

The business case for multi-stakeholder disaster risk management

a joint effort of the UN International Strategy for Disaster Reduction,
the World Economic Forum and the World Bank Group
under the Global Facility for Disaster Reduction and Recovery

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1. Executive Summary

1.1. Why is disaster risk reduction so important?

When Mount Vesuvius erupted in 79 A.D. it was a disaster of cataclysmic, continental proportions. The eruption wiped out Pompeii and Herculaneum and killed around 25,000 people. Neither town was rebuilt, and the force of the eruption changed the local geological landscape permanently. The accompanying smoke and dust cloud covered large parts of Southern Europe, affecting the life and livelihood of thousands more.

Compare this with the tsunami that hit Indonesia in 2005. Around 300,000 died in the impact of the initial tidal wave, less proportionately of the total global population than in 79 A.D., but the impact spread across more than 25 different countries, from Indonesia to Sweden. Why was this? The answer is global complexity.

The growing number of people on the planet has greatly increased the potential impact of disasters. Today business has operations all over the world, and relies on many other inter-twined global entities to support its value chains. Many manufacturing and service operations have been moved to locations which, whilst economically advantageous, are more likely to be impacted by climatic and other disasters. The result? A world where the disruption of the economic and social fabric of a region in Asia can both directly and indirectly affect businesses and families as far away as the UK and Sweden. And a business environment where companies no longer need to protect just their own assets and immediate supply chain – they need to consider how best to protect the infrastructure which allows them to manufacture, distribute and sell their products.

Recent changes in climate have increased the likelihood of natural disasters arising from flood, drought and tempest. Global warming has increased the frequency of severe weather patterns including the risk of flooding through rising water tables. It is also true that, even though climate change has taken place over a long period of time, its potential disaster impact is still not always taken into consideration by society as part of disaster planning. We live in an ever less stable world but frequently overlook the increased risk posed by it.

1.2. What can we do to reduce the impact of disasters?

The traditional response to disaster is humanitarian relief. No-one would dispute the value of such activities, yet how much more valuable would it be to reduce the impact of disasters before they happen, so that such relief aid is not needed? Why not try to preserve the infrastructure that is already there rather than raise the money to rebuild it after it is destroyed by disaster?

Protection of people and social infrastructure beyond the immediate manufacturing and supply chain has traditionally been thought of as the role of government and other public bodies. But such public bodies do not always have the financial strength or resources to ensure that infrastructure is built to the best possible disaster resistant standards. What is needed is for business to recognise its dependence for sustainable profits on society as a whole and offer financial support and expertise accordingly.

Many efforts have been made to create public- private partnerships to address disaster risks, but, for the most part, these have not been truly effective. Why is this? There is often suspicion on both sides as to the honesty and motives of the other party, and, in most cases, the partnership does not involve all interested stakeholders. What is needed is a means to bring together all stakeholders and create consensus on what needs to be done for effective disaster risk management, and who will do it. There also needs to be further consideration of the ways in which public-private co-financing of disaster risk management projects can be encouraged – it is an obvious means of raising money without placing the sole burden on the state.

1.3. The purpose of this paper

Working in multi-stakeholder partnerships to reduce the risks of disasters is a core objective of the United Nations International Strategy for Disaster Reduction. The ISDR:

“aims at building disaster resilient communities by promoting increased awareness of the importance of disaster reduction as an integral component of sustainable development, with the goal of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental disasters.”

One of the ways to support this objective is to improve disaster risk management through multi stakeholder engagement. This paper discusses the importance of pre-disaster risk management and sets out the economic case for businesses to become involved in risk

management beyond their own walls. It then provides a suggested mechanism for bringing together all interested stakeholders and achieving a consensus view of what needs to be done. Finally, it looks at some of the ways in which effective public-private co-financing can be stimulated.

The paper should also be of interest to other key stakeholders in the disaster risk management – including governments, intergovernmental agencies and non-governmental organisations. For example, this is an area where the World Bank Group has been traditionally looking after, but today it is an area of increasing interest within the Group.

2. What is disaster risk management?

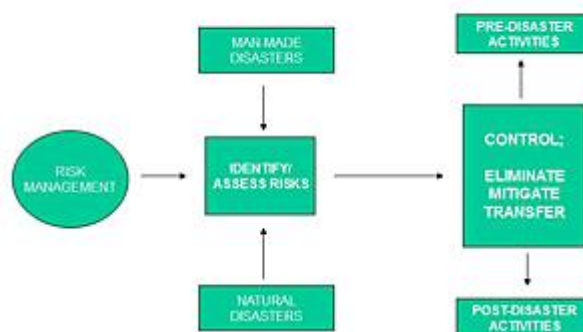
What does disaster risk management mean to different stakeholders?
ISDR defines disaster risk management as follows:

“Disaster risk management. The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.”

For the corporate sector, a more direct definition can be used:

Corporate disaster risk management refers to the identification, assessment, and control of natural and technological disaster risks which might negatively impact the assets and earnings of the organisation.

DRR as a part of Risk Management



Both the ISDR and corporate definitions acknowledge that true disaster risk management encompasses both pre and post-disaster risk management, but, in reality, pre-disaster risk management is frequently not the area of focus for the reasons given below. Multi stakeholder pre-disaster planning is likely to offer significant advantages for both businesses and society as a whole: for society it will reduce the impact of disasters and the scale and cost of relief and rehabilitation required after they happen. For corporates it will maintain business continuity, reduce costs, ensure the sustainability of economic growth and save lives.

3. The need for multi-stakeholder, pre-disaster risk management

3.1. Pre versus post disaster risk management

Most companies are very willing to contribute to immediate relief operations after a disaster happens. The need for such contributions is rarely questioned, and provision of humanitarian relief also provides a high profile opportunity for the company to improve their corporate image.

A much more challenging opportunity for companies is to take pre-disaster risk management action. Such action is likely to yield less immediate publicity, but should ultimately protect the business and its income stream better. It is a basic principle of general risk management to prefer to eradicate, mitigate or avoid risk, rather than hedge against the uncontrolled impacts. The same basic principle should apply for disaster risk management.

3.2. The magnifying effect of global complexity

In September 2006, the Secretary General of the OECD, Angel Gurría, stated:

“While technological innovation, globalisation, the growing interdependence of critical networks, and the high concentration of populations and assets all have their well-recognised positive effects, they also dramatically increase vulnerabilities to natural, technological and terrorism hazards.”

This quote talks about vulnerability to hazards, but this is not the only effect of increasing global complexity; it also magnifies the international impact of such hazards when they occur.

Looking first at vulnerability, it is clear that this does not arise solely from global interdependence; it is also caused by the reliance of business on manufacturing and servicing capability off-shore. Companies are always looking to maximise the efficiency of their operations and most of the cost of production/service is related to wages. It has therefore been a logical move to search the globe for the most cost-effective source of labour and this is usually located in developing countries.

This approach has obviously had a positive effect for both companies and developing nations alike, making corporates more efficient whilst at the same time stimulating local economic development. The downside is that many of the developing nations of the world suffer extremes of weather and seismic activity, such as floods and earthquakes. The net result is that companies are now often reliant for their survival on production/servicing in regions frequently disrupted by disasters. There is therefore, more than ever, a need to ensure that such regions, rather than just the corporate assets within them, are as disaster resistant as possible.

