

# *UNISDR and PwC*

## Working together to reduce disaster risk

*“The more governments,  
UN agencies,  
organizations,  
businesses and civil  
society understand risk  
and vulnerability, the  
better equipped they will  
be to mitigate disasters  
when they strike and  
save more lives”*

**Ban Ki-moon, United  
Nations Secretary-  
General**



International Strategy for  
Disaster Reduction



PwC and UNISDR wish to thank the companies that agreed to participate in our workshops and for their contribution to this initiative.

UNISDR is the focal point within the UN system for coordinating disaster risk reduction, and is responsible for implementing the international blueprint for disaster risk reduction – the Hyogo Framework for Action 2005 – 2015: Building the Resilience of Nations and Communities to Disasters.

UNISDR has extensive experience in liaising with public institutions and governments, and in providing support to countries establishing and developing national platforms for disaster risk reduction. UNISDR also develops improved methods for predictive multi-risk assessments.

PwC has extensive experience working with the private sector, investors and government policymakers. Our global network of firms draws on expertise in enterprise risk management, actuarial modelling, climate risk, business operations improvement and supply chain optimisation.

PwC helps organisations develop and implement tools and methods to mitigate disaster risk. This includes helping companies map and quantify global asset and supply-chain risks, develop continuity plans and improve resilience strategies associated with virtualisation and globalisation.

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*"PricewaterhouseCoopers (PwC) is the author of this publication. The studies and conclusions reported in this publication were supported by the United Nations. UNISDR has reviewed and approved this publication, its content and its release in this form and appearance. The private companies who participated in this initiative have granted their explicit consent to this publication and its release. This publication does not contain any binding advice or independent verification of facts and conclusions. Any intellectual property rights remain with their owners and are not transferred by the release of this publication."*

# Executive summary

**The economic value at risk from natural hazards** continues to rise. Examples of major disasters over the past decade have been distressing, yet important reminders of the direct connections between natural and human systems that underpin our economic and societal welfare. As global interdependencies continue to grow, these warnings prompt us to consider the need for radical change in the preparation and response of both the public and private sectors to disaster risk.

**The private sector has been witness** to an alarming number of occasions where a disaster that takes place in a region has resulted in considerable impacts in another. The dramatic consequences are clear for all to see: business and network interruptions, supply chains coming to a grinding halt, commodity price fluctuations, asset damages, profit warnings, impacts on economic output and constrained GDP growth. In the case of super disasters, disruption and damage have even led to relocation and cascading unemployment, post-disaster. Our modern and interdependent economy might be more productive, but growing exposures, wealth and interconnectivity also make it much more vulnerable to natural hazards. Our ability to build resilience has not kept pace with our ability to grow.

**The silver lining of the tragic events experienced during the past decade** is that global multinationals and their value-chain partners now have much greater awareness of how their operations could be affected by natural hazards. Our research shows that many private sector players have been able to draw on this experience to incorporate improved business practices across their global footprint, and take a holistic approach towards managing risks.

**Each organisation has a unique capability** and approach when it comes to managing disaster risk. The challenge now is to share and coordinate these capabilities at scale, within sectors, through supply chains, to smaller and more local organisations, and to work with public and government bodies to build more comprehensive risk resilience across economies and societies.

**The public sector generally views the private sector as an innovation leader** on disaster risk management. Governments and public institutions often ask how they can work together more effectively with the private sector to transition from improved business resilience to systemic resilience. The private sector asks how it can better engage with governments, what the future holds in terms of regulatory reform, how investment planning might impact its risk horizon, and where it can get better risk information.

**There needs to be a clearly identified and commonly understood enabling environment** for the private sector to do more than ‘business as usual’. Any initiatives taken in this context need to be broken down into real deliverables. They have to be operationalised across industry sectors, national and local governments, large and small enterprises, and in the developing and developed world.

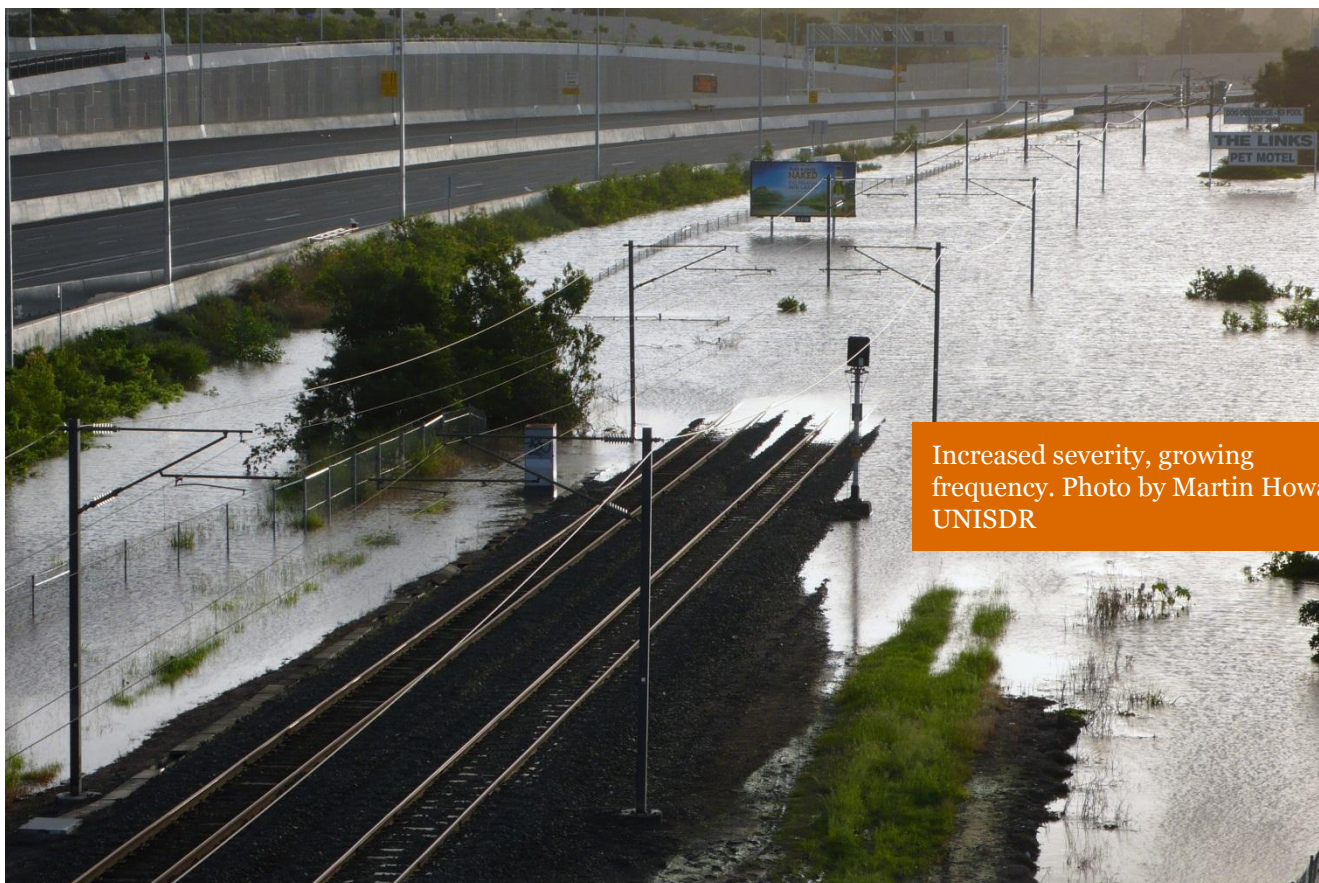
**This raises some fundamental questions.** What legislation and policies does the public sector have to come up with to create the right incentives for the private sector to share and implement its disaster risk management know-how? What is the best approach to creating such large-scale transformation initiatives? How can these efforts be sustained over a long period of time across the many different stakeholders within the private and public sectors that are involved? This report sets out to answer these questions and more.

**The UN Office for Disaster Risk Reduction (UNISDR)** has spent the last ten years raising awareness around the issue of natural hazards and risk resilience. Part of its focus of the next ten years will be on creating and leveraging private sector disaster management solutions on a global scale. This will be done in collaboration with PwC and other participating organisations.

**PwC and UNISDR** are working together to develop a collaborative framework and methodology for private sector action on building resilience. The goal is to create the foundation from which to build a global private – public collaborative platform for disaster resilience.

