

# Confronting the Long Crisis of Globalization

Risk, Resilience and International Order

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## List of abbreviations

ASEAN	Association of Southeast Asian Nations
DPRK	Democratic People's Republic of Korea
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IAEA	International Atomic Energy Agency
ICPC	International Climate Performance Committee
IEA	International Energy Agency
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
MDGs	Millennium Development Goals
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
R2P	Responsibility to Protect
START	Strategic Arms Reduction Treaty
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNEP	United National Environment Programme
UNSC	United Nations Security Council
WEF	World Economic Forum
WHO	World Health Organization
WMD	Weapon of Mass Destruction
WTO	World Trade Organization

## Executive Summary

**Crisis and opportunity.** Globalization has entered a turbulent period. Over the past twenty years, the most significant threats to international security, stability, and prosperity have evolved rapidly. Global systems are now tightly interconnected, with risk proliferating freely across borders.

The drivers of change – including population growth, climate change and resource scarcity, a major shift in economic power, and increasing state fragility – produce unpredictable, non-linear effects. Technology continues to diffuse rapidly, while information is corroding traditional hierarchies. Security-related risks have become increasingly asymmetric.

Looking across the most important global risks, one sees that the world faces novel challenges (e.g. managing bio-security) and needs to develop both unprecedented institutions (e.g. resilient global carbon markets), and tough mechanisms for enforcement (e.g. for nuclear proliferation or emissions control). Power shifts must be managed both in the short term (economic imbalances) and over the long term (demographic change). There are complex interactions between risks (energy and food security, for example), while insurgent groups have attractive opportunities to disrupt global networks (especially when state weakness and access to these networks coincide).

Pressure from these forces builds for long periods with no visible effect, but when released, it triggers abrupt shifts and cascading consequences across interlinked global systems. *Shocks*, rather than *stresses*, are the primary triggers of change, as three global crises – the September 11 attacks in 2001, the combined food and oil price spike that peaked in 2008, and the global financial crisis in the same year – have demonstrated over the last decade.

**A flawed international system.** At present, the international system is crippled by design faults that render it unable to confront and control the volatility of contemporary globalization.

At both national and global levels, policy formation and delivery is weak and fragmented across issues *and* organizations. The need to overcome these ‘silos’ forces complex issues upwards to leaders’ level, both at home and internationally in forums such as the G20. Unfortunately, lack of ‘bandwidth’ leaves heads of government with limited capacity, and leads to a prioritization of fire-fighting over long-term risk management. The organizations charged with the delivery of foreign policy – aid agencies, militaries, foreign ministries – were designed for a different age.

The first globalization ended in 1914 with two world wars and an intervening global depression. It failed because states’ shared assumptions pushed them towards fragmentation rather than cooperation, mutual incomprehension instead of shared awareness. An epoch that seemed to be characterized by interdependence and common interests ended in shared disaster.

The second globalization, which has steadily deepened since World War II, could fare better. Today, all powers profess to profit more from stability than turbulence. The response to the financial crisis, for example, has been effective, at least in the short term. But dangers remain: in misunderstandings among the major powers; over competition for resources and emission rights; in tension over protectionism and exchange rates; and particularly during acute emergencies, where events can run suddenly beyond control.

**A risk doctrine.** To reduce the threat to globalization from systemic challenges, a new doctrine – attuned to an age of global risks – is needed.

As President Obama has recognized, the line between international and domestic policy is now blurred, with the primacy of national sovereignty increasingly challenged by the reality of common problems that respect no borders. For most states, at most times, the greatest threats to security and prosperity are not posed by other states acting alone, but by networks of state and non-state

actors, by the unintended consequences of trans-boundary flows (finance, contraband, technology, emissions, biological material, weapons, ideas), and by the under-supply of global public goods.

The overarching need is hence to move from a foreign policy paradigm that focuses on a usually ill-defined conception of the national interest, to one that aims to manage shared risk. Although agreement will still prove elusive, a risk paradigm provides a basis for cooperation between states (see box). It emphasizes uncertainty; increases the focus on future challenges; provides a long-term context to balance immediate interests in acute crisis; and can bind together disparate structures for cooperation.

At the same time, it pushes governments and international institutions to increase their focus on long-term stresses, while preparing for acute shocks, and anticipating the deliberate disruption of systems.

### **Foundations for Cooperation**

**Bandwidth** – increasing the number, nature and content of the relationships between the constituent parts of the international system.

**Aggregation** – organizing a broader system into cohesive subgroups, reducing complexity by clarifying areas of agreement and disagreement.

**Foresight** – making explicit the bets that states are taking on the future, while increasing the shadow that the future casts on the present.

**Signaling** – cutting through complexity in ambiguous environments, while establishing high-level principles which provide a framework on which cooperation can be built.

**Fairness** – bringing competing visions of what is fair to the surface, rather than obscuring them with technocratic agreements, or tolerating cheating and corruption.

**Penalties** – graduated sanctions that establish boundaries that are sufficiently robust to repel free riders.

**A strategy for resilience.** Sustaining the benefits of globalization will depend on creating an international order that is more *resilient* in the face of a range of risks.

Resilient systems are those that can *absorb disturbance and reorganize while undergoing change, so as to retain or enhance effective function, structure, identity and feedbacks.*

Resilience forces us to take the idea of failure seriously. It prompts us to plan for sudden and disruptive changes, while providing a rationale for investing in redundant capacity for emergency response (for example in humanitarian and peacekeeping systems). It encourages us to focus above all on the *functions* delivered by the international system, rather than its organizational *form*. And it demands sustained investment in innovation, allowing systems to respond to unfamiliar challenges such as climate change, fragile states, and biosecurity.

A focus on risk and resilience has profound strategic implications. It will lead governments to pursue fresh aims internationally, organize in different ways to gain influence, and redirect resources in line with new priorities. In particular, they must work towards the emergence of *shared operating systems* for managing global risks – a task that will involve building *shared awareness* of

common risks (both domestically and internationally) and then the *shared platforms* (alliances between states and with non-state actors) to tackle them.

**Shooting the rapids.** A retreat from globalization is neither desirable nor possible – despite the arguments of those who argue for ‘localization’, a global ‘powerdown’, or a return to narrow conceptions of national power. Yet without effective systems for managing risk at a global level, it will prove impossible to provide prosperity and security for a world of 9 billion people.

The challenge facing globalization can be compared to ‘shooting the rapids’. Charting a course through whitewater, there are many possible paths, but few attractive destinations. It is the river, not the paddler, that dictates the speed with which the boat moves. There is no opportunity to pause and rethink strategy, or to reverse direction: it is the capacity to *reorganize while undergoing change* that ultimately determines the journey’s outcome. Above all, the challenge is a collective one: the direction of the boat depends on the combined efforts of all those on board.

The task of building a resilient globalization is similar. Much could go wrong. The pace of the transition will be dictated by the risks themselves, yet governments will only succeed if they are prepared to take the initiative. Even in the best case, outcomes will be ‘messy’ and far from perfect. Results will be determined by governments’ ability to act in concert, as well as with networks of non-state actors.

The aim should not be to balance power between competing states, but to aggregate the efforts of those willing to aim for the preferred destination, while marginalizing or excluding those who are not (including those who actively seek to capsize the boat).

**Theory of change.** A resilient globalization requires fundamental shifts in the paradigm, vision and analysis that underpins governments’ approach to global issues.

On any complex international issue, transformation will be ‘sticky’ with considerable force needed to push the system from one equilibrium to another. Yet planning must precede a crisis rather than follow it, ensuring that shocks lead to constructive reform, rather than losses in resilience.

Those governments that aspire to global leadership also need to develop a new appreciation of how to influence and organize for change. They must invest in the skills needed to bring together diverse networks of foreign policy actors – including publics, international organizations and other non-state actors – in frameworks that allow them to manage global risks.

Governments should take several initial steps to position themselves to shoot the rapids, including:

- *Investing in mechanisms that build shared awareness of key risks*, using the Intergovernmental Panel on Climate Change as a model. Policymakers should consider setting up similar bodies that can provide a locus for strategic conversation on threats *and* solutions in areas such as resource scarcity, bio-security, global climate policy (as opposed to science), and international support for fragile states.
- *Increasing the ‘bandwidth’ of the G20* by investing in stronger Sherpa mechanisms and building links between the G20 and formal institutions, thereby providing heads of government with more comprehensive analysis of policy options.
- *Looking for opportunities to collaborate*, whether in ad-hoc groups that are constructed risk by risk; in semi-permanent alliances, negotiating blocs and interest groups that bring together countries who have shared awareness across a range of risks; or in formal architectural

solutions like the EU, ASEAN, WTO or UNFCCC that institutionalize cooperation between countries.

- *Establishing a 'challenge function' within the international system* that is charged with exploring non-financial systemic risks, complementing the work of the Financial Stability Board in the economic realm. Such an organization would need to be agile, flexible, networked and relatively independent – organized on similar lines to the US Defense Advanced Research Projects Agency (DARPA), which is charged with 'preventing surprise' for the United States.
- *Changing the organization and delivery of foreign policy.* All governments will need to increase substantially the funding they devote to managing global risks, as part of a marked shift in emphasis from domestic to global policy. Funding levels should be determined as part of a fundamental review of the combined instruments of international relations – foreign assistance, diplomacy, military – that evaluates the contribution of each level to effective risk management.

## Preface

The nature of risks to global security has changed dramatically since the fall of the Berlin Wall, but our mechanisms for preventing, responding and adapting to them have lagged far behind. While there have been limited efforts to develop more effective international responses, these have been piecemeal and have produced only modest increases in global resilience.

The past twelve months have increased pressure on the international system. The arrival of a new US administration, the more assertive multilateral stance taken by China, India, Russia and Brazil, and above all the credit crunch and subsequent global downturn, have increased demand for more effective management of global challenges – while at the same time creating fresh obstacles to achieving this goal.

In this think piece, we explore how current opportunities can be used to catalyze the transformation we need to create a more effective international system. Our aim is to provoke and stimulate discussion. We do not set out comprehensive solutions or blueprints for change, but instead draw on previous work in which we have separately been involved, including:

- The 2004 High-level Panel on Threats, Challenges and Change, which reviewed the policies and institutions needed to make the United Nations effective in the 21<sup>st</sup> century.<sup>1</sup>
- Research commissioned by the British Prime Minister and presented to the 2008 Progressive Governance Summit, which explored how to configure the multilateral system to manage global risks.<sup>2</sup>
- The report of the International Task Force on Global Public Goods, which analyzed methods for aligning states in pursuit of long term shared goals.<sup>3</sup>
- The Center on International Cooperation, Brookings Institution, and Stanford University *Managing Global Insecurity* project, which has developed a set of recommendations for the United States and its partners to revitalize the multilateral security system.<sup>4</sup>
- An analysis, published at the UK Department for International Development's 2009 annual conference, of reform that the international institutional framework requires to underpin a transition to a low carbon economy.<sup>5</sup>

World leaders, we argue, need a new lens through which they can view the task of creating security in the 21<sup>st</sup> century. Globalization presents a paradox: it has simultaneously increased both *prosperity* and *risk*. Assuming that current underlying stresses continue to grow, the international system is likely to reach a tipping point. On one side of this balance lies an international system that has been degraded by crisis, and has experienced a sizeable, and probably rapid, loss of function and trust. On the other there is a more robust international order, with significantly enhanced capacity to produce the collective goods needed to manage risk.

Timely action is therefore needed if we are to create a *resilient* globalization – embedding a new doctrine for managing transnational risk at the heart of the foreign policy of those states who are, or aspire to be, global powers, and using that doctrine to create a framework for international cooperation capable of coping with the demands of the turbulent times that are likely to lie ahead.

# ONE ! The Long Crisis

## Introduction

We are in a period of crisis and opportunity for globalization. Over the past twenty years, the nature of the most significant threats to international security, stability, and prosperity has evolved rapidly. Global systems are now tightly interconnected, with the result that risk can and does spread freely across borders. Without effective mechanisms for responding to these changes, the world's capacity to prevent and manage crisis will be inadequate. In the worst case, we may find that the most severe shocks become sufficiently disruptive to threaten the integrity of the international system as a whole.<sup>6</sup>

The drivers of change are deep-seated and long lasting. The world has undergone a protracted period of explosive population growth, which is now slowing but is likely to give rise to a range of demographic challenges over the next half a century or more.<sup>7</sup> Fragile states are struggling to meet the needs of a young and increasingly urban citizenry, while emerging economies strain to fulfill the expectations of burgeoning middle classes.<sup>8</sup> Key resources – energy, food, water, land, and 'atmospheric space' for emissions – are in progressively shorter supply.<sup>9</sup>

At the same time, technology continues to develop and diffuse rapidly. Information is challenging traditional political systems and making borders of all kinds increasingly permeable, while driving sweeping reconfigurations in established industries and value chains.<sup>10</sup> Networks are becoming more pervasive and powerful, as we pass through the early stages of a revolution in the way that people associate with one other.<sup>11</sup> Security risks, meanwhile, are increasingly asymmetric. As the tools needed to wage war or inflict damage become more widely available, unprecedented opportunities emerge for the weak to out-fight, out-organize and out-communicate the strong.<sup>12</sup> Conflicts are fought 'among the people' both *within* and *across* states, while governments are tempted to use possession of nuclear weapons to assert their independence from international norms.<sup>13</sup>

Influence, meanwhile, is being rebalanced as America, Europe and Japan experience a gradual decline in their relative share of the world's population and GDP growth, while rising powers in the new 'New World' become more populous, wealthy and assertive.

Economic globalization, finally, has created dense and diverse systems that are far from equilibrium. Cross-border markets are powerful but unstable, with feedback loops fuelling both bubbles and crunches, while the 'electronic herd' is able to stampede rapidly into and out of countries and market sectors.<sup>14</sup> In contrast, governance systems are weak and fragmented, while the nation state's own authority is being eroded both from above and below. Institutions at all levels lack the capacity to deliver the "broader, more comprehensive concept of collective security" on which the prevention of the worst global risks relies.<sup>15</sup>

Pressure from these forces can build for long periods of time with no visible effect, but when released, it triggers abrupt and unpredictable shifts across tightly interlinked global systems. *Shocks*, rather than stresses, are the most important trigger for change – as three global emergencies have demonstrated in the first decade of the new millennium.<sup>16</sup>

- **Al-Qaeda's attack on the United States in 2001** brought to an abrupt end an 'Indian summer' for the international system.<sup>17</sup> Briefly, the attack generated international unity and the possibility of effective collective action. The moment was squandered when the Bush administration used the attacks to justify a series of political and military actions, many of which had disastrous consequences. The early phases of the invasion and occupation of Iraq left Osama bin Laden crowing that "we and the White House are on the same team, shooting at the United States'

own goal.”<sup>18</sup> The absence of weapons of mass destruction in Iraq has complicated future anti-proliferation efforts, at a time when Iran and North Korea – fellow members of Bush’s ‘axis of evil’ – pose a growing threat in this area. American policy weakened the Western alliance and diminished the stature of the US across the world. Afghanistan meanwhile was neglected, with early victories and international support there gradually eroded; Pakistan became more unstable.

