

Defining Disaster Resilience:

A DFID Approach Paper





Kenya: camels replacing cattle

While cattle and goats become emaciated in times of drought and no longer produce milk, camels are capable of surviving long periods without water and their milk provides a crucial source of nutrition. By herding camels, pastoralists are adapting and maintaining their traditional way of life.

Picture: Georgina Cranston/Practical Action

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Foreword

In 2010 natural disasters affected more than 200 million, killed nearly 270,000 people and caused \$110 billion in damages. In 2011, we faced the first famine of the 21st Century in parts of the Horn of Africa and multiple earthquakes, tsunamis and other natural disasters across the world. The World Bank predicts that the frequency and intensity of disasters will continue to increase over the coming decades.

The June 2011 UK Government Response to the Humanitarian Emergency Response Review presented disaster resilience as ‘a new and vital component [of our] humanitarian and development work.’¹ Building on this, the UK Government’s Humanitarian Policy, *Saving lives, preventing suffering and building resilience*, puts resilience at the centre of our approach to addressing disasters, both natural and man-made. This includes commitments to embed resilience-building in all DFID country programmes by 2015, integrate resilience into our work on climate change and conflict prevention and improve the coherence of our development and humanitarian work.



Bangladesh: small changes make a big difference

The women in this photo are trained in how to feed, house and prevent disease among their ducks. Small changes, like rearing ducks instead of chickens, will help families to maintain a livelihood during the monsoon season.

Picture: Zul Mukhida/Practical Action.

¹ www.dfid.gov.uk/Documents/publications1/hum-emer-resp-rev-uk-qvmt-resp.pdf?epslanguage=en

1. Introduction

Adopting resilience as our core approach to tackling disasters means identifying where different areas of our work can complement and enhance one another. This includes disaster risk reduction, climate change adaptation, social protection, working in fragile contexts and humanitarian preparedness and response. We will start by focusing on the key challenges: the need for common analysis that supports a coherent approach to risk; financing mechanisms that allow early, predictable and sustained commitments; early warning systems that lead to early action; political commitment among governments in countries at risk of disasters and donor agencies; and a stronger interface between development and humanitarian actors.

Disaster resilience draws together several strands of DFID's work, and in the wake of the ongoing global financial crisis has become a concern at the highest level. Increasing efforts are being made in social protection, disaster risk reduction and climate change adaptation, aiming to build the resilience of poor and vulnerable communities in developing countries. There is increasing attention being paid to issues such as the resilience of macroeconomic growth² and 'crisis-proofing' progress towards the MDGs³. At the same time, there has been a growing interest in how principles of resilience can be employed in conflict-affected and fragile states.⁴

This Approach Paper is intended to inform the next phase of DFID's work on resilience to both natural and man-made disasters,⁵ by providing a starting point for discussion within the Department and with our partners. Although the focus is on disasters, this is part of a wider process to mainstream resilience across all of DFID's work which is being led by Policy Division.

The paper begins with an outline of what resilience is and sets out a framework to improve understanding of the different elements to be considered in building resilience through DFID's country operations. It then looks at a range of existing DFID resilience interventions at country and regional levels. The paper concludes by providing suggestions for what DFID can do to strengthen its work in this area and how it can provide strategic leadership across the international system.

² www.imf.org/external/pubs/ft/survey/so/2010/car051710a.htm

³ ec.europa.eu/development/icenter/repository/COMM_NATIVE_SEC_2009_0445_4_MDGS_EN.pdf

⁴ See 2009 European Development Report Background Paper:

erd.eui.eu/media/BackgroundPapers/ERD-Background_Paper-Kaplan.pdf

⁵ This Approach Paper is based on a small-scale research process conducted in July 2011, with some 30 DFID staff and representatives of external partners consulted, and over 50 documents, books and reports reviewed. Details of external experts and essential documents can be found in Annex 1.