Globalisation has also had the effect of spreading the impact of disasters geographically beyond their point of origin. Examples of this occur on almost a daily basis:

The recent closure of Heathrow Airport in the UK, for three days because of fog temporarily caused havoc for the global air transport system. Over 1,000 flights were cancelled and over 60,000 passengers globally were stranded, delayed or had lost baggage.

The famous 2003 blackout in North America is a powerful example of the widespread economic impact of a technological disaster. A failure to trim trees in Ohio meant that stray branches came into contact with high-voltage power lines. The resultant power outage affected an estimated 10 million people in the Canadian province of Ontario (about one-third of the population of Canada), and 40 million people in eight U.S. states (about one-seventh of the population of the U.S.). Outage-related financial losses were estimated at \$6 billion USD.

A more recent blackout in Europe in November 2006 was felt across the continent. The blackout was caused by overloads in the power network in the northwest of Germany, after a high-voltage transmission line over a German river was turned off in an aborted attempt to allow a newly

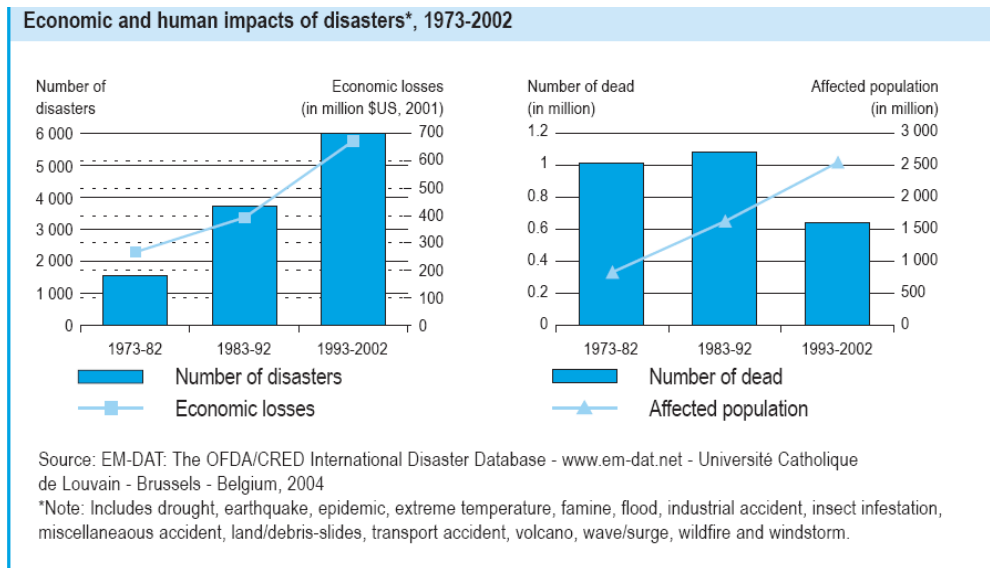
built Norwegian cruise ship to pass safely under it. Power failed first in Cologne, Germany, before shutting down parts of France, Italy, Spain and Austria. Belgium, the Netherlands and Croatia were also affected. Europe was close to a total blackout.

In July 2005 Mumbai saw almost as much rain within the space of 24 hours as would normally fall in a whole year. It was the greatest 24-hour precipitation volume ever recorded in India. Climate change was attributed as the cause for this heavy flooding. The torrential rain swamped many districts of the city up to a depth of 3 metres. About 1,000 people died and the lives of 20 million others were disrupted. The floods caused a stoppage of Mumbai's entire commercial, trading, and industrial activity for days. As Mumbai is India's major commercial and financial centre, with all the knock-on effects – e.g. the closing of electronic bank machines across the country – the disaster was devastating for the economy. Munich Re's estimate of the economic loss is US \$770 million.

Economic globalisation has also increased both the scale and scope of disasters beyond just impact on individual companies. A disaster in one community or country may well hinder the social and economic wellbeing of communities, and countries long distances away. The social impact of the 2005 Asian tsunami on Sweden is one example. The probable economic impacts on China, Japan and others of a potential disaster at the Panama Canal would be another example.

3.3. The increasing frequency of natural disasters

Natural disasters are increasing in frequency and impact. Although the number of deadly casualties due to disasters has decreased, there is a global trend that there are now more disasters and more people are affected by disasters. This is shown in the following figure from the 2004 ISDR report "Living with risk."



As we have seen in the previous section, disasters can have far reaching economic consequences. Judging by the statistics, natural disasters are becoming more devastating to the global economy over time. In their annual report Topics, Munich Re stated that the overall loss due to natural disasters was at a record height in 2005 and exceeded US\$ 210 billion.

3.4. Single stakeholder versus multi-stakeholder activities

Most organisations will already have in place some form of business continuity planning (BCP) in the event of a disaster happening. For larger organisations, such BCP will usually look to plan for interruption across the entire supply chain, but the breadth of this planning may no longer be sufficient; paraphrasing John Donne, “No *company* is an island, entire of itself; every *company* is a piece of the continent, a part of the main.” This is not to say that BCP at a corporate entity level is either unnecessary or of little value. In fact, such work is vital since corporations operating in developing areas are often a central part of the community. Protection of facilities and premises will hopefully, at the very least, allow sustained employment for many in the community. It is not, however, enough to guarantee social sustainability.

The piece that is arguably missing from many company’s disaster risk management activities is a recognition of the reliance on public infrastructure. This reliance is not only on physical assets such as bridges, railway lines and airports. It is also on the community surrounding the company premises. In the event of a disaster, whole

communities are often destroyed. Companies are reliant on these communities for labour and to buy their products. Short term alternative supply can frequently be arranged but long term sustainability is likely to be less certain.

Taking all this into account, it is necessary for companies to consider protection of both their own assets and the surrounding community to ensure long term sustainability. Community protection can only work if all interested stakeholders join together and agree a common approach to creating disaster resistance. This will mean public and private entities working together for the common good, both in social, economic and business terms.

It is therefore clear that:

- Recent weather records support the premise that natural disasters are happening more frequently;
- Globalisation has increased our vulnerability to such disasters;
- Interdependency has raised the global social and economic impact of locally occurring disasters; and
- The most effective pre-disaster risk management activities are likely to be done on a multi-stakeholder basis.

4. The advantages to companies of multi-stakeholder disaster risk management

The bottom line for companies is that disaster risk management makes good business sense. For some companies, of course, disaster risk reduction activities provide new business opportunities. For others, disaster risk activities provide new opportunities for social dialogue and engagement.

Multi-stakeholder partnerships to reduce disaster risk are likely to be of interest to insurers, bankers, environmental engineers, surveyors and others who will get direct financial benefit from such activities. However, disaster risk management can strengthen business continuity and economic sustainability for all companies in a number of different ways:

4.1. Ensuring sustainable business continuity

Disaster risk management, if it is not already, should be a core element of business continuity planning. Because of the wide-scale impacts of disasters – especially in an increasingly globalised economy – critical and costly business disruptions can and do occur anywhere along a

company's value chain from distant sources of inputs to distant retail outlets.

Disaster risk management is necessary to reduce the risk that natural and technological hazards will disrupt supply, production, distribution and sales resulting in increased costs, decreased sales and lower economic performance. This in turn will impact on the livelihoods of workers, suppliers, customers, investors, neighbours and others.