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Increased severity, growing frequency. Photo by Martin Howard, UNISDR

# Introduction

## CONTEXT

### Natural hazards: a growing concern for the private sector

Natural hazards pose a growing risk – not just physical, but economic and social as well. Because of the way corporate strategies and structures have evolved, organisations are far more exposed to external risks than they ever used to be. Mounting losses from catastrophic events are an increasing burden for large multinationals, and the international dependencies inherent in global markets and supply chains mean that businesses of all sizes, from local to global, are having to deal with systemic and correlated risks more frequently.

It is also widely expected that climate change will lead to significant shifts in the frequency, intensity and geographical distribution of extreme weather events. Not only will businesses become increasingly more exposed to weather-related hazards, but if their risk assessment tools and strategies are based on historical experience only, they will become increasingly more unprepared and unresilient.

Despite this, opportunities for the private and public sectors to collaborate on risk reduction and building systemic resilience are still largely untapped. Over the

past 10 – 15 years many large corporations have launched risk management initiatives. But most of these have been introspective and many not joined up across their enterprise. Equally, the lessons learned from positive initiatives and experiences remain largely unshared and undervalued.

By the same token, governments and, international and non-governmental organisations have promoted plenty of disaster risk reduction initiatives at country and local level, but this has often been done without meaningful private sector involvement.

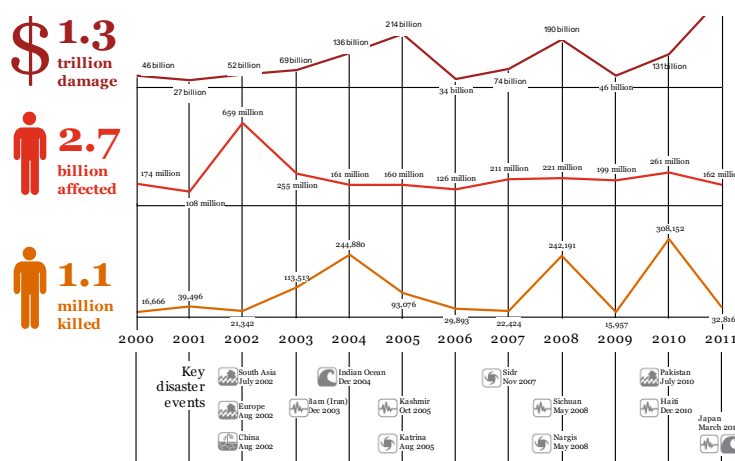
*Working in isolation does not represent an effective approach to meet the challenge of building systemic resilience. A better way forward could seek to maximise the benefits of private – public collaboration.*

### The economic cost of disasters is steadily increasing

Natural hazards have a greater impact on economic sectors that depend directly on fixed assets and the climate. Physical risks from geological hazards, such as earthquakes, materialise largely in the form of asset and infrastructure losses and their consequent impact on human life (See Figure 1). Weather-related hazards primarily affect sectors such as water, agriculture, food and retail, forestry, energy, health and tourism.

The cost of damage is increasing by the decade. The total year-by-year damage estimated to result from reported natural hazards (see Figure 2, next page) shows a dramatic increase from below USD10 billion in 1975 to an all-time peak of close to USD400 billion in 2011.

**Figure 1: The Economic and Human Impact of Disasters\* (see glossary) in the last 12 years**



Source: UNISDR

The flurry of profit warnings following the tragic and disruptive events in Japan and then Thailand in 2011 show that although natural hazards have a clear impact on sectors directly dependent on fixed assets (for example infrastructure and property) and the climate (agriculture and water), sectors with supply chain exposures can also suffer through loss of revenue, materials or markets.

### *The toll from ‘super disasters’ can be astronomical, and the frequency of these events is increasing*

Combine the increase in the overall number of natural disasters with the larger footprint of human population and their infrastructure, and what were once rare, isolated ‘super disasters’ become commonplace.

More than 50% (USD220 billion) of the total estimated financial damage for 2011 originated from a single super disaster: the Great East Japan earthquake. The implications are clear: with increasingly interdependent systems, systemic shocks pose a fundamental risk to ‘business as usual’.

### *Risk exposure beyond the business*

External factors can present as much or even greater risk than direct or ‘owned’ impacts. The risks posed by natural disasters (and ‘super disasters’ in particular) go well beyond the boundaries of a company’s operations, and can extend along the entire value chain – potentially resulting in supply disruption, network failure, workforce dislocation, or the interruption or collapse of distribution systems. These indirect impacts amplify losses. Companies can lose oversight

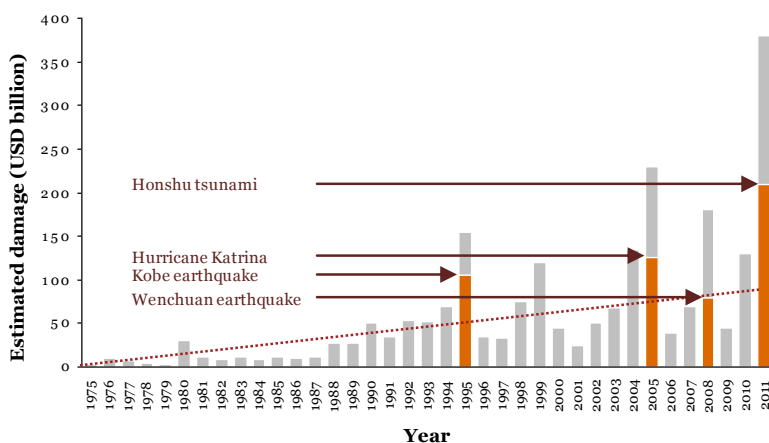
and control over the risks they are exposed to, how they manifest and how to manage them.

Subsequent damage from disasters can be devastating for whole industries, especially where manufacturers and suppliers in one sector are highly concentrated in a single geographic location. This was demonstrated during the 2011 Thai floods, where several global electronics’ companies found the supply of hard-disk drives and components disrupted.

Worldwide disruptions of this type highlight the extent to which globalised companies are potentially exposed. They are a reminder of the necessity to collaborate broadly, for example with supply-chain partners, local governments and disaster response agencies, to minimise impacts.

Countless large businesses have launched and matured enterprise risk management (ERM) initiatives, and some have amassed extensive know-how in dealing with recognised risks. However, large businesses now have such a huge footprint that their value chain is increasingly exposed to natural hazards that go beyond the internal and external boundaries of their ERM sphere.

**Figure 2: Estimated damage (USDbn) caused by reported natural disasters, 1975 – 2011**



Source: EM-DAT, OFDA/CRED International Disaster Database

*The European heatwave of 2003, Hurricane Katrina in 2005, the Wenchuan earthquake in 2008, the eruption of Iceland’s Eyjafjallajökull volcano in April 2010, the Great East Japan earthquake and Thai floods of 2011, and the US drought and Hurricane Sandy in 2012, are notable recent examples of super disasters.*

## THE UNISDR – PwC INITIATIVE

Against this backdrop, UNISDR and PwC have jointly recognised the need to create a private – public disaster risk management (DRM) platform. The aim of the UNISDR-PwC initiative is to foster a sustainable collaborative platform both within and beyond the private sector. The ultimate goal is to create risk-resilient societies.

By establishing a platform for the private and public sectors to collaborate on DRM, the initiative sets out to create active societies that work on disaster resilience issues relevant to their industry sector and locality. The private sector will play a critical role in driving innovative thinking and defining how risk exposure can be managed collaboratively and communicated to public sector bodies. The platform will be tailored to the needs of companies facing disaster risks. The focus will be on actionable tools, practical insights and links to competent partners in the public sector.

This report provides insights on DRM approaches and experiences gathered from leading global businesses. It identifies challenges that are constraining efforts to build collaborative resilience, and proven practices that have been used to tackle these challenges.

### APPROACH

Our report synthesizes the results of the initial phase of the UNISDR-PwC joint initiative (figure 3), which was structured in three steps.

Figure 3: Approach



Source: PwC

### Phase I

#### First step

In the first step, PwC worked with UNISDR to create a DRM Framework (DRM-F) to serve as the basis for the initiative. The DRM-F was developed with the aim of testing it with large multinationals to find out whether such a framework could help create a common understanding of DRM across industries and sectors, and formalise the way knowledge is captured and structured.

The DRM-F, which is covered in detail in this report, was matured and amended through comments and insights given by leading companies on how they prepare for, and respond to, disaster risks on an ongoing basis.

In addition to the DRM-F, we have developed a DRM maturity assessment tool to help companies evaluate their level of preparedness in five key areas: strategy, structure, process, people and technology.

PwC developed a questionnaire that follows the structure of the DRM-F to guide discussions during the workshops.

