reliant on the timing of rainfall. This means they can now grow two harvests a year rather than one and produce more food. Grain banks enable them to store surplus food in a secure place and cope with food shortages or price surges. The results have been increased production, less migration and holding onto assets. In the event of a drought, pestilence or flood, they will have a safety net of food and savings to help them recover.

The communities learnt that they were capable of undertaking a wide range of activities themselves to increase their resilience to disasters, with minimum support from external assistance. Partners have now adopted this approach in all their livelihoods projects, increasing participation of communities in decision-making and empowering communities to take action themselves.

Above: through PVCAs, community members living in Phalombe district, southern Malawi have identified ways of growing more food. Here goat dung is used to encourage algae growth in a dam. The fish that eat the algae provide one source of income

Mali and Burkina Faso

'PVCA is a good approach because people can know the risks that they are exposed to, but also they can say what they have and what they do not have to face these risks. If you say you are going to help me and you do not know where to start, maybe you will help me more when I am strong and then it's not really helping me. So the approach allows someone who comes to help to understand the weaknesses of the person he is willing to help and it allows the person who will be helped to mention their strengths.'
Jean Bazié, programme officer, Christian Aid partner ODE[2]

Why were PVCAs important in Sahalien Mali and Burkina Faso?

At the start of the BDRC project in the Sahel, disasters and DRR were not well understood by local organisations or communities. Many communities considered disasters to be supernatural or caused by the occult – or sababou in the Dioula language – and they were apprehensive about discussing or addressing them.

The PVCA process helped communities to increase their knowledge and discuss and review their perceptions of disasters. It helped them to understand the natural, environmental, social and economic causes to disasters and also to identify ways to reduce these risks, and ensured that the communities' views, needs and plans on how to move forward were included in the project design.

How they did it

The PVCA process in Burkina Faso was organised around three phases: a preparatory phase (including training for partners and facilitators when needed), an execution phase and a project planning phase.

In the execution phase, the team leaders explained to the participants the context and objectives of the PVCA in the villages, including the process and the importance of this exercise. The participants discussed the local terminology used to define certain disaster risk concepts. In focus groups, community members identified the risks they faced and the underlying causes. Each group had a facilitator to guide the participants when needed and record the discussions.

Each group analysed the risks that could lead to a disaster in the village. For each risk, they evaluated the capacities of the community. Following this analysis, they created a risk map including all the hazards they identified. A series of focus groups were conducted with the elderly people in each village to create the historic profile of the disasters that affected the villages in the last 50 years.

To centre DRR into the local context, the staff from Christian Aid partner the PRA Network used well-known local proverbs in training and monitoring visits to encourage communities to engage in disaster reduction. For example, staff used the Mooré adage 'don't wait for the ghost to come into the house before you shut the doors', meaning that it is no good waiting for disasters to happen before taking action. This mixture of the familiar old and the new has increased community implementation of DRR.

In the project planning phase, participants defined realistic measures, actions, and initiatives that communities could carry out with short- to medium-term external support.

For each selected action, participants asked themselves the following questions:

- Can we do this immediately?
- Do we need resources to carry out this action?
- Can we find the resources ourselves? If yes, how?
- Do we need technical or financial support? If yes, where can we find it?

Once the PVCA and the planning were completed, participants had a chance to revise the work done and make amendments or corrections to the information contained in the documents, as well as validate the action plan and timeline.

The findings

Conducting PVCAs helped communities to see that some of their traditional practices did not protect them from recurring threats and in some instances increased risks. More importantly, they also identified actions they could take to address some of these problems.

For example, houses were traditionally built from mud without foundations, communities would build in areas at risk of flooding and they did not save food for the lean seasons. Looking at these more practical approaches and how to improve them to reduce risk meant that communities' perception of disasters moved away from being overly superstitious and fatalistic towards taking charge and practically managing risks for themselves.

Impact of actions

Now communities are using both traditional practices combined with more modern scientific measures to adapt to erratic weather patterns and reduce disaster risks.

For example, in Bandiagara, in Hama village on the Dogon Plateau, a traditional healer is believed to be someone with special powers and was identified as a capacity during the

PVCAs. Prior to BDRC, communities had been practising sacrifices with the view that this would protect them against locust infestations. However, the PVCA highlighted that pests could be controlled by other means. Communities identified the need for training in pest management, the provision of equipment for anti-locust brigades and the necessity of early warning systems so that measures could be taken rapidly to protect crops. Because of the importance that the community gives to tradition and ritual, now prayer and ritual practices are combined with these practical solutions supported by Christian Aid partners. The result is greater community preparedness for droughts, floods and pestilence.

Below: a group of women participating in a PVCA in Koro, Mali

Christian Aid/Cristina Ruiz

Civil society-led monitoring of disaster risk reduction in Burkina Faso

Burkina Faso

Introduction

The Humanitarian Accountability Partnership (HAP) focuses on accountability, from NGOs such as Christian Aid to its partners and from partners to communities. HAP can be used in both humanitarian and development work to improve accountability. HAP focuses on the responsible use of power and has a set of standards that help organisations to hold themselves to account for key commitments which are fundamental and integral to their organisation. Christian Aid has been certified by HAP since 2009.

Christian Aid decided to integrate the principles of accountability into the BDRC project in Burkina Faso to develop a shared understanding of accountability for DRR as a humanitarian agency and to assess Christian Aid and partners against HAP benchmarks, such as participation, transparency/information sharing and complaint mechanisms with communities.

Why was accountability important for DRR in Burkina Faso?

'Before there was a lot of relief assistance, but I think that without building the capacities of people, the assistance has no end.'
Biogo Yeniniaba, community development advisor, ODE

Without effective, civil society-led monitoring of DRR work, disaster risks can be missed and communities can remain vulnerable and trapped in a cycle of disaster and aid dependency. The Sahel has had a large inflow of aid over recent decades in response to recurring droughts, pestilence and food insecurity. Communities had become passive recipients of aid, accepting food aid and then falling back into the same practices, which had left them vulnerable to hazards.

Often communities did not have a say or were unable to influence where and how funds were invested. They were unwilling to challenge those making the decisions or ask for information for fear of losing this support, let alone hold them accountable for the work they were doing. Culturally people were not used to complaining about the support they received from NGOs and government-supported projects. As a result, the region has been trapped in a pernicious cycle of disasters, poverty and ecosystem decline.

The introduction of HAP to our work in the Sahel helped to change this 'dependency culture', creating space for community members to participate in discussions, ask questions and gain access to information, be part of decision-making and give their feedback on work undertaken by NGOs and government. This led them to start asking why disasters are happening over and over again.

How accountability was integrated into DRR

Christian Aid's partners received training in the concept, principles and standards of HAP. Each partner organised a HAP familiarisation session with community representatives. Each committee subsequently planned and carried out an implementation session with the community, supervised and advised by a member of the project staff. The committees then coordinated the activities in their villages as part of the BDRC project.

Our partner the Alliance Technique d'Assistance du Développement (ATAD) took the following steps:

- Creation of the local level monitoring committees (CSBs) during the first semester of the project. They carried out informative workshops in the municipalities of Tin Akoff, Markoye and Oursi, including the participation of both civil society and municipal authorities, and then created the committees in January 2010.
- Monitoring training for the CSBs – ATAD provided training to the four CSBs using two consultants from CdC-CSLP,[3] a network of civil society organisations that monitors the implementation of the government's strategic plan to fight poverty.

Impact of actions

DRR/HAP has been a learning process for the monitoring committees. The project has enabled them to monitor the actions of both government and NGOs and to openly and constructively express their views on project activities. The main achievement was the empowerment of the communities to be much more active in decision-making and monitoring and questioning work carried out by others. They identified an increased sense of ownership of the work they were doing and have said they no longer feel like passive beneficiaries but as active partners.

Tindono Tibandiba, the chairman of a BDRC monitoring committee in Kargono village, stated: 'Before we waited for someone to come and help us, but through BDRC and HAP we have understood that we must move to find our own solutions. In the past we could see the things that were not working properly, but we did not complain because it could mean that that aid would stop… in the past people would come and help us and we accepted this help even though it might not correspond to what we wanted, we accepted it without saying anything.'

'What we now have thanks to DRR/HAP is that we are consulted about our concerns before they try to help us... this is something new as before they came to do things without taking notice of what our problems were. With DRR/HAP they ask us what they would need to do before helping us. The project taught us what are the steps we need to take to explain our situation to people, something that in the past we did not know how to do.'
Bourgou Moussa, shepherd and farmer, Kargono village

Above: Tindono Tibanda, pastor, farmer and chairman of the BDRC monitoring committee in Kargono village presenting the three HAP principles, which were translated into the local language Gourmanchéma with the support of ODE. The principles cover participation, transparency/ information sharing and complaint mechanisms

Now they feel able to communicate their concerns freely. For example, an NGO in the area removed a manual water pump and replaced it by a solar water pump without asking the community's opinion. The community was actually opposed to this idea since they feared that the solar pump would break down and that the village would not be able to repair it because of lack of financial resources. The solar pump indeed broke down but the monitoring committees were able to lobby the village committee for development and the NGO for the pump to be changed back to a manual pump.

It has also changed the behaviour of partner organisations. The chairman of ATAD, Constant Zango, claims that the idea of beneficiaries has evolved as a result. 'We now talk more in terms of clients who we provide a service to and their participation is now much greater.'

Communities are now more empowered to address other development concerns which effect them. Some have successfully influenced the communal development plans. For example, in the village of Kargono the main issue was the lack of healthcare services. After the monitoring committee complained, the creation of a local healthcare centre became part of the communal plan.

They have also been able to successfully advocate at local and municipal level to influence NGOs, contractors and local

government on issues related to healthcare, education and project delivery. For example:

- In the municipality of Markoye, healthcare was poor. Some patients had to pay for care and medicine for malaria, which is supposed to be free for pregnant women and children under five. Generally the quality of the medical care was poor and staff were regularly absent from the healthcare centre. After the CSBs lobbied local government, patient care has improved and information has been widely shared with healthcare staff and regional government about the national policy on malaria treatment. Pregnant women and children can now access malaria treatment free of charge.

- In the Gorom Gorom municipality, the local government budget for the implementation of the national poverty reduction strategy lacked transparency. Funds were reported to have been spent without proper monitoring. The CSB has monitored the situation and shared a report on its findings with provincial authorities.

- In the municipality of Oursi, school supplies, which are supposed to be provided free to the children by the government, have not been distributed for years; the CSB has successfully advocated at local and regional levels and this year the children have received their school supplies free of charge.

