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Global Risks and Collective Action Failures: What Can the International Community Do?

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Monetary and Capital Markets Department

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Abstract

What do climate change, global financial crises, pandemics, and fragility and conflict have in common? They are all examples of global risks that can cross geographical and generational boundaries and whose mismanagement can reverse gains in development and jeopardize the well-being of generations. Managing risks such as these becomes a global public good, whose benefits also cross boundaries, providing a rationale for collective action facilitated by the international community. Yet, as many public goods, provision of global public goods suffer from collective action failures that undermine international coordination. This paper discusses the obstacles to addressing these global risks effectively, highlighting their implications for the current juncture. It claims that remaining gaps in information, resources, and capacity hamper accumulation and use of knowledge to trigger appropriate action, but diverging national interests remain the key impediment to cooperation and effectiveness of global efforts, even when knowledge on the risks and their consequences are well understood. The paper argues that managing global risks requires a cohesive international community that enables its stakeholders to work collectively around common goals by facilitating sharing of knowledge, devoting resources to capacity building, and protecting the vulnerable. When some countries fail to cooperate, the international community can still forge cooperation, including by realigning incentives and demonstrating benefit from incremental steps toward full cooperation.

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I. INTRODUCTION

Mismanaged risk does not recognize boundaries. Once triggered, financial crises can circle rapidly around an increasingly interconnected globe, creating widespread economic and social damage. Deadly contagious diseases, such as avian flu or Ebola, can spread from remote parts of the world to major cities in less than 36 hours. Conflicts and unrest can spill over to neighboring countries, imposing social and economic stress. Droughts, floods, and violent storms can devastate a country or an entire region, imposing huge financial and human losses on people, governments, and financial systems. Left unmitigated, climate change is likely to intensify all these risks that are capable of reversing gains in development and jeopardizing the well-being of generations. While growing interconnectedness through trade, communications, travel, information, and finance facilitates rapid economic growth, helps reduce poverty, and opens opportunities for the developing world, it may also magnify the impact of some global risks and complicates their management.

Addressing such risks call for global players, because no country or agent acting alone can deal effectively with a risk that crosses a national border. Risks that spread across borders and affect several countries or generations therefore merit international attention. Managing risks such as these becomes a global public good, whose benefits also cross boundaries, providing a central rationale for collective action facilitated by the international community.^{2,3} While global public goods benefit all countries and populations, they are likely to yield the greatest benefit to low income countries, which are disproportionately vulnerable to these risks given their greater exposure to economic, health, and environmental shocks, weak infrastructures and institutions, and more limited access to tools that help mitigate adverse consequences of those risks.

Yet, the provision of many global public goods suffers from collective action problems that undermine international cooperation. Provision of global public goods such as ensuring global financial stability, controlling climate change and exploitation of natural resources, or containing the spread of contagious diseases or conflict, require collective action by sovereign nations. There is an advantage to acting collectively because while each country prefers that others supply the good (thus free-riding on others), each also recognizes that if everyone depended on others to supply the good, the result would be bad for everyone. Nonetheless, collective action fails for a variety of well-known reasons, ranging from the absence of appropriate institutional and governance mechanisms to lacking incentives to trigger such action. Global cooperation, in turn, suffers from collective action failures, resulting potentially in a fragmented global system and mismanaged risks.

This paper focuses on a few key global risks that exceed the capacity of national policymakers to manage, and discusses the underlying causes of failure for, and effective responses to, resolving them. It does not provide an exhaustive list of all possible global risks, but instead, aims to illustrate the common factors that enhance or undermine the

² For a broader discussion of these issues, see, for example, Kaul 2003; Stiglitz 1999; and World Bank 2007.

³ As defined in World Bank 2013, the international community is a collection of global standard setters and regulators, international financial institutions (IFIs), global cooperation organizations, global media, global civil society, and the global scientific community.

effectiveness of actions by the international community, taking advantage of their synergies. It draws attention to those global risks that are macro critical, with increasingly more prominent implications for stability and development, and that challenge the goals the agents of the international community strives to achieve. Focusing in particular on global financial crises, environmental risks, pandemics, and risks associated with fragile and conflict states, it discusses how collective action problems undermine international cooperation to address them and weaken the role of the international community to scale up risk management.

