

Financing Disaster Risk Reduction

A 20 year story of
international aid

Jan Kellett and Alice Caravani

Sept 2013



GFDRR
Global Facility for Disaster Reduction and Recovery



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Acknowledgements

This report is a jointly funded initiative of the Global Facility for Disaster Reduction and Recovery (GFDRR) at the World Bank and the Overseas Development Institute (ODI).

The report was written by Jan Kellett (lead author) and Alice Caravani at ODI. Guidance throughout the work came from Prashant at GFDRR and Tom Mitchell (ODI). Hemang Karelia (GFDRR) was invaluable in its early development, and especially in preparing the underlying database of disaster-related financing. In addition to this, the following provided peer review during the preparation of this report: Tom Mitchell, Emily Wilkinson (ODI); Hemang Karelia, Daniel Kull, Prashant (GFDRR); John Harding (United Nations Office for DRR) Jo Scheuer (United Nations Development Programme).

Additional thanks go to Petra Low at Munich Re for permission to use the company's data on the impact of disasters, and to Regina Below at CRED for help in preparing data on affected populations. Thanks also to Maxx Dilley (UNDP) for guidance on using global hotspots information and data, to Christian Peratsakis at Development Gateway for preliminary support on core datasets, and to Florence Pichon for her analysis of the Climate Funds Update website data.

Publication design was by the writers in collaboration with designer Steven Dickie, who prepared all elements and the general layout for publication. Copy-editing was by David Wilson.

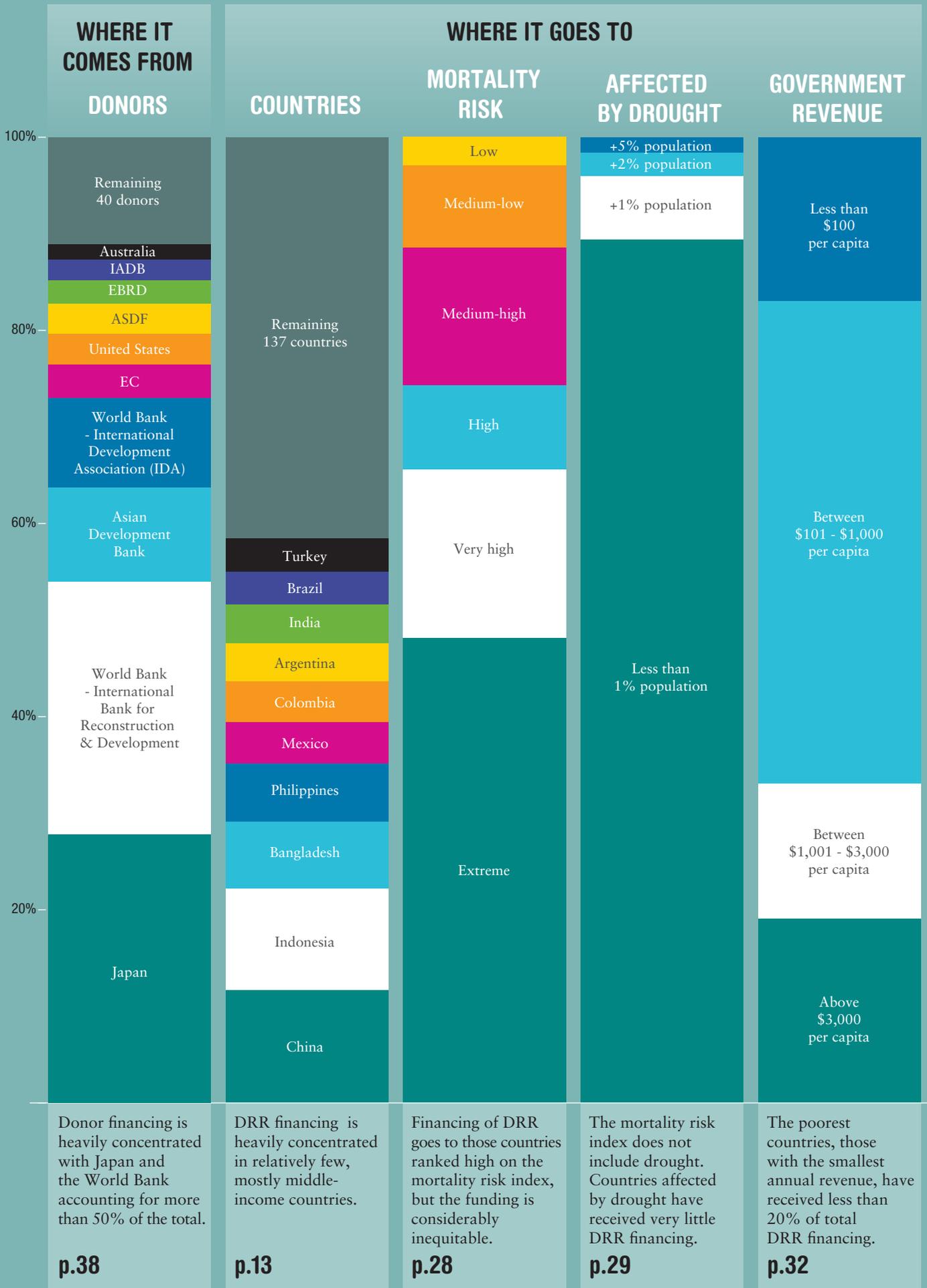
Finally, a special thanks to Emma Lovell at ODI for significant support throughout this project.

Acronyms

ADB	Asian Development Bank	GNI	Gross national income
AF	Adaptation Fund	HFA	Hyogo Framework for Action
CCA	Climate change adaptation	IADB	Inter-American Development Bank
CERF	Central Emergency Response Fund	LDC	Least developed country
CFU	Climate Funds Update	LDCF	Least Developed Countries Fund
CRED	Centre for Research on the Epidemiology of Disasters	LIC	Low-income country
CRS	Creditor Reporting System	LMIC	Lower-middle-income country
DAC	Development Assistance Committee	MRI	Mortality Risk Index
DaLA	Damage and Loss Assessment methodology	NAPA	National Adaptation Programme of Action
DAT	Disaster Aid Tracking database	OECD	Organisation for Economic Co-operation and Development
DRM	Disaster risk management	PPCR	Pilot Program for Climate Resilience
DRR	Disaster risk reduction	SIDS	Small island developing states
EBRD	European Bank for Reconstruction and Development	UMIC	Upper-middle-income country
GAR	Global Assessment Report	UNDP	United Nations Development Programme
GCCA	Global Climate Change Alliance	UNISDR	United Nations Office for Disaster Risk Reduction
GDP	Gross domestic product		
GFDRR	Global Facility for Disaster Reduction and Recovery		

\$13.5 billion

20 years of international financing of disaster risk reduction (DRR)



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Executive summary

This moment, with so many policy debates converging on 2015, represents a unique opportunity to ensure that disaster risk reduction (DRR) becomes a truly fundamental component of development and poverty reduction. The international financing of DRR, representing the international community's support to national governments in their efforts to protect development gains from disasters, is coming under increasing scrutiny.

This report examines the record of the international community to date, investigating the priorities in financing of DRR, and asking questions of both the equity and adequacy of past efforts. Beyond this it points to the future of a more rational, targeted investment in risk reduction.

The evidence of the 20-year trends in international DRR financing is worrying:

- Financing has been highly volatile; only in the past few years has there been relative stability.
- Although \$13.5 billion of financing has been made available, it is a fraction of overall aid, less than 40 cents in every \$100.
- Disaster losses in developing nations amount to \$862 billion (a considerable under-estimate) – equivalent in value to one-third of all international development aid.
- There is a high concentration of funding in a relatively small number of middle-income countries. The top ten recipients received nearly \$8 billion, the remaining 144 just \$5.6 billion combined.
- Financing is considerably fragmented. The 3,188 projects that cost less than \$1.5 million represent 86.5% of the total number but only for 5.5% of the volume of financing. The administrative costs of this have not been calculated.
- Many high-risk countries have received negligible levels of financing for DRR compared with emergency response; 17 of the top 20 recipients of response funding received less than 4% of their disaster-related aid as DRR.

In addition, the priorities of international financing are, on the whole, not matched to either the needs or capacity of recipient countries:

- There is some correlation between mortality risk levels and volumes of financing, but only at the high-risk level.

- Per capita financing reveals significant inequity. Ecuador, the second highest recipient per capita, received 19 times more than Afghanistan, 100 times more than Costa Rica and 600 times more than the Democratic Republic of Congo (DRC).
- Where the economy is at risk, volumes of financing tend to be high; where predominantly populations are at risk, volumes are often low.
- Financing in drought-affected countries is very weak. Niger, Eritrea, Zimbabwe, Kenya and Malawi have seen 105 million people affected by drought, but their combined DRR financing has been \$116.5 million, the same as Honduras alone.
- Financing does not take into account national capacity and finances. Twelve of a group of 23 low-income countries each received less than \$10 million for DRR over 20 years. These same countries received \$5.6 billion in disaster response, equivalent to \$160,000 for every \$1 of DRR.

There are positive areas to build upon, including relatively stable financing in the past few years; less financing of heavy infrastructure; a move away from richer middle-income countries; and increasing DRR financing from climate adaptation. There should, however, be considerable caution given the pressures on traditional funding sources, and sustained concern for the high numbers of low-income, sub-Saharan African countries, often severely affected by drought, that have seen minimal international DRR financing.

The data available for tracking the financing of DRR is not as good as it should be. Both broad pictures and individual country detail are needed, and to obtain this data improvements are urgently required. We also need to better understand national financing of DRR, and the interplay between national and international sources.

Despite issues with data, the evidence drawn together in this report strongly suggests that the international community must take stock of the way it provides support to national governments. Questions need to be asked about the role of international financing, the funding architecture and how funds from other sources can be brought to bear. Above all else, there is a need to move towards gauging the effectiveness of what has been spent.

The future therefore is not just about more money from donor governments, but also about better financing – more integrated and suitably coordinated, and certainly better targeted.

1

Introduction: The importance of the moment

The importance of the moment is indisputable. We are already close to 2015 and to not only a likely successor to the Hyogo Framework for Action (HFA), the international community's blueprint for reducing disaster risk, but also a follow-on to the Millennium Development Goals (MDGs). There is evidence that increasingly the policy behind these grand initiatives is coming together, and that risk and development, development and risk, are increasingly being seen as going hand-in-hand. The original MDGs had little to say about the impact of disasters on development. However, there are signs that their successor initiative will have something considerable to say about disaster risk, and similar restraints and setbacks to progress, with perhaps – if the High Level Panel's recommendations are made real – a direct link to the reduction of poverty.¹

In addition, the HFA itself is coming of age. At the recent Global Platform for Disaster Risk Reduction (DRR) in Geneva, it was clear that we have now entered the phase of implementation. Delegates, in both formal sessions and informal conversations, made it clear that they are keen to move beyond rhetoric. National platforms have been set up, legislations have in large part been created and institutions developed, and in some countries much more has been done, but now more than ever the focus is on actions leading to concrete results.

While policy debates and considerations of best financing practices might occupy attention, disasters continue to make their impact felt both nationally and locally. Massive sudden-impact disasters destroy communities in an instant, while the socio-economic fabric of nations is eaten away by slow-onset disasters such as drought, month-by-month, year-by-year. Recent estimates suggest that the number of people displaced by disasters reached more than 32 million in 2012, double the total in the previous year.² The impact of climate on disaster risk is continuing to grow. The World Bank's report 'Turn Down the Heat'³ and the Overseas Development Institute's forthcoming 'Poverty, Disasters and Climate Extremes in 2030' both highlight the contribution of climate to an increase in extensive risk and impoverishment, factors which often fail to gain the attention they deserve.

The mid-term review of the HFA⁴ made it clear that national governments bear the primary responsibility for reducing disaster risk, supported where required by the international community. It also stated that financing from all sources was largely failing to meet requirements, considerably hindering

progress. For domestic financing, this is largely due to the challenge of ensuring that DRR is a budgetary priority. With international financing, the most important issue is that DRR remains a humanitarian issue, financed largely out of emergency budgets. This is not, however, a question of levels of financing from either domestic or international sources but one of complementarity, alignment, coordination and mutual accountability.

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This report goes further than ‘DRR: Spending Where it Should Count’, (by Kellett and Sparks, 2012) by analysing for the first time the financing of DRR to all countries. It considers the international financing of DRR in terms of the support it gives, or should give, to national efforts to reduce disaster risk. This is in the context of pressures on ‘traditional’ sources of donor financing from the international community, with budgets stretched and international aid having fallen in successive years (by 4% in 2012, following a 2% fall in 2011) and with only a modest recovery likely this year.⁵

This report is therefore first and foremost about choice, firstly about the case for allocating what is a limited pot of money to the reduction of disaster risk, to complement and not compete with other aid activity; and, secondly, about where and what are the most appropriate areas to spend this money. There are serious questions to be asked about the choices that the international community makes. What drives investment in reducing disaster risk? For what reasons do we invest in one country rather than another?

Much has already been achieved by national governments, in many cases supported by the international community, both before and since the HFA. There have been successes. Lives have been saved, livelihoods protected and resilience built. However, we need more, faster and better action to contain the current trend of risk.

Above all else, this report is a call to action.

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2

**Disaster risk
reduction in the
context of aid**

Key Messages

- Financing for disaster risk reduction makes up a tiny fraction of overall investments in development aid.
- There is little evidence of sustained financing from the international community. Large single projects often account for apparent trends.
- Financing is gradually moving away from larger (often infrastructure) projects towards ‘technical support’.
- Heavy concentration of financing in relatively few middle-income countries and in a small number of projects, masks inequality and fragmentation, with many high-risk countries sharing little funding spread across many projects.
- Many high-risk countries receive negligible financing for DRR compared with massive amounts for response and reconstruction.
- Disaster losses in developing nations are equivalent to a minimum of one-third of all international development aid over the past 20 years.

The low priority of reducing disaster risk

DRR has been at best a very low priority over the past two decades. In this period, the international community committed just over \$3 trillion in aid. Of this, \$106.7 billion was allocated to disasters, and of that just a fraction, \$13.5 billion, was for risk reduction measures before disasters strike, compared with \$23.3 billion spent on reconstruction and rehabilitation and \$69.9 billion spent on response. Of overall aid financing over 20 years, the \$13.5 billion spent on DRR accounts for just 0.4% of the total amount spent on international aid. Essentially, for every \$100 spent on development aid, just 40 cents has been invested in defending that aid from the impact of disasters.

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METHODOLOGY BOX: TRACKING DRR

The key dataset in this report is drawn from the Disaster Aid Tracking (DAT) database developed by the Global Facility for Disaster Reduction and Recovery (GFDRR) and Development Gateway. Drawn from a line-by-line examination of more than a million international aid projects, it presents probably the best-combined data on international commitments to disasters.

The dataset is broken down into three sub-sets: disaster prevention and preparedness, emergency response, reconstruction and rehabilitation. The most important for this report is ‘disaster prevention and preparedness’. This is equivalent to what the United Nations Office for Disaster Risk Reduction (UNISDR) would term disaster risk reduction. (DRR) (see <http://www.unisdr.org/we/inform/terminology>). Throughout this report the terminology is used from the same source.

Figure 2.1: Disaster financing as a proportion of total international aid, 1991-2010

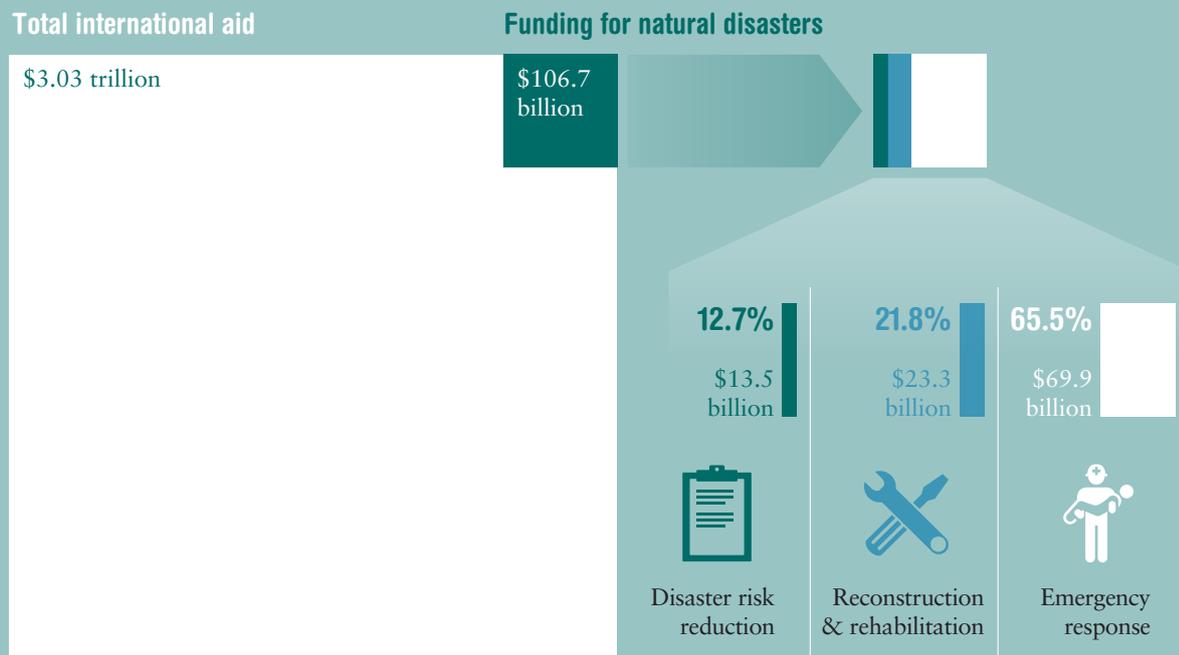
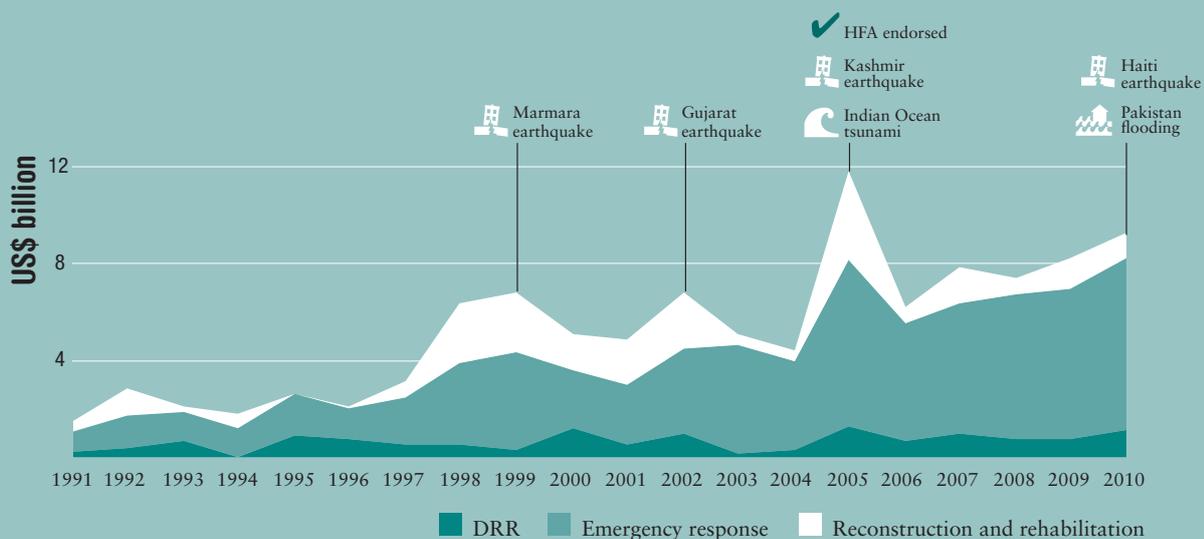


Figure 2.2: Disaster-related financing, 1991-2010



The trend for commitments related to disasters has been on the increase since the late 1990s, but this increase is largely accounted for by activities undertaken in the aftermath of events rather than by DRR, with financing of response in particular having increased to a remarkable degree. Certain events have been particularly important in accounting for peaks in overall disaster financing while also, due to the massive impact and media attention they have generated, often helping at least to put DRR on the agenda. Most such events have been earthquakes, where a very visible and sudden impact generates significant attention, pushing up financing of both response and reconstruction activities. This was true of the Marmara earthquake in Turkey in 1999, when \$1.1 billion of reconstruction aid was provided by the World Bank alone, and Gujarat, India in 2001, where two projects – one by the Asian Development Bank (ADB) and one by the World Bank – accounted for \$1.4 billion of reconstruction aid. Another peak for both financing for disasters and consciousness of the risks came in 2005, when the Indian Ocean tsunami and the Kashmir earthquake dominated the headlines and accounted for a huge volume of finance. 2010 saw a continued rise year-on-year in disaster financing, the second highest on record after 2005 – driven largely by the Haiti earthquake, when

\$1.8 billion of post-disaster aid was accounted for largely by emergency response (\$1.7 billion of the total) and not by reconstruction, unlike in earlier earthquake contexts.