A company that manages its disaster risks and develops a robust disaster risk reduction strategy and action plan will have a competitive advantage in the marketplace. More importantly, however, as explained in more detail later in this paper, effective corporate disaster risk management requires collaborative efforts with other stakeholders – including competitors – and thus provides a company not so much with a competitive advantage but with the opportunity for long-term business continuity and economic sustainability. This means more profitability, economic growth and improved livelihoods for all.

4.2. Reducing costs through pre-disaster planning

Carefully designed pre-disaster risk reduction strategies and action plans will reduce the costs of potential business interruption in the event of a disaster. In so doing, disaster risk management will also reduce the cost of insuring for disasters and thus bring these cost savings forward to improve the performance of current operations.

Disaster risk management efforts can also have significant side effects such as helping to identify other weaknesses or bottlenecks affecting a company's operations. Because of the complexity of today's economic linkages, disaster risk management will in many cases require substantial engagement with stakeholders from the private sector, public sector and civil society. This could serve to strengthen multi-stakeholder relations and in turn reduce the costs of addressing other issues with local authorities, community leaders, civil society organisations and NGOs.

The possibility of reducing insurance cost needs to be emphasised. Well thought-out strategies and action plans for pre-disaster risk management are likely to result in significantly reduced insurance costs overall. In some cases, such disaster pre-planning will mean the difference between being insured or uninsured.

4.3. Integrating disasters as an environment, health and safety issue

Disasters can also in part be addressed within a company as an environment, health and safety (EHS) issue. By integrating disaster risk reduction in EHS, human resource departments and indeed workers can be engaged in disaster risk reduction planning and action. An EHS approach in some cases can also be expanded to include suppliers and customers.

Where the company needs to meet mandatory or voluntary standards for EHS issues, it may also be able to incorporate its response to disaster risks. This in turn provide the company with a competitive advantage, enhancing the company's ability to secure better financing for its operations and better markets for its goods and services. It may also strengthen employee relations, supplier relations, customer relations, and relations with other stakeholders.

4.4. Improving corporate reputation through disaster reduction

A company's commitment and ability to respond effectively after a disaster often enhances its reputation among key stakeholders including customers, employees, neighbours, civic leaders and government officials. In a similar fashion, a serious commitment to managing disaster risks before relief is needed can also enhance a company's reputation among its stakeholders.

As managing the disaster risks require substantive engagement with other companies, the public sector and civil society, a well developed disaster risk strategy and action plan can help build meaningful and lasting relationships with other economic and social actors within the communities and the countries of the company's operations.

Improved corporate reputation is an objective of corporate external relations and often closely linked to a company's corporate social responsibility (CSR) policies and programmes. In this respect, corporate disaster risk management can improve the company's reputation and thus its position within the marketplace and the community through strategic CSR-related disaster risk reduction activities as explained below.

4.5. Acting responsibility through disaster risk management

For many in the public and NGO sectors, disaster risk reduction is seen as a classic "public" good. Once provided to a community or a region, everyone living there benefits from its provision irrespective of whether they have contributed to the costs of disaster risk reduction programme. Because there appears to be no explicit profit to be made from the

provision of such a public good, many believe that private companies will not be motivated to get involved. It is this perceived under-supply of disaster risk reduction by the market that supports the case for government spending action to reduce risks.

From such a public good perspective, the case for companies to get involved in disaster risk reduction activities would appear to be based on the principles of corporate social responsibility. Wikipedia defines corporate social responsibility (CSR) as follows:

“Corporate social responsibility (CSR) is a concept that suggests that commercial corporations have a duty of care to all of their stakeholders in all aspects of their business operations.

“CSR is closely linked with the principles of Sustainable Development which argue that enterprises should be obliged to make decisions based not only on financial/economic factors (e.g. Profits, Return on Investment, dividend payments etc.) but also on the social, environmental and other consequences of their activities.”

Indeed, engaging in disaster risk reduction activities does offer a substantive opportunity for companies to be socially responsible. CSR approaches can be either strategic or philanthropic and disaster risk management offers significant opportunities for both types of CSR.

A strategic CSR approach to disaster risk reduction could focus on vulnerable communities which are clearly relevant to business continuity. An example, would be the communities which are home to the company’s employees. A philanthropic CSR approach, on the other hand, might focus on poor, marginalised communities which are not linked directly to its operations. An example, would be poor communities in low income countries which neither supply inputs to the company nor consume the company’s products.

A CSR approach to disaster risk reduction – whether strategic or philanthropic – enables a company to engage constructively with the public sector and civil society. It is a key element of the business case for corporate engagement in disaster risk management, especially with respect to meeting needs outside of the company’s sphere of operations.

5. Insights from corporate experiences in disaster reduction and climate change adaptation

Most companies – whether explicitly or implicitly – already address disasters in their risk management strategies and action plans. More recently many companies are also beginning to address climate change adaptation. Corporate experiences in disaster risk management can provide insights for what can and should be done by companies generally to reduce the risks of disasters.

This section of the paper presents 4 illustrative case stories, all of which show that companies can and should engage in disaster risk management. It is clear from these examples, however, that most companies are looking at disasters from a fairly narrow perspective. They are not yet recognising the need for multi-stakeholder processes to identify and manage disaster risks. Thus they are missing out on opportunities to ensure business continuity and sustainability through collaboration action and private public partnerships.

Nevertheless, what these case studies do show is that private sector initiatives for disaster risk reduction can be undertaken, make good business sense and do benefit broader communities. They also show that private sector engagement in disaster risk reduction is possible for many economic sectors and is appropriate all regions including developing economies and economies in transition.

This section of the paper ends with an indicative grid of the competencies of various industries with respect to disaster risk management. This grid shows how various industries can play a significant role in reducing disaster risk which is not only in their own interest, but in the interest of their stakeholders and of society in general.

5.1. An insurance sector case study

Company

Nodak Mutual Insurance Company
1101 1st Ave N, Fargo, North Dakota 58102, USA
<http://www.nmicfb.com/>

Overview

Nodak Mutual was founded in 1946 to protect farmers and ranchers from the natural disasters they faced in their business. The founders' original objective was to offer property insurance protection and quality service at a reasonable cost to Farm Bureau members.

Today, however, Nodak Mutual has broadened its mission to cover all the insurance needs of its local clients. Its mission is “to meet the lifetime insurance needs of our North Dakota Farm Bureau member clients by providing superior products and service at competitive prices” and its vision is “to be North Dakota's choice as the single source for its insurance needs.”

Within this expanded mission, the company continues to provide disaster-related insurance products. For example, it offers insurance cover for harvested grain against such natural disasters as fire, lightning, windstorm and hail while the grain is being stored on the farm or being transported from the farm. Nodak Mutual's crop-hail plan also includes coverage for losses due to non-recoverable corn ears that have been severed from the stalk due to wind.

Insights

The core insight from Nodak Mutual case is that private insurance companies have the potential to develop disaster insurance products for specific regional or local markets, such as the farmers and ranchers of North Dakota. Clearly by focusing on a specific region and on a particular economic sector, the insurance company can develop its expertise and offer appropriate, affordable and profitable products for its clients. It is also clear from the company's website that the products it offers are compatible with standards set by the US Department of Agriculture, thus ensuring that its efforts comply with government regulations.

