Report

Does adaptation finance invest in disaster risk reduction?

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Executive summary

When dealing with natural disasters, the focus of international aid[1] is on responding to a disaster, rather than reducing the potential impacts before it occurs. There is a gap for disaster risk reduction (DRR) financing, which could be filled by adaptation funds that have the capacity to invest directly in DRR activities and to integrate DRR into their other activities. Between 2002 and 2014, approximately 13% of total multilateral adaptation finance had a primary focus on DRR activities (US$ 405 million). This makes DRR the second most funded activity after agriculture. In addition, DRR activities are often integrated into other projects.

This analysis suggests that water and coastal protection are the sectors where DRR is most integrated. DRR investments through adaptation funds appear to be more focused on the poorest countries in comparison to DRR finance from international aid. This was particularly the case for Small Island Developing States (SIDS). DRR channelled through adaptation funds also appears to prioritise activities related to the understanding of risks with a preventive aim, while DRR channelled through international aid prioritises effective responses after a disaster has occurred.

While there is a strong emphasis on the integration of DRR measures in national plans, further work is needed to realise this objective in practice. Overall, adaptation finance is already playing an important role in supporting DRR. Programmes supported by the Green Climate Fund (GCF) also have the potential to support DRR activities as part of efforts to support a paradigm shift towards low-emission and climate-resilient development.

1 Also referred to as Official Development Assistance (ODA).

1. Why is it important to invest in disaster risk reduction and how is this relevant to Adaptation Finance?

There is increasing evidence that investing in DRR[2] before a natural hazard strikes brings socio-economic benefits, including entrepreneurship and innovation (ODI, 2015). Addressing the underlying drivers of disaster risks prevents risk generation and accumulation (GAR, 2015). Investing in disaster resilience has been shown to generate a 'triple dividend' by avoiding losses once disasters occur; stimulating economic activities and innovation; and through environmental, social and economic co-benefits (ODI, GFDRR, World Bank, 2015).

Climate change is altering the frequency, intensity, extent, duration and timing of some extreme weather and climate events (IPCC, 2012) and there is evidence that most disasters in recent years have been climate related: in particular storms, extreme temperatures, droughts, forest fires and flooding (ODI, 2015). DRR efforts can be part of climate change adaptation efforts, and are supported by many adaptation funds. DRR activities include long-term risk assessments, forecasting and early warning systems.

In addition to specifically targeting DRR activities, adaptation funds, to some extent, incorporate risk reduction in their broader investments. This reflects the need to reduce risks in all investments across all sectors and, as such, should be part of any development (or non-development) initiative. For example, US$ 6 trillion is predicted to be spent annually until 2030 on new infrastructure, such as for energy, roads, houses, schools, hospitals and other public services (NCE, 2014). If these fail to be risk resilient investments, they will lock-in risk and could undermine sustainable development.

The need for additional DRR investment is further supported by the data. The annual number of natural disasters increased by 103% between 1991 and 2010 (Munich RE, 2013). The associated economic losses during the same period averaged US$ 117 billion per year (Ibidem), although other estimates range from US$ 250 - 300 billion per year (GAR, 2015). However, these estimates do not reflect the full costs associated with natural hazards, which should also take into account non-monetary values, such as number of deaths per event and the social and psychological impacts of a shock.

The Global Assessment Report (GAR) 2015 on DRR uses the number of 'human life years' lost to measure both the direct impacts of a disaster and the indirect impacts related to forgone social and economic development. Between 1980 and 2012, 42 million life years were lost globally each year due to disasters (GAR 2015). Developing countries suffered 93% of total deaths from natural hazard related disasters between 1991 and 2010 (Watson *et al.*, 2015). The elderly, disabled, women and children are disproportionately affected by disasters (Lovell and Le Masson, 2014).

Research to date has shown that the international community has spent relatively little on DRR. Indeed, between 1991 and 2010, for every $100 spent on international aid, only 40 cents was spent in preventing the impact of potential disasters (Kellett and Caravani, 2013).

2 This paper follows the UNISDR definition of DRR: "The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events".

Over the same period, only 13% of total international funding committed to natural disasters targeted DRR (7% of which focused on flood prevention and control), while 66% targeted emergency response, and 22% reconstruction and relief (Ibidem).

Climate finance, and in particular multilateral adaptation funds (hereinafter referred to as adaptation funds), is a relatively new source of funding for DRR and therefore little quantitative research has been conducted in this area. This paper analyses both the volume of finance that adaptation funds direct to DRR and the extent to which DRR is integrated within their supported activities. It also assesses which regions and countries have benefitted most from DRR investments through these funds to understand whether those most in need are being targeted. Finally, the paper compares the differences in volume, distribution and focus of DRR financing channelled through adaptation funds compared to DRR financing channelled through international aid.

2. The role of adaptation funds in directly supporting DRR

While adaptation to climate change requires broader activities than DRR, both agendas include similar aims and elements. These include integrating climate-related risk into development planning and generating risk management frameworks, as well as a range of hard and soft measures (Kellett *et al.,* 2014). In practice, there is often a lack of financial and institutional integration between the two agendas (Venton and La Trobe, 2008; Mitchell and Aalst, 2008). This might be explained by the fact that these agendas have very different roots. DRR funding has historically been channelled through humanitarian agencies and DRR experts tend to learn from past events and put more emphasis on community-based approaches and short-term solutions. Adaptation to climate change, on the other hand, has been rooted in the United Nations Framework Convention on Climate Change (UNFCCC) and informed by international political negotiations on elements of adaptation to climate change, while adaptation specialists deal more with risks that have not yet manifested and so tend to take into account longer-term design strategies (Kellett *et al.,* 2014).