The experience gained to date suggests that the international community could strengthen its efforts to forge consensus on risks that transcend national and generational borders. The key factors that have undermined cooperation and the effectiveness of global efforts have been divergent national interests and challenges of persuading short-sighted governments to take long-term decisions, even when knowledge on the risk and its consequences were well understood. Knowledge also has failed to result in effective action, when cognitive failures and capacity constraints prevented the information from being effectively internalized and acted on. As a result, less emphasis tends to be placed on preparation than on responding to the risk after the fact, in many cases in a suboptimal way. What is more, too much weight is sometimes placed on avoiding risk than on managing it to seize development opportunities.

The paper discusses the various ways in which the global community can scale up management of global risks and enhance its effectiveness. It argues that effective management of global risks requires a cohesive international community that enables its actors to work collectively around a well-defined common goal by facilitating knowledge buildup and sharing, encouraging proactivity and longer-term planning, devoting more resources to capacity building, and protecting the most vulnerable. The international community must have the capacity to mobilize global resources and establish mechanisms to forge cooperation even when some countries fail to cooperate. It can do so by realigning incentives to reach full cooperation through advocacy and by demonstrating benefits obtained from incremental steps. Adhering to these principles is important in a world where increasingly more complex and interconnected risks will continue to emerge and, if mismanaged, derail stability and development efforts.

II. RISKS THAT RECOGNIZE NO BOUNDARIES

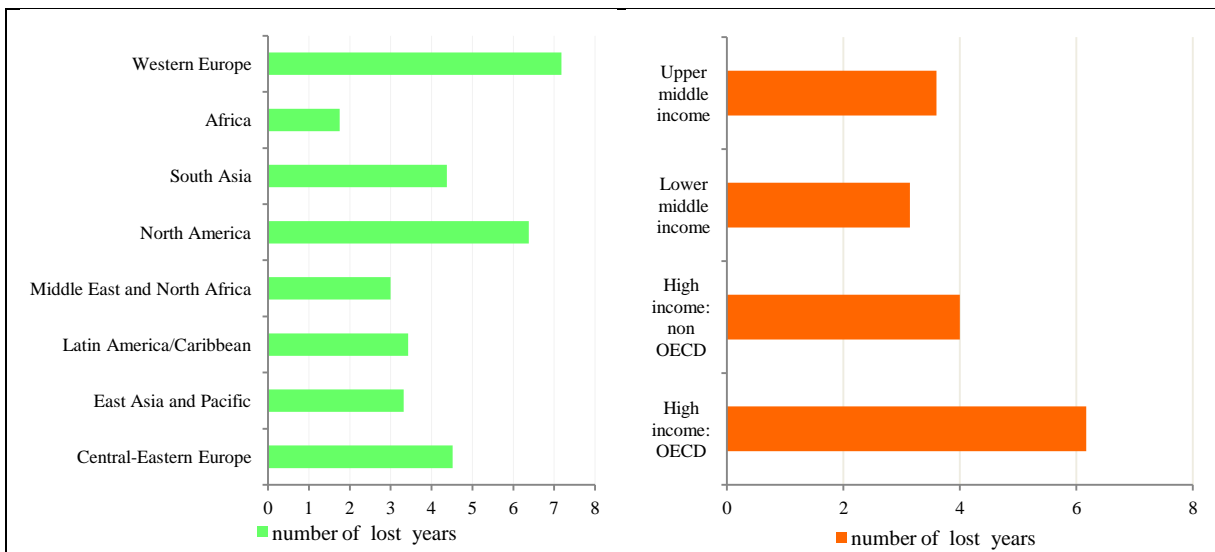
Countries face many risks that overwhelm national capacity—risks that are just too big for national authorities to handle alone and require collaboration with other nations and intervention by the international community. Some of these risks have implications beyond geographical boundaries. Some may even have ramifications that transcend generations, because the effects and scope of the risks brewing today may not be visible for many years.

Given their complexity, such risks cannot be addressed by individual countries alone. Individual risk management actions are either insufficient or made ineffective by the actions of others. The international community could in principle facilitate risk sharing across nations and generations. By managing risk collectively, the international community could encourage complementarities across individual actions and enhance their impact. It can also provide broader and longer-term perspectives to tackle the risks.