Nevertheless, it would seem that Nodak Mutual and other such companies could benefit from providing more guidance to its clients on how to reduce the risks of disasters. Little information in this regard is available on their website. Such medium-sized insurance companies may also benefit from collaborating with other companies in the region insuring other sectors besides farming and ranching. And they may further benefit from collaborating with similar companies in other regions insuring the farming and ranching sectors.

Insuring for the risk of disasters is, of course, a key component of the insurance industry worldwide. Nodak is but one example of many of a medium-size mutual with a clear geographic and economic sector focus. The larger opportunity for the insurance industry in general – which seems to be missing as well in the Nodak case – is to play a champion role for the private sector to engage in disaster risk reduction activities and thus in turn to lower the costs of their insurance premiums.

5.2. An engineering/construction sector case study

Company

Arup (Turkey)

Cinnah cd. No:57-A d:4, Çankaya Ankara, Turkey

<http://www.arup.com/turkey>

<http://www.arup.com/geotechnics/project.cfm?pageid=6373>

Overview

Arup is a large multinational firm of engineers, planners and designers. It has operations in more than 30 countries including Turkey. The disaster risk reduction experience of Arup in Turkey is particularly interesting as it demonstrates the possibilities for a private sector partnership to reduce disaster risks.

In 2000, following a major earthquake in the country, Arup joined five other British engineering and construction firms operating in the country to form the British Earthquake Consortium for Turkey (BECT). Together the companies undertook a series of studies in a district which had been suffered seriously from quake. These studies sought to identify high risk areas with regard to future earthquakes and thus provide guidance for planning and development:

“Arup led the ground engineering aspects of the consortium. This involved seismic, geological and geomorphological appraisals. This included identification of geohazards (landslides, liquefaction and fault rupture) and potential areas for development where the hazards are lower than average for the region.”

Ground specialists and town planners worked in partnership to identify locations in the district with the least risk for development. Arup's contributions to this work included inputs from staff working in Hong Kong, Istanbul, Leeds, London, and Sydney – a truly international effort.

The work of BELT was done for the Ministry of Public Works and Settlement of the Government of Turkey. Funding came for the companies (£750,000) as well as from the Department of Environment, Transport and the Regions of the Government of the United Kingdom (£750,000). The provincial government of Yalova as well as 15 municipalities also cooperated with the work.

The aim of BELT was to stimulate major disaster-resilient infrastructure reconstruction work that could be financed on a commercial basis. Unfortunately the economic crash in Turkey in 2001 hindered these aspirations. BELT also aimed to build the capacity of Turkish officials in the use of modern techniques for the identification of disaster-safe sites for construction and was successful in this respect.

Insights

Arup's participation in the BECT shows how a company can work with other companies – some of whom may be its competitors in the marketplace – to address a common disaster risk. By bringing their respective strengths to the consortium, the opportunities for industry in the district and indeed the entire country were strengthened. Thus they all gained from their collaboration.

Clearly, the Government of Turkey had to not only encourage this partnership effort, but had to ensure the companies that its hard work would be well received by Turkish authorities and planners. Furthermore, BECT benefited from receiving financing from the UK Government – which, of course, had an interest in supporting British firms operating in Turkey. As noted, the work was also co-financed from the participating companies.

Finally, the severe earthquake of 1999 provided the much needed impetus for multi-stakeholder action. Clarity about what to do and where following this event also enabled BECT to focus its efforts for positive impact.

Nevertheless, at the same time that the BECT was operational, the World Bank had undertaken a major disaster-related investment in Turkey known as the Marmara Earthquake Emergency Reconstruction. In hindsight, it appears that closer linkages between this \$500 million loan agreement and the efforts of the private British companies may have been beneficial.

5.3. A telecommunications sector case study

Company

Thuraya Satellite Telecommunications Company
Dubai, United Arab Emirates

<http://www.thuraya.com>

Overview

The case of the Thuraya Satellite Telecommunications Company demonstrates the important role that the modern telecommunications industry can play in disaster risk reduction. Thuraya is a mobile satellite system that provides satellite telephone services to more than 110 countries. Its mission is “to provide uninterrupted, telecommunications services to a vast region inhabited by 2.3 billion people.”

Thuraya’s users are assured of continuous telecommunication coverage even when terrestrial systems and cellular networks may fail because of a natural disaster. Because Thuraya’s telecommunications via satellite system provides high-quality mobile phone services not only to urban hubs but also to remote communities, it can be used to send information on unfolding developments prior to the spread of a disaster, such as a tsunami. Thuraya explains:

“Thuraya provides vital communication facilities through its satellite services in remote villages and rural areas, where the few available telecommunication lines are most susceptible to malfunction when required most. Thuraya’s internet access, email, GPS, data and fax are valuable services serving as a primary communications medium for people in emergency situations.”

In July 2006, Thuraya signed a partnership agreement with the intergovernmental agency, the International Telecommunications Union (ITU), to help provide vital links via satellite to government authorities, rescue teams and humanitarian agencies for relief and rehabilitation efforts. Such on-going communication links reduce the risks associated with disasters by enabling early communication of developments even before the event happens and spreads. The ITU press release explains that this new partnership is part of its:

“ICT-based solutions in emergency telecommunications directed at improving early-warning communication, disaster preparedness and mitigation. This is a critical area of concern especially for countries with fragile economies and special needs, such as least developed countries and small island developing states.”

Both parties are bringing their strengths to this disaster risk management partnership:

“Thuraya ... is contributing handheld satellite terminals along with solar chargers; ITU will pay for airtime at discounted rates offered by Thuraya and cover the transportation costs of

telecommunications equipment to and from disaster-hit areas. ITU will also provide its expertise in technical and operational training for government officials involved in rescue missions.”

Insights

A high-profile disaster such as the Asian tsunami encourages many stakeholders – both private and public – to search for opportunities to undertake disaster emergency relief operations more effectively and efficiently. Bringing to together intergovernmental programmes such as the ITC with international telecommunication systems such as Thuraya can result in new synergies and capacities.

Though the Thuraya/ITC partnership was clearly established in the context of disaster relief, the maintenance of an on-going programme of work including dissemination of technical equipment and technical training significantly improves the capacities of communities – particularly rural, poor, high-risk communities – to manage and reduce their disaster risks.

This international private public partnership, as path-breaking as it is, could probably be strengthened by including more stakeholders – such as other telecommunications companies and other intergovernmental agencies – in its efforts.

5.4. A water/utilities sector case study

Company

Practical Action South Asia

5, Lionel Edirisinghe Mawatha
Kirulapone, Colombo 05, Sri Lanka

<http://practicalaction.org>

http://practicalaction.org/?id=rainwater_case_study

Overview

Practical Action South Asia is a regional division of Practical Action which is registered as a UK company limited by guarantee and as a charity. Its mission is:

“to build the technical skills of poor people in developing countries enabling them to improve the quality of their lives and that of future generations.”

In a drought stricken “dry zone” of southern Sri Lanka, they have assisted the villagers of Muthukandiya to secure more sustainable water supplies:

“In 1998, communities in the district discussed water problems with Practical Action South Asia. What followed was a drought mitigation initiative based on a low-cost ‘rainwater harvesting’ technology already used in Sri Lanka and elsewhere in the region. It uses tanks to collect and store rain channelled by gutters and pipes as it runs off the roofs of houses.”