2. What is disaster resilience?

2.1 Defining resilience

Resilience is the focus of a large and growing body of research. This work has sought to understand what the properties are that make a country, community or household resilient, to establish the principles and processes which strengthen resilience and to build the evidence for what projects and programmes really make people better able to withstand and recover from disasters. As a result of the research and its applications, the term resilience has acquired a range of definitions. Three widely cited examples are set out below⁶.

Definitions of resilience

“The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner”

United Nations International Strategy for Disaster Reduction

“The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change”

Intergovernmental Panel on Climate Change

“The capacity of a system to absorb disturbance and reorganize while undergoing change”

The Resilience Alliance

DFID has adopted a working definition:

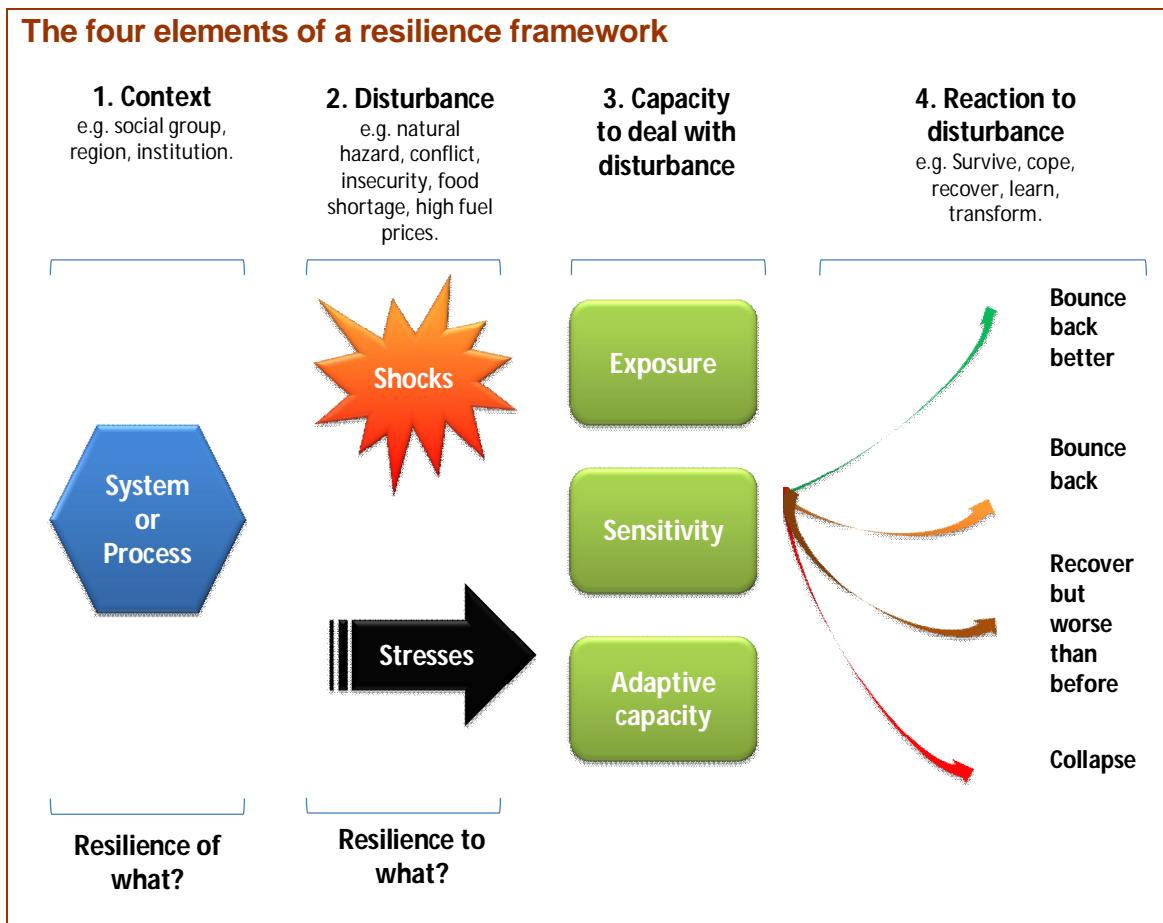
Disaster Resilience is the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses - such as earthquakes, drought or violent conflict - without compromising their long-term prospects.