Using a DRR/HAP approach had a major impact, with communities using the skills they have learnt to successfully negotiate with parts of the decentralised government and NGOs. They now know they can have a say on how matters that affect their quality of life are undertaken. This has advanced the assessment of risks and their underlying causes and subsequently a shift in approach – from one of relief to one of building resilience.

Above: Tindono Tibanda, pastor, farmer and chairman of the BDRC monitoring committee of Kargono village, uses the manual pump that the community managed to have reinstalled as a result of its new skill in monitoring and negotiation, gained through HAP training

Conclusion

There are numerous tools available for assessing, analysing and recording risks and vulnerability – some of these are more participatory than others. However, the most important element is the process in which information is gathered and decisions are made. Introducing the concepts of full participation, transparency/information sharing and feedback mechanisms creates an environment where all stakeholders – from community to government – can air their views and inform action planning.

Greater involvement by vulnerable communities helps to improve the quality of DRR interventions by making service providers such as NGOs and government more accountable for the decisions and actions they take. It supports effective decentralised government by empowering people to become more interested and involved in local politics.

Full participation requires time and commitment, however. On average, with preparation time, PVCAs took five days for each village, which was a heavy time commitment for both staff and communities. However, the benefits were considered to outweigh this time commitment and save time and money in the long-term, as the PVCA led to greater local ownership and sustainability. Local government staff were involved in the exercise which helped to both inform them and link them to the outcomes as potential service providers. Field staff from our partners valued how the PVCAs drew out an understanding of the communities' capacities and how these could contribute to the project, which was lacking from previous top-down approaches.

'Before activities were not followed up on because community members were not involved in the programming and implementation of projects. People have now learnt that if a job is not done correctly it will have implications for all. Before, because people were not involved in the projects they did not complain, their social situation and education prevented them from knowing they had rights over a number of things that were being done for their benefit... people were used to receiving help without knowing why a project was implemented and how. Now, with the local monitoring committees and the DRR/HAP experience, the monitoring committee members make it clear to the communities that if they do not monitor and take action it plays against them, they have the obligation to open their eyes. DRR/HAP has allowed them to make communities responsible.'
Sambo Alou, CSB chairman, Oursi

Endnotes

1. Roland Roome, *BDRC Mid Term Review*, 2008.
2. ODE – Office de Développement des Églises Évangéliques.
3. CdC-CSLP – Cadre de concertation des Organisations de la Société Civile engagées dans le processus du cadre stratégique de lutte contre la pauvreté.

HYOGO FRAMEWORK FOR ACTION PRIORITY AREA 3

3. BUILDING UNDERSTANDING AND AWARENESS

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

One of the main components of a resilient community is its ability to appropriately manage its environmental and natural resources, and to understand the potential risks that are associated with these and the human interventions that affect them. Evidence shows that when people understand these risks, are well-informed about measures they can take and are motivated to act, then they can significantly reduce disaster losses.

In the 2004 Indian Ocean tsunami, on the Indonesian island of Simeulue only seven people died from a population of 83,000 people. This is because the people of Simeulue had maintained their own local knowledge of earthquakes and tsunamis, and each generation had taught the early warning signs of natural hazards to the next. When the earthquake occurred, residents knew to move inland to higher ground to avoid the tsunami. In neighbouring Aceh more than 10,000 people perished.

Building understanding and awareness of disaster prevention includes such activities as providing user-friendly information and training on risks and means of protection; promoting dialogue between different stakeholders from communities, disaster experts, scientific specialists, urban planners and government departments; seeking to innovate to find solutions to complex problems; and strengthening collaborative action.

Christian Aid has used a number of these approaches to build a culture of safety and resilience in many countries. This chapter presents some examples from Burkina Faso, El Salvador and the Philippines.

Using knowledge and education to build a culture of safety and resilience at all levels: examples from Burkina Faso and El Salvador

Burkina Faso

Introduction

The Sahel is one of the poorest regions in the world. Burkina Faso ranks 126th out of 135 countries in the Human Development Index[1] and nearly half of the population lives below the national poverty line. Poverty is worse in rural areas (52.3 per cent of the rural population are poor), and chronic malnutrition affects 42 per cent of rural children.[2]

Rainfall has become more erratic and even in years of adequate rain, food insecurity is high. The people of the Sahel have developed coping strategies over the years so they can best survive the lean periods. These include actions such as moving their herds to areas where there is still pasture for them to graze, or selling assets in order to buy food items for themselves or their herds. However, these coping strategies are proving insufficient as people are exposed to more frequent droughts, decline and disappearance of pasture and unpredictable rainfalls.

Christian Aid's disaster risk reduction (DRR) work in Burkina Faso focuses on reducing vulnerabilities through assisting communities to develop livelihoods that are more resilient to hazards such as droughts, floods and pestilence. Key to this is access to the right information and training.

Christian Aid partners Office de Développement des Églises Évangéliques (ODE) and Alliance Technique d'Assistance au Développement (ATAD) trained communities in Kargono, Ouro Hesso, Bidi, Korizena and Dambam in the Sahel region of Burkina Faso to understand the risks they were facing and in innovative agricultural production techniques they could employ to reduce the vulnerability of their livelihoods to the cyclical droughts and severe flooding that were often experienced.

Why is DRR education and knowledge so important in Burkina Faso?

The Sahel continues to be a persistently food insecure region. The region, especially the Oudalan province in the north of Burkina Faso, is in a very vulnerable situation and there is an acute need to reduce poor people's vulnerability and mitigate against risks because the climate is set to deteriorate. The meteorological and climatic predictions forecast that the Sahel region of Burkina Faso can expect an increase in both severe drought and intense rain. This can lead to serious food shortages or lead to floods, such as those in 2007 and 2008 in Oudalan province, because the drought-hardened earth has limited ability to drain water when it rains.

Traditionally most people are semi-nomadic, farming and raising livestock in a system of seasonal migration. Erratic rainfalls have made farming increasingly difficult, and herds regularly suffer from food shortage during the dry season. On average, drought lasts three months per year, but this pattern is changeable and in 2010 the drought lasted six months. Livestock rearing is the main source of income and this activity is seriously affected by insufficient pastures and water scarcity. Drought decimates herds, and forces households to sell off the remaining animals at reduced prices in order to buy food.

Other constraints facing small-scale farmers in the area include lack of arable land and access to inputs and credit,

Below: Bourgou Moussa and other shepherds and farmers living in Kargono village have developed new skills through training. They now know to pack and store 'grass balls' in order to feed their livestock during the dry season


Jerome Faucet

low level of organisation and training of rural workers, low utilisation of improved agricultural techniques for increased production or protecting soil fertility, difficulties in the storage, conservation and commercialisation of food products and labour constraints. The livestock sector is similarly underdeveloped, with poor households generally owning only poultry. This situation is aggravated by the risk of crop diseases and pests and some communities are experiencing the progressive disappearance of their vital resources and biodiversity.

What they did

The need for training was recognised by Christian Aid partners ODE and ATAD. Participatory vulnerability and capacity assessments (PVCA) were carried out with communities to identify areas of training and support that would support long-term sustainability of their livelihood activities and production.

One of the main components of disaster resilience is education and training. Twigg states that rural community members need to be skilled or trained in appropriate agricultural, land use, water management, and environmental management practices to ensure they can develop disaster resilient livelihoods.[3]

'For the Sahelien, its life is its herd. If you have a herd you can face the catastrophes, the herd is your safety net... by storing grass for the drought period we can face many difficulties.'
Jean Bazié, programme officer, ODE

To address the problem of pasture depletion and migration in Kargono, Christian Aid partner ODE arranged training for community members on a grass conservation technique. This allowed them to pack and store grass for their herds in order to withstand the dry season and avoid having to move to new pastures every time they were depleted. The production of 'grass balls' was relatively new and unusual in the village of Kargono and in the Sahel, but given the increased risk of drought, the villagers decided that they needed innovative

Below: Farmers in Kargono village work together to pack grass balls which they will store and use to feed their herds in the dry season


Jérome Faucet

farming practices to be better prepared and to protect natural vegetation from degradation, and secure their herds' intake.

'We had our own physical strength but we were not knowledgeable. As the facilitators trained us, we were able to use our new knowledge and our physical strength to do new activities and reduce our difficulties. The veterinary from the Falangoutou municipality trained us on grass mowing and storage. He showed us the whole process: how to cut the grass, dry it, put bales [balls] together and store them.'
Tindono Tibanda, pastor, farmer and chairman of the BDRC monitoring committee

This three-day training taught communities the techniques on how to bundle and store the grass and also how to calculate the number of bundles needed in order to ensure sufficient food for their herd during the drought season. For example, they learned that each grass ball weighs approximately 10kg and three balls will feed 30 goats for one day, while one ball feeds one cow for one day. During the dry season a grass ball can be sold for CFA500 (about US$1), and this in turn is an additional source of income for the household.

In another part of the Sahel, Christian Aid partner ATAD worked in six villages training communities in improved farming production and marketing techniques.[4] This led to new vegetable gardens and improved existing ones. They also started to address water issues. All six villages had insufficient temporary water sources, either human-pumped wells or natural dams. ATAD supported the construction of new water wells in two communities (Korizena and Dambam) and also helped revitalise old wells that were no longer in use in Tin-Akoff and Korizena. The wells were used for household consumption and irrigation.

'We cultivate green salad, potatoes and cabbages, as well as other vegetables that we sell and eat. Work is hard but with the support of ATAD and its partner [Christian Aid], our task has been simplified.'
Hambadou Zahara, president of the Korizena women's group

Impact of actions

If training results in successful outcomes then other community members will see the benefits and may start to replicate the actions. In Kargono, the initial 36 people who were trained in the grass ball techniques were able to support other community members and neighbouring communities and were regarded as leaders in this new method. The result has been many more people educated in ways to reduce their vulnerability to drought.

The training and investment in new agricultural techniques and water resources for irrigation conducted in Korizena, Ouro-Hesso, Bidi, Oursi, Markoye and Tin-Akoff in Oudalan province have reduced the overexploitation of natural water sources, like the dams, and have increased agricultural production levels. Each village cultivated one hectare, which gave them an approximate additional income of CFA3.5m (about US$7,300) in the harvest season. The income generated by selling vegetables allowed producers to invest in other needs, such as their children's education, buying additional livestock and ensuring access to essential food and nutrients for the household.