DRR as a proportion of financing for disasters was much higher earlier in the two decades than in the past few years: this is largely a function of particularly large infrastructure investments (mostly in flood prevention and control) in the first ten years examined, combined with relatively low levels of emergency response before 2000. Since 2003, financing of DRR has been roughly stable at about 10% of overall financing on disasters each year.

This ‘stability’ has to be put into the context of overall financing of disasters compared with other priorities of the international community. The \$1.1 billion financed in 2010 – one of the best years on record in terms of overall volumes – pales in comparison with expenditures on food aid, on financing of the Global Fund to Fight AIDS, Tuberculosis and Malaria and on peacekeeping (see Figure 2.4 on next page). These are all worthy of finance in their own way, and their presentation here is not a criticism; rather it puts the low priority of DRR compared with other aid funding into perspective.

Figure 2.3: Proportions of disaster-related aid, 1991-2010 (\$ millions)

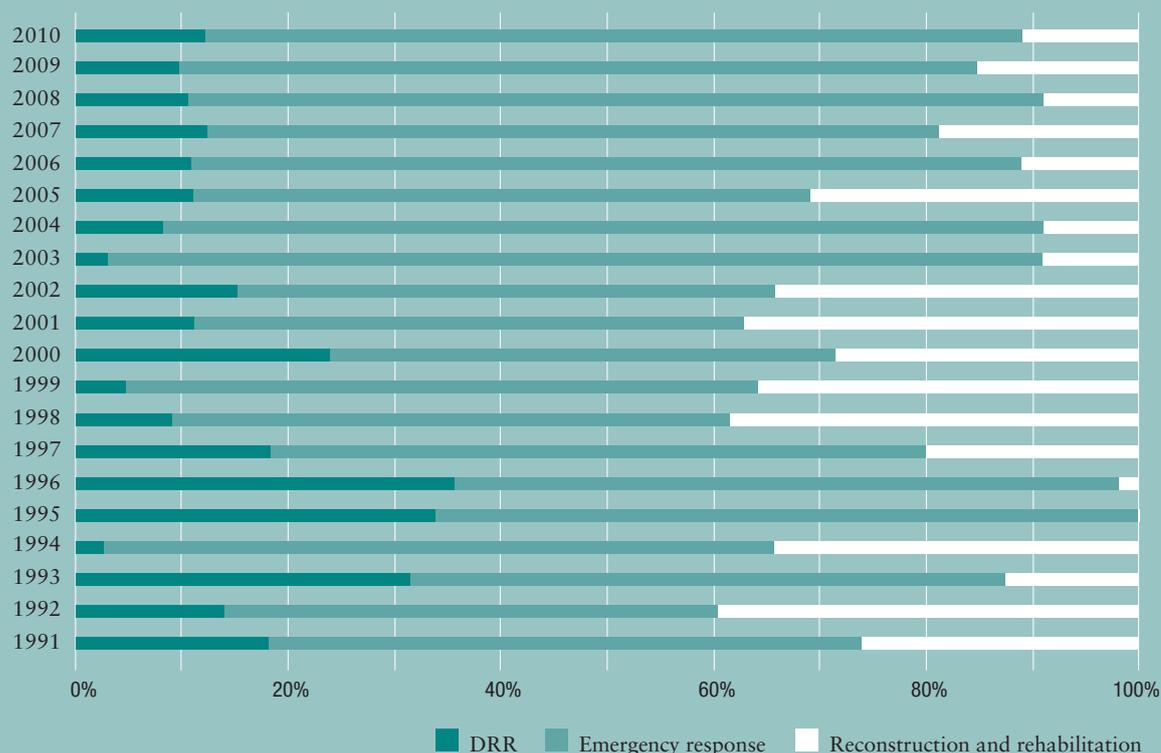


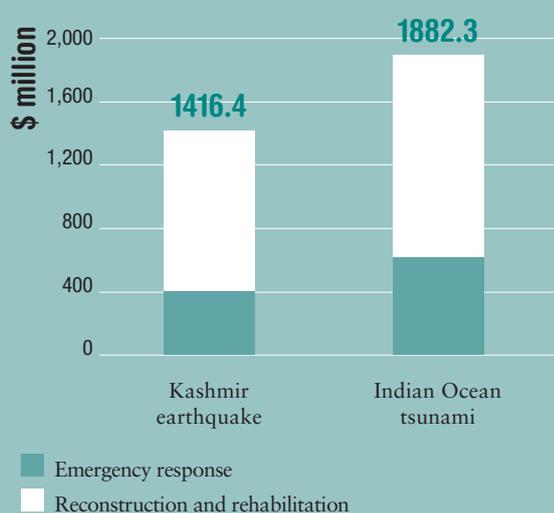
Figure 2.4: DRR compared with other international aid investments (2010 figures)



International priorities are also evident in how skewed funding has been towards post-disaster financing. 2005 was a key year in terms of raising consciousness about disasters, driven by the massive impact of the Kashmir earthquake in October 2005 and in particular by the Indian Ocean tsunami that struck in December 2004. The post-disaster financing for these two events puts in a stark light the considerable

predisposition of the international community towards response and reconstruction, rather than prevention. In 2005 at least \$3.3 billion was committed after these two disasters alone, \$1 billion for response and \$2.2 billion for reconstruction and rehabilitation. Essentially, the emergency response and reconstruction financing for these two disasters in one year were equivalent to a quarter of the total (\$13.5 billion) spent on DRR in all countries over a period of 20 years. Given the scale of these events and the costs in emergency response and reconstruction, it might be wondered what more it would take to increase financing of reducing disaster risk.

Figure 2.5: Post-disaster financing after the Kashmir earthquake and Indian Ocean tsunami



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The economic losses attributed to disasters at a global level is staggering. Insurance group Munich Re estimates that 8,652 disaster events in developing countries between 1991 and 2010 caused \$846 billion of financial losses (a figure that is limited to the direct impact of disaster alone)⁶. This makes the \$13.5 billion spent on DRR look even more like a drop in the ocean compared with what happens when such investment is not made. These losses might also be balanced against the \$3.03 trillion spent on all aid activities over the same two decades. We can't state how much international development has been lost to disasters and its too crude to simply compare overall aid to overall losses. However we can be certain that the impact of disasters is significant, and that development, whether funded by domestic resources or international aid, is considerably impacted. How much could have been saved if funding to DRR had been doubled, tripled or more?

This can also be examined using specific data from detailed investigations based on the Damage and Loss Assessment (DaLA) Methodology (see methodology box on next page). This data, which comes from just a selection of countries where the impact of single large disaster events has been analysed, also highlights the cost of not investing in prevention. Since 1991, a total of 81 assessments using the DaLA format have been undertaken in 44

THE INTANGIBILITY OF COST

Excluded from traditional calculations of losses (including the DaLA methodology) are intangible costs, i.e. those that do not have a market price, such as the psychological impact of losing a house, or other social and cultural factors such as the disruption of social cohesion that greatly influence a person's life and make recovery from disasters an even more difficult and 'expensive' process. Increasingly a large body of literature is examining ways to integrate these intangible costs into the total costs assessments for natural hazards.⁷

countries (Figure 2.6). The total damage and losses in these assessments amounted to \$101 billion, with individual losses ranging from \$8.7 million caused by flooding in the Central African Republic (CAR) in 2009 to the massive \$7.8 billion in losses caused by the 2010 Haiti earthquake. Although more damage and losses might be presumed to occur in richer developing nations (given the greater likelihood of them having assets to damage or lose, and the likely greater value of those assets) a massive financial impact is also seen in low-income⁸ countries, such as Haiti, Myanmar after Cyclone Nargis (\$4.1 billion of damage and loss) and Pakistan after the Kashmir earthquake (\$3.2 billion).

FIGURE 2.6: DAMAGE AND LOSS ASSESSMENT

	Sum of total damage and losses (\$ millions)	Number of DaLA assessments undertaken	DRR financing (1991-2010) (\$ millions)
Mexico	10,698.2	9	586.3
Indonesia	10,166.0	6	1,439.2
Haiti	8,957.9	3	99.2
Honduras	5,072.9	1	161.2
India	4,824.3	2	524.9
Peru	4,680.0	1	333.1
Philippines	4,429.4	1	834.6
Venezuela	4,322.5	2	28.8
Myanmar	4,101.3	1	9.1
Cayman Islands	3,945.1	1	No data
Remaining 34 countries assessed using DaLA	39,915.2	54	3,470.5
	101,112.9	81	7,486.9

METHODOLOGY BOX: DAMAGE AND LOSS ASSESSMENT (DALA) METHODOLOGY

The Damage and Loss Assessment (DaLA) Methodology was initially developed by the UN Economic Commission for Latin America and the Caribbean (UNECLAC) in 1972. It has since been improved to capture the closest approximation of damage and losses due to disaster events. The DaLA Methodology bases its assessments on the overall economy of the affected country. It uses the national accounts and statistics of the government as baseline data to assess damage and loss. It also factors in the impact of disasters on individual livelihoods and incomes to fully define the needs for recovery and reconstruction. See <https://www.gfdr.org/node/69> for more details.

Note that damage is calculated as the replacement value of totally or partially destroyed physical assets; losses in the flows of the economy that arise from the temporary absence of the damaged assets; and the resultant impact on post-disaster macroeconomic performance, with special reference to economic growth, the balance of payments and the fiscal situation of the government.

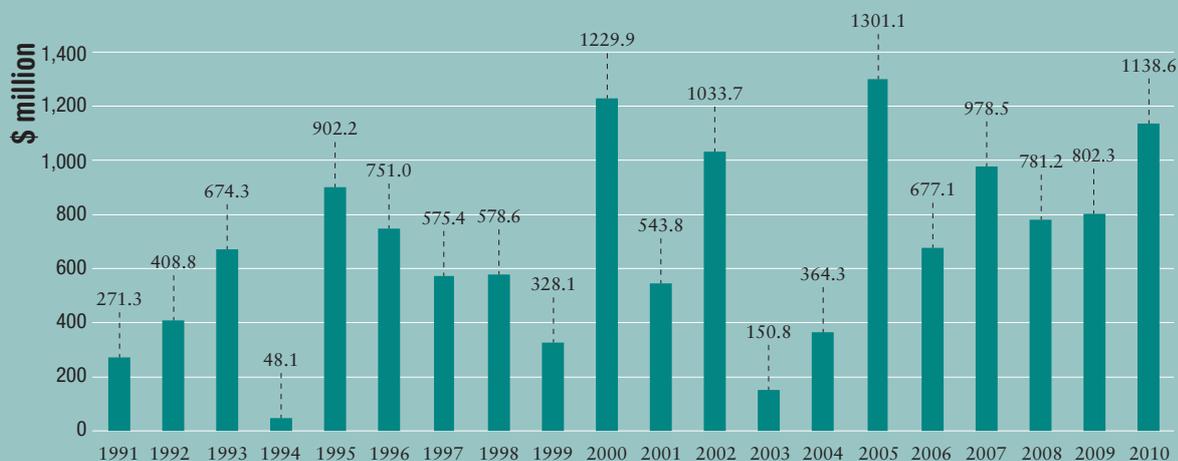
All the investments in reducing disaster risk made by the international community look meagre at best in the face of these massive financial impacts. Perhaps the \$99.2 million invested in Haiti since 1991 stands out in particular as being too little, especially when considering the range of risks that the country faces and its history of disasters well before the 2010 earthquake.

Trends over time: how much and what

It is almost impossible to discern any clear trends within DRR financing over the past 20 years, except perhaps for a modest increase from 2000 onwards. Similar to financing for disasters overall, most of the higher figures for individual years are not trend-related at all but are largely

accounted for by a few large projects. In 2000, for example, the World Bank allocated \$584 million to Mexico for a multi-sector disaster management project. In 2002, the European Bank for Reconstruction and Development (EBRD) spent \$320 million on flood protection schemes for St Petersburg in Russia, which according to data is the only DRR project the bank has funded. In 2005, four World Bank projects accounted for \$993 million (in Turkey, Colombia, Argentina and Vietnam) or 76.6% of total DRR financing that year; the remaining \$304 million was fragmented across 133 separate projects (an issue that will be revisited later). Finally, in 2010 the peak in financing was attributable largely to the World Bank (with one cyclone risk mitigation project worth \$252.6 million in India and another risk financing project worth \$99 million in Peru) and Japan's climate risk financing of \$147 million spread across 14 countries.

Figure 2.7: DRR financing, 1991-2010



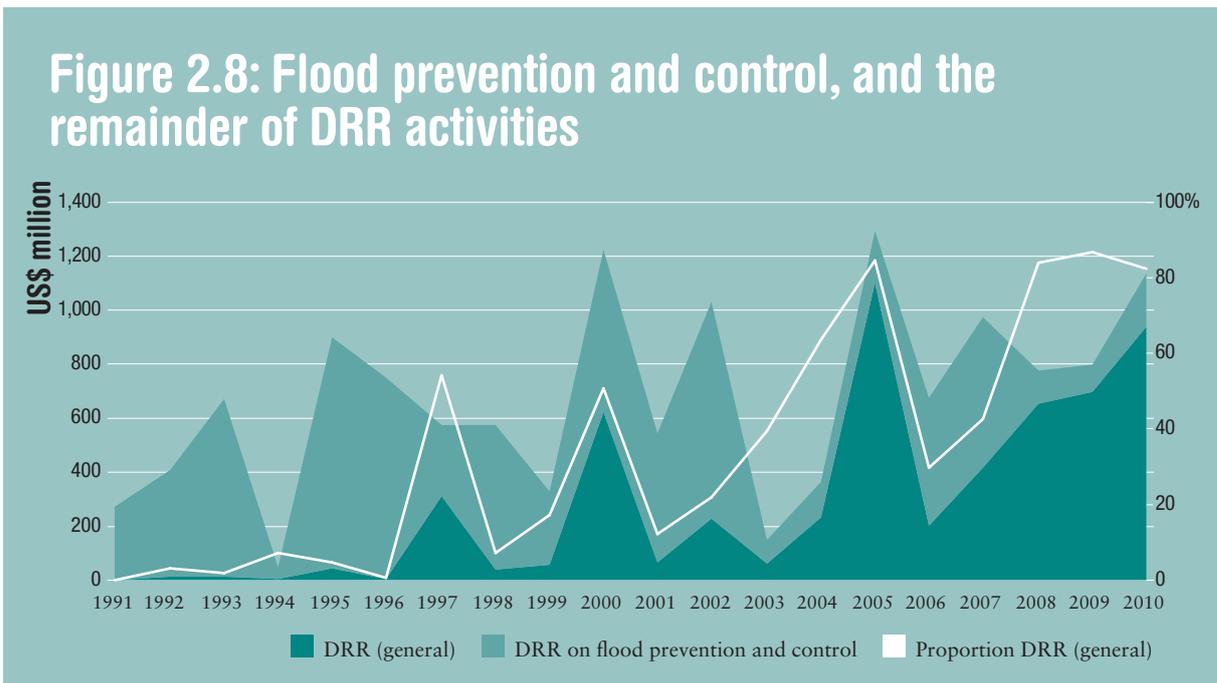
This relatively high and stable funding of DRR since 2008 is in stark contrast with the volatility and sometimes very low figures over the rest of the two decades. Some years have seen miserably low levels of financing for DRR, such as 2003, when only \$150.8 million was allocated to 43 projects worldwide. Of that, three projects alone accounted for \$111 million, in the Democratic Republic of Congo (DRC), Sudan and Azerbaijan. The remaining \$39 million was shared between 29 countries and two regions.

DRR financing can be further investigated by disaggregating funding for flood prevention and control from that intended for other activities. Flood prevention activities, made up largely of large infrastructure projects, dominated the first 10 years, regularly making up more than 90% of all DRR financing, and accounting for \$7.8 billion (57.7%) of the 20-year total. The financing for the remainder of DRR was a very low proportion of financing for much of the first decade and into the next, nine years below 20% and a further four years below 50%. Financing for flood prevention has decreased significantly since 2002 however, and this, combined with increased allocations for the remaining DRR has pushed up the latter to beyond 80% of totals on a regular basis, especially since 2008.

The data provides no clear reason for this changing pattern. Perhaps a focus on the Hyogo Framework for Action (HFA), and an emphasis on ‘technical’ support to countries, has shifted overall international financing away from large-scale infrastructure projects.

It could also be partly due to a combination of greater national ownership of disaster risk and pressures on donor financing, leading to a greater emphasis on funding support to transfer more of that ‘ownership’. Finally, the decline in flood prevention and control financing also coincides with years in which climate adaptation funds have started to play a more important role in financing DRR – preliminary evidence suggests these are much less likely to focus on heavy infrastructure but rather on early warning, climate-related legislation and risk knowledge.

This all needs further examination. It also calls into question the comparative advantage of international financing for reducing disaster risk. What exactly should the international community be funding? Arguably the financial ‘heavy lifting’ of risk reduction should be left largely to national governments, so that international actors can focus increasingly on ‘kickstarting’ projects, on technical advice and on technology transfer. The data is not very helpful at this stage, since it is impossible to understand exactly what is being funded beyond these two broad sets of DRR data described above, without a detailed line-by-line search of the 3,687 DRR projects over 20 years. Present recording and tracking systems demand this forensic investigation to understand the full investment by the international community in early warning systems, the development of government frameworks or coordination capacity. What the data does suggest is that, whatever the international community does, it appears to be fragmented into many approaches (as discussed overleaf).



