High Level Risk Forum Policy Seminar

Preparing governments for long term threats and complex challenges

Discussion Note

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PREPARING GOVERNMENTS FOR LONG-TERM THREATS AND COMPLEX CHALLENGES

This issues paper was drafted to support discussions amongst experts at the OECD High Level Risk Policy Seminar on the 23rd of September 2016, in Paris.

The goal of the seminar is to explore the interconnections between strategic foresight and other core activities for strategic risk management, such as national risk assessment. Another objective is to assess the options governments may have to increasingly make use of these approaches by informing strategic decision making from the centre.

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BACKGROUND

The seminar is organised under the auspices of the OECD's **High Level Risk Forum (HLRF)** whose aim is to encourage decision makers – whether in government or outside – to think and plan for the long term so that negative futures do not occur or can be anticipated, and positive outcomes have a better chance of being realised. The purpose is to stimulate strategic thinking in reforms to the institutional structures of risk governance, and on the role of international cooperation to carry out these reforms. The OECD recommendations on the governance of critical risks adopted in 2014 calls for a comprehensive, **all-hazards and trans-boundary approach** to country risk governance; building preparedness through **foresight analysis, risk assessments** and financing frameworks; **raising awareness** of critical risks to mobilise communities and businesses to improve their own preparedness; developing **adaptive capacity in crisis management**; and demonstrating transparency and accountability.

This work contributes to the **New Approaches to Economic Challenges (NAEC)**. NAEC has been designed to learn the lessons from the 2008 financial crisis, and take into account both historical, current and long-term future economic challenges, in shaking up economic thinking and designing new approaches. NAEC has called for a greater **focus on well-being** and its distribution to ensure that **'inclusive economic growth'** delivers progress for all (the gap between rich and poor is at its highest level in 30 years in OECD countries); better **integration of the financial sector and related risks in economic analysis**, shedding light on the numerous and complex interactions between finance and the real economy; a better **understanding of the global economy as a complex adaptive system** giving policymakers a better grip on rising global interconnectedness; adoption of a **longer-term perspective** that considers how economies are embedded in institutions shaped by history, social norms and political choices; and the further development of strategic planning tools, including **strategic foresight** to inform such a change in perspectives. These aspects connect will with the work on risk under the HLRF, as part of a multi-dimensional approach to strategic policy making by governments.

Exploring the synergies between strategic foresight, risk assessment and risk management policies, will also contribute to OECD's role as an active contributor to global governance and a key international standard setter.

INTRODUCTION

Global developments are constantly shaping a moving risk landscape. Governments are facing an increase in the number and severity of natural and man-made disasters, including the questions raised by the new security and terrorism agenda. At the same time, in many countries popular trust in governing institutions has been eroded. Governments are facing ratcheting popular expectations that they will improve their management of crises, which increases the pressures to better anticipate social and economic shocks in the short medium and long term.

Across countries, expert communities are increasingly engaged in **horizon scanning** and **strategic foresight**, carrying out projections of long term trends that affect national risk portfolios. In parallel, as part of their risk governance strategies, government policy-makers are carrying out **national risk assessments** that weigh the short to medium risks of disaster or disruption to human and economic welfare, to inform priorities for investment in preparedness and resilience.

The global risk landscape is also shaped by other major international trends, and in particular **increased resource stress, due to** the growing demand for natural resources. This is also subject to **the multiple pressures of climate change**, which can increase the frequency or the severity of some disasters that are weather related, and have implications for other slow onset risks, such as drought. Any structural strategic thinking about risks has to factor in a better understanding of the long term economic impacts of major environmental and resource scarcity issues including climate change, water scarcity, biodiversity loss, air pollution and the land-water-energy nexus.

In terms of global public responses, both the Sendai Framework for Action and the UN **Sustainable Development Goals will have an impact. The SDGs follow** the agreement at UNGA to 17 sustainable development goals representing a paradigm shift from traditional development assistance to a transformative agenda with actions driven as much at local, national and regional level as at global level by the donor community. Currently, OECD is working on six of the nine pillars of the G20 *Multi-Year Action Plan (MYAP)* on development. Development of improved and upgraded strategic planning tools would support OECD engagement at three levels: with Member countries to support them in their efforts to promote development; with international efforts to find effective solutions to emerging global issues and development challenges; and in the OECD's partnerships with developing countries.

Box 1. Definitions

Some key terms are used, which may have different meanings for different participants. This briefing note adopts the following:

- **"Risk"**, defined in ISO 3010 as a combination of the consequences of an event (hazard) and the associated likelihood/probability of its occurrence; but in an everyday political sense as *the uncertain consequence of an event that impacts on things that are of value in society*[1]. This includes the possibility that risks may have positive as well as negative outcomes.

- **Strategic Foresight**: according to the European Commission Research Directorate General's definition, foresight is "*a systematic, participatory, future intelligence-gathering and medium-to-long-term vision-building process aimed at present-day decisions and mobilising joint actions*"[2]. The Global Strategy Group paper on "Megatrends: Policies for a Shifting World" describes it as '*a discipline which aims to identify actions/plans to achieve one or more goals under conditions of uncertainty, broadening the decision base available to include contestable assumptions; it seeks to deliver a deeper and more shared understanding of policy solution spaces without over-relying on forecasting or other risk-based approaches".*

- **Horizon-scanning**: according to the UK 2012 review of horizon scanning in government[3] this is "*a systematic examination of information to identify potential threats, risks, emerging issues and opportunities, beyond the [five year] Parliamentary term allowing for better preparedness and the incorporation of mitigation and exploitation into the policy making process"*. It is akin to Environmental Scanning, a necessary precursor to strategic foresight.