#### Second step

Together with UNISDR, PwC selected 14 global companies (table below). These companies, which were chosen for a range of reasons, together form a disaster risk ‘community’ representing a diversity of industries (e.g. retail and consumer goods, energy, and industrial products). The majority of companies selected are leaders in their industry. They have a global footprint, are widely

Company	Country	Industry
ABB	Switzerland	Automation and power technologies
ARUP	UK	Design and consultant engineers
BG Group	UK	Energy resources
Citigroup	USA	Financial products and services
General Electric	USA	Energy, health and home, transportation and finance
HCC Group	India	Engineering and construction
HIRCO Group	India	Real estate
Hitachi Group	Japan	Social infrastructure and systems
InterContinental Hotels Group	UK	Hotelier
Nestlé	Switzerland	Nutrition, health and wellness
NTT East Corporation	Japan	Telecommunications
Roche	Switzerland	Healthcare
Shapoorji Pallonji & Co. Ltd (SPCL)	India	Construction
Walmart	USA	Retail

exposed to natural hazards, and have developed leading approaches to planning for, and responding to, disaster risks.

### *Third step*

PwC worked with UNISDR to conduct workshops with the selected companies. Participation was limited to senior executives such as chief risk officers, chief supply chain officers and business continuity planning leaders with access to their company's board.

We focused on the companies' experience and knowledge of disaster risks, paying close attention to investigating tangible actions that had been planned and actually implemented. To further develop the foundation for a comprehensive disaster risk management framework (DRM-F), we explored the gaps identified by the companies as well as the broader trends.

### *Phase II*

During Phase II of this initiative, currently under way, our common objective is to consolidate our findings and propose a structure to foster future collaboration and joint actions, as well as to share good practice and insights.



Disaster risk is increasing globally.  
Photo by Toshiharu Kato / Japanese  
Red Cross Society,  
UNISDR





## ***What makes this approach unique?***

*The joint initiative between UNISDR and PwC is an essential step for private – public collaboration.*

*This initiative harnesses expertise from both the private and public sectors, and creates a tangible link between the sectors. It also provides concrete actions and practical guidelines driven by the private sector.*

# Summary of findings

## Finding 1:

*'The private sector's unique disaster risk reduction capabilities' Industry-leading companies have made disaster risk reduction one of their core focus and each of them has developed a unique capability*

1

## Finding 2:

*'A largely untapped opportunity' Companies recognise the value of collaboration, display a desire to share know-how, and have the chance to collaborate with peers and the public sector to increase risk resilience rather than acting alone*

2

## Finding 3:

*'Addressing the challenges' Public and private sectors must play an active role in addressing the challenges hindering collaboration, and jointly manage the enabling environment*

3

## Finding 4:

*'A common vision' Collaborative DRM requires a common vision and the long-term cultivation of broad-based relationships*

4

*"The realisation of this outcome will require the full commitment and involvement of all actors concerned, including governments, regional and international organisations, civil society including volunteers, the private sector and the scientific community." (UNISDR – Hyogo Framework for Action<sup>1</sup>, January 2005)*

Source: PwC

**Finding 1:** *'The private sector's unique disaster risk reduction capabilities' – Industry-leading companies have made disaster risk reduction one of their core focus and each of them has developed a unique capability*

During the last 10 – 15 years private sector players have focused their efforts to manage disaster risks within the boundaries of their assets and supply chain. The majority of companies in our sample share a common objective: to further reduce disaster risks in the future.

Triggers such as the 9/11 terrorist attacks in 2001, the Indian Ocean earthquake and tsunami in 2004, and Hurricane Katrina in 2005 have created awareness by elevating the issue of DRM to the board agenda. Several companies in our sample have developed and matured a unique DRM capability which is leveraged to deal with natural hazards and any other potential threats.

Unfortunately, as good as these capabilities are, we observed in our discussions that they are still not shared sufficiently, either internally or externally.

**Finding 2:** *'A largely untapped opportunity' – Companies recognise the value of collaboration, display a desire to share know-how, and have the chance to collaborate with peers and the public sector to increase risk resilience rather than acting alone*

Companies recognise that if combined and shared, these unique capabilities could help strengthen the private and public sector's preparedness in an environment of mounting risks. They declare their willingness to share the knowledge and expertise they have acquired. UNISDR fully recognises that the private sector has a critical role to play in driving thinking and defining how risk exposure can be managed collaboratively.

While we observed several examples of collaborative approaches to addressing disaster risks, we also saw that existing mid- and long-term collaboration initiatives, both within the private sector and the public sector, are isolated, insufficient and only at early stages of development.

The private sector's skills and know-how are not sufficiently familiar to, or harnessed by, the public sector, and initiatives from both sectors are not well-aligned. Collaboration between the private and public sectors on DRM is still a largely untapped opportunity. This initiative gives the private sector a direct voice in how DRM should be approached jointly with the public sector.

<sup>1</sup> Hyogo Framework for action 2005-2015 (HFA): the HFA is a ten-year plan to make the world safer from natural hazards, and was endorsed by the UN General Assembly following the 2005 World Disaster Reduction Conference.

**Finding 3:** *‘Addressing the challenges’ – Public and private sectors must play an active role in addressing the challenges hindering collaboration, and jointly manage the enabling environment*

Large businesses rely on public sector leadership and coordination. Managing a long-term collaborative disaster risk resilience initiative is a challenging task. Our sample companies indicated a need for a mediator to address challenges and potential conflicts of interest both pre- and post-disaster.

Our research reveals a number of major challenges hindering private – public collaboration. These include the absence of a formal structure to tap into the DRM know-how embedded in private sector firms. Our sample companies also point out that while existing platforms are a good way to network, they lack a clear focus on concrete action and practical guidelines. They also agreed that there is no common understanding of DRM, and no formal standards. These issues, and many others besides, will have to be actively addressed by both sectors if we are to move forward in terms of DRM.

**Finding 4:** *‘A common vision’ – Collaborative DRM requires a common vision and the long-term cultivation of broad-based relationships*

The groundwork for developing an effective collaborative platform has to be laid along two axes: a clear value proposition and a focus on tangible actions. PwC has

observed that for a private – public collaborative platform to work, the return on investment for both parties has to be emphasised.

A clear value proposition will help establish a common understanding of the issues at hand and define disaster risk standards to ensure consistency in the way relevant issues are treated. The potential benefits of collaboration include access to good practice and access to public sector bodies.

Defining and agreeing on a core set of tangible actions will help demonstrate the positive effects of a collaborative approach; and developing clear processes will facilitate the sharing of knowledge and insights.

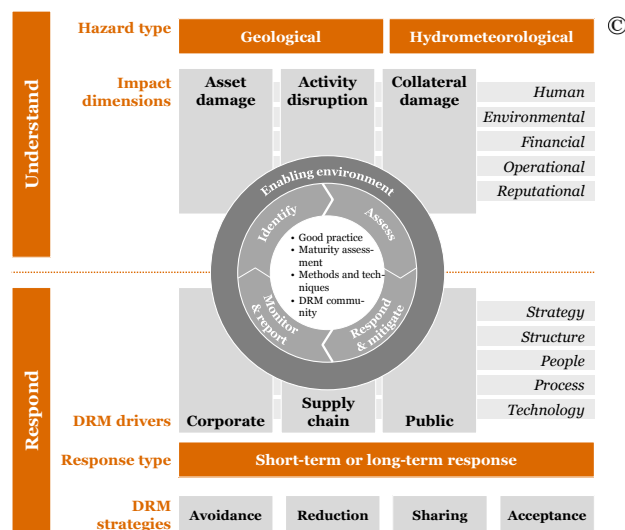
Several companies mentioned the crucial importance of knowing, in advance, individuals within the public organisations they will be collaborating with in the event of a natural hazard or other threat.

*“The last thing you want to do is to call somebody you don’t know when a disaster occurs.”*

The PwC – UNISDR initiative will place emphasis on the long-term cultivation of broad-based relationships, rather than point-to-point relationships.

# The Disaster Risk Management Framework

Figure 4: DRM-F



Source: PwC

The Disaster Risk Management Framework (DRM-F, see Figure 4), which constitutes the basis of this initiative and future collaborative activities, was initially created to guide our discussions during the workshops and test validity across industries. It has subsequently been refined with input from our sample of companies.

The DRM-F is driven by the standard risk management process (identification, assessment, response and mitigation, monitoring and reporting) and is structured in three sections:

1. Understand
2. Respond
3. Enabling environment

## Understand

The purpose of the ‘understand’ section is to define a company’s exposure by identifying potential threats and assessing their potential impact.

