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# *Finance for reducing disaster risk: 10 things to know*

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Charlene Watson  
Alice Caravani  
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Jan Kellett  
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**March 2015**



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# Introduction

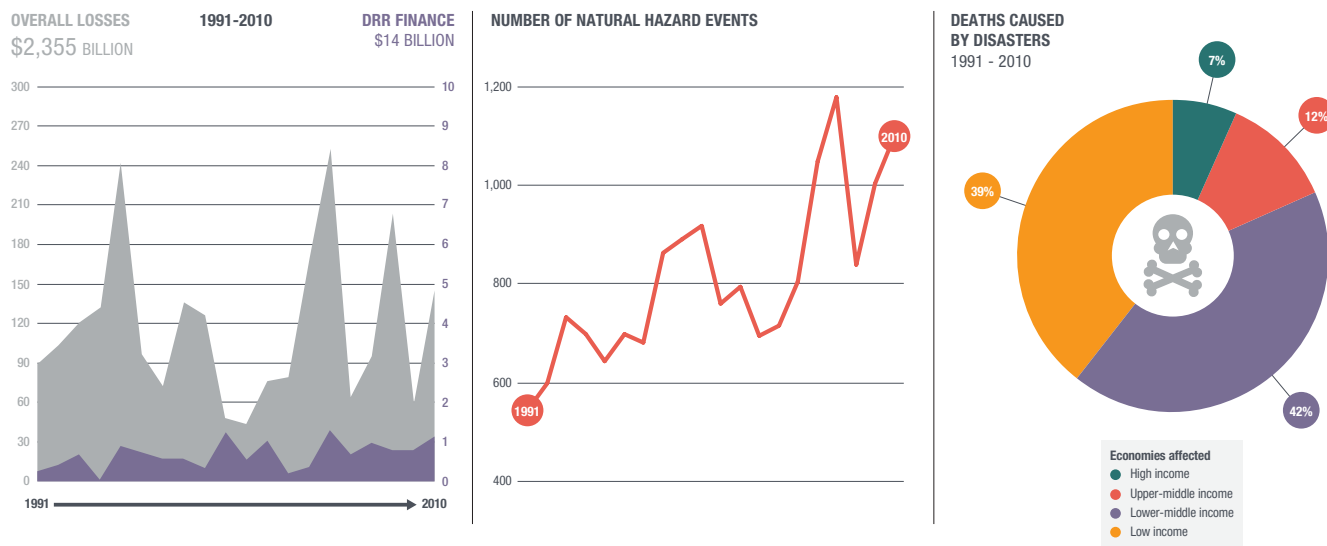
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The current discussion around the financing of disaster risk reduction (DRR) remains unsatisfactory. What little literature exists on DRR finance relates predominantly to the transfer of risk through insurance and reinsurance and is driven largely, but not exclusively, by private sector insurance companies (e.g. Swiss Re, 2008; Cummins and Mahul, 2010; UNEP FI, 2014). Work is now also emerging on the financial cost of DRR inaction in the face of growing disaster risk (World Bank, 2014). There remain few publications that systematically address issues in DRR finance, such as outlining the funding opportunities that exist in the current international and national landscape, what activities are being or could be funded and whether finance is being targeted and allocated to the right places (Kellett and Sparks, 2012; Kellett and Caravani, 2013; Kellett and Peters, 2014). Instead, the rhetoric remains around inadequate scales of finance that support short term, piecemeal interventions and rarely cover the full suite of actions required to effectively reduce disaster risk at the scale and duration required (ISDR, 2009a; ISDR, 2011).

This is, in part, a result of the way in which the DRR debate and practice has evolved. Reference to financing in the Hyogo Framework for Action (2005 to 2015) is inadequate with little mention of financial commitments or tools. Compounding this, the DRR finance that exists is not sufficiently tracked, though tracking itself can create the perverse incentive of encouraging separation from wider financing flows. As the community rightly moves to articulate DRR as something to be mainstreamed in all investment decisions, public or private, it becomes harder to explicitly identify the DRR finance sources, channels, their instruments and their outcomes. However, without an improved understanding of DRR finance, as the financial flows that act to reduce disaster risk, it is increasingly complex to generate synergy and complementarity between national and global development priorities and finance streams. Ensuring all investment flows are disaster resilient presents a substantial opportunity to reduce rather than generate risk, an increase in which could slow development and economic progress.

**Finance for reducing disaster risk: 10 things to know** focuses on the basics of DRR finance and the opportunities that the Post-2015 development finance landscape can offer. In the Post-2015 Framework for Disaster Risk Reduction – the successor to the Hyogo Framework for Action (HFA) – it is imperative that the discussion on financing is elaborated. This accompanying report to the '10 things to know about finance for reducing disaster risk' provides a clear overview of the needs and trends in DRR finance, the available channels and a nuanced narrative to capture the attention of decision-makers and stakeholders in advance of the Sendai World Conference on Disaster Risk Reduction (WCDRR).

# 1. Disasters are increasing and their costs growing



**The number of disasters is increasing.** In 1991, the number of natural events reported by Munich Re was 542, in 2000 this was 919 and in 2010 numbers had reached 1,100 (Munich Re, 2013). While variation is expected in the incidence of natural disasters, evidence points to an increasing frequency of disaster events, a trend that is likely to continue into the future (IPCC, 2012).

**The cost of disasters is increasing.** Over time, through population and economic growth, more people and assets become exposed to disasters. The level of vulnerability can be described as the characteristics and circumstances that make a system, community or asset susceptible to damaging effects. This will vary depending on levels of development and commitment to invest in measures that reduce vulnerability in exposed areas. However, the average annual losses from disasters between 1991 and 2010 are estimated at \$117 billion (constant 2010 US\$; Munich Re, 2013). These estimates do not include indirect losses that would put the figures much higher. The 2013 Global Assessment Report (GAR) on Disaster Risk Reduction suggests that losses may be as much as 50% higher, particularly when small-scale disasters are included, with low and middle-income countries experiencing the greatest unreported losses (ISDR, 2013a).

**Disaster mortality is concentrated in developing countries.** The lives lost as a result of disaster events have increased over the last 30 years, though the pattern is reliant on recent high mortality events including the Southeast Asian tsunami in 2004 and the Haiti earthquake in 2010. Developing countries experience loss of life the hardest, together accounting for 93% of total deaths from natural hazard related disasters between 1991 and 2010. The elderly, disabled, women and children are disproportionately affected by disasters. Evidence shows that disasters tend to cause higher mortality for women than for men. For example, in the 2004 Indonesia Tsunami, 77% of the population killed were women (Lovell and le Masson, 2014).

**Growth in development assistance for DRR has been moderate.** Despite trends in increasing human and economic losses, its volume has experienced only small increases. Between 1991 and 2010, average annual spend was \$681 million (constant 2010 US\$). This figure for development assistance for DRR\* focuses on flows from developed to developing countries and captures predominantly concessional flows (Box 1). Finance fluctuates greatly between years, but shows a slowly increasing trend. The OECD DAC spending on disaster prevention and preparedness after 2010 indicates a continuation of this moderate increase in development assistance from 2010 to today.

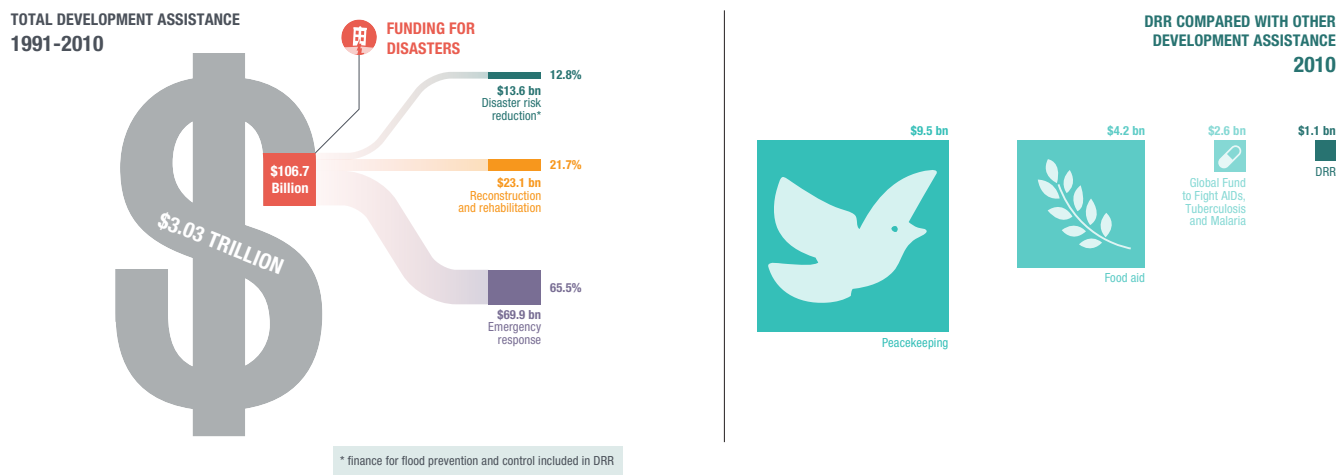
\* Where disaster risk reduction is defined as the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events (ISDR, 2009b).