- **Risk assessment** - a process of weighing the **impact** if a risk materializes, and the associated **likelihood**. In national risk assessments, a broad range of criteria is usually used to measure impact, including impacts on human welfare, the economy, and provision of essential services (food, water, energy, transport, communications etc), and in some cases psychological impacts (confidence; trust in government); the objective is to inform decisions on risk management strategies, and on investment in capabilities (for preparedness and resilience).

- **Risk evaluation** is the process of comparing the results of risk assessment with risk criteria to determine whether the risk and/or its magnitude are/is acceptable or tolerable. It is a '*political or policy-making process in which social values and risk tolerance levels are factored in by ministers and officials in order to decide about the objectives of policy, what measures can or must be taken to achieve those objectives, and whether the residual hazard is tolerable*'[4]

- **Megatrends:** described in the OECD's Global Strategy Group's 2014 discussion paper as *structural shifts in global economic, social, technological or environmental conditions which can be gradual or disruptive and whose ultimate consequences cannot be entirely determined from an initial set of conditions"; and by Stefan Hajkowicz as "gradual yet powerful trajectories of change that will at some point express themselves with explosive force and throw companies, individuals and societies into free-fall*[5]*"*

- **Resilience:** is defined variously; most definitions make clear that national resilience is not an absolute but a characteristic of countries which determines how well they can resist, absorb, respond to and recover from shocks; for some, the key aspect of resilience is the ability to adapt to adversity or a change in conditions whether in the short or the long term (eg "*the capacity of social-ecological systems to adapt or transform in response to unfamiliar, unexpected and extreme shocks*[6]*"* .

HOW CAN WE LEARN FROM THE FUTURE TO BETTER UNDERSTAND RISKS AND THREATS

Structural shifts in global geopolitical, economic, social, technological and environmental conditions, and their consequences for countries' risk portfolios

The breadth and nature of the current and future risks under consideration here are illustrated in

- (**Table 2 attached**) the National Intelligence Council's 2013 report[7] ***Global Trends 2030: Alternative Worlds*** which considered how major changes in global affairs ('Megatrends', 'Game Changers' and 'Potential Worlds') may necessitate policy decisions in areas ranging from public health, energy, food and security affairs.
- (**Table 3 attached**) the 2014 analysis of key Megatrends in the primary domains (People; the Planet; Productivity; the Polities) discussed by Ministers and others in the second meeting of the OECD's **Global Strategy Group**.

OECD itself has published analysis of the nature of current and likely **future global shocks**[8] and the associated **risk drivers**, concluding that the likelihood of such shocks being experienced in the future may arise partly because of developments in each of the primary domains; but that the key drivers of risk and impact are as likely to be the unexpected interaction of known hazards with unknown or ill-understood vulnerabilities of which perhaps the most unpredictable stem from the increasingly networked and interdependent nature of the modern global economy - reinforcing the conclusions of the NAEC that the global economy needs increasingly to be analysed as a **complex adaptive system**, and that strategic policy making needs to be cross-boundary, and cross-disciplinary.

What are the tools that government can use to build more strategic state capacity: moving from analytics to preparedness

Strategic Foresight

According to the European Commission Research Directorate General[9], Foresight is "*a systematic, participatory, future intelligence-gathering and medium-to-long-term vision-building process aimed at present-day decisions and mobilising joint actions*". It is carried out by all kinds of organisation but 'Strategic Foresight' generally refers to foresight activities of governments, international organisations and corporations. **Table 1** classifies the main kinds of strategic foresight according to three criteria: those based on eliciting expert knowledge to develop long-term strategies; quantitative methods that make use of statistics and other data; and methods of identifying points of action to determine planning strategies.

Table 1.Strategic foresight methods

Criteria	Methods
1. Methods based on eliciting expert knowledge to develop long-term strategies	- Delphi method - Expert panels - Brainstorming - Mindmapping - Scenario analysis workshops - SWOT analysis
2. Quantitative methods that make use of statistics and other data	- Trend extrapolation - Simulation modelling - Cross impact analysis - System dynamics
3. Methods to identify points of action to determine planning strategies	- Critical/key technologies - Relevance trees - Morphological analysis

There are various types of strategic foresight systems in use by governments around the world. A selection is summarised at **Box 2**. Some are funded and centrally coordinated by the state; others based more on informal cooperation within networks that include both government, private and academic sectors; others still operate a hybrid system with both centrally controlled and networked arrangements operating in tandem. The importance of strategic foresight to governments also varies considerably: some have used this as a tool to enhance the quality of policy-making for many years; in others, attempts over the years to embed strategic foresight into strategic planning at the political level has not met with enduring success.