**Exposure** can be defined as the degree to which the company’s assets and operations are present in hazard zones that thereby are subject to potential losses (human, environmental, financial and operational or reputational). A company can be directly exposed (e.g. one of its production facilities is exposed to the risk of being damaged by a flood) or indirectly exposed (e.g. one of its key suppliers would be unable to provide it with critical components if affected by a natural hazard). Exposure is a function of location (i.e. the location of the asset and the natural hazards at that location) and vulnerability (i.e. the

construction and occupancy of the asset and local surroundings).

**Potential threats** include natural hazards. We have observed that although natural hazards are considered as a risk, they are viewed as only one of the many potential threats that are likely to impact a global business. The majority of our respondents address risks holistically. Natural hazards may slip down the risk register because the probability they will occur may be perceived as lower than for other risks, even though the magnitude can be much greater.

There are two main types of natural hazards: geological and hydro-meteorological.

- **Geological hazards** include internal earth processes such as earthquakes, volcanic activity and emissions, and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows.
- **Hydrometeorological hazards** are a process or phenomenon of atmospheric, hydrological or oceanographic systems such as tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, storm surges, inland flooding including flash floods, drought, heatwaves and cold spells (see Figure 5, next page).

While potential threats vary, the **impact dimensions** – human, environmental, financial and operational, and reputational – remain the same for all companies. Furthermore, **disaster risks** can be divided into three categories: corporate asset damage (e.g. facility deterioration or damage to corporate transport vehicles); activity disruption (e.g. supply disruption, production bottlenecks or distribution failure); and collateral damage (e.g. oil spills or the destruction of a bridge).

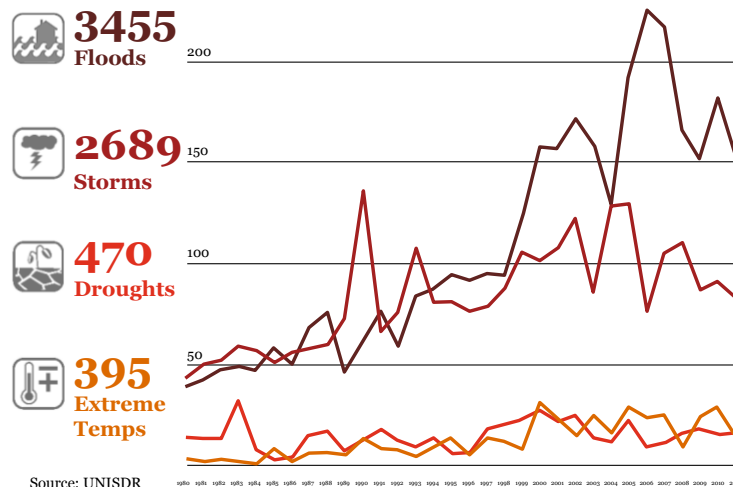
This is why companies tend to approach DRM from an impact rather than a threat perspective.

## Respond

Participants in our discussions agreed that once companies understand their risk exposure, they can choose between four distinct strategies to manage this exposure. Companies define their response on the basis of their risk appetite. The focus of this response can be short-term or long-term.

These four strategies are not mutually exclusive. For example, the three categories specified as disaster risk categories in the ‘understand’ section also appear as DRM options in the ‘respond’ section: corporate, supply-chain and public. For each option chosen by a company to respond to disaster risks, there are five DRM drivers that can be leveraged: strategy, structure, process, people and technology.

**Figure 5: Number of Climate-related Disaster Around the World (1980-2011)**



Avoiding	Reducing	Sharing	Accepting
<p>Companies avoid disaster risks:</p> <ul style="list-style-type: none"> <li>– Systematically steering clear of regions that are known to be exposed to natural hazards</li> <li>– Pulling operations out of exposed regions</li> <li>– Refusing to work with suppliers that are not considered to be risk resilient</li> </ul>	<p>Companies attempt to reduce the likelihood or impacts of disaster risks:</p> <ul style="list-style-type: none"> <li>– Cautious expansion</li> <li>– Selecting suppliers carefully</li> <li>– Upgrading existing sites’ safety infrastructure</li> <li>– Increasing supply chain flexibility</li> <li>– Developing emergency planning actions</li> </ul>	<p>Companies try to reduce disaster risk by transferring it to third parties:</p> <ul style="list-style-type: none"> <li>– Insuring assets</li> <li>– Hedging risks</li> <li>– Sharing risks through contractual agreements with suppliers, buyers, peers and public institutions</li> </ul>	<p>Companies accept residual disaster risks. Once other strategies have been leveraged and implemented, there is a common agreement that ‘zero risk’ can never be achieved. Companies must determine an acceptable level of residual risk based on their risk appetite.</p>

<b>Strategy</b>	A strategy that considers risk management as an integral part of business
<b>Structure</b>	A clear structure that supports the overall strategy and the implementation of DRM
<b>Process</b>	The consistency and adequacy of processes to effectively manage DRM
<b>People</b>	The skill set and competencies of people in terms of applying the processes involved in DRM
<b>Technology</b>	The right tools and technology to enable implementation of the other four drivers

## Enabling environment

The enabling environment constitutes the third element of the DRM-F.

The external (to the business) enabling environment represents the regulatory, policy and investment environment context as it relates to the management of the required DRM change. This element, in particular, is one where private – public engagement and collaboration is vital.

The internal (to the business) enabling environment concerns elements such as workforce capacity and skills, risk governance, risk processes and risk information.

Later in this report we describe a DRM maturity assessment tool that provides a measure of their internal enabling environment.

This tool provides companies with a practical example of how to evaluate their maturity, identify gaps in their current organisation and define a roadmap to improve their DRM and reduce disaster risks.





Super disasters do not discriminate by location, UNISDR

# Detailed findings

**Finding 1:** ‘The private sector’s unique disaster risk reduction capabilities’ – Industry-leading companies have made disaster risk reduction one of their core focus and each of them has developed a unique capability

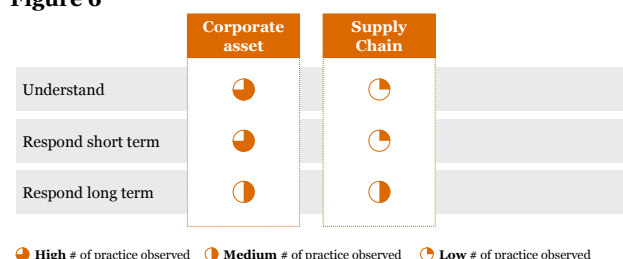
The majority of industry-leading companies in our sample view reducing risks to their assets and supply chain as a key priority. We note that for all companies the impact dimensions – human, environmental, financial and operational, and reputational – are a priority when developing their DRM unique capabilities.

## Understanding corporate asset exposure

We observed several examples of activity that illustrate our sample companies’ efforts to understand asset exposure. Some of these are consistently implemented across industries.

What these initiatives and tools have in common is that they enable companies to see more clearly the risks their assets are currently exposed to, and provide a basis for them to identify gaps in their infrastructure and systems, and prioritise actions and resources to tackle the problem.

**Figure 6**



Source: PwC

*Based on the DRM-F we have observed (see Figure 6) a number of good practices that private sector entities have used to understand their asset exposure and prepare a short-term response. This is an area where the public sector and peers can benefit greatly.*

*Given the complexity and massive scale of the supply chains of some of these companies, understanding exposure and defining consistent short-term responses are areas where there are significant opportunities to improve for the private sector.*

*Building a long-term response to disaster risk is an area where companies have been performing well over the past decades. Even so, collaboration with the public sector and among peers in the same industry or region could substantially enhance the overall*

**Seeking professional advice:** The majority of companies in our sample seek external professional advice (e.g. from insurance companies and risk advisory firms) to understand their exposures and identify the risks present in a region or country (e.g. hazard maps and risk models) and the potential impact on their assets.

**Working with internal local operations:** Many companies in our sample rely on people in their local operations to identify potential risks and threats to their assets. This information is then relayed to headquarters, who subsequently decide how to prioritise actions to cope with the top risks identified across the business. Real-time information systems and traceability tools to track and monitor risks down to the remotest part of the supply chain are seen as both innovative and necessary.

**Country risk ‘one-pagers’:** One company in our sample draws up ‘one-pagers’ on potential risks and threats that could arise in countries where it operates. Each local site is accountable for identifying potential risk exposures and determining their impact to update the one-pager. Headquarters are regularly updated on potential threats they face and their degree of preparedness.

**Global ‘heat map’ of sites:** One of the companies interviewed has created an application, accessible via iPad, which displays a heat map of each of its several hundred sites across the globe with the aim of charting their compliance status in relation to the company’s own internal risk standards.

A rigorous process makes this powerful tool a success:

- Company data on sites is overlaid on hazard and risk maps provided by an insurance company.
- Global risk standards have been formulated together with the insurance company.
- A positive and negative incentive process has been created to make sure that local departments put in the required level of effort to comply.
- Independent audits are conducted on a yearly basis to determine each site’s level of compliance.