Economic and financial crises are clear examples of risks that can transcend national borders in a world of tightly interconnected economic and financial systems. While creating opportunities for international risk sharing and helping countries diversify idiosyncratic shocks, international integration, through trade in goods and services (including financial services) can also generate new types of risk which have to be managed. While everyone is vulnerable to their adverse consequences, financial crises hurt disproportionately the poor, who have limited capacity and instruments to withstand the shock and recover from its impact (World Bank 2001). Failure to manage financial risks effectively, before and after the risk materializes, can undermine the resilience of the poor to withstand future shocks and their ability and willingness to take advantage of development opportunities. Containing the costs of the crisis and building resilience to future shocks become a global public good and call for collective action at the global level.

The global financial crisis that hit the world economy in 2008 offers stark evidence that mismanaged risk indeed does not respect boundaries. The crisis touched on many lives as the failure of financial institutions to manage the risks they retain led to an unprecedented disruption in financial markets, a sharp slowdown in growth around the world, and stalled progress toward Millennium Development Goals (World Bank and IMF 2010), undoing between seven and fourteen years of economic progress in the countries hardest hit (Figure 1). Around 30 million people lost jobs globally over the course of the crisis, taking unemployment rates to unprecedented levels (Ötger-Robe and Podpiera 2013). Income distribution deteriorated in many countries. The pace of the already uneven progress in poverty reduction has slowed across the board, and millions of people, even in advanced countries, have been put at the risk of falling into extreme poverty and exclusion.

Figure 1. Measuring “Lost Time” in Economic Development: The Proust Index



Source: Ötger-Robe and Podpiera 2013, based on data from Bloomberg (equity prices); World Bank World Development Indicators (WDI) for GDP and consumption per capita; WDI and ILO for the unemployment rate. *Note:* Following a methodology used in *Economist* 2012, lost time is measured as the number of years between when a country recorded the worst crisis value for a given indicator and when a worse value of that indicator had been last observed. The figure represents a simple average of lost time in terms of GDP and household consumption per capita, equity prices, and the unemployment rate for 52 countries for which data are available.

Health risks also cross national boundaries in a tightly interconnected world, where international coordination efforts are essential for prevention and disease control. Increased air travel and trade in goods and services can provide free passage to pathogens that cause infectious diseases, some of which can travel around the world in less than 36 hours. Greater mobility of people and goods facilitates the spread of contagious diseases that take away many lives (e.g., as with the avian and swine flu, AIDS, SARS, and, more recently, the Ebola outbreak). At the same time, international efforts through globalization and scientific advances improve understanding of many pathogens, including how they can be detected and diagnosed rapidly to enable disease control, and support collaboration among scientists, public health officials, and media to inform people even in remote risk areas.

Global efforts are also essential where risks may evolve slowly, with few immediately visible implications. Climate change risk is one of the most prominent examples, attributed largely to human activities such as the burning of fossil fuels and deforestation, and has been building slowly and nearly invisibly for decades (Box 1). Climate extremes such as heat waves, heavy precipitation, droughts, and wildfires have been increasing for the past 50 years and are expected to worsen as atmospheric concentrations of greenhouse gas (such as carbon-dioxide) emissions reach unprecedented levels with potentially catastrophic and irreversible consequences (IPCC 2007, 2012).⁴ Recent data show that the level of carbon dioxide in the atmosphere increased at its fastest rate for 30 years in 2013. While all countries are vulnerable to the effects of climate change, developing countries are most adversely affected because they have the least capacity to prepare and cope with the increased frequency and severity of extreme weather events, rising sea levels, reduced water and food security, and spread of infectious diseases associated with the global warming.

What is more, risk management actions by one country (or a generation) may create negative externalities and undermine stability and development efforts of others. For example, national policies to promote growth and escape poverty risk may create growing pressures on shared resources (such as oceans, waterways, fish stocks, and the atmosphere), resulting in degradation of resources that hurt other countries and future generations (the so-called tragedy of the commons problem—Hardin 1968). Dams to control water levels and retain water can affect water security for millions of downstream users in neighboring countries. In each of these examples, countries acting in their own interest obtain immediate gain from their actions, while losses from the impact of adverse consequences are not felt immediately. If all countries try to safeguard their own interests, individual actions can collectively cause large damages to all involved, in some cases with irreversible consequences.

