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Making Futures Real : The Policy-Makers Challenge

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MAKING FUTURES REAL: THE POLICY-MAKERS CHALLENGE

-- SECTION FOR THE 2013 GLOBAL ASSESSMENT REPORT --

Introduction: The changing nature of risk and its implications for policy-makers and planners

There is general consensus amongst academics, researchers and increasingly practitioners that the types, dimensions and dynamics of humanitarian threats and opportunities to mitigate them are increasing – in some instances, exponentially.[1] There, too, is a growing belief that the short-term perspectives that have traditionally marked humanitarian action – reflected even when it comes to prevention, preparedness and recovery as well as response – are no longer appropriate for meeting either plausible threats or possible opportunities to address them.

A host of international initiatives have been launched or expanded that reflect this emerging awareness. From UNISDR's biannual Global Assessment Report, itself, to the World Food Programme-led initiative, Towards a Safer World, from the OECD's High Level Risk Forum to the Swiss government sponsored International Risk Governance Council, there is a proliferation of forums dedicated to identifying potentially catastrophic risks and to share possible solutions.

The world of the private sector, in many ways ahead of the risk identification game, is increasingly being sought to lend its expertise on approaches for anticipating longer-term threats.[2] In a related vein, a growing number of non-governmental organisations, too, are expending more energy on moving away from their predominant focus on immediate response to more strategic thinking about future risks. Even for a growing number in the media, there is an increased awareness that responsible journalism also involves sensitising the public as well as policy-planners not only to potential longer-term threats, but also to ways, for example, that science and technology and innovations and innovative practices can offset their impacts.[3]

And yet, despite all the refocused attention on longer-term threats, ways to reduce risks and more sustainable approaches to vulnerability

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[1] See, for example, OECD inaugural meeting, 8-9 December 2011, OECD Conference Centre

[2] Risk analysis has many origins, but in terms of risk from a corporate perspective, the work of the RAND Corporation in the 1950s was a critical stage of development. The implications of anticipating risks were captured by Royal Dutch Shell in 1971 when it introduced "scenario planning" into its approach to strategic planning. This and related methods were subsequently used by other private sector institutions, and the risk analysis used by re-insurance companies such as Aon Benfield and Willis Re increasingly resonate with government organisations such as the UK's Department for International Development and the US Agency for International Development.

[3] See, for example, UNISDR's ***Disasters through a different lens*** initiative as well as HFP's ***Media Futures*** (www.humanitarianfutures.org). A number of journalist training organisations, including Thomson Reuter's AlertNet and Reuters Institute for the Study of Journalism, Oxford University are actively engaged in promoting longer-term analysis of possible disaster risks and future links to science and technology.

reduction and resilience, considerable uncertainty persist about three core issues. The first is how those with roles and responsibilities for dealing with such threats actually define them. To what extent, for example, do their perception of threats encompass risks that transcend standard hazards and reflect new technologies, new forms of disease and socio-economic crisis drivers? How can one assess policy-makers' and planners' attitudes towards longer-term risks as a first step towards monitoring possible attitude changes?

A second and related issue concerns the extent to which the perception of risk is subsequently translated into possible solutions and how. The challenge for most planners and policy-makers is to reconcile a host of contending and often seemingly contradictory demands – all too often focused on addressing the immediate at the expense of the longer-term. To what extent are changing attitudes and altered contextual realities resulting in different approaches for longer-term risk reduction measures?

Finally, a third issue that should be of fundamental importance to governments and international organisations and indeed publics at large is the source of knowledge and understanding not only about plausible threats but also about possible measures to deal with them. The number of institutions, publications and public and private events intended to provide information and understanding about longer-term hazards and solutions is growing, but their impact upon planners and policy-makers remains unclear. In that regard, upon what sources of information do these planners and policy-makers depend? What would appear to be the most effective means of communicating messages that pertain to the disaster risk challenges that are ostensibly more and more evident? Are there approaches that should be borne in mind when translating longer-term risk reduction into contemporary political reality.[4]

In looking for possible answers to these three core issues, it has become increasingly evident that a more systematic and consistent approach to understanding the attitudes of those with risk reduction roles and responsibilities was needed. In various ways, planners and policy-makers have been and continue to be interviewed about their risk reduction concerns. They are central to the range of forums that deal with longer-term disaster risk reduction, and clearly are fundamental to the work that UN ISDR and others are doing to promote DRR and resilience.

However, increasingly means are needed to gauge the progress over time that is being made to identify risks, apply appropriate measures to address them and to understand the knowledge and information sources that have led to both. In this sense, the idea of progress is based upon the premise that means for a longitudinal study measuring attitudes and the sources of such attitudes are essential, and that only by regularly analysing

[4] In a recent review of approaches for addressing the issue of energy reduction in the United Kingdom, it was suggested to a forum of senior policy-makers that there was a clear need to change "the lexicon" from energy sustainability to "the cost of energy waste." The latter would be understood by the public whereas the former was seen as not particularly meaningful to the general public.

the perceptions and attitudes of policy-makers and planners about the nature of longer-term will there be the basis for determining ways to enhance understanding and to promote effective longer-term risk reduction methods. To that extent, policy-makers and planners are being challenged in a most positive sense ***to make futures real***.

II Expanding types, dimensions and dynamics of risks

Emerging and expanding risks

In the ***Global Assessment Report – 2011***, the possible humanitarian crises that could arise from "nuclear tailings" in Central Asia was posited as an example of a relatively unexplored risk that had global implications, and also indicative of a growing number of risks that were not given the attention that was warranted.[5] The fact of the matter is that there is a growing range of disaster risk drivers that need to be incorporated into DRR portfolios. In the 2013 Global Risk Register, produced by the World Economic Forum, it is more than evident that the nature of perceived risks goes well beyond "natural hazards" and those resulting from conflict-generated "complex emergencies." According to the register, at least 50 major risk categories were felt to warrant the attention of policy planners, of which natural hazards and complex emergencies as conventionally defined represented only __%.[6]

If disasters are reflections of the ways that societies structure themselves and allocate their resources, then it is more than likely that increasingly more complex economic systems, the consequences of globalisation, the inter-related nature of technology, population growth, demographic shifts and natural phenomena such as climate change will result in new types of crisis drivers and also new types of interactive crises. The potentially disastrous consequences of cybernetic failure offer a case in point.

In a world more and more dependent upon interconnected communications, information transmission and access to a wide range of cybernetic systems, *cascading failures*, or, networks that become severely impaired due to malfunctions in hardware or software, will quite plausibly become major crisis drivers. Food supply chains, mobile communications, water systems, emergency logistics – air, land and sea -- access to money or trading commodities, all are increasingly dependent upon complex systems that rely upon internet communications and related satellite capacities. In developed as well as developing countries, the potential vulnerability of such systems are intensifying; unintended cybernetic failures or calculated cybernetic attacks are seen as factors that can bring large parts of society to their knees.