This tool gives unique visual support enabling headquarters to quickly understand the top 20 threats they are currently running and identify the most exposed assets globally.



## Responding in the short-term to corporate asset exposure

Several examples of good practice illustrate how our sample companies cope with the immediate impacts of a disaster on their assets. In addition, three success factors were consistently mentioned when it comes to ensuring efficient crisis management:

- Quick decision-making
- Reassessing priorities regularly
- Managing information efficiently

## Responding in the long-term to corporate asset exposure

We have observed two examples that illustrate long-term response to corporate asset exposure.

## Understanding supply-chain exposure

In addition to understanding risks to corporate assets, the majority of companies in our sample are also striving to increase their visibility of the extent to which their supply chains are exposed to disaster risks. This is proving to be a difficult exercise for companies with a global footprint, as this sometimes means understanding the exposure of first-tier, second-tier and more removed suppliers (up to several thousands in some industries).

**Remote access to work:** Some companies in our sample have invested resources to develop processes and implement technology to enable remote access to work. This proved to be extremely useful for one company that booked hotel rooms for its staff outside the potential strike zone of Hurricane Sandy (November 2012), as parts of cities such as New York were inaccessible. Several companies have also activated a home office policy.

**Transferring work to other sites:** Given the nature of their industry, a few companies in our sample have the option of transferring work. They have developed processes that allow the efficient and effective transfer of work to other sites, in addition to remote access to work, depending on the severity of the disaster. One of the companies on the panel impacted by Hurricane Sandy also put other sites on alert, and transferred part of the critical work so that business could continue as normal.

**Setting up a 24/7 'control tower':** One company set up a 'control tower' that operates 24/7 to serve as a central relay of information between all company assets and headquarters. The control tower has direct access to various sources of live information. It has already proven useful in the case of the plane crash in the Hudson River in New York (2009). Within minutes of the crash, the company's headquarters were aware that none of their employees was present on the flight.

**Leveraging staff with public sector experience:** Several companies in our sample – particularly in the US – have started hiring staff with a public sector crisis management background (e.g. a former member of a crisis management institution or an ex-military crisis expert) to fill key positions in their crisis management or emergency response teams. According to these companies, this initiative has great potential, with many positive effects in terms of the way a crisis can be managed collaboratively with the public sector.

**Scenario planning in exposed zones:** One of the companies in our sample was recently impacted by a super disaster and has since started to use scenario planning analyses to adapt its short- and long-term responses. These scenarios allow the company to simulate the impacts of potential threats on its corporate assets.

**Creating own asset risk standards:** Most companies have developed and apply their own safety standards and guidelines on top of country-specific standards, which are often considered to be too lax.

**Supplier risk management strategy:** The majority of companies adopt a formalised approach consisting of covering financial and risk aspects when developing their supply-chain design. Each organisation has a different level of maturity but a consistent and formalised methodology. With respect to analysing supply-chain risks, this is a great enabler to define a mitigation strategy.

**Leveraging technology and analytics to understand risks:** Leading organisations use many different data sets (e.g. risk models, population density reports) in an effort to have increased visibility and corresponding robustness within supply-chain systems. This is then typically updated periodically.

## Responding in the short-term to supply chain exposure

A number of companies in our sample have undertaken actions in collaboration with third parties (e.g. peers in the same industry or region, or suppliers).

## Responding in the long-term to supply chain exposure

Companies in our sample consistently choose from among three options when it comes to creating a long-term response to supply-chain exposure. The choice depends on the resources available, how critical the supplier is, and the level of dependency and visibility the company is willing to accept.

**Mutual agreement with peers:** One company in our sample has reached a mutual agreement with a direct competitor, which has a critical site just next to the company's own facility. The impact of a fire is considered to be a major threat to both sites. Both companies have their own fire brigades, which under the mutual agreement will collaborate to respond as quickly and efficiently as possible in the event of a fire.

**Using the same fleet to transport relief supplies:** One company in our sample collaborated directly with competitors to use the same trucks to transport relief supplies in a region in the Middle East, hit by a crisis. The company said that this practice was not uncommon, but usually happened on an ad hoc basis with no standards or predefined agreements.

**Supplier security assessment:** Some companies request information on their suppliers' business continuity plans and reach agreements with suppliers to ensure a minimum level of supply in the event of disaster. A few companies in our sample go beyond merely requesting information and actually perform regular audits on critical suppliers' operations. This directly increases the visibility of the supplier's operations and puts additional pressure on them to ensure a minimum level of compliance.

**Collaboration with suppliers:** Some sample companies mentioned collaboration with suppliers, but we did not hear of any practical examples of such a practice. This is an area where we think there could be opportunities that would benefit both parties.

**Integration of critical suppliers:** Some of the companies in our sample which have substantial resources are in the process of integrating critical suppliers for highly exposed activities. This is one of the most efficient ways for companies to increase their visibility on operations, identify and address the gaps in their supply chain, and increase the level of risk management maturity of their acquisitions when necessary. It also allows companies to decrease their dependence on third parties.



*Early warning saves lives,  
Photo by Amir Jina,  
UNISDR*

**Finding 2:** ‘A largely untapped opportunity’ – Companies recognise the value of collaboration, display a desire to share know-how, and have the chance to collaborate with peers and the public sector to increase risk resilience rather than acting alone

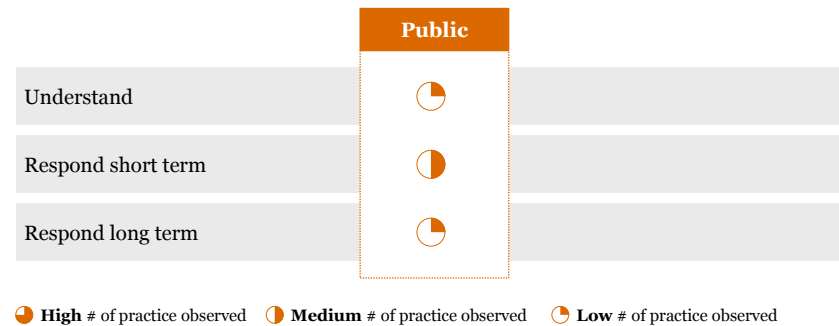
Even though industry-leading companies are willing to address disaster risk reduction collaboratively, and some have already started collaboration initiatives, efforts remain isolated and limited in scope. We have observed that private – public collaboration is often initiated during a catastrophe, whether this is triggered by a natural hazard or another potential threat, and generally lasts for the duration of the crisis or until business as usual is back on track – but rarely beyond.

A direct result of this is that when collaboration efforts are initiated, it is often already too late because of slow response times, coordination challenges, the absence of an agreed coordinator or mediator, and no clear standards or guidelines. This has a negative impact on the efficacy and efficiency of relief efforts.

Inefficient relief efforts are particularly common in developing countries, but can also be observed in countries with more resources. Hurricane Katrina in 2005 uncovered key flaws in crisis management processes in the US, a country that is known to have large relief resources. The 2011 tsunami in Japan was important in showing the rest of the world that even in a country which is

considered to be one of the most risk-prepared; the impacts of the unanticipated – i.e. those impacts that are often the hallmark of a super disaster – can still be devastating.

**Figure 7**



Source: PwC

*Using the DRM-F to guide our discussions, companies made it clear that collaboration with the public sector is an area where they can benefit greatly. Involving public institutions at an early stage (see Figure 7) will allow companies to understand the complexity of the environment they operate in and plan appropriate responses and mitigation to local risks and threats.*

*We note that in terms of short-term response, many efforts are made from both public and private sector sides in order to increase coordination of efforts, but that the key lies in preparation, simulation and scenario planning initiatives that will allow both sectors to mature their DRM approaches.*

## Understanding risk exposure collaboratively

We have observed very few examples of collaboration with the public sector to understand risk exposure collaboratively. If collaboration does occur, the result is often only used to identify and reduce the company's exposure, and rarely reduces the impact beyond its own operations.

## Short-term collaborative response

Efficient collaboration with the public sector, post-disaster, requires preparation. The first initiative described was undertaken by a company in our sample in an attempt to increase the efficiency of collaboration immediately after a disaster occurred. The second example describes actions taken by several companies in our sample to improve responsiveness to disasters.

## Long-term collaborative response: building risk resilience

We did not observe any initiatives to build long-term risk resilience with the public sector in a collaborative manner. We believe this to be a promising opportunity for collaboration, and explore this point in more detail later in this report.