Similar externalities are observed in international finance and trade. For example, national measures imposed during a crisis to protect the domestic financial system by ring-fencing affiliates of cross-border banks may reduce contagion risks and fiscal costs of a failing foreign bank, but they may also weaken the resilience of the home country financial system, raise the cost of capital and liquidity in both home and host countries, and limit the ability of

⁴ About three-fourths of the total number of disasters since 1903 took place in the past three decades when the Earth's temperature started to rise rapidly.

banks to manage funding risks. Fear of ring-fencing may induce global banks to pull out of other host countries, hurting those with less-developed financial markets (D’Hulster and Ötker-Robe 2014).

III. HOW CAN THE INTERNATIONAL COMMUNITY HELP TO MANAGE GLOBAL RISKS?

The international community has the ability and resources to scale up national efforts to manage risks that exceed national capacity. It can do so by targeting the key constraints countries face in mitigating those risks. Specifically, the international community generates *knowledge* to address information gaps and help overcome cognitive and behavioral biases that can constrain the capacity to identify, measure, and assess risks. The international community also helps in internalizing the *externalities* imposed by the actions of other actors through global rules and regulations and by providing platforms to facilitate policy dialogue. And it improves *access to markets and resources* necessary to protect or insure against the risk or cope with their consequences when risks materialize (Figure 2).

Lack of relevant **knowledge** is a key obstacle to effective risk management. Knowledge deficiencies become more formidable as risks grow in intensity and complexity and as the uncertainties about their sources, drivers, and potential impacts deepen. Lacking knowledge, countries or individuals may contribute to, or overlook, environmental risks; spread or fail to protect against communicable diseases; or take excessive financial risks in search of high returns. Knowledge then becomes a global public good that contributes, or limits damage, to stability and development. The international community plays an important role in supplying this public good. Extensive cross-country analyses provided by IFIs, for instance, can provide a broad, impartial knowledge base, raise risk awareness, especially where countries fail to recognize far-reaching and long-term implications of their actions, and help bridge gaps between global objectives and national policies (e.g., through platforms for knowledge exchange and periodic risk assessment at the global level). Clear and prompt communication of the knowledge is crucial, if it is to affect behavior.

Knowledge about the drivers and potential effects of risks is necessary but not sufficient to encourage appropriate risk management action. Design and implementation of **rules, regulations, and standards** by the international community provide frameworks for collective action to better manage a range of risks affecting multiple nations and generations. Recent examples of these include the initiatives to strengthen the global financial infrastructure and create more resilient financial systems that have followed the 2008 financial crisis (BCBS 2011); the Millennium Development Goals to reduce poverty and address risks affecting development (UN 2000); the New Deal for Engagement in Fragile States (OECD 2011a,b); global efforts to counter pandemic risk (UN 2011); the Kyoto Protocol and the UN Framework Convention on Climate Change (UN 1998) to stabilize greenhouse gas concentrations; and the Montreal Protocol to protect the ozone layer (UNEP 2007).

The international community plays a key role in facilitating collective action and cooperation to ensure implementation of these agreed rules and regulations designed to mitigate global risks. By providing **platforms for policy dialogue**, the international community aims to facilitate coordination and cooperation among sovereign states, which help limit potential externalities and inconsistencies in implementation.

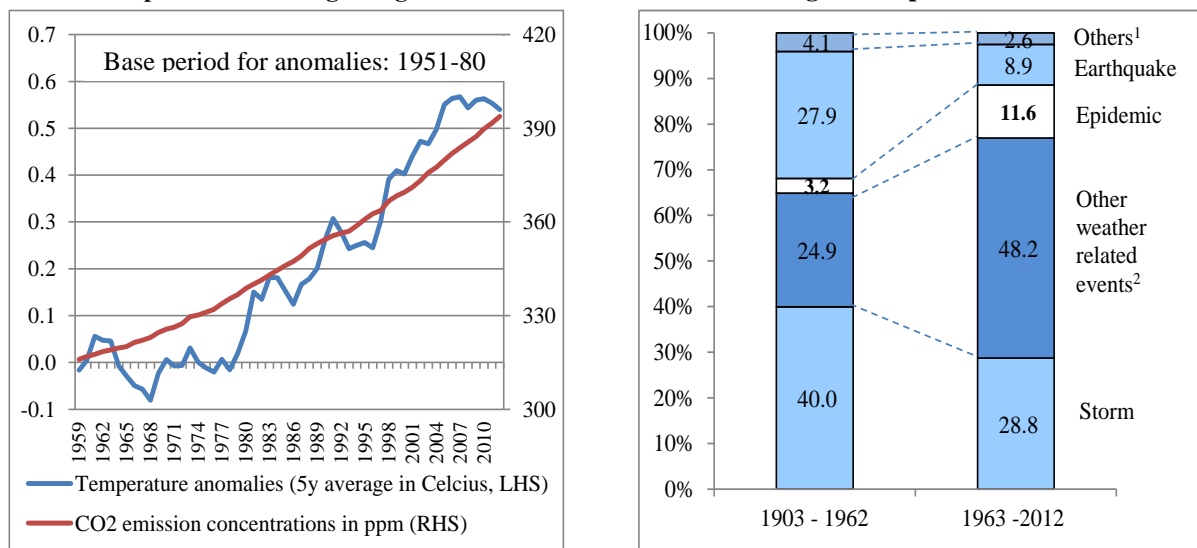
Box 1. Climate Change and Implications for Stability and Development