TOP RECIPIENTS OF FUNDING FOR FLOOD PREVENTION AND CONTROL

For some countries, flood prevention and control has accounted for a very high proportion of overall DRR funding. Most of these are middle-income countries. Some of the countries with a high proportion of funding going towards flood prevention are rather surprising. They do not show up in the top 10 overall due to the relatively small amounts received, but proportionally their flood financing is significant and unusual, such as the DRC (100% of \$52.2 million for DRR) and Kenya (80% of \$88 million).

Figure 2.9: Top 10 recipients of funding for flood prevention and control, 1991-2010 (\$ millions)

	Flood protection and control	Remaining DRR financing	Total	Proportion to flood prevention
China	1,550.5	27.9	1,578.4	98%
Indonesia	1,114.0	325.2	1,439.2	77%
Bangladesh	726.1	190.3	916.4	79%
Philippines	621.6	213.0	834.6	74%
Argentina	544.0	0.5	544.5	100%
Brazil	489.4	2.9	492.3	99%
Russia	321.0	0.0	321.0	100%
Sri Lanka	272.1	14.1	286.2	95%
Lebanon	250.9	1.4	252.3	99%
Poland	189.5	0.8	190.3	100%

METHODOLOGY BOX: WHAT IS BEING FUNDED?

One of the key challenges of the work of investigating the financing of DRR is understanding exactly what is being financed, and the 'quality' of that financing, something that the broad categories of databases rarely describe. Three examples are particularly relevant to this section of the report and throughout:

- Investments in flood prevention and control (like the rest of DRR financing) can both add and reduce disaster risk, dependent on exactly how they were undertaken.
- Financing of reconstruction and rehabilitation may not only 'reconstruct' but also may contribute to the reduction of disaster risk, perhaps, for example, if the oft-heard concept of 'build back better' is adopted.
- Financing beyond DRR can also contribute to risk reduction. International investments in rural and urban development could well reduce the likelihood of disaster, or reduce its impact. (Of course, similar to flood prevention, risks can also be built through such developments.)

A relevant question for moving forward on tracking DRR is how we can understand the real value of all investments that may reduce risk, whilst also being in a position to challenge investments that may be simply adding to risk.

Who we fund: the recipients of DRR

The first and most obvious point about the funding going to DRR activities is how the money is concentrated in just a few recipient countries, with all but one (Bangladesh) of the top 10 recipients of financing being middle-income countries⁹ (this pattern of heavy concentration of DRR financing within middle-income countries reappears time and time again through this report). Similarly, 114 recipients of DRR over the 20 years do not even make it into the top 50, all of them receiving less funding than the \$23.9 million received by Bosnia-Herzegovina.

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The disaster financing profile of developing countries is extremely variable. In some countries, DRR has accounted for a considerable proportion of disaster-related aid, such as in Colombia (39.6%), China (40.9%) and the Philippines (55.7%). Meanwhile some countries have received a very small amount of disaster financing for DRR, such as Tajikistan (9% of \$40.3 million), Mozambique (3.7% of \$1.1 billion), Kenya (7.7% of \$1.6 billion) and Haiti (3.6% of \$2.7 billion). Even on a country-by-country basis, the balance of financing both before and after a disaster merits scrutiny. Each of these last four countries suffers recurring disasters of various kinds and all have differing capacity issues that arguably demand international support beyond response and reconstruction alone.

Pakistan is a stand-out case by virtue of the massive amount of disaster funding it has received over the past 20 years: \$5.9 billion, or 5.5% of all disaster-related funding to all countries over the entire period, which means that it has received one in every 20 disaster dollars committed. Somewhat irrationally, despite the significant impact of a range of disasters including earthquakes, droughts and floods, only

\$161.5 million of this has actually been spent on DRR. During this same period, however, massive amounts have been spent on response (\$3.3 billion or 55.2% of the total) and on reconstruction and rehabilitation (\$2.5 billion).

To give a more complete picture of the balance of financing between response and prevention, we need to include the additional \$21.9 billion of disaster response funding that is not reported as going direct to individual countries. This funding goes through a range of regional and global institutions that deal with disaster response, but a large proportion of it is still spent in the countries affected by disaster. These non-country-specific volumes are important as they represent a third of all financing to emergency response, and would likely highlight even further discrepancies between what is spent before and after disasters occur. For instance, if proportions of country-based financing of emergency response are used as a guide, we could imagine Ethiopia's disaster response funding of \$5 billion rising by an additional \$500 million, or 10%, over the two decades to \$5.5 billion.

Figure 2.10: Regional and global disaster financing, 1991-2010 (\$ millions)

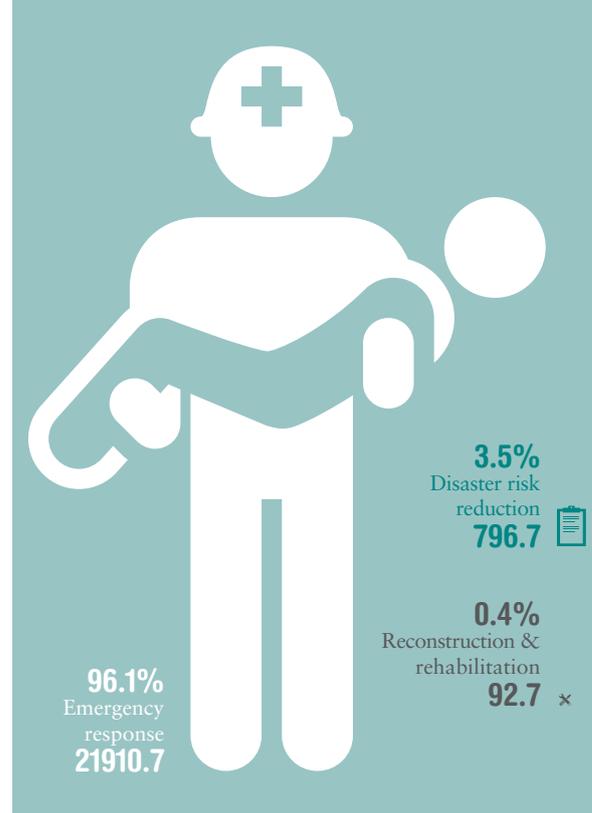
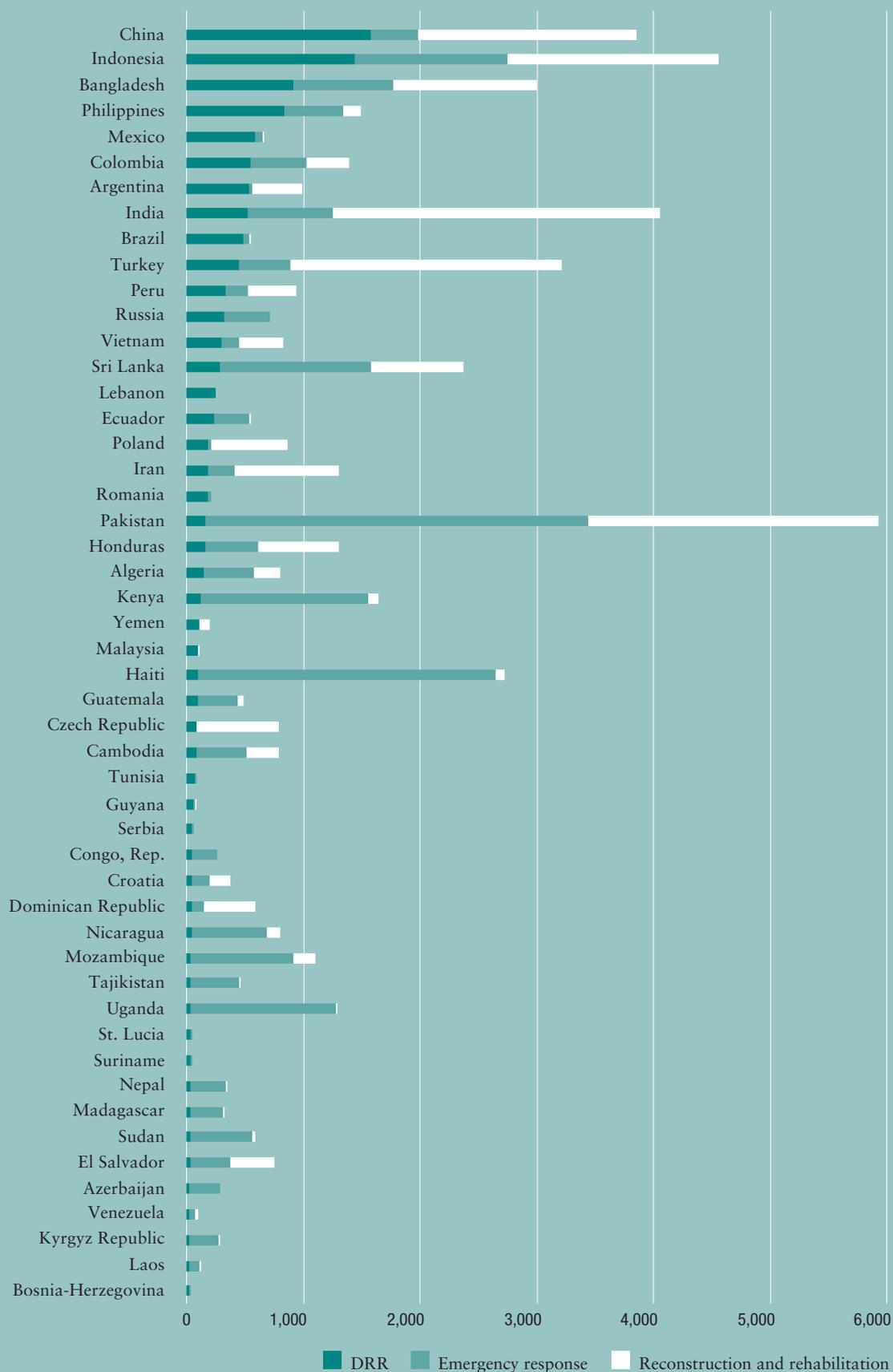


Figure 2.11: Top 50 recipients of DRR financing, 1991-2010 (\$ millions)



Regional and global disaster financing to DRR and to reconstruction and rehabilitation are little more than minimal, barely registering as a percentage of the total. The \$92.7 million for non-country-specific reconstruction financing over the 20-year period perhaps reflects one of the key gaps in financing for disasters that this report does not examine, namely ‘recovery’, but it is one that should be considered in the context of the likely successor to the HFA.

The \$796.7 million of financing for DRR that does not go direct to countries is split into slightly more than 50% marked as ‘bilateral unspecified’ and then a range of regional recipients. The ‘bilateral’ amount is accounted for largely by contributions to DRR-specific global institutions such as the United Nations Office for Disaster Risk Reduction (UNISDR) and the Global Facility for Disaster Reduction and Recovery (GFDRR). The regional financing is made up of initiatives that are implemented across a range of countries, such as famine early warning systems across the Sahel region and contributions to risk financing in the Caribbean.

The way we fund: concentration and fragmentation

Where the international community funds DRR is a significant issue, but *how* it funds it is equally important. Some of this we don’t know from the data, such as the breakdown of loans and grant, or whether or not DRR financing represents project-based or ongoing support. What the data does tell us strongly however, is that there is a high concentration of financing in a handful of countries and a fragmentation across many different projects, both of which, at the very least, contribute to a unequal distribution of funds.

The volumes of DRR financing are highly concentrated. China and Indonesia, the two largest recipients, between them account for \$3 billion (22.3%) of total financing. The next eight countries account for another 36.2% (\$4.9 billion) while the following 20 countries account for \$3.5 billion, or 26.1% of the total. Essentially, the top 30 recipients of DRR funding have received 84.6% of total financing over the past 20 years. The remaining 118 countries that have received at least some financing over that period share the remaining \$1.3 billion – which works out at \$11 million per country, or on average just \$550,000 per year.

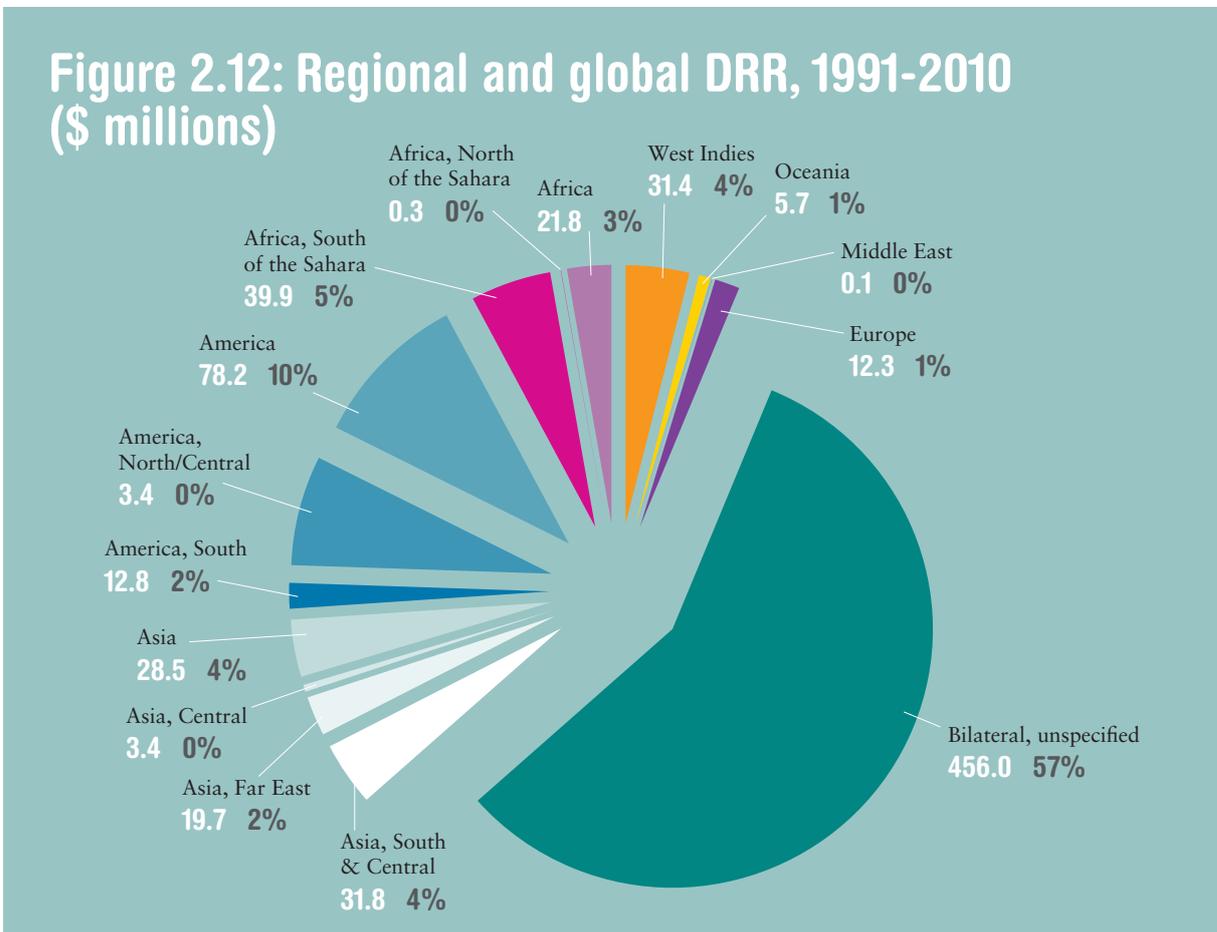


Figure 2.13: Concentration of DRR funding to recipients, 1991-2010

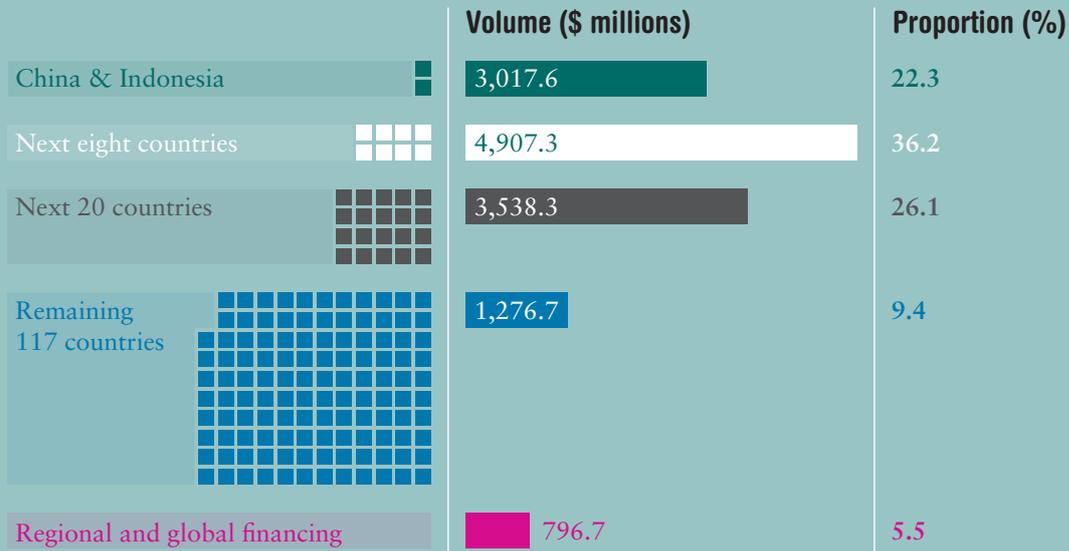
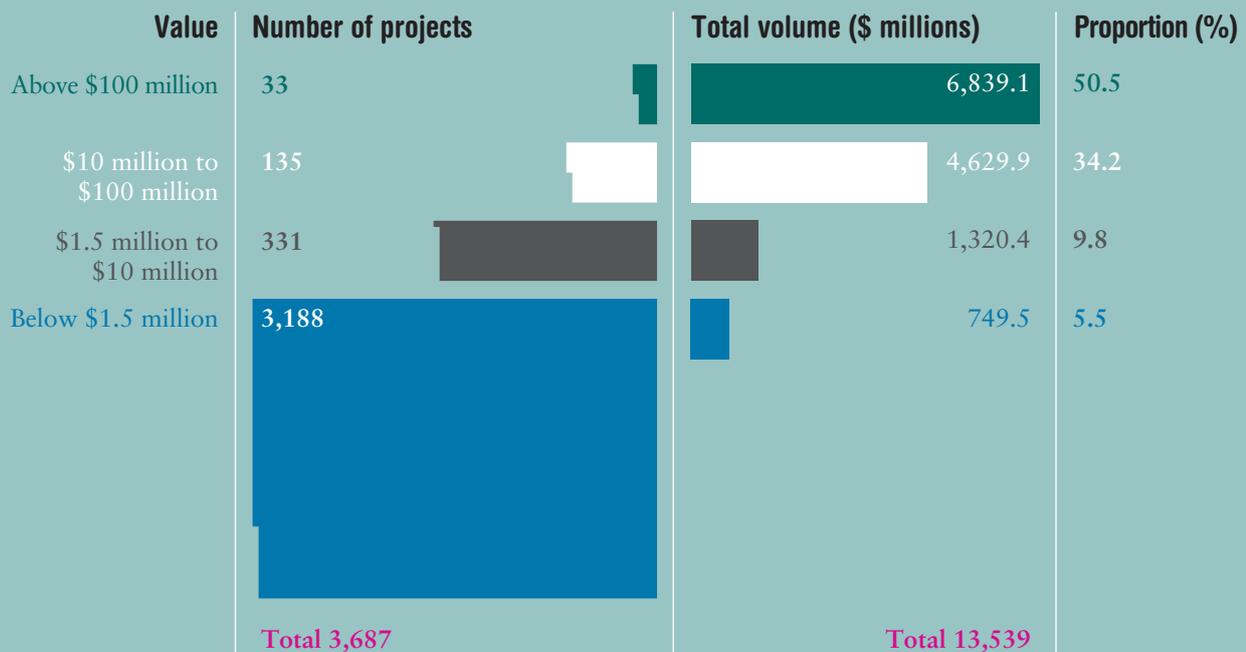


Figure 2.14: Concentration and fragmentation of DRR projects, 1991-2010



While this concentration of funding amongst a small number of middle-income countries is conspicuous, (perhaps in part representing these countries greater capacity to request and manage support) there is also an issue of significant fragmentation overall in terms of projects funded. A relatively small number of projects account for the vast majority of funding overall. For example, just 33 projects with a value of more than \$100 million apiece account for \$6.9 billion of all DRR financed over the 20-year period, equivalent to more than 50%. A further 135 projects worth between \$10 million and \$100 million account for 34.2% of the total, while 331 projects worth between \$1.5 million and \$10 million account for a further 9.8%. This leaves a huge number of individual projects worth less than \$1.5 million – 3,188 in total, with funding equivalent to just \$235,112 per project. In addition, the trend is not necessarily a positive one. In 2007, a total of 489 projects financed by international donors accounted for \$978 million in funding, at \$2 million per project on average; in 2010, 1,192 projects averaged just \$955,000.