The OECD (and the European Commission) created dedicated futures research units in the late 1980s. The OECD's International Futures Programme was upgraded in 2011 to:

- pilot the use of strategic foresight to support high level policy dialogue, for example the global scenario based policy discussion at the 2015 Ministerial Council and the discussion of *megatrends* during the Global Strategy Group in December 2015 – (Table 3).
- create a new coordinated horizon-scanning system for use by any Committee/Directorate of the OECD, feeding for example into the OECD megatrends analysis, the Next Production Revolution initiative, and 'new member' services such as long term visioning and national strategic planning.
- establish a Government Foresight Community (GFC) network established in 2013 and now with 70 members from all OECD member countries

Both the OECD and other think tanks and organisations equipped with futures research units (EC; UNDP; UNESCO) have contributed their foresight expertise to support the international development agenda. For example, the Sahel and West Africa Club (SWAC – a member of the OECD Development Cluster) provides independent and forward looking analysis of future challenges in that region. Foresight has been identified as being one of the approaches that could contribute to Sustainable Development Goal (SDG) 16 on Governance. But in general there appears not to be widespread use of foresight among developing countries, possibly because it can be costly in terms of time and money, and developing countries lack capacities in resources, skills and knowledge.

Horizon scanning

Closely linked to (and sometimes overlapping with) foresight, horizon (or environmental) scanning systems are designed to provide early warning about significant changes in the (social, political, environmental, technological) environment that indicate a need for policy planning to be altered. Scanning involves a commitment to a continuing or at least systematic process of monitoring change. The horizon to be scanned can vary considerably in distance, and examples exist of systems scanning for signs of change out to less than a year, to up to the end of the century. The most common timescales are 5 – 20 years. The objective is not to make predictions, but systematically to investigating evidence about future trends.

The most interesting example is the UK, where a recent assessment of horizon scanning across UK government (the Jon Day review performed in 2012) [10] revealed that while horizon scanning work already existed in government departments, these efforts could be more joined up. A Cabinet Secretary's Advisory Group (CSAG) was set up, supported by a small Horizon Scanning Secretariat within the Cabinet Office which is working closely and has since been merged with the Foresight Horizon Scanning Centre in the Government Office for Science. The goal was to ensure greater co-ordination of existing resources and also benefit from Ministerial oversight by the Minister for the Cabinet Office.

Scenarios

A particular technique is the development of scenarios which are 'narratives set in the future'[11] providing examples of possible futures which are used to explore how the world would change if certain trends were

to strengthen or diminish, or various events were to occur, and so act as a means of reviewing existing policies or stimulating the development of new policies[12].

Combined approaches

A common approach[13] among developed countries is to combine horizon-scanning and strategic foresight elements in an exercise involving a horizon-scanning phase, a stage of analysis and ordering of data gained from horizon-scanning, often involving *scenarios*; and then a stage designed to draw conclusions from the data for the subject under investigation.

Box 2. Various country approaches to strategic foresight and risk-related horizon scanning

Summary of Strategic Foresight arrangements in selected OECD countries

- **Finland:** Government Foresight Report (GFR) and Government Foresight Network are the key elements of a broader foresight system that also comprises a Parliamentary Committee for the future, a Foresight consortium for labour force, competence and educational needs, an independent public innovation fund (known as SITRA) which inter alia promotes the long term perspective in Finnish decision-making through a National Foresight Network, and a number of futurists' or futures-oriented peoples' networks of which the largest is the Finnish Society for Futures Studies. There is no unified top-down foresight system in Finland but the GFR and Network, including sectoral reports by the key ministries, are key components of the national system of government.

- **Singapore:** strategic foresight functions are coordinated within the Prime Minister's Office, within the Horizon Scanning Centre (under the National Security Coordination Centre) and the Centre for Strategic Futures (under the Strategic Policy Office); articulation with the national budgeting process is achieved through a Strategic Foresight Unit within the Ministry of Finance. Singapore has been in the strategic foresight business for twenty-five years but many of the changes in machinery of government were in 2008 and 2010.

- **Sweden:** The MSB's Strategic Foresight Analysis14 focuses on issues within the field of societal security with a time perspective of up to twenty years, with the aim of supporting strategy formulation and long-term planning. Five future scenarios produced in 2012 (for 2032) covered:
  - A growing population and deteriorating public health
  - Weak economy, high unemployment and social unrest
  - Accelerating climate change and rising oil prices
  - The threat of terrorism in a world of conflict
  - Antibiotic resistant bacteria spread across the world

- **United Kingdom:** Horizon scanning arrangements in government were reviewed in 2012. Recommendations included establishing the Cabinet Secretary as 'senior champion' and chair of a cross-government Advisory Group overseeing new or reinforced machinery for commissioning and discussing the policy implications of foresight/horizon-scanning work. The UK system includes a Foresight team under the Government's Chief Scientific Adviser, which has since 2014 been merged with the Cabinet Office's horizon scanning secretariat.