**Working with local authorities:** A few companies in our sample work with local authorities in developing countries to determine specific risks in a region, but the level and quality of information provided is generally considered inadequate, and external advice is deemed necessary.

**Working with UNISDR:** A limited number of companies on our panel work directly with UNISDR, and use some of its numerous open-source hazard maps and risk models to assess the probability of natural hazard occurrence and the potential impact. Following our workshops, many participants expressed an interest in accessing data produced by UNISDR.

**Collaborating with the government to increase the efficiency of short-term responses:** One of the most promising initiatives we have observed was triggered as a direct result of the Honshu tsunami in 2011. One company in our sample made a conscious decision and commitment to begin long-term collaboration with its government. The purpose of this collaboration was to be properly prepared for future disasters and focus on identifying current gaps in collaborative crisis management, both in the company's and the public sector's structure. Both the government and the company are regularly running scenario-based simulations to define the processes and standards that will determine minimum levels of service (e.g. telecommunications, energy supply and other lifeline services), which are crucial during a crisis.

**Maintaining relationships with local authorities:** Some of our sample companies have realised that building and maintaining strong relationships with the public sector (e.g. connections with emergency response organisations) is a requirement for effective DRM.

Concentrated growth, increased risk.  
Photo by Brigitte Leoni,  
UNISDR



**Finding 3:** ‘Addressing the challenges’ – Public and private sectors must play an active role in addressing the challenges hindering collaboration, and jointly manage the enabling environment

### ‘Understand’ and ‘respond’ challenges

There are a number of challenges hindering private – public collaboration. The following table outlines the top three challenges that our analysis identified within the first two sections of the DRM-F: ‘understand’ and ‘respond’ (short-term and long-term).

#### Top three challenges in each section of the DRM-F

<p><b>Understand</b></p>	<p><b>Dealing with multiple sources of information</b> Having to deal with multiple sources of information is a tricky challenge. Risk management teams have to select which information to trust and which information they consider inaccurate. The volatility of information introduces the risk of creating inconsistencies in identifying risks and assessing exposure.</p> <p><b>No clear return on investment as an incentive to make the effort to understand entire value-chain exposure</b> While companies have taken various measures to identify risks and assess their potential impact on assets and the supply-chain, we note that increasing the visibility of their entire value-chain including the supply chain outside their own four walls, is not a priority. This is partly due to the lack of clarity on the potential return on investment and the lack of available resources for doing so.</p> <p><b>Lack of internal collaboration has a negative impact on external collaboration</b> We have observed several cases where the company’s risk management and supply-chain teams are not communicating. When it comes to DRM, the reality (apart from some leading companies) is that departments still tend to work in silos. A direct result is that a company that does not have a uniform approach internally will have difficulties collaborating externally.</p>
<p><b>Respond short-term</b></p>	<p><b>Overreliance on governments and public infrastructure</b> Companies rely heavily on public institutions and local governments when it comes to preventing the disruption of lifeline infrastructure (e.g. roads, electricity, gas and public transport), or even setting up early warning systems. The current environment shows that even in countries with substantial relief resources, the public sector cannot face super disasters and is not able to pay the bill on its own.</p> <p><b>Point-to-point rather than consistent collaboration</b> Many of the companies we have had discussions with stressed the importance of maintaining relationships with public institutions such as emergency response organisations. We have observed excellent examples of collaboration with the public sector – based on our workshops this occurs notably in the US. However, we note that most of these relationships are point-to-point. In other words, if the company’s employee or their public sector counterpart leaves, there is no clear process in place to ensure the relationship is maintained.</p> <p><b>Absence of global or local standards and agreements in the event of a disaster</b> We note the absence of global or local standards and agreements between the private and public sectors, except in Japan. Either these agreements are reached only once disasters strike or the information is not publicly available. But companies said that this could help when it comes to coordinating efforts during a disaster.</p>
<p><b>Respond long-term</b></p>	<p><b>Need for an independent party to mediate response efforts</b> Several companies mentioned the presence of potential conflicts of interest between parties, and said there was a need for an independent party to mediate efforts between peers within the private sector and with the public sector. The same is true in the case of short-term response.</p> <p><b>Managing external risks</b> Although we observed that several companies would like to be more involved in the community they operate in, the challenge of managing external risks such as risks of damage to critical infrastructure (e.g. roads, bridges, water supply, power, etc.) necessitates a collaborative approach. The private sector needs to take an active step forward to be involved in building resilient infrastructure for the long-term.</p> <p><b>Lack of a common understanding of disaster risk</b> DRM approaches differ between industries, sectors, countries and cultures, and natural hazard threats also vary around the globe. What is consistent, however, is the desire to reduce disaster risks and create risk-resilient communities. At the moment, the lack of a common understanding of disaster risk is making it difficult to formulate a common response.</p>

## ‘Enabling environment’ challenges

The third section of the DRM-F describes the ‘enabling environment’ (see Figure TBD, page TBD), outlining how the private and public sectors can act to manage the change. Managing the enabling environment is critical to increasing the private sector’s involvement in collaborative DRM. While a large share of change management is down to the companies themselves, the public sector must also play an active role by raising awareness, prioritising actions and enabling collaboration through legislation and incentives.

We have identified several challenges in the enabling environment which need to be managed carefully. We propose a maturity assessment tool with sample examples of tangible actions that enable private sector companies to assess the maturity of their DRM efforts on an ongoing basis in terms of how well the five drivers – strategy, structure, people, process and technology – are enabled.

*The need for a trigger for top management buy-in:* Several companies in our sample mentioned that top management buy-in for DRM initiatives was often only triggered post-disaster, and when the company itself felt the impacts first-hand. The public sector should actively raise the private sector’s awareness of the reality of the potential threat.

*Having the right people locally but balancing top-down and bottom-up efforts:* Our sample

companies say that the ‘best calls are made on site’, adding that risk is always best understood locally.

*“Local folks are in the best place to determine what to do.”*

Local management has to connect with senior management on a regular basis, and their concerns have to roll up quickly. The importance of local management cannot be underestimated. However, this should not lead to an over-reliance by senior management on local operations.

The company as a whole should define a clear governance structure and guidelines to cope with short-term and long-term impacts. Companies also noted that ‘maturity grows with experience’ and that DRM is a learning process. While this is true, we observed several examples where there were no formalised processes to find out how a disaster was managed, understand the challenges faced and identify opportunities for improvement. As a result, valuable knowledge and experience was not captured or shared internally and leveraged to prepare the response for the next potential disaster.

*Incentivising efforts:* Creating a risk preparedness culture requires incentives. Several companies have formulated global risk management compliance standards, which are monitored by an independent body on an annual basis. These companies reinforced the need for incentives that will enhance motivation to consider potential threats with a low probability of occurrence and

reinforce company-wide awareness. This is why implementing sustainable incentives should help enhance motivation for such initiatives and reinforce company-wide awareness.

*Reputation:* Although trust and reputation were not specifically mentioned by the companies in our sample, it nevertheless remains a challenge to be addressed.

*Continuous monitoring of efforts:* The success of a company’s DRM initiative can only be tested when a disaster actually occurs. Nevertheless, our sample companies emphasised that ‘what gets done should get measured’. It is crucial for risk managers and business continuity planning teams to define key performance indicators (KPIs) to measure whether the efforts undertaken are consistently implemented and regularly updated. Independent audits also have to be conducted to determine each site’s rating, otherwise employees will only consider DRM as another box-ticking exercise.



Working together, overcoming challenges.  
Photo by Permanent Mission of Japan,  
UNISDR

## Maturity assessment tool

In today's disaster risk landscape, companies need to be agile, flexible and innovative in the way they manage disaster risks. To underpin our DRM-F we developed a DRM maturity assessment tool. This tool (sample of actions included in the table below) can help private sector executives get an overview of where their company stands, identify gaps in their current organisation, and provides good practice options that will enable them to improve their holistic management of risk. Once a company's DRM maturity is defined according to each driver, each action is mapped into an overall roadmap of actions that are then prioritised according to the potential impact they present and to the investment they require (illustrative example below).