To date, little work has been done to calculate the transaction costs and capacity burden to developing countries in managing all these individual projects and in dealing with donor relationships and their varying approaches to financing the reduction of disaster risk. Some countries have a particularly fragmented funding picture. For example, what are the administrative costs of the 68 projects to the value of \$33.3 million in El Salvador, the 66 projects worth \$45.9 million in Nicaragua or the 57 projects worth \$40.5 million in Mozambique? Even the relatively high volume

what are the administrative costs of the 68 projects to the value of \$33.3 million in El Salvador, the 66 projects worth \$45.9 million in Nicaragua or the 57 projects worth \$40.5 million in Mozambique?

FIGURE 2.15: TOP RECIPIENTS OF DRR FINANCING BY NUMBER OF PROJECTS, 1991-2010

	Number of projects	Value of projects (\$millions)	Average value per project (\$millions)
Indonesia	163	1,439.2	8.8
Bangladesh	149	916.4	6.2
Philippines	138	834.6	6.0
Vietnam	135	303.8	2.3
China	111	1,578.4	14.2
India	78	524.9	6.7
Peru	70	333.1	4.8
El Salvador	68	33.3	0.5
Haiti	66	99.2	1.5
Nicaragua	66	45.9	0.7
Afghanistan	62	22.1	0.4
Mozambique	57	40.5	0.7
Tajikistan	56	40.3	0.7
Pakistan	54	161.5	3.0
Honduras	50	161.2	3.2
Guatemala	48	97.9	2.0
Nepal	48	35.0	0.7
Bolivia	47	18.7	0.4
Ethiopia	45	23.0	0.5
Iran	41	189.8	4.6

of \$1.4 billion overall going to Indonesia is fragmented into 163 different projects. When it is further considered that the top 10 projects in Indonesia in terms of volume account for \$1.1 billion of this total (from Japan and the ADB), the suggested administrative burden is even heavier, as the remaining 153 projects share just over \$300 million.

Country and project financing patterns for DRR suggest several key points. First, that there has been little consideration of prioritising international aid across a range of needs, especially when we consider that the major recipients are largely middle-income countries (a point we return to below). Second, investigation into the concentration of volumes reveals that overall figures actually mask considerable inequities, with many countries sharing very little at all. Finally, this same investigation reveals that, while high volumes are concentrated in a few projects, there is a proliferation of smaller projects that are likely to cost considerably more in terms of transaction costs for both donors and recipients, and more challenging in terms of coherence across interventions.

Adaptation funding for DRR¹⁰

One of the few clear positives to come out of an examination of financing for DRR activities is the increasing level of funding that comes from climate adaptation financing sources, such as the Adaptation Fund (AF), Least Developed Countries Fund (LCDF) and the Pilot Program for Climate Resilience (PPCR).

Between 2003 and 2011, a total of 347 adaptation projects were approved, accounting for about \$1 billion in financing. Prior to 2008, although 66 projects were approved, not one of them was targeted towards DRR and only seven were related to ‘non-targeted DRR’ activities. By 2011 the overall profile had changed remarkably, and positively (especially given the considerable disconnect that often exists between disaster prevention and climate adaptation activities at a country level). In that year, of the 130 projects approved, 70 had at least a partial DRR objective (53.8% of the total), while 17 were targeted directly.

Figure 2.16: Total funding from adaptation sources 2003-2011, \$ millions

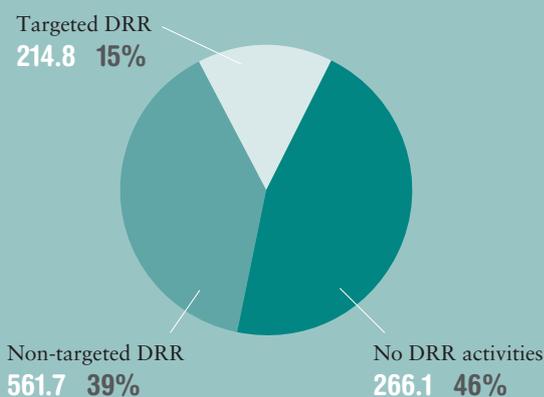


Figure 2.17: Numbers of adaptation projects targeting DRR

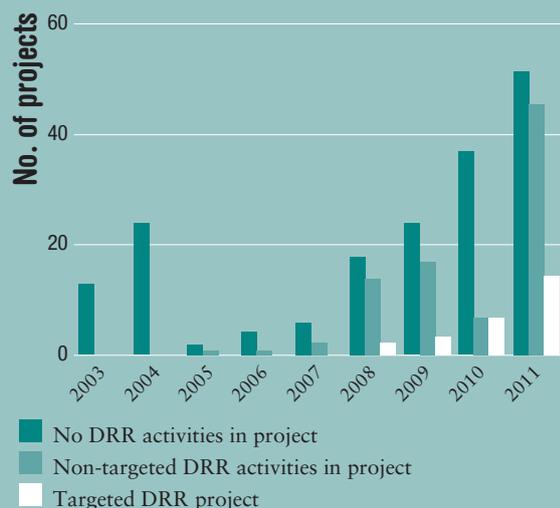


FIGURE 2.18: TOP 20 RECIPIENTS OF DRR FINANCING CHANNELLED THROUGH DEDICATED ADAPTATION FUNDS

Top 20 recipients	Amount approved (\$ millions)	Country income level	Climate vulnerability score
Benin	18.8	Low-income	0.513
Grenada	16.4	Upper-middle	0.320
Bhutan	11.5	Lower-middle	0.439
St Vincent & the Grenadines	10.3	Upper-middle	0.340
Samoa	8.7	Lower-middle	0.429
Burundi	8.7	Low-income	0.584
Papua New Guinea	7.5	Lower-middle	0.483
Nepal	6.3	Low-income	0.508
Jamaica	5.6	Upper-middle	0.384
Nicaragua	5.5	Lower-middle	0.369
Cook Islands ¹¹	5.4	n/a	n/a
Georgia	5.3	Lower-middle	0.345
Morocco	5.1	Lower-middle	0.396
Ethiopia	4.9	Low-income	0.557
Lao PDR	4.7	Lower-middle	0.508
Mozambique	4.43	Low-income	0.527
Vanuatu	4.42	Lower-middle	0.446
Solomon Islands	4.38	Lower-middle	0.517
Gambia	4.35	Low-income	0.497
Lesotho	4.35	Lower-middle	0.496

METHODOLOGY BOX: ADAPTATION AND DRR

1. Climate vulnerability

Figure 2.18 uses the GAIN Index to measure climate vulnerability. One of several such measures, the Index is produced by the Global Adaptation Institute. The vulnerability component of the Index is calculated in two dimensions: (1) vulnerability components (exposure to climate-related hazards, sensitivity to their impacts and the capacity to cope with those impacts); and (2) six key sector indicators (water, food, health, ecosystem services, human habitat and infrastructure). The higher the score, the higher the vulnerability. See <http://gain.org> for more details.

2. Adaptation funding and DRR

This report distinguishes climate data (using Climate Funds Update (CFU) data accessed in November 2012) from DAT data. However, some duplication can occur as some climate data can also be included in the DAT.

3. Targeted DRR

This refers to financing from adaptation funding that is directed to DRR activities. Non-targeted DRR is for adaptation projects that have DRR as a partial goal, amongst others.

The reasons behind this increase are not clear, but there is evidence that DRR projects funded from climate adaptation sources often coincide with the creation of a National Adaptation Programme of Action¹² (NAPA) and an initial focus on the development of early warning systems. In addition, since 2010 the reduction of disaster risk has been recognised as part of the Cancun Adaptation Framework, with a focus on overcoming institutional barriers within countries.

The comparison between profiles of recipients of climate adaptation financing and DRR financing is interesting. Between 2008 and 2012, 42 countries received support from adaptation

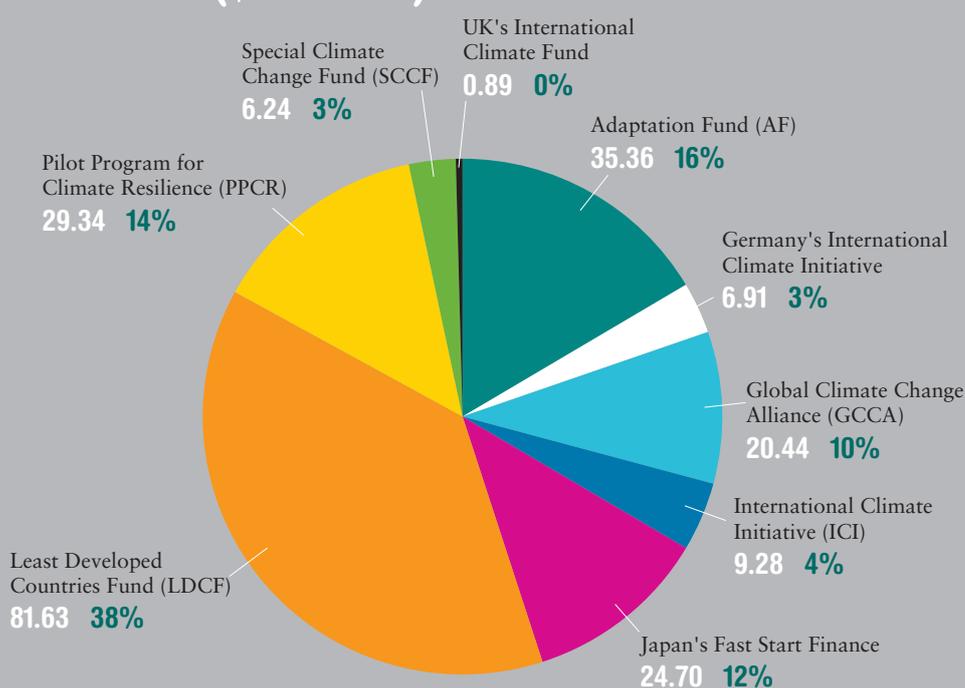
funds for targeted DRR activities, with the top 20 recipients accounting for 68% of the total amount approved (small island developing states (SIDS) accounted for 35% of the total). The data suggests a much more even spread of financing to DRR from adaptation funding than from overall development aid; it could well be that this is in part because adaptation financing is largely driven by global funding sources (such as the many adaptation funds – LDCF, AF, PPCR, etc.). Evidence is hard to pin down from the data, but this ‘global’ prioritisation would appear to be quite different from what appears to be country-level demand-driven financing of DRR.

DONORS TO DRR THROUGH ADAPTATION FUNDING

A NAPA is often the starting point for investments in targeted DRR. The LDCF starts operating once the plan is in place, and it often focuses on early warning systems; this focus largely accounts for its status as the financing instrument with the highest amount of funding targeted towards DRR (\$82 million for 17 projects, or 38% of the overall volume approved over nine years between 2003 and 2011). Similarly, the PPCR (one of the Climate Investment Funds administered by the World Bank¹³) begins operation on the creation of a NAPA. The total amount approved by the PPCR for targeted DRR activities is \$29 million for six projects. Beyond the PPCR and the LDCF, another key multilateral fund that is playing an increasing role is the AF, which has a similar number of projects approved to the LDCF, with a similar value. The AF’s activities include building resilience and reducing vulnerability caused in particular by floods and droughts.

Not all funding comes from global financing mechanisms: four donors also contribute directly – the European Union, United Kingdom, Japan and Germany. The most significant in terms of volume have been Japan, with \$25 million approved for 10 projects, and the EU through the Global Climate Change Alliance (GCCA), with \$20 million for three projects.

Figure 2.19: Donors of adaptation financing targeted towards DRR, 2003-2011 (\$ millions)

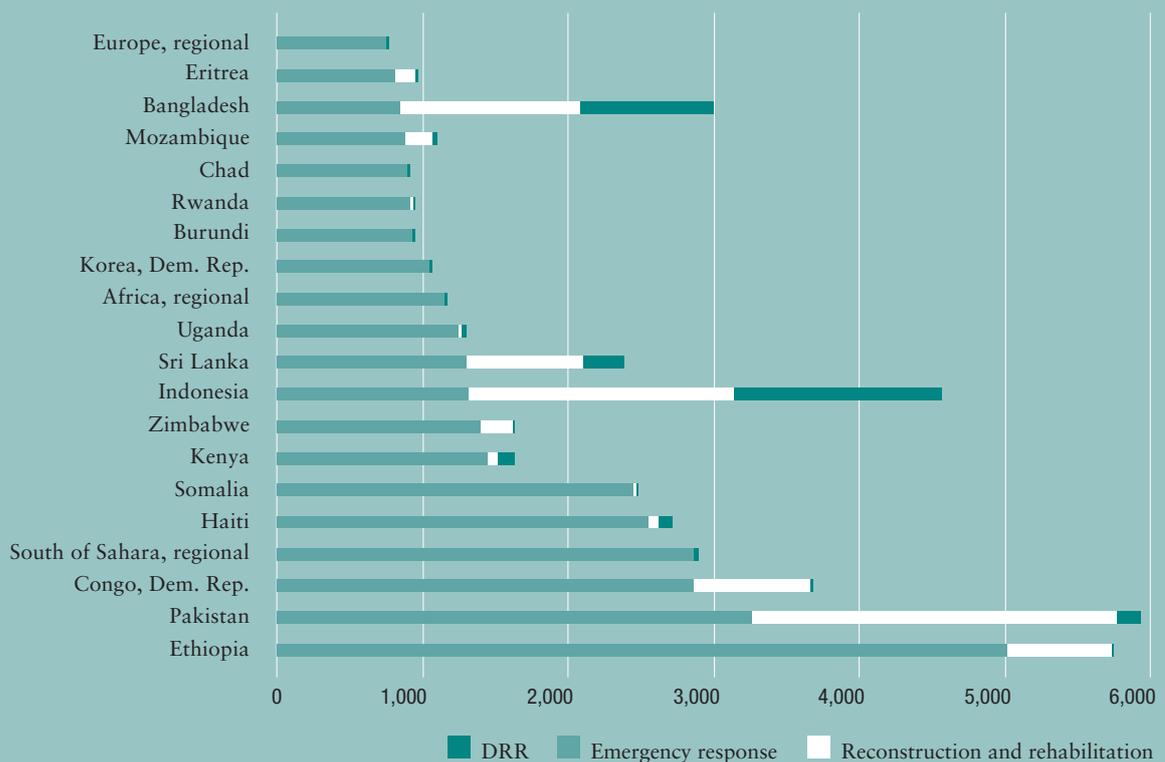


The positives into perspective

While finishing on a series of more positive trends – the stabilisation of funding in general, a move away from particularly heavy infrastructure and increasing financing from climate adaptation – we should once more return to the imbalances in funding overall. Earlier, this section focused on the top recipients of DRR funding and picked out the key trends in terms of major recipients and the balance of investment before disasters occur compared with afterwards. Reversing this reveals a stark picture, however, as Figure 2.20 indicates – one of massive financing to response compared with almost non-existent investment in DRR. Most of the top 20 countries or regions receiving funding for disaster-related emergency response (with the exceptions of Indonesia, Bangladesh and Sri Lanka) received less than 4% of their overall disaster financing for DRR. Many of those in this list of predominantly response and reconstruction-focused recipients are sub-Saharan African countries with a medium to high mortality risk, and many appear to be losing out on DRR financing. This trend is highlighted repeatedly in the following section of this report: ‘DRR financing in the context of need’.

Most of the top 20 countries or regions receiving funding for disaster-related emergency response (with the exceptions of Indonesia, Bangladesh and Sri Lanka) received less than 4% of their overall disaster financing for DRR.

Figure 2.20: Top 20 recipients of disaster-related emergency response funding, 1991-2010 (\$ millions)



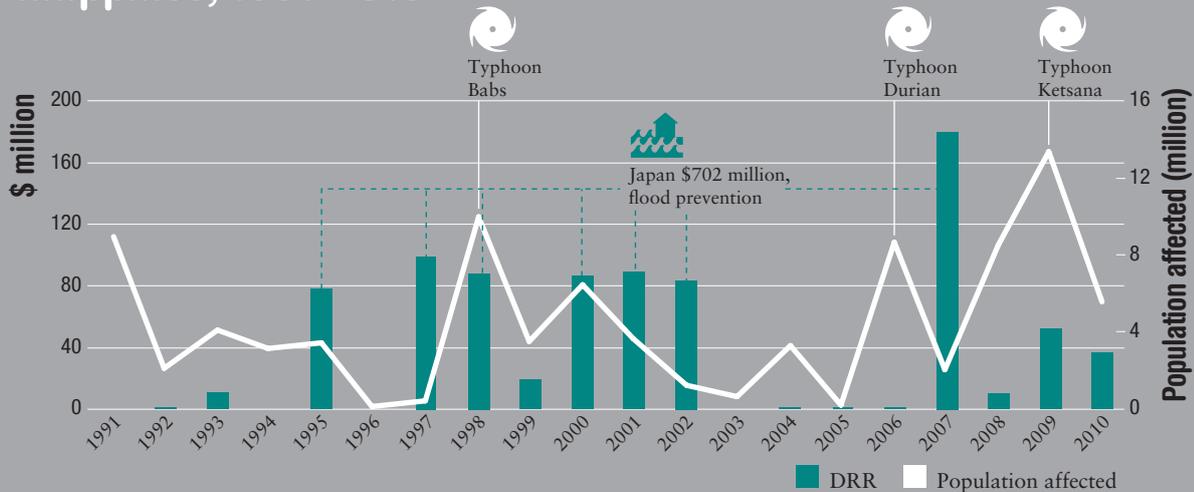
In Focus Section A: Recipients

In this section we highlight the disaster and DRR financing trend of three key recipient countries between the years 1991 and 2010: the Philippines, Haiti and Niger.