This has been designed to support our latest thinking on resilience. It is intended to provide part of the basis for discussion, both internally and with our partners. Consequently, we are open to it developing and changing as these discussions progress.

⁶ For a more detailed discussion of different definitions and implications see the 2010 DFID funded report: The Resilience Renaissance community.eldis.org/59e0d267/resilience-renaissance.pdf

2.2 How resilient is a country, community or household?

Determining levels of resilience is an important part of understanding the concept. And most definitions of resilience share four common elements which can be used to do this: context; disturbance; capacity; and reaction. Together these elements form a resilience framework (see below) which can be used to examine different kinds of resilience (for example, of growth or of governance systems) and help determine the level of resilience that exists.



The framework above is a simplified representation of the elements to be considered when examining resilience. In practice the picture is more complex: the response curve could be slow and uneven due to, for example, the political context, secondary shocks or lack of information. Stresses can be cumulative, building slowly to become a shock, and both shocks and stresses may result in a number of different reactions.

Each element of the resilience framework is explored below with specific reference to disaster resilience.

Context

Resilience should always be clearly contextualised – allowing a coherent answer to the question ‘*resilience of what?*’ Resilience can be identified and strengthened in a social group, socio-economic or political system, environmental context or institution. Each of these systems will display greater or lesser resilience to natural or man-made disasters. More work is needed to differentiate the significance of resilience for different social groups, resources and institutions across a range of different contexts.

Disturbance

Once the system or process of interest is determined, the next stage is to understand the disturbances faced, addressing the question ‘*resilience to what?*’ These disturbances usually take two forms:

- Shocks are sudden events that impact on the vulnerability of the system and its components. There are many different types of disaster-related shocks that can strike at different levels. These include disease outbreaks, weather-related and geophysical events including floods, high winds, landslides, droughts or earthquakes. There can also be conflict-related shocks such as outbreaks of fighting or violence, or shocks related to economic volatility.
- Stresses are long-term trends that undermine the potential of a given system or process and increase the vulnerability of actors within it. These can include natural resource degradation, loss of agricultural production, urbanisation, demographic changes, climate change, political instability and economic decline.

Of course, countries will often face multiple interconnected shocks and stresses.

Capacity to deal with disturbance

The ability of the system or process to deal with the shock or stress is based on the levels of *exposure*, the levels of *sensitivity* and *adaptive capacities*.

- Exposure to risk is an assessment of the magnitude and frequency of shocks or the degree of stress. For example, exposure to conflicts could be measured by the size and frequency of violent events caused by conflict or fragility, or the extent of political instability in other factors such as rule of law or human rights.
- Sensitivity is the degree to which a system will be affected by, or respond to, a given shock or stress. This can vary considerably for different actors within a system. For example, women accounted for up to 80% of those who died during the 2004 Indian Ocean tsunami, and death rates among women were almost four times higher than those among men in the 1991 Bangladesh cyclone. Limited mobility, skills set and social status exacerbated sensitivity to the shock.
- The adaptive capacities of actors – individuals, communities, regions, governments, organisations or institutions – are determined by their ability to adjust to a disturbance, moderate potential damage, take advantage of opportunities and cope with the consequences of a transformation. Adaptive capacities allow actors to anticipate, plan, react to, and learn from shocks or stresses.

Sensitivity and adaptive capacity are determined by the pool of assets and resources that can be mobilised in the face of shocks and stresses. Assets and resources can be social, human, technological, physical, economic, financial, environmental, natural, and political.

Whether a system or a process is resilient is a function of its sensitivity and adaptive capacity. The other side to this is vulnerability - the degree to which a system is susceptible to, or unable to cope with, the adverse effects of shocks and stresses.

Reaction to disturbance

In the best case, the reaction to a shock or stress might be a *'bounce back better'* for the system or process concerned. In this case capacities are enhanced or sensitivities and exposures are reduced, leaving a system that is more able to deal with future shocks and stresses (see below). An alternative reaction might be a *'bounce back'* to a normal, pre-existing condition, or to *'recover, but worse than before'* – the latter resulting in reduced capacities. In the worst-case scenario, the system or process might not bounce back at all, but *'collapse'*, leading to a catastrophic reduction in capacity to cope in the future.