## BOX 1: DATA ON DEVELOPMENT ASSISTANCE FOR DRR

The 10 things to know about finance for reducing disaster risk uses a database of DRR finance prepared for Kellett and Caravani (2013). Other data sources are referenced in the text where used. The database is an amended version of the Disaster Aid Tracking (DAT) database that includes emergency response, reconstruction and rehabilitation, along with disaster preparedness and prevention combined with flood prevention and control, to generate the DRR finance category analysed here. The Disaster Aid Tracking (DAT) Initiative is the most comprehensive source of data on finance for DRR and was developed by the Global Facility for Disaster Reduction and Recovery (GFDRR). It only includes data up to 2010, however. In addition to Development Assistance Committee (DAC) contributors, the DAT database includes ex-ante and ex-post disaster-related development and humanitarian aid from non-DAC donors (bilateral and corporate) and both public and private sector actors. However, private and philanthropic contributions are marginal within the database, thus it is referred to here as development assistance for DRR.

SOURCE: KELLETT AND CARAVANI, 2013

## 2. DRR spending accounts for a fraction of development assistance



Development assistance for DRR is a small fraction of the total international aid finance. \$13.65 billion has been spent on DRR between 1991 and 2010 (constant 2010 US\$). In comparison, \$3.3 trillion was spent on development assistance over this same period (Kellett and Caravani, 2013). Comparing development assistance for DRR in 2010, a relatively high year for DRR finance, with spending on conflict and health only reinforces this. While these figures do not take into account needs, they demonstrate that spending on DRR is marginal.

**Spending on disasters is largely ex-post.** Historical data on development assistance for disasters is presented in three categories: emergency response, reconstruction and rehabilitation, and disaster risk reduction (including flood prevention and control) (Table 1). The figure of \$13.65 billion for DRR represents 13% of spending between 1991 and 2010, which is a small fraction of the total amount. The majority of finance, \$69.9 billion (66%), flows to emergency response, while \$23.12 billion goes to reconstruction and rehabilitation (Figure 1).

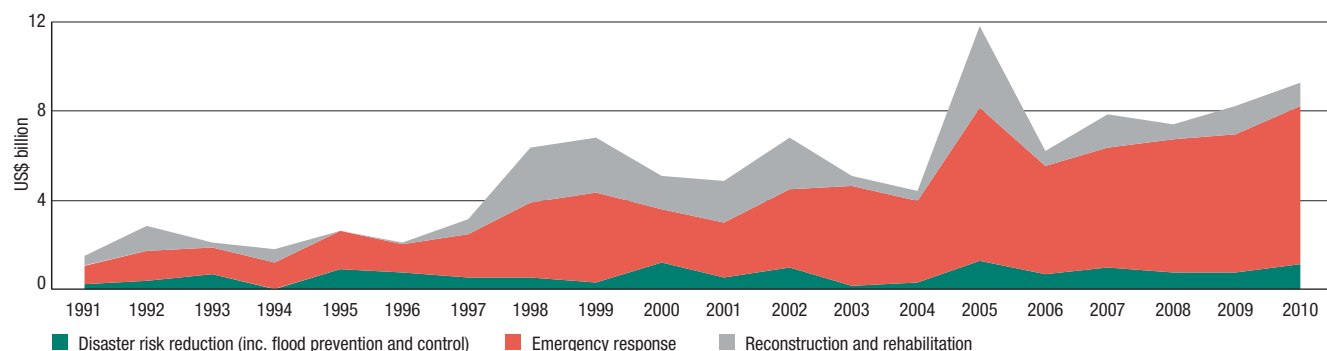
As yet, there are no robust conclusions on how much a dollar spent on DRR can save. Findings of the World Development Report in 2014 suggest that risk management can avert costs in many instances; cost benefit analysis for early warning systems for natural disasters, for example, have estimated benefits four to 36 times

**Table 1: Exemplary activities in emergency response, reconstruction and rehabilitation, and disaster risk reduction**

Emergency Response	Reconstruction and Rehabilitation	Disaster Risk Reduction
Programs to cope with damages caused by disasters such as tsunamis, cyclones, earthquakes, floods and droughts (including food aid)	Housing, transport and industrial reconstruction; building back better programs; economic and social recovery, and rehabilitation from disasters	Disaster prevention and preparedness programs, early warning systems, capacity building and flood prevention and control

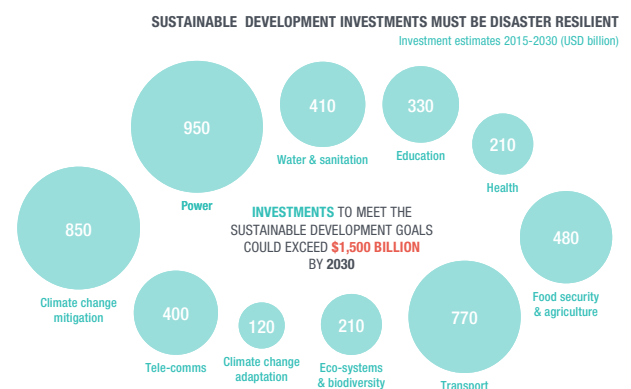
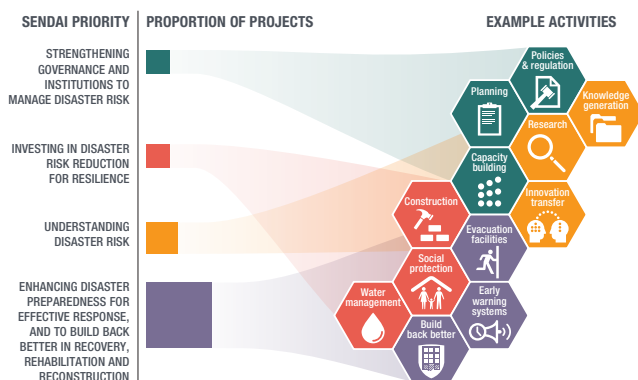
greater than the cost (World Bank, 2014). However, methods for cost benefit analysis have their limitations; benefits through avoided losses will only be realised if a disaster event occurs and within a reasonable timeframe. The counterfactual is also notoriously difficult to establish (Kellett and Peters, 2014) but anecdotal evidence shows that DRR is likely to influence the impact of natural hazards on humans. Three major cyclones of similar intensity have hit Bangladesh over the past four decades, but mortality has declined, most likely due to a nationwide programme to build shelters, improved forecasting and an early warning system (World Bank, 2014). More recently, evidence points to a range of benefits of DRR irrespective of the shock occurring (World Bank and ODI, 2015).

**Figure 1: The share of DRR in international aid for disasters, 1991 to 2010 (constant 2010 US\$)**





### 3. Development assistance for DRR supports a range of actions, but is biased towards preparedness



Reducing disaster risk requires a portfolio of actions. These actions work to minimise the creation of risks, reduce any risks that already exist, share residual risks and prepare and respond to disasters (IPCC, 2012). An effective DRR response requires a combination of both hard infrastructure-based responses and soft activities. These include individual and institutional capacity building and financing these actions calls for varied financial instruments that, by and large, arrive through different channels. Early warning and preparedness actions may be supported by concessional international public finance or national investments, for example, while reducing exposure of people and assets, particularly infrastructure, is often funded through public and private partnerships and loan finance. Meanwhile, risk sharing may occur through insurance (a mix of public, private, catastrophe bond markets, sovereign pooled funds and by government as the insurer or last resort).