Not only was the Government not able to provide reliable water services to this community, but its approach to technologies were also inappropriate. The sustainability of Practical Action’s initiative was a much due to its approach to introducing the technology within the community as it was due to the technology itself:

“Government and other programmes have ... been top-down in their conception and application, installing tanks free of charge without providing training in the skills needed to build and maintain them properly. Practical Action South Asia's project deliberately took a different approach, aiming to build up a local skills base among builders and users of the tanks, and to create structures and systems so that communities can manage their own rainwater harvesting schemes.”

By adopting a local skills-based, micro-enterprise strategy, Project Action has improved the sustainability of water for nearly 40 families in the community. These families have more water and cleaner water throughout the year round and during times of drought they have significantly more water than their neighbours.

Insights

Community-based micro-enterprise initiatives such as this one can be successful in reducing disaster risk. However, there are significant start up costs to getting such a programme underway which cannot easily be covered by the economic benefits of the programme. Furthermore, the maintenance and repairs of the infrastructure over time remains a continuing challenge.

Clearly technological solutions on their own are not sustainable. In this case, the major sustainability challenges are financial, operational and organisational. Improving these aspects of this micro-enterprise model

will be a prerequisite to any attempt to scale up the programme and roll it out to other communities in Sri Lanka and to communities in other areas. Nevertheless, Project Action South Asia has made an important first step in designing and implementing an innovative approach to reducing disaster risk through community-based micro-enterprise.

5.5. Industry competencies in disaster risk reduction

For some companies, such as the Nodak Mutual Insurance Company, disaster risk reduction can be its core business. Other companies, such as Arup or Thuraya, have specific capacities or expertise which they contribute to disaster risk reduction initiatives. In the cases of both Arup and Thuraya, the effectiveness of their contributions was enhanced through participating in a private public partnership.

Furthermore, as the case of Project Action South Asia shows, private sector approaches can have an impact even at a community-based micro-enterprise level. Though Project Action identified the implementation shortcomings of government approaches to the issue, it would seem that if Project Action wants to scale up this model across Sri Lanka, it will need to develop a constructive partnership programme with government at the municipal, regional and national level.

That said, it is safe to say that every company in every industrial sector – whatever its size or its location – has a potential positive and important role to play in disaster risk reduction. This role can be enhanced through multi-stakeholder processes as proposed in this paper. The following grid provides some insights into various industry competencies relevant for disaster risk reduction:

Disaster risk reduction interventions relevant to industry competencies

Industry	Disaster-related competencies
Engineering/Construction	Design and build disaster resistant buildings and infrastructure projects
Energy/Utilities	Design and deliver disaster resilient energy, water and sanitation services
Food, Beverage & Agribusiness	Implement disaster resilient agricultural production and processing systems
Health	Ensure adequate supply of health services and medicines in case of disasters
Information Technology	Design and maintain global, national and

	local disaster information systems
Media & Entertainment	Build public awareness about the importance of disaster risk reduction
Mining & Metals	Ensure mines and mineral processing plants are disaster resistant
Professional Services	Advise on disaster risk reduction strategies and action plans; advise on multi-stakeholder processes for disaster risk reduction
Financial Services/Insurance	Develop disaster risk reduction insurance products; incorporate disaster risk management into due diligence processes
Retail & Consumer	Ensure supply chains are disaster resilient and build public awareness
Telecommunications	Implement disaster resilient communication systems; design and network disaster monitoring capacities
Logistics & Transport	Develop and implement disaster resistant transportation networks and systems
Aviation, Travel & Tourism	Design disaster resilient travel systems and tourism packages

6. Multi-stakeholder processes for disaster risk reduction

Because of the wide scale potential impact of disasters, particularly on various links of a company's value chain, a company's disaster risk management strategy and action plans must take into account the actions or inactions of other relevant stakeholders, including other companies, the public section and civil society. In many cases, in order to manage disaster risks effectively, this will require the company to engage in multi-stakeholder processes. Because of the public nature of disasters and disaster risk reduction activities, in many cases, company's will also need to work in private public partnerships.

This section focuses on two key elements of multi-stakeholder processes – dialogues and activities. Various types of private public partnerships – from informal networks to contracted joint ventures – could be developed to address these two elements.

6.1. Engaging in multi-stakeholder dialogues

The effectiveness of any corporate disaster risk management efforts is most likely to be strengthened through dialogue with all interested and potentially affected parties. Every organisation – private, public or civil –

that faces a shared disaster risk is also a potential partner in efforts to eliminate or mitigate disaster risks.

Such a dialogue, however, needs careful preparation and moderating to achieve consensus views and shared ownership among the stakeholders on what needs to be addressed, in what timeframe and by whom. Even the poorest and least able stakeholder can and should be able contribute in some way to multi-stakeholder disaster risk management effort.

An approach to achieving effective multi-stakeholder dialogues could be developed as follows:

Step 1 Pre-dialogue preparation

Substantive preparatory work needs to be undertaken before stakeholders meet to discuss the situation. First, an area or region to be discussed needs to be identified and clearly defined. A partnership also needs to be established at a local level with relevant risk experts in order to prepare background information on the potential disaster risks. This partnership needs to collate all relevant risk information pertaining to that area or region.

A synthesis report needs to be drafted highlighting the range of potential disaster risks and their implications. This report needs to be shared among the stakeholders well in advance of the dialogue. Also, the decision-making methodology for stakeholders needs to be designed and disseminated so that stakeholders will understand how the dialogue is to be managed before it actually takes place.

Step 2 Dialogue process

Some of the key elements of a dialogue process are as follows:

- A minimum of a full day is set aside for the dialogue.
- The dialogue is moderated by external and local risk experts to ensure consistency and efficiency of approach.
- All potential disaster risks are discussed and defined by the stakeholders.
- Using Interactive voting software, stakeholders reach consensus on:
 - Key risks – i.e., the disaster risks which are commonly regarded as most likely to happen and have the biggest impact if they do; and

- Risk reduction gaps – i.e. these key risks which currently not adequately mitigated or prepared for.

If the dialogue succeeds in identifying the key risks and the risk reduction gaps, a report needs to be drawn up and disseminated to all stakeholders. They need to be given an opportunity to comment on the synthesis view and to reflect on their particular roles and responsibilities. This report will then form the basis for developing a set of multi-stakeholder activities.

If the dialogue is not successful, the core set of stakeholders will need to review the outcomes and decide on steps needed to undertake a further multi-stakeholder dialogue.

6.2. Engaging in multi-stakeholder activities

If successful, the outputs from the risk dialogues will provide the impetus for multi-stakeholder activities. Having said this, collaborative disaster risk management activities are usually difficult to implement because different stakeholders generally have differing views, agendas and objectives. There is thus a need to have a pragmatic framework for implementing such multi-stakeholder activities. This framework could include the following:

- An independent moderator;
- Consensus on who is and is not involved;
- Clarity on roles, responsibilities and respective types and levels of contribution of the various stakeholder;
- Clarity on timeframes; and
- Clarity on co-financing implications.

Various types of private public partnerships could be developed to implement the identified set of multi-stakeholder activities. In some cases, a company may provide technical and financial resources on a voluntary basis. In other cases, a company may develop a joint venture with public sector agencies or other companies to deliver particular activities. These joint ventures may be co-financed through contributions from both the private and public sectors.