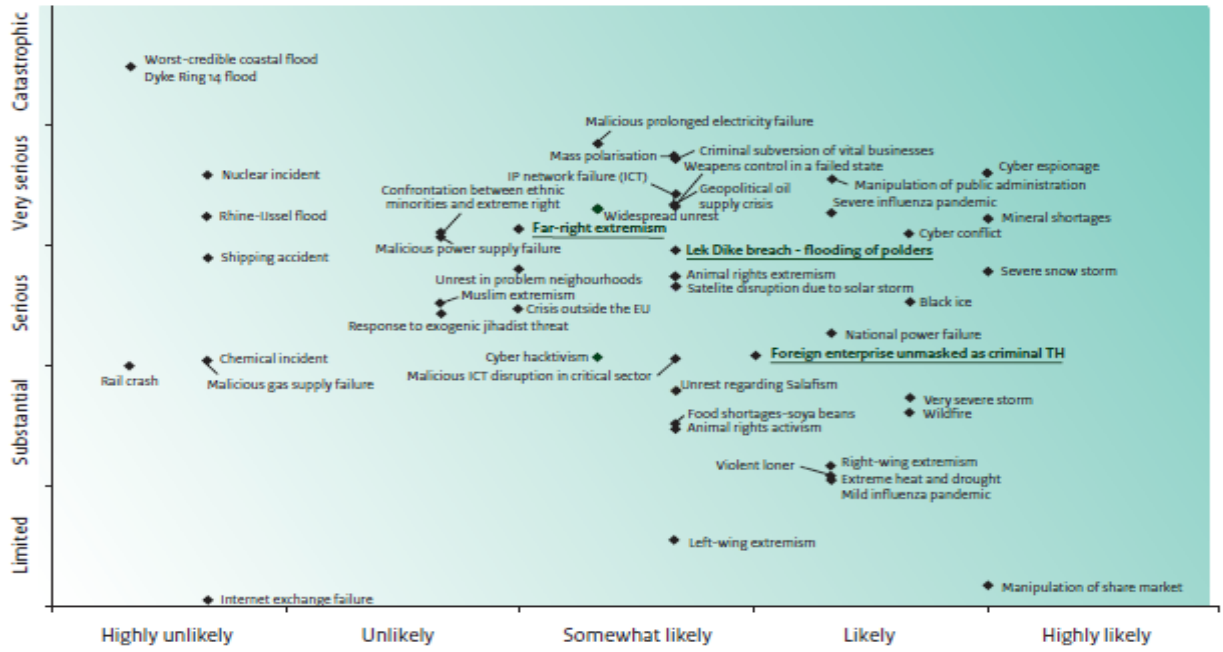
- **United States:** Future Strategic Environment: (US DHS Quadrennial Homeland Security Strategy15) not formally defined but an analysis of future (up to 20 years ahead) trends, challenges and uncertainties, and key interdependencies, across society, technology, the economy, the environment, and governance carried out as a foundation for considering changes in how the [currently] five homeland security missions are carried out. A 2010 Strategic Foresight Initiative16by the Federal Emergency Management Agency (FEMA) was designed to advance understanding of future risk trends and drivers through a three-phase collaborative programme of environmental scanning, scenario planning, and aligning findings to strategy.

National Risk Assessment (NRA)

Risk assessment at the national level is a relatively new but increasingly popular tool for governments[17] faced by difficult trade-offs about where to invest limited resources to carry out their duty to protect citizens, economic livelihoods, and property. Figure 2 shows the example of the Netherlands' 2014 NRA displayed in summary form as a matrix with relative impact shown on the vertical axis and the associated likelihood shown on the horizontal axis.

National risk assessments are designed to aid decisions on investment by systematically identifying the risks of disaster or emergency, and by using various forms of risk modelling to explore the nature of a hazard, the frequency with which it is likely to occur or recur, and the impact on a wide range of 'objects of value' to society (typically: health of the population; the economy; the provision of goods and services essential to human wellbeing; and public confidence and wellbeing) when it does.

Figure 1. The Netherlands Risk Diagram for 2014 NRA



The analysis is carried out collaboratively usually by policy-makers and –advisers coordinated from somewhere close to the centre of government, with scientific and other subject-matter expertise (including intelligence expertise where the assessment includes eg. the risk of terrorist atrocities) at hand to provide objective advice on the nature of the hazard or threat. Judgements about the priority to be given to each risk, risk management strategies, and the amount of resource to be invested, are reserved to Ministers and senior officials for whom the NRA provides an objective basis for evaluating risks. In addition to helping high level policy makers decide where to invest resources to achieve highest value, the outcome of risk assessment work can be, and increasingly is, communicated more broadly within the population to mobilise organisations, businesses and communities to take measures for their own protection.

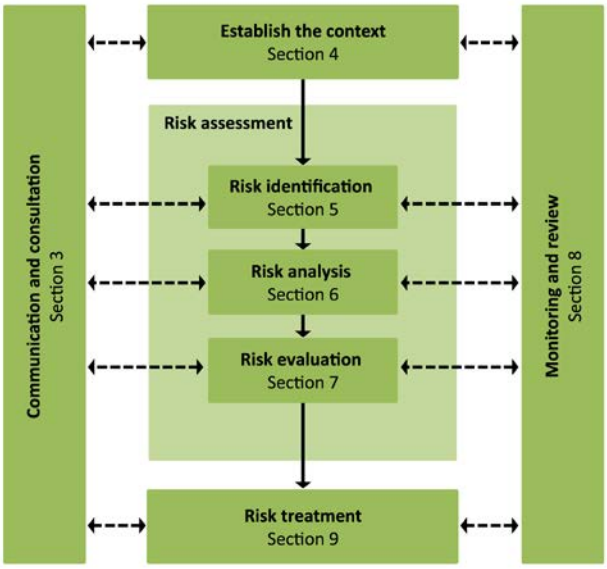
Most NRA attempt to extrapolate from historical and scientific data to identify risks that are likely to occur or recur in the future. The most common timeframe for a NRA is 0-5 years, but some extend to 20 years. The longer the timescale, the greater the uncertainty, and this informs the use to which NRA are used:

- To catalogue the existing range of risks of emergency, and the existing range of capabilities, for **adaptive crisis management** (to adapt existing capabilities to the requirement of the next crisis). For this kind of risk assessment the assessment timeframe is likely to be measured in **months**
- To **build capacity** to meet the most serious, and most probable, contingencies over the lifetime of a government. Risk, vulnerability and capability analysis all contribute to this. The most common timeframe for national risk assessments to meet this requirement is **up to five years**

- (in the countries which have done longer term risk assessment) **to provide strategic early warning** of the ways in which the risk landscape may change in the future, enabling policy-makers to hedge their bets in designing disaster risk management policies and, potentially, providing **an evidence base for investment in the resilience of infrastructure for the longer-term** and a means of identifying **indicators and warnings** of future critical risks.