In 2009 the US National Academy of Sciences prepared a report for the US National Aeronautic and Space Agency, entitled, *Severe Space Weather Events—Understanding Societal and Economic Impacts*. In the 132-

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[5] [[RCK note -- Global Assessment Report, 2011]]

[6] ***Global Risks – 2013***, World Economic Forum, Geneva, Switzerland, 2013

page report, analysts found that a "super solar flare" followed by an extreme geomagnetic storm meant that in societies dependent upon high levels of technology, nothing would be immune. The loss of electricity would ripple across the social infrastructure with, for example, "water distribution affected within several hours; perishable foods and medications lost in 12-24 hours; loss of heating/air conditioning, sewage disposal, phone service, fuel re-supply and so on. The concept of interdependency is evident in the unavailability of water due to long-term outage of electric power -- and the inability to restart an electric generator without water on site."[7]

China's determination to ensure adequate electric power and water for burgeoning urban populations demonstrates a related dimension of emerging new crisis drivers, in this instance, the interface between sophisticated technologies and conventional crisis drivers. A 7.9 Richter scale earthquake in Sichuan in 2008 was according to one highly reputable source triggered by the enormous weight of back-filled water in the recently constructed Zipingpu Dam pressing down on a fragile fault line. The result, according to the chief engineer of the Sichuan Geology and Mineral Bureau, was an impact that had "25 times more" than a year's worth of natural stress from tectonic movement.[8]

In a recent study about the consequences of meltwater in South Asia's Hindu-Kush Himalaya region, a group of analysts suggested that the impact of climate change-generated meltwater was far less a crisis-driver than the ways that governments were working to increase agricultural productivity and electricity generation. Experts as well as policymakers focused all too often on the short-term benefits of dam construction and hydroelectric power with too little attention paid to alternative uses of waterpower.[9] State boundaries and not the natural flow of the region's rivers determined the ways that experts sought to meet infrastructural needs such as irrigation. Such approaches in turn compound the potential impact of natural hazards as well as become sources of conflict – the latter all too often not recognised as a humanitarian crisis driver.

Risk, too, is increasingly seen in what has been described as "existential" terms. Cambridge University's Centre for the Study of Existential Risk has identified four such threats – climate change, pandemics, nuclear war and artificial intelligence; each potentially leading in different ways to

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[7] US National Academy of Sciences, ***Severe Space Weather Events—Understanding Societal and Economic Impacts***, National Academies Press, Washington DC, 2008, pp

[8] Richard Kerr and Richard Stone, "A human trigger for the great quake of Sichuan?", Science, 16 January 2009, Vol. 323 #5912, p.322. It should be said that not everyone is in agreement with the analysis of Kerr and Stone, including Kai Deng, Shiyong Zhou, Rui Wang, Russell Robinson, Cuiping Zhao, and Wanzheng Cheng, "Evidence that the 2008 Mw 7.9 Wenchuan Earthquake Could Not Have Been Induced by the Zipingpu Reservoir", Bulletin of the Seismological Society of America, 1 November 2010: 2805-2814.

[9] Note Preface by Alan Jones, UN Resident Coordinator, to the HFP Report, ***Integrated Action Plan: A Phase One Analysis of the UN Country Team in Tajikistan,*** HFP, King's College, London, 2008 www.humanitarianfutures.org. Also, note HFP, China Dialogue and University College, London, ***The Waters of the Third Pole: Sources of Threat; Sources of Survival***, HFP, King's College, London, May 2010, www.humanitarianfutures.org

major global catastrophes. It is significant in this context that the editor of the Global Risk Register noted that "resilience is the theme that runs through the 8th edition of the report. It seems an obvious one when contemplating the external nature of global risks because they are beyond any organization's capacity to manage or mitigate on their own. And yet global risks are often diminished, or even ignored, in current enterprise risk management."[10] A deeply related issue is the extent to which -- other than the most immediate and evident risks -- more complex and longer-term threats are also diminished in importance or even ignored.

Expanding dimensions and dynamics of disaster risks

At a May 2012 SADC workshop in South Africa, representatives of six SADC member-states met with officials from the UN's World Food Programme and the US Defense Department's Africa Command to develop disaster preparedness plans to deal with the prospect of a major pandemic. Of deep concern to the World Food Programme were the delivery routes that could be available should such an event occur. It was evident to participants that the consequences of the projected pandemic would most likely significantly reduce the numbers of available relief personnel, and it was also likely that controls essential to contain the virus would limit the amount of delivery vehicles necessary to move food from ports inland and across national frontiers.[11]

More and more is there evidence that the dimensions of potential risks are expanding, and that their impacts are ever more complex and intertwined. Disasters generally have multiple drivers, but the numbers of interacting drivers and the multiplicity of the intersections where they meet are increasing. The 2011 Fukushima crisis is a case in point. The interplay between the tsunami and the subsequent leak of Unit 1 of the Fukushima nuclear reactor suggests why such conventional categories as "natural disasters" and "complex emergencies" may be linguistically convenient but conceptually flawed. The crisis that led to a total of 22,000 lives confirmed dead or missing and almost 250,000 people displaced had multiple drivers. An earthquake, tsunami, nuclear leakage and collapsed infrastructure as well as profound institutional failures in various ways interacted with each other, and created an unprecedented type of humanitarian crisis, requiring multiple response measures.

Disaster risks also have to be seen in terms of their cross-boundary and global dimensions. In the SADC case noted above, in none of the initial plans under discussion was there an appreciation of the preparations that might be required to deal with the cross-border implications of a pandemic threat. Similarly, DRR preparations within the region of the Economic Community of West African States have not been adequately analysed in terms of their inter-state dimensions, an issue that is presently under review;

[10] ibid #6, p. 9
[11] [[RCK – WFP SADC event]]

and within the European Union there have only been tentative efforts to date to see how technical aspects of cross-border risk responses can be met.[12]

In a related vein, the dynamics of crisis drivers also are expanding. Synchronous failures should suggest to those dealing with disaster risks that they will have to anticipate entire systems collapsing – multidimensional failures that will leave large swathes of populations without any means of support. An example of such a failure are the implications of a major cybernetic collapse in an urban setting, where neither wealthy areas nor *favela*s would be able to endure the complete shutdown of all cybernetic-based systems.

For the most part, there are few large-scale crises that to date have happened simultaneously. And yet, as one begins to anticipate the sorts of risks that one might have to face in the future and the increasing multiplicity of potential crisis drivers, there is growing reason to foresee scenarios in which severe crises can happen simultaneously on the international scene as well as within any particular country. The possibilities are both obvious and endless; and, with regard to the former, the prospect that a tsunami could occur at the same time the first indications of a pandemic become evident while the rumblings of the much anticipated San Francisco earthquake begin to be heard is not completely implausible. In other words, another factor that should make planners and policy-makers ever more focused on risk reduction is that addressing risk reduction might limit the severity arising from simultaneous events.