More is done to support preparedness and recovery than to understand the underlying vulnerabilities that lead to disasters. Analysing development assistance for DRR, in context of the four priorities of the Post-2015 Framework for DRR, indicates that the majority of projects (61%) target the aim of *enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction* (Box 2). The next largest category by number of projects funded is *Understanding Disaster Risk*, at just 14% of projects. Investing in DRR for resilience has a surprisingly low share of projects at just 8%.

The mainstay of DRR needs to be financed through integrated measures that support sustainable development. The dataset analysed is specifically targeted towards disaster related projects, though in reality, there is a continuum that blurs the distinction between development and DRR actions. Thus, while it is important to be able to identify the actions of DRR projects, it is crucial to also better understand how disaster risk is handled when integrated into broader sustainable development. The priority actions of the Post-2015 Framework for DRR are in danger of focussing attention on specific disaster-risk components rather than the need to make wider (development) investments that are disaster resilient.

**Table 2: Sendai Priorities for Action and exemplary activities**  
(italicised text represents the wording used in the draft Post-2015 Framework for DRR)

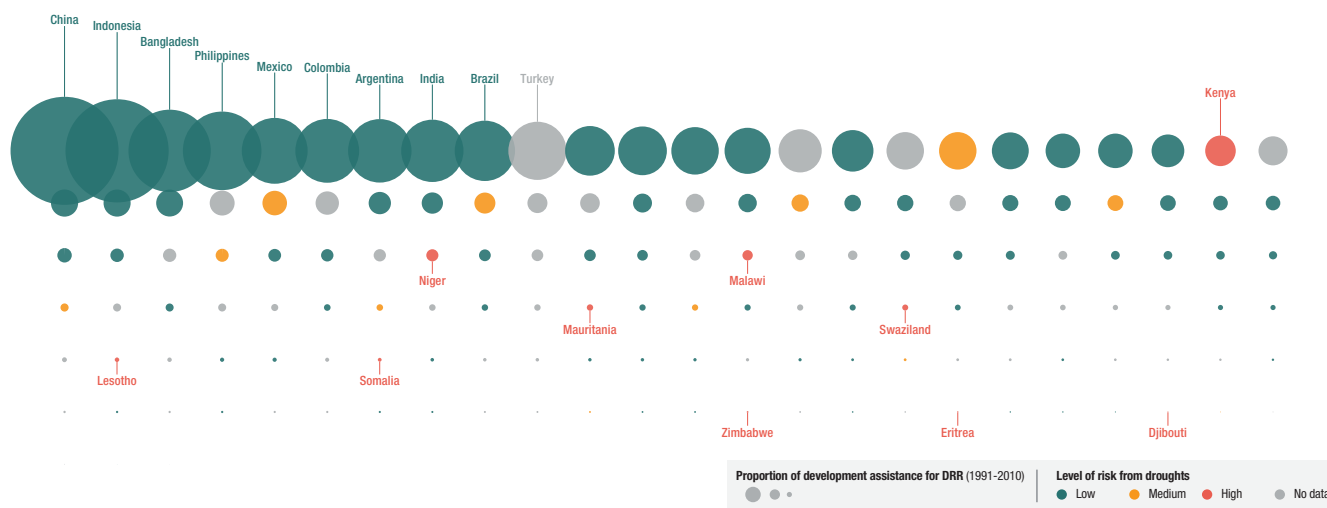
Post-2015 Framework Priority	Exemplary activities
1. <i>Understanding disaster risk</i>	Knowledge and information generation and management (including risk and vulnerability assessments, cost-benefit analysis, and information systems), research, innovation and technology transfer.
2. <i>Strengthening governance/ institutional arrangements/ organizational, legal and policy frameworks to manage disaster risk</i>	Institutional capacity building, planning (ex-ante and ex-post), coordination, management, policies and regulation
3. <i>Investing in disaster risk reduction for resilience</i>	Hard and soft investment, land use and water management, infrastructure conservation (including natural), construction, reconstruction and retrofitting for economic, social, cultural and environmental resilience (including poverty alleviation programmes, social protection and basic service provision)
4. <i>Enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction</i>	Evacuation facilities, retrofitting schools, hospitals and other public buildings, training and contingency plans (including early warning systems)

Source: see the Post-2015 Framework zero draft at [http://www.wcdrr.org/documents/wcdrr/Pre-zero\\_draft\\_post2015\\_frmwk\\_for\\_DRR\\_8\\_August.pdf](http://www.wcdrr.org/documents/wcdrr/Pre-zero_draft_post2015_frmwk_for_DRR_8_August.pdf)

#### BOX 2: THE POST-2015 FRAMEWORK 'SENDAI' PRIORITIES FOR ACTION

The draft text of the Post-2015 Framework for DRR sets out four priorities for action, taking into account experiences from the implementation of the HFA. These priorities are '**expected to be addressed through action within and across sectors by States at local, national, regional and global levels**'. They are used and elaborated here as guiding categories to code a small, randomised sample of 100 DRR projects (3%) funded by development assistance between 1991 and 2010 (Table 2). Projects were coded from the project title and available documentation. In the absence of global needs assessments to act as a comparator to interpret the total volumes of finance, the analysis focuses on the number of projects within each priority area.

## 4. Poor, drought prone countries miss out on DRR finance



Development assistance for DRR is concentrated in a small number of countries. The top ten recipient countries in terms of DRR finance received 59% of the total finance spent between 1991-2010 (Table 2). While the distribution of development assistance to reduce disaster risk should match where the risk is highest and needs are greatest, ranking in absolute terms is impossible. Each country, especially in the developing world, is more or less vulnerable to certain hazards and there are no comprehensive and consistently applied financial needs assessments by which to compare countries. However, least developed countries lacking domestic resources and access to finance to support DRR should receive greater portions of DRR finance. Such countries tend to be fragile and/or conflict affected states, or places where political and institutional challenges lead to both challenges in absorbing financial resources as well as low appetite for development assistance spending (Kellett and Peters, 2014).

The largest recipients of DRR finance have high mortality risk, but poorer and drought prone countries are inadequately represented. China, Indonesia, Bangladesh, Colombia and India, all among the

top ten recipients of DRR finance, each have a high Mortality Risk Index (MRI) scores. Developed by the United Nations International Strategy for Disaster Reduction Secretariat (UNISDR), the MRI models natural hazards (earthquakes, floods, tropical cyclones and landslides), human exposure and vulnerability to produce a score between 1 and 9, with higher scores representing greater risk (ISDR, 2009a). It excludes, however, risk from drought, the impacts of which are highly correlated with poverty increase (Shepherd *et al.*, 2013). Somalia, Eritrea and Djibouti are two examples receiving very little DRR finance in both absolute (each less than USD 1 million) and per capita terms (each less than \$5 per person and some as little as 4 cents per person) between 1991 and 2010. Many of these drought prone countries are also least-developed countries (Table 3). More recently, countries such as Somalia and Ethiopia have received humanitarian finance from the European Community Humanitarian Office (ECHO), UK, US and Canada, but it is unclear how much is programmed in drought-affected areas (GHA, 2014).

**Table 2: Top recipients of DRR finance between 1991-2010**

(constant 2010 US\$ million) with Mortality Risk Index

Top recipients of DRR finance	DRR received	DRR per capita received	Mortality Risk Index
China	1,578.60	1.25	9
Indonesia	1,439.59	6.75	9
Bangladesh*	916.39	7.12	9
Philippines	834.58	10.78	8
Mexico	586.28	5.90	6
Colombia	550.75	13.85	9
Argentina	544.51	14.82	5
India	524.94	0.50	9
Brazil	492.32	2.84	5
Turkey	457.56	7.20	7