The training and activities implemented by the project not only broke the cycle of severe food shortage experienced by these communities, but more importantly it ensured that communities are not only more resilient and prepared, but also that they can adapt and break the cycle that rendered them vulnerable in the first place.

Educational material builds a culture of safety and resilience at all levels in El Salvador

In El Salvador, a DRR educational training kit was developed by Christian Aid partners UNES, APRODEHNI and PROCARES in coordination with the Ministry of Education, and the input of other national and regional organisations, such as the National Center for Seismologic Research from Cuba. This collective approach maximised resources and opened the door for the material to be used nationwide.

As a result, the training kit is being used by several civil society organisations and four government ministries involved in DRR: the Ministry of Health (for the preparation of technical personnel and social promoters), the Ministry of Education (included the material in the national curricula, and for training in educational centres, especially in rural areas), the Public Infrastructure Ministry (uses the kit for the training of its field technicians), and the Environment Ministry (uses the material in the information centres that are being set up in 262 municipalities nationwide).

The successful dissemination of the training material has generated a favourable climate for advancing in DRR awareness raising and capacity building at many levels – with school children, communities and also government representatives and structures. This has helped to foster a culture of safety and resilience at all levels of El Salvadorian society.

Innovating with scientists for improved resilience at all levels in the Philippines

Understanding climate science leads to better community preparedness in Quezon, Luzon Island in the Philippines

Introduction

The municipalities of Infanta and General Nakar in Quezon province are located between the Sierra Madre mountain range and the Pacific Ocean on the east of Luzon Island. They are exposed to a number of hazards such as windstorms (typhoons), floods and landslides. In November 2004, the area was hit by four successive typhoons (locally named Undig, Violeta, Winnie and Yoyong) that unleashed torrential rain, flash floods and landslides. Typhoon Winnie released 342mm of rain in a single day,[5] causing serious mudslides and resulting in a high death toll and loss of property, agriculture, livestock and infrastructure in this area. The communities along the River Agos were hardest hit. For example, 1,460 lives were lost and 334,424 hectares of agricultural land was destroyed in the municipality of Infanta.

This exposure to hazards is exacerbated by a number of socio-economic and political vulnerabilities. Quezon province is one of the 10 poorest provinces in the Philippines with over 30 per cent of the population living below the poverty line.[6] The majority of the population has to travel a long distance to access basic services such as health and education. As the primary socio-economic activity, agricultural productivity is low. Communities are engaged in unsustainable cultivation practices such as 'kaingin' (slash and burn) farming, which removes stabilising vegetation and leads to the loss of topsoil and nutrients. The subsequent erosion occurs in the upland areas and heavy rainfall results in land or mudslides. Land preparation is also a common problem due to lack of adequate farm inputs and implements, and absence of irrigation systems and drainage canals. Over recent decades there has been a lack of investment in the agricultural sector. Communities living in the coastal areas are seasonally engaged in deep-sea fishing and fish farming. Furthermore, deforestation due to illegal logging activities has increased vulnerability to landslides and flooding.

There is a history of armed conflict in the province, which in the early 1970s was a centre of rebellion against the state. Although armed confrontation between the rebel forces and military troops has significantly reduced, there are still sporadic skirmishes, particularly in the communities in the mountainous area of General Nakar. This disrupts the farming calendar and the transportation of supplies to communities. During these times, external support services

Below: a flood warning is transmitted to the local emergency committee using a two-way VHF radio

are wary of visiting communities, thereby further reducing investment in the area.

Why innovation was needed

The typhoon disaster in November 2004 compounded the existing vulnerability by depleting the communities' assets and savings and increasing poverty. The once densely forested Sierra Madre mountains that served as a protective cover against flash floods and mudslides for the inhabitants of northern Quezon were destroyed by mudslides, and farmlands further down the mountain slope were buried in mud, sand and debris. As a consequence, siltation also increased in the River Agos, thereby intensifying the risk of floods for communities located along the river. Climate change predictions for this part of Luzon suggest that rainfall is set to double over the next 30 years (with more concentration of rainfall during the typhoon season October to December and a much drier season between January and March).[7] The frequency and intensity of extreme weather conditions are predicted to increase, thus consigning communities to a heightened state of risk.

What they did

The project adopted an holistic approach, bringing together community members, local government, scientific organisations, radio networks and churches to work together to find ways to address disasters and climate change impacts.

Local organisation Social Action Centre (SAC) Infanta and Christian Aid facilitated consultation with various key stakeholders, including:

- local communities along the Agos River which had experienced disasters and were at increased risk of floods
- local scientific and meteorological agencies – the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the national government institution dedicated to providing flood and typhoon warnings, public weather forecasts and specialised climatological information; the Manila Observatory, a research institute based in the Ateneo de Manila University in Quezon City, which carries out research in climate and seismic phenomena; and the University of the Philippines National Institute of Geological Science (UP-NIGS)
- local government bodies such as the Municipal Disaster Coordinating Council (MDCC) of Infanta and General Nakar, the barangay local councils and the Barangay Disaster Coordinating Councils (BDCCs)
- representatives from civil society organisations, local churches and the civil organisation of radio enthusiasts.

The main concern arising from these meetings was the serious risk of flooding along the river and the suddenness with which it happens. Participants agreed on the need to develop a localised early warning system capable of reaching the whole community, which would be more accurate in anticipating disasters and provide timely warnings.

Climate science institutions PAGASA and the Manila Observatory provided climate change predictions and forecasts. Although these provided data on the likelihood of increased frequency and intensity of heavy rainfall and typhoons, the precise timing or location of impacts remained unclear. Indeed, with reference to typhoons/heavy rain and flooding, both the time delay and the location delay between the point of high precipitation and the point of severe flooding are extremely difficult to predict precisely. For example, heavy rain upstream may cause severe flooding in a downstream community or a community situated on the bend of a river.

Nevertheless, in terms of livelihood planning, long-term forecasting information is very useful as it shows trends and can guide people to consider their livelihoods strategies in light of climate variations. However, for extreme weather conditions the information is not detailed enough to provide concise early warning information for use by communities in or near high risk areas such as flood plains or mountainous areas, where timing between identification of hazards and impact on a community is critical to saving lives and assets.

It is also recognised that disasters are not just the product of hazards, but a combination of underlying and interrelated vulnerabilities such as social and environmental factors. Therefore, an understanding of how climate interacts with these vulnerabilities is also important. In order to overcome these knowledge gaps and strengthen the forecasting information, further investigation was required, so the project carried out a number of localised scientific field studies. UP-NIGS and SAC Infanta trained selected community members in rainfall measurement using simple, cost-effective measures such as rain gauges, water level measuring tools and metre tape.

UP-NIGS provided rain gauges that were installed in the upper and lower sections of the Agos River to measure the rainfall. SAC Infanta and the trained community members recorded measurements on a daily basis at designated places along the Agos River at set times during the morning and afternoon over several months. The amount of rainfall and the flow, width and height of the river were measured and plotted onto graphs. The height and width of the river during the peak of the 2004 floods was also recorded for comparison.

Community members also complemented the scientific findings by providing their own local indigenous knowledge via anecdotal experience and observations of changes and results of climatic conditions in their living memory. They recorded indigenous early warning indicators such as strange animal behaviour against actual weather conditions.

From this they were able to identify various scenarios linking length and intensity of rainfall in certain areas to various flooding outcomes along different sections of the river. Critical levels were then identified which would give each community a fairly accurate warning that flooding would occur in their village, but would also give sufficient time to communicate the message and evacuate the community.

The results of the field study helped to identify the appropriate location for permanent water level measuring stations that would identify when critical water levels have been reached and would result in flooding. Four permanent water level measuring stations were established in the barangay (district).[8] At these measuring stations, designated people observe the water levels in abnormal weather conditions and monitor them in comparison to the warning levels identified in the field study. When the precipitation or water levels approach a critical level, a warning is given to assigned community contacts in neighbouring communities through two-way radios since there are no cellphone signals in the mountains. Repeater stations were set-up as redundant measures to ensure that radio signals are communicated. This enables the BDCCs to mobilise and evacuate communities to the designated evacuation sites (for example, schools or higher ground). At the same time, warnings are immediately relayed to the Emergency Operation Centre of the MDCC in order for emergency measures to be activated at municipal level to support the BDCCs.

To ensure coordination, the roles and responsibilities of all stakeholders have been clearly defined and agreed. The BDCCs were recognised as being responsible for sustaining and maintaining the early warning system. The communities, as the main beneficiaries, were responsible for monitoring weather and water levels and the communication of early warning messages through megaphones and cellphones. The local radio station and the parish churches also took responsibility to assist with the immediate delivery of early warning messages in the event of an impending disaster. Community Quick Response Teams were established with standard actions and appropriate messages that were easily understood by everyone in the community.

The key ingredients of success

An independent evaluation of the project identified that the key to successful implementation of the early warning system was the development of a direct link between communities and government structures within the scientific community via UP-NIGS, the Manila Observatory and PAGASA. This was a good example of a comprehensive risk management approach that forged meaningful collaboration between scientists and local communities. Some key success factors are outlined below.[9]

1. Preparation for the project – awareness raising and training

In preparation for the project, a number of training sessions were carried out in the 17 participating barangays (five in Infanta and 12 in General Nakar). A representative sample of men and women across a variety of different age groups attended the training. Facilitated by SAC Infanta in collaboration with the MDCC, the training focused on the basic concepts of disaster risk management, the formation of BDCCs and community risk and resources maps.

In order to ensure that the training was practical and based on local community realities, the facilitators contextualised the subject and encouraged the participants to cite examples from their own communities. With the memories of 2004 still fresh in their minds, the participants were able to relate the course concepts to a real-life disaster experience. This reinforced both the importance of disaster management at community level and their commitment to reduce impacts should they experience a similar hazard in the future.

The training also included the organisational framework of the MDCC and BDCCs and their duties and responsibilities. Following the training, each barangay formed a BDCC that comprised elected barangay officials, members of local organisations, and community members (based on their capability and choice). Next the BDCCs produced a risk and resources map through a PCVA[10], showing houses at most risk and evacuation routes, which were publicly displayed in a strategic place in the village.

2. Translating complex climate science into consumer-friendly information

Climate science needs to be made available in a form that is timely, easy to interpret and easy to integrate with local climate knowledge and understanding. Communities in this project enhanced their ability both to generate and interpret storm warning and rainfall data, giving them a greater appreciation of the relevance of climate scientists and the potential of science to work for their benefit. At the same time the climate scientists involved in the project gained a better appreciation of community needs and abilities – both as generators of data and as consumers of information.