A closely related aspect of crisis dynamics is the increased likelihood of sequential events -- domino dynamics -- in which one set of crisis drivers triggers others. A projected case in point stems from a scenario that brought representatives from the Tajikistan government, local universities and the United Nations Country Team in Tajikistan together to consider the consequences of increasing temperature rises in the Ferghana Valley, mudslides, the subsequent leakages of stored nuclear materials, resulting water pollution, the impact on agriculture and the triggering of ethnic violence. The sequence of events were all regarded as plausible, but few within national authorities or international bodies had looked at the potential domino dynamics that could well be at play in terms of potential inter-related disaster risks.[13]

Making futures real: An emerging spectrum of concern

When it comes to appreciating the expanding nature and complexity of risks, planners and policy-makers are all too often faced with “conceptual blind spots,” reflecting a linear view of causation, a compartmentalised approach to expertise and a general unwillingness to probe potentially complex contexts. Such blind spots permeate the world of humanitarian experts and professionals as well as those with more general risk

[12] [[RCK – fire equipment issue]]

[13] HFP, ***Integrated Action Plan: A Phase One Analysis of the United Nations Country Team in Tajikistan***, November 2008 www.humanitarianfutures.org

responsibilities, including politicians. They are in part perpetuated by institutional tendencies to compartmentalise problems, by the need to focus upon issues that are perceived to be acceptable and by screening out issues that do not fit into recognised categories. They, too, reflect a political reality, one that on occasion is conceded by politicians, that "long-term" can be interpreted as no more than the four or five year life-span of a government.[14]

Yet, despite these persistent factors that limit effective analysis of risk and measures for reducing its impact, there is evidence that a growing number of policy-makers recognise that longer-term perspectives can be useful. "There is some evidence of a trend towards looking further into the future, particularly in developed and emerging countries," according to one recent study.[15] While this may be positive news in a general sense, there are fundamental issues arising out of the increasing types, dimensions and dynamics of humanitarian crises that should serve as additional criteria of longer-term DRR policy-making and planning progress.

In the context of the changing and expanding nature of risks, it is essential for policy-makers and planners not only to be willing to focus on the risks with which they are familiar, but also to be willing to explore the *what might be*'s, ie, the uncertain but plausible and even the known and the unknown unknowns. In other words, a key criterion for dealing with future risks is to have the individual expertise and the institutional capacity to dare to be speculative. A criterion that flows directly from this is the need to use speculative capabilities to identify risks that may be triggered by other potential crisis drivers. It is essential for planners and policy-makers to anticipate the potential impacts of randomly distributed dominoes that may seem to barely touch each other.

In the UK's 2011 ***Humanitarian Emergency Response Review***, the importance of a "whole of government" approach to disaster risk reduction as well as to disaster response was fundamental to the review's vision.[16] Governments such as that of the United States are also looking for ways to promote a more integrated approach to introduce capacities for disaster risk reduction and response. Yet, this essential third criterion for effective DRR planning and policy making, namely, a more integrated institutional approach, is constrained amongst other things by organisational behaviour and language. As has been recognised time and again, one cannot underestimate the extraordinary difficulties in overcoming the institutional expertise and contending perspectives that act as constraints on a more system's approach to risk identification, let alone reduction planning.[17]

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[14] [[RCK Stephen __ at SHED launch]]

[15] Ipsos MORI Social Research Institute, ***Making Futures Real: Exploring how policy-makers perceive and deal with long-term risk***, January 2013, p.6

[16] "Working strategically across government," Recommendation #31, ***Humanitarian Emergency Response Review***, 2011

[17] These constraints are inherent in organisational behaviour as identified by various scholars such as Graham Allison and Philip Zelikow in ***Essence of Decision, Explaining the Cuban Missile Crisis*** (2nd edition, Longman, 1999). In an HFP review of USAID's *futures* capacities, it was noted that "the piecemeal growth of the DCHA bureaucracy has resulted in a

Language, too, also plays a part in complicating risk reduction from a planning and policy-making perspective. As a former UK government chief scientist noted, to capture the interest of a policy-maker when it comes to risks, one has to know how such issues might relate to that policy-maker's more immediate priorities.[18] In a related vein, "the translation" of the language of science and technology is in itself a potential barrier to identifying risk, and in so saying, the need to have means for translating science is a fourth criterion for supporting the efforts of policy-makers and planners to identify longer-tem risk reduction measures.

As noted by the IPCC, "Decision-makers typically manage risks holistically, while scientific information is generally derived using reductionist approaches. The net outcome can be a 'disconnect' between scientists and decision-makers with the result that…information can be developed that, although scientifically sound, may lack relevance to the decision-maker."[19] Therefore, central to the language dilemma is to promote ways to bring scientists to the policy-making and planning table. It can be done,[20] but more importantly is the starting point, namely, the core focus at the outset has to be upon populations at potential risk – a fact increasingly recognised.[21] Hence, a fifth criterion not only for addressing immediate risks, but also for those longer-term is the connection between policy-makers and planners and potential populations at risk.

While as had been noted above, there is a clear trend towards greater attention to disaster risk reduction, its effectiveness when it comes to the types, dimensions and dynamics for which one will have to prepare in the longer-term would seem to be limited. There would appear to be little indication from available literature that much investment is made by most governments in systematic anticipatory action, nor for that matter does the literature suggest that there has been a significant increase in more multidimensional analyses or integrated systems approaches to indentifying future risks.

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proliferation of offices with diverse approaches and perspectives, making it difficult to address futures issues in a coherent manner…(and that) the pressure of day-to-day operations is the most consistent explanation given by DCHA staff for a lack of attention to humanitarian futures issues." HFP, ***Planning from the Future: A phase one analysis***, April 2008 (www:humanitarianfutures.org)

[18] Sir David King, at the time the UK government's Chief Science Advisor, recounts an incident when he attempted to convince the then Prime Minister, Tony Blair, to focus more on climate change than had been the Prime Minister's inclination to date. What triggered the Prime Minister's subsequent and immediate interest, according to Sir David, was when he linked Blair's priority concern with security and climate change. (Private conversation between Sir David King and the author, 13 November 2008)

[19] IPCC, Special Report of the Intergovernmental Panel on Climate Change, ***Managing the risks of extreme events and disasters to advance climate change adaptation***, Cambridge University Press, New York City, 2012, p.377

[20] That scientists need to be and can be brought "to the table" is acknowledged by a growing number of academics, practitioners and researchers. See, for example, D.L. Feldman and H.M. Ingram, "Making Science Useful to Decision-makers: Climate Forecasts, Water Management and Knowledge Networks," Weather, Climate and Society, #1, pp 9-20, 2009

[21] UNISDR, ***Hyogo Framework for Action, 2005-2015: Building the resilience of nations and communities to disasters***, UNISDR, Geneva, 2008

"Whole of government," too, -- though increasingly mentioned in the risk reduction community and recognised as essential for a more integrated systems approach – remains a persistent though little acknowledged challenge. That final criterion involving future community focus is perhaps one of the most fundamental. Paradoxically, there seems to be increased recognition of the need for policy-makers and planners to engage at the community level when it comes to identifying and promoting risk reduction, while it appears at the same time to be the least pursued when it comes to the longer-term.