NRA are usually reiterated every year or two although the interval between reviews can be up to five years. The cyclical nature of the process is illustrated in Figure 2 (courtesy of the Australian National Emergency Risk Assessment Guidelines).

Figure 2. Australian NERAG: Complete risk management process



Opportunities of current approaches to identifying risks and threats in the longer term

A first key step in NRA is to establish the context and **identify the risks**. Context-setting focuses on the (social/economic) etc. environment in which the risk assessment is being conducted, and the objectives of and 'objects of value' to the government in that environment (eg. thriving economy, ensuring high quality health and education, vibrant democracy). Since risks can have a number of possible outcomes, with different associated degrees of likelihood, the normal method is to use scenarios which can be relatively simple ('vignettes') or quite sophisticated. Scenarios can be used to illustrate typically: the worst or best case outcomes, and an outcome somewhere in-between (often described as the 'expected outcome', or the

'reasonable worst case' scenario, representing the worst that could reasonably happen discounting extreme manifestations of the risk) . These scenarios are usually based on historical data modified to reflect known or expected changes in conditions within the timeframe of the assessment.

There is an opportunity to feed the product of horizon-scanning and strategic foresight into the risk assessment cycle at three main points of review: of the context; at the point at which new risks are identified and the nature of old risks re-examined; and when the scoring of risks for likelihood and impact are revised (See section 3). First, a long-term perspective can help to set the context and identify risks and threats that may not currently be in NRA because the signals are too weak or the data too unclear to enable any sort of assessment that would enable governments to make better present-day decisions:

a. **Forward-looking environmental scanning** can help to set the context for the risk assessment, and to clarify what the government's main preoccupation might be in the event of then strengthening of certain trends (eg. demographic change and particularly urbanization as likely to lead to improved societal and economic conditions, but at the same time raising concerns about unusual exposures to risks as people concentrate in ever-larger communities and increase their reliance on stretched services).

b. In the case of **known risks** that are not currently thought to meet the **threshold** for inclusion in NRA, because the level of harm they are likely to cause is insufficiently high, but where Governments need advance notice that the risks may be expected to increase or mutate in either dimension (ie they may in future be more likely to be realised or do more harm when they do); an example might be some of the earlier manifestations of threats in cyber space.

c. In the case of '**orphan' risks** which do not feature in NRA because they do not, or do not yet, have a 'risk owner' in government (a government department or agency which has lead responsibility for risk management and mitigation) – an example would at one time have been the risks arising from extreme space weather – and where government may rely on risk analysts to identify the resulting gap in risk portfolios. In the UK, a 'Natural Hazards Partnership' was set up with this in mind.

d. In considering the need to plan for disasters that arise from unexpected external shocks whose probability and severity cannot easily be calculated (ie. '**Black Swans**'), partly because the return periods for truly catastrophic events are so long – an example might be the Great East Japan earthquake and tsunami; another the 1780s gas-rich eruption of the Laki Volcano in Iceland.

e. In identifying the potential for **slow-moving catastrophic risks** – situations intrinsic to complex adaptive systems, where a system is changing and evolving slowly until it reaches a point where rapid and possibly catastrophic change is imminent and often irreversible (examples include shifts from coral to algal dominance in reefs resulting from climate change; or clear to turbid transition in shallow lakes).

These cases are all extensions of the role that scientists and researchers already play in modelling risks and creating scenarios for Governments' short- to medium-term NRA. Given the pre-occupation of most government's with managing the risks that are likely to occur or recur within their term of government, the purpose of horizon-scanning is not to predict events, but to ensure that the current portfolio is as complete as is possible, and to offer strategic early warning of events that may lie some distance over the horizon. In some countries NRA are deliberately constructed to include a 'reserve' category of risks which may currently be impossible to weigh but which merit regular review.

Questions for discussion

- How can a long-term future perspective better inform an understanding of future risks?
- What methods have proven useful to better understand future risks (e.g. scenario planning, horizon scanning, Delphi methods, and trends analysis)?
- What examples are there of using strategic thinking to prepare for the unknown unknowns and black swan events?

INTEGRATING LONG-TERM PERSPECTIVES TO STRENGTHEN RISK ASSESSMENT AND MANAGEMENT

Moving from risk identification to risk assessment

The next opportunity to exploit synergies between Horizon-scanning/Foresight work and National Risk Assessment comes after risks have been identified, at the next stage in National Risk Assessment: to analyse the consequences or **impacts**, and the **likelihood** associated with those impacts being realised. In the assessment phase, the most commonly assessed impacts reflect the political value placed by each country on (usually) 4 or 5 primary 'objects of value', each of which depends on a number of secondary impact criteria. Most fall in the following five categories:

- **health and wellbeing** of the population, with harm measured by the numbers of deaths, cases of injury or illness and in some cases the requirement to evacuate populations caused by the hazard;
- wider effects on the **economy**, as measured by the demand-side and/or supply-side consequences;
- effects on the **supply of goods and services** essential to the welfare of the population, measured by the extent/intensity/duration of disruption of a wide range of service (typically: energy, food, water, transport, communications, health, finance; less typically, education) and/or the **destruction or disruption of infrastructure networks** related to these;
- **environmental** damage, measured with varying degrees of precision but usually encompassing the geographical extent and persistence of the harm caused; and sometimes identifying separately damage to protected sites;
- **political or social** impacts, including commonly effects on public order and safety, public psychological impacts such as outrage or anxiety, damage to cultural assets, infringement of territorial integrity, loss of reputation of the government (nationally or internationally).