Conclusion

3. Building strong local partnerships for sustainability

The project combined the technical and institutional aspects of early warning systems effectively by building the capacities of the MDCC, and through the MDCC the capacities of BDCC and barangay residents along the River Agos were also strengthened. Thus the project demonstrated the benefits of working in partnership with a range of government and non-government actors. It also included the development of an effective communications system through the local civic organisation of radio enthusiasts.

4. A simple and effective system

It was important to keep the design of the system simple yet effective. This involved designing measuring equipment which could be easily constructed from cheap, available materials and easily maintained. By monitoring river levels at different points along the river they are now able to derive predictions of water levels in low-lying areas approximately 1.5 hours ahead of emergency situations arising. This time period is sufficient for effective warning and evacuation. Effective communication of the flood warnings to communities is facilitated by the involvement of community structure as well as the local radio and church facilities. Communities have tried and tested mobilisation and evacuation plans.

What were the impacts of the project?

The communities of Infanta and General Nakar now have a fully functioning community-centred early warning system and they have better access to local government disaster structures and climate scientists. The case study illustrates how climate change science can be introduced into community projects through consultation, training and simple field studies to ensure that an early warning system is robust to future scenarios, predictive of actual events, locally relevant and sustainable. It highlights not only the necessity for NGOs and civil society organisations to form new partnerships with climate and scientific institutions, but also the need to work with them to provide information that is understandable and practically applied at community level.

Furthermore, it highlights the importance of strengthening local structures at community and district level (in the case of the Philippines this was the BDCC and MDCC) to ensure they are able to work with scientific institutions in the longer term to ensure an adaptive and sustainable management of risk. Adaptation is more than just reacting to climate science; it must appreciate and respond to vulnerability and governance issues as well. By adopting an holistic approach such as the one detailed above, NGOs and development actors can move towards a more adaptive form of risk management for sustainable development in the face of climate change.

These case studies show that effective awareness raising and good training which is tailored to meet the needs identified by communities at risk can have exponential benefits. It is not just the transference of knowledge, but the motivation to act which is important. This motivation must come from communities who are appropriately informed to be able to see the benefit to adapting their behaviour or adopting new techniques. If people believe in an activity they will continue to both use it and promote it to others, leading to scale-up.

They also demonstrate how promoting dialogue between different stakeholders from communities, disaster experts, scientific specialists, urban planners and government departments can lead to innovation and effective early warning, but also highlight the importance of providing information and training which is appropriate for the particular audience.

Endnotes

1. *Human Development Report 2010*, UNDP, 2010, http://hdr.undp.org/en/reports/global/hdr2010
2. The analysis of poverty is based on the results of two surveys of household living conditions conducted in 1994 and 1998 and on qualitative studies of the perceptions of the poor regarding the causes of poverty. The survey findings indicate that poverty is a widespread phenomenon in Burkina Faso, and that 45.3 percent – nearly one-half – of the population lives below the absolute poverty line of approximately CFA72,690 (£93) per year. Poverty is particularly prevalent in rural areas, although its incidence in urban areas increased by nearly five points from 1994 to 1998, reaching 16 per cent in 1998.
3. John Twigg, *Characteristics of a Disaster-Resilient Community*, DFID, 2007, www.proventionconsortium.org/?pageid=90
4. Korizena, Ouro-Hesso, Bidi, Oursi, Markoye and Tin-Akoff.
5. The Philippines weather bureau.
6. National Statistics Office of the Philippines, 2000.
7. The Philippines' Initial National Communication on Climate Change.
8. Pagsangahan and barangay; Anoling in General Nakar plus barangay; Magsaysay and barangay; Pinaglapatan in Infanta.
9. Arthur Neame and Cesar Vera, *Building Disaster Resilient Communities – End of Term Evaluation*, 2009.
10. PCVAs are the same as PVCAs. In the Philippines, they prefer the capacity to be mentioned first.

HYOGO FRAMEWORK FOR ACTION PRIORITY AREA 4

4. REDUCE RISKS

Reduce the underlying risk factors

Disasters are a product of both vulnerability and hazards. Vulnerability is exacerbated by many underlying social, economic and environmental factors, such as rapid unplanned urbanisation, ecosystem decline, communities living on flood plains or on the foot of slopes, deforestation and the lack of safety nets and contingency plans.

For example, in Haiti in January 2010, more than 200,000 people were killed[1] when a magnitude 7 earthquake struck the city of Port-au-Prince. A major factor contributing to the high death toll was that buildings had not been constructed to withstand earthquakes and the lack or non-enforcement of building codes. A similar magnitude earthquake measuring 6.3 in New Zealand in February 2011, while tragic for about 180 people who lost their lives, resulted in much lower casualties due significantly to strict enforcement of strong building codes. Disasters can be reduced by applying relevant building standards to protect critical infrastructure, such as schools, hospitals and homes. Vulnerable buildings can be renovated to a higher degree of safety.

Building resilience can be achieved at all levels, but even simple techniques can play a vital role in reducing risk and vulnerability. Protecting precious ecosystems, such as coral reefs and mangrove forests, allows them to act as natural storm barriers. Helping people develop disaster resilient livelihoods can help them to resist and cope better with natural hazards. Replanting trees and increasing vegetation can impede run off and the risks of flash flooding and landslides.

Here are some case studies that show how addressing underlying risk factors can reduce vulnerability to disasters.

Developing disaster-resilient communities in El Salvador and India

El Salvador

Introduction

El Salvador is highly vulnerable to hurricanes, tropical storm and droughts due to its location on the Pacific Ocean. These weather hazards become more extreme during the El Niño and La Niña phenomena.[2] The country is also located within an earthquake zone.

Many of the social and economic problems that led to the civil war in the 1990s still remain unresolved and poverty and vulnerability to disaster remain high.

In El Salamar, the majority of the population are only educated to a basic level and live in precarious conditions on state-owned land. This forces many families to settle in mangrove swamp areas that are prone to flooding. Houses are typically made of mangrove wood, coconut leaves and worn-out metal sheets. People depend mostly on catching crabs and marsh clams, which earn them approximately US$1 per day. They also plant traditional crops for family consumption and sometimes work as day labourers in the sugar cane plantations or cutting banana leaves. Income levels are low and most families live on or close to the poverty line.

The importance of resilient livelihoods in El Salamar

The communities of the San Luis La Herradura municipality are set in the Jaltepeque Estuary, which receives waters from the Jalponga and Viejo Rivers. As a result of the tropical storms and hurricanes that routinely affect the area, these rivers overflow, damaging the land where the El Salamar and El Chingo communities are settled. The floods destroy their homes and livelihoods. They are prevented from going into the swamps to catch crabs and this can force them to migrate to cities and to sell their labour and assets at extremely low prices to make ends meet.

Although the El Salamar community has learned to prepare for and respond to emergencies, people have not focused on protecting their livelihoods from disasters. With frequent flooding, many families were caught in a pernicious cycle of poverty and disasters. The lack of income meant that they could not afford to settle on better land, parents could not afford to send their children to school, and adults had to migrate to cities to try and find work. The development of more resilient livelihoods was imperative in order to break this cycle and enable people to develop out of poverty.

What they did

Christian Aid partner Asociación para la Promoción de los Derechos Humanos de la Niñez en El Salvador (APRODEHNI) carried out a participatory vulnerability and capacity assessment (PVCA) with the communities in El Salamar to identify risks and their underlying causes and decide actions required.

The El Salamar community identified the need to diversify their traditional livelihoods base and include activities which would not be affected by flooding. People also wanted a way to store surplus food safe from water and pests. In response APRODEHNI trained the community on cultivating new crop varieties that are more resistant to floods or drought, such as dry season vegetables, sago[3] and rice, and also the use of terraced kitchen gardens to provide vegetables to supplement families' nutritional intake. They also designed and built raised chicken huts (on stilts) to enable families to produce chickens and eggs and have an additional source of food and income which could withstand the yearly floods.

A group of people were trained in metal welding in order to build water-tight grain silos and chimney cowls for wood saving stoves. The silos keep grains and seeds safe from flooding and pests, enabling families to secure food for lean periods, or store their grain until market prices are more profitable.

Impact of actions

The success of the project was tested during Tropical Storm Ida in November 2009. Heavy rain caused floods and landslides throughout the central part of El Salvador. The floods destroyed water, electrical and telecommunication systems, and damaged roads, health and educational centres, affecting approximately 75,000 people.

In the project area:

- **Ninety per cent of the chicken huts were unaffected, meaning families maintained a key element of their livelihood, and were able to recover quickly from the damage caused.**
- **The new crop varieties planted (sago) in the terraced kitchen gardens were not destroyed by the floods. Of the families that had adopted this technique, 80 per cent reported no loss after Storm Ida. In contrast, most families that had continued planting traditional crops on flat land had serious flood damage.**

The project also had an impact during normal times. Each family that constructed a raised chicken coup was given 12 chickens. These lay approximately 15 eggs per day, which can sell for US$3. This has given families better food security and a chance to trade and earn extra income.

Small local businesses enterprises also benefited from the project. Grain silos and chimney cowl production boosted

local tinplate micro-enterprises and have proved to be a good source of income generation for the local communities as they have been able to market or repair these for farmers both inside and outside their communities. One of those trained was a woman called Doña Ernestina, who is now working in the west of the country training farmers to build silos, which brings her additional income.

By employing some of these techniques, community members can now earn up to an additional US$200 a month and maintain their livelihoods even through times of disaster. This has enabled people to start new businesses, send their children to school and improve the houses they live in, further increasing their resilience to the hazards they face.

Addressing underlying risks can reduce impact

The city of Shimla in northern India is built precariously on steep slopes high in the mountains. It is in a high seismic risk zone, but many of the old buildings were constructed before modern earthquake-resistant building technology was developed And they pose a significant threat to life in the event of a quake.

The earthquake in neighbouring Pakistan in 2005 demonstrated the extent of this risk when hundreds of children were killed in their classrooms. In this instance knowledge of what to do in the event of an earthquake and retrofitting buildings so that internal furniture and fittings do not fall and injure people can save hundred of lives.

Between 2005 and 2007 Christian Aid partner Sustainable Environment and Ecological Development Society (SEEDS) implemented an earthquake safety in schools project in Shimla, with funding from the European Union's DIPECHO programme. SEEDS worked with government agencies, the education department, civil defence, home guards, fire and police department and local school teachers to promote a culture of disaster safety in schools and help schools to prepare disaster management plans and emergency task forces.