Climate change is the rise in Earth's temperature associated with increased atmospheric concentrations of heat-trapping greenhouse gases such as carbon dioxide (CO₂). The steady rise, dating from the Industrial Revolution, has been attributed largely to human activities, including the burning of fossil fuels and deforestation. New research into climate change (Marcott, Shakun, Clark, Mix 2013) suggests that Earth is warmer today than at any time during the past 11,300 years as greenhouse gas concentrations have continued to rise: the concentration of the main greenhouse gas, CO₂, rose from its pre-industrial level of 278 parts per million (ppm) to a daily average of 400 ppm in May 2013, approaching the 450 ppm threshold that corresponds to a likely increase in Earth's temperature of more than 2°C—the warming level that the international community committed itself to avoid for its potentially catastrophic and irreversible consequences.

The effects of climate change are already visible in widespread melting of Arctic glaciers, rising sea levels, and higher frequency and severity of extreme weather events and natural hazards. If concentrations of greenhouse gases continue unabated, a warming of more than 4°C could occur as early as the 2060s, with large-scale impacts on human and ecological systems—including, heightened risk of inundation of coastal areas, spread of infectious diseases, declining water and food security, destruction of habitats for many species, and social and economic consequences of large displaced populations. Climate change is hence a serious threat to development, for both current and future generations; the estimated cumulative cost from damage to health, food security, and the physical environment ranges from \$2 trillion to \$4 trillion by 2030 depending on the climate scenario.

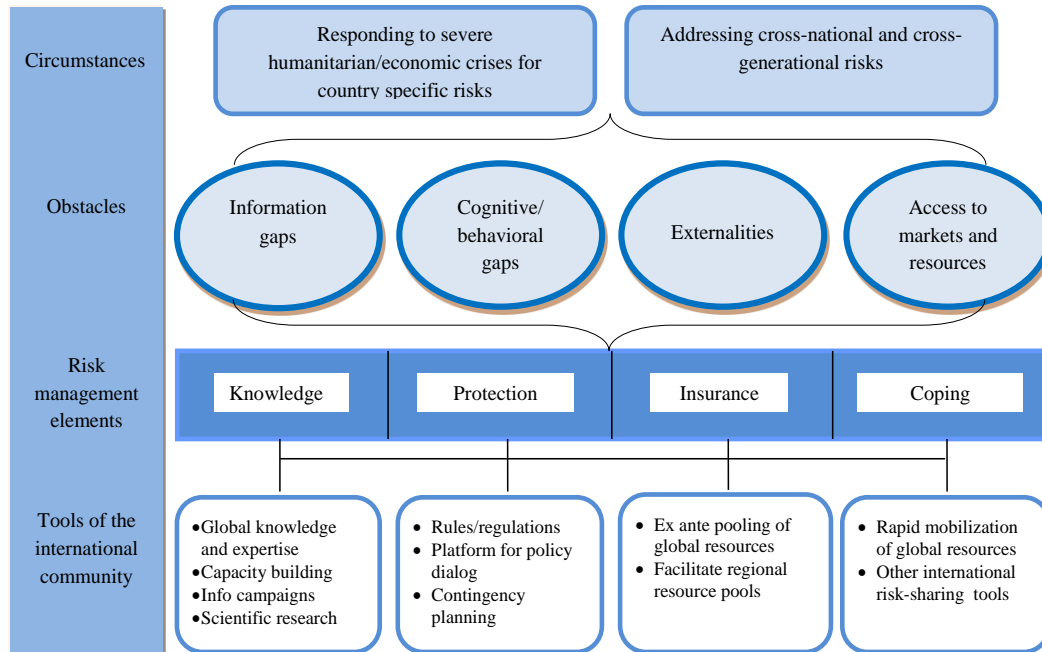
Mitigating climate change is a prime example of a global public good that requires collective action. Collective action is needed because while each country prefers that others supply the good (free-riding on others), each also recognizes that if everyone depended on others to supply the good, the result would be bad for everyone, suggesting that there is an advantage in collective provision. Climate change mitigation faces several important obstacles. First, despite improved confidence in climate models, significant scientific uncertainty remains on the critical warming thresholds (so-called tipping points) and on the magnitude of climate change effects. Second, climate change effects are not uniform across countries, creating diverging incentives for action. The absence of a global authority to enforce cooperation across nations undermines collective efforts, combined with the free-riding problems, as each country hopes that others will bear the cost of climate change mitigation. Third, short-termism and different valuations of ecosystems, biodiversity, and loss of life breed inaction and pass the risk to future generations. Despite general consensus that it is a serious threat, and decades of debate and negotiations notwithstanding, climate change risks are likely to grow until these challenges are effectively addressed.