One step forward towards *Making Futures Real*

There can be little doubt that over decades DRR has been the poor relative in the world of humanitarianism, at best a distant cousin to crisis response. That position has changed significantly in various ways over the past ten years, but how and to what extent is still to be systematically determined. In this context, while valuable studies and research have demonstrated different types and levels of progress, there is little analysis in a longitudinal sense about changing attitudes towards disaster risk reduction. As suggested at the outset of this review, the ways that the concept of risk is perceived and defined, the measures taken to address it and the sorts of information that policy-makers and planners rely upon both to deal with risks and risk reduction represent substantial unknowns on a consistent international scale. Such gaps need to be filled if there are to be more qualitative and quantitative measures for assessing progress.

The importance of developing more systematic ways for measuring efforts to address DRR directly relates to the changing nature of risk as well. What might be regarded as standard or conventional risks such as those stemming from well-recognised natural hazards only tell a portion of a far more complex story. Longer-term risks, risks involving the complex interplay of technologies and natural hazards, new types of technological threats, the inter-related impacts of food, energy and the global economy and the unanticipated consequences of profound demographic changes, all are part of an ever more vulnerable and risk-prone planet. And, in looking for means to assess risk perceptions of policy-makers and planners in a systematic way, such longer-term perspectives need also to be understood.

A step in the direction towards a more systematic approach to assessing the ways that longer-term threats are understood and anticipated lies at the heart of ***Making Futures Real*** (MFR). The MFR initiative is intended to serve as a tool to monitor the ways that policy-makers and planners in MFR participating governments identify potential risks and the sorts of measures that they are taking to address them. The tool, itself, is eventually intended to be based upon qualitative and quantitative analyses of the perceptions and activities of policy-makers and planners in dealing with such risks. To capture key changes in government attitudes and policies, surveys should be conducted every two years linked to the biennial production of the GAR.

The Making Futures Real survey

Normally reports such as the GAR present to their audiences completed research, where there are substantive findings based upon end-of-project outcomes. In the case of ***Making Futures Real*** (MFR), the objective is to use GAR – 2013 as a platform from which to adjudge the extent to which the GAR audience sees the potential utility of the MFR "tool." Therefore, the preliminary findings that follow are based upon a pilot survey of policy makers and planners in 16 participating countries as well as 11 representatives of international organisations.[22] These were based on one-on-one qualitative interviews.

The broad intentions of the survey were to capture the ways that interviewees perceived longer-term risks, the sorts of actions that they felt were necessary to deal with them and the sources that were used to identify such longer-term risks. With these broad intentions in mind, the survey looked at some of the key elements of each.

When probing the issue of risk perception, interviewers sought to understand

- how policy-makers conceptualised risk
- changes in the ways they perceived the nature of risk and risk management

In exploring measures being taken to deal with longer-term risks, interviewers discussed

- how countries set themselves up institutionally for dealing with disaster risk
- relationship between in-country activities and bilateral and multilateral contributions

Interviewees provided insights into the sorts of information they used to analyse risks and risk reduction measures, including

- domestic data and information sources
- internationally available data

They, too, reflected on the ways that they assessed and planned for risks from

- national perspectives and with the support of
- international organisations

[22] Governments of Japan, Lao, Malaysia, Mexico, Nigeria, Panama, Philippines, Samoa, Sri Lanka, South Africa, United Kingdom (one government representative asked if his government could remain anonymous); International organisations including African Union, Association of South East Asian Nations, Council of Europe, Inter-American Development Bank, OECD, United Nations Development Programme, United Nations

Interviewees were questioned on the ways that they invested in risk management and made provisions for the financial impact of disasters, including

- development and building resilience
- investment in specific disaster prevention and preparedness measures
- provision for the financial impact of disasters

Risk perception

Risk awareness. Many of those interviewed said that in their governments or organisations, thinking about long-term risk is relatively new. Countries were just beginning to see the importance of taking a more strategic approach to planning for risks. Indeed, some policy-makers spoke positively about their organisations undergoing a culture change in which awareness of the need to plan for future risks is increasing. Several drivers for this cultural change were identified.

Some of those interviewed attributed the increased awareness of policy-makers to the impact of events such as the Boxing Day tsunami in the Indian Ocean in 2004, the earthquake in Haiti in 2010 and the Great East Japanese earthquake in 2011. In some cases, this is also linked to an awareness of the increasing frequency and severity of these kinds of events. Related to this, it was also felt that the media was paying more attention to natural hazards and their humanitarian consequences. As such, increased awareness and the increased media coverage were regarded as mutually-reinforcing mechanisms helping to make disaster risk more of a priority. Others, particularly working with or in emerging economies, point to economic growth as a factor.

There are, however, some governments who feel they are well prepared to deal with the impact of natural hazards. These tend to be countries that have experienced frequent and recurring disasters, such as annual typhoons or hurricanes, or regular earthquakes. Multilateral organisations tend to have greater awareness of long-term risks than national governments. This is in part because monitoring risks is often part of the remit of the organisation and may be an integral part of the job descriptions of individuals working in a particular department. At the national level, roles specifically focussed on monitoring long- term risk are much less common.

Conceptualising risk. Policy-makers had extremely varied conceptions of risk, and particularly long-term risk. Their thinking was heavily influenced by the remit of the organisation and department in which they worked, and indeed their specific areas of responsibility. Participants worked in a variety of roles, including as economists, natural hazard experts, financial risk analysts, strategy or planning directors and heads of organisations.

Reflecting their respective roles and responsibilities, participants interpreted the phrase, “long-term risks,” in different ways. Some related it to a

time frame, typically ranging between 10 to 50 years depending on their area of responsibility and expertise. Others related the term to the issue of infrequency, or, the types of events that rarely happen, or to the impacts of existing risks which are not felt until several years later. Then, too, the term was used to describe general patterns such as demographic shifts to urban areas, though not identifying risks, *per se*.

Many national-level policy-makers acknowledged they should be taking a longer-term view, while multilateral organisations were more likely to take a medium- to longer-term view already. However, one interviewee was of the opinion that there was little value in looking more than 50 years ahead because so much can change. On the other hand, 'long-term' was also interpreted by some as *never ending;* for example, Indonesia was mentioned as having the long-term problem of being perpetually at risk from natural hazards.