Philippines

- Number of people affected by disasters: 80 million
- Volume of financing for DRR over 20 years: \$834.6 million (ranked fourth)
- DRR per capita over 20 years: \$10.78 (ranked 32nd)
- Amount spent on disaster-related emergency response: \$502.45 million
- Number of donors for DRR over 20 years: 14 (12 bilateral and two multilateral: UN and World Bank)

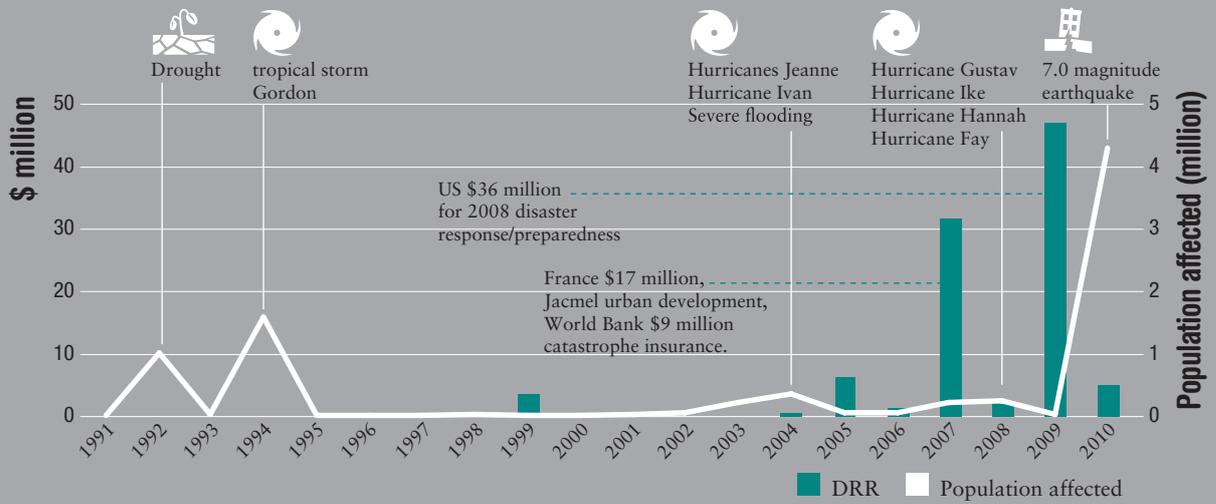
Figure A1: DRR and population affected by disasters in the Philippines, 1991-2010



Haiti

- Number of people affected by disasters: 8 million
- Volume of financing for DRR over 20 years: \$99.1 million (ranked 26th)
- DRR per capita over 20 years: \$11.52 (ranked 30th)
- Amount spent on disaster-related emergency response: \$2.55 billion
- Number of donors for DRR over 20 years: 15 (12 bilateral and three multilateral: Inter-American Development Bank (IADB), UN, World Bank)

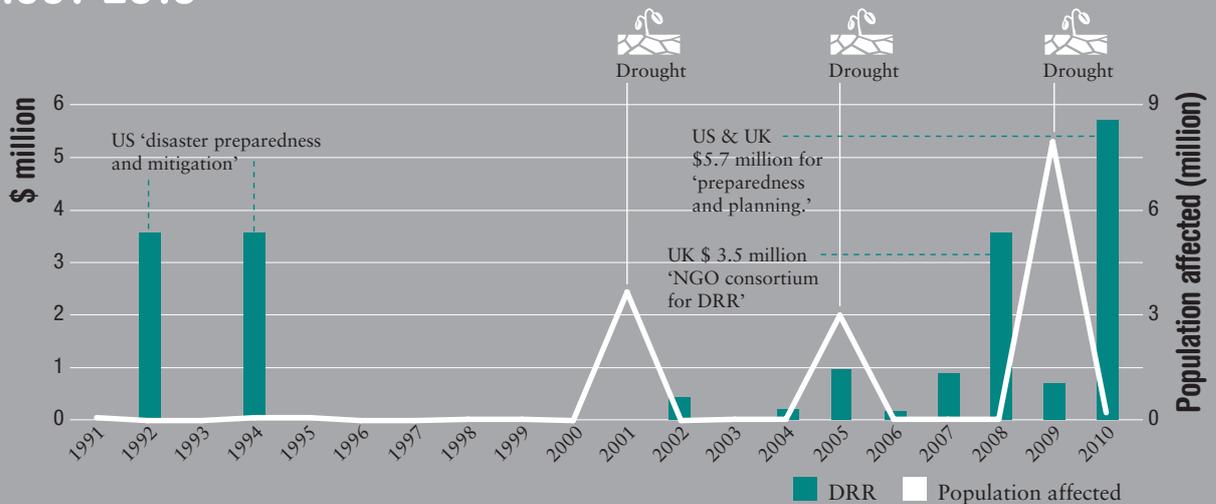
Figure A2: DRR and people affected by disasters in Haiti, 1991-2010



Niger

- Number of people affected by disasters: 15.3 million
- Volume of financing for DRR over 20 years: \$19.9 million (ranked 63rd)
- DRR per capita over 20 years: \$1.78 (ranked 103rd)
- Amount spent on disaster-related emergency response: \$457.42 million
- Number of donors for DRR over 20 years: 6 (four bilateral and two multilateral: Arab Bank for Economic Development in Africa and UNDP)

Figure A3: DRR and people affected by disasters in Niger, 1991-2010



3

Disaster risk reduction in the context of need

Key Messages

- There is some correlation between mortality risk levels and volumes of financing for DRR, but only at the high-risk level.
- There is little correlation between financing and risk when per capita financing is examined, with significant issues of inequity showing up on closer examination.
- Financing in drought-affected countries in sub-Saharan Africa, where sudden-onset risk is not huge, is very weak.
- Financing does not take into account the capacity of governments to reduce their own levels of risk.
- Low-income countries with middle to high levels of risk (again often affected by drought) have received negligible international financing of DRR.

Analysing financing over time gives a sense of the priorities of the international community, highlighting trends in different types of disaster-related aid, as well as the major and minor recipients. It reveals both the concentration of aid to a handful of major recipients and the fragmentation of support into a myriad of small projects. It also gives a sense of the balance of aid between large-scale infrastructure projects and other kinds of support for risk reduction. Funding from climate adaptation sources emerges as a particularly important opportunity for increasing investment for DRR.

What this analysis does not do, however, is provide a context for all of these investments. For that, we need to dig deeper into issues of risk, need and capacity.

METHODOLOGY BOX: THE MORTALITY RISK INDEX (MRI)

The MRI has been developed by UNISDR, based on a significant effort in modeling hazards (tropical cyclones, floods, earthquakes and landslides) in both frequency and severity, human exposure and identification of vulnerability (see UNISDR's 2009 'Global Assessment Report (GAR) on Disaster Risk Reduction' for details). The MRI does not include drought, but the authors have addressed this limitation by adding the percentage of population affected by droughts over the same period, using data from the Centre for Research on the Epidemiology of Disasters (CRED); see: <http://www.emdat.be/>.

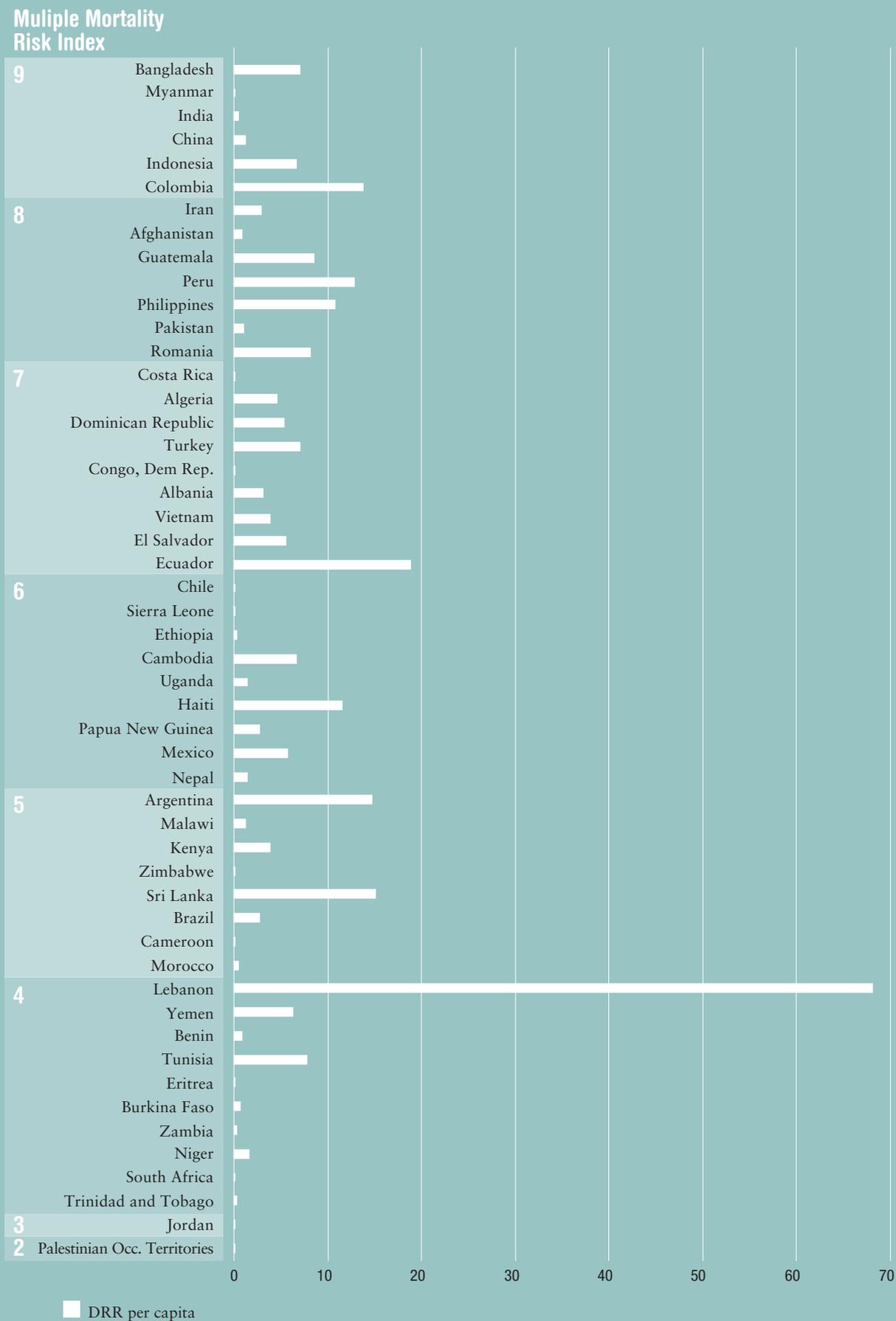
MRI Legend: 1: Negligible; 2: Very low; 3: Low; 4: Medium Low; 5: Medium; 6: Medium high; 7: High; 8: Very high; 9: Major.

The 51 countries presented in these figures (3.1 and 3.2 on the following pages) have been chosen as a representative group of developing countries. The list is drawn from a range of low- and middle-income countries with a population of at least one million, from a range of regions and differing hazard profiles, and with a representative range of scores on the MRI.

Figure 3.1: Financing for DRR in the context of the Mortality Risk Index, 1991-2010 (volumes, \$ millions)



Figure 3.2: Financing for DRR in the context of the Mortality Risk Index, 1991-2010 (per capita, \$)



Mortality risk

Much can be divined immediately from Figure 3.1. At first glance, it seems that the greater volumes of financing for DRR do go to those countries that have a higher risk profile, according to UNISDR's Mortality Risk Index (MRI). Five of the top six recipients – China, Indonesia, India, Colombia and Bangladesh – scored 9 for risk, with the Philippines (the fourth highest recipient) scoring 8. Myanmar is perhaps a special case: development support in general has been a challenge, and it is likely that the country's improving relationship with the international community could see more investment in DRR, which is lacking even after Cyclone Nargis in 2008.

Beyond those countries which scored 9, however, there appears to be much variability in volumes of support. In the band of countries scoring 8 the Philippines stands out, but volumes then diminish quickly, with Peru receiving less than half as much DRR funding as the Philippines, and the remaining countries much less than that. Afghanistan is a low-income country with a very high risk profile, but it receives very small overall volumes of funding for DRR. The same pattern is found among countries with scores of 7, 6 and 5, where the higher volumes go to middle-income countries and many low-income countries have substantially less support – such as Costa Rica, Nepal, DRC, Malawi, Kenya, Ethiopia and Uganda. Many of these countries also have a substantial risk of drought, which the MRI does not capture (see below).

Then of course it is necessary to compare between bands of risk and ask why Sri Lanka, a country that scores 5 for risk, has received nearly \$300 million in DRR financing, more than the combined total of all seven of the countries mentioned above (\$238.5 million), all of which are scored the same or higher on the index than Sri Lanka. In addition, most of these seven countries are prone to severe droughts, a hazard that is not particularly prevalent in Sri Lanka, where on average less than 0.7% of the population is affected annually. It may be thought that perhaps the DRR financing for Sri Lanka was driven suddenly upwards by belated risk reduction after the Indian-Ocean Tsunami of 2004; however the vast majority, \$271.8 million was received before.

The imbalances in DRR funding are even more pronounced when we move away from overall volumes of international aid to analyse how much these volumes represent per capita – a move towards the analysis of equity (Figure 3.2). Here the lack of correlation between risk and funding is even more pronounced. Lebanon immediately stands out, with the \$68.03 per capita it has received over 20 years being more than 10 times the average amount, even though the country's mortality risk is assessed as 5 on the scale.

Lebanon may perhaps be an anomaly but, looking at other countries, there are many more seeming disparities between risk and funding. There is no general trend towards funding of countries with greater risk, but rather there are mismatches across the whole landscape of mortality risk. Ecuador (scored 7 for risk), the second highest recipient per capita, received 19 times more funding than Afghanistan (scored 8), 100 times more than Costa Rica and 600 times more than the DRC (both scored 7). A similar pattern runs throughout the data. Twelve countries with a mortality risk of 6 and above, for example, received less than \$1.50 per capita over the whole of the two decades, while four countries that also scored 6 and above received more than \$10 per capita.

In summary, while overall there is a trend towards financing for DRR according to a scoring of risk, once the data is unpeeled to look at equity, a great imbalance becomes evident (an issue to which we will return later).

Ecuador (scored 7 for risk), the second highest recipient per capita, received 19 times more funding than Afghanistan (scored 8), 100 times more than Costa Rica and 600 times more than the DRC (both scored 7).

FIGURE 3.3: THE 10 COUNTRIES WITH THE HIGHEST PERCENTAGE OF THEIR POPULATION AFFECTED BY DROUGHT, 1991-2010

	% of population annually affected by drought (average over 20 years)	Mortality Risk Index	DRR over 20 years (\$ millions)	DRR per capita (\$)
Malawi	8.32%	5	14.51	1.26
Niger	8.15%	4	19.86	1.78
Swaziland	7.47%	4	4.86	4.68
Somalia	7.37%	n/a	1.96	0.26
Kenya	6.96%	5	126.44	4.01
Eritrea	6.84%	4	0.28	0.07
Djibouti	6.14%	5	0.15	0.17
Zimbabwe	5.85%	5	0.43	0.04
Mauritania	5.35%	4	5.45	2.04
Lesotho	5.01%	4	2.77	1.43

Though drought is not included within the MRI, it is obviously an important risk factor in many developing countries, and certainly needs to be considered when comparing the equity of international financing. Essentially, countries facing a high impact from drought would see their overall mortality risk pushed up considerably, and they should therefore attract more international attention.

A calculation of the average number of people affected each year by drought is certainly revealing,¹⁴ showing how prominent this risk is in a number of countries, such as Malawi, Niger and Kenya. Kenya and Malawi both score 5 for mortality risk and Niger 4 – but how much higher up the scale might they be if drought were included?

The seeming inequity in financing is even more pronounced for these countries. Despite the massive impact of drought, many of them have received very low financing for DRR, in terms both of volumes and per capita funding, and this is a recurring theme throughout the analysis of ‘need’. In Niger, Eritrea, Zimbabwe, Kenya and Malawi over the 20 years more than 105 million people

have been affected by drought. Financing for DRR for these five countries combined over this period came to \$161.5 million. This is just a little more than the amount spent in Honduras, half that spent in Peru and a fifth of that spent in the Philippines over the same period.

Economic and human risk

While an overall value for mortality risk provides an indication of equity (or lack of it) across similar contexts, it does not reveal exactly what is at risk. For this we need to go deeper into how different aspects of society, both economic and human, are ‘at risk’ in different countries. These two types of risk are not entirely distinct from one another. Where economic assets are at risk, there is also an accompanying risk for the population. However, in some countries a high proportion of the population may be at risk when this is not necessarily the case for economic assets. These countries are often largely rural, with agriculture-based economies, and are often affected by drought (as discussed below). These same countries often receive seriously inadequate support for DRR from the international community.

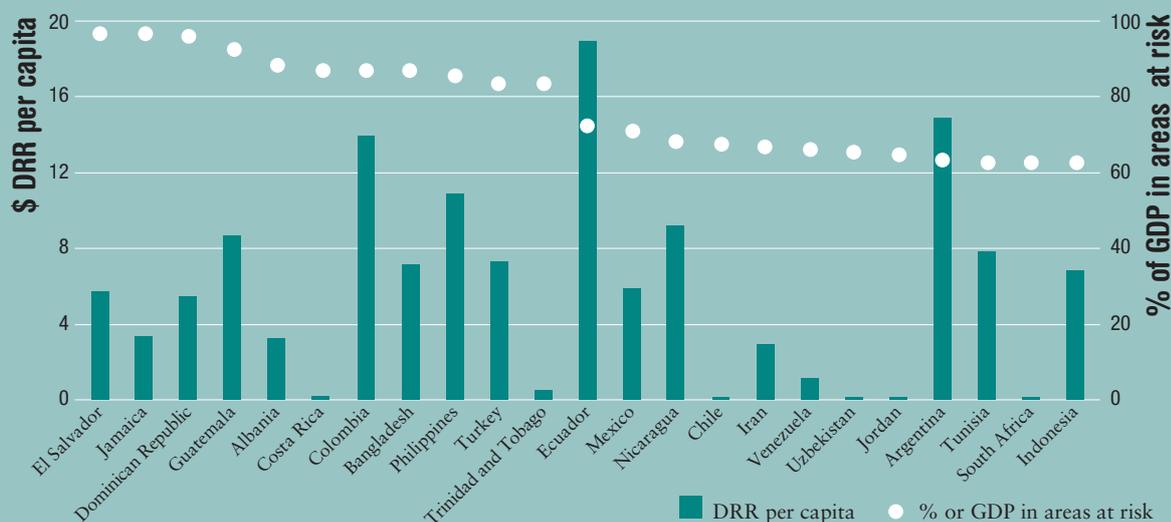
METHODOLOGY BOX: ECONOMIC AND HUMAN RISK

This section considers two types of risk:

1) economic risk: measured as % of Gross Domestic Product in areas at risk; and 2) human risk: measured as % of population in areas at risk. This data is taken from ‘Disaster Hotspots: A Global Risk Analysis’ by the World Bank. Note that the ‘global hotspots’ data also includes that of ‘drought’ risk.