- **The food and fuel price spike** showed the power of resource scarcity to drive global instability. The price of oil peaked at \$147 per barrel in July 2008, and was a significant factor in turning an incipient economic slowdown into a deep global recession.<sup>19</sup> Energy prices helped drive similar increases in the cost of food: the cost of fertilizers, on-farm energy use and transportation all rose sharply, even as biofuels became a powerful competitor for productive land.<sup>20</sup> Both trends had seriously destabilizing effects on poorer countries, including food and/or fuel price riots across Africa and Asia. In response, over thirty countries introduced export restrictions on food, exposing the limitations of a system of international trade rules focused on resolving disputes over market access, rather than security of supply. Subsequent attempts by import-dependent countries to secure long term commodity deals in developing countries are set to have an unpredictable impact on future prospects for stability, with episodes like the coup in Madagascar – triggered in part by a backlash against a controversial land deal with a South Korean company – indicating trouble ahead. Meanwhile, the IEA warns of an increased risk of a mid-term supply crunch for oil, especially if the economy recovers quickly, owing to a 19% cut in investment between 2008 and 2009.<sup>21</sup>
- **The financial crisis** has already led to the severest economic meltdown since the 1930s.<sup>22</sup> While the acute phase of the crisis appears to have passed, fallout is likely to be considerable and long-lasting. On average, a banking crisis takes around four to five years to unravel in a developed country and costs around 12% of GDP to resolve.<sup>23</sup> In past crises, (on average, and measured from peak to trough), 35% has been lost from house prices and 55% from equities, unemployment has risen by 7% and output fallen by 9%, and government debt increased by 86%.<sup>24</sup> Neither should we discount the risk of a ‘double dip’ crisis. Long term economic risks are yet to be addressed, including structural imbalances between saver and debtor countries, unresolved bad assets in financial sectors, concerns over inflation in heavily indebted countries, overcapacity in emerging markets, and a lack of consensus as to how the ‘shadow banking system’ should be regulated.<sup>25</sup>

### **Power politics**

The past twelve months have provided mixed evidence on whether or not major powers can work together to create an international system better fitted for handling future shocks.

The good news is that the **United States** has recognized the limits of its ability to project power on a unilateral basis, and has begun to re-engage with its partners on global issues. The Obama administration’s position is still developing in most policy areas, while the President faces serious pressure at home – especially while the US economy continues to underperform. Obama’s stance provides new opportunities for international cooperation, however, with signals of a renewed commitment to bilateral and multilateral nuclear disarmament, a more pro-active re-engagement with UN peacekeeping, and a commitment (at least in principle) to devote US resources to the tough challenge of building the capacity of weaker states to manage transnational threats.<sup>26</sup> Meanwhile, on climate, “after too many years of inaction and denial, there is finally widespread recognition of the urgency of the challenge before us,” according to the President.<sup>27</sup> Yet clashing interests in Congress will make it harder for the US to reach the consensus it requires to take forceful action across climate change and other issues. This in turn creates knock-on effects at the international level, as the Copenhagen summit demonstrated.

**China** has become more assertive about what it wants from multilateralism, and was a key player in the IMF financing and reform package agreed at the London Summit. **India** and **Brazil**, meanwhile, have demonstrated increased willingness and capacity to engage on global issues such as trade and counter-terrorism. All three countries were, with **South Africa**, instrumental to shaping the outcome of Copenhagen. The rise to global prominence of these emerging powers represents perhaps the most significant change to the context of global governance since the Second World War. The extent of their commitment to a rules-based global order will prove pivotal in the coming years, as will the nature of the actions they take to shape the international system to their advantage.<sup>28</sup> So far, their increased engagement has complicated deal making in some areas, with their governments often lacking the capacity to make a full and consistent contribution across a crowded international agenda.

Elsewhere in the world, capacity for promoting reform is limited. As “a highly developed system for mutual interference in each other’s domestic affairs”, the **European Union** should be best placed of all major political blocs to navigate the interdependencies of the emerging international system.<sup>29</sup> Unfortunately, due to its fragmented institutional arrangements, it has lacked coherent leadership and presence on the international stage, while its constituent economies have suffered badly during the financial downturn. Its member states are over-represented in most parts of the international system, but are seldom prepared to do the hard work of agreeing a common policy position; as a result, Europe continues to punch far below its weight – a problem seen clearly at Copenhagen, where despite a credible policy position ahead of the summit, the EU found itself largely irrelevant to the outcome. Although the bloc’s Lisbon Treaty has at last come into force, it remains to be seen whether it will stimulate European countries to caucus more effectively and to present a unified position internationally.

**Japan**, meanwhile, remains in flux. In recent years, its main objective internationally has been to secure greater representation for itself within the global system, but it has often lacked the policy ideas needed to play an enhanced leadership role. Its economy remains the second largest in the world, but has yet to recover from an asset price bubble in the 1990s – and has now been damaged again by collapsing export markets.<sup>30</sup> Looking to the future, Japan’s aging population represents a serious challenge: by 2050, each of its workers is likely to have to support more than twice as many elderly people as today.<sup>31</sup> However, the results of the country’s general election in August 2009 – which saw the Liberal Democrat Party ejected from office for the first time since its foundation in 1955 – represent an important shift. Incoming Prime Minister Yukio Hatoyama’s pledge to reduce Japan’s greenhouse gas emissions by 25% below 1990 levels by 2020, and renewed assertiveness in the US-Japan relationship, has demonstrated a renewed appetite for exercising a global role.<sup>32</sup>

**Low income countries**, as always, are on the front line of most global risks. Higher food prices in 2008 and the subsequent downturn are estimated to have pushed the global total of undernourished people to over one billion, up from 850 million before the peak of the food price spike.<sup>33</sup> Poor countries have also been vulnerable to the wider effects of the credit crunch, with the World Bank warning that many governments will be forced to cut public spending just at the time when it is most needed.<sup>34</sup> While smaller groups of developing countries may play an active role in shaping responses to some risks (the Alliance of Small Island States on climate change, for example), for the most part the poorest countries will only find themselves center stage when their failure poses a direct threat to major powers – particularly given the unwieldiness of the G77 as a vehicle for representing poor country interests (discussed below).

### **Seizing the moment**

Not all cooperation is forged by crises; important developments can arise from the slow, steady progress that is the default pace of international negotiations, but recent events have provided

some evidence to support the proposition that shocks can help galvanize international cooperation, promoting fresh attempts to tackle the underlying causes of global instability.

Reaction to the economic meltdown has, to date, been reasonably well coordinated, with actions agreed at the **G20** Washington, London and Pittsburgh Summits proving successful, at least in the short term, in restraining protectionism and priming the start of an economic recovery. While the G20 London Summit in April 2009 concentrated on emergency measures, the outlines of a post-meltdown economic order began to emerge in Pittsburgh six months later, with the G20 designated as the “premier forum” for international economic cooperation between major powers, charged with building a “resilient economic system” and reducing “development imbalances”. The G20 leaders also made headway on the fraught question of representation – which, although it is normally treated as merely a matter of status or entitlement, has a direct consequence for effectiveness. Rising powers are unlikely to agree to new rules or capacities over which they have no voting control, and their participation in those rules is an essential part of reducing the risks of the next crisis.

Leaders have committed to setting out shared policy objectives, with the **IMF** charged with providing an analysis of how well national and regional policies adhere to a Framework for Strong, Sustainable and Balanced Growth.<sup>35</sup> The US agreement to participate in what amounts to IMF-led peer review was a striking contrast with earlier policy. The IMF has also seen an increase in Special Drawing Rights, while the **Financial Stability Board** (built on the foundations of the Financial Stability Forum) has been mandated to co-ordinate international financial regulation and tackle systemic vulnerabilities.<sup>36</sup>

The **World Bank**, meanwhile, has been asked to tighten its focus on food security, climate change, fragile states, and economic growth. G20 countries are committed to some voting reform for the Bank, while a high-level reform commission chaired by Ernesto Zedillo has urged more far-reaching measures to increase voice and participation, along with the development of mechanisms to strengthen the World Bank Group’s strategy and resource allocation capacities.<sup>37</sup> The **United Nations** has also adapted to the credit crunch, with an effective High-level Task Force on the Global Food Crisis convened by the UN Secretary-General and work underway on a new Global Impact and Vulnerability Alert System in preparation to provide real-time evidence and alerts to world leaders on the impacts on poor people of the financial crisis and other risks.<sup>38</sup>

At the **regional level**, recent years have seen a range of moves towards meaningful cooperation – including, for example, the creation of the Shanghai Cooperation Organisation (which brings together China, Russia and central Asian republics to cooperate on security and other issues), the Chiang Mai Initiative (a system of bilateral swap arrangements between ASEAN members plus Japan, China and South Korea), and the agreement of a common African position on climate change ahead of the Copenhagen summit, organized through the Africa Partnership Forum. Regional initiatives of this kind could, in time, provide new channels for developing countries to make their voices heard more loudly in global debates.

In the security context, finally, even initial failure in Iraq had the effect of forcing the US military into a fundamental reassessment of its approach to **counter-insurgency** – introspection which may pay dividends in future responses to asymmetric security threats (most immediately, perhaps, in Afghanistan).<sup>39</sup>

But many issues remain outstanding. The ability of the system of international economic governance to respond to future crises is unproven, but may be tested sooner rather than later if fears are realized that we have entered a period of increased economic volatility. There is justified skepticism about whether national governments will change policies to conform to the strictures of the G20. Consensus on financial sector regulation is likely to prove elusive, leaving many financial

institutions dangerously undercapitalized. IMF and World Bank voting reform may not go far enough to meet the needs of developing countries. The Doha trade round remains moribund, in spite of yet another promise to complete it (this time, with a deadline at the end of 2010). While the G20 has deterred a wholesale descent into tit-for-tat protectionism for the time being, significant risks remain: G20 countries are thought to have broken their pledge to eschew protectionism on average every three days, while tension over exchange rates is growing.<sup>40</sup> Many poor countries remain at risk from aftershocks of the financial crisis, but risk being overlooked as developed countries concentrate on problems at home: little attention has yet been paid to current banking turmoil in countries like Nigeria, for example. Over the year ahead, leaders will also increasingly find themselves forced to confront their failure to meet promises on development enshrined in the Millennium Development Goals.

The composition and role of the G20 itself also remains problematic, as does its relationship to other bodies, notably the IMF and G8. While the Pittsburgh summit placed the G20 in pole position as the key global leaders' forum, the G20's membership is a somewhat uncomfortable blend of historical power, current economic heft, geographic representation, and the luck of the draw. There are no criteria for membership, nor any basis on which to adjust the composition of the body to changing circumstances. European countries are represented both individually and through the EU, while the observer status of Spain and the Netherlands at the London and Pittsburgh summits was a striking anomaly.

The future of the G8 remains unclear, meanwhile: while the Pittsburgh summit concluded that the G20 was well placed to replace the G8, last minute Canadian objections mean that June 2010 will see Canada host back-to-back G8 and G20 summits. This could mark the G8's final swansong; equally, however, the G8 (or, more logically, the G7) could continue to meet separately to deal with some elements of the security and foreign policy agenda. All told, the final shape and structure of the G-x grouping is still evolving, with an as yet unresolved ambiguity about the place of security issues in particular. It remains to be seen whether a lasting configuration can be agreed, absent further crises.

On the UN, the end of the Bush administration saw a renewed focus on the role played by the Security Council. Nearly a year later, the intensive round of summitry that took place in September 2009 highlighted ongoing questions about the Security Council's relationship with the G8, G20 and UN General Assembly. While the United States initially shifted to a more open stance on UNSC reform, and formal intergovernmental negotiations began in the General Assembly in September 2008, membership reform remains blocked by competition between major powers, and the lack of a clear answer as to how Africa would be represented. Just as important, though less remarked on, is the lack of consensus among states about how they should act together to guarantee collective security. Governments lack a common analysis of the security problems they face, and of the scope and limits of collective action.<sup>41</sup> Unless this deficit is corrected, moves towards UNSC expansion are unlikely to develop beyond fruitless claims about entitlement and status.

Finally, it bears noting that if increasing regional co-operation suggests the potential for developing countries to act in concert to increase their influence in the international system, the same unfortunately cannot be said of the **G77**. The grouping is often fragmented or limited to playing a blocking role, rather than sponsoring positive and concrete policy action. This problem was especially clear at Copenhagen, which showed again that the G77 is unable to represent the interests of vulnerable countries. Without an amplified voice for those countries that recognize climate change as a threat to their survival, the political conditions for a far-reaching deal are likely to remain challenging.

## Hazards ahead

In addition to the institutional limitations just noted, the international system also underperforms on a range of key issues that are likely to make themselves felt with increasing impact in the future.

The international system is still under-equipped to support **states at risk of, or emerging from, conflict**, for example.<sup>42</sup> While some elements of the system, such as UN peacekeeping, have made important contributions, they have also become over-stretched. While multilateral actors have proved their ability to stabilize a crisis and prolong an interim settlement, subsequent efforts to foster national institution building and economic development have often foundered.<sup>43</sup> Development agencies have become more alive to the risks that conflicts pose to prospects for poverty reduction, but they have only just begun to undertake the reforms that would enable them to help countries recover more swiftly from crises.<sup>44</sup> In the meantime, demographic, economic and environmental factors suggest that risks of conflict are likely to increase over the next twenty years, with the fragility of large, populous states like Pakistan and Nigeria providing worrying evidence of the potential for state fragility with regional or even global consequences.<sup>45</sup>

**Climate change** represents the international system's biggest test in the short term. The Copenhagen summit failed to make significant progress beyond the political deal that had already been agreed at the Bali summit in 2007. In key respects, Copenhagen actually moved backwards from Bali: the political conditions appear to have worsened, while numbers previously agreed by countries that already had targets under Kyoto were omitted from the Copenhagen outcome document.<sup>46</sup> Little work has been done to explore the institutional architecture that will be needed to underpin a climate deal.<sup>47</sup> If a global deal *is* agreed in 2010, a huge effort will be needed to ensure that it can be implemented and enforced. Alternatively, failure to strike a deal will represent a major blow to the international system, and to the credibility of both the European Union and the Obama administration.

Climate change will also amplify a broader set of **resource scarcity issues** that are challenging globalization's current configuration. Food, energy, land and water are other resources of growing strategic importance. The rise of middle classes in India, China and other emerging markets is compounding high consumption levels in developed countries. Fragile states, such as Pakistan and Nigeria, are already suffering from high food prices, water scarcity, and chronic shortages of electricity, as a result of a mixture of supply constraints, inefficient usage, and a failure to invest in infrastructure.<sup>48</sup> Rapid population growth – with a likely 70-80 million more people in both countries by 2030, concentrated almost exclusively in urban areas – will compound these problems.<sup>49</sup> Competition for resources is currently largely unchecked, with middle income countries attempting to 'buy up' land rights in developing countries, and competition between major powers for access to energy and water scarcity provoking friction at a regional level.<sup>50</sup> Whether the international system can become more effective at managing resource scarcity (either through informal norms or through formal institutions) will have major implications for collective perceptions of the equity and legitimacy of globalization.

**Emerging risks**, finally, are another problematic area. The global flu pandemic has now become a 'predictable surprise': its spread is inevitable, but many countries have failed to mobilize to respond to it and are unsure how they will be affected.<sup>51</sup> The pandemic could worsen if mutation increases the fatality rate or creates resistance to anti-viral drugs, causing significantly elevated levels of mortality. Like all public health emergencies, flu will test the effectiveness of institutions at the global, national and local level, acting as a bellwether for their ability to respond to shared challenges. Barring mutation, flu will be containable, with this likely to prove a relatively mild pandemic. It should, however, raise awareness of the potential for unpredictable surprises – what risk theorists call 'black swans' – to challenge global order suddenly and rapidly.<sup>52</sup>

## Flawed design

On these and other risks, the international system is crippled by a number of design faults, which ensure that, as presently constituted, it will be unable to reduce the volatility of contemporary globalization.

First, **the system itself is fragmented, riven by silos, and overly bureaucratic**. Within national governments, archaic divisions between ‘foreign’ and ‘domestic’ policy impede effective understanding of either the global effects of domestic policies (the impact on global food prices of US biofuels investment, for example) or the domestic impacts of global risks, which as we have seen are often game changers.