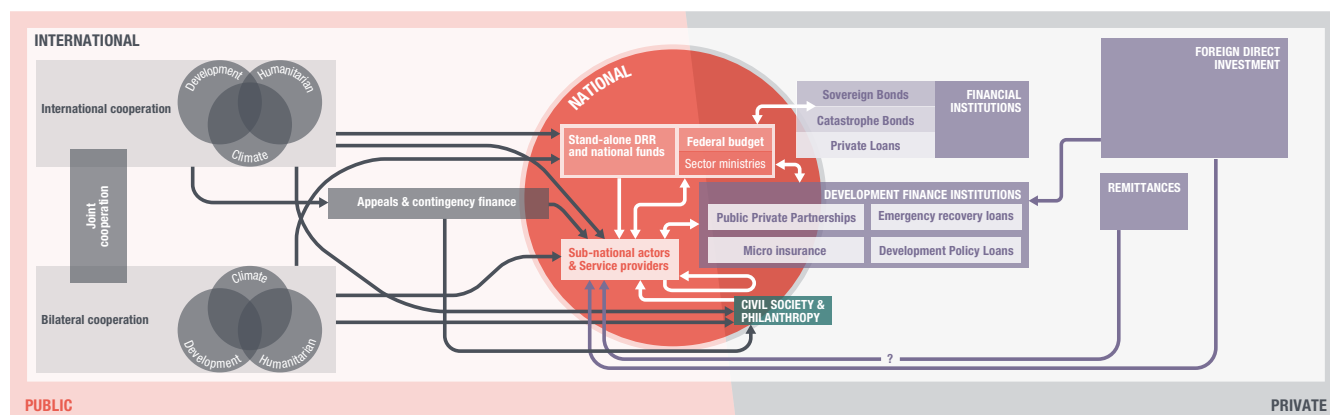
\* Least developed country

**Table 3: Top drought prone countries, international DRR finance between 1991-2010** (constant 2010 US\$ million) with Mortality Risk Index

Top drought prone countries	DRR received	DRR per capita received	Mortality Risk Index
Kenya	126.44	4.01	5
Niger*	19.86	1.78	4
Malawi*	14.51	1.26	5
Mauritania*	5.45	2.04	
Swaziland	4.86	4.68	
Lesotho*	2.77	1.43	
Somalia*	1.96	0.26	
Zimbabwe	0.43	0.04	5
Eritrea*	0.28	0.07	4
Djibouti*	0.15	0.17	

\* Least developed country

# 5. Sources of finance for reducing disaster risk are varied and complex



International finance from public sources supports many different aspects of DRR. This includes development, humanitarian and climate finance as well as flows through appeals or from contingency sources. In some instances, there are dedicated multilateral or bilateral mechanisms through which DRR finance flows. For example, the Global Facility for Disaster Risk Reduction and Recovery (GFDRR), established in 2006, is a partnership of 35 countries and international organisations that use co-financing, grants and technical assistance to support DRR. UNDP's crisis prevention and recovery trust-fund has financed the reduction of disaster risk in more than 100 countries during the life of the HFA, often leveraging additional funding from other sources for long-term DRR. Finance through appeals and contingency planning, largely work through the humanitarian financing system, includes the Strategic Response Plan (the successor to the Consolidated Appeals Process (CAP)), Common Humanitarian Funds (CHFs), Emergency Response Funds (ERFs) and Central Emergency Response Funds (CERFs). While most humanitarian mechanisms support crisis and post-crisis response, some of these funds do help sustain more ex-ante DRR actions (Kellett and Peters, 2014). This is highly context specific, however.

**Domestic financing structures for DRR add further complexity.** The differing national structures through which DRR finance is raised and channelled only add to the complexity, with multiple sources and channels often existing side-by-side. Some countries have stand-alone DRR finance mechanisms, such as national funds for preparedness, more comprehensive DRR, reconstruction or climate adaptation. In other instances, DRR finance relies on federal budget allocation through line ministries, which may make the tracking of such investments particularly challenging (Table 4). It should be noted, however, that such financing of line ministries, as part of long-term development and provision of basic services, does constitute the 'heavy-lifting' of risk reduction. Domestic policy is also key to the reduction of risk in any context, which not only ensures a financial focus on DRR from national resources, but also pulls private sector investment to DRR (Figure 2).

**Private sector DRR finance is diverse, as can be expected from a very heterogeneous group.** Private-sector finance includes Foreign Direct Investment (FDI) that is resilient to risk, albeit a small proportion, as well as insurance markets and remittances, for example. Insurance and reinsurance is a common way to transfer risk. Insurance markets exist at various scales including

**Table 4: Approaches to finance DRR from national budgets with the likely activities financed**

DRR as part of a disaster risk management budget	DRR as budget line or special fund	DRR integrated into development planning and management
Early warning systems	National disaster management agency	Land use planning and management
Climate and risk monitoring	Early warning systems	Transport infrastructure
Evacuation facilities	Climate and risk monitoring	Water resource planning and infrastructure
National disaster management agency	National risk reduction frameworks and plans	Retrofitting schools and hospitals
National risk reduction frameworks and plans	Probabilistic risk assessments	Risk-targeted social protection
Risk and vulnerability assessments	Targeted risk reduction infrastructure, e.g. dykes, tsunami defenses	Targeted risk reduction infrastructure, e.g. dykes, tsunami defenses
Disaster response		Environmental protection
Stockpiling		Biodiversity
Catastrophic risk insurance		
Micro-insurance		

■ Risk reduction activities ■ Risk-related activities, but not specifically targeted to reduction  
Source: Kellett *et al.*, 2014

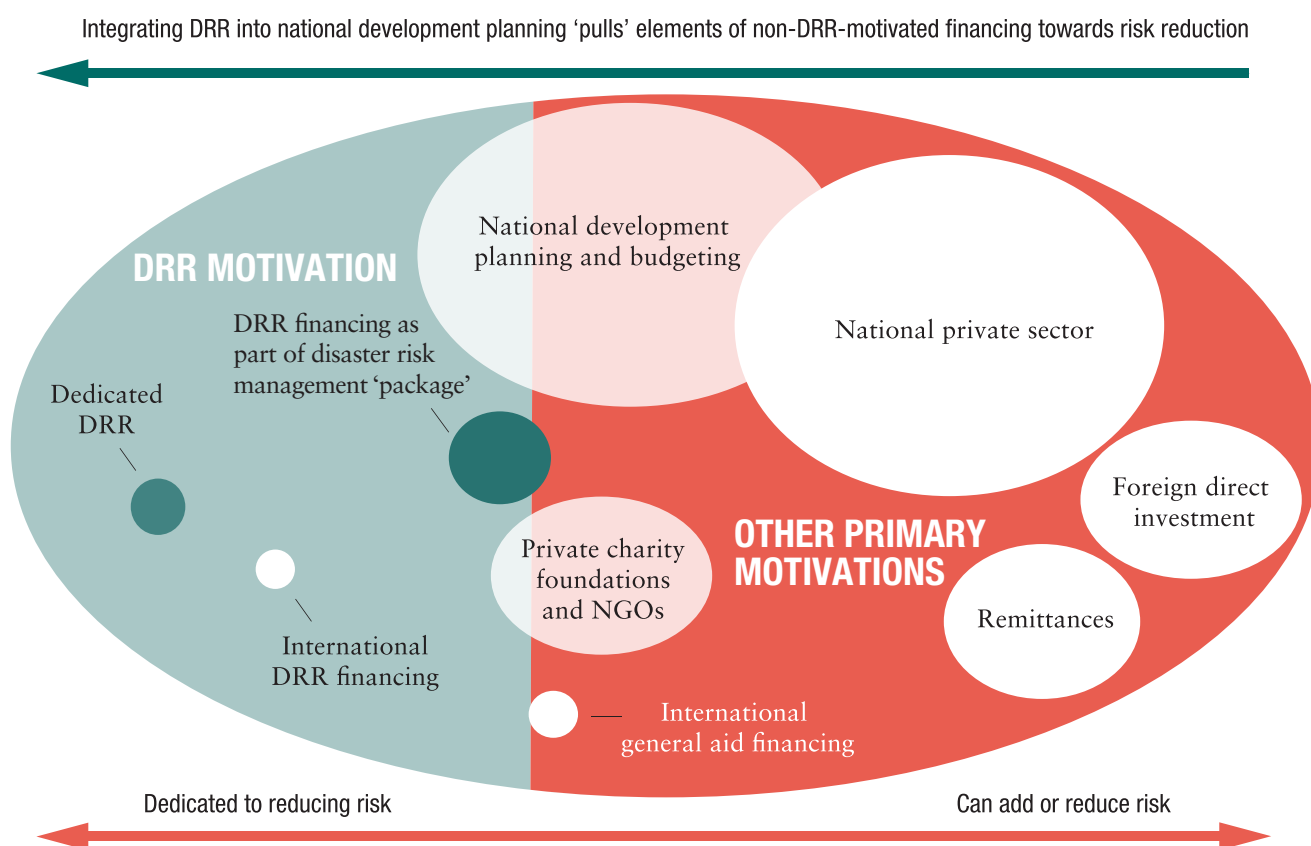
sovereign, commercial, private and micro-level. In particular, they finance DRR by ensuring funds are available during recovery and reconstruction and reduce financial pressures following a disaster, as they have no obligation to be repaid. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) and African Risk Capacity (ARC) are both examples of pooled regional risk, at sovereign level, that make use of capital markets, mitigating cash flow problems after disasters. The role of remittances in financing DRR activities remains unclear, although it does appear to play a role after disaster events (Suleri and Savage, 2006). The private sector category also includes civil society and philanthropic organisations, with DRR activities ranging from research and capacity building to on-the-ground implementation. Significant

research into many aspects of private finance for DRR is required, especially in light of the investments made by the sector across a range of country contexts.