Earth's temperature is rising along with CO₂ concentrations and change in the pattern of disasters



Source: World Bank 2013 and references and sources cited therein.

Note: 1 refers to volcanoes, insect infestations, and complex disasters; 2 to floods, droughts, extreme temperatures, and wildfires.

Figure 2. Global Risks and the International Community

Source: World Bank 2013.

Another key channel through which the international community can facilitate collective action is through **capacity-building assistance**. Such assistance can help countries build systems that protect against various risks, especially where lacking implementation capacity undermines a country's ability to manage risk effectively and adhere to global standards and rules. Through capacity building, the international community supports a variety of efforts, including to strengthen governance and build capacity to implement established global standards (e.g., the Basel III framework), set up early warning and monitoring systems for systemic risk, communicable diseases, and natural disasters, design contingency planning and crisis management mechanisms that reduce the need for costly coping measures, and assist in developing markets and tools for hedging and insurance, particularly where small or segmented markets block efficient private sector solutions to risk, including the pooling of risk across markets (Mahul and Cummins 2009 and Mahul and Chesquiere 2010).

Mobilizing global resources is another essential contribution of the international community to risk management. National efforts to prepare for risk notwithstanding, crises and disasters do happen, and when they do, significant fiscal resources are typically spent on dealing with their consequences and recovering from it with the least possible harm to the functioning of the economy. The international community has developed a range of risk-sharing tools to help countries deal with extreme (tail-risk) scenarios before and after the event:

- *Emergency support.* In their most traditional modality, international risk-sharing solutions involve direct ex post support from bilateral or multilateral creditors or private organizations. A key driver of this support is the need for timely action to mitigate a sudden shortage of resources following a severe crisis or a disaster. International support

is especially important when the country affected is unable to secure resources to protect vulnerable populations from capital markets or self-insurance, or when the risk that distress will escalate to other countries is high. The financial packages and provisions of liquidity to unclog international financial markets during the global financial crisis are clear examples. Donors' support to more than 100 developing countries to control the H5N1 avian flu and prepare for a pandemic during 2005–10 is another.

- *Insurance mechanisms.* Insurance pools risk and transfers resources from good to bad times. The financial crises of the past facilitated the creation of insurance tools for countries experiencing volatility and instability despite relatively strong fundamentals.⁵ At the same time, strong links among emerging economies and stigma about receiving resources from IFIs triggered interest in reserve pooling and swap lines to serve as insurance (e.g., the Chiang Mai Initiative—the multilateral currency swap arrangement among ten members of the Association of Southeast Asian Nations, the BRICs bank, and the Euro Area European Stability Mechanism). The regional pools, however, have not been fully tested and may have limited lending power (Kawai and Lombardi 2012).
- *Facilitating insurance.* Beside its more direct engagement, the international community plays a more indirect, catalyzing, and technical role, by helping countries pool resources that they can use in an emergency. Such mechanisms enhance countries' capacity to jointly access international markets at a lower premium than they could obtain individually, and are particularly helpful for small states where private markets are nonexistent, segmented, or unaffordable to the most vulnerable, and where access to credit, insurance, and reinsurance markets is limited.