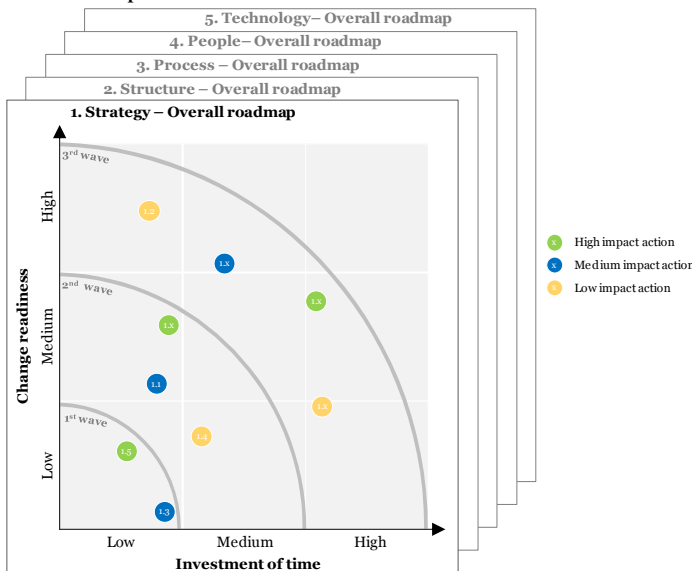


1. Strategy		Strong	Average	Below average	Scale description (S=Strong, A=Average, B=Below average)
1.1	Risk is integrated in business model				S: Risk is integrated in 5 drivers (strategy, structure, process, people, technology) A: Risk is integrated in up to 4 drivers B: Risk is not integrated in drivers
1.2	Risk culture and measurement				S: Risk appetite is clearly defined and KPIs (key performance indicators) are aligned A: Risk appetite is defined but KPIs are not aligned B: Risk appetite is not defined
1.3	Strategic investment of time and resources to reduce risk				S: Consistent investment in 5 drivers A: Consistent investment in up to 4 drivers B: No consistent investment in drivers
1.4	Growth model considers risk				S: CRO (chief risk officer) is at board level A: CRO has no access to top management B: No CRO
1.5	Risk scope consideration and review frequency				S: Top 5-10 risks identified are considered for each key strategic decision A: Top 5-10 risks are considered on a yearly basis B: Risks are not considered
2. Structure		Strong	Average	Below average	Scale description (S=Strong, A=Average, B=Below average)
2.1	Risk is managed collaboratively across the entire value chain				S: RM (risk management) communicates with functions internally (e.g. Supply-chain), third parties in the supply chain and public organisations A: RM communicates with functions internally B: RM works as a silo
2.2	CRO has company-wide authority and oversight				S: CRO's role is clearly defined and communicated A: CRO's role is clearly defined but not communicated B: CRO's role is not clearly defined
2.3	Reporting lines				S: Roles and approval processes are clearly defined A: Roles are clearly defined but approval process is not B: Roles are not defined
2.4	ERM programme scope				S: ERM covers known (high probability) and unknown (low probability) risks A: ERM covers known risks only B: No ERM programme
2.5	Governance structure allows to find what risk data is captured, who has access to risk data and where risk data is located				S: One global governance structure, consistently leveraged across the organisation A: One global governance structure, but not consistently leveraged across the organisation B: Several governance structure across units
3. Process		Strong	Average	Below average	Scale description (S=Strong, A=Average, B=Below average)
3.1	Strategic KPIs and risk review				S: Risk review is performed and risks are mapped to KPIs A: Risk review is performed but risks are not mapped to KPIs B: Risk review is not performed
3.2	BCP and scenario planning				S: Scenario planning for assets and operations A: Scenario planning for assets and operations for assets only B: No scenario planning
3.3	Risk management standards				S: Global risk management standards with local adaption on top A: Global risk management standards B: No risk management standards
3.4	Process in place allows understanding of and response to risk exposures				S: Understand internal and external impact, define short-term and long-term response A: Understand internal impact with short-term response B: No alignment between understanding internal risks and defining short-term response
3.5	Continuous efforts to improve processes and verify alignment of KPIs				S: Perform regular independent audits of internal processes A: Perform audits internally B: No audits in place
3.6	HSE (health, safety and environment) officer and procedure				S: HSE officer present on each site with global guidelines and policies A: HSE officer present on each site B: Not every site has HSE officer
3.7	Capturing know-how				S: Consistent process to capture, save and share know-how across the organisation A: Process to capture, save and share know-how is not consistent across the organisation B: No process in place to capture, save and share know-how



4. People		Strong	Average	Below average	Scale description (S=Strong, A=Average, B=Below average)
4.1	Risk-based thinking and behaviour	-----●----- -----●-----			S: Incentives are aligned with risk organisation KPIs A: Incentives are not aligned with organisation KPIs B: No incentives
4.2	DRM skills	-----●----- -----●-----			S: Hire people with public disaster response skills A: Collaborate with public disaster response entities B: Manage disaster risks internally and without public disaster response skills
4.3	Training	-----●----- -----●-----			S: Site-specific training on top of group risk training A: Group risk training B: No risk training
5. Technology		Strong	Average	Below average	Scale description (S=Strong, A=Average, B=Below average)
5.1	Technology is an enabler	-----●----- -----●-----			S: Technology is leveraged to support the 4 drivers (strategy, structure, people, process) A: Up to 3 drivers B: None
5.2	Technology supports BCP	-----●----- -----●-----			S: Remote access to work and continuous communication is possible A: Remote access to work is possible B: Remote access to work is not possible
5.3	Risk modelling	-----●----- -----●-----			S: Risk modelling is performed using risk models from insurance companies and other public organisation risk (e.g. UNISDR, governments) A: Risk modelling is performed using insurance companies risk models B: Risk modelling is not performed
5.4	Scenario simulation and use of data sources	-----●----- -----●-----			S: Scenario simulation plugs into dynamic sources of data A: Scenario simulation uses static data B: Scenario simulation is not performed

**Overall roadmap of actions**

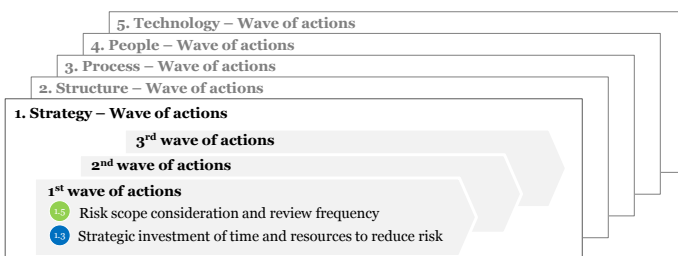


**Overall roadmap of actions:**

Each action identified in the maturity assessment tool can be mapped in the **overall roadmap of actions**. One roadmap of actions can be created for each driver.

Based on our discussions and expertise, companies have to consider **investment of time**, as well as the **change readiness of their strategy, people, process, structure and technology** in order to progress in their DRM maturity.

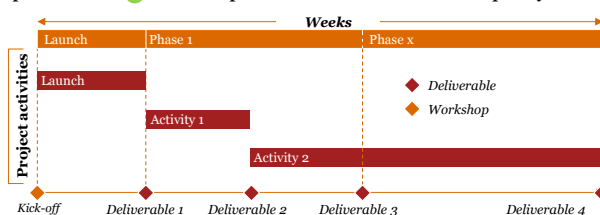
**Wave of actions for each driver**



**Wave of actions:**

The impact (high, medium, low) of each action will help companies prioritise their transformation plan within each **wave**.

**Project plan – Action 1.5 - Risk scope consideration and review frequency**



**Project plan:**

A **project plan** is created for each action in order to adopt a formalised and phased implementation approach.

**Finding 4: ‘A common vision’ – Collaborative DRM requires a common vision and the long-term cultivation of broad-based relationships**

The executives we interviewed understand that to be accepted by the communities in which they work, they need to do more than just conduct business; they also need to create local partnerships with governments and cities. In addition, they must demonstrate that their business is having a holistic and positive impact on the entire society, and they need to do so more proactively.

Our discussions suggest that collaboration is viewed as the next promising opportunity, with the potential to solve many of the challenges identified in current DRM approaches. Based on our analysis, the success of a collaborative approach will depend on the development of several critical elements. We have identified two axes of development, several founding principles and DRM good practice, which will ensure the sustainability of this initiative.

**Two axes of development**

*A clear value proposition*

A clear value proposition to demonstrate the potential return on investment and ensure the buy-in of the private sector.

*Focus on tangible actions*

A focus on tangible actions is necessary for both private and public sector to commit time and resources.