**A number of finance channels require both public and private actors.** Mechanisms to share risk are a primary example of this; insurance is critical for governments, businesses and individuals alike and CCRIF and ARC provide clear examples of how the government can work with the private sector to finance DRR. Development finance institutions, backed by states, also allow for private sector investments in DRR in developing countries through the use of loans, equity, and guarantees, for example. Public-Private Partnerships (PPPs) for DRR are also increasing, particularly for infrastructure (ISDR, 2013a). These share risk and work to combine the strengths of both government and private sector actors, and can foster partnerships that help reduce barriers to inhibit private sector action (Becker-Birck *et al.*, 2013).

**The current DRR finance architecture is unpredictable and often activity focused, and one in which the reduction of disaster risk may not be the primary motivation.** Financing the suite of activities that build disaster resilience necessitates blending multiple sources and financial instruments. Complexities arise because not all sources are suitable for all activities or available, either in a particular country or at a particular time. Along with this, finance through these sources can be insufficient to meet needs (Kellett and Peters, 2014). Private sector mechanisms, for example, are poorly developed in some countries. Donors have also found it easier to fund discrete projects that have clear impact, but these do not necessarily lead to a holistic or sustainable DRR outcome. This is partly due to the way in which many donors still have their DRR portfolio as part of their humanitarian departments, rather than as a contribution to sustainable development. Therefore, as it stands, the architecture provides an unpredictable and activity-focused stream of DRR finance and does not always support a comprehensive approach to the management of disaster risk.

**Figure 2: The taxonomy of DRR financing**

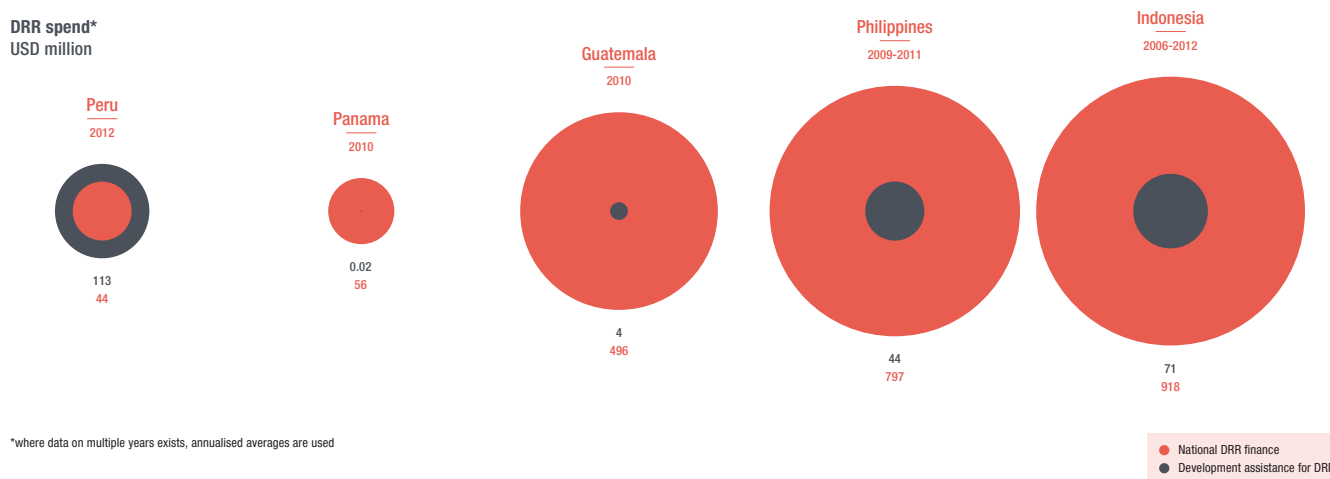


Note: The size of the 'circles' is a simple attempt to show how some flows of money are larger than others. Green circles represent areas of national finance that could also be responsible for developing risk reduction policies that could affect other financial flows.

Source: Kellett *et al.*, 2014.



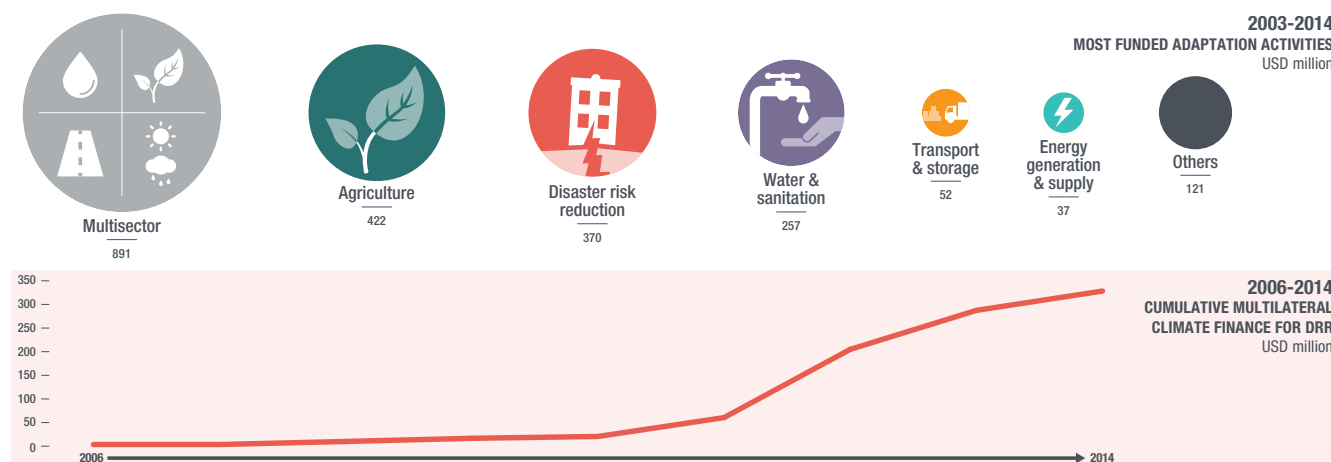
## 6. A number of countries have mobilised their own DRR finance



Data on national expenditure for DRR are scarce but case studies indicate the high relative importance of domestic DRR finance compared to development assistance. The more DRR is effectively and efficiently integrated into sustainable development, the less easy it is to track, creating difficulties for allocating resources. However, Kellett and Caravani (2013) analysed the results of five country studies – Guatemala, Indonesia, Panama, Peru, and the Philippines – to understand mechanisms for classifying, allocating and tracking DRR in national public investment commissioned by UNISDR. All of these countries have high levels of disaster risk and all but Panama have domestic investment in DRR that outstrips that of development assistance for DRR.

National institutions, policies and plans are critical for an effective and financed DRR response. Many countries have created national institutions, policies and plans to manage the implementation of DRR finance and have made policy commitments to specific DRR interventions. Indonesia, the Philippines, Costa Rica, South Africa, and Mexico are examples where DRR is increasingly being integrated into development planning and countries are rising to the challenge of doing so within public expenditure management structures (Kellett *et al.*, 2014). However, despite progress in DRR policy formation, financing for implementation is often lacking (ISDR, 2011). In many countries, such as Myanmar, the policy environment for DRR is comprehensive, but the international funding for DRR is piecemeal and not inline with national plans (Kellett and Peters, 2014).