Even at five years' range, it can prove hard for governments to quantify the impacts in all these areas with any precision, even when usable data are available so NRA tend not to try to do so but instead to focus on order of magnitude differences and may often resort to **qualitative** or **semi-quantitative** rather **than fully quantitative estimates** of the impacts.

Assessments of the likelihood of harm being sustained in the degree suggested in the reasonable worst case scenario (or whatever the basis of assessment is) is similarly done with a view to identifying order of magnitude differences, on a stepped scale (an example is shown in the table below). Even medium term estimates of the plausibility of threats involving human agency (like terrorism) have defeated many countries, and most use a measure of the current assessed threat in comparing different threats in NRA.

Opportunities in assessing risks and threats in the longer term

NRA should already incorporate best estimates of harm and the likelihood of its being caused by the event portrayed in risk scenarios. The same analytical framework - reflecting a consensus view at the policy or political level of what are currently the most important 'objects of value' to the state and what weight should be given to them – can also provide the basis for commissioning a scientific view of the effect future developments in the main (geo-political, environmental, social, demographic, economic, and global

resource) domains may have on the effects of significant events or shocks in the future, and the likelihood of these effects being realised. Indications of the 'direction of travel' (eg. higher impacts in one area; lower in another) can help feed into NRA processes which for nearly all countries is an iterative process designed to highlight changes in the risk assessment whether they arise because of changes in the real world or because of improvements in scientific understanding. Having a sense for **how future developments may affect current risk portfolios**, is particularly important where governments may wish to hedge their bets in deciding on major investments in resilience, for example in the design of major infrastructure assets, and this is a key objective of the more forward-looking, even speculative, risk assessment work by Governments. What is required here is:

a. analysis of future trends affecting the 'drivers' of risk in each of the prime domains (demographic, social, geopolitical, environmental, technological, and economic);
b. long-term 'planning assumptions' reflecting their potential effects on the likelihood of shocks occurring and on the impacts on objects of value to the state when they do; and
c. scenarios that illustrate the possible outcomes for use in risk identification ie. the range of outcome from best case to expected case to reasonable worst case scenarios.

In **crisis management**, access to foresight product may contribute to the 'meaning making' efforts of crisis managers confronted by events that do not conform to the scenarios used in risk management planning.

Questions for discussion

- How can long-term future oriented research be coordinated with and contribute to National Risk Assessments?

- How can governments achieve a continuum of actions from the long-term future oriented perspective to the medium-term national risk assessment, and short-term preparation in terms of early warnings and crisis communication?

- Does adopting a long-term future perspective help governments move away from an emphasis on reacting to emergencies and toward an understanding of risks and how to manage?

INTEGRATING HORIZON SCANNING AND FUTURES PERSPECTIVES INTO POLICY/STRATEGY TO BETTER ADDRESS FUTURE THREATS

What are the challenges for governments?

The **Challenges** in realising these opportunities have been discussed in a number of fora, including the HLRF itself at its last meeting held in Washington DC in December 2015[18]. OECD countries seem to be experiencing more frequent and more complex crises and emergencies. Drivers of risk for the future, according to the OECD study of Future Global Shocks, are likely to increase the unpredictability of risks and their outcomes. This follows the pattern already evident of known hazards – driven most predictably by climate change – interacting with previously unknown or ill-understood vulnerabilities. Many of these vulnerabilities originate from advances in technology and communications which are overwhelmingly beneficial, so that the option of terminating the associated risks will not be attractive to governments. Instead, they will want to upgrade their anticipatory capacities, that is go beyond the question, "what global risks and threats does the future portend?" and begin to explore how they can take the results of such analysis and make sure policy makers actually make use of it, understanding that future risk is largely "in the imagination"[19], and risk management may need to consist in hedging bets in an increasingly uncertain world.

The experience of several countries suggests that bringing together 'Futures', risk modelling and policy-making expertise can be more difficult to achieve than to attempt. Challenges include:

- The difficulty of **bridging** analysts to the recipients of forecasts or warnings, so that analysts are aware of the government's objectives and priorities, but are also insulated from political pressures that would bias their work, and able to 'speak truth unto power', maintaining trust thereby; the avoidance of **bias** in the assessment, which can be a major cause of strategic surprise and warning failures.

- **Tensions** between analysts and policy- and decision-makers that can arise when roles are not clear, and **cultural differences** between the analytical/science world and the policy- and decision-making world, especially in relation to timeliness, accuracy, and communication of the products of strategic foresight

- Weaknesses in the **commissioning process**: foresight projects are often, by default, self-commissioned with little understanding of what they might be used to inform, leading to generic pieces of work which do not very readily meet a policy- or decision-makers need

- **Preoccupation of policy- and decision-makers with short- to medium-term** problem solving at the expense of giving proper consideration to the long-term

- difficulty in organising cross-disciplinary and cross- departmental involvement in foresight work, leading to **'stove-piping'**.