'Bounce back better'

The Zambezi Floodplain Management programme in Mozambique supports vulnerable communities to deal with persistent flooding of their farms. There has always been drought and flooding in this area, but in the last 10 years weather patterns have become more unpredictable. Instead of planting seeds in the main agricultural season in the lowlands, irrigation projects encourage farmers to plant in the highlands away from the floods. Alongside this, communities are helped to learn new skills which provide them with alternative sources of income. Communities decide on the kinds of livelihoods they want to develop and Save the Children provides training, technical support and funding to help them get started. Helping communities to grow crops all year and reduce their vulnerability to drought, whilst also diversifying livelihoods, increases their resilience to the effects of climate change.

3. What do DFID disaster resilience programmes look like?

To date, many humanitarian and development interventions supported by DFID have focused on individual elements of the resilience framework. For example, much disaster risk reduction work has focused on reducing sensitivity and exposure to particular shocks and stresses, while livelihoods work has focused on adaptive capacity, looking at assets and diversification of income.

In DFID, and among its partner organisations, using resilience as a concept has enabled stronger dialogue and cross-fertilisation of ideas between different disciplines and programming areas. This has in some cases strengthened the harmonisation of different kinds of programmes – especially between disaster risk reduction, social protection and climate change adaptation (see below).⁷

Integration of disaster risk reduction, climate change adaptation and social protection

Rwanda's Vision 2020 Umurenge Program makes direct cash transfers to households without labour, connects poor households with an able-bodied member to public works and provides access to subsidised credit. The Vision 2020 Umurenge Program's public works projects are dominated by anti-erosive ditches and 'radical' hillside terraces which explicitly aim at environmental protection. Such public works have clear disaster risk reduction, food security and climate change adaptation impacts as they reduce exposure and sensitivity to natural disasters – for example droughts and floods – improve soil productivity and increase the amount of land that can be cultivated.

3.1 Conflict and fragility

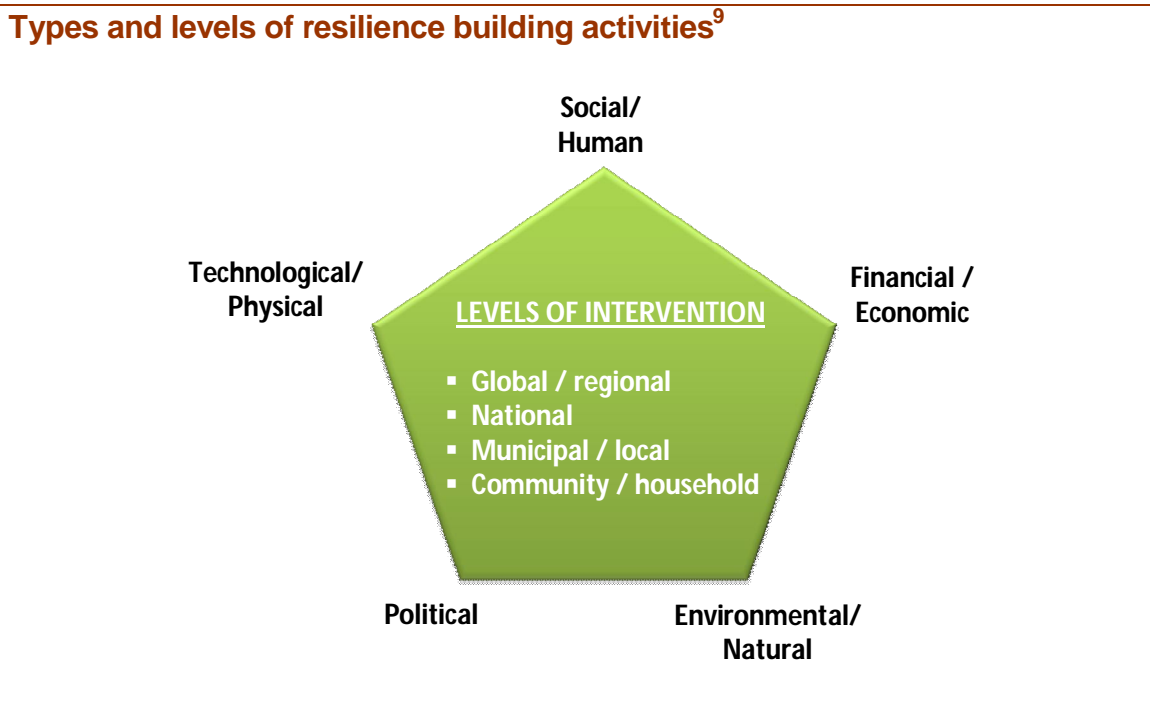
Resilience has been applied more extensively in relation to natural disasters than to conflict and fragility, areas to which DFID can usefully take a consolidated approach. Work by International Alert indicates that the broader factors that enhance climate resilience are the same as those that enhance conflict resilience – including effective governance, equity and strong social contracts. A comprehensive approach to resilience across natural and conflict-related areas requires a focus on strengthening institutions at national, regional and local levels incorporating political, security, humanitarian and development considerations.⁸ This requires bringing together diverse disciplines, interests and groups to address the question: *“What does disaster resilience look like in our context?”*