# 7. Climate finance presents a new opportunity to finance DRR



Climate change is altering the frequency, intensity, extent, duration and timing of some extreme weather and climate events (IPCC, 2012). As such, DRR must not only manage current climate variability, but it must also take account of future risks that are associated with climate change (Mitchell and van Aalst, 2008). While adaptation to climate change will require broader activities than DRR, similar activities are often undertaken. This includes integrating climate-related risk into development planning and generating risk management frameworks as well as a range of hard and soft measures (Kellett *et al.*, 2014). Climate finance will not, however, go far enough in supporting non-climate related disaster risk, meaning funding mechanisms to address these will remain necessary. The overlaps in both goals and their concepts mean that ensuring efficiency and complementarity in financing is necessary despite the separate evolution of the climate change adaptation and DRR agendas.

Finance for climate change adaptation is being directed to build resilience to extreme climate events. Between 2003 and 2014, \$2.1 billion of concessional finance flowed through dedicated climate change adaptation funds (Nakhooa *et al.*, 2014a). Of this, \$369 million has explicitly gone towards DRR activities, focussed on early warning systems, coastal infrastructure, building resilience to climate related hazards, information systems and capacity building (CFU, 2015). This climate finance for DRR includes funds channelled through financial mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC). These include the Adaptation Fund, the Global Environment Facility administered Least Developed Countries Fund and the Special Climate Change Fund, as well as those outside of the UNFCCC process, such as the Pilot Programme for Climate Resilience, which is part of the World Bank's Climate Investment Funds (see CFU, 2015).

**The DRR component of total adaptation finance is likely to be a much greater portion.** Early analysis of project documents suggests that other adaptation projects in sectors, such as water management or agriculture, also often include components that address disaster risk. In 2014, 43% of adaptation finance included a DRR component (Nakhooa *et al.*, 2014b).

## 8. Ensuring all new investments are resilient to disaster risk is an opportunity to reduce, rather than lock-in risk



Investment that is resilient to disaster risk sets a pathway for sustainable development. Disasters and development are inextricably linked. Disasters disproportionately affect the poorest and most marginalised people. They exacerbate vulnerabilities and social inequalities, harm people's wellbeing and can hamper economic growth (Mitchell *et al.*, 2013). Sustainable development must therefore be risk resilient. Putting risk reduction and management at the centre of the future development agenda will ensure disasters do not derail development progress, including efforts to eradicate poverty, and will ensure that development does not inadvertently create new risks.

DRR finance is much more than development assistance. It is through mainstream development investments and broader financial flows that the bulk of DRR could be made. Private investment in most economies accounts for 70-85% of overall investments (ISDR, 2013a). Infrastructure is a good example of where investment must be disaster resilient. US\$6 trillion a year is estimated to be spent on new infrastructure, such as for energy, as well as roads, houses, schools, hospitals and other public services until 2030 (NCE, 2014). It is imperative that these are risk resilient investments, as infrastructure is a critical factor of a competitive economy (ISDR, 2013a).

Development assistance itself is changing, but will continue to play an important role. The international community is grappling with increasing DRR finance needs, set against a backdrop of continuing pressure on donor financing and with it, demand from donors that effectiveness and value for money become central to the system (Kellett and Peters, 2014). This is set in a context of shifting balance of economic power and geo-political influence. In some emerging economies, increasing FDI inflows have significantly reduced the relative importance of development assistance. Along with this, tax revenues in some traditionally supported countries now exceed development assistance, FDI or remittances (Glennie and Hurley, 2014). Despite its relatively small absolute contribution to DRR finance, development assistance will continue to play a role as a catalyst to secure the integration of DRR within key sectors for disaster resilient investments.

# 9. Both government and the private sector can invest to reduce loss and tackle risk at the same time

2011 EXEMPLARY LOSSES FROM DISASTERS

INSURANCE	Munich RE	\$350 million in claims from flooding in Australia
	The Hartford Group	\$745 million in claims for natural catastrophes
MANUFACTURING	Honda	\$250 million loss owing to floods in Thailand
UTILITIES	Constellation Energy	\$0.16 reduction in share price after having to buy power at peak prices caused by surge in demand after heat wave in Texas
	Eskom	50% reduction in transmission capacity between Mozambique and South Africa caused by flooding of the Limpopo River
MINING	Anglo American	8% reduction in copper production owing to increased rainfall in Chile
	Rio Tinto	\$245 million loss in earnings owing to the impacts of cyclones and flooding in Australia

ESSENTIALS FOR THE PUBLIC AND PRIVATE SECTOR IN DRR



The impact of disasters are increasingly recognised by the private sector. Whether smallholder farmers or multinational cooperations, private sector actors face damage to infrastructure, production interruption and disruption as a result of disasters. Some businesses are beginning to count major losses (Table 5; Crawford and Seidel, 2013). With increasing globalisation, the impacts of disaster on business are wide ranging. The devastating floods of Thailand in 2011, for example, incurred direct losses to property, equipment and stocks estimated at \$45.7 billion. However, car production of Nissan and Toyota in Malaysia, North American and Japan was also affected, as parts could not be obtained (ISDR, 2013a).

The private sector is investing in risk reduction and making choices based on risk and resilience considerations. A number of private sector actors are reducing disaster risks driven by cost savings, reputational and brand value increases, competitive advantages or through new business opportunities (PwC, 2013). Through investments in risk analysis and assessments, early warning, cost-benefit analyses and support to national risk reduction the private sector can reduce the risk to its profit as well as to the communities and countries in which it works and to which it provides its goods and services. This, however, is only effective through collaboration with government. UNISDR has developed a checklist for such partnership investments (ISDR, 2013b):

1. Promote and develop public-private partnerships for disaster risk reduction to analyse the root causes of continued non-resilient activity.
2. Leverage sectoral private sector expertise and strengths to advance disaster risk reduction and mitigation activities, including enhanced resilience and effective response.
3. Foster a collaborative exchange and dissemination of data: Share information on assessment, monitoring, prediction, forecasting and early warning purposes and action between the public and private sectors.

4. Support national and local risk assessments and socio-economic cost-benefit analyses and capacity building, and demonstrate opportunities where resilience building and disaster risk reduction is a sound economic strategy, with attractive returns and competitive advantages.
5. Support the development and strengthening of national and local laws, regulations, policies and programmes that enhance disaster risk reduction and improve resilience.

Through sustainability initiatives, corporate social responsibility, philanthropy and knowledge transfer, the private sector can become a major driver of risk reduction. However, more needs to be done, with economic forecasts and growth projections particularly remaining, by and large, ignorant of disaster risk (ISDR, 2013a).

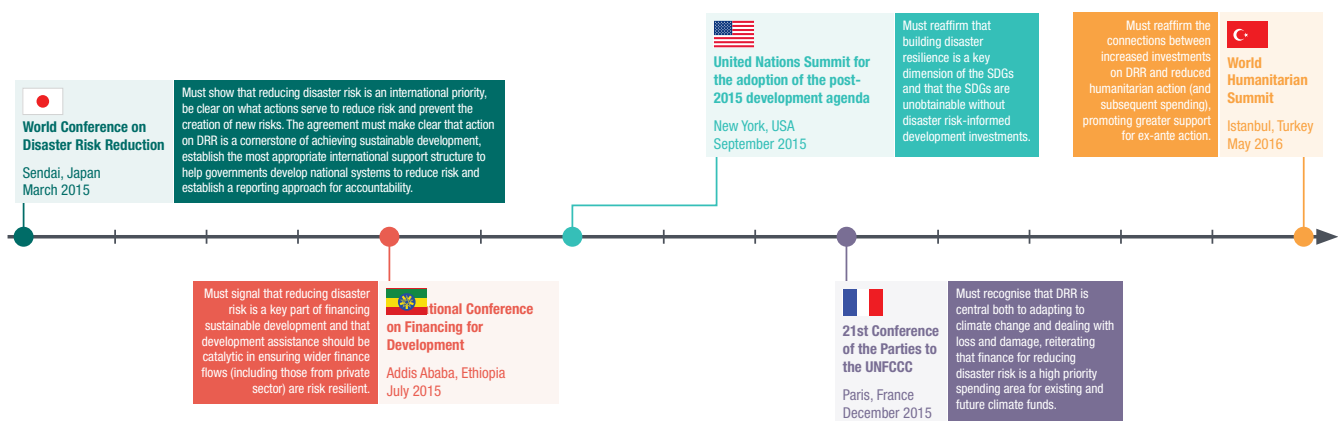
**Governments have a central role in ensuring that investment flows act to reduce rather than increase disaster risk.** A strong national DRR framework sets the right policy and regulatory regimes to ensure that risk is and continues to be reduced, not created, in both public and private investments (ISDR, 2011). It can also ensure that this is done in a way that stimulates FDI (World Bank and ODI, 2015; JICA, 2013). Governments are responsible for generating national laws, regulations and compliance regimes that incentivise and demand that businesses take risk into account. These can act to 'pull' elements of non-DRR motivated financing towards risk reduction (Figure 2). They can also ensure land-use plans and planning guidelines are developed with current and future disaster risks in mind and prohibit developments that disproportionately increase exposure to natural hazards; this is vitally important, given the rate of urbanisation and concentration of poor people in urban areas (Shepherd *et al.*, 2013).