Globally, the disarray is even worse. Technocratic ‘priesthoods’ cluster around critical multilateral processes, controlling the way ‘their’ issues are framed and imposing their own language and culture. Such tribal groups are even more prone to cognitive biases than non-specialists: as Drew Westen observes, “the more sophisticated people are politically (that is, the more they know about an issue), the more able they are to develop complex rationalisations for dismissing data they don’t want to believe.”<sup>53</sup>

While such priesthoods are an indispensable part of any solution, they tend to celebrate complexity for its own sake (in the process allowing assumptions to become fossilized) – and as a result, often fail to deliver concrete outcomes. Most damagingly of all, they obstruct the development of an integrated worldview *across* risks. This lack of coherence at the national and international levels then becomes self-reinforcing: as the 2004 UN High-level Panel on Threats, Challenges and Change argued, “finance ministers tend to work only with the international financial institutions, development ministers only with development programs, ministers of agriculture only with food programs and environment ministers only with environmental agencies”.<sup>54</sup>

Efforts to tackle the problem of fragmentation and increase coherence have led to a second problem: the increasing **escalation of difficult issues to leaders’ level**, whether through the G8, the G20, or various ad-hoc forums that address climate change, food, and now nuclear weapons. This trend provides a clear indicator of institutional dysfunction in the wider system, yet seldom solves the problem. Progress during summits is hampered by limited bandwidth for making and enforcing policy decisions, especially when moments of acute crisis have passed. G-x groupings have no secretariat and rely on part-time Sherpas to lay the groundwork for agreement.

Virtually all summit processes are consequently stuck in a pattern that favors communiqués or one-off initiatives over longer-term impact. The problem is replicated at national level, where heads of state are tempted to centralize foreign policy, but find their offices have insufficient capacity to forge a synthetic view across risks or effectively drive implementation of decisions. Many leaders hence arrive at summits with few concrete proposals, limited ability to impose direction or a much-needed narrative, and weak ability to follow-up – even within their own national bureaucracies. Commitments routinely outstrip concrete action, eroding confidence in the mechanisms themselves.

This lack of capacity contributes to a third problem: the fact that governments are most willing to act decisively and in unison when disaster strikes, so that **the system is geared towards short-term crisis management and fire-fighting**. The total cost of dealing with the global financial crisis is estimated at \$11.9 trillion,<sup>55</sup> while projections of global bank losses currently stand at \$3.4 trillion.<sup>56</sup> Despite early warnings sounded by the East Asian financial crisis and frequent alerts from both experts and international organizations, investment in prevention in the financial system has not been forthcoming. A similar pattern is visible in the security sector, where resources are poured into countries only when they are on the brink of collapse, and where military budgets (mostly for response) dwarf funds and staff for conflict prevention and state building.

This refusal to invest in prevention is starkest of all when we turn to climate change. In spite of the potential for calamitous future costs, public investment in energy research and development has halved over the past twenty-five years.<sup>57</sup> In contrast, public money spent on the banking bailout would have been sufficient to cover the world's low carbon bill for a decade or more.

The reactive nature of international cooperation stems in part from **incentives that drive policymakers to look at the wrong timescales**. As Robert Axelrod has argued,

*What makes it possible for cooperation to emerge is the fact that players might meet again... The future can therefore cast a shadow back upon the present and thereby affect the current situation.*<sup>58</sup>

Cooperation, in other words, requires actors to value their shared future highly enough to adopt a long term perspective. To put this another way, collective action problems like climate control can only be solved when there are sufficiently strong *signals from the future*.<sup>59</sup>

In focusing most of their current energy on the short term, governments indicate to their partners that they have heavily discounted future risks. Democratic governments may prove particularly susceptible to the lure of the present; if this causes democracies to do less well than semi-authoritarian systems in managing global risks, then the appeal of the democratic model itself could come into question in some societies. (Indeed, the financial crisis has already generated a distinct air of triumphalism among 'state capitalist' economies such as China and Russia.)<sup>60</sup>

As central banks have discovered over the years, credibility is of paramount importance when attempting to frame decision-making. With climate change, for example, investors are likely to anticipate a rising price for carbon in their investment decisions *if* they believe that emissions will be progressively constrained over time – which then introduces a positive self-fulfilling prophecy in the perceptions of government policy as credible which then creates the very effects that the policy intends. If investors do *not* believe that governments will act, on the other hand, they will continue to invest in carbon-producing technologies – and then lobby to protect these investments, making it harder for governments to act, and creating a vicious cycle running from public policy to private behavior and back.

The lack of a long view is exacerbated by a failure to devote resources to **building consensus behind solutions**.<sup>61</sup> The Intergovernmental Panel on Climate Change, for example, represents a significant and sustained investment in developing a joint understanding of the risks posed by a changing climate. The Panel has played an essential role in building an international, scientifically grounded consensus, and has proved highly effective at bridging the gap between climate science and the policymaking process. Agreement to confront the global climate challenge would have been impossible without its existence. At the same time, the IPCC's success exposes the lack of a comparably detailed exploration of what the transition to a low carbon economy would look like, and how it can be achieved.

The same pattern can be seen across all other key global risks. Whether on failed states, terrorism, or resource scarcity, governments have a growing understanding of the nature of the *problem*, but lack a clear, well-articulated blueprint for the changes they wish to bring about to *solve* it. Small wonder, then, that they find it so hard to agree on what action to take.

On a related note, the lack of a **theory of influence** for the practice of international relations in a global age represents a serious capacity deficiency for both national governments and the multilateral system as a whole. On issues like climate change, infectious diseases, fragile states, economic reform, or terrorism, success can be achieved only by changing the perspectives and behavior of a great many countries, organizations, communities and networks. Reforms that

change the nature of sovereignty are especially vulnerable to blocking constituencies, as the Irish public's initial refusal to ratify Europe's Lisbon Treaty in June 2008 showed. New tools are therefore needed to identify the key players in any given debate, to analyze how these players influence broader networks, and to understand the levers that can create the political conditions to support reform. A focus on influence has the potential to unite diplomatic, military and development practitioners around a coherent 'theory of change', and to force a focus on outcomes, rather than inputs and processes.

Our **foreign policy organizations**, finally – aid agencies, militaries, foreign ministries and so on – “bear testament to the wars of another age”.<sup>62</sup> In the security sphere, while recent years have seen some innovations – such as Provincial Reconstruction Teams in Afghanistan – most militaries remain equipped for conventional wars, not counter-insurgency. Where success has been achieved on modern battlefields, it has usually been against the grain of a military configured, trained and equipped for the industrial wars of the 20<sup>th</sup> century.

Civilian thinking, and capacity, has lagged even further behind. US counter-insurgency doctrine stresses the importance of ‘hearts and minds’, emphasizing that “political power is the central issue in insurgencies and counterinsurgencies; each side aims to get the people to accept its governance or authority as legitimate.”<sup>63</sup> Population security, economic development, essential services, and good governance need to be delivered as an integrated package, combined with a concerted effort to counter the influence of insurgents – a ‘comprehensive approach’ that depends on integrated delivery by military and civilian agencies (often from multiple countries), NGOs, the private sector, and the host government.<sup>64</sup> In reality, though, civilian agencies have not been either funded or equipped to deliver their side of the bargain – leaving delivery lopsided, with kinetic operations driving political strategy, rather than the other way around.<sup>65</sup>

International development, too, is overdue for a process of strategic and operational renewal. Aid organizations are implicitly built around the notion that development can be ‘bought’ through the transfer of resources from donor to recipient – yet the more fragile the state, the less this assumption holds true. While donors’ own analyses acknowledge that insecurity is a major threat to development, most aid budgets remain prohibited from spending against security objectives.<sup>66</sup> While there has been increased focus on governance, it is not yet clear how external actors can best contribute to building capacity in a fragile state – particularly in highly politicized situations where any action will create both winners and losers.<sup>67</sup> On the international stage, meanwhile, the lack of a clear division of labor on global issues, international public goods, and state failure have led to wasteful confusion rather than productive competition. Emerging powers are repeating the mistakes of earlier Western aid policy, while traditional aid agencies are yet to respond effectively to the new entrants.

Ministries of foreign affairs, lastly, still use the same people and toolkits for managing bilateral relationships between advanced capitals as they do in complex peacekeeping, humanitarian and developmental deployments in fragile or collapsed states. Embassies in these countries increasingly resemble fortresses, distancing diplomats from the population even as they attempt to emphasize cultural awareness and people-to-people contact.<sup>68</sup> In capitals, as already noted, foreign policymaking has become increasingly centralized, leaving many foreign ministries marginalized and under resourced. Few, if any, have yet demonstrated an ability to forge and maintain an effective synthesis across issues, while at the same time planning and coordinating the deployment of all available tools to achieve change internationally.<sup>69</sup> Above all, they have yet to carve out a new role for themselves in a world where bilateral relationships between governments are becoming less important, but global networks much more so.

## Avoiding breakdown

Today, we face challenges that can be compared with the ‘first globalization’ of a century ago – which in the worst case, could have similarly disastrous consequences.

Then as now, financial systems were unable to cope with the strains placed on them; in 1907, they came close to collapse.<sup>70</sup> Resource pressures were also increasing as the United States, the rising power of the day, competed with established European powers.<sup>71</sup> States had failed to adjust to a new paradigm of war and were enmeshed in a diplomatic system that was intricate in its operation, but in which levels of mistrust had steadily grown.<sup>72</sup> The result, in 1914, was the destruction of the European order and a period of chaos that took two world wars and an intervening depression to resolve.

The first globalization ended because states’ shared assumptions pushed them towards fragmentation rather than cooperation, mutual incomprehension instead of shared awareness, and from peace towards common disaster. Perhaps the second globalization will fare better. Today, both rising and established powers profess to profit more from stability than turbulence. Confronted with the relative decline of US hegemony, leaders in Brazil, India and China seek a ‘soft landing’. Faced by global economic imbalances, debtor and creditor countries appear willing to seek joint solutions. There is even a residual international willingness to try and help the United States and its allies rectify mistakes made in Iraq and Afghanistan.

But at the same time, risks abound: in misunderstandings among the major powers (over China’s military ambitions, or US attempts to exert control over the broader Middle East); over competition for resources and emission rights; and particularly during acute emergencies and shocks (Iran, Pakistan, resurgent terrorism) where events have the potential to suddenly run out of control.

To reduce the chance of a replay of tragedies on the scale of 1907-45, we must therefore develop a *new doctrine* for an age of global risks, using it to create a narrative about how to manage the next generation of challenges facing globalization and the liberal international order.

As Philip Bobbitt has argued, doctrine is needed most acutely in times of uncertainty. “It is in periods of transition that transparent rules are most useful,” he writes. “They may fail, but they will fail publicly, and the new rules that emerge will have a foundation of understanding to support them. If our publics...are aware of what rules we are trying to enforce – for ourselves as well as others – then debate and persuasion are possible. But if there are no rules or principles, then positions harden and exchanges degenerate into soliloquies – gestural, emotive, irreconcilable.”<sup>73</sup>

## TWO : The Risk Doctrine

### Why focus on risk?

In his 1948 classic, *Politics among Nations*, Hans Morgenthau exhorted his readers to “assume that statesmen think and act in terms of interest defined as power.” This assumption, he argued, allowed all foreign policy decisions to be placed on a single “intelligible, rational continuum, by and large consistent within itself, regardless of the different motives, preferences, and intellectual and moral qualities of successive statesmen.”<sup>74</sup>

While this focus on national interest and the primacy of nation-states had explanatory power in the 19<sup>th</sup> and 20<sup>th</sup> centuries, it is outmoded in the post-Cold War context. As President Obama argued in his first address to the United Nations, “In an era when our destiny is shared, power is no longer a zero sum game... No balance of power among nations will hold. The traditional division between nations of the south and north makes no sense in an interconnected world. Nor do alignments of nations rooted in the cleavages of a long gone Cold War.”<sup>75</sup>

As the President recognizes, national sovereignty is increasingly constrained, and the line between international and domestic policy has become blurred. For most states, at most times, the greatest threats to security and prosperity are not posed by other states acting alone, but by networks of state and non-state actors, by the unintended consequences of trans-boundary flows (finance, technology, biological material, information, etc.), and by the under-supply of global public goods. In the 21<sup>st</sup> century, therefore, we need to move from an outmoded foreign policy paradigm that has the national interest as its sole lodestar, to one focused instead on managing shared risks. If governments turn their attention to risk, they are unlikely suddenly to see eye to eye on all issues; but a risk paradigm at least provides a clearer basis for cooperation between them.<sup>76</sup>

A focus on risk brings strategic clarity for seven main reasons. It:

- **Emphasizes uncertainty**, highlighting those risks that countries are least able to mitigate on their own, especially those that have a ‘fat tail’ (in other words, risks are low probability, high impact, hard to quantify, and therefore often especially politically contentious).
- **Places a higher value on the future**, encouraging decision makers to analyze threats over the medium term (on most issues, 2030 is a credible time range).
- **Provides a context for immediate interests in acute crises** – while major powers have dangerously diverse interests in Iran, for example, they have a shared interest in avoiding collapse of the non-proliferation regime or a nuclear arms race in the Middle East.
- **Acts as the glue to bind together alliances and other cooperative structures**, motivating policy makers to create connections between states, and between states and (benign) non-state networks.
- **Creates incentives for undertaking strategic synthesis** across sectors, with an ‘all risks’ approach helping to break the hold that each bureaucratic priesthood has over its issue.
- **Provides a structure for exploring effective solutions**, encouraging the design of systems that are responsive to a range of risks and that can adapt to a rapidly changing environment.
- **Offers a rationale for governments to concentrate resources on their core mission** – which might be defined as providing ‘collective security’ for their citizens – and to measure impact against this overarching objective.

Development of a risk doctrine thus requires a decisive shift in worldview, both from national governments and from those working in the international system. It challenges decision makers to build an integrated picture of the threats they face, allowing risks to be prioritized, and scarce resources and institutional capacity to be directed towards the most pressing problems. As Paul Bracken has argued, a focus on risk should create ‘productive conversations’ among policymakers, enabling them to “begin to organize the mass of local complexity involved in building real systems” while supplying the architects of these systems with the “concepts, vocabulary, and distinctions that describe major design alternatives in understandable ways.”<sup>77</sup>

### Risk portfolio

When exploring risk, the central aspects to highlight are:

- Long-term **stresses** that will lead to inexorable changes in the risk environment we inhabit. Population growth, technological diffusion, and environmental degradation all fit into this category. Policy may be able to mitigate these trends to a certain extent, but – barring a catastrophic loss of global population and/or wealth – the overall direction of travel is fixed, at least until 2030. We know that the world will see a rapid increase in the number and size of towns and cities in low and middle income countries (around 1.5bn more people over twenty years, the vast majority of global population growth).<sup>78</sup> We know that communication will become ever more pervasive; flows of knowledge increasingly frictionless; and destructive technologies more powerful and accessible. And we know that greenhouse gases will accumulate in the atmosphere, while natural resources will be more tightly rationed (whether through price or other policy mechanisms, or simply through supply shortfalls).
- Acute **shocks**, that usually strike with minimal warning, but whose frequency, timing, location and exact nature are influenced by longer term stresses (and in particular by the interaction *between* stresses). Interdependence both increases and decreases our vulnerability to shocks. On the one hand, wealth is positively correlated with resilience, while there is greater scope for mutual assistance in a globalized world. On the other, tightly linked systems are more vulnerable to disruption; at the same time, the financial magnitude of losses is growing (the cost of a hurricane in the US of a given intensity doubles every decade, for instance).<sup>79</sup> These risks are poorly priced by market mechanisms, either because of their sheer unpredictability (natural disasters, conflict, etc.) or because their systemic nature radically re-orders pre-existing assumptions (financial crises, state failure, etc.). As a result, they often cannot be insured against adequately, if at all.<sup>80</sup>
- Our vulnerability to **deliberate disruption** by actors who probe global systems, looking for points of weakness in pursuit of political or financial ends – or, increasingly, a combination of the two. Organized crime has globalized as rapidly as business and shows similar patterns of innovation. Networked insurgent and terrorist groups aim to achieve maximum physical and psychological disruption at minimum cost (Bin Laden has boasted of 9/11’s return on investment).<sup>81</sup> Techniques proliferate in an international ‘bazaar of violence’, with criminals, insurgents, and terrorists tending to display high levels of innovation, in part because of their own attitude to risk (an entrepreneurial reliance on trial and error, combined with a relatively high tolerance for failure), and in part because intelligence on how modern systems work (and can be made to fail) is widely available.<sup>82</sup>
- Our own tendency to weaken the systems on which we rely through **folly, ignorance or neglect**. A lack of redundancy in global systems leaves little margin for error, while we have often exported risk across institutional and geographic borders with little understanding of the likely consequences – as the financial crisis has shown. The war on terror, meanwhile, demonstrated how easily Western countries can be persuaded to abandon core values, with human rights abuses undermining their legitimacy around the world at the same time as

helping their adversaries to achieve recruiting and other objectives. Our failure to invest in energy security or to respond rapidly to environmental threats is also well documented.