IV. OBSTACLES FOR RESOLVING GLOBAL RISKS

Progress in addressing some of the most prominent global risks of the early 21st century has so far been modest. A global financial meltdown has been prevented, but six years after the onset of the global financial crisis, economies and financial systems of many advanced and developing countries remain vulnerable to the risk of renewed tensions, as some underlying economic and structural weaknesses remain unresolved. The actions of the global community have been undermined by the challenges in dealing with the negative feedback loops across banking, sovereign, and real sector risks and competing economic priorities have continued to complicate policy responses.

Progress also remains limited in resolving other major risks facing the global system. Climate change continues to trouble global leaders and populations, despite substantial knowledge on the dangers of inaction. Preventing and preparing for pandemic risk remains a huge challenge, even as outbreaks continue to take many lives, as evidenced by the recent Ebola epidemic in West Africa in 2014. The majority of MDGs in fragile states are expected to be missed by 2015, bringing their share in the global poor to half (Ötger-Robe 2013; OECD

⁵ For example, the IMF's Flexible Credit Line, which allows qualified countries to draw on the credit line at any time within a specified window, and the World Bank's contingent credit line that allows the borrower country to rapidly meet its financing requirements following a shortfall in resources due to adverse economic events.

2013). The lack of resolve to address these risks and associated coordination failures not only burden national and international authorities with substantial fiscal costs, but may also end up slowing or reversing hard-won development gains and imposing huge costs on future generations. Several common factors undermine the effectiveness of global efforts.

A. Problems in Formulating and Transforming Knowledge to Action

Continued gaps in information constrain knowledge and action. *Information asymmetries* continue to hamper global efforts to effectively identify and manage risks in the financial sector, for example. Despite ongoing efforts by IFIs, much of the information necessary to identify a buildup of systemic risk remains unavailable to markets and policymakers (IMF and FSB 2011). In countries where financial systems are globally interconnected, the lack of exposure data across institutions hinders identification of emerging risks and undermines the usefulness of early warning systems to trigger action. Global health prevention efforts are also beset by information asymmetries. Infectious disease controls are often undermined by weak communication between public health authorities and delays in detection and diagnosis caused by information gaps, leading in turn to late and more costly control measures. Similarly, while extensive data are available on environmental risks, they remain scattered and lagged, with no systematic dissemination of the key messages to summon global action.

Information asymmetries also affect the international community's ability and willingness to engage effectively with fragile and conflict-affected states. Insufficient information about the extent of corruption, political risks, and local authorities' implementation will and capacity adds to donors' risk aversion and reduces their willingness to engage on the critical issues. It also makes them focus their attention on attaining results that, while worthy, may not help transformation of such states by strengthening national systems and addressing peace-building needs. Missed opportunities for engagement (through market access or development aid), in turn, threaten prosperity and social cohesion and risk creating a vicious circle of fragility, poverty, corruption, and conflict, with costs that spread beyond national borders.

Many tools to manage complex risks elude countries with *limited resources and capacity* to implement them. Insufficient resources and capacity make it difficult for many low income countries to access the available information and knowledge, analyze the cause and consequences of risk, afford insurance, and take preventive actions. In this regard, one striking fact is that during 2007-12, insurance covered less than 20 percent of total disaster losses in developing countries, on average, compared to about 60 percent in North America, according to SwissRe. Shortfalls in funding the cost of climate change mitigation and adaptation have been an obstacle to reducing greenhouse gas emissions in developing countries and to reaching agreements in climate change negotiations.

Cognitive and behavioral factors also get in the way of translating available global knowledge into action. Despite widespread availability of information at the global level on the evidence of climate change, disasters, or the possibility of yet another pandemic, individuals and governments continue to overlook their potential exposure to what they view as rare or distant events, take a parochial view of, hence underestimate, the potential cost of inaction, and fail to insure against them or take preventive action. Small-probability but high-impact risks are often ignored in the face of short-term challenges or priorities, resulting in

underinvestment in preventive steps. A 2011 global survey on climate change, for instance, found evidence of short-sighted attitudes to climate change risk and greater attention to what is seen as more pressing and urgent matters facing the world (Nielsen Company 2011); a non-negligible part of the global population discounts heavily the future and places lower value on adverse consequences of climate change.