When thinking about types of longer-term risks, policy-makers considered both 'man-made' risks and natural hazards. 'Man-made' risks included:

- Macro-economic risks, such as further economic shocks, the 'poverty trap', the 'middle-income trap', borrowing risk (for countries);
- Poverty-related risks, such as rising food prices, decreased access to clean drinking water, low standards of living;
- Technological risks, such as cyberterrorism, cyberwar, cybercrime;
- Crime-related risks, such as organised crime and terrorism;
- Political risks, such as political instability, insurrections, coup d'états, civil war and inter-state war (including the use of atomic weapons);
- Human rights risks, such as increased migration requiring accommodation and integration of migrants, and preserving the identities of indigenous populations whose traditional lifestyles are under threat;
- Urbanisation, in particular rapid urbanisation unaccompanied by planning and infrastructure upgrades;
- Environmental degradation, including deforestation and erosion.

Natural hazards mentioned by participants included:

- geological (earthquakes, volcanic eruptions) and meteorological (floods, typhoons, hurricanes, droughts and other extreme weather events) -- many of which were viewed as occurring with increasing frequency and severity;
- extra terrestrial hazards such as a meteor hitting the earth;
- health hazards such as pandemic illnesses and diseases jumping between species ('zoonosis')

In conceptualising risk, interviewees therefore cited a combination of events that had occurred in the past and might occur again and *current* problems that may take a long time to resolve, such as poverty and political conflicts. There was some awareness, however, that these risks may not

manifest themselves in the same ways in the future, and that a challenge for policy-makers was to predict how they may grow or change.

A few policy-makers spontaneously considered "new" types of threats such as cybercrime, and others recognised sequential or "cascading risks" (risks that trigger other disasters). For example, one policy-maker spoke about more than one event, such as a combination of a natural hazard and war, leading to increased migration. To the respondent, this then would lead to an array of problems such as how to accommodate and care for refugees and internally displaced persons. Another discussed the risk that pandemics are worsened by the increasing ease of international travel and increased urbanisation.

> *"And actually a challenge we face is that the really big threat to humanity will come from things that are not expected, either they'll be due to juxtaposition of two, three, four or five bad things one on top of each other, hot weather, toxins from some kind of algae growing in fresh water, failure of fuel supply so that people couldn't keep their water properly, sterile, something like that, kind of, cascading that would, a bit like what happened in Fukushima during the tsunami a couple of years ago. Those things unfortunately are not predictable and one of the real challenges for everybody in disaster risk preparedness and management is to prepare for the unexpected, even the unimaginable without being accused of fear mongering and it's very hard to maintain the budget to do that stuff."*

Yet, few policy-makers spontaneously considered the *characteristics* of long-term risks. Those that did consider them linked 'long-term' with risks that occur very infrequently, are not well-recognised beyond a specific scientific community, or cannot be easily managed, mitigated or eradicated within a short time period.

Policy-makers emphasised how the nature of risks and risk management were changing. They discussed the increasing frequency and severity of disasters, the increasing internationalisation and interconnectedness of society, which is changing the impact of disasters, and the role of technology. Developing countries were thought to be dealing with additional changes associated with development and new donors.

Many policy-makers referred to the fact that the same types of disasters, such as extreme weather events, were occurring with increasing *frequency* and *severity* and have a higher impact than previously in terms of economic costs and casualties. This was attributed in part to countries becoming more and more developed and the value of infrastructure rising. At the same time, aspects of society at a national level are becoming increasingly *interconnected*, and this means that if one part of society experiences a shock, others will be similarly affected.

This interconnectedness is not only a feature at the national level, but at the international level as well. Many policy-makers commented on the *internationalisation* of risk as an important evolution in the nature of risks countries face. Disasters increasingly impact on many countries

simultaneously, or originate in one part of the world but have an impact on another. Moreover, they are becoming more and more difficult to address on a national level. Policy-makers value regional and global organisations that can support the sharing of data and best practice, and act as a forum for discussion about how to address risks.

Technology presented itself as both a risk and an opportunity. Technology was seen as changing the ways policy-makers *think* about risk. Information and communication technology meant that the media is made aware of disaster events and can disseminate the news much more quickly and to a wider audience than previously. This has served to increase policy-makers' awareness of such events, and some believed it has encouraged them to take action to build resilience.

Economic development also was frequently referenced as a factor that impacts not only on the increased awareness of risk, but the assumptions about types of future risks countries would face. For example, policy-makers discussed how very poor countries were thought to face different economic risks than middle-income countries. This was further linked to the accompanying changes in society, such as urbanisation, which may cause new risks to emerge, exacerbate existing risks and/or require that new strategies for risk management be developed.

Institutional structures for dealing with risk

An important aim of this research is to assess the motivations of government policy-makers and planners for partnering with other countries and outside organisations to deal with risk. Several interviewees commented that in-country and international coordination is increasingly important in assessing, planning and responding to disasters.

Countries differ in how they chose to set themselves up institutionally to deal with risk in terms of which departments are responsible for planning and allocating resources. However, a common element is coordination between national planning and local planning and implementation. Interviews in that regard revealed several examples of how countries achieve this coordination at a country level, though most interviewees did not delve into this sort of specificity.

- In Japan, the Cabinet Office coordinates government policies and programmes related to disaster management, and sets the agenda for the Central Disaster Management Council, the body chaired by the Prime Minister which formulates disaster management plans. Japanese prefectures and municipalities also have their own Disaster Management Councils and formulate local disaster management plans.
- South Africa has a similar system in which the National Disaster Management Centre (NDMC) ensures the coordination, financing and decision-making about disasters at the national level, with equivalent provincial centres responsible for linking in with direct measures in municipalities. The National Treasury has a remit to ensure appropriate

funds are available to respond to disasters and that the country has adequate natural disaster insurance.

- In Mexico, the Ministry of Finance is responsible for assessing the financial implications of disasters, but it works closely with the Ministry of the Interior which is in charge of delivering emergency relief funds to local governments in the event of a disaster.
- The Philippines has a National Disaster Risk Reduction and Management Council (NDRRMC), which sits within the Department of Defence and is composed of the Secretaries of government departments, heads of civil society organisations such as the Red Cross, and representatives of other relevant organisations. The NDRRMC has the authority to allocate resources for disaster preparedness and response operations. The National Economic & Development Authority, whose Secretary is a Vice-Chairperson of the NDRRMC, is responsible for capacity-building for disaster risk reduction in the regions.
- The UK's Civil Contingency Secretariat, a unit set up in the Cabinet Office in 2001, is responsible for managing the risks of emergencies. Their first action was to set up local institutions to deal with crisis management.