Figures 3.4, 3.5 and 3.6 include all countries (62 from the World Bank list of 86) with a population higher than one million, but exclude Lebanon, which is an outlier as it has a relatively low population though has received substantial DRR funding. However we bring Lebanon back into the next section comparing income-classes and financing.

Figure 3.4: DRR per capita ordered by % of GDP in at-risk areas



Financing of DRR according to exposure of economic assets, in this case represented by gross domestic product (GDP), is seemingly just as variable as financing according to a range of combined mortality risks. Essentially, countries with the highest proportion of economic assets at risk from natural hazards are by no means the largest recipients of DRR funding. Once again, contrary to what might be expected, countries where the percentage of GDP in areas at risk is high – such as El

Salvador, Jamaica and the Dominican Republic – receive much less financing per capita than countries such as Nicaragua, Argentina and Ecuador, where the risk is much lower. There are also some countries where the proportion of economic assets at risk is very high – Costa Rica, Uzbekistan and Jordan, for example – but which receive almost no financing at all for DRR from the international community, either per capita or in terms of overall volume.

Figure 3.5: DRR per capita ordered by % of population in at-risk areas

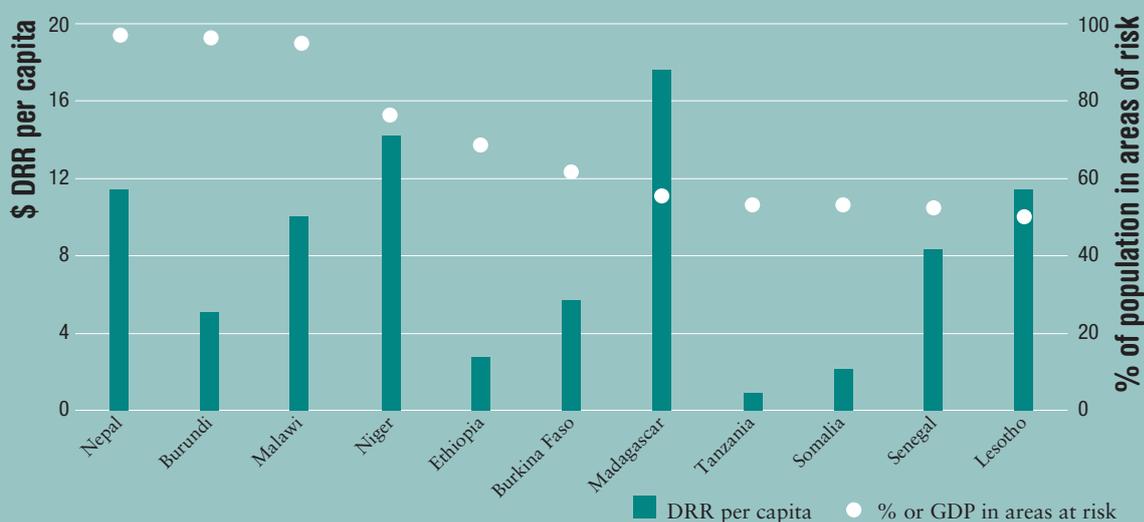
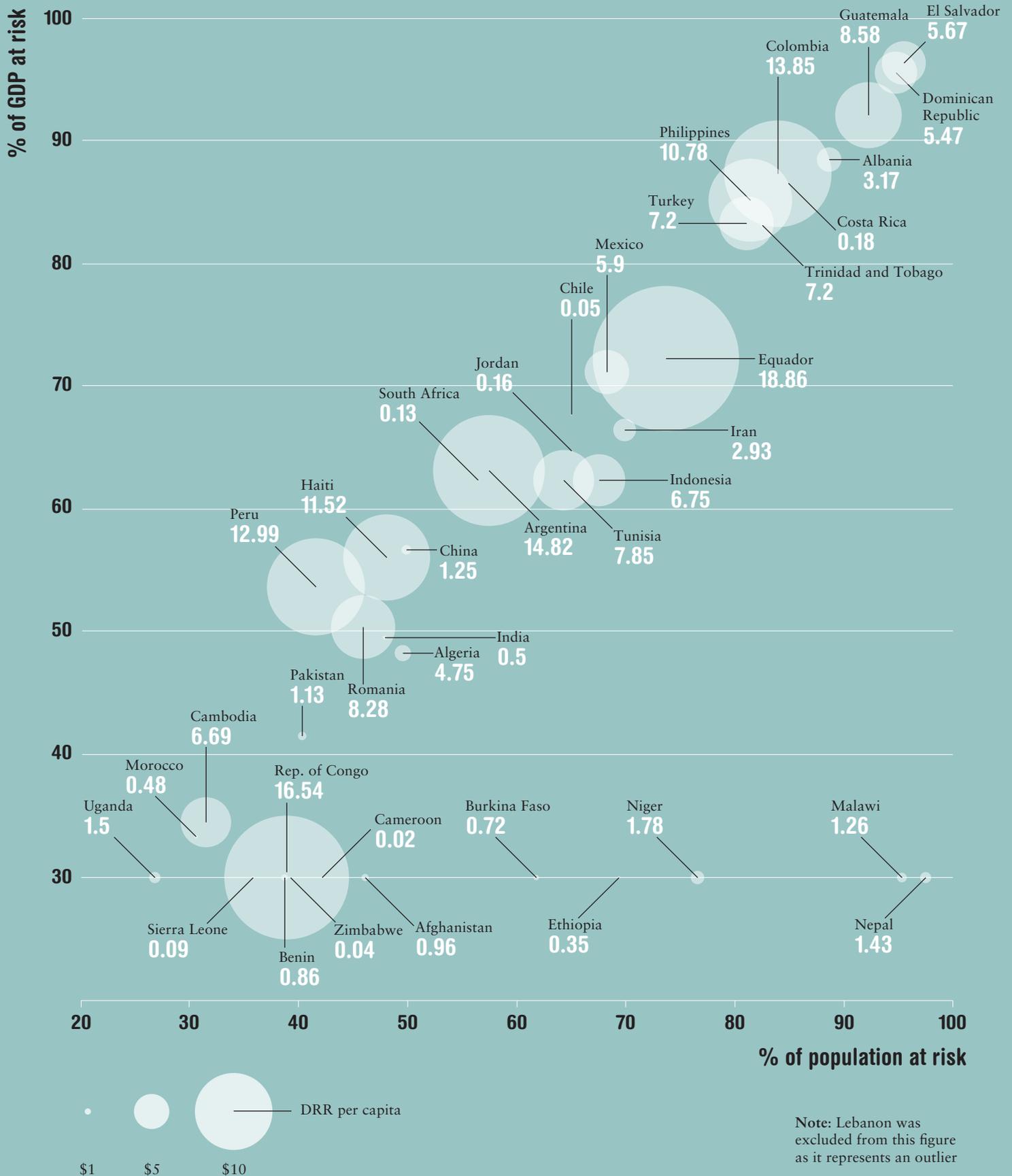


Figure 3.6: DRR per capita compared with GDP and population at risk



Note: Lebanon was excluded from this figure as it represents an outlier

Examining countries where human risk is high but economic risk is relatively low, attention focuses on those (often drought-affected) countries already revealed to be low recipients of DRR financing. Of the top 10 countries where the proportion of the population at risk is more than 50%, all but Nepal are in sub-Saharan Africa, all but one (Lesotho) are low-income and all are generally characterised by rural economies (see Figure 3.2 on page 30).¹⁵ Similar to the countries with a high proportion of GDP at risk, levels of financing for DRR do not necessarily correspond to levels of population at risk. For example, Madagascar's financing per capita is the highest, even though in six other countries a higher proportion of the population is at risk.

What is perhaps more revealing when it comes to per capita financing for contexts where populations are at risk is not a comparison across similar contexts, but rather a comparison with contexts of high economic risk. All but seven of the 24 countries with a high proportion of economic assets at risk have higher per capita financing for DRR than Madagascar, the highest for population at risk.

Isolating different kinds of risk – in this case economic and human – may reveal particularly important trends in similar countries and trends across different types of risk, but it does not necessarily lend itself to judging how the international system has prioritised countries as a whole, taking on board multiple considerations of risk. In an equitable, carefully prioritised world of international aid financing, it might be imagined that where there were proportionally higher levels of risk, economic and human, we would see higher levels of per capita financing on DRR. However, this is not necessarily the case.

Comparing international commitments to DRR across both economic and 'human' risks¹⁶ reveals both logical and questionable choices. The three countries that have above 90% for both economic and human risks, El Salvador, Dominican Republic and Guatemala all have relatively high per capita DRR, more than \$5. In addition we could probably justify some of the relatively large amounts to Bangladesh, Philippines and Colombia, all high-risk countries with DRR per capita in and around \$10 per person. After this the logic of commitments is more of a challenge. DRR financing in Argentina, Peru and in particular the Republic of

Congo seems at odds with the range of risks. The latter in particular, one of the lowest countries in the scale for both GDP at risk and population at risk, has received \$16.54 per capita, ranking it first amongst other countries with a population of more than one million.

At the lower end of the DRR per capita volumes, we would expect to see lower risk. Once again this is not necessarily the case. Low volumes to Uganda, Morocco, Sierra Leone and Benin all seem appropriate. We wouldn't say that about Costa Rica (just 18 cents of DRR) or Trinidad and Tobago (43 cents) Jordan (16 cents). What should inform our thinking is the whole picture, and in particular line of countries with very low % of GDP at risk¹⁷ but with high levels of population at risk.

In summary where risk appears to influence international DRR financing it is much more likely to be related to economics than population.

Government capacity

The volumes of DRR funding flowing from the international community are obviously important, as well as the sustained nature of that funding over time. The relationship of funding to need, represented by the risks a country faces, or the exposure of its assets or population, is also crucial to decision-making. However, decisions cannot be fully informed without an understanding of how much capacity a national government has to manage its own risks.

This section uses economic indicators (government revenues¹⁸ and income levels¹⁹) to illustrate the potential a country may have to address these issues domestically, both in terms of the capacity it would be likely to have and, more simply, the funds needed to address disaster risk. In essence this is a proxy measure of overall capacity, admittedly crude in some ways, but still robust enough to reveal some further worrying signs of inadequate and inequitable financing of DRR.

FIGURE 3.7: GOVERNMENT REVENUES FOR DEVELOPING COUNTRIES, RANKED BY PER CAPITA INVESTMENT IN DRR FROM THE INTERNATIONAL COMMUNITY.

Recipient country	Economy/Capacity		Risk		DRR Financing	
	Income level	government revenue (per capita \$)	Mortality Risk Index	% population affected by drought	Total (\$ million)	Per capita (\$)
Lebanon	Upper-middle	1931.17	5	n/a	252.3	68.03
Sri Lanka	Lower-middle	324	5	0.70%	286.2	15.07
Argentina	Upper-middle	3,249.53	5	0.00%	544.5	14.82
Haiti	Low	-8.23	6	0.57%	99.1	11.52
Philippines	Lower-middle	416.42	8	0.18%	834.6	10.78
Guatemala	Lower-middle	373.5	8	1.20%	97.9	8.58
Turkey	Upper-middle	3,591.96	7	n/a	457.6	7.2
Bangladesh	Low	71.34	9	0.00%	916.4	7.12
Indonesia	Lower-middle	513.64	9	0.02%	1,439.2	6.75
Cambodia	Low	80.89	6	2.56%	81.6	6.69
Yemen	Lower-middle	417.71	4	n/a	114.3	6.4
Mexico	Upper-middle	2,329.40	6	0.12%	586.3	5.9
El Salvador	Lower-middle	571.44	7	0.32%	33.3	5.67
Kenya	Low	177.76	5	6.96%	126.4	4.01
Brazil	Upper-middle	3,714.52	5	0.33%	492.3	2.84
Niger	Low	43.69	4	8.15%	19.9	1.78
Uganda	Low	31.78	6	0.74%	37.1	1.5
Nepal	Low	64.29	6	0.10%	35	1.43
Malawi	Low	57.84	5	8.32%	14.5	1.26
Afghanistan	Low	-134.9	8	1.34%	22.1	0.96
Benin	Low	113.42	4	n/a	5.7	0.86
Burkina Faso	Low	53.58	4	2.11%	8.9	0.72
India	Lower-middle	262.28	9	1.59%	524.9	0.5
Morocco	Lower-middle	870.69	5	0.05%	13.7	0.48
Zambia	Lower-middle	205.44	4	1.94%	4.5	0.44
Ethiopia	Low	19.9	6	3.34%	22.9	0.35
Myanmar	Low	46.08	9	n/a	9.1	0.21
Costa Rica	Upper-middle	1,192.93	7	0.00%	0.7	0.18
South Africa	Upper-middle	2,038.85	4	1.64%	5.6	0.13
Sierra Leone	Low	0.94	6	n/a	0.4	0.09
Eritrea	Low	51.89	4	6.84%	0.3	0.07
Chile	Upper-middle	3,136.44	6	0.00%	0.7	0.05
Zimbabwe	Low	52.28	5	5.85%	0.4	0.04
Cameroon	Lower-middle	223.94	5	0.06%	0.3	0.02

NOTE: COUNTRIES HIGHLIGHTED IN BLUE ARE PARTICULARLY AFFECTED BY DROUGHT, WITH ON AVERAGE MORE THAN 2% OF THEIR POPULATION AFFECTED EACH YEAR.

The entry point for this section of the report is a simple proposition: countries that are low-income, with low levels of government revenues but which have high levels of disaster risk, are those that most require international assistance, regardless of the challenges of undertaking disaster risk management (DRM) in these contexts. It is these countries where one would hope to see sustained engagement from the international community. However, unfortunately in reality this is not the case.

METHODOLOGY BOX: GOVERNMENT REVENUES

This section uses a methodology from Kellett and Sparks (2012) 'Disaster Risk Reduction, Spending Where it Counts'. Government revenues are made up of a tax component and a non-tax component (e.g. revenue from sovereign wealth funds or state-owned enterprises and corporations). They also include fees, fines and mineral and resource rights. They are calculated by subtracting ODA figures from total government revenues. Sources: IMF Regional Outlooks (2012), IMF World Economic Outlook (2012), OECD DAC (2013).

Note that these countries are the same as the 51 selected at the start of this section, minus those for which government revenue data does not fully exist.

Income groups are taken from World Bank classifications: economies are divided according to 2012 gross national income (GNI) per capita. The groups are low-income: \$1,035 or less; lower-middle-income: \$1,036–\$4,085; upper-middle-income: \$4,086–\$12,615; and high-income: \$12,616 or more.

The inequity of financing is once again the most obvious feature of a country comparison. Lebanon stands out once again, with its \$252.3 million of DRR representing \$68.03 per capita. The next highest recipient is Sri Lanka, with just over \$15 per capita. However, every country outside the top 15 received less than \$2 per capita over 20 years, hardly a huge amount.

Breaking this down, we see once again that upper-middle-income countries seem to be generously (perhaps even perversely) supported, with Mexico, Argentina and Turkey, all with average government revenues of more than \$2,000, being amongst the top 10 recipients of DRR. When we delve beneath the headline figures, however, we soon see that this is not sustained support to relatively rich countries, but rather older large-scale infrastructure financing. For Turkey, the bulk of its \$457.6 million came by way of a World Bank-funded 'Seismic Risk

Reduction Project' in 2005; for Argentina, all but \$1 million of its \$454 million for DRR came from four flood prevention projects before 2007; while almost all of Mexico's DRR funding came from a \$584 million project to finance multi-sector disaster management. While this does suggest, on the one hand, a positive picture of financing for richer countries that is fading out over time, it also reminds us once again how large contributions to these (and other middle-income countries) account for the majority of overall financing, and mask low volumes of financing to many other countries.

Lower-middle-income countries are well represented in the top 10 per capita, with Sri Lanka, the Philippines, Indonesia and Guatemala. Sri Lanka has a relatively low mortality risk of 5 and arguably should not receive such relatively high levels of financing for DRR. Financing in other lower-middle-income countries (the Philippines, Indonesia, Guatemala) is perhaps more difficult to challenge, given their very high levels of mortality risk, and with regular and repeated impacts of natural hazards. This is also supported by the analysis contained in the 2011 Global Assessment Report, which states that risk is growing more rapidly in middle-income countries due to increasing exposure.²⁰ However, if we consider how much these countries are investing themselves in reducing disaster risk, we need, at the very least, to question the role of international financing.

Low-income countries are of particular concern. Here we would expect support for DRR from the international community – but it is rarely found. Of the 34 countries for which we have data (of our selected 51), only Haiti and Bangladesh are in the top 10 for DRR financing per capita. Bangladesh is perhaps the one success story in terms of consistent and sustained financing from the international community (and even then a substantial proportion of funding came in the 1990s in the form of flood infrastructure financing from the World Bank and the ADB.) Much of Haiti's DRR financing came before the 2010 earthquake but little anticipated the event; the bulk of Haiti's funding came through USAID financing for mixed response and preparedness after the 2008 floods (\$36 million), together with a single urban environment project for the town of Jacmel (\$17 million, financed by France).

Of particular importance, 12 of the 19 countries that have received only \$2 per capita of DRR financing over the past 20 years are low-income

countries. Sub-Saharan African countries are heavily represented in this group, accounting for 10 of the 12, with only Nepal and Afghanistan in other regions. Afghanistan in particular deserves a special mention. The country has a mortality risk of 8, one of the highest in the world, yet over 20 years it has received only \$22 million in DRR funding. Clearly aid financing in the country has had its challenges over these two decades, with conflict and a testing environment for aid actors, but surely in the years since 2001 and with the subsequent state-building efforts, more could have been set aside to reduce disaster risk. In 2010 alone, more than \$6.7 billion was spent in Afghanistan in total aid just by donors reporting to the OECD DAC.²¹

By way of summary, the inequity is stark. We might consider it appropriate that Chile, as an upper-middle-income country with an average government revenue of \$3,136 per capita should indeed have received only the equivalent of \$0.05 per person in DRR funding over two decades. It is a country that has the capacity to fund its own DRR efforts. But can we really say

12 of the 19 countries that have received only \$2 per capita of DRR financing over the past 20 years are low-income countries. Sub-Saharan African countries are heavily represented in this group, accounting for 10 of the 12.

the same for Sierre Leone (\$0.09 per person) or Zimbabwe (\$0.04 per person)? And once again, returning to where we began, does this seem equitable in comparison with \$68.03 per person for Lebanon?