**Table 5: Example of extreme weather impacts on enterprises** (adapted from Crawford and Seidel, 2013 and PwC, 2008)

Sector	Company	Impact (US\$)
Insurance	Munich RE	\$350 million in claims from flooding in Australia (2010/11)
	The Hartford Group	\$745 million in claims for natural catastrophes in 2011
Manufacturing	Dow Chemical Company	\$181 million increase in operation costs owing to Hurricane Gustav (2008)
	Honda	\$250 million loss owing to floods in Thailand (2011)
	HP and others	7% revenue decline owing to floods in Thailand (2011) and many other international corporations didn't meet profit expectations
	Holcim	\$8.2 million costs owing to flooding in Thailand and Australia (2012)
	Garment industry in Bangladesh	\$ 3 million losses per day owing to waterborne diseases and the inability to reach work following the Bangladesh floods (2004)
Utilities	Constellation Energy	Reduction of \$0.16 in share price after having to buy power at peak prices caused by surge in demand after heat wave in Texas (2011)
	Dominion Resources	Shut down operations at nuclear plant (US) in 2012 because of increase in water temperature owing to heat wave
	Eskom	50% reduction in transmission capacity between Mozambique and South Africa caused by flooding of the Limpopo River (2011)
Oil and gas	Chevron	\$1.4 billion loss owing to Hurricanes Katrina and Rita (2005)
Mining	Anglo American	8% reduction in copper production owing to increased rainfall in Chile (2011)
	Rio Tinto	\$245 million loss in earnings owing to the impacts of cyclones and flooding in Australia (2011)
Raw materials/business inputs	Bunge	\$ 56 million quarterly loss in its sugar and bio-energy operations resulting from drought conditions affecting its growers in Brazil (2010)
	Del Monte	\$ 4 million quarterly loss from banana operations due to heavy rains, strong winds and flooding in Guatemala (2010)

# 10. International agreements must provide strong signals that reinforce the reduction of disaster risk as a key element of sustainable development finance



The international agreements to be made in 2015 and early 2016 all have a direct relevance for the financing of DRR. These agreements present a number of opportunities to set the right incentives for *all* finance flows to work to reduce – rather than create – disaster risk.

The World Conference on Disaster Risk Reduction in March 2015 is the first key post-2015 agreement. The successor to the Hyogo Framework for Action will be agreed in Sendai, Japan. This Post-2015 DRR Framework will signal a commitment from the vast majority of countries to act to reduce disaster risk. The HFA successor should:

- Match the political commitment of the reduction of disaster risk with a national commitment to finance.
- Ensure that the reduction of disaster risk is priority area for the international community, with specific reference to the financial support to Least Developed Countries (LDCs), Small Island Developing States (SIDs) and fragile states.
- Articulate the breadth of actual and potential financing for the reduction of disaster risk and reflect the complexity of the DRR financing architecture in its commitments.
- Highlight how the financing of sustainable development is key to reducing disaster risk.
- Express that treating disaster risk as a separate development challenge is limiting and that development actors need to be financed at a country level to ensure that development remains risk resilient.

The third International Conference on Financing for Development will be held in Addis Ababa, Ethiopia in July 2015. Gathering high-level political representatives, the conference should pave the way for post-2015 development finance. The outcome should:

- Be clear that reducing disaster risk is a key part of financing sustainable development.
- Ensure that both public sector and private sector financing for sustainable development is risk resilient.
- State that international public finance should be catalytic in ensuring wider finance flows are risk resilient.
- Articulate a role for private sector flows in underpinning sustainable development (and as a minimum avoiding the creation of new risk).
- Voice both international and national commitments to finance sustainable development.

In New York in September 2015, the Sustainable Development Goals (SDGs) will be agreed at the United Nations Summit for the adoption of the post-2015 development agenda.

An outcome of Rio+20, SDGs will succeed the Millennium Development Goals (MDGs), within which disaster risk was largely absent. In order to progress towards the headline goal of eradicating extreme poverty, we must recognise the factors that push people into poverty, including the role of disasters today and in the future. The SDGs should, therefore, signal that DRR is now a key part of sustainable development. The final iteration of the SDGs should:

- Reaffirm that DRR and building disaster resilience is a key dimension of the SDGs, particularly in relation to eradicating extreme poverty, developing resilient cities and infrastructure and tackling climate change.
- Bring forward recommendations made at Addis to ensure investments in sustainable development are risk resilient.
- Once again, articulate the financial commitment from both national and international actors for delivering on sustainable development.
- Once again, emphasise the importance of leveraging private sector investments in (disaster risk resilient) sustainable development.

At the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, December 2015, an agreement will be reached on a successor to the Kyoto Protocol that has committed Parties to legally binding emission reductions targets. Although any agreement would not come into force until 2020, the Paris agreement will be underpinned by decisions on climate finance contributions from Parties. The agreement should:

- Recognise that DRR is central to both adapting to climate change and dealing with loss and damage.
- Signal that finance for reducing disaster risk is a high priority spending area for existing and future climate funds.
- Articulate clearly that adaptation funding will be used to deliver risk reduction at the country level.

At the first World Humanitarian Summit in Istanbul in May 2016, a set of commitments on humanitarian actions will be made.

These will need to reaffirm that:

- The connections between increased investments on DRR and reduced humanitarian action (and subsequent spending) reinforce the need for greater support for ex-ante action. Relatedly, lessons on the need to create more flexible and effective humanitarian finance should be reiterated, regarding multi-year funding, ex-ante investment and preparedness actions.
- Financing to reduce disaster risk should consider other risks relevant to that context, with the resilience of systems taking precedence. This may include, for example, recognition of the co-location of natural hazards and conflict.
- As such, financing to reduce risks needs to be flexible to the context of the country, with a focus on utilising all investments to reduce disaster risk and prevent the creation of new risks.
- It will be ensured that all actors focus attention on the reduction of risks, including tackling the underlying drivers of risk wherever possible through emergency financing.