Nevertheless, the skills, experiences and goals of both fields have comparative advantages in terms of implementing institutions, technical capacities, and technologies deployed. They should therefore learn from each other in order to implement activities in a more effective and efficient way, capitalising on each other's specific competencies to enable a better use of scarce public resources.

All adaptation funds include a specific mandate to support DRR activities in their background documents. The types of activities supported by adaptation funds vary. The Adaptation Fund (AF) has tended to support contingency planning for droughts and floods. The Least Developed Country Fund (LDCF), Special Climate Change Fund (SCCF), Pilot Programme for Climate and Resilience (PPCR) and Global Climate Change Alliance[3] (GCCA) reflect a focus on mainstreaming disaster risk information, assessment tools and appropriate mitigation measures across relevant policies, and development frameworks and investment plans. The LDCF and SCCF also promote access to financial instruments for disaster risk management, including risk transfer. The Adaptation for Smallholder Agriculture Program (ASAP), which is still in the early stages of project implementation, aims to manage short and long-term climate risks and reduce losses from weather related disasters.

The GCF does not have a specific focus on DRR as a result area. However, DRR activities are relevant to the following GCF result areas: strengthening the resilience of livelihoods of people and communities; resilience of infrastructure and the built environment; ensuring health, food, and water security; and strengthening the resilience of ecosystems and ecosystem services (GCF, 2014). The GCF is yet to approve projects, and therefore cannot be included in the quantitative analysis of climate finance presented in this paper. However, the GCF has the opportunity to take a comprehensive approach to integrating DRR activities into adaptation finance. It has already made efforts to ensure that its National Designated Authorities and Focal Points liaise with national focal points for DRR, with support from UNISDR.

The reduction of risks caused by natural hazards is an important priority for all[4] adaptation funds. The next section will discuss the extent to which the financial support provided by these funds reflects this in practice.

3 The funds listed here all exclusively target adaptation, apart from the GCCA, which is a multi-thematic initiative with a particular focus on adaptation.

4 ASAP has not yet approved any projects that specifically support DRR activities, although many of its multi-sectorial projects include a DRR component, hence its inclusion in this analysis.

Table 1: Adaptation funds and DRR support at a glance

Adaptation fund	Year operational	Managed by	Total approved amount (US$ mn)	Total number of projects approved	Approved amount for DRR (US$ mn)	Number of approved DRR projects
Adaptation for Smallholder Agriculture Program (ASAP)	2012	International Fund for Agricultural Development (IFAD)	190.91	21	0.00	0
Adaptation Fund (AF)	2009	Adaptation Fund Board (AFB)	247.31	41	16.40	3
Global Climate Change Alliance (GCCA)	2008	European Commission (EC)	157.25	50	33.66	3
Least Developed Country Fund (LDCF)	2002	Global Environment Facility (GEF)	602.43	199	147.67	27
Pilot Program for Climate and Resilience (PPCR)	2008	The World Bank (WB)	700.17	79	187.99	11
Special Climate Change Fund (SCCF)	2002	Global Environment Facility (GEF)	243.73	61	19.71	8
Total			2,141.80	451	405.42	52

3. Methodology

The analysis that follows draws from a number of datasets. Climate finance data[5] comes from the ODI-HBF Climate Funds Update (CFU) website[6], an independent platform that tracks and monitors the flows of every multilateral climate fund, from the point when donors pledge funding to when funds release funding to implementing agencies for projects aimed at adaptation and mitigation in developing countries. We reviewed all the adaptation projects approved between 2002 and 2014 by dedicated adaptation funds, and categorised them using OECD sectorial classification[7] (OECD, 2015) on the basis of their project descriptions. Where this was unclear or unavailable, categorisation was based on the review of project documents. DRR projects are those described by the OECD as 'Disaster Prevention and Preparedness' and are defined as 'Disaster risk reduction activities (e.g. developing knowledge, natural risks cartography, legal norms for construction); early warning systems; and emergency contingency stocks and contingency planning, including preparations for forced displacement.'

In order to analyse the extent to which DRR has been integrated into other sectors by these funds, we also looked at numerous multi-sectorial projects approved by these funds to identify possible DRR components (e.g. where DRR was identified as one of the key words in the relative project description). This analysis presents an indicator of the overall level of integration of DRR into wider adaptation finance. The sector where DRR appears most integrated among multi-sectorial projects was established on the basis of the prioritised sector described in the project summaries.

There is a tension in the classification of financing for DRR activities. On the one hand, DRR is, and should be, a crosscutting component of adaptation finance. On the other hand, in order to quantify and track the amount of financing allocated to it, we need to classify it as a category of activity in and of itself. This reflects a broader trade-off between the need to track DRR finance in order to identify the main gaps and suggest a better allocation of choices, and the need to mainstream DRR in investment decisions.

All climate finance data is reported in US$ million and is cumulative from 2006[8] to 2014. It refers to 'approved' finance, which represents 'funds that have been officially approved and earmarked to a specific project or programme' (CFU notes), rather than the year it was released from funds. The majority (76%) of multilateral adaptation finance is delivered in the form of grants. The analysis on DRR channelled through Official Development Assistance (ODA) uses a database of DRR finance prepared by Kellett and Caravani (2013). The database is an amended version of the Disaster Aid Tracking (DAT) database, which includes emergency response, reconstruction and rehabilitation, and disaster preparedness and prevention combined with flood prevention and control. This last category is the one used to define DRR finance in this analysis. This dataset covers 1991 – 2010 and therefore has a five-year crossover period with climate finance data. Therefore, the comparisons between the two datasets (e.g. climate finance and ODA) should take into account the different time periods. Other data sources are referenced in the text, where appropriate.