Table 1 provides an overview of some of the more important global risks. Looking across the portfolio, one sees that the world faces novel challenges (e.g. managing bio-security) and needs to develop both unprecedented institutions (e.g. resilient global carbon markets), and tough mechanisms for enforcement (e.g. for nuclear proliferation or emissions control). Power shifts must be managed both in the short term (economic imbalances) and over the long term (demographic change). There are complex interactions between risks (energy and food security, for example), while insurgent groups have attractive opportunities to disrupt global networks (especially when state weakness and access to these networks coincide).

Our intention is not to provide a comprehensive account of the challenges we face (others have already attempted that task).<sup>83</sup> Instead, we aim to:

- Offer a broad assessment of both risks and solutions.
- Create an integrated picture that forces analysis across risks.
- Capture and emphasize the scale of the task ahead.

For each risk, therefore, we suggest a *destination* (what it would take to manage the risk effectively) and a *starting point* (where we are now).

The first set of risks set out in Table 1, **security threats**, is growing in both importance and complexity.

As we enter a 'second nuclear age', there is a dawning realization that this era will be "more precarious, psychologically disorienting, and economically even more costly than was Cold War deterrence."<sup>84</sup> The dangers are similar with bio-security, where rapid technological innovation has created a matrix of poorly understood threats. Deeper consensus is needed across the scientific community, industry and government on measures that will diminish the risks posed by widely distributed biological capacity. Fragile states are also now a well-recognized threat, but this is yet to produce institutional innovation: Iraq, Afghanistan, Pakistan, Sudan, the Democratic Republic of the Congo and others have all demonstrated the international community's limited capacity to assist weak states. Terrorist groups, meanwhile, are likely to continue to exploit the vulnerabilities of both poor and rich societies, demonstrating the importance of narrowing the scope of under-governed spaces, and of exploring measures to 'inoculate' communities against the appeal of radical groups.

Across these security risks:

- **A new vision is essential.** The Shultz/Perry/Kissinger/Nunn call for global nuclear disarmament was a game changer, while President Obama's adoption of the Global Zero goal has opened up space for arms control measures that were once unthinkable.<sup>85</sup> A similar commitment is needed to confront the challenges of the 'biological century', focusing on both the threats and opportunities posed by the biotech revolution, and on measures to roll back the erosion of state capacity in fragile states.<sup>86</sup> At the same time, both governments and non-state actors must develop new capacity to penetrate the domestic and international narratives that mobilize support for radical terrorist organizations, while ensuring alliances are strong enough to withstand terrorist action targeted at psychological points of weakness.

<b>Security</b>		
<b>Issue</b>	<b>Where we need to get to</b>	<b>Where we are</b>
<b>Nuclear security</b>	Substantial reduction (moving towards possible elimination) of nuclear weapons, including among the post-Second World War nuclear powers, within a multilateral framework; shift in doctrine away from first-strike use; major upgrades in non-proliferation machinery, probably including a mandatory IAEA Additional Protocol and multinational fuel bank; and built-in sanctions for attempted regime exit. Wider ratification of Comprehensive Test Ban Treaty and development of a Fissile Material Cut-Off Treaty.	US-Russia negotiations on a successor to START at an advanced stage, but ongoing proliferation risks (especially Iran and DPRK).  Nuclear Iran likely to trigger a Middle East arms race. Tentative outcome of P5 + 1 talks in October 2009. Confused and halting movement on a multinational fuel bank.  Path to upcoming NPT Review Conference (May 2010) bolstered by unanimous approval of draft UNSCR 1887, reaffirming non-proliferation and disarmament goals. Nuclear Security Summit, Washington, March 2010.
<b>Biosecurity</b>	Full implementation of WHO International Health Regulations. Reform of Biological and Toxin Weapons Convention. Deepening scientific consensus and action through an Intergovernmental Panel on Biotechnology; internationally coordinated biotech research oversight; better contingency planning for security breaches; comprehensive global surveillance and rapid response mechanisms. Widespread and quick access to vaccines and medication. Strengthened, better funded WHO.	Rapidly increasing biotech research capacity with attendant proliferation risks.  Attempts to integrate public health and national security (e.g. US), but global regime distant.  WHO generally effective on surveillance and response, but struggling to engineer collective action (e.g. vaccine samples).  Widespread disparities in preparedness across developed and developing countries.  Hesitant exploration of new tools for biosecurity and bio-safety; limited policy attention.
<b>Fragile states</b>	Dramatically upgraded international approach to resilience in fragile states; integrated delivery across conflict prevention, political/economic analysis, natural resource governance, post-conflict reconstruction, climate adaptation, social protection and governance. Standing rule of law and police capacities able to be deployed in preventive and post-conflict contexts. Scaled up and more coherent international emergency capacity, including peacekeeping, economic recovery and humanitarian assistance.	Delivery fragmented, short term, and un-strategic. Development assistance only beginning to adapt to the realities of conflict and fragility.  Efforts to operationalize R2P proving problematic. Peacekeeping missions frequently under-resourced or over-stretched. Chronic underfunding of humanitarian assistance. Police and rule of law capacities limited and difficult to deploy outside of Security Council-authorized operations.  Limited results from investment in governance and economic recovery.
<b>Terrorism</b>	Near universal acceptance of a rules-based international regime. Commitment to international counter-terrorism norms. Effective tools for capacity building for CT, police and rule of law.	No common international legal framework or accepted principles for global cooperation on CT, intelligence and financial flows.  Tools to support national rule of law, police and CT in their infancy.

**Table 1: The Risk Portfolio**

## Political economy

<i>Issue</i>	<i>Where we need to get to</i>	<i>Where we are</i>
<b>Demography (urbanization, population growth)</b>	Poor countries complete their demographic transition. Broad commitment to sustainable development within resource limits. Poorer countries develop fast enough to collect a 'demographic dividend' while dependency ratios are low. Developed societies remodeled as populations age. Consensus on migration between sending/receiving countries.	Population expected to exceed 9 billion by 2050, with urban areas in developing countries expected to grow by 1.21 billion people by 2025 and 2.95 billion by 2050. <sup>87</sup> Stalled demographic transition in many fragile states.  Pressures from migration on both receiving and sending countries. Growing budgetary pressures due to aging societies.  Millennium Development Goals will not be met.
<b>Resource scarcity (energy, food, land, water)</b>	Integrated multilateral approach across scarcity issues. Specific focus on increasing resource supply and efficiency of use; building resilience to unexpected shocks; and supporting communities most vulnerable to resource scarcity. Shaping stronger international norms, developing agreed rules and rights/responsibilities with respect to use of global commons.	By 2030, demand for food will increase by 50%, for water by more than 25%, and for energy by 45%.  Investment in increasing supply has been stagnant or fallen over recent decades.  National and multilateral systems for addressing scarcity fragmented, under-researched and under-resourced.
<b>Climate</b>	Stabilizing greenhouse gas concentrations at 445-490ppm CO <sub>2</sub> e, implying global emissions reductions of 50-85% within four decades (more once sink failure is taken into account). Securing agreement on an effective regulatory regime, including a safe 'global emissions budget'. Robust and credible compliance system. Financial flows for adaptation and technology. A compelling narrative to shape citizens' actions.	Concentrations already at 455ppm CO <sub>2</sub> e, rising by between 1 and 2ppm each year.  No attempt yet made at intergovernmental level to quantify or discuss a global ceiling or allocation principles for an emissions budget.  Kyoto enforcement system is weak. Financing characterized by small financial flows and low coherence.  Copenhagen failed to make significant headway, and political conditions for a comprehensive deal appear absent.
<b>Global economic stresses</b>	Effective and enforceable mechanisms to prevent major imbalances from building up in the international economy. New regulatory structures to manage cross-border financial flows. Development trade round completed with special and differential treatment provisions for least developed countries. Improved WTO management of security of supply issues (e.g. risk of food export restrictions), as well as links with climate change ('carbon tariffs'). Integrated analysis and use of trade, financial, aid and governance tools to combat poverty.	G20 established as "the premier forum for our international economic cooperation".  G20 commitments to promote strong, sustainable and balanced growth; reform IMF and World Bank governance; and strengthen banking regulation – implementation and enforcement problematic.  Trade round stalled.  Poverty eradication efforts weakened by uncertain analysis, disconnects from trade, finance and security policy; and lack of compelling narrative linking distant poverty to present economic/security conditions.

**Table 1: The Risk Portfolio (ctd)**

- **Analysis** is needed on the institutions and responses that will underpin collective security in the 21<sup>st</sup> century. New intelligence networks would help prevent non-state use of both nuclear and biological weapons, while providing warning systems for states in insecure regions. Across a range of threats, innovative protocols and methodologies can help ensure sufficient information is generated, shared, and protected.<sup>88</sup> On fragile states, a major push is needed to assess effective tools for building resilience in countries that are at risk of collapse. In the biological realm, new analysis and development of common understanding among the scientific community is the essential bedrock of any efficient institutions whose aim is to improve bio-safety.
- Plans should also be developed to exploit upcoming **milestones in the international calendar**. This year will see the NPT Review Conference offer significant opportunities to set standards for a new nuclear age (whether on non-proliferation, disarmament or nuclear energy), while review of the UN's Peacebuilding Commission, also in 2010, will offer a chance to rebalance its constructive contributions on the ground (limited, but real) against its institutional dithering in New York.
- Finally, investment is needed in **preparing for failure**, with the aim of ensuring that the international system is capable of responding to global emergencies. The spectrum of possible security shocks ranges from the profound (a weapons test by a new nuclear power, an Israeli or US air strike on Iran, a lapse in the security of an existing nuclear arsenal, failure of a medium sized state) to the outright catastrophic (use of a weapon of mass destruction, a cascade of state failures across a region). Governments should invest in contingency planning and joint exercises at the international level, while ensuring spare capacity for deployment in an emergency, upgrading peacekeeping and humanitarian systems for an increased case load and developing tools for deepening resilience at community level (e.g. distributed communication channels, improved means of managing population flows, mechanisms for arbitration and reconciliation, etc).

**Political and economic risks** demand similarly far-reaching reform. Demographic change will have a profound impact on all other global risks, yet few have grasped the scale of this challenge. Young, urban populations are certain to drive instability if, as seems likely, they are starved of economic opportunity and natural resources, and are confronted by the implications of an increasingly unstable climate. Scarcity, too, will recast other economic and security risks, while climate change is exposing the international system's inability to deliver. These risks – and the reactions they prompt – will complicate a bumpy economic recovery. Governments therefore need to search for a new consensus that stretches across international development, economic governance, climate stabilization, and scarcity.

- Again, **vision** is important. In the post-Cold War era, leading powers have relied on a 'globalization' narrative that has been badly dented by the recent global economic meltdown. They now need to weave together a replacement, offering a compelling picture of the rules, norms and formal institutions that will underpin a sustained economic recovery, trigger a low carbon transformation, and allow for fair access to emission rights and other scarce resources. A new development agenda is a vital part of this vision, providing fresh direction as the world confronts its failure to meet the Millennium Development Goals or to complete a world trade round that was originally hyped for the benefits it would bring to developing countries.
- A deeper **analytical base** will help governments build this vision, opening up debates on the institutions that will underpin a global deal on climate; exploring links between climate, resources, finance, and trade; and developing the shared analysis required to manage and understand scarcity. Member states should push for collaborative working and integrated analysis across all international organizations with an economic, climate or resources mandate

– including IEA, FAO, IPCC, World Bank, IMF, WTO, UNEP and OCHA. One positive step would be to commission them to work together to produce a regular World Resources Outlook, bringing together global and regional scientific surveillance across energy, food, water and other scarcity trends and integrating it with economic analysis and field-level vulnerability surveillance (for a more detailed analysis of these proposals, see *Multilateralism and Scarcity*, forthcoming).<sup>89</sup>

- As with security, there are significant **milestones in the international calendar**. The poor outcome of the Copenhagen climate summit must be taken as a signal to accelerate the pace on institutional reform. The High-level Panel on climate and development subsequently launched by the UN Secretary-General is a positive step, potentially providing the key input to the expected Rio+20 Summit in 2012. The 40<sup>th</sup> annual meeting of the World Economic Forum in Davos in 2010, meanwhile, offers an opportunity for a high level review of global governance structures – an agenda already in preparation through WEF’s Global Redesign Initiative.<sup>90</sup> 2010 will also see a World Summit on development, marking the tenth anniversary of the MDGs, and providing a forum for developing a new consensus between rich and poor countries.
- Preparations should also be made for **failure** to reach or implement agreement on key issues (economic imbalances, climate), as well as for *shocks and emergencies* (climate and other environmental disasters, resource spikes, economic crashes). Humanitarian assistance systems will likely need to be scaled up to meet new needs; a credible target is an ability to assist 200 million people at any one time (doubling existing capacity), while investment should be increased in social protection systems as a means of building community-level resilience. At the international level, the trade system must be made less vulnerable to supply disruptions, for example by investing in multilateral food stocks, bringing China and India into full IEA membership, and introducing WTO rules against sudden export restrictions.

### **From risk to resilience**

As this section of the paper has demonstrated, sustaining the benefits of globalization – economic growth, the spread of liberal values, stable relations between great powers and so on – will depend on creating global systems that are more *resilient* to a range of challenges. The next section of the paper explores the concept of resilience in more detail, discussing both the meaning of resilience (and how it applies to international relations), and how policymakers can begin to act to create the conditions for a long-term transformation in patterns of global cooperation in pursuit of it.

## THREE : From Risk to Resilience

### Emergent resilience

In proposing the management of risk as a paradigm for international cooperation, we have focused attention on the need for collective responses to shared challenges. Our contention is that, in a highly interdependent world, the liberal international order is threatened by a volatile blend of long-term stresses, unpredictable shocks, deliberate disruption, and failure to decrease vulnerabilities in the system. Governments, especially those that aspire to global leadership, must hence focus their efforts on strengthening the transnational systems on which their citizens depend.

Resilience, we believe, should be recognized as the central goal of international cooperation, encompassing a range of strategies designed to render global systems better able to defend themselves from attack, absorb shocks, and adapt to future challenges. We adopt the following definition of resilience:

*The capacity of a system to absorb disturbance and reorganize while undergoing change so as to retain or enhance effective function, structure, identity and feedbacks.*<sup>91</sup>

In part, resilience refers to the ability of a system to 'bounce back' after experiencing a shock, instead of losing functionality and structure when hit by crisis. But the concept is broader than that. A resilient system must be able to defend itself against disruption, and prove robust enough to resist incursion from actors equipped with exploitative strategies, who aim to subvert its key functions.<sup>92</sup> Resilience is also concerned with a system's adaptive capacity and its identity: as it confront different stresses over time, is it able to 'reorganize while undergoing change' while still remaining maintaining or fulfilling its core identity, and thus remaining true to itself?