6.3. Guidance from ISDR on multi-stakeholder process

This section is taken from section 1.1 of the November 2006 draft of ISDR's "Words in action" guide. Though the guidance focuses on dialogues at the country level, it can also be adopted for multi-

stakeholder processes at regional or local levels. This section provides an insight into the approaches undertaken by the UN regarding multi-stakeholder processes. ISDR defines multi-stakeholder as follows:

Multi-stakeholder describes the participation of the individuals, groups or organisations that have an interest or investment in the actions that will be taken to reduce disaster risk.

A. Understanding the task

The purpose of this task is to bring together the country's disaster risk reduction stakeholders to engage in a structured discussion so as to develop or strengthen the country's disaster risk reduction efforts. The dialogue may evolve into a multi-stakeholder disaster risk reduction national platform.

Engaging the relevant stakeholders in a dialogue about disaster risk reduction will create an inclusive environment for developing national consensus for disaster reduction. Such dialogue enhances societal awareness of hazards, risk and risk reduction. It can empower vulnerable stakeholders through information sharing and coalition building. Dialogue can also lead to inter-institutional, multi-sectoral collaboration on risk reduction at the regional level.

B. How to do it

Recommended steps

In setting up a multi-stakeholder dialogue consider the following steps:

1. Organise the management of this task;
2. Identify key stakeholders, that is, those who should play a role in the planning, promotion or implementation of risk reduction strategies and programmes;
3. Identify existing governmental or civil society organisations mechanisms to assess if the dialogue could be anchored therein or benefit from existing networks;
4. Identify one or more disaster risk reduction champions, that are influential persons interested in disaster risk reduction willing to lead in making disaster risk reduction a public priority;
5. Convene interested and affected parties;
6. Agree on shared goal and objectives, scope, agenda, working arrangements and ground rules;
7. If appropriate, establish multi-disciplinary working groups or committees to work on specific issues;

8. Establish a mechanism for overall coordination of the work effort, setting and monitoring of milestones and integration of outputs;
9. Develop an arrangement for sustaining the dialogue on a continuing basis;
10. Set up a system for disseminating discussion results to key officials, participating organisations and the public, as well as for receiving and acting on input from those outside the process.

Especially note the concept of a *disaster risk champion* in the 4th point above. A particularly interesting opportunity for some companies may be for its Chairman or Chief Executive to become a disaster risk champion in a multi-stakeholder process. ISDR explains that a:

Disaster risk reduction champion is an influential person interested in disaster risk reduction, willing to take action to make disaster risk reduction a public priority. A champion may be any determined, top-level government official, a professional in one of many fields or a community activist.

Also, a national platform, inter-agency standing committee or council that meets regularly and actively pursues its agenda can greatly assist in building common understanding and effective cooperation among key organisations. Typically, the platform or committee oversees the development and implementation of the disaster risk reduction plan and monitors progress. Successful inter-institutional mechanisms usually have top-level support from chief executive level in government and stakeholder organisations, a clear mandate, proactive leadership, a strong core group and secretariat and incentives for action.

C. Responsibilities and resources

Some countries have already established national systems, such as national platforms for disaster reduction. These coordination mechanisms can lead the process of convening stakeholders for the dialogue. If a national platform has not been formed, the process of establishing a national dialogue may lead to the creation of a national platform. The following types of organisations play a role in implementing disaster risk reduction and may have an interest in participating in the dialogue:

- Planning and policy making organisations;
- Owners and operators of economic and social infrastructure;
- Public agencies responsible for overseeing implementation of codes, regulating, sanctioning or providing incentives;

- Key humanitarian and social services organisations;
- Relevant professionals including land-use planners, architects, engineers, developers, builders, etc.;
- Financial institutions including those that provide mortgage loans or insurance, communications technology, etc.;
- Non-governmental women's and community groups including advocates for residents for high-risk environments;
- Media organisations; and
- Technical and scientific institutions or services.

Clearly there is a role for companies to be involved with such a grouping of stakeholders.

Conditions that facilitate the task include:

- Support of chief executives of government, community leaders and stakeholder organisations;
- A champion who can galvanise the support of government and society;
- Careful meeting planning (time, location and conditions) to enable community participation;
- A communications facilitator to run the meeting; and
- Comprehensive background information to inform the discussion.

Clearly as companies decided to embark on multi-stakeholder processes, they may want to seek further guidance from ISDR and its partners.

7. Increased private-public partnerships and co-financing of disaster risk reduction

Multi-stakeholder dialogues and action plans for disaster risk reduction can lead to opportunities for private-public partnerships. This section of the paper reviews the reasons for undertaking private-public partnerships and then explores the critical challenge of developing appropriate and effective private-public co-financing arrangements.

To be successful, disaster risk management requires central and local government support and also the support of private companies. On the government side, the Ministry of Finance in concert with the line ministries, should enrol the private sector into disaster risk management planning and resource raising and form disaster reduction and recovery partnerships.

7.1. The benefits of private-public partnerships

Today in many priority areas for social responsibility – ranging from biodiversity to education to health to – various forms of private-public partnerships (PPPs) have been developed to bring about more effective and efficient provision of needed goods and services.

A key role of the World Bank Group in disaster risk management, for example, is to promote the positive aspects of preparedness and the importance of public-private partnerships. The Bank has identified the following list of benefits arising from PPPs for disaster risk reduction:

- PPPs give governments a broader operational and financial base, and help governments, companies and ordinary citizens fulfil their moral responsibility to protect their staff, employees, peers, the communities and the environment;
- PPPs reinforce the social bond among community members and erase (or reduce at least) real or perceived inequalities among the civil service, the business community and the general population;
- PPPs facilitate the government's job by making compliance with regulatory and safety requirements everybody's concern;
- PPPs enhance both the government's and companies' ability to recover from financial losses, loss of market share, damage to infrastructure, equipment, products or business interruption, by putting resources and forces together, hence making preparedness a win-win option;
- PPPs reduce exposure to civil or criminal liability in the event of an incident (though joint preparation and implementation and information sharing);
- PPPs project an image of civic (if not political) consensus that enhances a government and company's image with international financial institutions, donors, financiers, employees, customers, suppliers and within the affected community itself; and
- PPPs may help reduce casualty and risk insurance premiums.

Clearly, PPPs are an attractive way to operationalize the action plans emerging from multi-stakeholder processes.

7.2. The challenge of co-financing

Once a multi-stakeholder disaster risk dialogue has been undertaken and key disaster risks have been identified, then a strategy and action plan for mitigating these risks needs to be developed and implemented. Securing adequate financial resources for the implementation of

disaster prevention and emergency preparedness will be critical to the success or failure of collaborative efforts to reduce disaster risk.

Multi-stakeholder disaster risk management presents an opportunity for increase private-public financing. There are numerous different ways in private-public financial arrangements could be structured. Disaster risk reduction activities, however, can be roughly divided into two categories:

- Direct revenue generating activities, and
- Indirect revenue protection activities.

A direct revenue generating activity could, in principle, generate sufficient funds to pay back the cost of the disaster risk reduction investment. An example could be a toll bridge or a road which has been reinforced to be more disaster-resistant. The toll could generate revenues to pay the costs of reinforcement.

In the case of a direct revenue generating activity, both private and public entities could finance the disaster risk reduction activity along normal commercial lines with their loans paid back from the revenues collected.