5 Information on the methodology and details of CFU data is available at www.climatefundsupdate.org/about/data-figures-notes

6 The data was accessed in April 2015, which reflects data up to date as of March 2015.

7 Based on the following list: www.oecd.org/dac/stats/documentupload/2012%20CRS%20purpose%20codes%20EN_2.pdf

8 2006 was the first year where a DRR project was approved by an adaptation fund.

4. Multilateral adaptation finance targeted at DRR (2006-2014)

Between 2002 and 2014, the majority of adaptation finance (35%, US$ 1.07 billion) was approved for multi-sectorial activities (Figure 1), which reflects the fact that adaptation objectives are heavily interlinked within various sectors. The next section will analyse in more depth the nature of these activities to understand how DRR is integrated.

Agriculture received the largest share of adaptation finance approved for a single sector, in particular promoting climate resilient agriculture. It received 19% of multilateral adaptation finance (US$ 584 million), followed by 16% for 'unknown', where there was not enough publicly available information to categorise the project to a certain sector. Disaster Prevention and Preparedness (corresponding to DRR) has the second largest share at 13% (US$ 404 million), followed by water and sanitation activities (10%, US$ 304 million). Given the complementary nature of DRR activities, the volume of finance targeted at DRR is likely to be higher than US$ 404 million. As discussed in later sections, DRR activities are deeply interrelated with various adaptation sectors and

Figure 1: Adaptation finance by sector

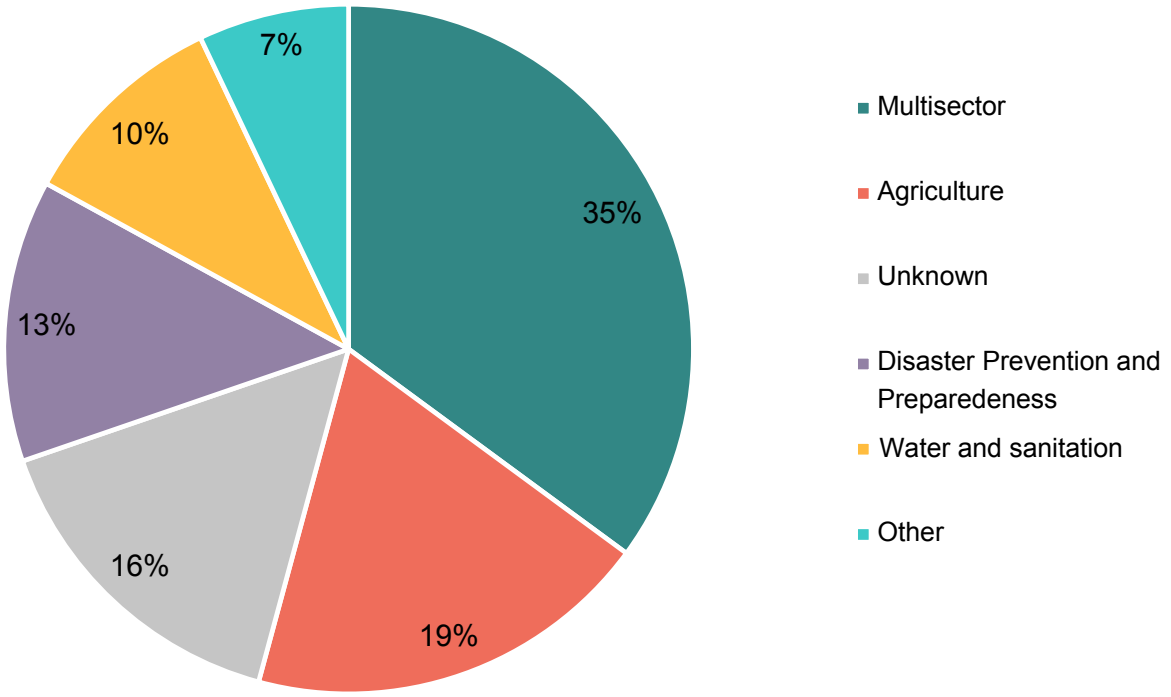
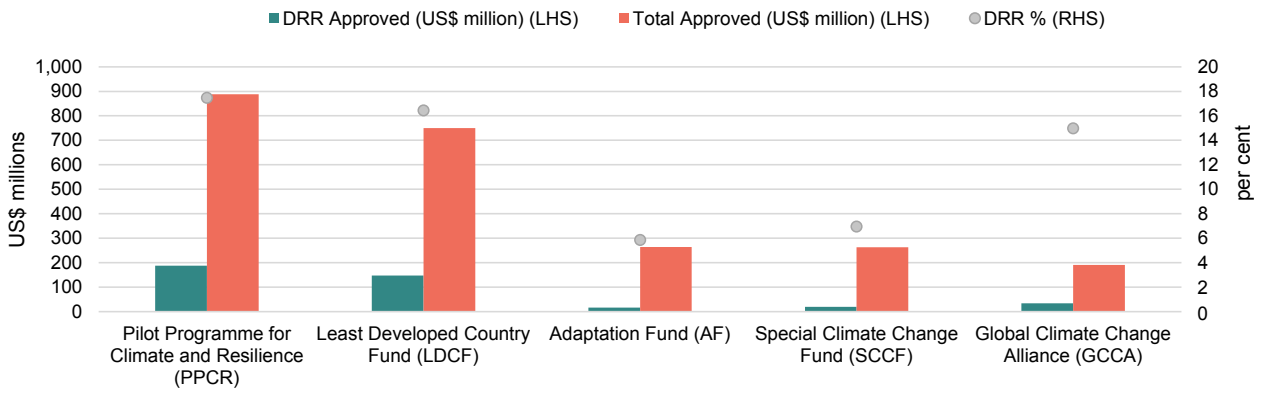


Figure 2: Amounts allocated to disaster disk reduction in adaptation funds (2006-2014)



thus projects may include a DRR component and financial resources allocated to it.