A resilience perspective has five main advantages. First, **it encourages policymakers to take the idea of failure seriously**, puncturing the polite fiction that serious reversals are highly unlikely, if not impossible. Alan Greenspan described the financial crisis as "much broader than anything I could have imagined" – a worrying admission from a man whose job was to prevent systemic disruptions in financial markets.<sup>93</sup> In the security sphere, the surprise factor of attacks such as 9/11 exposes a misplaced confidence that our adversaries will follow the same rules and make the same types of decision as we would, had we been in their place.<sup>94</sup> Nuclear proliferation, meanwhile, is perceived more as a long-term strategic problem than as the potential precursor to actual nuclear conflict, despite warnings like that provided by the Kargil crisis, where Pakistan and India risked "nuclear war by accident."<sup>95</sup> We may be aware of the potential for an unconventional attack by a non-state actor (a dirty bomb or bioweapon, for example), but our reaction to such an attack is likely to be instinctive and uncontrolled, not strategic. Greenhouse gas emissions, finally, have the potential to trigger catastrophic change in natural and socioeconomic systems, but the "non-negligible probability of a catastrophe" has (so far, at least) exerted little influence on policy outcomes.<sup>96</sup>

Second, **resilience focuses attention on the functions delivered by the international system, rather than its form**. Most debates about the future of the international system tend to revolve around changes to the configuration of organizations or the balance of representation for different countries, and to generate more heat than light. Instead, the architects of a more resilient globalization need to direct their attention towards results and outcomes: what is it that they want international systems to deliver?<sup>97</sup> Interdependence – and the complexity it implies – is expensive. Any cooperative system must therefore deliver sufficient benefits to make interdependence more valuable than independence; otherwise a system will 'decompose' as states seek to meet their needs in smaller groupings.<sup>98</sup> This is *especially* true at an international level, given the centrality of national sovereignty to the system's design principles.

Third, **resilience pushes us to adopt a broader understanding of the term ‘institution’**.

Through habit, policymakers tend to think of a handful of *existing* organizations when they think about international institutions – a perspective that inevitably shrinks horizons. In Douglass North’s famous definition, by contrast, “institutions are the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction.”<sup>99</sup> Any effective institutional solution requires the coherent operation of a network of norms, rules, strategies, treaties, regulatory structures, markets, and organizations, drawing together all the tools needed to manage risk over the long term. A set of ‘rules of the game’ is likely to prove resilient when it delivers positive-sum results over time, while the international system’s constituent parts will thrive to the extent that they solve problems at acceptable cost.<sup>100</sup>

The goal of creating resilience, fourth, is sufficiently challenging that **it demands increased levels of innovation**. At present, globalization fosters some kinds of innovation (mostly technological), but not others (social, institutional, regulatory, etc.). Unfamiliar risks, however, demand new types of international cooperation, delivered through innovative institutional forms, and delivering outcomes quite different from those expected in the 20<sup>th</sup> century. The organizations that underpin the current international system will need to be adapted to new realities, in some cases through radical reform. At the same time, new types of structures and fresh norms will be needed to guide the interactions between international, state and non-state actors. Over time, in other words, the rules of the global game must undergo far-sighted and wide-ranging revision if they are to be resilient in the face of both today’s and tomorrow’s risks.

Above all, resilience **prompts policymakers to recognize the collective nature of both the problems they face, and the solutions to them**. In a *high resilience system*, risk – and response to that risk – is broadly distributed throughout the system. Individuals and groups share a sufficiently accurate interpretation of the challenges they face. Crisis prompts renewal, with unfamiliar challenges prompting high levels of innovation. Complex cooperative structures are able to withstand what Daniel Dennett characterizes as “the boringly simple world of universal selfishness, universal defection.”<sup>101</sup> In a *low resilience system*, by contrast, the future is heavily discounted, its interpretation is contested, or actors simply misunderstand the challenges they face. Risks are poorly distributed, falling disproportionately on groups that have insufficient agency to respond to them. As a result, crisis prompts conflict between actors, while the system as a whole becomes prone to losses of complexity and function when placed under stress. Ultimately, collapse may result, where “a disturbance that exceeds the system’s resilience breaks apart its web of reinforcing interactions.”<sup>102</sup>

A primary objective of international relations, then, should be to stimulate ongoing investment in resilience, coordinated across multiple actors, none of whom face a straightforward incentive to act. This is a familiar justification for any social system. For David Hume, the fundamental rationale for society was to compensate for the ‘infirmities’ of individuals acting alone: “By the conjunction of forces, our power is augmented. By the partition of employments, our ability increases: And by mutual succour we are less expos’d to fortune and accidents. `Tis by this additional force, ability, and security, that society becomes advantageous.”<sup>103</sup> Cooperation would not result simply because it was beneficial, Hume argued: before that, it was necessary for members of a society to become “sensible of these advantages.” Perceptions, therefore, matter a great deal. A ‘whole system of actions’ must cohere to deliver ‘just’ outcomes that are *seen* to deliver mutual benefit.

Hume’s emphasis on social *systems* is supported by more recent research, much of it rooted in game theory. Resilience *emerges* from a network of relationships, as actors identify what Dennett terms their “interest in discovering conditions in which cooperation will flourish” and in creating stable frameworks that reward cooperators while punishing or excluding free riders.<sup>104</sup> Axelrod and Keohane take the point further, arguing that far from depending on universal harmony, it is precisely its *absence* that prompts successful societies to cooperate: “Harmony requires complete

identity of interests, but cooperation can only take place in situations that contain a mixture of conflicting and complementary interests ... In such situations, cooperation occurs when actors adjust their behavior to the actual or anticipated preferences of others.”<sup>105</sup> Indeed, diversity is an important part of what makes cooperation attractive. Rewards will be maximized if members of a society have different desires and skills (encouraging division of labor) and vulnerabilities (allowing risk to be pooled).<sup>106</sup>

A society must be resilient in two ways, then: it needs to deliver lasting *benefits* from cooperation (*functional resilience*), but it must also stimulate the *will* to cooperate, thus ensuring its own structural integrity and durability (*formal resilience*). Cooperation evolves through institutions that lock in habits of reciprocity, while building a web of interconnected relationships that strengthen over time.

The process has an evolutionary dynamic. Complex frameworks for cooperation must be constructed on simpler ones, with each framework contributing the ‘cranes’ that then build its successors. The process may be messy, inefficient and slow, but in the absence of a global sovereign power, wielding a “skyhook” that is able miraculously to lift “unwieldy objects out of difficult circumstances”, it is the only one we have. As Dennett has argued, “Cranes can do the lifting work our imaginary skyhooks might do, and they do it in an honest, non-question-begging fashion. They are expensive, however. They have to be designed and built, from everyday parts already on hand, and they have to be located on a firm base of existing ground.”<sup>107</sup>

### **Cranes for cooperation**

So what types of crane are we likely to find most useful in building the international institutions we need to increase overall resilience? How do we design resilient institutions that have sufficient power to allow actors to recognize their mutual interests, even in conditions of considerable ambiguity, and then act to secure them? A number of themes emerge from the literature.

First, **bandwidth** is important (that is, the number, nature and content of the relationships between the constituent parts of the international system). The Prisoners’ Dilemma – a two-person game, where each player has a strong incentive to defect, even though cooperation delivers better collective results – can only be ‘solved’ when it is iterated, and players know that they are likely to meet again.<sup>108</sup> In the field, too, levels of trust within a group have been shown to help determine its ability to manage common resources, thus avoiding or mitigating a ‘tragedy of the commons’.<sup>109</sup> ‘Thick relationships’ – dense networks where one-off interactions are expected to have broader consequences for overall reputation – are more likely to lead to generalized and habitual cooperation than ‘thin ones’ (a succession of discrete, bilateral links).<sup>110</sup>

Second, networks are unwieldy unless their constituents are **aggregated**.<sup>111</sup> Organizing a broader system into cohesive subgroups improves the chances of cooperation, even if initially this seems to increase levels of disagreement as differences are identified. (In contrast, however, subgroups that exist without a process for identifying and acting on common interests will export this dysfunction to the wider pool.) A primary function of institutions is to divide complex problems into their component pieces – so-called ‘nesting’ – enabling dauntingly complex dynamics to be broken down into simpler ones with fewer actors, while also creating the redundancy that contributes to resilience.<sup>112</sup> Caucuses play a similar role. First, the caucus negotiates with itself. Then it takes a common position into a negotiation with another actor (or caucus). Larger agreements are thus constructed on the back of smaller ones, while institutional habits formed within the smaller group provide a precedent for similar behavior in the wider system.<sup>113</sup> A sufficiently large and cohesive group may find itself in a position where it makes sense for it to act alone to supply a public good, even if others do not join in.<sup>114</sup>

Third, **foresight** matters a great deal.<sup>115</sup> As we have already argued, cooperation depends on the shadow that the future casts on the present.<sup>116</sup> A key rationale for our emphasis on risk is that it requires analysis of future scenarios and outcomes. States make implicit bets on the future – wagers that are grounded in a more or less useful analysis of available knowledge, and that reflect how greatly they value the future when compared to the present. By increasing foresight, the aim is to make their bets *transparent*; to ground them as far as possible in an accurate ‘mental models’; to use familiarity with the future to make it seem less distant and therefore more valuable; and to ensure states converge on a common understanding of problems and solutions.<sup>117</sup> (We return to foresight later in this section.)

Fourth, **explicit signaling** of intention is needed to turn shared foresight into a mutual commitment to act. The positive impact of communication on cooperation has been demonstrated across many studies.<sup>118</sup> Strong signals are especially important in ambiguous environments, cutting through complexity and helping establish principles (in essence, high-level rules that can be encapsulated in terms simple enough to be easily expressed) on which a more detailed agreement can reside. Principles and norms help groups to coalesce and allow them to signal their intentions to others. When generalized, they create identity across a system and help identify and narrow areas of disagreement (“we all accept x, but don’t yet agree how it should apply to y”). Signaling also makes an important contribution to mutuality. Take the example of an ‘all or nothing’ public good that can only be supplied if enough parties participate in its creation (below which threshold it does not exist at all). Action will be inhibited by the fear of failure: parties don’t want to sacrifice energy on a lost cause.<sup>119</sup> Agency – feeling able to influence others, while signaling one is open to influence oneself (“I will if you will”) – plays a critical part in escaping this dilemma.

Fifth, any solution to a collective problem must address the **problem of fairness**, or as Hume put it, justice. We deliberately do not use the term ‘equity’ (an objective standard), but instead use a concept that people are familiar with from early childhood (“it’s not fair!”) and that is inherently subjective in that each party brings to the table its own idea of what is fair.<sup>120</sup> An understanding of fairness is almost certainly hardwired into the brain.<sup>121</sup> It provokes people to adopt forms of behavior that are objectively irrational (in the Ultimatum Game, for example, players willingly suffer personal loss in order to punish behavior they perceive as unacceptably unfair), but that probably have wider evolutionary benefits.<sup>122</sup> Reciprocity norms, however, are ‘tuned’ by environmental cues. If cooperative norms predominate, we are more likely to adopt ‘nice’ strategies (trusting, slow to punish, quick to forgive) over ‘nasty’ ones (distrustful, quick to punish, slow to forgive).<sup>123</sup> If we obscure questions of fairness – by wrapping them up in technocratic agreements or tolerating cheating and corruption – we trigger deep seated objections, while inhibiting conditions in which cooperation is likely to emerge. Ignore fairness, in other words, and we strip *meaning* from any collective engagement.

Finally, **penalties** are an important part of a cooperative system. Again, there is an evolutionary dynamic. Within a population, a strategy will only be stable if it has sufficient sanctions to repel more selfish strategies.<sup>124</sup> Penalties can be used to erect boundaries around a commons (effectively diluting the nonexcludability of a public good).<sup>125</sup> Sanctions also rest on effective monitoring, which in itself discourages free-riding. When a penalty is visibly applied, it provides a public signal of fairness, reinforcing cues that trigger cooperative behavior (notably, less stable societies tend to place a greater premium on ‘justice being seen to be done’). Visibility, however, does not necessarily equate with harshness. In her studies of successful commons, Ostrom finds that sanctions work most effectively when they are carried out by the community itself, rather than imposed from outside, but she also finds that graduated penalties are normally employed. Initial sanctions may be mostly symbolic, providing offenders with an easy path back into the community structure.<sup>126</sup>

## Theory of change

Our ‘cranes’ are designed to catalyze self-organization within an international system, where no single entity can impose its own preferred institutional preferences by fiat.<sup>127</sup> Their purpose is to increase the adaptability that is at the heart of resilience – the capacity to ‘reorganize while undergoing change.’ We have thus emphasized evolutionary models. Institutions are not created *de novo*, but are path dependent.

Institutions also tend to lag behind the demands made upon them, a gap likely to grow during turbulent periods when previous rules and social mechanisms no longer apply. As Peter Kollock points out, “All social dilemmas are marked by at least one deficient equilibrium. It is deficient in that there is at least one other outcome in which everyone is better off. It is an equilibrium in that no one has an incentive to change their behavior.”<sup>128</sup> Transformations will hence be ‘sticky’ with considerable force needed to push the system from one equilibrium to another.<sup>129</sup>

Practical application of the concept of resilience therefore requires a ‘theory of change’, which is capable of overcoming the friction that keep institutions in their current state by generating the momentum to take them to a new equilibrium, and then consolidating the new institutional arrangements.<sup>130</sup> Our cooperation ‘cranes’ can (roughly) be divided into those that prepare the ground for future change (bandwidth and aggregation, which develop and structure relationships); those that are capable of triggering new behaviors (foresight and signaling, to describe and agree on a destination); and those that help establish and reinforce a new equilibrium (a sufficiently fair division of effort, sanctions for free-riders).

We can expect institutional innovation to happen along one of two paths. On one hand, incremental modifications may lead to ripple effects and, in some cases, trigger “an avalanche of change.”<sup>131</sup> This kind of **disruptive innovation** flies beneath the radar, especially if it is applied to what is seen as a peripheral policy issue. However, it can create precedents that are applied more broadly over time, and will be especially influential if what is once peripheral becomes central as often happens in the private sector, where yesterday’s startups are today’s dominant players).<sup>132</sup>

In the post-Cold War era, examples of incremental but influential innovation include:

- New approaches to ‘soft’ security threats, including “a vast expansion of the work of the UN Security Council; the enormous expansion of tools such as international mediation, peacekeeping, and postconflict operations, to manage civil wars; and the proliferation both of new instruments for tackling conflict and security challenges, and of new mandates for older institutions to adapt themselves to changing security realities.”<sup>133</sup> Together, these have led to a substantial growth in the power of the international system to intervene in sovereign states, a shift partially codified by the principle of a ‘responsibility to protect’ (R2P) which was adopted, albeit in a weak form, in 2005.<sup>134</sup>
- The growing importance of environmental governance, with the 1989 Montreal Protocol setting a precedent for global governance of the atmosphere while creating a mechanism for ratcheting up treaty commitments through qualified majority voting.<sup>135</sup> On climate, the IPCC is an example of a new type of institution that has been unexpectedly influential. While the US lobbied hard for its creation in part because it wished to delay discussion of policy action, the IPCC has in fact had the effect of creating considerable (if not decisive) pressure for governments to restrict emissions.<sup>136</sup>
- In the health sector, profound market failures and inadequate investment in global public goods have prompted new approaches in areas such as vaccine development, where influential programs have included the Children’s Vaccine Initiative, International Aids Vaccine Initiative, and Global Alliance on Vaccines and Immunization. These have been established within ‘gray

spaces' in the international system, circumventing organizations hostile to innovation; have created new platforms for cooperation between the public and private sectors (breaking a "great gulf of distrust, often bordering on outright contempt"); and have relied on growing involvement from a new generation of foundations (above all the Bill and Melinda Gates Foundation).<sup>137</sup> Innovations in intellectual property (patent flexibility) and incentives (innovation prizes, rather than grants) offer precedents that can be applied in other sectors where technology needs to be developed for, or deployed in, poor countries.