Practice makes perfect.  
Photo by Dian Lestariningsih / AusAID,  
UNISDR

## Founding principles

<p><i>The adoption of a DRM framework (DRM-F)</i></p>	<p><b>The DRM-F constitutes the basis of the initiative, and will help create a common understanding of DRM, develop a consistent level of perception of the strategies and processes involved, and formalise the process for collecting know-how, tools and information within the public and private sectors. It will also be possible to elaborate the DRM-F to define maturity levels and enable the private and public sectors to improve their approaches collaboratively on an ongoing basis.</b></p>
<p><i>The adoption of a common DRM language</i></p>	<p>We need a common language to reflect our common understanding of DRM. UNISDR has developed an extensive glossary of terms related to DRM, which can be further enhanced and adapted to take account of private sector terminology as well. A common DRM language will also enable knowledge to be shared more efficiently.</p>
<p><i>A dedicated platform for collaboration</i></p>	<p>The global nature of natural hazards and the interdependencies involved necessitate the elimination of national barriers. This means a dedicated global platform for collaboration has to be created to focus international efforts. The platform will provide:</p> <ul style="list-style-type: none"> <li>• A single, common source of information on DRM (sharing knowledge, know-how and proven experience, tools, risk maps, etc.).</li> <li>• A single forum for dialogue on DRM.</li> <li>• Common and consistent global standards and practical guidelines.</li> </ul>

## DRM Good practice

<p><i>Good practice in each DRM-F focus area</i></p>		
<p><i>Understanding</i></p>	<p><b>Corporate asset exposure</b></p> <ul style="list-style-type: none"> <li>• Seeking professional advice</li> <li>• Working with local operations</li> <li>• Country risk 'one-pagers'</li> <li>• Global 'heat map' of sites</li> </ul>	<p><b>Supply chain exposure</b></p> <ul style="list-style-type: none"> <li>• Supplier risk management strategy</li> <li>• Leveraging technology and analytics to understand risks</li> </ul>
<p><i>Responding short-term</i></p>	<ul style="list-style-type: none"> <li>• Remote access to work</li> <li>• Transferring work to other sites</li> <li>• Setting up 24/7 'control tower'</li> <li>• Leveraging staff with public sector experience</li> </ul>	<ul style="list-style-type: none"> <li>• Mutual agreement with peers</li> <li>• Using the same fleet to transport relief supplies</li> </ul>
<p><i>Responding long-term</i></p>	<ul style="list-style-type: none"> <li>• 'Scenario planning' in exposed zones</li> <li>• Creating own asset risk standards</li> </ul>	<ul style="list-style-type: none"> <li>• Supplier security assessment</li> <li>• Collaboration with suppliers</li> <li>• Integrating critical suppliers</li> </ul>

# Conclusion

## **Global issues call for global collaboration.**

Industry leaders from the private sector recognise natural hazards and DRM as a challenge facing today's interconnected world. The focus of this report is to define and provide real examples of leading DRM good practices being implemented within companies that have first-hand experience in managing natural hazards.

There is already a healthy awareness on the importance of reducing disaster risk and the impact from such incidents. The private sector has a wealth of experience, which can be codified and leveraged by many stakeholders, whether they are other organisations, governments, city planners or other disaster response institutions.

The success of creating and embedding such practices will depend to a crucial extent on the long-term commitment of entities within the private and public sector. For the dialogue to drive real action, it is critical that the value drivers of each stakeholder is well understood and aligned to this overall objective, whether it be to drive operational resilience and shareholder value, secure the GDP of a nation, or to protect the livelihood of the society.

To this extent, UNISDR and PwC's role is to establish a platform to facilitate the involvement of private and public actors who are ready and willing to make a step forward and take leadership on disaster risk reduction.

This is a unique opportunity for the private sector to have a voice; directly engaging governments and policy-makers with input and expertise to create future DRM policies, define best practices and drive regulatory legislation and standards.

To launch this process and secure the commitments, we will be designating 'champions' who can share and educate others on their unique capabilities. The platform will enable participants to become global leaders on specific issues, and will create a foundation to make good practices scalable.

**In order to build sustainable resilience, the private sector must become the source of change.**

In parallel, the public sector's role is to create the right incentives and environment for private entities to share and implement their expertise. Public entities play a critical role in identifying regional and local deficiencies in disaster management strategy, which could potentially be enhanced by leveraging private sector expertise. Having a holistic view of this exposure can provide a clear roadmap of initiatives that can easily be translated into concrete actions, allowing societies to build sustainable resiliency against natural hazards.

Accordingly, during the next two years (phase II of our initiative), the public and private sectors will define the method of collaborative resilience; exchanging views, defining best practices, discussing policies and ultimately putting in place implementation roadmaps – globally, regionally and locally.

The next wave of activities will commence with a variety of several high-standard events, starting with the presentation of our findings during the **Global Assessment Report on Disaster Risk Reduction (GAR)** in May 2013, in Geneva. This initiative is also an important milestone in setting the scene for the **Hyogo Framework for Action**, which will be renewed in 2015 and formalise the role of the private sector.

# Glossary

<b>Disaster</b>	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. *Disaster (see Figure 1, page 5): Disaster refers to Natural Disasters as categorised in EM-DAT, Data source EM-DAT, the OFDA/CRED International Disaster Database (Data version, 10 January 2012)
<b>Disaster risk</b>	The potential disaster losses, in terms of lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.
<b>Disaster risk management</b>	The systematic process of using administrative directives, organisations, and operational skills and capacities to implement strategies, policies and improved coping capacities to lessen the adverse impacts of hazards and the possibility of disaster.
<b>Disaster risk reduction</b>	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.
<b>Early warning system</b>	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organisations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.
<b>Global Assessment Report on Disaster Risk Reduction (GAR)</b>	The GAR is a biennial global assessment of disaster risk reduction and comprehensive review and analysis of the natural hazards that are affecting humanity. The GAR contributes to achieving the Hyogo Framework of Action (HFA) through monitoring risk patterns and trends, and progress in disaster risk reduction while providing strategic policy guidance to countries and the international community.
<b>Geological hazard</b>	Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
<b>Hazard</b>	A dangerous phenomenon, substance, activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
<b>Hydrometeorological hazard</b>	Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
<b>Hyogo Framework for Action (HFA)</b>	The HFA is the first plan to explain, describe and detail the work that is required from all different sectors and actors to reduce disaster losses. It was developed and agreed on with the many partners needed to reduce disaster risk – governments, international agencies, disaster experts and many others – bringing them into a common system of coordination. Its goal is to substantially reduce disaster losses by 2015 by building the resilience of nations and communities to disasters. This means reducing loss of lives and social, economic and environmental assets when hazards strike.
<b>Mitigation</b>	The lessening or limitation of the adverse impacts of hazards and related disasters.
<b>Natural hazard</b>	Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihood and services, social and economic disruption, or environmental damage. (UNISDR)
<b>Preparedness</b>	The knowledge and capacities developed by governments, professional response and recovery organisations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current hazard events or conditions.
<b>Resilience</b>	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to, and recover from, the effects of a hazard in a timely and efficient manner including through the preservation and restoration of its essential basic structures and functions.
<b>Response</b>	The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.
<b>Risk management</b>	The systematic approach and practice of managing uncertainty to minimise potential harm and loss.
<b>Vulnerability</b>	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

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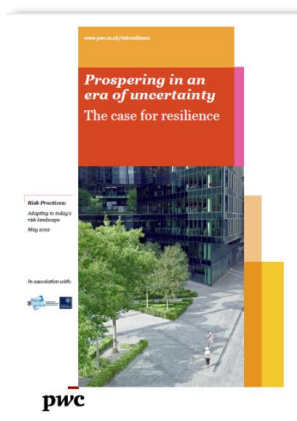
## **PwC US**

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Jan Sturesson  
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# Further reading



**Resilience:  
Winning with risk**



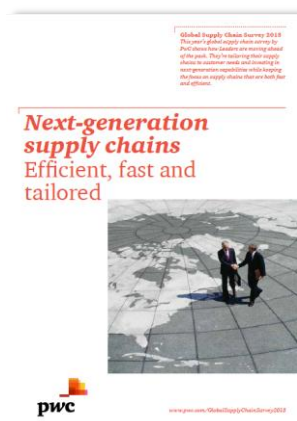
**Prospering in an era of  
uncertainty:  
The case for resilience**



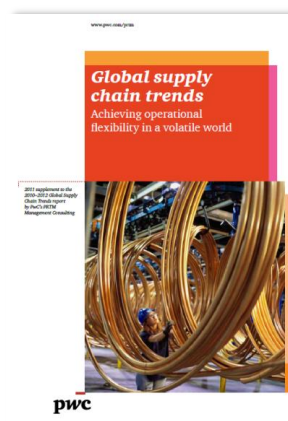
**Risk in review:  
Rethinking risk management  
for new market realities**



**Winning with  
governance, risk and  
compliance**



**Next-generation supply  
chains:  
Efficient, fast and  
tailored**



**Global supply chain  
trends:  
Achieving operational  
flexibility in a volatile  
world**



**Protecting human health  
and safety during severe  
and extreme heat events:  
A national framework**



**UNISDR's GAR 2011:  
Revealing Risk, Redefining  
Development**



**UNISDR's GAR 2013:  
Global Assessment Report  
On Risk Reduction**

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