The PPCR is the biggest adaptation fund with almost US$ 900 million approved to date, 21% of which was allocated to specifically support DRR, making it the fund with the biggest share of finance for DRR (Figure 2). It is followed by the LDCF, with a total of US$ 750 million approved, 20% of which is for DRR. The AF and SCCF, both having approved almost US$ 300 million of adaptation finance, direct a relatively smaller share to DRR (6% and 7% respectively). Finally, the GCCA, with the smallest total adaptation finance approved (almost US$ 200 million), targets a relatively high share (18%) of this funding to DRR.

According to the four priorities[9] established through the Sendai Framework for Disaster Risk Reduction (WCDRR, 2015), adaptation funds have mainly invested in *disaster risk reduction for resilience* (Figure 3). This includes hard and soft investments, land use and water management, infrastructure conservation (including natural), construction, reconstruction and retrofitting for economic, social, cultural and environmental resilience (including poverty alleviation programmes, social protection, basic service provision). They also have not funded any projects focussed on Priority 2 and Priority 4.

DRR channelled through ODA prioritised enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction (Watson *et al.*, 2015). The focus of international aid is therefore on responding to a disaster after the event, rather than reducing the potential impacts before it occurs. This highlights an emerging role for adaptation funds in investing in activities that genuinely reduce risk. Understanding disaster risk, which includes knowledge and information generation and management (e.g. vulnerability assessments, CBA and economic assessments, information systems), research, innovation, and technology transfer, is the second priority shared by both adaptation funds and the DRR community. The box below provides more detail on DRR projects funded through adaptation funds.

4.1 Integrating climate risks into multi-sectorial projects

As we are aiming for a world where disaster risk reduction is taken into account across all investment decisions, a way to assess whether this is happening at a micro scale within the adaptation multilateral climate funds is to see whether these funds integrate DRR into their multi-sectorial projects.

Multi-sectorial activities, as already shown, are an important part of adaptation finance, receiving 35% (US$ 1.07 billion) of total adaptation finance. This paper has used an analysis of these projects as a proxy for the overall level of integration of DRR into adaptation finance. Multi-sectorial projects have a clearer distinction in the allocation of finance between different activities, so we can understand the primary focus of the project, and the extent to which DRR activities are integrated.

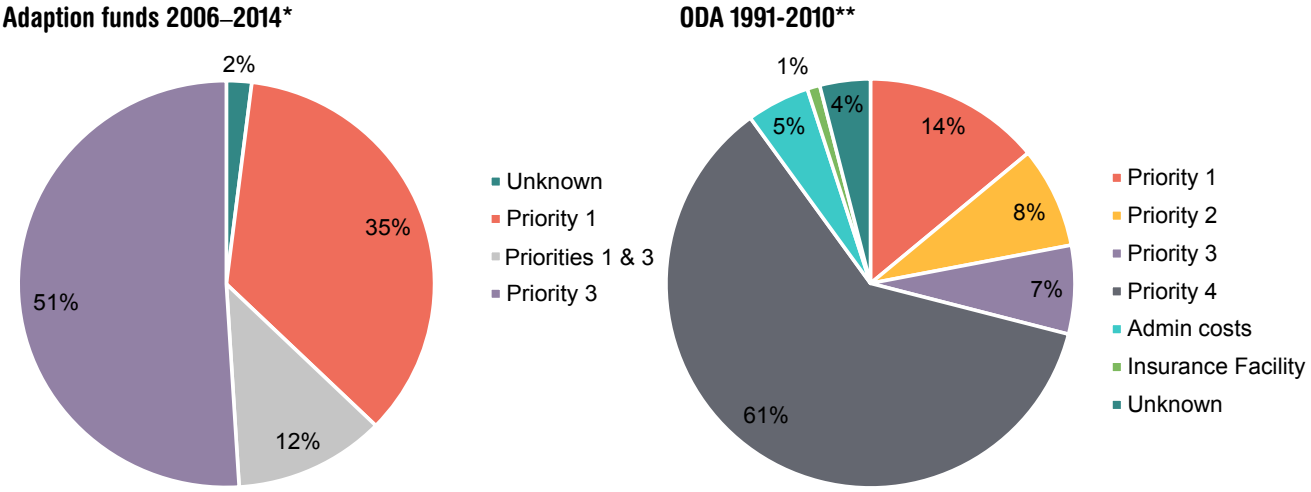
However, this is by no means a perfect estimate, as projects with a single sectorial focus may integrate DRR activities in a different way to multi-sectorial projects.

It is difficult to estimate the DRR funding that is integrated into multi-sectorial activities. However, an initial analysis[10] of publicly available information suggests that about US$ 72 million has been approved as DRR components of multi-sectorial projects (Figure 4). This amounts to about 7% of total multi-sectorial activities supported by adaptation funds. However, about 35% of multi-sectorial projects by number include a DRR element. This suggests that consideration of DRR within multi-sectorial investments may be higher than the funding allocation estimates suggest. As adaptation and DRR are so interrelated, it is difficult to find an adaptation

9 Based on the 51 projects coded on CFU as DRR relevant.

10 See Methodology section for more details.

Figure 3: Number of DRR projects financed via adaptation funds compared to those financed via Official Development Assistance (ODA)



Sendai Framework priority areas:
1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Understanding disaster risk and Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