Not all disaster risk reduction activities, of course, will be capable of generating direct revenues. In some countries, even putting a toll on a reinforced bridge or road may be politically unacceptable. In such cases, the focus of a private-public financing arrangement will need to focus directly on the indirect revenue protection opportunities of the disaster risk reduction activity.

For indirect revenue protection activities, both the private and the public stakeholders should estimate their respective economic benefits – e.g. arising from sustained business continued or sustained economic development – from the activities. Based on this information, the relevant parties could decide how to share the costs. For the public sector stakeholders, if they in a developing country, they may also look at options for securing finance from multilateral financial institutions, such as the World Bank, to cover their share of the costs.

Furthermore, disaster risk reduction activities which are revenue generating will also generate indirect revenue protection for both private and public stakeholders. In some cases, the potential revenues from the disaster risk reduction activities may not be adequate to pay back the investments. In these cases, various combinations of commercial financing and shared costs may be required.

The bottom line is that the various stakeholders who benefit from the disaster risk reduction activities should share in the costs of these activities. Where the activities can be partially or fully self-financed through revenue generation, these options should be explored. Where revenue generation is either not possible or insufficient, then cost share arrangements among the various private and public stakeholders needs to happen.

7.3. Co-financing options with the World Bank Group

The World Bank Group may very effectively assist governments (IDA, IBRD TA) and companies (IFC advisory) design and implement legal and regulatory frameworks for disaster risk prevention and management. The Group may also provide targeted assistance to establish planning teams in charge of developing disaster risk management plans. Bank financing for these efforts could come from a variety of funding sources:

- International Development Association (IDA) – provides interest-free (credits) and grants to the poorest developing countries in order to boost their economic growth and improve people's living conditions
- International Bank for Reconstruction and Development (IBRD) – focuses on middle income and creditworthy poor countries
- Technical assistance (TA)
- International Finance Corporation (IFC) advisory services

For those countries or regions with a higher disaster probability rate, the World Bank Group may provide consultancy funding to analyse capabilities and hazards. This would allow governments to gather information about capabilities and possible hazards and emergencies, and conduct a vulnerability analysis to determine both the overall government's capabilities for handling emergencies, leading to the development of a national or regional disaster risk reduction management plans.

The World Bank Group role might also extend to assisting governments and companies implement their disaster management plans. This means more than simply exercising the plan during disasters. It means acting on recommendations made by the consultant in the vulnerability analysis, integrating the plan into government and company operations, training civil servants and corporate employees, and evaluating the plan.

The other aspect which the World Bank Group support may help design and strengthen is the direction and control aspect: designing/selecting

the system for managing resources, analyzing information and making decisions in an emergency.

The communications component is also essential to report emergencies, to warn civil servants and staff, to keep communities informed about the stage of emergency and coordinate response actions and maintain contact among the various government agencies, and communities.. PPP may be particularly well suited for such communication components.

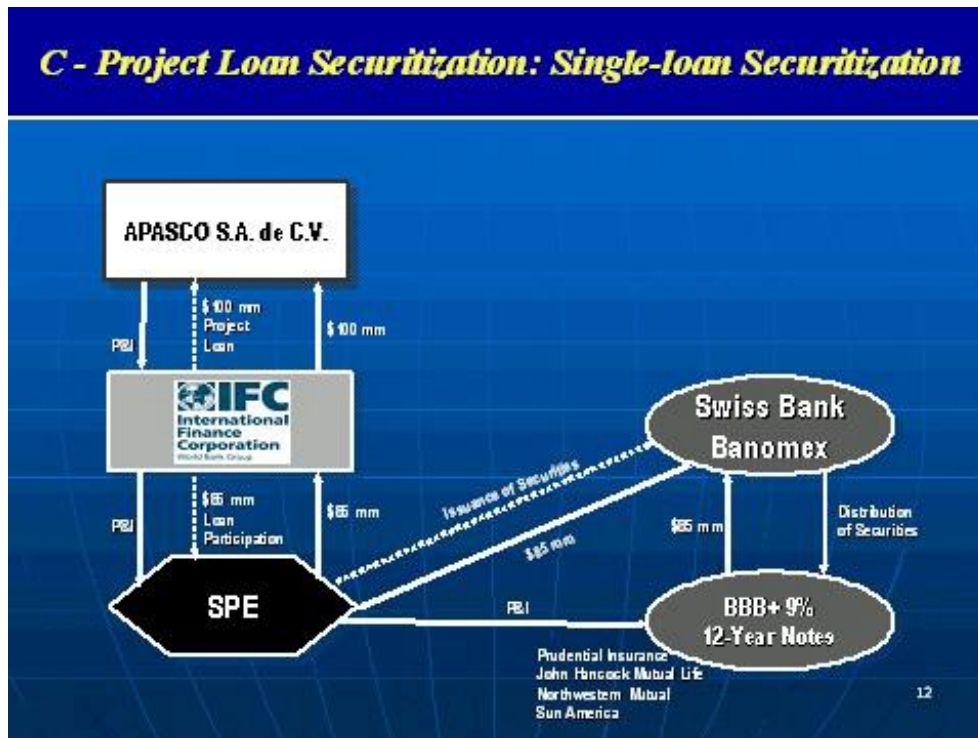
7.4. Innovative co-financing experiences and opportunities

Disaster risk reduction financing provides opportunities for innovations in private/public financing. In this respect, insights may be gained from experiences in disaster risk insurance and in PPP co-financing.

In particular, there are opportunities to explore co-insurance schemes with private risk insurers for disaster risk. Supplementing the risk premium or sharing the risk on a first-loss and second loss basis may attract the interest of private risk insurers. In this regard, the World Bank Group participated in a similar scheme for post-Marmara earthquake rehabilitation project in Turkey

Lessons can also be learned from experiences such as the IFC's "alternative risk transfer" (ART) financing structures. For example, in 1995, a large Mexican cement producer needed to complete a \$154 million expansion of its production facilities in the wake of the Mexican peso crisis. The abrupt peso devaluation had sent Mexico's sovereign credit rating to new heights, but severely constricted the supply of corporate credit while increasing its cost.

To raise funds for the project, the IFC extended the company a US\$100 million loan, but the IFC wanted to retain only \$15 million of the exposure on its books. So the IFC set up a Delaware trust and sold an \$85 million participation in the loan to the this trust in exchange for cash. The trust financed the acquisition of the loan participation by issuing a single tranche of BBB+ rated notes. The notes carried a fixed coupon of 9 percent, then equivalent to LIBOR+275 bps. Four US insurance companies bought the entire issue. The structure is set out in the following image:



Similar financing structures could be developed for disaster risk reduction and mitigation. The World Bank Group, for example, may consider using similar structured finance techniques to securitize reconstruction debt floated by a private special purpose entity (SPE) in which private companies may take a minority participation to finance large-scale risk reduction or mitigation projects with IFC.

There are also a number of public sector disaster risk reduction financing initiatives underway which might benefit from more active private sector participation. For example, in the Bahamas, the National Emergency Management Agency (NEMA) is co-financing a \$7 million dollar Natural Risk Preventative Management Programme (NRPMP) in collaboration with the Inter-American Development Bank (IDB) to help improve the disaster resilience of the country. It is scheduled to become operational in February 2007. The overall plan is the integration of a Comprehensive Disaster Management (CDM) strategy into sustainable development planning so as to reduce vulnerability, risks and loss from natural and man-made hazards. Multi-stakeholder dialogues with the private sector could strengthen this strategy and identify opportunities for private-public co-financing.