This last issue, the stove pipe is among the most pervasive, yet also the most difficult to address, in order to integrate these various activities in ways that are policy relevant and useful for governments (Fuerth 2012). This is also an area of evolving practice across OECD countries. Countries such as the UK or Finland with the Government of the Future programme, have discussed the role of horizon scanning in enabling foresight strategies and have been taking policy initiatives to ensure that horizon scanning is shared across ministries and coordinated with policy priorities and policy-making processes. For example, further to the Day review in the UK, a cross-government Horizon Scanning Programme headed by the Cabinet Secretary and its Advisory Group was created to funnel information from an existing network of officials in various government departments, escalate emerging trends and risks, and co-ordinate work on cross-cutting themes

that affect multiple parts of government. The goal of the Horizon Scanning Programme, aiming to embed better horizon scanning capabilities in the policy-making process, was to ensure implications for policy are highlighted at the right levels; establish a common baseline of understanding across government departments and organisation ; minimise duplication and share best practices.

How can these challenges be resolved?

Meeting these challenges is a preoccupation of governments and officials concerned with the near term and with avoiding appearing to lack foresight. But anticipatory approaches to avoiding risk should not be to the exclusion of future work intended mainly to aid the pursuit of opportunities for **better** futures, unencumbered by anxiety about the risks involved. A *prospective*[20] approach designed to determine a country's aims and vision in a number of possible/plausible futures can integrate but should not become dominated by the inevitable down-side risks and the need optimally to allocate scarce risks to mitigate them – that would be to put the cart before the horse.

The way to take advantage of the opportunities offered by a greater coherence between horizon-scanning, strategic foresight and national risk assessment would be to use the risk management framework, to feed in the outcome of horizon-scanning/foresight work; and to consider whether the commissioning of national risk assessment takes account of the need of the risk assessment community to use the longer-term perspective impacts on risk profiles. This suggests

- the need for an **effective commissioning system** for cross-cutting foresight work, and its integration into risk assessment, which engages policy customers in project design at an early stage and at key stages throughout, so that analysts and practitioners understand their requirements and these can be refined as projects proceed

- **increased coordination and oversight**, with cross-departmental involvement in governance arrangements, and the involvement of the government science communities, all at senior level reflecting the strategic nature of the task

- a **culture change** for both analysts and policy-makers, to improve mutual understanding and the possibilities for collaboration in foresight and risk assessment projects, so that analysts understand what their policy 'customers' want, in terms of substance and timescale and presentation, and the latter understand what they are getting and what not

- **cross-disciplinary approaches** involving public, private and academic sectors and improved **presentation** of outcomes

- top-level **leadership and ownership** of the work and its outcome, including recognition at all levels of the **potential benefits** of foresight and risk assessment as key elements of effective policy-making designed to gain or restore public trust.

Another fruitful option would be to explore the scope for broadening the national risk assessment exercise, to introduce economic, geopolitical and social risks, beyond the traditional catastrophic risks related to natural disasters or industrial accident. This would also factor in the risks of climate change, infrastructure development, as well as migration, social cohesion and integration in the longer term, as is currently done with the National Risk Assessment process in Ireland, very much a whole of government exercise.[21]

Questions for discussion

- What approaches are used in the public and private sectors to integrate medium to long-term challenges and risk analyses into policy design, coordination and development
- How can governments ensure that horizon scanning is shared across ministries and coordinated with policy making processes? To what extent can a futures oriented perspective inform the management of a range of economic, physical or fiscal risks?
- How can countries manage the introduction of long-term thinking into the reflections and initiatives of ministers? How can governments structure the attention of elected officials to include long-term considerations within the context of electoral cycles?
- In what ways could a futures perspective help strengthen citizens' trust in public institutions?

Table 2.Global Trends 2030: An Overview

	Megatrends
Individual empowerment	Individual empowerment will accelerate owing to poverty reduction, growth of the global middle class, greater educational attainment, widespread use of new communications and manufacturing technologies, and health case advances
Diffusion of power	There will not be any hegemonic power. Power will shift to networks and coalitions in a multipolar world
Demographic patterns	The demographic arc of instability will narrow. Economic growth might decline in "ageing" countries. 60% of the world's population will live in urbanised areas; migration will increase
Food, water, energy nexus	Demand for these resources will grow substantially owing to an increase in the global population. Tackling problems pertaining to one commodity will be linked to supply and demand for others
	Game Changers
Crisis-prone global economy	Will global volatility and imbalances among players with different economic interests result in collapse? Or will greater multipolarity lead to increased resiliency in the global economic order
Governance gap	Will governments and institutions be able to adapt fast enough to harness change instead of being overwhelmed by it?
Potential for increased conflict	Will rapid changes and shifts in power lead to more intrastate and interstate conflicts?
Wider scope of regional instability	Will regional instability, especially in the Middle East and South Asia, spill over and create global insecurity?
Impact of new technologies	Will technological breakthroughs be developed in time to boost economic productivity and solve the problems caused by a growing world population, rapid urbanisation, and climate change?
Role of the major powers	Will major powers be able to work with new partners to reinvent the international system?
	Potential Worlds
"stalled engines"	In the most plausible worst-case scenario, the risks of interstate conflict increase. Key economies follow protectionist policies and globalisation stalls
"Gini-out-of-the-bottle"	Inequalities explode as some countries become big winners and other fall. Inequalities within countries increase social tensions
"non-state world"	Driven by new technologies, non-state actors take the lead in confronting global challenges