**Based on the 51 projects coded on CFU as DRR relevant.*

***Based on a randomised sample of 100 DRR projects (3%) funded by development assistance between 1991 and 2010.*

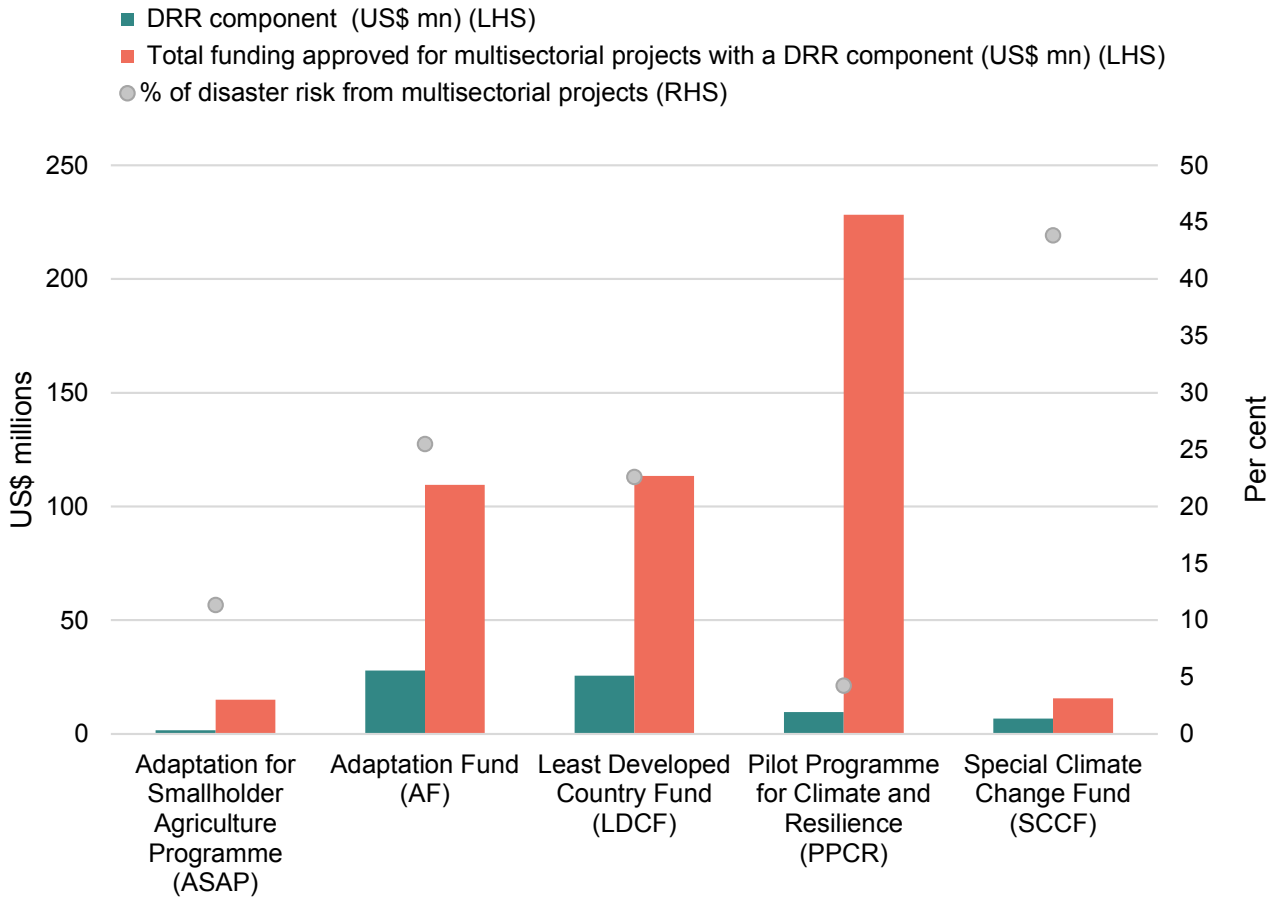
Box 1: Climate finance projects that fund DRR

A total of 51 projects amounting to US$ 405.42 million are categorised on the Climate Funds Update database as in direct support of DRR activities. The majority of DRR funding is provided in the form of grants (76%) with the remaining 24% as concessional loans. At an average project size of US$ 7.95 million, they range from less than US$ 1 million to US$ 40 million each.

- Small projects (up to US$ 5 million) target mainly Sub-Saharan countries. The LDCF and SCCF are the most active, and all finance is as grants. Projects mainly focussed on *Understanding Disaster Risk*. They include building local capacity to utilise climate information for responding to climate hazards; or strengthening climate information and early warning systems to reduce disaster risk impacts; and enhancing the capacity of vulnerable coastal communities to address the risk of climate change and extreme weather events.
- Medium sized projects (US$ 5 – 15 million) are supported by all adaptation funds, but mainly the LDCF, covering all regions. 12% are provided as concessional loans, and the remaining 88% as grants. They focus on both *Understanding Disaster Risk* and on *Investing in disaster risk reduction for resilience*. As with small projects, the former supports enhancing capacity to monitor climate risks and to use that knowledge to reduce disaster risks. The latter are more sector specific, such as investments in water infrastructure, but are often complemented with capacity building components. One LDCF project in Samoa targets efficient integration and management of adaptation and DRR into national development planning and programming. This is the only project that aims to integrate both adaptation and DRR into national plans.
- Large projects (US$ 15 – 40 million) are all funded by the PPCR, half as concessional loans and half as grants. They focus on *Investing in disaster risk reduction for resilience* to build resilient infrastructure including coastal improvements. Interestingly, these large-scale projects are mainly targeting SIDS such as St. Lucia, Dominica, Vanuatu and Grenada.

Source: CFU projects list and project documents.

Figure 4: DRR integration into multi-sectorial adaptation activities (2006-2014)



project that is entirely divorced from DRR. However, it is possible to identify adaptation funds and sectors where DRR appears best integrated.