Disruptive innovation – where impact runs from the periphery to the center – can only fly under the radar for so long. R2P is heavily contested because it cuts to the heart of interpretations of state sovereignty, opening space for advancement of the principle that states not only have responsibility for their own citizens and UN Charter obligations, but also – *in extremis* – those of other states too. The economic and security implications of climate change make it core business for the international system, in a way that protection of the ozone layer never was. Precedents on intellectual property in the health field will prove highly controversial when applied to low carbon development. Disruptive innovations thus run against natural limits to their impact and effectiveness.

If disruptive innovation proceeds by stealth, **systemic innovation** requires battles to be fought in broad daylight. Many in the Bush administration assumed that, as putative hegemon, the US government had the authority to "shape a new century favorable to American principles and interests."<sup>138</sup> Bush's advisers were reported to believe that, as an empire, the United States would 'create its own reality' through decisive action, driving a radical reordering of international order.<sup>139</sup> The results were not as expected, as the US discovered the limits of its hard power (Iraq, Afghanistan), economic power (deficits, the financial crash), and soft power (loss of reputation) – vindicating Kissinger's prognosis in the 1990s that power itself was becoming more diffuse, with the effect that "America's ability to employ it to shape the rest of the world has actually decreased."<sup>140</sup>

By the time he left office (and arguably much earlier, given major shifts in policy in his second term), President Bush had discovered the truth of Kissinger's forecast. The US found itself increasingly reliant on multilateral institutions, whether the United Nations, NATO, the IAEA, or the G20. The United States now maintains the veto power of a hegemon, but not the ability to act alone. Systemic change cannot be achieved unless the US contributes to the development of new rules and absorbs at least its share of the costs (though disruptive innovation does not require its participation). It will seldom, however, be able to *command* change without others' involvement; given an increasingly multipolar system, it is unlikely again to try to do so. On the majority of issues, the United States may still be the 'indispensable nation', but it is no longer a sufficient actor.<sup>141</sup>

We thus have a paradox: "the international systems is polarized and slow, just when we need cooperation and urgent action."<sup>142</sup> Globalization, we have argued, has increased risk, but the diffusion of power has made effective response to these risks more difficult. Risks are inexorable and have their own tempo (they will not wait), while responses are held back by deficient equilibria (change is harder) and complex collective action challenges (more entities are needed to act). A powerful 'glue' must be found to bind together an alliance of leaders, who have a collective understanding of their desired destination (foresight) and are able to act in concert over a sustained period of time (signaling).

The style and practice of international relations must hence be transformed, if any durable results are to be achieved. As Geoff Mulgan has argued, "when knowledge is widely distributed governments need to cultivate humility, and when power is widely distributed they need to be collaborators not commanders."<sup>143</sup> Systemic innovation will only be possible when a sufficiently

powerful network can be engaged and shaped around a coherent vision of the future, while networks with opposing visions are successfully opposed and disrupted. (We discuss the need for a new theory of influence in more detail in section four.)

When are these conditions most likely to arise? Most often, we believe, at a time of crisis. The Congress of Vienna rebuilt Europe after the disastrous wars that followed the French revolution, and led to a century of relative security. Bretton Woods was a response to both the Great Depression and the Second World War. More recently, the G20 has mobilized unprecedented (though we suspect not decisive) levels of cooperation as the financial crisis forced an intensive focus on the frailties of the global economy.

Theorists have explored the importance of shocks in ecological systems, which pass through long ‘conservation’ phases when resources are efficiently and intensively used, with few niches available for new entrants: in such conditions, the incumbents effectively crowd out innovation. During a crisis, however, “resources that were tightly bound are now released as connections break and regulatory controls weaken.”<sup>144</sup> A brief period of reorganization follows, allowing opportunists to exploit the resources that have been freed up by breakdown. Levels of innovation increase suddenly, setting the stage for a new period of growth and eventual consolidation. Importantly, the basic parameters of the ‘rebooted’ system are set fairly early in the cycle. This has two implications: first, that opportunists are able to frame the choices made by later entrants; and second, that ‘decisions’ made soon after the shock will have disproportionate influence.

A similar pattern can be seen in social systems, where radical changes are only considered in the period immediately after a crisis has hit, and decisions made in haste have long-run consequences. Ecological and social systems, differ, however, in that the latter are dominated by human actors who exhibit intent. “Their collective capacity to manage resilience, intentionally, determines whether they can successfully avoid crossing into an undesirable system regime, or succeed in crossing back into a desirable one.”<sup>145</sup>

The opportunity to achieve systemic change, then, is fleeting – and heavily reliant on the extent to which foresight has been ‘stored up’. Planning must precede a crisis rather than follow it, as Milton Friedman forcefully observed to his fellow monetarists in the 1970s:

*“Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable.”*<sup>146</sup>

## **Designing systems**

So how do the architects of more resilient systems ensure the right ideas are ‘lying around’ when a crisis strikes?

We have already emphasized the importance of focusing attention on function (what systems need to deliver in order to manage risk) over form (the organogram that devotees of international politics obsess over). Furthermore, we have drawn a distinction between functional resilience (in which the system itself *delivers* resilience as an output) and formal resilience (which refers to the resilience of the system). By making these distinctions, we are arguing for the importance of what might be called the ‘design view’ – a bird’s-eye perspective that allows the system to be viewed as a whole, and attempts to isolate the basic parameters that enable it to function effectively.<sup>147</sup>

This perspective has three advantages. It:

- **Controls complexity.** When exploring the transformation of a system, approaches are needed to *increase the level of abstraction*, allowing a clearer view of the parameters that define a new (and desired) equilibrium.
- **Offers fuel for foresight.** We can study risks ad infinitum and run endless scenario exercises, but at a time of crisis, it is *designs* (first, what functions need to be delivered; second, what structures will deliver them) that will determine the direction of change.
- **Promotes aggregation, even in advance of a crisis.** The process of debating design forces groups to *define and express their position* on an issue, increasing the potential for agreement later in the process.

Recourse to the design view reverses customary practice in the international arena. In general, the ‘priesthood’ that surrounds any issue prefers to delay discussion of principles, rules, and sanctions (and especially, their relationship to fairness). Their judgment is swayed by *optimism bias* (which supposes that risks are never systemic, and that success is always around the corner), and *politeness strategies* (obfuscating red lines with technical language, not tackling opponents in public, etc.). Governments exacerbate the problem. Perceiving themselves as guardians of the national interest, they ‘play their cards close to their chests,’ a stance antithetical to the task of exploring design solutions. Windows of opportunity for systemic change are thus allowed to go to waste. When crisis hits, there are few coherent, well-worked proposals that can be taken down off the shelf.

A helpful concept here is the idea of an *operating system*, which in computing is designed to “control and co-ordinate the use of resources, sharing them out between applications and users.”<sup>148</sup> In the international relations, designers need the space to focus on the global operating systems that allow risks to be managed effectively. A resilient operating system will be *predictable* (functions are fulfilled consistently), *stable* (it is effective over time), and *flexible* (it can cope with a range of challenges).

Another useful idea is that of an *algorithm*: a set of instructions that can accept any input, deliver a result that fulfils the functional need, and be applied through any organizational (or formal) structure. It is, in Dennett’s characterization, a foolproof recipe, designed to be performed by a novice cook. Shared global operating systems are likely to be composed of one or more algorithms which ensure that risk – and response to that risk – is broadly distributed (the allocative principle that lies at the heart of a high resilience system).

To take international trade as an example, the operating system of the multilateral trading system is rooted in application of the ‘most-favored-nation’ algorithm (*input*: a concession for a trading partner; *output*: the concession applied to all partners; *form*: GATT, GATS, TRIPS, etc.). In the climate science context, the IPCC is an algorithm for determining the seriousness of the climate problem (*input*: science; *output*: a benchmark, approved by policymakers; *form*: plenary sessions, working groups for scientists, etc). The ICC, to take a third example, is an algorithm for punishing “the most serious crimes of an international concern (*input*: accused person; *output*: verdict and sentence; *form*: Presidency, Judicial Divisions, Office of the Prosecutor, Registry, etc.).<sup>149</sup>

By contrast, other critical areas of global risk management suffer from the lack of such algorithms. There is no ‘recipe’ for controlling carbon emissions, for example, although one can certainly be envisaged, given a budget of available emissions and a formula for allocating this budget between nations (*input*: some combination of historical and current emissions, socioeconomic status and other contributions to a climate regime such as maintenance of sinks or financial contribution;

*output*: binding national carbon targets for a prescribed period; *form*: binding international treaties and monitoring mechanisms).<sup>150</sup> Similarly, R2P remains an embryonic algorithm at best, failing to set out what will trigger a ‘timely and decisive response’ from the international community when a state is failing in its responsibility to prevent genocide, war crimes, ethnic cleansing, and crimes against humanity, or to provide any real certainty that the output (decisive action to end the crime) will occur.<sup>151</sup> In both cases, designers need to explore algorithmic rules that would increase predictability, stability and flexibility when implemented, while clarifying points of disagreement in advance of implementation.

### **A new stance**

For some, this focus on rules is misguided. Robert Kagan, for example, has argued that “it is time to stop pretending that Europeans and Americans share a common view of the world, or even that they occupy the same world.”<sup>152</sup> Europe, he suggests, is “moving beyond power into a self-contained world of laws and rules.” Being weak, it is intent on using these rules to entangle its transatlantic rival. The United States, in contrast, “remains mired in history, exercising power in the anarchic Hobbesian world where international laws and rules are unreliable and where true security and the defense and promotion of a liberal order still depend on the possession and use of military might.”

Our analysis presents a quite different perspective. There is but one world. Threats can only be addressed collectively, requiring leading powers to invent and promote adherence to systems that manage risk effectively. Why should the leading powers play ball? Because they have the greatest incentive to protect and advance the international order on which they depend. And while one could conceive of a future where only some major geopolitical blocs invest in responses to risk, the magnitude of threats facing globalization suggest that this outcome is unlikely to be sustainable in anything other than the short term.

This is not to delegitimize force. On the contrary, our analysis places security – ‘true security’, as Kagan would have it – firmly at the centre of the international agenda. Governments effectively strike a bargain with their citizens. Citizens will benefit from (and, through their interactions, expand) the opportunities that an open global system offers (thus paying for the public goods provided by governments). Governments, in return, will protect, insulate and insure them from risk insofar as they can, through investment in the resilience of the systems on which citizens depend.

The ‘utility of force’ is thus perceived very differently. Conflict is seen as possible, likely even, as states misidentify their long term interests, while cooperation will often prove messy and unsatisfactory. But if coercion is to be employed, it is to be used tactically, “as a lever of intervention and influence” that repels threats in a way that adds to the system’s legitimacy and effectiveness.<sup>153</sup> Diplomacy and development are seen as other levers of influence, able to undertake the (never-ending) task of responding to risks. The resultant stance is different from that taken by either Kagan’s Venusians (introverted, law-abiding) or his Martians (outward looking, above the law).

The architects of a more resilient global system are not merely law-abiding, but law-creating; not just outward-looking, but forward-facing. They are, in effect, taking a bet on their ability to maintain and increase order – and then attempting to ‘rig the game’ in order to reap ongoing returns from their wager.

## FOUR | Shooting the Rapids

### Systemic struggle

A focus on risk and resilience has extensive strategic implications, and suggests that governments should pursue fresh aims internationally, organize in different ways to gain influence, and redirect resources in line with new priorities.

The scale of the task can be compared with that facing the West in 1946, when George Kennan – then deputy head of mission at the US Embassy in Moscow – wrote the so-called ‘long telegram’, described by Henry Kissinger as “one of those rare embassy reports that would by itself reshape Washington’s view of the world.”<sup>154</sup> Kennan warned that the Soviets were able to bring to bear “an elaborate and far flung apparatus for exertion of influence in other countries, an apparatus of amazing flexibility and versatility, managed by people whose experience and skill in underground methods are presumably without parallel in history.”<sup>155</sup> The Soviet worldview was based on the idea of perpetual conflict between “two centers of world significance”, a socialist and a capitalist bloc. Countering that threat was the greatest challenge that American diplomacy had ever faced.

Kennan’s main purpose was to suggest how the West should marshal its own forces, defending and promoting its own systems in the face of the Soviet threat. His advice was to treat the challenge with “the same thoroughness and care as the solution of a major strategic problem in war.” The West must behave as if it were engaged in an existential struggle. “We must have the courage and self-confidence to cling to our methods and conceptions of human society,” the ‘long telegram’ concludes. “After all, the greatest danger that can befall us in coping with this problem of Soviet communism is that we shall allow ourselves to become like those with whom we are coping.” Throughout the Cold War, in fits and starts, and with many imperfections, America and its allies set out to demonstrate that their design for society was the superior one. Capitalist economies proved more dynamic than communist ones; liberal democracies more resilient than authoritarian ones. They invested determinedly in keeping the Western alliance together, and in seeking to demonstrate that it could solve problems that communism could not. Kennan’s vision, Kissinger argues, was so far-reaching that it was not fully vindicated until the Soviet empire collapsed over half a century later. “America had built positions of strength,” he writes, “the Soviet Union was crumbling from within.”<sup>156</sup>

Today, the risks facing the liberal international order are more diffuse, but the imperative to demonstrate that its ‘operating systems’ are better able to solve problems than the alternatives remains unchanged. As Kennan argued, this entails increasing levels of investment in defining and debating the strategic challenge. Based on our analysis in sections 2 and 3, we believe governments should seek institutional configurations that meet the following *minimum* requirements for a resilient international system:

- Widespread adherence to a set of **high level principles**, allowing an algorithmic division of labor in the task of creating global public goods that is effective and perceived to be sufficiently fair.
- Frameworks designed to protect physical, human and social capital over the long term, ensuring the system’s **sustainability**.
- Effective measures to protect and enhance **diversity**, with the principle of subsidiarity used to distribute power as widely as possible throughout the system.
- Strong **incentives for participation and penalties for exclusion, misbehavior and free-riding** – and monitoring tools that can tell the difference.

- Results measured by the system's ability to deliver increasing levels of **confidence** in itself, and between nations and peoples.

Delivery of these institutions can only be achieved through a political strategy that has two core components.

First, governments must set out systematically to create **shared awareness** of both problems and solutions, through common analysis of global risks, drivers and potential solutions. The objective is to create the foresight, policy options, strategies, and narratives needed to organize and deliver action, while ensuring that policy proposals are 'lying around' when a window of opportunity allows change to move forward.

Shared awareness provides the basis for the **shared platforms** needed to aggregate coalitions of countries, international agencies and non-state networks that can campaign for the implementation of concrete policy proposals. The objective is to create bandwidth for cooperation, both within formal and quasi-formal structures such as the G20 or United Nations, and across less formal networks, while signaling intent to allies, potential allies, and adversaries. Shared platforms must be sufficiently robust that they can be sustained over the long periods needed to reengineer institutions and deliver systemic change.