⁷ The view of one external expert was frequently repeated: ‘resilience can act as a *boundary term* which facilitates cross-institutional and disciplinary dialogue and learning’.

⁸ erd.eui.eu/media/BackgroundPapers/ERD-Background_Paper-Kaplan.pdf

3.2 Resilience-building interventions

A key determinant of exposure, sensitivity and adaptive capacity is the set of resources and assets that can be utilised in the face of a stress or shock. As such, resilience-enhancing activities can be usefully classified using the ‘assets pentagon’ from the sustainable livelihoods framework – social, human, physical, financial, and natural (see below).



However, the relationship between, for example, an environmental shock or stress and an environmental resilience intervention is not linear. Instead, as in the livelihoods approach, the full range of asset types needs to be considered when considering a resilience intervention.

By classifying different interventions by type and level of operation, it is possible to map the existing portfolio of disaster resilience activities in a country or a region.

DFID programmes that build resilience to disasters

DFID is already doing valuable work in this area across a number of country and regional offices. This spans countries such as China, Bangladesh and Ethiopia and regions such as the Caribbean. Examples on page 12 show a range of these projects and programmes, ranging from rural livelihoods support to regional disaster insurance mechanisms and from pre-disaster household asset protection to housing upgrades. Interventions can also vary in scale, from global and regional level to that of communities and households. They can also focus on building disaster resilience before the shock or stress reaches a tipping point, during a disaster response, or after an event.

⁹ www.odi.org.uk/resources/download/2339.pdf

Examples of DFID projects on enhancing resilience to disasters

DFID Ethiopia

The Productive Safety Net Programme covers 7.8 million vulnerable people and has helped break the need for emergency food programmes by providing people with regular and predictable cash and food transfers. A new Risk Financing mechanism allows the Programme to expand in times of shock. This can for example increase the period of time over which an individual receives transfers (beyond the normal six months) or add more people to the programme. This mechanism is integral to protecting the asset base of households in times of shock and helps to prevent the programme from being diluted by beneficiaries sharing their transfers with non-participating households.

DFID Bangladesh

In 2008, the UK and Bangladesh signed a five year joint agreement to tackle climate change in which the UK committed funds to strengthen resilience to climate change. This included introducing enhanced early warning systems, raised plinths for villages to protect them from flooding, renovated embankments and roads, multipurpose cyclone shelters and climate-resilient crops. In the last six years, 66,000 homes on sand islands were raised onto earth platforms, protecting more than 400,000 people and their possessions from severe monsoon floods.