The SCCF, which targets a relatively low share of adaptation finance specifically at DRR, does widely integrate DRR in its multi-sectorial activities. The PPCR by contrast has limited attention to DRR in its multi-sectorial activities. However, it should be noted that for many PPCR programmes it was not possible to establish an exact amount directed to DRR, which partially explains this finding.

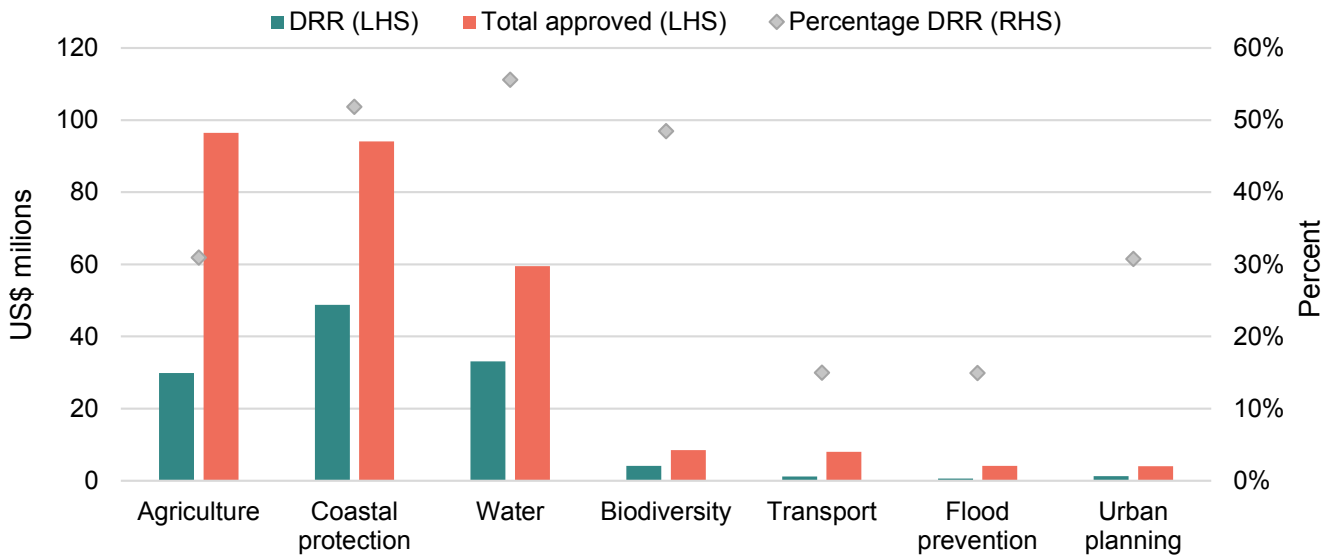
The majority (65%) of the multi-sectorial projects with a DRR component used this component to *Understand Disaster Risk*, indicating that most project managers see DRR as a 'soft'[11] component used to assess risks through studies to complement other more technical adaptation activities. Instead, DRR specific projects tend to invest directly in increasing resilience to disasters and climate change impacts.

Figure 5 offers an indication of the sectors where DRR has been prominently integrated with adaptation efforts,[12] namely water and coastal protection.

11 'Soft' measures include those based on studies and analysis, as opposed to 'hard' measures, where their implementation requires technology or other technical outputs.

12 The chart reveals sectors that appear to be prioritised, but in most cases this is also complemented by activities from other sectors.

Figure 5: Prioritised sectors where DRR is most integrated in multi-sectorial activities (2006-2014)



5. Who has benefitted from DRR investment through adaptation funds?

DRR finance through adaptation funds has been allocated fairly evenly across the different regions (Figure 6). Sub-Saharan Africa is the region that receives most DRR support; followed by Latin America, the Pacific and South Asia; and finally the Middle East and North Africa. This uniformity of funding allocation is not, however, reflected across countries, where the top 10 recipients of adaptation finance for DRR receive more than half of total DRR finance.

Low-income countries have not been prioritised in DRR funding channelled through international aid, with only 0.09% allocated to them (Kellett and Caravani, 2013). By contrast, low-income countries receive 46% of DRR funding channelled through adaptation funds (Figure 7). This, however, reflects wider adaptation finance priorities and trends, which focus on low-income countries, particularly as some of these funds have the mandate to support LDCs, as in the case of the LDCF. By contrast, funds that aim to mitigate climate change by reducing GHG emissions tend to target middle income countries where emissions are growing fastest (CFU, 2015).

5.1 DRR recipients

Six out of the 10 top recipients of DRR finance through adaptation funds, namely Bangladesh, Nepal, Niger, Vanuatu, Bhutan, and Cambodia also rank amongst the top 50 most vulnerable countries to climate change (Figure 8). Niger ranks amongst the top 10. When looking at

Figure 6: Regional allocation of DRR through adaptation funds (2006-2014)