More than 11,000 teachers, local authorities, parents and children in more than 20 schools were trained in the appropriate action to take in the event of an earthquake such as 'duck and cover' and safe evacuation. This is now rehearsed though holding regular earthquake drills. SEEDS also trained local builders and masons in safer building techniques and carried out structural retrofitting in five schools to make them safer.

This work informed more disaster risk reduction (DRR) activities, such as 'Reducing Vulnerability of School Children to Earthquakes in Asia-Pacific Region-Shimla, India', in 2008, supported by the United Nations Centre for Regional Development.

Developing disaster-resilient communities in the Philippines

The Philippines

Introduction

A sustainable livelihood does not only refer to the adoption of hazard-resistant income-generating activities (such as planting drought-resistant crops), but on combining an array of components that will diversify the income sources for that family and community, and diffuse the risks.[4]

Christian Aid partner Panay Rural Development Center Inc (PRDCI) carried out community level participatory capability and vulnerability assessments (PCVA) in Sianon barangay (district) in 2007.[5] Sianon is in Iloilo Province, Western Visayas region and is divided into three sitios – Sianon Proper, Taratara and Janiuay. The region is hilly, with 60 per cent of the landmass in upland areas, and is subjected to extreme weather.

For the population, the main way of making a living is farming, in particular rice. Rice has two cropping seasons, in May to September and October to December/January. Planting on average approximately 0.7 hectares each household can earn around US$200 per year from two crops. Some supplementary crops such as sugarcane, bananas and coffee are also grown, but not on a wide scale. Therefore households tend to rely on one crop (monoculture) for their income.

The importance of building resilience

Participants in the PCVA identified many risks to their livelihoods which were serious, impeding their development and wellbeing. These included the following:

- A noticeable change in rainfall patterns since the early 2000s. The first rains of the rainy season were often late but then followed by extremely intense rain.
- More incidences of drought with erratic or insufficient rainfall.
- An increase in intense rain and wind storms (typhoons) causing landslides and floods.
- Soil degradation caused by deforestation leading to run off and flash flooding.
- Pollution caused by improper use of chemical pesticides and fertilisers.
- Rising costs of farming inputs, eg fertilisers, pesticides and seeds, leading to greater production costs.
- Fluctuating market price for rice and other crops and fluctuating food prices.
- The monoculture of rice farming that they practise puts them at particular risk. The paddies are located in valleys and low-lying ground and in the event of storms or drought their seasonal income can be lost completely.
- Houses and farms on slopes and at the foot of slopes are at particular risk from landslides.

Typhoon Frank hit the area in June 2008. This highlighted the vulnerability of the communities and demonstrated the impact of hazards on people's lives and livelihoods, as the typhoon damaged crops and houses, caused landsides and destroyed one of the footbridges. As a result, people were more resolved to reduce the impact of future hazards and in August 2008 PRDCI and the communities in Sianon began to implement the Building Disaster Resilient Communities (BDRC) project.

What they did

Through the BDRC project, the community took an holistic approach to addressing risks to livelihoods. Each activity was designed to address one or more particular hazards or the cumulative affect of risks on people's ability to make a living. The work was carried out in Sianon by Christian Aid partner the Philippines Network for Rural Development Inc (PhilNet-RDI) and one of its network partners PRDCI, with funding from Christian Aid and DFID. The barangay council provided additional materials such as galvanised iron pipe, timber and bamboo for constructing the footbridge, seed banks and nurseries. Community members provided labour and some materials and local organisations such as the Barangay Sianon Water Association and Sianon Young Builders Association helped with community organisation.

To address the flood risk to their monoculture, farmers were encouraged to diversify by growing more varieties of crops and including flood-resistant plants such as taro. They were trained in sloping agricultural land technology (SALT). This enables farmers to grow rice on hilly land out of the flood zone. They planted trees and other vegetation such as grasses to combat ground saturation and flash floods.

Constructing a community seedbank provided farmers with seeds to replant and to recover their livelihoods in the event that their crops are destroyed by floods. An indigenous but forgotten practice of raised bamboo planters was reintroduced to grow vegetables above the flood levels. These bamboo planters can also be brought with residents in case they are forced to evacuate.

Farmers were trained in organic farming techniques, such as composting and organic pesticides, to reduce pollutions and address their dependency on expensive artificial chemicals.

Organic pesticides are less harmful to the environment and cost less to make.

Trees and vegetation (such as cogon grass) were planted on slopes and along riverbanks to counteract deforestation and prevent runoff and soil erosion. Drainage channels were constructed to help impede flash floods and prevent landslides.

To address drought (erratic and unreliable rainfall), farmers were trained in the cultivation of drought-resilient crops such as root crops, legumes, pigeon peas, pineapple, malunggay and fruit trees, for example, siniguelas (a type of plum), chico (sapodilla) and avocado. Assistance was given to install rainwater harvesting systems to provide irrigation water during dry spells. They also received technical advice to improve intensification of rice farming.

People established a simple early warning system and identified evacuation centres. They developed community risk maps and DRR plans and consolidated these at barangay level. The communities' disaster committees took action to improve the footbridge to allow residents to evacuate during a flood.

Impact of actions

An independent evaluation was carried out a year after the project completion. The evaluation recorded the following lasting impacts:

- All of the 40 farmers trained in natural farming techniques were using self-produced organic fertilisers and soil improvers.
- There was a measurable increase in the number of crop varieties planted, with up to eight different crop types per farm in comparison to the previous rice monoculture.
- Farmers reported an average increase of US$120 per year due to both increased yields and reduction in cost of fertiliser and farm inputs.
- All of the 22 farmers trained in Masipag rice technology (a rice production approach towards

Below: vegetables can be grown above the flood levels using a simple system of hanging bamboo poles

sustainable use and management through farmers' control of genetic and biological resources, agricultural production and associative knowledge) had adopted rice intensification using a sturdy rice variety. This covered a total of 22 farm plots, approximately 5.5 hectares.

- The four SALT demonstration farms, covering 1.5 hectares, were functioning well.
- A community seedling nursery had been established, providing the seedlings for 85 per cent of households in the project area. Many farmers were also now producing their own seedlings.
- The community had established a composting facility near the seedling nursery, producing cheap and easy to produce organic fertiliser.
- The community had established a system for storing seeds in seed banks. Regular contributions were being made by each farmer. The seed banks now contain sturdy rice, 13 kinds of vegetables and five varieties of legumes – enough for at least two cropping seasons. The seeds are collected, air dried, sorted and stocked. Farmers who use seeds from the store are asked to return double.
- Several innovative practices had been adopted by the communities. One called 'tulakbong' (to cover) uses plastic sheets stretched on bamboo frames to protect young plants from heavy rain; the sheets can be rolled up and stored during the summer. Another technique uses netting to cover plants to protect them from pests.
- There was a small but measurable multiplier effect. Fifty per cent of households were now harvesting their own vegetable gardens even though only 40 per cent had been trained. All households reported a healthier and more diverse diet. They said they seldom have to buy vegetables, so their food bills have decreased, and they now harvest more crops, providing some to sell.
- Food storage facilities have been established, providing an emergency food stock for use in the time of disaster. Emergency food committees had also been established.
- Rainwater harvesting was being practised across the whole project area. A total of 20 tanks had been installed (six per site) and 15 ponds had been constructed.
- Each site had a 15-member emergency committee with equipment for search and rescue such as medical kits, stretchers, flashlights and tarpaulins. They had received training from the Philippines navy.
- A higher and sturdier footbridge of concrete and bamboo slats had been constructed. This connected Janiuay and Proper and was more resistant to extreme weather.
- Periodic clean ups of waterways took place to prevent build up of rubbish and increased risk of flooding. In support, the barangay council banned the disposal of rubbish in waterways.
- The 10 women trained in food storage had formed a committee and were producing disaster food packs made from dehydrated cassava, squash and saluyot leaves and meat flakes, produced with the help of the University of the Philippines Visayas School of Technology.
- Weekly weather forecasts continue to be posted regularly in the barangay halls by PRDCI, using information from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). Community members reported that this information was helping them to plan their farming better.
- Since the completion of the project, the community has formed a farmers' association called the Sianon Organic Rice and Vegetable Farmers' Association, with help from the Department of Labour and Employment. They have been exploring business opportunities such as production of organic pesticides for sale, food processing such as pickled ampalay (bitter gourd) and beans.

Conclusion

Building resilience involves taking a collection of actions to address numerous social, economic and environmental causes of disasters. This involves first careful and thorough identification of risk followed by careful analysis and planning to ensure that the action taken is appropriate and does not increase risk elsewhere.

There is evidence that developing disaster-resilient livelihoods has dual benefits of reducing vulnerability to disasters and increasing incomes and opportunities for vulnerable communities. These case studies show that this type of work can lead to increased yields, reduced cost of inputs and overall increased income and development of community safety nets such as food stores. As such they represent excellent value for money.

Endnotes

1. *World Disasters Report 2010: Focus on Urban Risk*, International Federation of Red Cross and Red Crescent, p11, www.ifrc.org/Global/Publications/disasters/WDR/WDR2010-full.pdf
2. The El Niño phenomenon is the warming of the surface water of the eastern and central Pacific Ocean. It occurs every four to 12 years and brings about unusual weather patterns globally. La Niña is the counterpart of El Niño and is a cooling of the sea surface in the equatorial eastern and central Pacific Ocean.
3. Sago is a starch extracted from sago palms and is used to make flour. Sago flour can be used in soups, refreshments and puddings, improving nutritional intake, especially in children.
4. John Twigg, *Characteristics of a Disaster-Resilient Community*, DFID, 2007, www.proventionconsortium.org/?pageid=90
5. Participatory capability and vulnerability assessments (PCVAs) are the same as participatory vulnerability and capability assessments (PVCAs). In the Philippines, they prefer to mention the capability first.

HYOGO FRAMEWORK FOR ACTION PRIORITY AREA 5

5. BE PREPARED AND READY TO ACT

Strengthen disaster preparedness for effective response at all levels

Even when effective disaster risk reduction (DRR) measures are in place, there will always remain some residual element of risk that cannot be avoided because it is either too costly or technically unfeasible to completely eliminate. Therefore disaster preparedness remains equally important as it deals with measures and capacities required to address this residual risk. Being prepared involves being able to identify and anticipate risks and take the appropriate action to avoid or avert the greatest impacts.