DFID Africa Regional Department

DFID is supporting the design and implementation of the Africa Risk Capacity, which will establish a pan-African disaster risk pool for food security. The initiative will provide participating countries with effective financial tools and funds to manage the risk of and respond to extreme weather events. The mechanism is being led by the Africa Union and the design phase managed by World Food Programme.

DFID Pakistan

DFID is supporting the mainstreaming of disaster risk reduction in school recovery programmes by the Health and Nutrition Development Society, Save the Children and others. This includes developing safety plans in schools, direct work with communities on awareness and training for how to respond to disasters. It also includes working with farmers to plant seeds resilient to flooding, mapping community vulnerabilities and providing flood-resistant seed storage so that communities can maintain food self-sufficiency and support to CARE and the Agency for Technical Cooperation and Development to build flood-resistant houses.

These examples indicate a range of interventions which aim to ‘reduce vulnerability to disaster as a primary objective of the programme.’¹⁰ Many of these interventions are specifically targeted at addressing resilience to particular kinds of shocks and stresses. However, some programming – such as building education or health systems – might seek to enhance resilience more generally.

¹⁰ Andrew Clayton, Africa Resilience Note

3.3 Cost-effectiveness of building disaster resilience

Evidence on the cost-effectiveness of resilience-building activities is lacking in many areas. While economic appraisals of some aspects of resilience, such as community-based disaster risk reduction activities, have been carried out, other areas of resilience have had less cost-benefit analysis. More research is needed on the complementarities between strengthening disaster resilience and other development goals and on the cost-effectiveness of individual investments, different financing arrangements and leveraging private sector financing. More work is also needed to set out the wider economic and financial evidence that could be used in support of more effective investment in disaster resilience to incentivise donors, partner governments, multilaterals and implementing agencies.



Kenya: cash for work

UK aid is helping provide a long-term 'Safety Net' programme to help people adapt and minimise the impact of drought. This includes providing regular work and secure income so families and communities can be better prepared to cope with future shocks and disasters.

Picture: Thomas Omondi.

4. How will DFID take disaster resilience forward?

Previous mainstreaming efforts in DFID suggest that the priority country approach, to which the UK Government committed itself in its Response to the Humanitarian Emergency Response Review, is an appropriate one. The first round of priority countries, where work on resilience is already underway, consists of Ethiopia, Kenya, Malawi, Mozambique, Bangladesh and Nepal. In Pakistan, Niger, Chad, South Sudan, Zimbabwe and Burma, work to incorporate resilience is important but may include working through partners.

The commitment to embed resilience in all DFID country programmes by 2015 requires the development of a timetable punctuated by measurable milestones. Implementation in country programmes should build on current activity and capacities and be tailored to the country context. In some country offices resilience will be mainstreamed through all sectors and programmes, in others it may be more appropriate to initially limit resilience-building to a particular sector or to embed resilience into specific projects and programmes. As better awareness and experience is developed, offices will mainstream resilience more widely and ensure that as a minimum requirement, no programming undermines resilience.

There are further measures to be taken to meet the commitment to embed resilience in all DFID country programmes by 2015. We will:

1. Compile details of interventions that have successfully built disaster resilience in DFID countries and regions;
2. Develop minimum progress indicators for embedding resilience which all countries should meet as a 2015 objective. This process of determining appropriate indicators should be led by Country Offices and supported by regional departments and head office.
3. Share experiences and ideas across countries and regions. This will help to strengthen and accelerate the process and build the evidence base and business case for resilience-related investments. This might usefully include the establishment of a global resilience network to make links at country and regional levels.

A set of principles, which can be expanded upon through dialogue within DFID and with partners, should guide DFID in meeting its disaster resilience commitments.

Principles for enhancing disaster resilience

DFID's resilience-building activities will:

- Be anchored in national and local actors' realities and contexts;
- Be shaped by local understanding and priorities – taking a tailored approach to both the specific *Context* and the *Disturbance*;
- Be owned at country level, in accordance with the Paris Declaration;
- Be iterative and flexible, with regular adaptations, revisions and check-backs;
- Understand and plan for the fact that women, children, older and disabled people and politically marginalised groups are disproportionately impacted;
- Take multi-sectoral, multi-disciplinary approaches that bring together development and humanitarian efforts and that establish common ground between climate change adaptation, social protection, disaster risk reduction and work in fragile states;
- Be long-term and collaborative, building on local relations and new partnerships;
- Be consistent with international and national commitments such as Hyogo, state and peace building;
- Ensure that overall the intervention/response does not undermine resilience.