Senior officials working in multilateral organisations also discussed the need to work with communities – and not just government officials – to understand the threats they perceive and to understand how they think resilience can be built. One multilateral organisation said that funding should not go into building institutions at a national level, but into creating networks of skilled practitioners who have the expertise to respond quickly in a crisis situation.

However, one national policy-maker emphasised the importance of having an institution dedicated to long-term planning. Sierra Leone has a long-term plan for the country, looking 50 years ahead, and a series of five-year plans (based on the election cycle) to support the long-term plan. About five years ago, the government merged two departments, the Ministry of Finance and the Ministry of Economic Development and Planning. Senior civil servants are clamouring for the latter to be reinstated as a separate department because they feel that under the current structure the long-term planning element has been lost.

One of the factors encouraging countries to engage in risk assessment and disaster planning is support from other countries and multilateral organisations. Many national policy-makers mentioned receiving support in the form of awareness-raising, capacity-building, technical assistance or data from other countries or multilateral organisations. One multilateral organisation official commented that countries are not yet proactively requesting this kind of support, but are very open to receiving it if and when it is offered.

"I don't think that yet we are at the stage which governments are totally proactive on these things... I think that the rule is that we from development agencies are pushing this agenda. But [what] we have on the other side is more receptiveness."

Bilateral cooperation through governments occurs both on an *ad hoc* basis and through formal agreements between countries. For example, in the aftermath of the 2004 tsunami, Indonesia invited Japan to brief the government on disaster relief methods and mitigation strategies. The Australia-Indonesia Disaster Reduction Facility, on the other hand, is an institutionalised bilateral cooperation programme. Bilateral cooperation also occurs at the level of scientific agencies. For example, the Philippine Institute of Volcanology and Seismology and the Philippine Atmospheric, Geophysical and Astronomical Services Administration maintain links with agencies in other countries and with relevant multilateral organisations. Civil society organisations sometimes play a role as well; for example, the Japanese and Bangladesh Red Cross Societies have cooperated to improve cyclone preparedness.

Data and Information Sources

National policy-makers say that their main information need is raw data that can help them populate models to predict when natural disasters will occur and what their impact will be. This is linked to their focus on developing measures to mitigate the impact of national disasters. International organisations, on the other hand, tend to focus on collating existing data to understand country or regional risk profiles, trends, and best practice and, as noted below, countries sometimes draw on this analysis as well.

Most interviewees agreed that there is more data available than ever before, and this is seen positively, as "there is never enough [data]." Improvements in technology has meant that more data is collected and is more readily available for policy-makers to use, although for many, availability and quality of data are still major challenges. Data visualisation tools mean that the implications of disasters can be communicated much more effectively than was the case ten years ago. However, many countries may have only limited access to this technology.

While the data that does exist is also more easily manipulated, countries have very different levels of access to raw data and capabilities for collecting it. These varying capabilities are partly a result of differential access to technology and scientific expertise.

Those countries at the forefront of information gathering rely primarily on their own data about disasters. They feel that they possess the necessary technology, and have a pool of national scientists and specialists which make this possible. Such countries often have their own satellites, for example, for monitoring meteorological events. These countries may also have access to historical data about the impact of previous disasters, and real-time data is collected to monitor potential disasters and their impacts. Of course, these

countries still maintain international networks and may share information with other countries, but they rely mostly on data they generate themselves.

The limited number of policy-makers and planners consulted does not allow for a comprehensive review of countries with the best data collection capabilities. Having said that, Japan and Australia were mentioned by several participants. Japan is known for its scientific techniques and Australia is seen as exemplary for having good exposure data and a geo-science institute with extensive data. Some countries have invested heavily in recent years in their capability to collect data. The Philippines has been aware of the need to invest in this for about 20 to 30 years, but has only done so in the last two. The country's investments have been very purposive, and there is increased governmental support for gathering the necessary information about disaster risk. Investments are mostly in equipment to forecast weather events; for example, more radars to measure rainfall and more intensive mapping activities in river basins. The Philippines has also updated early warning technology to get more accurate information to warn communities.

Other countries have far less data or capability to collect it, and therefore rely on other countries or international organisations to provide it. Indeed, inadequate data is one of the most commonly-stated barriers to risk assessment and disaster planning. For example, some countries do not have historical records of the impact of disasters and must therefore rely on institutional memory. Others do not have their own weather satellites, and have to find other ways to access weather data.

Sierra Leone is described as relying heavily on the international community for data, because whilst domestically the country does have a meteorological department, an environmental protection agency and a geological department, it does not have any satellites of its own. The country relies on support from the UN family of agencies, including logistical support, capacity-building and training.

Sri Lanka also mentioned lacking the scientific equipment to measure fish stocks in the Indian Ocean, as a means of monitoring potential shortages. In some regions, countries are collaborating to gain access to the data they need. The African Risk Capacity (ARC) is an insurance mechanism against drought, but has the benefit that countries joining gain access to meteorological data from American weather satellites and software that helps to predict droughts. In some cases, data is available, but either countries do not know what data they hold or the data is not available in a format that makes it readily usable.

By contrast, some countries lack good data at a state or municipal level. Many countries have more capacity at a national or federal level than at a local level, so data collected nationally is available, but at a municipal level may be absent or of poor quality.

Countries also rely to a certain degree on research and analysis generated by multilateral organisations, in addition to raw data. This

information is seen as particularly useful to benchmark a country's risks against other countries. For example, the International Monetary Fund and the World Bank provide economic data on countries, including rankings of countries according to various indices.

Some multilateral organisations rely exclusively on open-source information from libraries and the internet, such as reports of other multilateral organisations. Most, however, have their own research departments, and also use datasets and reports generated by national government and other multilateral organisations.

The Inter-American Development Bank (IADB) has an extensive research programme to generate the information it requires to fulfil its remit. The IADB's view is that there is insufficient research on important aspects of natural hazards, such as what happens to growth and aid in the aftermath of a major disaster. The IADB is therefore conducting its own research to fill these gaps. However, the raw data they use is generated at the national level, often by NGOs and "think tanks". ASEAN has its own instruments and tools and maintains its own ways of identifying and monitoring risks, separate from its member states, and also works with member states through the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) framework.

There is one example of a multilateral organisation accessing data and expertise from a private sector insurance company when it was creating an insurance mechanism for its member states. However, there were no other references made to using outside sources such as the private sector by government planners or policy-makers for relevant DRR data.

Assessing and planning for risks

Countries are at very different stages in terms of their readiness and capabilities to conduct risk assessments and plan for future risks. Some countries are still at the stage of raising awareness about risk management throughout government departments,[23] and are simply not yet ready to conduct risk assessments. Others assess risk, but on a project-by-project basis rather than systematically, and focus solely on the direct impacts of disasters. However, the most advanced countries in this regard are capable of developing their own complex risk assessment models, which take into account both the direct and indirect impacts of disasters.