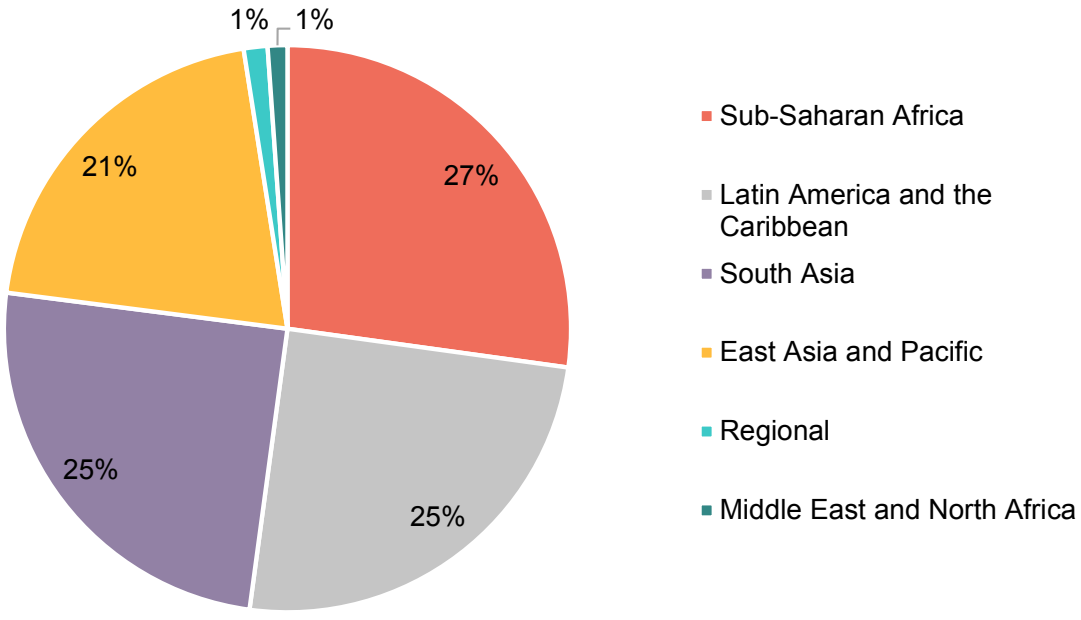
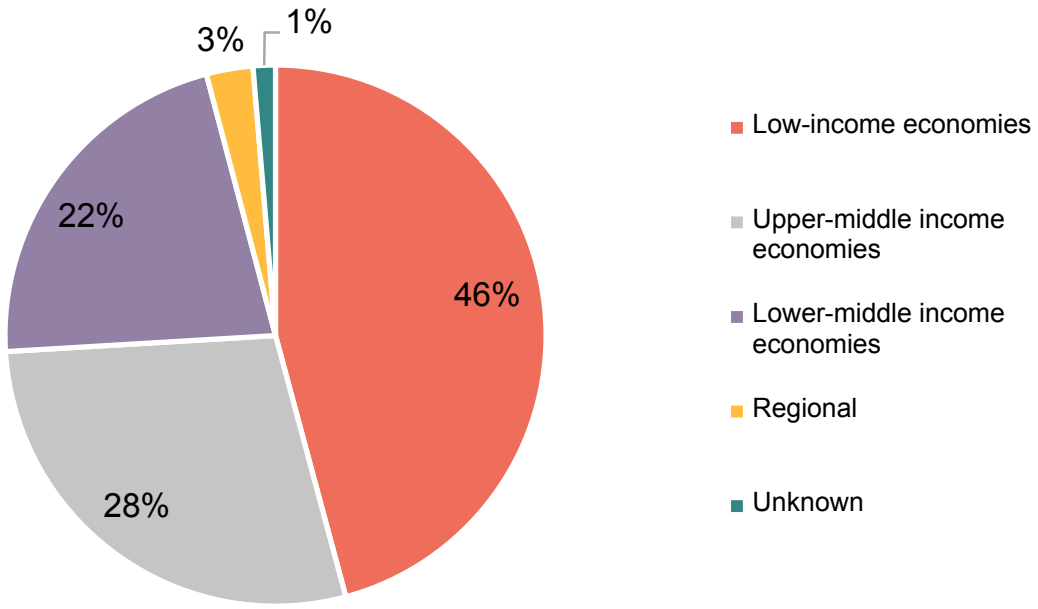


Figure 7: Allocation of DRR finance through adaptation funds by country income level (2006-2014)



countries with the highest number of deaths caused by natural disasters, Bangladesh, which is the top recipient of DRR finance through adaptation funds, is also amongst the top 10 countries: 6,500 deaths between 2006 and 2011 (EMDAT 2015 data).

94% of DRR funding through adaptation funds is directed at Least Developed Countries (LDCs), Small Island Developing States (SIDS) or fragile states (Figure 9). This is specific to DRR funding as when looking at the rest of adaptation finance, about 75% of it targets mainly LDCs and fragile states. This shows that the specific added value of DRR funding is its targeting of SIDS, which do not receive much funding from the remaining adaptation finance.

Figure 8: Top recipients of DRR finance and their vulnerability ranking (low number = high vulnerability) (2006-2014)