Nepal: barriers to disaster

Nepal is prone to natural hazards, of which flooding is the both the most common and most damaging. Building flood barriers from local stones, reeds and wood helps communities control the extent to which floods affect their lives in the future.

Picture: Shradha Giri Bohora/Practical Action

5. What can DFID contribute to the disaster resilience agenda?

There are a number of opportunities for strengthening how disaster resilience is taken forward by the international community. DFID can play a key role in the following areas:

Financing

Financing for disaster resilience work is inadequate and unpredictable. Recent evidence suggests that disaster risk reduction-related investments amount to only 1% of the \$150 billion spent in the 20 countries that received the most humanitarian aid over the past five years - a 'disastrously low' amount.¹¹ A coalition of interested donors, working through the Good Humanitarian Donorship initiative, might be able to work towards better, more consistent and more predictable funding for disaster resilience. This could have both a global dimension (for example, pooled funds) and an operational dimension (to ensure effective resilience leadership in different disasters).

Advocacy

There is currently significant interest in the concept of resilience – this should be capitalised upon. In the humanitarian sphere, this means different actors need to make the case for resilience in the context of both new and ongoing emergencies. In the development sphere, resilience – both to disasters and more generally – should feature more strongly in the build-up to post-2015 / post-Millennium Development Goal policies.

Networks

Effective resilience-building requires better relationships between a range of actors: national governments, civil society, municipal and local authorities, communities, the private sector, scientists and national military and civil protection bodies. International actors such as United Nations International Strategy for Disaster Reduction and the World Bank Global Facility for Disaster Reduction and Recovery are also vital players, both as actors in their own right and as convenors.

Knowledge and evidence

Improved understanding of the processes that help to strengthen resilience at different levels is needed to inform methodologies for monitoring and evaluating impact and effectiveness. Research and evidence products such as case studies of resilience-related improvements and approaches to learning are needed. Studies that analyse the cost-benefits of resilience and the value for money of different types of interventions are also needed, particularly at institutional, national and international levels.

Integration

The activities that address different aspects of resilience-building currently do so in silos, which limits the wider benefits. Work DFID has supported on adaptive social protection illustrates that targeted support can help break down these silos. This requires (1) research work on the benefits of bringing approaches together, (2) practical efforts on helping different institutions adapt to challenges of programming resilience and (3) adjustments to

¹¹ www.globalhumanitarianassistance.org/wp-content/uploads/2011/07/gha-report-2011.pdf

the funding streams to ensure that resilience work does not fall through the cracks of different funding envelopes or donors' organisational structures. It is also important that institutions themselves work collectively and in a cross-organisational way on resilience. Most importantly, this agenda needs to focus on uncovering how development and humanitarian work can complement and enhance each other. To paraphrase one of DFID's partners in Bangladesh: 'disaster resilience is everyone's business'.



Bangladesh: the lifeline of cyclone shelters

The Government of Bangladesh has built local cyclone shelters in coastal areas. They provide a vital lifeline to villagers – and their livestock, which shelter in the open area on the ground floor during cyclones.

Picture: Rafiqur Rahman Raqu/DFID

Annex 1: Useful reading

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The Department for International Development: leading the UK Government's fight against world poverty.

Department for International Development
1 Palace Street London SW1E 5HE UK

and at:

Abercrombie House Eaglesham Road East Kilbride Glasgow G75 8EA UK

Tel: +44 (0)20 7023 0000

Fax: +44 (0)20 7023 0016

Website: www.dfid.gov.uk

Facebook: www.facebook.com/ukdfid

Email: enquiry@dfid.gov.uk

Public enquiry point: 0845 3004100 or
+44 1355 84 3132 (if you are calling from abroad)

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