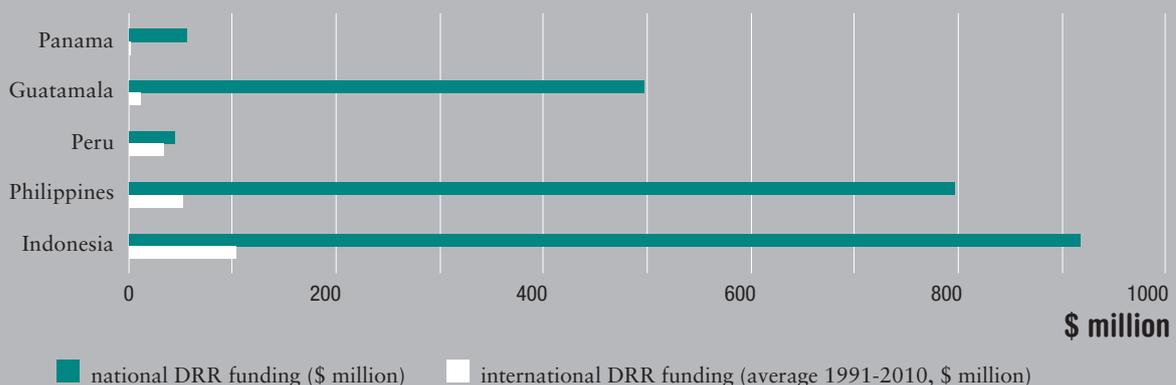
NATIONAL FINANCING OF DRR

It is still often considered that the financing of DRR in developing countries is something that the international community does (or perhaps should do). The reality is that in some contexts national financing of DRR outweighs financing from the international community, even when those countries are priorities for international actors. For example, although Indonesia and the Philippines were, respectively, the second and fourth largest recipients of international DRR funding over the two decades, the amounts received pale into insignificance compared with financing for such activities from domestic government sources. Averages of available data suggest that the Philippines government is investing 20 times more than the international community in DRR and the government of Indonesia almost 10 times more.

Much more has to be done to understand the financing of DRR in each and every country, and in developing countries the relationship between international financing and national budgeting for all types of DRM needs considerable investigation. This raises questions concerning the role of the international community in financing so heavily in middle-income countries. Are there more 'deserving' contexts for the limited amounts of international financing available?

Figure 3.8: Domestic and international financing of DRR.

SOURCE: INTERNATIONAL FINANCING BASED ON DAT AND NATIONAL FINANCING BASED ON INDIVIDUAL REPORTS INTO FINANCING²². NOTE: NATIONAL VOLUMES ARE FROM THE FOLLOWING YEARS: INDONESIA, AVERAGE 2006-2012; PHILIPPINES AVERAGE 2009-2011; GUATEMALA 2010; PANAMA 2010; ALL CONSTANT 2009 PRICES.



Focusing our attention on just the countries with the lowest government revenues – and, as we suggest, those countries that are most in need of support from the international community – several interconnected patterns can be discerned.

First, sub-Saharan African countries dominate the list of the poorest countries, accounting for all but six of the 23 countries with average government revenues of less than \$100 per capita. Second, many of these countries are significantly affected

by drought, with nine of the 23 having at least 2% of their population on average affected each year – and all of these countries (except Cambodia) are once again in sub-Saharan Africa. A third pattern is the risk level in many of these relatively poor sub-Saharan African countries, with all of them clustered around the middle of the MRI: four countries have a score of 4, eight score 5 and five score 6. None of them ranks higher than 6 for multiple risks, but 13 countries are also affected by drought (not included in the MRI), and eight are considered to be severely affected.

FIGURE 3.9: COUNTRIES WITH LESS THAN \$100 IN GOVERNMENT REVENUES PER CAPITA.

	Government revenues per capita (\$)	Risk		DRR Financing	
		% population affected by drought	MRI	Per capita (\$)	Total (millions)
Liberia	-229.55	n/a	5	0.23	0.64
Afghanistan	-134.90	1.34%	8	0.96	22.09
Haiti	-8.23	0.57%	6	11.52	99.15
Sierra Leone	0.94	n/a	6	0.09	0.42
Burundi	12.70	2.18%	5	0.63	5.28
Ethiopia	19.90	3.34%	6	0.35	22.97
Uganda	31.78	0.74%	6	1.50	37.14
Madagascar	38.64	0.77%	6	2.21	34.44
Rwanda	38.68	1.19	5	0.45	3.61
Niger	43.69	8.15%	4	1.78	19.86
Mozambique	44.43	1.82	6	2.21	40.46
Myanmar	46.08	n/a	9	0.21	9.08
Togo	46.90	n/a	5	0.22	1.06
Eritrea	51.89	6.84%	4	0.07	0.28
Zimbabwe	52.28	5.85%	5	0.04	0.43
Tanzania	53.26	1.47%	5	0.10	3.60
Burkina Faso	53.58	2.11%	4	0.72	8.97
Malawi	57.84	8.32%	5	1.26	14.51
Nepal	64.29	0.10%	6	1.43	35.03
Guinea	67.06	n/a	5	0.13	1.08
Bangladesh	71.34	n/a	9	7.12	916.39
Cambodia	80.89	2.56%	6	6.69	81.59
Mali	87.19	2.23%	4	0.04	0.47

NOTE: COUNTRIES IN BLUE ARE PARTICULARLY AFFECTED BY DROUGHT, WITH MORE THAN 3% OF THEIR POPULATION AFFECTED ANNUALLY.

The importance of these patterns becomes apparent when we compare these low-income countries and their relatively low government revenues with the amount they receive in DRR funding.

It is immediately and obviously clear that funding levels are very low. Only three countries received more than \$50 million for DRR over 20 years: Haiti, Cambodia and Bangladesh, notably none of which are in sub-Saharan Africa. Only one country, Bangladesh, received more than \$100 million in DRR funding, its \$916.39 million being perhaps a success story of sustained funding for the international community, but also an anomaly when compared with other poor countries. If the volumes of DRR to all countries, excluding Bangladesh, are added up, we see that just \$442 million was spent on 22 of the countries least able to finance their own DRR. This is equivalent to less than half the sum spent in Bangladesh alone and slightly less than the amount spent in Turkey in the same 20-year period.

Per capita figures for these countries are, unsurprisingly, abysmal, with only eight of the 23 poorest countries receiving the equivalent of \$1 per capita over the whole 20-year period. Per capita funding to Haiti (\$11.52), Bangladesh (\$7.12) and Cambodia (\$6.69) stand out as significantly higher than for other countries – the next highest amount is \$2.21, to both Madagascar and Mozambique.

Another way of looking at the priorities of the international community is to examine the balance of financing across different financing of disasters. Twelve of the poorest countries have received less than \$10 million in DRR funding over the entire 20 years (for a total of \$34.9 million) – but these same countries, many of which do not have major humanitarian needs, have received \$5.6 billion in largely disaster-related emergency response funding over the same period. For every \$1 spent on DRR, more than \$160,000 has been spent on response.²³

The priorities of the international community need at the very least examining to ensure that the most appropriate countries are receiving the right kind of sustained support to reduce disaster risk. Over 20 years, only \$1 out of every \$10 spent on DRR by the international community has gone to those countries with the weakest capacity to help themselves.

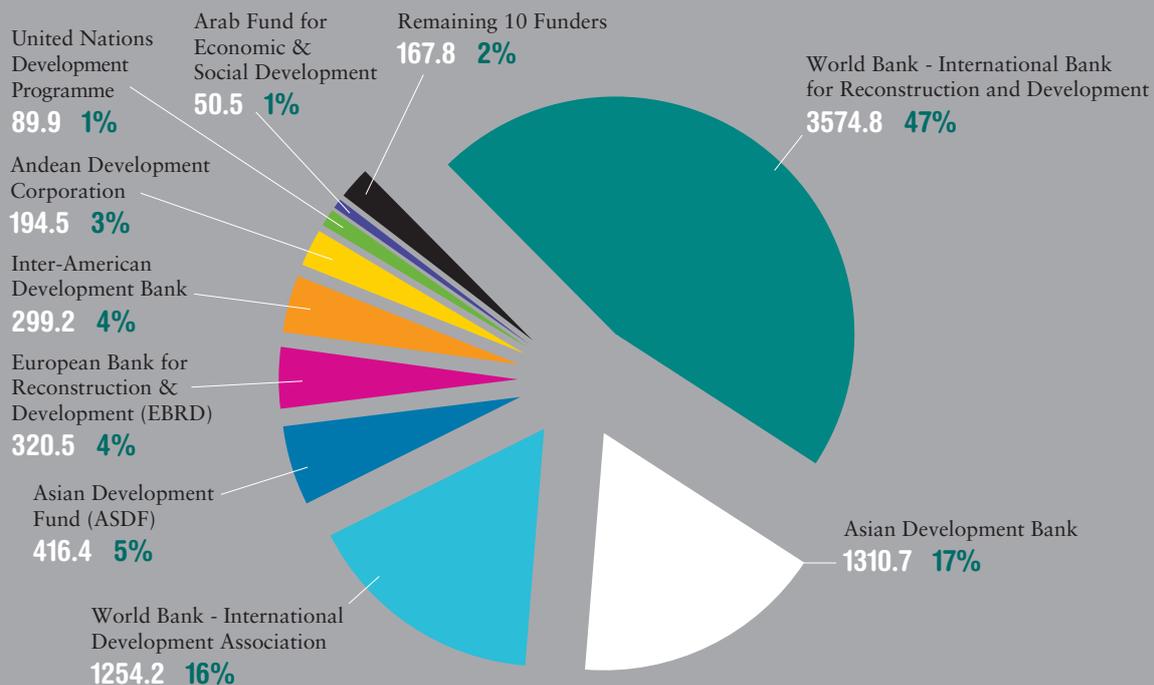
Twelve of the poorest countries have received less than \$10 million in DRR funding ... (for a total of \$34.9 million)... received \$5.6 billion in largely disaster-related emergency response funding over the same period. For every \$1 spent on DRR, more than \$160,000 has been spent on response.

In Focus Section B: Donors

In this focus section we investigate briefly where the money comes from.

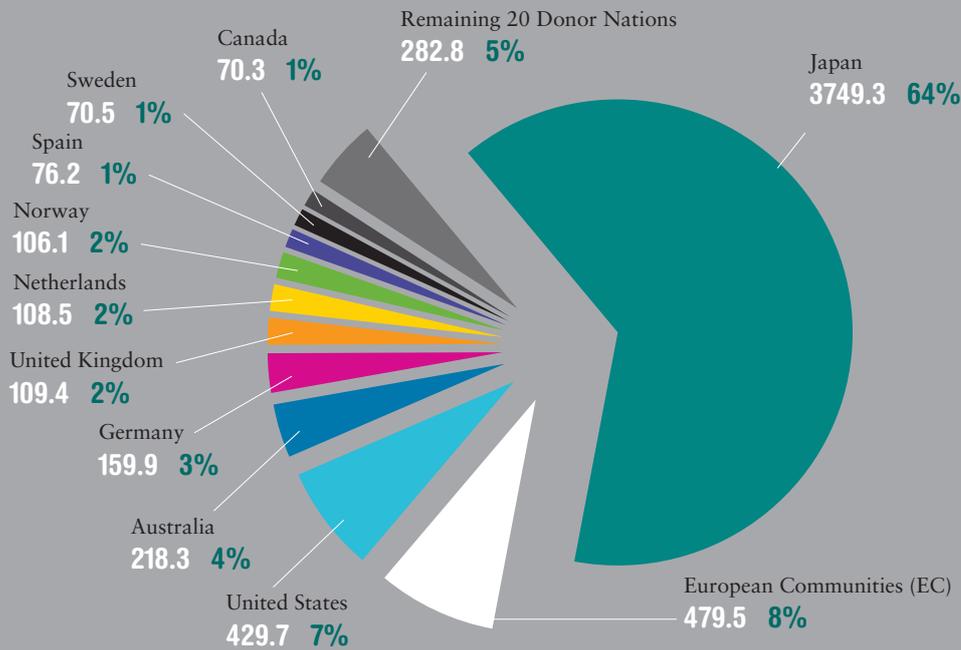
Funding for DRR comes broadly from two interconnected sources: funding direct from donor nations and funding that is managed by a variety of development banks, funding mechanisms and implementing agencies (the latter of course at some point also receive funding from those same donor nations). Bilateral financing for DRR accounts for \$5.9 billion of the total (equivalent to 43%) whilst the development banks, mechanisms and agencies manage the remaining \$7.7 billion.

Figure B1: Financing for DRR from development banks, financing mechanisms and implementing agencies, 1991-2010, \$ millions



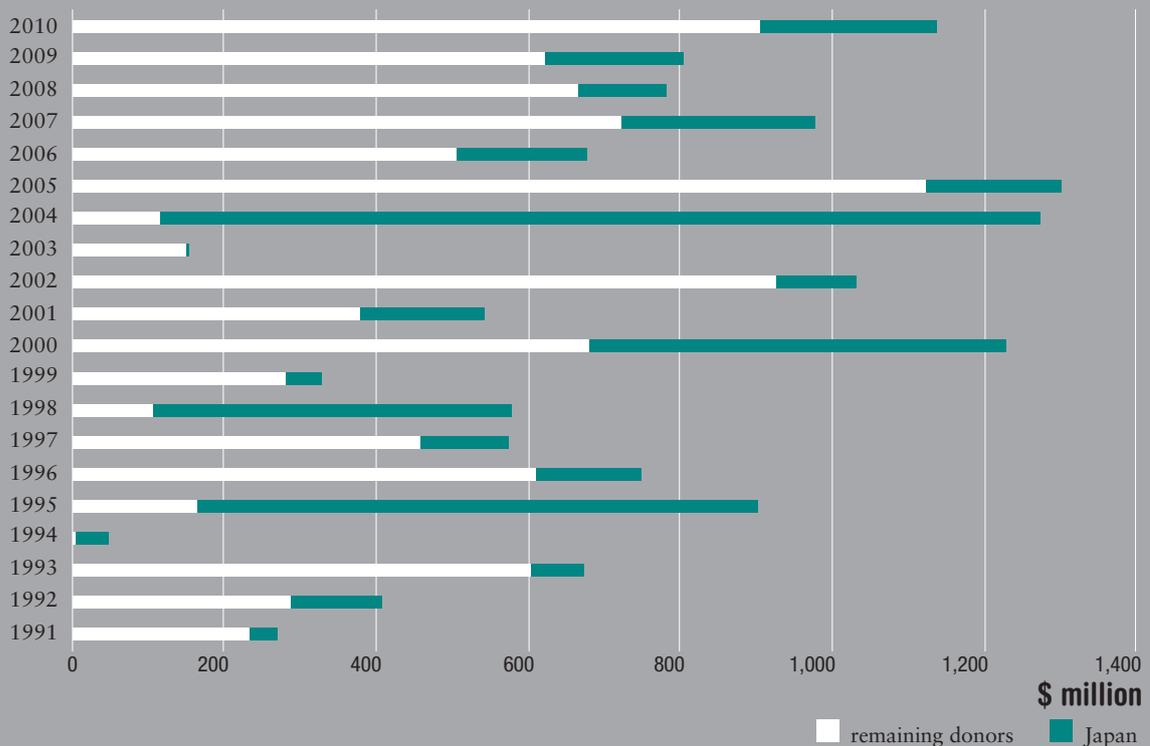
The World Bank alone manages more than 63% of all DRR money from development banks, funding mechanisms and agencies – \$4.8 billion of the \$13.5 billion of all DRR financing over two decades. The importance of this cannot be under-estimated: essentially, \$36 of every \$100 allocated to DRR over the period was managed in one way or another by the World Bank.

Figure B2: Financing for DRR direct from donors, 1991-2010, \$ millions



Japan is by far the largest single direct donor to DRR. Over the 20 years it has accounted for \$3.7 billion of total financing. In terms of funding coming direct from donors, it accounts for 64% of the total. This is over eight times more than the second largest donor, the European Community (\$479.5 million) and double the amount contributed by all other donors combined. Over the 20-year period, financing from Japan and the World Bank combined accounts for \$63 of every \$100 spent on DRR.

Figure B3: Financing for DRR by Japan and all other sources, 1991-2010, \$ millions



The significance of Japan's contribution stretches well beyond a comparison with other donor governments. Its \$3.7 billion of DRR financing also represents \$27 out of every \$100 spent over the two decades. In one year, 1998, it accounted for 81.8% of all financing from all sources. In the first decade in particular, this was largely made up of significant funding of large-scale flood-related projects, especially in Southeast Asia. Yet even though Japan (like other donors) is now financing less on flood prevention, it remains a major source of funding. In each of the past five years, for example, it has provided close to 20% of all direct donor financing.

Figure B4: Countries receiving the highest volumes of Japanese DRR funding, 1991-2010, \$ millions

	Flood prevention and control	DRR (general)	Total	Proportion of total that is general DRR
Indonesia	846.3	227.9	1,074.3	21.2%
Philippines	618.9	184.7	803.7	23.0%
China	543.2	15.0	558.1	2.7%
Brazil	463.4	0.9	464.2	0.2%
Sri Lanka	271.7	10.0	281.7	3.5%
Bangladesh	31.1	60.0	91.0	65.9%
Tunisia	72.2	0.8	73.0	1.1%
Cambodia	48.9	11.2	60.1	18.6%
Vietnam	0.0	25.0	25.0	100.0%
Honduras	22.6	0.6	23.2	2.6%
Remaining 81 recipients	55.0	240.0	294.9	81.4%
Total	2,973.3	776.0	3,749.3	

Japan has financed DRR in 91 countries over the 20 years. Its financing is highly concentrated, however, with funding to Indonesia and the Philippines accounting for about 50% of the total. In countries such as these, Japan has been far and away the most significant donor.

The bulk of Japan's financing has been in the form of flood prevention and control – 77.8% of the total, and reaching as much as \$700 million in some years such as 1995. In recent years, however, the amount spent on these large-scale infrastructure initiatives has diminished in comparison with other DRR financing. Some of this funding has been in the form of climate financing, where Japan has spent a significant amount across a far wider range of countries

METHODOLOGY: DONOR FINANCING

Donor financing here captures both donor government financing direct to implementing actors and financing managed by multilateral agencies and institutions such as the World Bank and the United Nations. In reality, however, financing to multilateral agencies is also derived from government donors.

This data does not include a differentiation between grants and loans, which in the case of the two leading donors (World Bank and Japan), for example, may be of significance.

Note that this data does not include all financing managed or implemented by an institution or agency, but rather just the donor as recorded by the Disaster Aid Tracking data. Significant actors in DRR could therefore be 'hidden' by the data. An example is UNDP, which DAT records as a donor of \$89.9 million between 1991 to 2010. Reported expenditures by UNDP between just the years of 2004 to 2009 reached more than \$866 million (though it should be noted this included 'recovery' expenditure as well as DRR.) (See page 22 of 'Evaluation of UNDP Contribution to Disaster Prevention and Recovery,' 2010.

4

Conclusions and the way ahead

The evidence from analysis of DRR financing over the past 20 years paints at best a bleak picture.

Overall volumes spent on disasters are a fraction of development aid, and within that the amount committed to reduce the risk of disasters is an even smaller proportion. Financing is heavily concentrated in a relatively small number of projects and in relatively few countries, with most recipients being middle-income countries. The overall volumes mask the very low amounts for the reduction of disaster risk in many vulnerable countries, especially those affected by drought, many of which are in sub-Saharan Africa. Many of these countries – some of which do not even make it into the top 50 recipients for DRR – see massive amounts on emergency response and reconstruction, but negligible amounts when it comes to reduction.

There is little evidence that financing for DRR is directed according to context. Many of the most at-risk countries (often middle-income countries) do receive high volumes of financing, but this is not necessarily the case for countries with medium to high-risk levels. There is almost no correlation between risk and per capita financing, however, and the further one investigates, the more inequity becomes apparent. Perhaps the most striking and worrying set of data within this whole report concerns national governments' capacity to deliver risk reduction. Here we find many low-income countries with very low levels of government revenue that receive almost no financing for DRR (with drought-affected sub-Saharan African countries again heavily represented). Funding appears to be skewed towards those countries that already have significant revenues to undertake risk reduction. For example, there are 23 countries that have average government revenues of less than \$100 per capita. Adding up the totals for 22 of these (excluding Bangladesh, which is an anomaly), the volume spent over 20 years on DRR is only \$442 million, less than the amount spent in Turkey. Aren't these the very countries that should be receiving financial support from the international community?