This involves improving public understanding of risks and preparing people for hazards; strengthening management and coordination structures; improving communication and early warnings; response readiness, such as evacuation and standby arrangements and the provision of essential services and supplies; and the development of emergency funding mechanisms.

Reaching an effective preparedness level, with the ability to define and carry out preparedness plans, requires certain foundations that are discussed in earlier case studies, such as making DRR a priority, knowing the risks and awareness raising.

However, the success of preparedness culminates in people and institutions knowing what to do when threatened by a hazard. It is vital that this knowledge exists at every level of society – citizens from different social and economic groups, schools, service providers and local and national government officials. There must be active participation from all these groups to ensure an efficient and effective system which protects lives, assets and livelihoods.

Improving disaster preparedness at all levels: examples from Honduras, Kyrgyzstan, Bangladesh and Malawi

Honduras

Introduction

Honduras is one of the poorest and least-developed countries in the Americas. Only Bolivia and Haiti are ranked lower in the UN's Human Development Index 2010, where Honduras is ranked 106th out of 169 countries.[1] There is huge inequality between rich and poor and some Hondurans live in relative comfort while others struggle to survive in run-down slums or isolated villages. More than half of all Hondurans still live in rural areas.

Honduras' mountains used to be covered in tropical rainforest, but large-scale deforestation has led to changing rainfall patterns and poorer soils, and has increased the danger of floods and landslides – especially during the annual hurricane season which runs from June to November. Hurricane Mitch in 1998 demonstrated the devastating impact of natural phenomenon colliding with poverty. The years which followed continued to be plagued by hurricanes, flood and landslide.

What they did

Christian Aid partner the Mennonite Social Action Commission (CASM) helped to set up, train and equip village emergency committees called CODELs in Lempira, Copán and the Sula Valley. These committees were trained in how to coordinate disaster preparedness activities; including rainfall/river monitoring, organising alarm and evacuation systems, emergency distributions, damage assessment and repair work in their communities.

Each course comprised of a number of workshops, each of which were two or three days long. All participants agreed to share their knowledge with their family and neighbours.

Six modules are covered:

- understanding risks and vulnerabilities, and drawing risk maps

Below: Faustina and Karen demonstrate putting on one of the new life jackets. The village emergency committees, trained and equipped by CASM, were tested for the first time by Hurricane Felix in 2007. People here now feel confident and prepared that they will cope next time a major disaster occurs

Christian Aid/Sian Curry

- introduction to climate change
- planning, organisation, and introduction to state risk reduction networks
- disaster response and rehabilitation
- political lobbying for better risk reduction measures
- first aid.

CASM also provided the committees with emergency equipment such as saws, ropes, life jackets, boots, waterproofs and lanterns, and trained logisticians such as Karen and Faustina, shown in the photograph at left, how to maintain the equipment.

As part of the training, emergency committees developed a local risk map that examined hazards and then mapped buildings, rivers, streams and the areas at risk. The map identified the safe higher ground and the evacuation routes. Then the committees decided early warning alarm and evacuation procedures.

Aside from saving lives, the emergency committees identified the problem of food during emergencies. Disasters can destroy acres of crops, leaving poor farmers with nothing. CASM helped farmers to increase and diversify their crop yields, introducing new crops such as orange, mango and nance, which cope better with floods because they can survive being waterlogged for days.

CASM helped households store emergency food supplies safe from floods. Each family received a small, portable watertight metal granary to store maize cobs safe from water rats and insects for more than two years. Now when there is a drought or flood, families have an emergency reserve to fall back on. Some communities have set up communal grain stores. When harvests are good, everyone puts one quintal (100kg) of maize into the store and in the event of a flood or drought local residents can buy from the village store at a reduced price and are less dependent on relief aid.

'Everyone gives one quintal from the harvest so that when there's nothing we can still eat. You can store maize for up to three years without it going rotten,' explains Florinda, a local farmer and committee member.

The key ingredients of success

Throughout the project, Christian Aid partners and communities worked closely with local government municipal disaster committees and the national government's emergency preparedness committee (COPECO).[2] Technicians from COPECO were involved in designing and delivering some of the training for Christian Aid partners and communities, especially those elements focused on engaging with state networks. In turn, Christian Aid partners have welcomed local government representatives onto their local training courses. With good working relationships established, partners were invited to feed into the new disaster risk reduction law, SINAGER, which has now been passed in parliament.

By working directly with local structures and empowering them with skills, communities were able to think beyond early warning and evacuation to identify and solve the problem of food scarcity during disasters. They also became more involved in policy discussions.

Impact of actions

Evidence of the effectiveness and sustainability of the emergency committees can be seen from the example of Hurricane Felix in 2007.[3] When the hurricane hit, the CODELs successfully stepped into action, raising the alarm, monitoring river levels, preparing shelters and managing evacuations. As a result no lives were lost in the villages in Lempira, Copán and the Sula Valley.

'First we had the green alert, then when we had the yellow alert we knew that we were in danger. Marla [the CASM co-ordinator] explained that we shouldn't wait until the red alert when the rivers are full but should evacuate now,' explains Audelia. As a result, Audelia and her 12 children and grandchildren evacuated safely to a designated hurricane shelter. 'Before, we didn't know anything. We didn't know when to leave and we didn't know what an alert was. Now we do,' she says.

The continued engagement of the emergency committees with the local authorities has helped them obtain the resources and permissions to construct a new bridge which is higher and safer and now allows access and evacuation even when the river is very high.

Overleaf: members of the Chagylan (meaning Lightning) school disaster team practise their rescue and first aid skills

Helping schools be prepared for disasters in Kyrgyzstan

Schools are an important entry point for disaster preparedness and risk reduction. The earthquake in Pakistan in 2005 demonstrated how at risk large numbers of children can be from disasters when many died in their school buildings. Children are also great communicators of risk information, helping to inform their families and communities.

With the help of Christian Aid partner Mehr Shavkat, schoolchildren in Osh Oblast in the centre of Kyrgyzstan are now more prepared to cope with disaster such as floods and wildfires. Mehr Shavkat provided training for schoolchildren and helped them to form school disaster teams. In each disaster team there were five groups – information, evacuation, rescue, first aid and inspection – with about five people in each and a mixture of male and female members. Team members were trained in a range of skills including rope rescue, first aid, fire safety, mountain safety and disaster mitigation.

Now, when there is a flood the information (early warning) team warns the village by banging pan lids and shouting out to the villagers. This team also contacts the local authority and asks for assistance. The evacuation team leads the villagers to the designated refuge place on higher ground. The rescue team then looks for people in trouble, rescues them and takes them to safety and the first aid team provides assistance where needed.

'We have an evacuation plan for the village showing the safe higher ground where we take the community when there is a disaster. The best thing about this was learning how to rescue drowning people and the first aid training. If there is a natural disaster in the village then I will be able to use my skills to help others. I would like to pass on what I have learnt to the younger children.'

Zeyneo Zakir Kyzy, school disaster team leader

Mehr Shavkat

Bangladesh

Introduction

Floods and cyclones are some of the major hazards that the people of Bangladesh face. For example in April 1991, a devastating cyclone hit the south coast and within a few hours more than 138,000 people had been killed. Jatramohon was just eight years old and living in a small village in Moheshkhali, Cox's Bazaar. His family lost their house and all their belongings. Most of the families in this area are from poor Hindu fishing communities or Rakhayin tribal communities, with very little land and poor housing. The cyclone left many of them destitute. Jatramohon's father was a day labourer and it was a few years before his parents could afford to send him and his siblings back to school. More than 20 people in his village were killed.

In 1994 and 1997 two more devastating cyclones hit the Moheshkhali area. Fortunately Jatramohon and his family members heard early warnings on the radio and managed to escape. Although their house was badly damaged and they lost many belongings, they were still luckier than other members of the community.

Disasters like this can trap families like Jatramohon's in vicious cycles of poverty where they regularly loose their homes and the assets they have managed to build up. It can take many years for the family to regain its income base and this pressure on family funds can also prevent them from accessing education and other services such as healthcare.

What they did

Christian Aid partners Christian Commission for Development Bangladesh (CCDB) and Policy Research for Development Alternatives (UBINIG)[4] conducted a five-day training on community-based DRR. After this it carried out participatory vulnerability and capacity assessments (PVCAs) with communities, which identified the risks they face and their available assets and capacities that might

Below: a group of women take part in the PVCA in Cox's Bazaar. The assessment enabled them to identify measures to help their community recover more quickly from the regular flooding

Sarah Moss

be employed to mitigate those risks. Through detailed discussion the participants identified capacities including the physical (such as bridges and culverts), human (such as strong, healthy men and women as volunteers) and financial (such as the local council committing land for construction).

What became clear from the PVCA discussions was that when floods occur, communities not only lose crops and livestock, but also have trouble accessing good quality and affordable seeds to replant. Many people resorted to borrowing money with a high rate of interest to procure seeds, but usually ended up with poor quality seeds that produced a poor harvest. On top of the damage to homes and crops, they often had a major shortage of food in the following year as they had no way to pay back the loan.

The community decided that if they had a way to keep seeds, food and livestock safe and dry from the floods then people would be better able to cope and recover more quickly from the regular flooding. With support from UBINIG, communities constructed a flood-resistant seed centre and a 'gumat', which is a raised place for keeping livestock during floods. They also constructed bamboo flood defences along the riverbank to help slow down the rate of land erosion.

At the communities' request, CCDB and UBINIG worked with them on early warning systems and strengthening their livelihoods. People like Jatramohon became community disaster volunteers and participated in setting up a community-based early warning system.

The key ingredients of success

The key ingredients of success were the participation of the community in both identifying risk and their capacities and also in designing a plan of action. This ensured community ownership of the work and led to community members volunteering to take very active roles in improving their communities' preparedness for disasters.

The PVCAs developed by Christian Aid were praised as a participatory tool during an independent evaluation for helping to ensure that vulnerable people were involved in decision-making throughout the project, thus improving accountability.

Impact of actions

In November 2007 Cyclone Sidr struck Bangladesh, with winds gusting to 240km/hr and a 5m high storm surge, which inundated coastal areas including Cox's Bazaar. However this time when Jatramohon heard the early warning on the radio the day before, he and other trained volunteers took a community megaphone and bicycle and began to inform all their neighbours and nearby communities. They told them about the impending storm and directed them to identified evacuation points such as the nearby cyclone shelter or the temple and told them to bring their identification papers. People were also allowed to move some of their most precious belongings to areas of raised ground. When the storm hit the next day, all 700 community members were safe and no one was killed. The next day they were able to return to the village with their belongings and start to repair some of the damage.