What many might assume to be the natural first step of the risk assessment process – identifying the risks that need to be assessed – is not often mentioned by policy-makers in their descriptions of recent risk

[23] Those countries mentioned that were seen as well-prepared for risks included the US, France, China, Japan, UK, New Zealand, Australia, and Canada. New Zealand was praised for its comprehensive approach to assessing and planning for risks, while Indonesia received particular mention for developing its own internal risk intelligence systems but also being outward looking by seeking partnerships.

assessments. There are two principal reasons for this. First, some countries have undertaken a broad assessment of the risks they face (often perennial risks or risks they have faced in the past), and work on specific assessments taking this initial identification as a given. Second, in some countries there is an implicit consensus about the risks that need to be considered.

Of the countries interviewed, the UK is the only one to discuss having conducted a risk assessment seeking to identify the types of risk the country may face in the future (as opposed to conducting assessments of already-identified risks) – its "first attempt to do longer-term horizon-scanning". It found the main risks to include natural disasters, conflict, terrorism and risks arising from technology.

Assessments generally begin with data collection, such as data regarding the historical frequency of disasters, the impact of previous disasters, and the characteristics of the city or region in question, such as building and population density, building materials, and location. Experts analyse this data, often using models designed specifically for the purpose, to simulate the consequences of a disaster.

One assessment may require the use of multiple models to simulate the effects. For example, Japanese scientists have developed a 'fragility curve' based on the materials used in buildings. Once they have a predicted type and amount of ground motion an earthquake will cause, they can input this into the curve, allowing them to predict the level of destruction to a building constructed using a particular material. This in turn may help them to calculate the number of fatalities.

Once the consequences of a particular risk have been simulated, then policy-makers seek to identify preventative measures. This also requires simulations of how the disaster would play out if different types of measures were taken. Cost-benefit analysis is important at this stage, so that policy-makers can identify the investments that yield the best value for money.

Malaysia has used a particular method of assessing risk, known as 'labs'. This entails recruiting all those who are experts in a particular area related to the type of risk being assessed, from the public and private sectors, and providing them with a dedicated space to work together to assess the risk over a period of several weeks. These lab sessions are followed by "town hall" sessions to present the analysis done in the labs and to ensure that the views of the general public can be heard. This is felt to be important because it is a way of building public and even opposition party support for the measures that need to be taken.

The Malaysian policy-maker consulted for this study emphasised the importance of micro- level risk assessments, to ensure that any over-arching programmes to mitigate risks are grounded in evidence collected from each micro-level assessment. At a minimum, the outputs of risk assessments take into account the direct impacts of disasters, including number of casualties and the financial cost of damage to infrastructure and property. Estimating

these effects increases the likelihood of achieving policy-makers buy-in for mitigation measures.

The UK had five aspects that it attempted to measure in its longer-term assessment of risks, and these were derived from the definition of an emergency contained in the Civil Contingencies Act:

> human welfare (e.g. death, injuries, illness)
> social disruption including disruption of social services
> economic disruption
> psychological damage (such as widespread anxiety or outrage)
> international instability (e.g. instability of the global economy or political relations)

Only countries that have very advanced risk assessment tools try to assess the indirect impacts of disasters, for example economic losses due to people's lack of mobility caused by damage to a city's public transportation system. While awareness of the indirect impacts of disasters and the effects of disasters occurring in other countries seems to be increasing, countries are not generally modelling this or taking measures to mitigate these risks. There is some evidence that wealthier countries are also assessing and planning for cascading risks, often secretly as part of security planning. The UK has tried to assess the knock-on effects of the various risks identified in the national risk assessment.

Challenges in assessing long-term and cascading risks

Participants undertaking assessments of long-term risks mentioned two main challenges. The first lies in understanding the purpose of horizon-scanning and being realistic about the outcomes to expect from it. Policy-makers that see horizon-scanning too much as a prediction about the future and how to prepare for it tend to believe it is not very useful because nobody can predict as far as 20-40 years ahead. Horizon-scanning should be presented more as a tool to recognise the signs that a risk may be emerging.

A second challenge relates to scientists' willingness or unwillingness to engage in speculation. Some scientists have a tendency to be overly confident in their predictions, while others are so cautious, because they are worried about the consequences of the future unfolding differently, that they are unwilling to provide policy-makers even with a wide range of possibilities. Policy-makers also made reference to cascading risks being very difficult to assess, even over the relatively short time horizon of five years. They attributed this in part to the interplay of networks, which is constantly changing. Cascading risks are also difficult to plan for because they require the mobilisation of many different parts of society.

"A lot of [countries] are [planning for interconnected risks] secretly... In planning for them the really important requirement is that you get the whole society engaged so all the defence, military, business, voluntary organisations, different government departments, you have to do simulations. It is very, very hard to do it because [if] you're not doing simulations and learning from simulations you're not really planning properly."

Modelling these types of indirect consequences over a longer period of time was said by one policy-maker to be "extremely difficult" because of the increasing level of uncertainty about the characteristics of the networks themselves and the ways in which the various networks may interact.

Multilateral organisations undertake their own risk assessments and also support countries to carry out assessments, through developing tools and providing capacity-building to countries so that they have the expertise to use the tools. In terms of conducting their own risk assessments, multilateral organisations focus on the risks relevant to their remits. Therefore, some risk assessments, such as those related to economic development, are more focused on the longer term, while others are more short term and aimed at addressing specific hazards. For example, one department of the Asian Development Bank is responsible for making economies more resilient so they are prepared when a disaster strikes. This is a longer-term aim and requires planning over a relatively long timeframe. Other organisations are more focused on immediate risks, such as annual flooding.
Similar to national governments, some multilateral organisations have created models that use raw data to predict the impact of disasters to help them in their assessments.

Some organisations consider the cascading or indirect impacts of disasters; the Inter- American Development Bank, for example, is exploring the impact that the costs of dealing with a major disaster have for long-term debt sustainability. Other organisations are less advanced. One, for example, declared itself as "clearly still somewhat new in developing and looking at risk modelling."

In terms of supporting countries to conduct their own risk assessments, some multilateral organisations have developed tools that countries can populate with their own data. For example, the World Bank 'Risk in a Box' tool co-developed with the Australia-Indonesia Facility for Disaster Reduction helps countries to assess the impacts of disasters, as well as the select the most cost-effective mitigation measures. Any existing data, for example on poverty, vulnerability and hazards, can be inputted into the tool to create a picture of the impact of a disaster. Different types of risk reduction measures can also be inputted, and the tool will show the impact of each on vulnerabilities.

Another organisation described a collaborative process of identifying a country's needs in terms of capacity-building, and working with the country in an appropriately-supportive manner to enable it to assess its own risks and develop plans to address them, including priorities over the short, medium and long term.