Table 3.Key Megatrends considered by the OECD Global Strategy Group

Megatrend No 1: People – Demographic, health and inclusiveness patterns	
Population	Global population set to grow by 33% between 2013 and 2050 …
Urbanisation & migration	… giving rise to increase in urbanisation and migration pressures
Ageing	The share of people in the global population above 85 years old is expected to triple over 25 years. OECD population expected to increase by 17% but the working age population (15-74) may fall by 7%
Health	Non-communicable disease (NCD – including cardiovascular disease, cancer, diabetes, chronic respiratory disease, Alzheimer's/dementia) expect to rise with population ageing between 2010 and 2060.
Income disparity	Gap between rich and poor, at a 30 year high among OECD countries, growing. Poverty profile changing with a greater share of younger people, women, and households with children now falling below poverty thresholds
Talent pool	Graduate students from the emerging economies expected to play a major role in driving future innovation in science, technology and engineering; new jobs concentrating at the upper and lower end of the skills distribution, generating a bleak outlook for those in the middle.
Megatrend 2: Planet – Food, water, energy and climate change	
Resource insecurity	Growing global population demand more water, food and energy: • global water demand will increase by 55% to 2050 • water for food production under severe strain • global energy demand to increase by 37% by 2040
Impact of climate change	World GDP [?per capita] may cumulatively shrink by between 1.5% and 2.5% if average global temperatures increase by between 1.5 and 4.5 degrees Celsius, mainly due to losses in agricultural productivity and coastal land. By 2050 flood risk significantly greater than 2015 affecting nearly 1.6 billion people **Opportunities**: new forms of energy supply such as halophytes, cyanobacteria, and Low Energy Nuclear Reactions (LENR); new water saving techniques (eg desalination)
Megatrend 3: Productivity – Technology, entrepreneurship and new sources of growth	
"Next Industrial Revolution"	Changing patterns of production, employment and entrepreneurship; and Global Value Chains
"knowledge based Capital"	Growth of the knowledge economy; ICT.
"Servification"	New concepts (social innovation, frugal innovation, inclusive entrepreneurship) blending with traditional market-based approaches to provide innovative business models
Megatrend No 4: Politics – Public governance, trust and accountability	
Low trust in government and other institutions	Will Anti-bribery convention, G20 Anti-corruption Working Group, etc be effective? Re-stating the case for taxation
Future governance	State should remain the dominant actor in national and international affairs, but the environment for policy making may change as a result of increasing connectivity

ENDNOTES

1 adapted from Kates R.W, C Hohenemser and J Kasperson (1985): Perilous Progress: Managing the Hazards of Technology, Westview Press, Boulder. .

[2] European Commission Research Directorate General (2001): A Practical Guide to Regional Foresight (FOREN) - http://foresight. jrc.ec.europa.eu/documents/eur20128en.pdf.

[3] HMG 2012 review of cross-government horizon scanning. NB this definition does not cover the work of the UK's Domestic Horizon Scanning Committee which assesses the risks of civil emergencies in a 6 month period.

[4] [4] Germany: Federal Office of Civil Protection, Method of risk Analysis for Civil Protection

[5] Stefan Hajkovicz: *Global megatrends – seven patterns of change shaping our future*

[6] Carpenter et al., 2012

[7] The NIC's *Global Trends 2035* report is expected later this year

[8] OECD Reviews of Risk Management Policies: *Future Global Shocks – improving risk governance.* June 2011

[9] European Commission Research Directorate General (2001): A Practical Guide to Regional Foresight (FOREN) - http://foresight. jrc.ec.europa.eu/documents/eur20128en.pdf.

[10] www.gov.uk/government/uploads/system/uploads/attachment_data/file/79252/Horizon_Scanning_Review_20121003.pdf

[11] Institute of Development Studies (IDS) Bulletin Vol 47 No 4 September 2016: "Foresight in International Development"

[12] ibid, quoting UK Foresight Horizon Scanning Centre (2009)

[13] See Alun Rhydderch in *Models for Foresight Use in International Development*, Institute for Development Studies Bulletin August 2016

[14] Swedish Civil Contingencies Agency (MSB): *"Strategic challenges for societal security – analysis of five future scenarios"* June 2013

[15] https://www.**dhs**.gov/sites/default/files/.../FY14-18%20**Strategic**%20Plan.PDF

[16] http://www.fema.gov/media-library-data/1422988244903-575aa02526627119a4ae60e7e19f6461/1_SFI_Progress_Report.pdf

[17] The OECD is currently completing a survey of NRA carried out since 2000 by19 OECD countries

[18] GOV/PGC/HLRF(2015)2

[19] Robert Muir-Wood, quoted on the RMS web-site

[20] *"La Prospective"* is a foresight approach created by Gaston Berger, a French philosopher, industrialist and senior government official between the 1930s and 1950s, to 'picture possible worlds in broad strokes' and make it easier for countries to identify and achieve the potential for positive change in a world characterised by rapid technological change and economic growth following the end of the Second World War.

[21] http://www.taoiseach.gov.ie/eng/Publications/Publications_2015/National_Risk_Assessment_2015.pdf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