'Since participating in the disaster risk reduction training organised by CCDB, I am more aware of how to protect my community from cyclones. We know we cannot stop the cyclone, but if we can inform all the community to take shelter in safer places in time, keep the essential and valuable things in safe places then hundreds of lives could be saved and loss of valuable things could be reduced.'

Jatramohon, Cox's Bazaar

Although Cyclone Sidr was similar in size to the one that struck in 1991, this time the death toll was much lower, at 3,000 people. This is largely due to the improved storm warnings and disaster preparedness work which has been carried out over recent years, proving that simple community-based early warning and community organisation can save many thousands of lives.

Saving lives is a great success story, but DRR can have an even greater impact on poverty reduction.

For example, Ansar Ali, a farmer living in Bantier village in Sirajgunj district was part of the UBINIG programme. He has lost his home and cultivable land 17 times during his life as a result of floods and river erosion. When he was 10 years old, his whole village was lost to flooding and the residents migrated to a char (island) in the middle of the Jamuna River, the only land available. The char is very vulnerable to natural hazards and he has to live with the constant threat of storms and floods and the worry of his livelihood being destroyed.

Ansar Ali and the other villagers each kept 100kg of black gram seed and 20kg of til (a type of oil seed) in the seed bank. When serious flooding happened in May 2007, Ansar and other disaster committee members helped the villagers and their livestock move to the gumat. The flooding destroyed their crops but this time they had some seeds kept safe. After the floods receded Ansar and his three oldest sons cultivated their agricultural land (about six acres) and sowed the black gram and til seeds they had kept safe in the store. He obtained a good harvest from that preserved seed, about 2,600kg of black gram. He returned 100kg to the seed bank and kept 100kg for his family's consumption. He sold the remaining 2,400kg, receiving Tk100,000 (US$1,400). With the profit he is investing

in other disaster reduction initiatives. He has raised his homestead by more than 1.5 metres and bought more land and a cow. He has also been able to pay for his youngest child to go to school.

He says: 'By keeping some seeds safe in the new seed store, I was able to replant good quality seeds with my sons as soon as the floods subsided and didn't need to borrow money. I feel less worried by floods now. I know they will happen but as long as I can keep my family and livestock safe and have seed to replant I know my family will be OK.'

Being prepared and ready to act not only saves lives, but protects livelihoods and allows people to resist the social and financial impact of a disaster. It can increase resilience to future disasters.

Malawi

Introduction

The district of Chikhwawa in southern Malawi is at risk of floods and drought, which threaten lives, well-being and livelihoods. The area is experiencing more severe flooding due to unpredictable rains and severe land degradation. In 2007 it was reported that 180,246 people were adversely affected by floods in Malawi and floods continue to be a significant risk to the country.[5]

Communities in the low-lying areas of Chikhwawa are often flooded by rivers like the Mwanza, but lack sufficient warning and evacuation plans. Limited access to relevant meteorological information and an absence of timely flood warnings or preparedness plans make communities struggling with poverty and related issues such as HIV/AIDS even more vulnerable. When floods hit, it is often the most vulnerable who are unable to get out in time, especially the elderly, sick and the very young. Livestock, food and valuable assets can also be lost or damaged, which further increases losses and household vulnerability.

'Because of the floods caused by the Mwanza River, our crops were washed away, which meant that we were hungry as our livestock and other household assets were washed away. We were also stuck in the village. The river is only 100 metres away. People used to die crossing the river and last year two people died, one woman and one man.'
Alikulano Yasho, chairman of the village civil protection committee, Tombondela village

Faced with the threat of inevitable flooding, communities identified a people-centred early warning system as one solution to limit the resulting damage. Christian Aid partner the Evangelical Association of Malawi (EAM) agreed to work with them to help develop a warning system, with additional financial support from DIPECHO.

EAM and the local district councils facilitated a participatory risk assessment with vulnerable communities. Together they identified the threats that most adversely affected their lives and ranked them in order of importance. Floods were ranked as the most threatening and the community decided that an early warning system was essential to be better prepared and equipped to protect themselves from floods.

What they did

For this to work effectively it was essential that different communities were prepared to help each other, for example it was necessary that communities in the highlands forewarned those at risk of flooding in the low lying areas when rainfall had been heavy and the threat of flooding

Above: Alikulano Yasho coordinates the village evacuation drill with a megaphone

was imminent. To facilitate this, in 2009, EAM, the district councils, the Department of Water and the Meteorological Department installed hydrometric scales in a number of key places along the Mwanza River in order to measure the rises in water levels. The scales were erected in the riverbed near the riverbank so that trained volunteers could measure the water safely.

The hydrometric scales were colour coded, green for safety, yellow for warning and red for danger. When there is heavy rainfall in the highlands, volunteers read the gauges upstream to monitor the rise in water levels. If the water reaches the yellow point, they phone volunteers downstream to warn them that flooding may occur. These volunteers, who have been trained as gauge readers, then check their hydrometer and if the water levels reach yellow or red then villages at risk of flooding are alerted. They contact the focal point in the village civil protection committees (VCPC) using mobile phones provided by EAM.

Tombondela village is one example of how the system works. The chairman of the VCPC, Alikulano Yasho, receives the warning from those volunteers upstream and information is relayed to trained gauge readers to start checking the scales frequently. Trained by EAM, the chairman heads the evacuation of his village with the support of other trained committee members. All the volunteers were trained in communication, search and rescue, and first aid.

On receiving a call informing him there is a risk of a flood the chairman mobilises the first responders to be on alert. The volunteers use megaphones to warn other villagers to evacuate and to warn people on the other side of the river not to cross. Simultaneously, committee members and volunteers blow whistles and wave the appropriate colour coded cloths as well as raising coloured flags in trees so all villagers can see and receive the warning. Once the evacuation warning is given the villagers move to higher ground safe from the floods, such as schools or community centre buildings. Village volunteers are responsible for helping the most vulnerable to relocate.

In collaboration with the Ministry of Agriculture and Department of Climate Change and Meteorological Services, EAM installed four additional rain gauges in other strategic areas downstream to complement the use of hydrometric scales. Village volunteers were trained to read and manage the rain gauges and volunteers supply readings to local government, meteorological centres and the Department of Climate Change so that they can monitor rain patterns. Seven rainwater collectors per rain gauge were trained to monitor rainfall sequence and intensity, working on a weekly rota.

In Tombondela village, volunteers are well-trained and confident in their emergency preparedness duties. Patricia Davis, a committee member, says she is confident collecting rainwater data. She was also trained to check the changes in river flows, which indicate when there is a danger of flooding. Patricia explained that when the water flows with more force, and brings debris such as trees and foaming water, there is a likelihood of flooding and so a warning is given. The people of Tombondela reported that they feel more in control and organised and they are now more connected to local government and feel able to continue building a better future after EAM has left.

The key ingredients of success

1. Getting buy-in from different stakeholders

The people-centred early warning system was a success, thanks to the involvement of multiple key stakeholders in the assessment stage of the project and the engagement and leadership of the district councils. This increased buy-in and helped cement good relationships between EAM, the district councils, local government extension services and the communities. These stakeholders then understood their roles in planning a way forward from the outset, seeing that together they could achieve more. Making the district councils, EAM and communities joint leaders of the project fostered enthusiasm, collaboration and a sense of ownership and sustainability.

Getting farmers involved was imperative, yet progress was slow. Staff from EAM reported that persuading all farmers of the longer-term benefits of DRR was difficult. Initially, farmers resisted as they were so used to receiving aid and food packages for free in times of hardship.

'In the beginning beneficiaries said that DRR was cheating them. They said that they used to have food for free and DRR would deny them that opportunity.'
James Kalikwembe, Programme Manager, EAM

EAM persuaded key farmers that not only does risk reduction offer protection from flooding and warning against flooding but it could also lessen the threat of hunger in Chikhwawa. Thanks to the introduction of irrigation systems as part of DRR, farmers now have a more secure way of growing and cultivating crops in lean seasons when people often go hungry.

Persuading key district council individuals similarly took careful thought and execution. EAM first consulted the Department of Disaster Management Affairs (DoDMA) and United Nations Development Programme (UNDP) to determine the scope of the early response needs assessment (ERNA) and identify those districts that suffered the most from floods and droughts. Once the concept note on the assessment had been submitted to the DoDMA and the UNDP, EAM lobbied key people in the district council for support.

2. Good training

With support from Christian Aid, EAM trained the ERNA team on how to carry out participatory risk assessments using the relevant PVCA tools and resources. Communities requested a well-trained and coordinated district and local government team in disaster risk which could coordinate and manage preparedness and response activities with communities. This simultaneously gave the district council the impetus to become a well-trained unit and reinforced the need to use existing structures to set up and deliver a good early warning system.

Three levels of local development planning play a key role in local government; the district civil protection committee (DCPC), which has overall responsibility of disaster risk management issues at district level; the area civil protection committee (ACPC), which has overall responsibility of disaster risk management issues at traditional authority level and consists of over 15 group village headpersons; and the VCPC, which has overall responsibility of disaster risk management issues at group village headman level and consists of not less than eight villages. The committees are part of the government disaster risk management organisation structure led by DoDMA and are responsible for carrying out disaster management and implementing government development plans.

The committees are decentralised structures with the advantage of already being part of government development planning, yet many of the members had little knowledge and practical experience of risk reduction. EAM took the lead in training committee members so they were confident and competent in DRR work and understood the need for, and how to implement, early warning. The training program included:

- understanding DRR
- the causes and effects of disasters
- participatory assessment of disaster risks
- climate change.

Committee members were also taught how to be trainers. Those trained at DCPC level were used as support trainers at ACPC level and those trained at ACPC level were also empowered to help in the training of VCPC members.

Part of the capacity building included development of local flood contingency plans linked to the district plan. A well-trained district council took the lead in the coordination of the early warning system, which is now integrated into the district development plans, understood by communities, members of the district council and local government. Communities worked closely with the district council and local government and were able to lobby for their rights and development support. They now have confidence to look to a future where they are able to protect themselves.

'We know EAM will go, but we have the self confidence to protect ourselves from floods in the future.'
Alikulano Yasho, VCPC Chairman, Tombondela village

3. Coordination

After taking a key role in the project, the district council now sees the bigger picture in Chikhwawa. It ensured no projects were duplicated and that the work was properly regulated to national standards. The district council shared key objectives from its development plans with an NGO consortium and it connected NGOs with the relevant ministries to ensure that their work could be completed to a professional standard. The council also ensured that EAM and other NGOs worked together to reinforce each other's aims and objectives.