Findings and conclusions

From this pilot survey there are nine key findings that have emerged out of interviews with policy-makers and planners from the twenty pilot study countries and the seven international organisations:

1. There is a growing awareness of disaster risk as an important focus of policy-makers' attention in developing as well as developed countries. This awareness is generally attributed to factors such as the link between economic growth in an increasing number of countries and a commensurate greater sense of risk, the perception of increasing severity and frequency of disasters, the implications of certain sorts of technology and the flow of disaster-related information from various forms of social networking as well as the media;
2. While there was a sense of changing contexts in which risks would take place, these changing contexts did not engender any perception of different types of risks. That said, there was a consistent belief that disasters risks were becoming more "internationalised;"
3. Few policy-makers spontaneously considered the characteristics of longer-term risks. Those that did associated them with temporal factors, eg, infrequency, or assumed that while present risks might remain the same, they would manifest themselves in different ways. Their starting points were generally what was known, assumed or "acceptable." Some also regarded "long-term" as types of drivers that were self-perpetuating, or, never ending such as volcanic explosions. Few considered non-standard threats such as cybernetic failures, nuclear tailings or dangers arising out of artificial intelligence;
4. To a limited extent, international organisations were more inclined to explore longer-term disaster risks, but those organisations felt that there was little active effort by governments to engage them for that purpose. Approached by IOs to consider such risks, governments were seen as willing to engage;
5. When it came to measures for dealing with disaster risks in general, other than the obvious issue of resources, interviewees principally raised the importance of data for risk assessments. Two representatives of highly disaster-prone countries noted that their governments had known the importance of adequate data for decades, but only over the last four years had they begun to be more systematic in assembling it. While there was a general belief by those interviewed that data collection was on the increase, the data that were mainly collected consisted of what was described as "historical data," or data about previous disaster events and not about other potential vulnerabilities. In part this restricted approach to data collection was

attributed to the lack of adequate technology, eg, weather satellites, in poorer countries;

6. Respondents frequently mentioned the issue of compartmentalisation as a factor that determined the ways that risks were perceived. Not only did the type of identified risk depend upon the focus of particular sections within government, but rigid compartmentalisation also explained why there were all too little systemic or integrated views about risks. In a related vein, in government as well as in international organisations, longer-term risks, according to interviewees, were also handled by separate departments – rarely crossing over into risks pertaining to the immediate;
7. It was suggested that there were some exceptions to the general rule about the consequences of compartmentalisation. The economy as well as security were both seen as issues that reflected efforts to be more "holistic," "cross-departmental" and also more inclined to reflect longer-term risks;
8. Respondents, too, were in many instances uncertain about the implications of exploring longer-term risks beyond a 4 to 5 year time span. Such efforts at horizon-scanning that went beyond that provided for at least three respondents no sense of certainty or direction;
9. In only one instance did a government respondent make reference to using the data from private sector sources for longer-term disaster risk analysis.

There are at least five conclusions that one can draw from the findings that have emerged out of this pilot survey:

1. Policy-makers and planners to a significant extent would appear to approach the issue of longer-term disaster risk from the perspective of "bounded rationality," where decision-makers deal with complexity by relying upon a combination of linear models and subjective beliefs to construct past, present and future realities. There is no indication that the sorts of analyses that would enhance better understanding of longer-term disaster risks are used with any systematic consistency;
2. There are measures, techniques and "tools" -- loosely described as "horizon-scanning" – that can overcome some of the planning consequences of bounded rationality when it comes to futures planning. These are used by many in the private sector, eg, re-insurance, and in the military, eg, strategic planning, but appear not to be used by those responsible for domestic risks, either short or longer-term, based upon the pilot survey's sample. Yet, it would appear from the pilot survey's findings that there is a basic lack of understanding about the purpose and process that underpins such techniques. Support for developing greater appreciation and understanding of such approaches would open more opportunities for more integrated and systems approaches to longer-term DRR;
3. There are assessments undertaken by a wide range of organisations, including the World Bank, the International Monetary Fund, the UN International Strategy for Disaster Reduction and various regional

organisations such as the Asian Development Bank, that provide insights into potential risks and vulnerabilities on a country-by-country basis. However, there is a need for assessment based upon policy-makers' and planners' evolving attitudes towards longer-term disaster risks;

4. As noted in #2, above, there are various techniques, measures and tools that are used by the private sector and military for identifying plausible and possible longer-term risks. There are few mechanisms whereby relevant government authorities and the private sector meet on a consistent and systematic basis to identify longer-term risks and possible ways to deal with them. Greater attention, therefore, needs to be given to "platforms" for such collaborative approaches to longer-term disaster risk planning;[24]
5. A far greater effort needs to be made to engage the media in a more consistent and systematic approach to discuss longer-term disaster threats and solutions. While interviewees clearly recognised the power of social networking when it came to dialogues about risks, the media needs to be much more actively engaged.

***Making futures real*: The next step**

The MFR pilot survey has demonstrated that government planners and policy-makers are willing to discuss with seeming candour the challenges that they face when dealing with issues relating to longer-term disaster risk reduction. That said, the results to date can only be seen as a first and tentative step towards a methodology that captures not only the prospect of changing attitudes towards longer-term risks, but also the possible impact that a range of information and knowledge sources might have upon such attitudes.

With that in mind, UNISDR has in its hands the first stage of a methodology that can achieve the three key objectives for which the MFR is intended: monitoring attitudes and attitude change of policy-makers and planners when it comes to longer-term disaster risks; indications about ways that such changes are reflected in terms of risk-reduction and resilience measures; and the sources of information and knowledge. relating to the first two objectives.

Beyond a significantly expanded data base of governments and government policy-makers and planners, the next version of the MFR should also expand its range of enquiry. It should include

- the extent to which longer-term risk is being approached in a more cross-sectoral, "whole of government" sense;
- the sorts of institutional constraints that are emerging or continue to hamper greater cross-sectoral DRR analyses;
- the inter-relationship between recent disaster events and changing governmental attitudes;

[24] Joanne Burke et al, Platforms for private sector- humanitarian collaboration, Humanitarian Futures Programme, King's College, London, June 2012 (www.humanitarianfutures.org)

- the impact that the media and social networking might have in terms of policy makers' and planners' attitudes and attitude change;
- processes and procedures adopted to promote horizon-scanning methodologies, and ways that they feed into policies and plans;
- the degree to which policy-makers and planners give attention to cross-border risks and support relevant monitoring systems;
- the degree to which international organisations concerned with longer-term disaster risks have adapted their approaches to meet the needs of government policy-makers and planners, based on a more discreet understanding of their perceptions, attitudes and institutional constraints.

It is from these evolving perspectives that the international community will begin to see policy-makers and planners making *futures* real, and in so doing to ensure that longer-term risks are identified and their potential impact significantly reduced.