[other possible case stories ...

- *The Ecuador drainage case that increased property values and thus resulting in private-public co-financing*
- *The shareholders approach to bring together the IFC expertise with the WB expertise and thus enable private-public co-financing*
- *The tax incentives encompassing co-financing for critical life line infrastructure to enable private-public co-financing*
- *Looking at the case for combining public and private bonds for private-public co-financing*
- *The issue of MIGA becoming engaged in private sector compensations in the case of loss from natural disasters to enable private-public co-financing*
- *A question of creating new packages and new legal entities like bonds and linking these to credit ratings to enable public-private co-financing]*

8. Suggested next steps

8.1. What can a company do?

ISDR and its partners are working on initiatives to stimulate multi-stakeholder dialogues. Some companies may have an opportunity to join in one or more of these efforts. However, as these are rolled out, there is an opportunity now for companies to begin the own disaster risk management processes by taking the three following steps:

1. Review existing supply chains and see whether the company has fully considered the direct and indirect impacts which might arise from disasters.
2. Consider whether the company's existing risk management approach adequately responds to all disaster risks.
3. Establish preliminary dialogues with other stakeholders to identify common areas of disaster risk concern.

Such preparation will allow a company to ensure your supply chain is more disaster-resistant. It will also pave the way for future, effective multi-stakeholder dialogues.

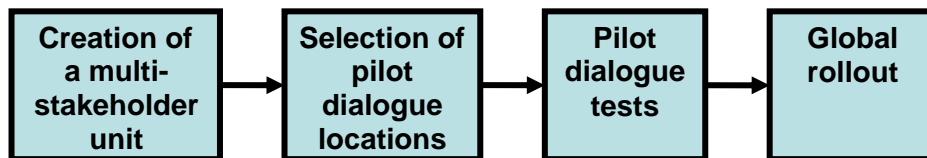
8.2. What can ISDR and its partners do?

The UN International Strategy for Disaster Reduction, the World Economic Forum, the World Bank Group and other partners have an opportunity to develop initiatives to stimulate multi-stakeholder dialogues which invite companies to play an active role.

The World Economic Forum has established a Global Risk Network and a Disaster Resource Network for its members and partners. These two networks provide platforms for engaging the private sector in multi-stakeholder disaster risk management efforts.

The World Bank Group, in partnership with ISDR, has established the Global Facility for Disaster Reduction and Recovery. The focus of the Facility is on building capacities at the local and national levels to disaster proof the Millennium Development Goals.

It is unlikely, however, that multi-stakeholder dialogues engaging the private sector, or the subsequent required risk reduction steps, will happen without dedicated resources to stimulate the process. Hence, ISDR is interested in implementing a pilot programme to stimulate multi-stakeholder processes. It could have 4 elements as follows:



Creation of a dedicated multi-stakeholder unit

A multi-stakeholder unit in ISDR could be created in order to:

- Devise a consistent dialogue process with common applicability;
- Educate all interested parties in the benefits of such risk reduction dialogues;
- Engage local expertise to support preparation of pilot dialogues (to ensure local risk knowledge, attendance of all key stakeholders);
- Moderate pilot risk reduction dialogues;
- Assist stakeholders post dialogue to ensure agreed actions are implemented and completed; and
- Report on risk reduction progress to all interested parties.

The unit would need to appeal to the widest possible audience of potential stakeholders, and to be perceived as a neutral but positive influence. Both the World Economic Forum and the World Bank Group are well known brands around the world. The UN, however, has wider local country representation, and the UN ISDR has a specific, dedicated mandate in the area of disaster risk reduction. It would appear, therefore, that the maximum impact would be achieved by the unit operating directly under the UN ISDR banner, supported by the World Economic Forum, the World Bank Group and others as appropriate.

The multi-stakeholder unit initially would probably need around three to four dedicated professional risk personnel, with administrative support. This number would be reviewed, dependent on demand for the risk dialogues.

Selection of pilot locations and pilot dialogue tests

It will be critically important to select pilot locations that demonstrate:

- The dialogue concept has universal application to any country, region, state, etc.;
- Pre-dialogue preparation produces an informed risk picture and appropriate stakeholder representation;
- The facilitated risk dialogue methodology produces consensus regarding key disaster risks to be addressed; and
- The post-risk dialogue actions produce real, measurable results within a reasonable timeframe.

It will also be important to undertake pilot dialogues in countries, regions, states or towns which differ in social and economic development and which face a variety of disaster risks.

Global rollout

Given the depth of necessary preparation for each dialogue, a small, dedicated team is unlikely to be able to facilitate more than 20 workshops in a year. An initial three year commitment is probably necessary to test the validity of the concept – particularly measurement of the value of risk reduction activities post dialogues. During the third year, preparations for a global rollout based on lessons learned from the pilot phase will need to begin.

Finally, engaging the private sector early on in the design and implementation of a multi-stakeholder dialogue pilot process would present an ideal opportunity for establishing a private-public partnership which will have benefit countries, companies and communities around the world.

9. Additional information

This section provides a selection of relevant documents and websites. Some of these documents are available for downloading on the Internet.

9.1. Relevant documents

Auerswald P.E., Branscomb L.M., La Porte T.M., and Michel-Kerjan E.O. (2006). **Seeds of Disaster, Roots of Response: How Private Action Can Reduce Public Vulnerability**. Cambridge University Press, 576 pp.

Bonini S.M.J., Mendonca L.T., and Oppenheim J.M. (2006). **When social issues become strategic**. McKinsey Quarterly, Vol. 2, pp. 19-31.

Kreimer A., Arnold M., and Carlin A. (2003). **Building Safer Cities: The Future of Disaster Risk**. World Bank, Washington, 324 pp.

Porter M.E. and Kramer M.R. (2006). **Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility**. Harvard Business Review, December, pp. 78-92.

Thomas A. and Fritz L. (2006). **Disaster Relief, Inc.** Harvard Business Review, November, pp. 114-122.

Twigg J. (2001). **Corporate Social Responsibility and Disaster Reduction: A global overview**. Benfield Greig Hazard Research Centre, University College London, 84 pp.

UN International Strategy for Disaster Reduction (2004). **Living with risk**. United Nations, Geneva, 429 pp.

Warhurst A. (2006). **Disaster prevention: A role for business?** ProVention Consortium, Geneva, 24 pp.

World Economic Forum, Citigroup, Marsh & McLennan Companies, Swiss Re, and Wharton School Risk Center (2007). **Global Risks 2007: A Global Risk Network Report**. World Economic Forum, Geneva, 36 pp.

9.2. Relevant websites

UN ISDR

<http://www.unisdr.org/>

Global Facility for Disaster Reduction and Recovery

<http://www.unisdr.org/eng/partner-netw/wb-isdr/wb-isdr.htm>

World Bank

<http://www.worldbank.org/>

Global Facility for Disaster Reduction and Recovery

<http://www.worldbank.org/hazards>

World Economic Forum

<http://www.weforum.org/>

Global Risk Network

<http://www.weforum.org/en/initiatives/globalrisk/index.htm>

Disaster Resource Network

<http://www.weforum.org/en/initiatives/drn/index.htm>