For example, the Ministry of Natural Resources (a department within the District Assembly) conducted an initial assessment on the environmental suitability of a water dyke that EAM planned to build to protect villagers against floods. EAM then took the lead in building the dykes and the Department of Public Works maintained the village roads to keep transport routes clear during construction and supported EAM with technical advice. The coordination between organisations pooled expertise and commitment towards addressing flood management issues in the district.

Impact of actions

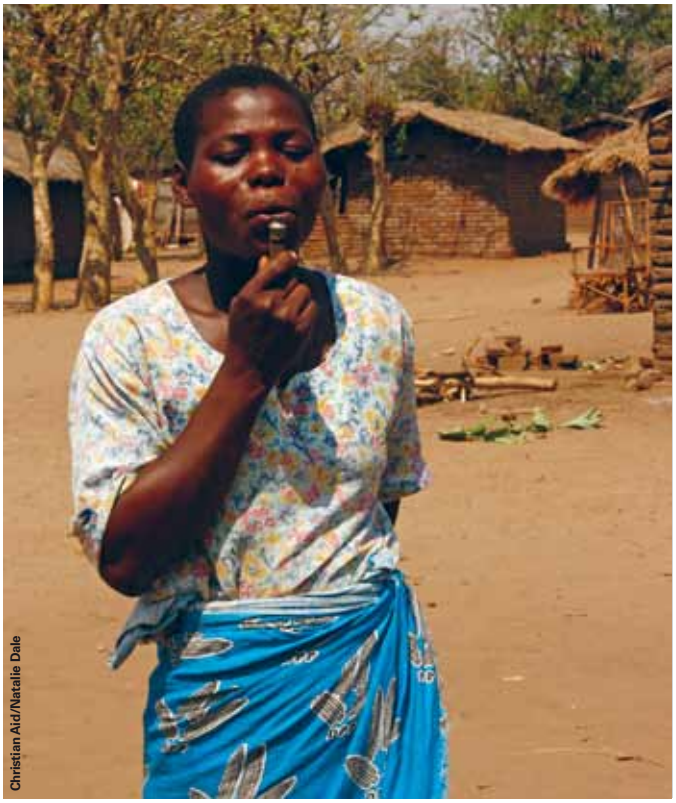
Prior to the people-centred early warning system, there was no systematic way to warn people of impending floods.

'We used to beat a drum instead of using megaphones, but people didn't always know why we were beating a drum. We'd also just run away and shout to people.'
Alikulano Yasho, VCPC Chairman, Tombondela village

People relied on their instinct, such as the way the river flowed, sounds and smells and visible flooding. If villages thought there was an impending flood people would beat a drum as a warning. But this system was unreliable for three reasons:

- It was often too late to warn people once the river was already flooding as water levels rise very quickly. By the time people received warning that the river was flooding, the water was already upon them.
- People did not always know why the drums, often used in other cultural events and ceremonies, were being beaten, so became confused.
- There was no timely evacuation system to steer people to safer ground. Now communities have an identified safe place on higher ground and an organised procedure to get to safety in time.

'The big change we have seen is that before we ran away, but we didn't run away in time. In the past we were told the floods were on their way when they were already here! We found it difficult to run away in time and we lost our property. We would lose food, livestock, clothing and other household goods such as plates.'
Damalesi Chifundeni, Chimphepo-Mosses village


Christian Aid/Natalie Dale

Above: Patricia Davis is blowing a whistle to give a flood warning to fellow inhabitants of Tombondela village

The early warning system was proven to work in practice in March 2009. Upon monitoring river levels at the July hydrometric station, the VCPC vice chairperson alerted the Chimphepo-Mosses VCPC chairman about the water that was coming after the heavy downpour. The Chimphepo-Mosses VCPC chairman warned the flood-prone communities using the megaphones that were provided by EAM and Christian Aid. He warned them not to cross, wash at, or work along Mwanza River. People took the warning seriously and stayed away from the river.

Within two hours of the alert huge volumes of water flowed down the Mwanza River, however no people or livestock lost their lives as experienced in previous years. Now communities are more prepared to take early and evasive action against disasters.

Conclusion

Being prepared and ready to act can involve much organisation, planning and negotiation. However, many of the successful preparedness activities are relatively low cost but can save hundreds of lives, as these examples show.

Effective disaster preparedness and response at all levels requires different stakeholders – such as communities, government, NGOs and scientists – to work together to improve public understanding of risks, coordinate training and the design of effective systems for anticipating and warning people of impending danger. It is essential that this knowledge is broadly held across all levels of society.

Endnotes

1. *Human Development Report 2010*, UNDP, 2010, http://hdr.undp.org/en/reports/global/hdr2010
2. COPECO is the Permanent Commission on Contingencies – the Honduran government's emergency preparedness body.
3. Hurricane Felix left 200 people dead or missing in Nicaragua and Honduras.
4. UBINIG is the abbreviation of its Bengali name Unnayan Bikalper Nitinirdharoni Gobeshona, which in English means Policy Research for Development Alternatives.
5. EM-DAT: The International Disaster Database, Centre for Research on the Epidemiology of Disasters (CRED), www.emdat.be/database and 'Prospects for the 2010/2011 Rainfall Season in Malawi', Department of Climate Change and Meteorological Services, Ministry of Natural Resources, Energy and Environment, www.metmalawi.com/news.php

ABBREVIATIONS

ACPC	Area civil protection committee (Malawi)
APRODEHNI	Asociación para la Promoción de los Derechos Humanos de la Niñez en El Salvador
ASONOG	Association of Non-Governmental Organisations
ATAD	Alliance Technique d'Assistance du Développement
BDCCs	Barangay Disaster Coordinating Councils (Philippines)
BDRC	Building Disaster Resilient Communities
CARD	Churches Action in Relief and Development
CASM	Mennonite Social Action Commission
CCAP	Central Church of Africa Presbyterian
CCDB	Christian Commission for Development Bangladesh
CODELs	Village emergency committees (Honduras)
CODEMS	Municipal emergency committees (Honduras)
COPECO	Permanent Commission on Contingencies (Honduras)
CSB	Local level monitoring committee (Burkina Faso)
CSO	Civil society organisations
DCPC	District civil protection committee (Malawi)
DFID	Department for International Development
DIPECHO	European Commission Humanitarian Aid department's Disaster Preparedness Programme
DoDMA	Department of Disaster Management Affairs (Malawi)
DRR	Disaster risk reduction
DRRM	Disaster risk reduction management
DRRNet	Disaster Risk Reduction Network of the Phillippines
EAM	Evangelical Association of Malawi
ELDS	Evangelical Lutheran Development Service
ERNA	Early response needs assessment
EWS	Early warning system
HAP	Humanitarian Accountability Partnership
HFA	Hyogo Framework for Action
LGU	Local Government Unit (Philippines)
MDCC	Municipal Disaster Coordinating Council (Philippines)
MDGs	Millennium development goals
ODE	Office de Développement des Églises Évangéliques
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PhilNet-RDI	Philippines Network for Rural Development Inc
PRA	Participatory rural appraisal
PRDCI	Panay Rural Development Center Inc
PVCA	Participatory vulnerability and capacity assessment
SAC	Social Action Centre
SALT	Sloping agricultural land technology
SEEDS	Sustainable Environment and Ecological Development Society
SINAGER	National System for Disaster Risk Management (Honduras)
SNAP	Strategic National Action Plan (Philippines)
UBINIG	Policy Research for Development Alternatives
UNDP	United Nations Development Programme
UNES	Unión Ecológica de El Salvador
UP-NIGS	University of the Philippines National Institute of Geological Science
VCA	Vulnerability and capacity assessment
VCPC	Village civil protection committee (Malawi)

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Burkina Faso: Office de Développement des Églises Évangéliques (ODE), Alliance Technique d'Assistance au Développement (ATAD)

El Salvador: Training Association Programme for the Reconstruction of El Salvador (PROCARES), Unión Ecológica de El Salvador (UNES), Asociación para la Promoción de los Derechos Humanos de la Niñez en El Salvador (APRODEHNI), Ministry of Education, Ministry of Health, the Public Infrastructure Ministry, the Environment Ministry, Cuba National Center for Seismologic Research

Honduras: Asociación de Organizaciones No Gubernamentales (ASONOG), Mennonite Commission for Social Action (Comisión de Acción Social Menonita, CASM), Christian Organisation for Development in Honduras (OCDIH), Mesas Paraíso, Olancho, Occidente and Yoro Regional Roundtables, Permanent Commission on Contingencies Honduras (Comisión Permanente de Contingencias, COPECO), Commission on Natural Disasters of the National Congress (CDN-CN), Comisión Ejecutiva del Valle de Sula (CEVS).

India: Sustainable Environment and Ecological Development Society (SEEDS)

Kyrgyzstan: Mehr Shavkat

Malawi: Senga Bay Baptist Medical Clinic (SBBMC), Churches Action in Relief and Development (CARD), Central Church of Africa Presbyterian (CCAP), Evangelical Lutheran Development Service (ELDS), Evangelical Association of Malawi (EAM)

Philippines: Social Action Center (SAC) Infanta, Fellowship for Organizing Endeavors Inc (FORGE), Panay Rural Development Center Inc (PRDCI), Social Action Ministry (SAM) – Ipil, Marinduque Council for Environmental Concerns (MACEC), Coastal Core Sorsogon (CCS), Community Organization of the Philippines Enterprise Foundation (COPE), Manila Observatory, Ateneo School of Government (ASoG), Unlad Kabayan, National Institute of Geological Science (UP-NIGS), Municipal Disaster Coordinating Council (MDCC) of Infanta and General Nakar, the Philippines Network for Rural Development Inc (PhilNet-RDI)

Christian Aid is a Christian organisation that insists the world can and must be swiftly changed to one where everyone can live a full life, free from poverty.

We work globally for profound change that eradicates the causes of poverty, striving to achieve equality, dignity and freedom for all, regardless of faith or nationality. We are part of a wider movement for social justice.

We provide urgent, practical and effective assistance where need is great, tackling the effects of poverty as well as its root causes.

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Front cover: Patricia Davis is blowing a whistle to give a flood warning to fellow inhabitants of Tombondela village. Photo: Christian Aid/Natalie Dale

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