There are, however, positives to take away. We see a stabilisation of overall levels of donor financing in later years, a move away from international financing of heavy infrastructure projects and increasing levels of financing from adaptation sources. There is evidence that financing of the richer middle-income countries has declined, especially from the mid-2000s onwards. The most important positive is that some countries (such as Indonesia and the Philippines) have invested heavily, and continue to do so, in reducing their own disaster risk levels, often allocating much higher volumes than international financing.

The most important positive is that some countries (such as Indonesia and the Philippines) have invested heavily, and continue to do so, in reducing their own disaster risk levels, often allocating much higher volumes than international financing.

This report represents one of the first examinations of financing for risk reduction to all developing countries.²⁴ It has its limitations. Certain countries are largely excluded from detailed examination, such as the small island developing states, in order to concentrate on the bigger picture. The data is not as complete as it might be; an examination of the detail of what exactly financing is being spent on would provide a more comprehensive tool for future decisions, and this needs to be done carefully, country by country. An understanding of the balance between donor government grants and loans would provide a clearer picture of 'generosity'. More certainly needs to be done to understand what level of DRR financing is integrated into development programmes in general.

Given these caveats, the overall picture is clear: financing for DRR has been both inadequate and markedly inequitable, with little prioritisation across full considerations of risk, need and capacity.

What then for the future? One issue is with the data itself, which needs significant improvements in terms of both quality and accessibility, with investments needed in providing decision-makers with clearer pictures of investments in disaster risk reduction. The calls made at this year's Global Platform to considerably enhance the tracking of DRR need to be realised. We certainly need to understand better how much money domestic governments are investing in risk reduction, and on what.

Beyond issues of data, however, the report calls into question four inter-related issues specifically concerning the international financing of DRR. First, it must be asked what is the role of that financing, what should it be funding and what should it not be funding, especially in light of national government responsibilities and pressure on donor finances – is there a clear comparative advantage of donor investment in risk reduction? Second, what is the model of financing that is needed? Do we have the right tools for the job, especially if we are to finance more equitably and according to need? Do we need better ways of integrating financing from adaptation sources? And how, at both global and country levels, should that be managed? Third, how can other funding be brought to bear on disaster risk, from other sources, bringing new government donors to finance DRR but also philanthropic sources, the private sector and remittances? Finally, how

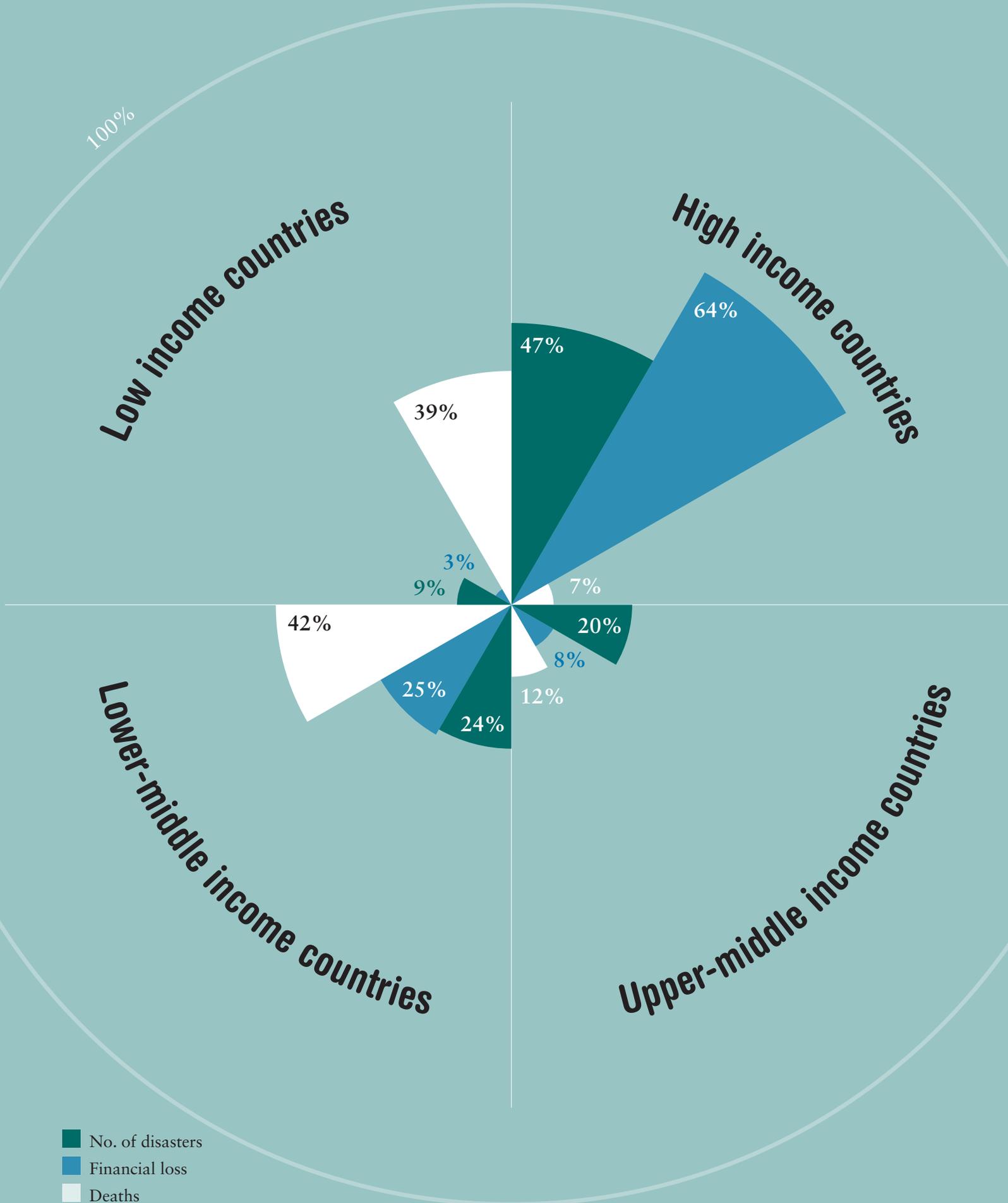
can we move beyond simply analysing volumes of financing for reducing risk (whether from international or national sources) and towards gauging how effective that financing is? And how can we use that same analysis to move away from accounting for the financing of DRR separately and more towards integrating risk into all investments.

The future therefore is not just about more money from donor governments, but also about financing from other sources, better financing – more integrated and suitably coordinated, and certainly better targeted. This demands, above all else, that the business case for investing in DRR becomes clearer and stronger – and this is one of the key tasks leading up to and beyond the likely successor to the HFA.

The future therefore is not just about more money from donor governments, but also about financing from other sources, better financing – more integrated and suitably coordinated, and certainly better targeted.

The impact of disasters by country income class

NOTE: THIS DATA IS USED WITH PERMISSION OF MUNICH RE: © 2013 MÜNCHENER RÜCKVERSICHERUNGS-GESELLSCHAFT, GEO RISKS RESEARCH, NATCATSERVICE.



- No. of disasters
- Financial loss
- Deaths

Annex

Basic concepts and further notes on methodology

Country and Lending Groups

As a partial proxy of national capacity to undertake (and finance) the reduction of disaster risk, this report uses the income categories of the World Bank. Four main groups of countries are articulated, based upon the gross national income per capita: Low-income economies (\$1,035 or less); Lower-middle-income economies (\$1,036 to \$4,085); Upper-middle-income economies (\$4,086 to \$12,615); High-income economies (\$12,616 or more).

See http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Low_income for more details.

Disaster-Related Data

As its source for disaster-related financing (unless otherwise noted), this report uses the **Disaster Aid Tracking (DAT)** database developed by the Global Facility for Disaster Reduction and Recovery (GFDRR) and Development Gateway on the AidData platform (<http://www.aiddata.org>). This database, accessible at <http://gfdr.aiddata.org>, is the most comprehensive attempt to identify disaster-related financing within international humanitarian and development assistance.

The DAT database contains all aid flows related to disasters during the period 1990-2010. Values are in constant 2009 US dollars. The category of 'Disaster prevention and preparedness' includes flood control measures, which are classified under 'Development aid'. The category 'Emergency response' may include some aid components related to non-disasters, as in several cases it was not possible to identify the precise nature of emergency aid flows.

Note that the the DAT database goes further than that of the OECD DAC (<http://www.oecd.org/dac/stats/>) by including a wider range of possible donors.

Impact of Disasters

Munich Re's NatCat Service database.

(<https://www.munichre.com/touch/naturalhazards/en/natcatservice/default.aspx>) records up to 1,000 new disaster entries each year and has more than 30,000 entries to date.

For the purposes of this report, NatCat data is used on the impact of disasters (apart from the affected). In three categories – number of events, mortality, losses – the data is broken down across country income-groups, high income, upper middle income, lower middle income and lower

Gross Domestic Product

The total market value of goods and services produced by workers and capital within a nation's borders.

Population Affected by Disaster

This report uses the **Centre for Research on the Epidemiology of Disasters (CRED)** International Disaster Database for tracking both the numbers of people affected by disaster, and in particular the number of people affected by drought.

CRED considers an event to be a disaster when at least one of the following criteria are fulfilled: ten or more people killed, 100 people reportedly affected; a state of emergency is declared; international assistance is requested. See <http://www.emdat.be> for more details and data.

Population Data

Population data come from: **UN Population Division, Department of Economic and Social Affairs**. 'World Population Prospects: the 2010 Revision'. Population data is used to provide per capita figures of investment in disaster risk reduction as well as government revenues. This is done by preparing an average of the population over the required timeframe, which in the case of DRR financing, is the 20 years from 1991 to 2010.

Prices

Constant prices are used wherever possible throughout this report. They are a more reliable indicator of how financing has changed year-on-year, removing the affects of exchange rates and inflation.

For the purpose of this report the disaster related financing from the DAT is all 2009 constant prices. Data on adaptation financing of DRR, taken from the Climate Funds Update website, (<http://www.climatefundsupdate.org>) is one of the few sources that uses 'current' prices throughout the dataset.

BASIC REFERENCE TABLE

Recipient country	DRR financing, 1991-2010		Risk		Economy/capacity	
	Per capita (\$)	Total (\$ millions)	MRI score	% of population affected by drought	government revenue (per capita \$)	Income level
Palestinian Occ. Territories	0.02	0.05	2	n/a	n/a	Lower-middle
Jordan	0.16	0.79	3	0.32%	n/a	Upper-middle
Trinidad and Tobago	0.43	0.56	4	0.00%	n/a	High
South Africa	0.13	5.61	4	1.64%	2,038.85	Upper-middle
Zambia	0.44	4.52	4	1.94%	205.44	Lower-middle
Niger	1.78	19.86	4	8.15%	43.69	Low
Burkina Faso	0.72	8.97	4	2.11%	53.58	Low
Guyana	77.59	57.15	4	3.93%	593.45	Lower-middle
Eritrea	0.07	0.28	4	6.84%	51.89	Low
Tunisia	7.85	73.92	4	n/a	n/a	Upper-middle
Benin	0.86	5.72	4	n/a	113.42	Low
Yemen	6.4	114.34	4	n/a	417.71	Lower-middle
Morocco	0.48	13.7	5	0.05%	870.69	Lower-middle
Cameroon	0.02	0.26	5	0.06%	223.94	Lower-middle
Brazil	2.84	492.32	5	0.33%	3,714.52	Upper-middle
Sri Lanka	15.07	286.19	5	0.70%	324.00	Lower-middle
Zimbabwe	0.04	0.43	5	5.85%	52.28	Low
Kenya	4.01	126.44	5	6.96%	177.76	Low
Malawi	1.26	14.51	5	8.32%	57.84	Low
Argentina	14.82	544.51	5	0.00%	3,249.53	Upper-middle
Nepal	1.43	35.03	6	0.10%	64.29	Low

Recipient country	DRR financing, 1991-2010		Risk		Economy/capacity	
	Per capita (\$)	Total (\$ millions)	MRI score	% of population affected by drought	government revenue (per capita \$)	Income level
Mexico	5.9	586.28	6	0.12%	2,329.40	Upper-middle
Papua New Guinea	2.84	15.4	6	0.44%	n/a	Lower-middle
Haiti	11.52	99.15	6	0.57%	-8.23	Low
Uganda	1.5	37.14	6	0.74%	31.78	Low
Cambodia	6.69	81.59	6	2.56%	80.89	Low
Ethiopia	0.35	22.97	6	3.34%	19.90	Low
Sierra Leone	0.09	0.42	6	n/a	0.94	Low
Chile	0.05	0.7	6	0.00%	3,136.44	Upper-middle
Ecuador	18.86	233.47	7	0.05%	n/a	Upper-middle
El Salvador	5.67	33.3	7	0.32%	571.44	Lower-middle
Vietnam	3.88	303.81	7	n/a	n/a	Lower-middle
Albania	3.17	10.01	7	4.83%	n/a	Upper-middle
Congo, Dem Rep.	0.03	1.68	7	n/a	n/a	Low
Turkey	7.2	457.56	7	n/a	3,591.96	Upper-middle
Dominican Republic	5.47	46.93	7	n/a	n/a	Upper-middle
Algeria	4.75	145	7	0.00%	n/a	Upper-middle
Costa Rica	0.18	0.71	7	0.00%	1,192.93	Upper-middle
Romania	8.28	184.24	8	0.00%	n/a	Upper-middle
Pakistan	1.13	161.49	8	0.07%	n/a	Lower-middle
Philippines	10.78	834.58	8	0.18%	416.42	Lower-middle
Peru	12.99	333.15	8	0.62%	n/a	Upper-middle
Guatemala	8.58	97.87	8	1.20%	373.50	Lower-middle
Afghanistan	0.96	22.09	8	1.34%	-134.90	Low
Iran	2.93	189.76	8	2.72%	n/a	Upper-middle
Colombia	13.85	550.75	9	0.01%	n/a	Upper-middle
Indonesia	6.75	1439.2	9	0.02%	513.64	Lower-middle
China	1.25	1578.36	9	1.55%	n/a	Upper-middle
India	0.5	524.89	9	1.59%	262.28	Lower-middle
Myanmar	0.21	9.08	9	n/a	46.08	Low
Bangladesh	7.12	916.39	9	0.00%	71.34	Low

Endnotes

- 1 UN (2013) 'A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development', United Nations. New York, US. <http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf>.
- 2 Yonetani, M. (2012). 'Global Estimates 2012: people displaced by disasters' <http://www.internal-displacement.org/publications/global-estimates-2012h> Internal Displacement Monitoring Centre. Geneva, Switzerland.
- 3 WB (2012) 'Turn down the Heat', World Bank. Washington DC, USA. http://climatechange.worldbank.org/sites/default/files/Turn_Down_the_heat_Why_a_4_degree_centrigrade_warmer_world_must_be_avoided.pdf
- 4 UNISDR (2011)'Hyogo Framework for Action – Building the Resilience of Nations and Communities to Disasters, Mid-Term Review, 2011'. UN International Strategy for Disaster Reduction. Geneva, Switzerland. http://www.unisdr.org/files/18197_midterm.pdf
- 5 OECD statistics website. Accessed in May 2013 www.oecd.org/development/stats/aidtopoorcountrieslips-furtherasgovernmentstightenbudgets.htm
- 6 Note that there is a semantic and important difference between what Munich Re calls 'losses' and what the World Bank and United Nations would call 'losses' as part of a 'damage and loss' assessment. Essentially Munich Re's use of the term 'losses' applies to the direct damage, the direct impact of the disaster. They do not collect the indirect 'losses.' Munich Re's usage of the term 'losses' is therefore equivalent to the term 'damage' used by other actors.
- 7 Markantonis, V. et al. (2011)'Valuating the intangible effects of natural hazards – review and analysis of the costing methods' HELMOLTZ Center for Environmental Research. Leipzig, Germany. Costanza, R. and Farley, J. (2007)'Ecological Economics of Coastal Disasters: Introduction to the Special Issue'. Ecological Economics 63:249-253.
- 8 This is taken from the World Bank Income Classification; see http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Low_income for more details.
- 9 Upper-middle-income countries in the top 10: China, Colombia, Brazil, Turkey, Mexico, Argentina. Lower middle-income countries: Indonesia, Philippines, India.
- 10 Climate Funds Update (CFU) website. Accessed in November 2012: <http://www.climatefundsupdate.org/data>
- 11 The Cook Islands is a parliamentary democracy in 'free association' with New Zealand. It has no separate income class according to the World Bank.
- 12 NAPAs provide a process for least developed countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage. As of August 2013, there were 49 NAPAs in existence. For more details, see: https://unfccc.int/adaptation/workstreams/national_adaptation_programmes_of_action/items/4585.php
- 13 The architecture of international climate finance is illustrated at: <http://www.climatefundsupdate.org/global-trends/global-finance-architecture>
- 14 Data from the Centre for Research on the Epidemiology of Disasters (CRED) on the numbers of those affected has been used to indicate the severity of drought across all countries. An overall average of the population affected each year over the full 20 years provides an indication of this severity.
- 15 All but Senegal have rural populations of more than 70%. Burundi has the highest rural population, at 88%, followed by Malawi with 84%. See <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS> for more details and data.
- 16 The select group in this case is the 51 countries used at the beginning of this section in analyzing 'mortality risk' (Figures 3.1 and 3.2). Nine countries were removed from this list because of the lack of necessary risk data.
- 17 Global hotspots does not breakdown GDP at risk when a country has a level below 30%; this figure is presented as the minimum for those countries.
- 18 Methodology from Kellett, J. and Sparks, D. (2012) 'Disaster Risk Reduction, Spending Where it Counts', Development Initiatives. <http://www.devinit.org/wp-content/uploads/Disaster-risk-reduction.pdf>
- 19 World Bank classification: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>
- 20 See Global Assessment Report 2011, UNISDR website. <http://www.preventionweb.net/english/hyogo/gar/2011/en/home/>
- 21 This data is drawn just from DAC donors, not the wider group of donors that AidData captures.

- 22 Panama: UNISDR (2012) 'Panama, a comprehensive approach to move forward in the inclusion of risk reduction criteria in public investment'. Guatemala: UNISDR (2012) 'Case study: Guatemala'. Peru: UNISDR (2012) 'Peru'. Philippines: UNISDR (2012). Philippines study: Susan Rachel J., G. (2012) 'Preliminary examination of existing methodology for allocating and tracking national government budget for Disaster Risk Reduction (DRR) in the Philippines'. UNISDR (http://www.unisdr.org/files/32378_32378philippinesdraftdrinvestments.pdf). Indonesia: UNISDR (2012) 'Disaster Risk Reduction investment tracking: case study Indonesia'.
- 23 These 12 countries are Mali, Guinea, Burkina Faso, Tanzania, Zimbabwe, Eritrea, Togo, Myanmar, Rwanda, Burundi, Sierra Leone and Liberia.
- 24 See Kellett and Sparks (2012) *op. cit.* This earlier report, which could be seen as precursor to the current analysis, focused on financing of DRR to only the top 40 humanitarian recipients.



Design: www.stevendickie.com/design

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