### **Shared awareness**

Creating shared awareness requires sustained effort and investment. Recent years have shown that operating systems for computers can be distributed not only in how they operate but also in how they are *created*, most famously in the case of the Linux operating system (where the source code is open to all users, creating the conditions for ongoing innovation, selection of effective mutations, and thus continuous evolution and improvement). In a multipolar, networked world, global systems will profit from employing similarly open source principles both in development and functioning, as state and non-state actors work together on rules that allow them to achieve results that would otherwise be beyond their reach.

The challenge is to increase integration at both national and international levels. Systemic threats demand holistic responses, and institutional frameworks that can handle complex feedback between risks. To date, half-hearted attempts to develop 'whole of government' approaches to policy formulation have done as much to highlight the misalignment between national infrastructure and global challenges, as they have to stimulate a coherent response. This failure is unsurprising given that little investment has been made into analyzing, planning, and training for interoperability across diverse delivery systems, each with a very different culture and structures. Militaries are accustomed to mounting joint exercises when rehearsing responses to new threats, both on a national basis and across alliances. The sums invested are considerable: the Millennium Challenge war game in 2002, which demonstrated the vulnerability of US forces to insurgent threats, cost around a quarter of a billion dollars.<sup>157</sup> There is not a fraction of equivalent investment in multilateral and multi-issue planning within the civilian domain (or for combined civilian and military delivery, in service of an overall political strategy).

What investment there is tends to be focused on horizon-scanning for risks, usually drawing on scenario-planning techniques developed by Shell in the 1970s. In the United States, for example, the National Intelligence Council's series on global futures sets out "to stimulate strategic thinking about the future by identifying key trends, the factors that drive them, where they seem to be headed, and how they might interact."<sup>158</sup> It is developed using the input of a network of experts, both American and international, and has classified and unclassified elements. The IPCC, meanwhile, provides a model for risk surveillance at international level. Independent from (though connected to) the policy process, it has acted as an anchor for the climate debate, bringing governments close to consensus on the scale and nature of the problem they face. The task is not

merely technical. Successive IPCC reports have captured elite, media, and public attention. The Stern review was similarly powerful, helping to shape the way financial policymakers and the business community viewed the climate challenge. In all three cases, ‘the power of ideas’ was deployed to shape international policy responses.<sup>159</sup>

Such exercises are important, but their strategic application is limited by an unwillingness to turn an analysis of risks into a concerted effort – conducted collectively, between like-minded governments – to explore strategic responses. Take three examples:

- The international community lacks a coherent and comprehensive strategy, based on common data and metrics, for supporting Pakistan – despite widespread recognition of the perilous position the country finds itself in, and of the risk posed by its steady deterioration. Instead, each external actor has its own ‘approach’ (in most cases, strategy would be too strong a word), with short-term, and often tactical, security interests trumping the long term goal of building a more resilient state.<sup>160</sup>
- On climate, negotiators have been starved of the intellectual resources needed to provide a vision of how a low carbon transition can be achieved. Underlying principles for allocating scarce carbon rights have not been discussed, while work on the institutional framework needed to support a global deal has barely begun. The adverse consequences of this were clearly seen in Copenhagen, where heads of government were confronted by the fact that two years after the Bali declaration, their negotiators had yet to agree even on the basic parameters of a post-Kyoto climate agreement.<sup>161</sup>
- On trade, the international community has failed to develop shared awareness on how to respond to security of supply issues, and to land and other resource grabs – issues that will become of critical importance during the next resource price crunch, and that have wider implications for poverty, restraining protectionism, and the relationship between emerging economies on one hand (China, in particular) and a rules-based international system on the other.<sup>162</sup>

In section 2, we discussed a number of immediate initiatives that would help create shared awareness on key risks, including a High-level Panel on climate and development, a World Resources Outlook, the World Economic Forum’s Global Redesign Initiative, and the IMF’s new surveillance role under the Framework for Strong, Sustainable and Balanced Growth. In the longer term, mechanisms for creating shared awareness need to be incorporated into the international system. For example:

- An International Climate Performance Committee (ICPC) could complement the purely scientific work of the IPCC by offering independent surveillance of global performance on climate control. Its remit would be to provide definitive reporting on progress towards meeting the UNFCCC’s climate stabilization objective; the likely impact that current and new emissions targets would have on this objective; national performance in reducing or restraining emissions; and the quality of data available to the committee, at international and national level. Over time, it could assume a formal role in advising governments on stabilization targets and formulae for allocating scarce carbon resources.
- An Intergovernmental Panel on Biological Safety, modeled on the IPCC, could build shared awareness and understanding among the life sciences communities in government, industry and the academic sector. The goal would be to mobilize individual labs and scientists in each sector to adopt self-regulation, peer review, and independent monitoring mechanisms that improve bio-security, while ensuring the economic and health potential of the fast-moving biological sciences can still be exploited, especially in the developing world.

- Development of a mechanism, with strong developing country ownership, for creating the capacity that countries with rapidly growing populations need to navigate their economic growth challenges in a world characterized by carbon and other scarcity constraints. A good model would be the Organisation for European Economic Cooperation (OEEC) set up after the Second World War to provide the institutional capacity needed to deliver the Marshall plan. The OECD, as the OEEC became in 1961, continues to “provide a forum where governments can compare and exchange policy experiences, identify good practices and promote decisions and recommendations.”<sup>163</sup> For development issues, a body that provided similar goods to developing countries themselves could give credence to the OECD’s own rhetorical commitment to ‘national ownership’ of development strategies.

More broadly, a ‘challenge function’ is needed within the international system, with the task of analyzing non-financial systemic risks, and designing options for addressing them (thus complementing the work of the Financial Stability Board on financial vulnerabilities). This work would need to be tackled by an agile, flexible and relatively independent ‘networked’ organization, able to draw on external expertise, and reporting to a forum that brings together national and international heads of policy planning. One model would be the Defense Research Advanced Projects Agency (DARPA), the organization that was created in response to Sputnik, which is charged with ‘preventing surprise’ for the United States and ‘creating surprise’ for the its adversaries. DARPA has a flat structure and minimal bureaucracy, drawing together temporary work teams, from across sectors, to tackle emerging challenges. A global challenge function would need to be similarly fleet of foot, modular in structure, and set at sufficient distance from bureaucratic and political pressures to allow it to ‘think the unthinkable’.

### Shared platforms

Shared awareness can be defined as *a level of common understanding that is sufficiently powerful to animate a network and allow it take action*. Shared awareness, in other words, is the precursor to the *engineering* task of building the platforms needed to deliver change.

Three types of platform can be distinguished:

- **Ad-hoc groups** that are constructed risk by risk, bringing together the countries with greatest agency and will to affect change on each priority issue. Such coalitions would consist of self-organized task groups of countries (and, in many cases, non-state actors as well) to build momentum and develop consensus on key challenges, possibly with support from relevant organizations and/or ad-hoc secretariats drawn from member state governments.
- **Semi-permanent alliances**, negotiating blocs, interest groups, contact groups and other fora that bring together groups of countries that have shared awareness across a range of issues, or that represent a minimum number of states needed to achieve a breakthrough on a particular issue.
- **Architectural solutions** that institutionalize cooperation between countries, whether on a regional basis (the European Union, ASEAN), between major powers (G-x groupings), or as part of a formal, multilateral structure (General Assembly, Security Council, WTO, IAEA, UNFCCC, etc.).

Currently, many governments adopt a crude and simplistic approach to all three types of international group. The national interest lens encourages them to focus on maximizing their own representation, while reducing opportunities for participation by others. European countries have been particularly resistant to attempts to reduce their over-representation in the international system while the United States, in its role as putative hegemon, has often tried to downgrade (or even degrade) fora in which it is not a participant. The Bush administration’s ‘divide and conquer’

approach to the European Union during its first term is a notable example of the latter instinct, while a recent report on the US and Asia feels the need to enjoin American policymakers not to “balk at every pan-Asian institution that excludes the United States.”<sup>164</sup> The economic crisis exposed the G8’s failure to move beyond half-hearted expansion, which set the conditions for the sudden prominence of the G20. The G8 had been treated like a club with exclusive membership, rather than a body whose composition had to be dictated by the function it aspired to within the global system.

A risk management approach has the opposite logic. Groups of various shapes, sizes and disposition are needed to create conditions in which cooperation is possible (aggregation, signaling), while diversity within the system helps distribute resilience, increasing capacity to respond to a range of risks (nesting, subsidiarity, redundancy, etc.). Informal platforms are especially useful for responding to acute risks (the Tsunami Core Group, for example, was active for just nine days, but arranged deployment of 40,000 troops), for increasing levels of innovation (as discussed in section 3), and for campaigning for progress on specific issues (the landmine ban for example, or debt forgiveness for developing countries).<sup>165</sup> It is increasingly clear that complex treaties can no longer be agreed without pre-negotiation among key caucuses. A climate deal, for example, will probably remain out of reach until the G20 or Major Economies Forum can reach an agreement on burden-sharing. Agreement of any kind would be inconceivable if the European Union had not acted as a caucus ensuring twenty-seven countries arrive at negotiations with a (more or less) unified position, backed up by legislative commitments.

A diverse system increases transaction costs, of course, and can easily prove dysfunctional without strategies to increase coherence and apply a selection pressure that favors effective groupings over ineffective ones. When dealing with groups in the international system, then, governments should be guided by the following principles:

- They should reward purposeful cooperation, engaging with groupings (whether as participant, funder, interlocutor, etc.) that effectively aggregate a significant set of interests or that demonstrate an ability to solve problems.
- Equally, they should be prepared to marginalize, and if necessary attempt to disaggregate, those groups that either do not effectively represent interests (the G77, for example) or that are not capable problem-solvers.
- When dealing with a well-functioning group, they should be prepared to upgrade engagement with the group as a whole (the European Union, for example), at the expense of relationships with the group’s constituent members (thus providing an incentive for the group to caucus).

At present, the G20 offers the most important opportunity to increase the coherence with which risks are tackled, with a window in which its mission and relationship to the G8 can be clarified and the G20 itself be provided with the tools needed to operate effectively. The G20 should be focused on three functions:

- Providing a mechanism for deepening the cooperation between major powers needed to tackle systemic risk at a global level.
- Acting as a pre-negotiating forum that creates a consensus about how to design institutions able to increase resilience in the face of these risks.
- Using political levels to ensure effective implementation and delivery of outcomes and agreements related to these risks.

Properly constituted and supported, the G20, an enlarged G8 or some other grouping (hereafter referred to as G-x for convenience) can facilitate the ‘productive conversations’ at leader level needed to develop a risk doctrine, and ensure leading powers act together to increase resilience. This, however, will imply a return to the 1970s vision for the G7 (or G5, as it was initially), which was designed to allow for informal and relatively unstructured interactions between heads of state. Its original aims were to provide space for new ideas, to take disputes up to a higher level where differences could be more easily reconciled, and to broaden responsibility for managing collective responsibilities beyond the United States alone.<sup>166</sup>

While important questions remain about how to develop the G-x into a platform for managing risk, the following ideas offer a starting point for discussion.

- G-x leadership could be improved by moving from the current system of a rotating chair to a ‘troika’ consisting of the previous, current and next chairs of the group, which would allow for improved continuity and better follow-up, monitoring and evaluation.<sup>167</sup> (For the G8 specifically, this approach would also have the advantage of involving the US in summit leadership from 2011 through to 2013, in what is likely to be a critical period for the international system; ideally, this period could be brought forward through use of an informal troika of Canada, France and the US to manage the agenda of the next three presidencies.)
- Steps should be taken to increase the ‘bandwidth’ of G-x Sherpa mechanisms and related processes for preparing summit agendas, increasing shared awareness among Sherpas while still maintaining close links to capitals. One option would be to co-locate Sherpas (or sous-Sherpas) for part of each year – in sessions of weeks, rather than days. This would allow them to continue to spend a high proportion of their time with heads of government in national capitals, while also creating space for more ambitious action at summits and for building links between the G20 and a reformed G8. This proposal is preferable to the creation of a formal secretariat, avoiding the risk of creating a new bureaucracy that could end up at odds with member states. A further option is creating a standing team of experts that could be lent in to support the hosts’ Sherpa.
- As a first step towards creating more space for informal interactions, G20 member countries could hold an informal meeting of their national security advisers, outside the normal cycle of preparatory meetings, to review issues beyond the existing scope of the G20 but where great power concentration is necessary (for example, on building effective tools for managing fragile states).
- Communiqués should be replaced by action plans that detail specific agreed next steps and designate specific senior officials for implementation (as has occasionally been done at US-Russia Summits).

### **Theory of influence**

A risk doctrine can only emerge if countries are prepared to work together to develop a new paradigm for the *practice* of international relations.

Risks cannot be dealt with through a series of bilateral relationships. Whether the challenge is reducing greenhouse gas emissions, tackling the spread of HIV or pandemic flu, unwinding global economic imbalances, or countering insurgency, radicalization and terrorism, the task exceeds the scope of traditional statecraft. Instead, making real progress on these issues entails engaging with a widely (in some cases massively) distributed set of actors on areas such as personal consumption and mobility (climate, resources); savings rates (financial stability); or political strategy and religious beliefs (conflict and terrorism).

All of these changes imply the need for equally significant shifts in how governments work, both individually and in cooperation with each other. Instead of *controlling* how risks are managed, the role of governments is likely to move towards creating an *enabling framework* within which diverse networks of foreign policy actors – governments, international agencies, publics and other non-state actors – can collaborate. Governments will need to develop a new appreciation of how to influence and organize for change. They need to invest in new tools to shift policy debates (shared awareness), while developing the skills needed to build, animate and sustain alliances able to deliver ambitious policy goals (shared platforms).

What they should be reaching for is a new *theory of influence* able to bind together all the instruments of international relations – diplomacy, military, development – into a comprehensive approach for achieving change. Four generic influencing strategies can be identified:

- **Engagement strategies** are needed to increase awareness of risk and to energize debates about how to tackle them. Practitioners of the new foreign policy need to steer into, rather than away from, contentious issues, and to abandon current habits of trying to hammer out agreement in private. By avoiding controversy, they permit the same stale debates to continue or, worse, allow adversaries to shape a new synthesis of ideas. Engagement requires an openness to external influences and new ideas, and considerable cultural awareness, but it is *not* a tool for improving national reputation (a *means* to influence, not the goal of an influencing strategy).
- **Shaping strategies** set out systematically to reframe an issue, in such a way as to create new options for managing risk, while increasing the basis for international cooperation and building confidence in the ability of the international system to deliver. This work provides the foundation for necessary institutional adaptation and reform, injecting new content into a debate, and changing the composition of key networks. The aim is to focus on *solutions* rather than problems, and to drive towards a consensus that can support action. At this stage, shared awareness and platforms should coalesce.
- **Disruptive strategies** are needed to break the deficient equilibria that prevent progress on most global risks and that leave many fragile states stuck in a cycle of failure. Disruption aims to accomplish the hard task of breaking existing consensus, marginalizing or co-opting opposing interests, and realigning incentives within a system. The aim is to alter fundamentally the context within which decisions (and resultant actions) are taken, changing the future course of action that can be considered and the palette of solutions that is considered possible.
- Finally, **coercive strategies** aim to deny an opponent space, disaggregate the networks on which he depends, and sow dissent and defections from within his ranks. The aim may be isolation, exclusion and quarantine (whether accomplished economically, through political sanctions, or by military means), or even regime change – an option that may currently appear discredited, but which will still need to be considered once a state engages in or tolerates genocide, or poses a threat to its neighbor that cannot be managed through other means.