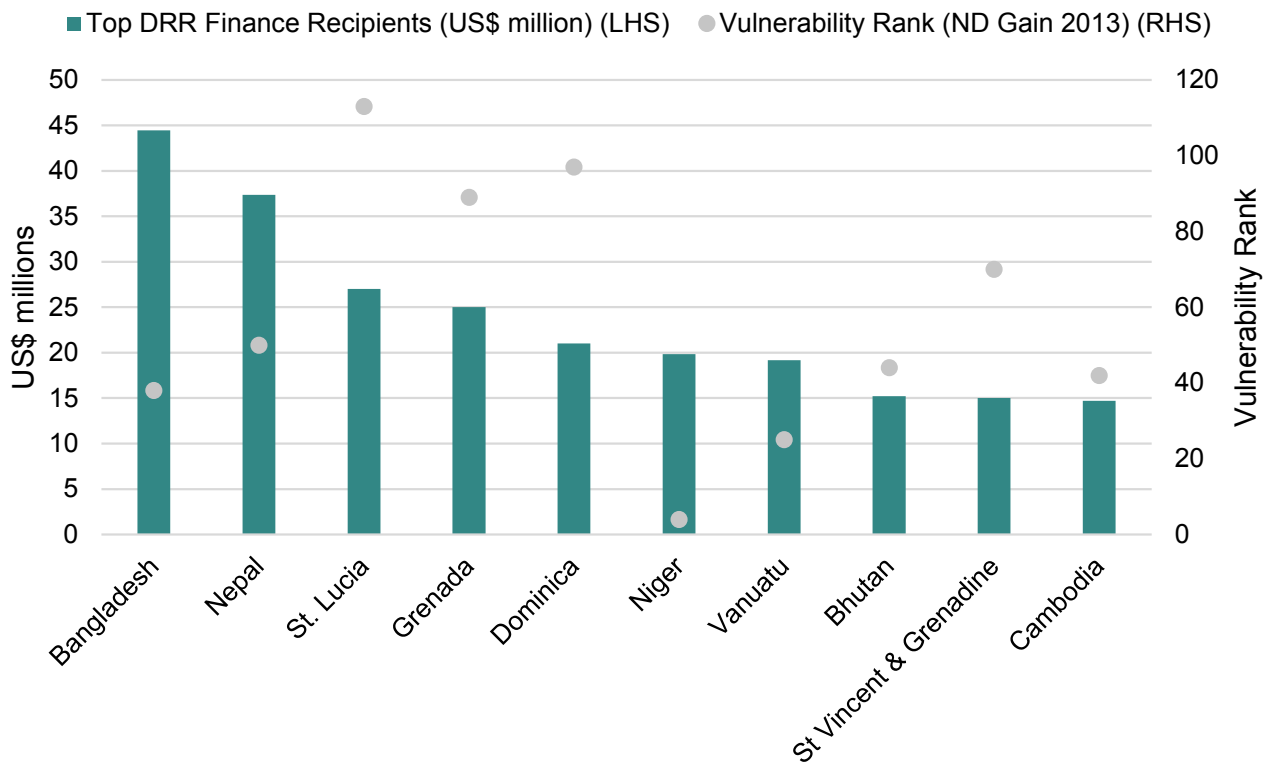
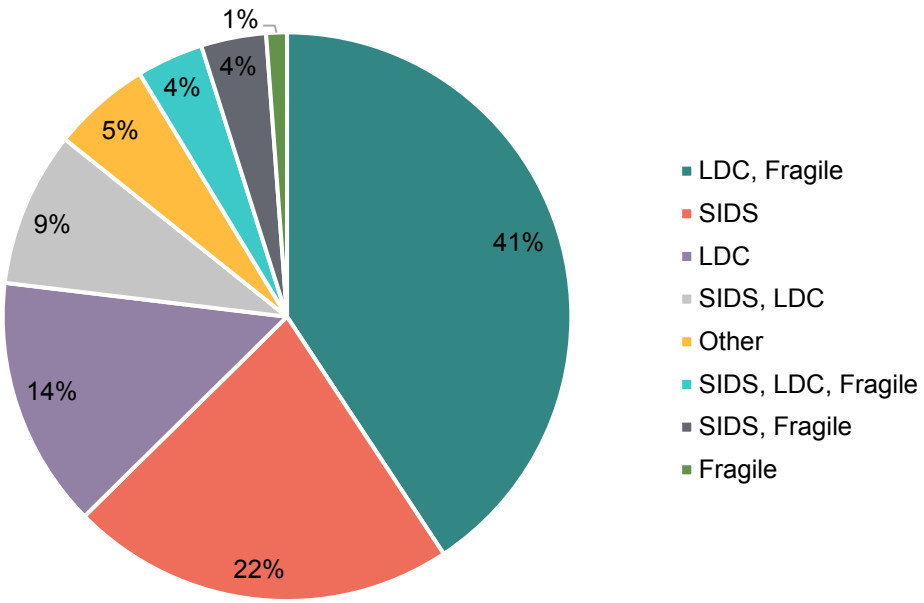


Figure 9: Categories of DRR recipient countries (2006-2014)



Conclusions

Climate change is altering the frequency and intensity of natural disasters. The nature of the activities needed to reduce disaster risks are strongly linked to the investments needed to support adaptation. This suggests that adaptation funds can play an important role in DRR.

There is a clear need to invest in DRR, particularly in the context of climate change. Economic and non-economic losses have increased over the last twenty years as a result of natural disasters. Increasing evidence shows that DRR investments generate wider socio-economic benefits for countries and their people.

The reduction of risks related to climate change is an important priority for all adaptation funds. Between 2002 and 2014 about 13% of total multilateral adaptation finance targeted DRR (US$ 404 million). Excluding multi-sectorial and unknown projects, DRR activities are the second most funded after those relating to agriculture.

DRR channelled through adaptation funds appear to prioritise activities related to the understanding of risks, with a preventive aim; while DRR channelled through international aid prioritises effective responses, after a disaster has occurred.

Water and coastal protection are the sectors where DRR dimensions appear to have been most integrated. Further analysis is needed to verify the level of DRR integration within agriculture, which this study suggests has been relatively low. Given the vulnerability of the agricultural sector to climate-induced disasters such as drought and flooding, there may be opportunities for adaptation funds to do more to support DRR in the agricultural sector.

DRR investments through adaptation funds appear to have focused more on the poorest countries compared to DRR from international aid. The needs of SIDS have been a particular area of focus, given that they are severely affected by natural disasters.

Many donors express a goal of seeking to help countries incorporate both DRR and adaptation into national development plans and strategies. However, our review suggests that so far adaptation funds have played a relatively minor role in such efforts: there may be potential to strengthen such dimensions, including in supporting countries to complete National Adaptation Plans.

Overall, our analysis suggests that adaptation finance is already playing a crucial role in supporting disaster risk reduction in some of the poorest countries and those most vulnerable to climate change. DRR considerations are both integrated in other adaptation activities, and are occasionally stand-alone programmes that target climate related risk. The role of the GCF in supporting the nexus between adaptation to climate change and disaster risk reduction remains to be seen, but there is huge potential for it to support a more systematic focus on these linkages through its programming efforts.

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