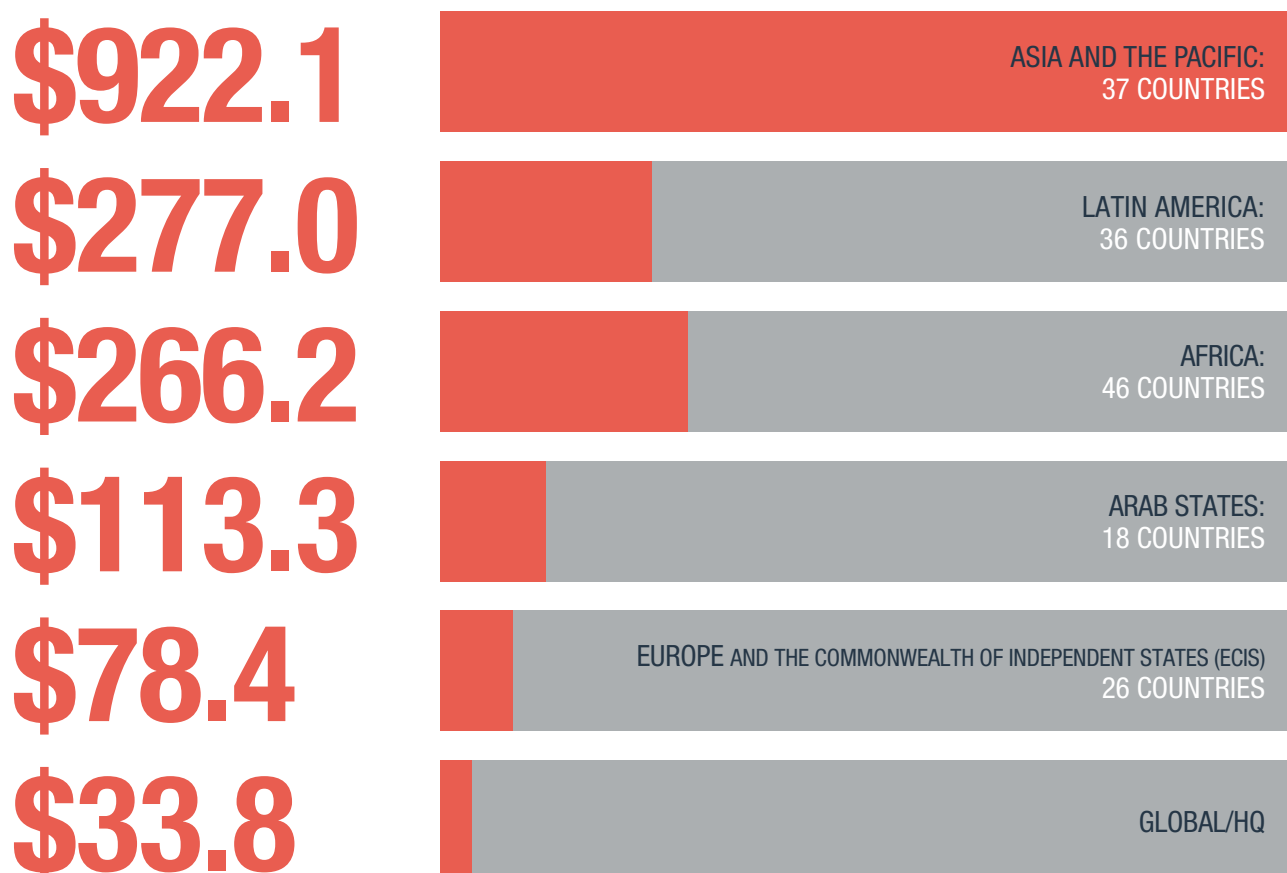
Events of 2015 into early 2016 are important for establishing a stronger incentive structure for DRR spending as a critical contribution towards sustainable development. While progress can be made on integration and mainstreaming of DRR into development, it is also the case that making and respecting financial commitments to DRR is essential for progress towards a more resilient world where the SDGs can viably be achieved.

# UNDP's investment in disaster risk reduction: A global overview

The reduction of disaster risk has been a high priority for UNDP through the lifespan of the HFA:

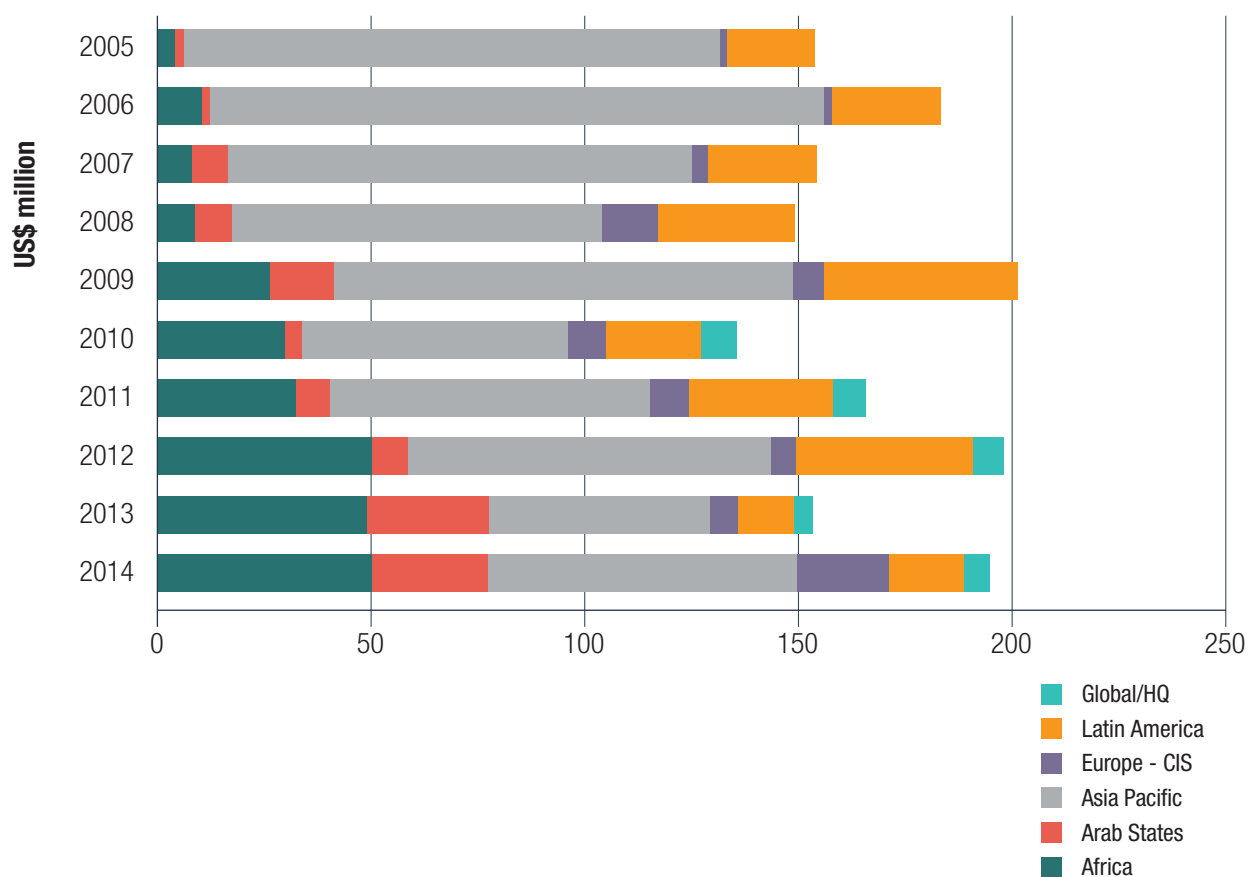


## TOTAL EXPENDITURE BY REGION \$ MILLION, 2005-2014





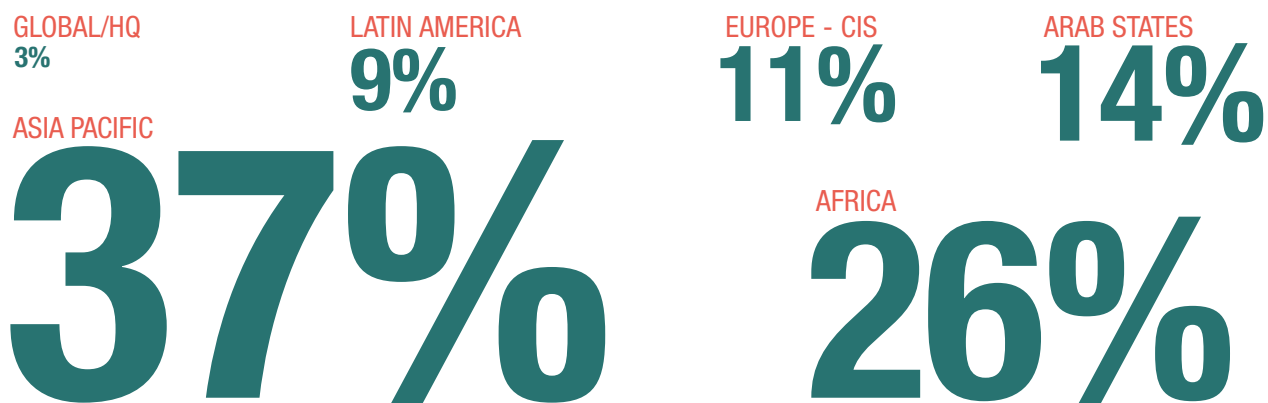
## EXPENDITURE IN \$ MILLION PER REGION PER YEAR, 2005-2014



### THE LATEST YEAR: 2014

- UNDP's investment in DRR was one of the largest to date, totalling more than \$195 million.
- The importance of other regions beyond Asia and the Pacific becomes more obvious: They accounted for over 60% of all UNDP expenditure on DRR; in 2005 they accounted for only 18%.

## UNDP EXPENDITURE BY REGION IN 2014, TOTALLING \$195 MILLION



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