This hierarchy of influence runs from actions that should be habitual (engagement), through ones that aim to achieve clearly defined goals (shaping, disruption), to those that are a last resort (coercive strategies). It subordinates all instruments of power, whether hard or soft, to a broader *political strategy*, directed towards the management of global risks, and, as far as possible, shared between like-minded governments. It also places a *premium on leadership*. Social networks are not flat, but are dominated by a small number of highly-connected nodes, with key individuals having a disproportionate power to shape responses. A notable development from the financial crisis has been increasingly open, and direct, channels between heads of state, who have the potential to turn their collective global reach into a coherent attempt to influence responses to a

global issue. We have also seen countries begin to deploy ‘issue ambassadors’, able to penetrate deeply into a particular community of interest, and influence the way elites envisage and respond to risk.

Many countries are beginning to experiment with new approaches to tackling these challenges. In the United States, for example, President Obama has set up a new ‘Global Engagement Directorate’ within the National Security Council, with a mandate to “drive comprehensive engagement policies that leverage diplomacy, communications, international development and assistance, and domestic engagement and outreach”.<sup>168</sup> Secretary of State Hillary Clinton has initiated a Quadrennial Diplomacy and Development Review, meanwhile, which similarly aims at a ‘comprehensive approach’ to the exercise of US influence overseas. In the UK, the government has started to work towards a structure akin to the NSC in the Cabinet Office, while the Foreign Office has built up its policy planning capacity and tied its public diplomacy more tightly to policy objectives (rather than seeing it as a peripheral tool for promoting the UK’s image). Both countries, and some of their allies, are beginning – tentatively – to reassess the practice of foreign policy in a modern and increasingly open digital media environment. In 2010, the EU will set up its External Action Service, drawing staff from the Commission, Council, and member states’ foreign affairs departments. The new service’s structure, remit, and strategy provide an important opportunity for the EU to develop a coherent capacity to exert influence.

But these steps should just be the start of much more profound reforms. As we have argued throughout this paper, the international agenda is becoming ever larger and more complex. Within a national interest paradigm, states aim to exert *power* over each other, bending others to their will. Resilience, however, requires all sides to invest in change creating foresight, increasing bandwidth, strengthening signaling, etc., in conditions where no party has the power to insist. A new approach to international relations is needed across *all* G-x governments, as well as from entrepreneurial smaller powers who wish to take the lead on a particular issue. This implies that:

- All leading powers will need to increase substantially the energy they spend on, and frequently the funding that they devote to, managing global risks and designing more resilient institutions as part of a marked shift in government focus from domestic to global policy. (It is ironic that a consequence of the financial crisis is likely to be reduced international budgets in some countries.)
- As far as possible, funding levels should be determined as part of a fundamental review of all the instruments of international relations (diplomatic, developmental, military), exploring how effectively each item of expenditure performs the task of managing and controlling risk.
- Funding flexibility should be increased, reducing the resources tied up in fixed infrastructure, increasing surge capacity in order to speed up decision making and allowing for more rapid delivery by cross-sectoral (and often multinational) teams.
- Like-minded countries should engage *together* in upgrading their international relations, with countries making mutual commitments to increase bandwidth (in the same way that they have already committed to invest more in foreign assistance), while designing structures and approaches that make it easier for them to work collaboratively.

## Conclusion

In this paper, we have argued that while the process of globalization has brought increased prosperity for many and increased interdependence for all, it has also brought new vulnerability to a range of global risks. Our ability to manage these risks will determine the success or failure of globalization in the 21<sup>st</sup> century. The long crisis facing globalization can be compared to ‘shooting the rapids’. It demands from governments a profound doctrinal, strategic and operational shift, as they take on the task of providing security for their citizens against a range of traditional and non-traditional threats.

These risks move to their own timetable. The towns and cities of the developing world grow by around 72 million people each year (roughly equivalent to the population of Iran).<sup>169</sup> Demand for energy and other scarce resources will rise at a faster pace than population growth. Greenhouse gases will continue to accumulate in the atmosphere, exceeding levels needed to limit warming to 2°C in as little as quarter of a century.<sup>170</sup> None of these trends can be placed on ‘pause’.

Shocks, meanwhile, will happen with little warning. In the past ten years, terrorism, the resource price spike, and the financial crisis have all driven unheralded transformations in the international order. Looking forward, nuclear and biotechnology threats have the potential to change assumptions more or less overnight, while the global economy may be at the beginning, rather than the end, of a highly volatile phase – especially as it adjusts to resource scarcity. This will have profound implications for rich countries, but even more urgent ones for states with fast-growing populations and weak governance. Our preoccupation with fragile states (and increasingly, fragile cities) seems certain to continue to deepen over time.

But a retreat from globalization is neither desirable nor possible, despite the arguments of those who would like to see a global ‘powerdown’ or who urge a return to narrow conceptions of national power.<sup>171</sup> The siren voices, with their belief that we should choose to unravel globalization, must be resisted for a very simple reason. Without effective systems for managing risk at a global level, it will prove impossible to provide prosperity and security for a world of nine billion people. Localized resilience will not be enough, especially as an orderly retreat from globalization is implausible in the extreme. Historically, the path from a complex to a simpler civilization has invariably been turbulent, and frequently painful.

Thus: *shooting the rapids*<sup>172</sup>. During a transit through whitewater, a boat can take many paths even though the river only flows one way. Many possible journeys end with the destruction of the vessel – on the rocks, hitting the bank, or with the boat capsized and its occupants tipped into the torrent. It is the river, not the paddler, which dictates the speed with which the boat moves. There is no opportunity to take a timeout to rethink strategy or to reverse direction. The only option is to keep paddling, even as rough water makes it harder control the boat. Above all, the challenge is a collective one: the direction of the boat “depends not on the weakest rower, nor on the strongest, but on the efforts of all the rowers.”<sup>173</sup> It is the capacity to *reorganize while undergoing change* that ultimately determines the journey’s outcome.

Similarly for globalization:

- Between now and 2030 there are few attractive **end points**, and many possible points of failure or breakdown. The security, economic and environmental challenges of a ‘crowded planet’ will not easily be reconciled. Governments have to expend resources (time, attention, money) that are commensurate with the scale of the task

- **Tempo** during this period will be dictated by the risks themselves, rather than by any state or other actor, however powerful. Governments will thrive only if they are prepared to take the initiative, matching the pace of change in their environment.<sup>174</sup> Failing to do so, will expose – and reinforce – their frailty and that of the system of sovereign states of which they are a part.
- **Change** will be difficult. At many (probably most) times, traditional levers will not work or will seem less effective, as power becomes more diffuse and risks increasingly complex and interrelated. Even in the best case, outcomes will be ‘messy’ and far from perfect. Instead of finding excuses for inaction, governments have little choice but to seek new ways of exerting influence.
- Results will be determined by governments’ ability to act **in concert**, as well as with networks of non-state actors. Internationally, the aim should not be equilibrium between competing states, but to aggregate the efforts of those willing to aim for the preferred destination, while marginalizing or excluding those who are not (or who actively seek to capsize the boat).

As we enter the rapids, Benjamin Franklin's advice to those reluctant to sign the U.S. Declaration of Independence is apposite. “We must hang together,” he warned, “or we will be pretty sure to hang separately.” A doctrine based on risk has the potential to bind together like-minded states and offer a basis for collaboration with non-state networks. Resilience offers a goal for that collaboration, and has sizeable potential to drive institutional renewal. Together, risk and resilience provide a rationale for governments to refocus their international policy, strategy and delivery on the challenges that are likely to make the most difference to citizens’ lives.

We are entering a period of struggle that presents us with a choice. We would do well to follow Franklin’s advice and hang together, creating global systems with the integrity needed to see us through turbulent times.

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- <sup>126</sup> Ostrom, op cit
- <sup>127</sup> Scott Camazine, *Self-Organizing Systems*, online at [http://web.mac.com/camazine/Camazine/Self-organization\\_files/Self-organization.pdf](http://web.mac.com/camazine/Camazine/Self-organization_files/Self-organization.pdf)
- <sup>128</sup> Per Olsson, Lance H Gunderson, Steve R Carpenter, Paul Ryan, Louis Lebel, Carl Folke and C S Holling, 'Shooting the Rapids: Navigating Transitions to Adaptive Governance of Social-Ecological Systems', *Ecology and Science*, Vol 11, No 1, Art 18. <http://www.ecologyandsociety.org/vol11/iss1/art18/>
- <sup>129</sup> Gareth Williams, Alex Duncan, Pierre Landell-Mills and Sue Unsworth, 'Politics and Growth', *Policy Practice Brief 4*, April 2008. <http://www.thepolicypractice.com/papers/14.pdf>

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- <sup>130</sup> K Lewin, *Field theory in social science; selected theoretical papers*. D. Cartwright (ed.). Harper & Row, New York, 1951
- <sup>131</sup> Beinhocker, op cit, p247
- <sup>132</sup> Clayton M Christensen, *The Innovators Dilemma: when new technologies cause great firms to fail*, Harvard Business School, Boston, 1997
- <sup>133</sup> Bruce Jones, Shepard Forman, and Richard Gowan, *Cooperating for Peace and Security*, Cambridge University Press, New York, 2010, p8
- <sup>134</sup> Jones, Forman and Gowan, op cit, chapter 10, p195
- <sup>135</sup> Barrett, op cit, p77
- <sup>136</sup> Evans and Steven, op cit; Evans and Steven, 2007, op cit
- <sup>137</sup> John Peabody, 'An Organizational Analysis of the World Health Organization: Narrowing the Gap between Promise and Performance', *Social Science and Medicine* 40.6 (1995): 731-42. William Muraskin, *The Politics of International Health: the children's vaccine initiative and the struggle to develop vaccines for the third world*, State University of New York, Albany, 1998; Michael Gibbons, Camille Limoges, Helga Nowotny, Simon Schwartzman, Peter Scott and Martin Trow, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, Sage, London, 1997
- <sup>138</sup> The quote is from the New American Century's Statement of Principles, agreed in 1997, and signed by Dick Cheney, Donald Rumsfeld and Jeb Bush among others. <http://newamericancentury.org/statementofprinciples.htm>
- <sup>139</sup> Ron Suskind reports a conversation with a senior Bush aide: "The aide said that guys like me were "in what we call the reality-based community," which he defined as people who "believe that solutions emerge from your judicious study of discernible reality." I nodded and murmured something about enlightenment principles and empiricism. He cut me off. "That's not the way the world really works anymore," he continued. "We're an empire now, and when we act, we create our own reality. And while you're studying that reality -- judiciously, as you will -- we'll act again, creating other new realities, which you can study too, and that's how things will sort out. We're history's actors . . . and you, all of you, will be left to just study what we do."
- <sup>140</sup> Kissinger, op cit, p809
- <sup>141</sup> A phrase often used by the then US Permanent Representative to the United Nations, Madeleine Albright
- <sup>142</sup> Samantha Power, *Chasing the Flame: Sergio Vieira de Mello and the fight to save the world*, Penguin, London, 2008
- <sup>143</sup> Geoff Mulgan, *The Art of Public Strategy*, Oxford University Press, Oxford, 2009
- <sup>144</sup> Walker et al, op cit
- <sup>145</sup> Walker et al, op cit
- <sup>146</sup> Milton Friedman, *Capitalism and Freedom*, University of Chicago Press, Chicago, 1962
- <sup>147</sup> Ervin Lazlo, *The Systems View of the World: a holistic vision for our time*, Hampton Press, New Jersey, 1996. And Dennett op cit, p39
- <sup>148</sup> This definition is taken from *Operating System Concepts*. <http://codex.cs.yale.edu/avi/os-book/os7/>
- <sup>149</sup> International Criminal Court, *Rome Statute*, 1998, <http://www.icc-cpi.int/Menus/ICC/Legal+Texts+and+Tools/Official+Journal/Rome+Statute.htm>
- <sup>150</sup> Evans and Steven, 2009, op cit
- <sup>151</sup> United Nations, *Implementing the Responsibility to Protect: report of the Secretary-General*, 12 January 2009. <http://www.responsibilitytoprotect.org/files/SGRtoPEng.pdf>
- <sup>152</sup> Robert Kagan, *Of Paradise and Power: America and Europe in the New World Order*, Knopf, New York, 2003, p.1
- <sup>153</sup> Smith, op cit
- <sup>154</sup> Henry Kissinger, *Diplomacy*, Simon & Schuster, New York, 1994
- <sup>155</sup> George Kennan, *The Sources of Soviet Conduct* [known as the Long Telegram], 1946. First published in *Foreign Affairs* (July 1947) under the pseudonym 'X'. NB: Kennan's original typewritten text contains a number of minor errors, and misses out many definite and indefinite articles (presumably in a nod to the telegraphic convention of compression). We have therefore made minor edits for the sake of readability.
- <sup>156</sup> Kissinger, op cit
- <sup>157</sup> "The Immutable Nature of War", NOVA, Battle Plan Under Fire, PBS <http://www.pbs.org/wgbh/nova/wartech/nature.html>
- <sup>158</sup> National Intelligence Council, *Global Trends 2025: A Transformed World*, November 2008 [http://www.dni.gov/nic/PDF\\_2025/2025\\_Global\\_Trends\\_Final\\_Report.pdf](http://www.dni.gov/nic/PDF_2025/2025_Global_Trends_Final_Report.pdf)
- <sup>159</sup> R Thakur, A F Cooper, and J English, eds, (undated), *International Commissions and the Power of Ideas*. Tokyo: United Nations University Press
- <sup>160</sup> Andrew M Exum, Nathaniel C Fick, Ahmed Humayun, and David Kilcullen, *Triage: the next twelve months in Afghanistan and Pakistan*, Center for a New American Security, Washington, 2009
- <sup>161</sup> Evans and Steven, 2007, op cit
- <sup>162</sup> Evans 2009, *Feeding of Nine Billion*, op cit
- <sup>163</sup> *OECD Annual Report*, Organisation for Economic Co-operation and Development, Paris, 2009 <http://www.oecd.org/dataoecd/38/39/43125523.pdf>
- <sup>164</sup> Evan A. Feigenbaum and Robert A. Manning, *The United States in the New Asia*, Council on Foreign Relations, New York, 2009
- <sup>165</sup> Marc Grossman, 'The Tsunami Core Group: A Step toward a Transformed Diplomacy in Asia and Beyond', in *Security Challenges*, Volume 1, Number 1, 2005
- <sup>166</sup> Peter I Hajnal, *The G8 System and the G20: evolution, role and documentation*, Ashgate Publishing Group, 2007

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<sup>167</sup> Barry Carin and Gordon Smith, "The Role of the G20 in Shaping Responses to Global Crises" in Andrew F. Cooper and Daniel Schwanen (eds.), *CIGI Special G20 Report: Flashpoints for the Pittsburgh Summit*, Centre for International Governance Innovation, 8<sup>th</sup> September 2009: pp. 17-20.

<sup>168</sup> White House, Statement by the President on the White House Organization for Homeland Security and Counterterrorism, 26 May 2009

<sup>169</sup> Department of Economic and Social Affairs – Population Division, op cit

<sup>170</sup> German Advisory Council on Global Change, *Solving the Climate Dilemma: the budget approach*, Berlin, 2009 – 67% probability

<sup>171</sup> Richard Heinberg, *Powerdown: Options and Actions for a Post-Carbon World*, New Society Publishers, British Columbia, 2004

<sup>172</sup> We owe the 'rapids' metaphor to Ted Newland and Pierre Wack, the founders of Shell's scenario planning team in the 1970s. See Art Kleiner, *Consequential Heresies: How 'Thinking the Unthinkable' Changed Royal Dutch/Shell*, available at <http://www.well.com/~art/PDF%20Files/gbnshelloil.pdf>

<sup>173</sup> Barrett, op cit, p74

<sup>174</sup> Chet Richards and Chuck Spinney, eds, *Patterns of Conflict*, originally by John R Boyd, Defense and the National Interest, January 2007. Available at [http://www.d-n-i.net/boyd/patterns\\_ppt.pdf](http://www.d-n-i.net/boyd/patterns_ppt.pdf)