Deep uncertainty about the unknown adds to the behavioral and cognitive biases. The push to mitigate climate change risks is undermined by uncertainty about the benefits and costs of taking action and by a lack of consensus on the critical thresholds (the “tipping points,” Lenton et al 2008) for greenhouse gas concentrations beyond which small changes in Earth’s temperature could have catastrophic consequences. The absence of scientific consensus on these thresholds undermines international cooperation.⁶ Deep uncertainty, along with capacity constraints, also undermines the ability to assess complex macro-financial risks. The difficulty of anticipating the feedback loops between financial, sovereign, and real sector risks, the failure to address risks in an integrated manner, and the uncertainty about the behavior of agents in a world of complex and interconnected financial systems, for instance, contributed both to the severity of the global crisis and the challenges in resolving it (Ötler-Robe and Podpiera 2013).

B. Perverse Incentives that Discourage Effective Risk Management

Political economy factors are major impediments to taking appropriate risk management action. Emphasis on ex post risk management creates moral hazard and undermines incentives for preparation. Ex post availability of disaster aid may, in some cases, weaken government incentives to invest in warning systems or enforce strict zoning and building regulations in disaster-prone areas, or for individuals to obtain insurance or avoid settlement when other alternatives are available.⁷ For governments, the political reward for well-funded but generally costly hazard prevention may be viewed small compared with the gain from an efficient ex post response. Sustained investments in public health systems to prevent pandemics may be crowded out by funding for mitigation programs, such as stock-piling of medications. As national and global efforts fail to focus on prevention, as opposed to relief efforts, outbreaks such as Ebola continue to claim lives and hinder development efforts. In finance, the absence of effective national or cross-border resolution regimes to proactively resolve weak or failing systemic banks and expectations of bailouts create moral hazard, encourage risk taking and reduce incentives to self-insure by holding capital and liquidity buffers commensurate with the risks taken.

Myopia may also reduce the perceived urgency for action against risk, while creating a tendency to pass the risk on to others. The cost of climate change mitigation not borne by today’s generation will be passed on to future generations. By then, mitigation will likely be

⁶ Recent experimental research suggests that if this threshold could be identified with certainty, and if the relative cost of avoiding it were low, the fear of crossing it could reduce the free-riding behavior of countries and induce them to join in the needed collective action to avoid catastrophe (Barrett and Dannenberg 2012).

⁷ For example, Nicaragua declined to pursue a weather-indexing program in the global reinsurance market, citing, *inter alia*, international assistance as an indication of dependable alternatives after Hurricane Mitch in 1998 (World Bank and United Nations 2010).

more costly and possibly too late to have the intended effect. A 2007 estimate by the Stern Review placed the cost of unmitigated climate change at a permanent annualized loss of 5–20 percent of global output by 2050, compared with a cost of 1 percent of the same metric to stabilize carbon emissions (World Bank 2009). Similarly, fears that other countries will impose trade and travel restrictions tend to dampen a government’s willingness to share information on the outbreak of a disease, increasing the eventual cost of stopping it.⁸ Imprudent fiscal policies raise the debt burden of future generations. Greater focus on short-term gain delays taking the policy measures that would place public or private debt on a sustainable path, compounding the cost of returning to solvency.

Finally, *diverging national interests* undermine international cooperation in the absence of agreed common goals and enforceable standards. Global public goods require collective action by sovereign nations. Collective action depends, first, on recognition of shared interests. If there is no perceived commonality of interests, there will unlikely be cooperation. Cooperation also fails if there is no global authority that can exert more or less coercive sanctions on sovereign countries that fail to take the agreed-upon action (e.g., Barrett 2007, 2008; Kaul 2003; and Stern 2007). Without explicit enforcement mechanisms, international agreements to supply global public goods must rely on voluntary participation, which works only if incentives are right or realigned around a common goal. That is, multilateral cooperation works best when national interests are well-aligned and when impediments arising from domestic policy priorities are not over-riding. Countries cooperate better when the downside outcome of failing to cooperate is most obvious (Bayoumi 2014).

Reducing greenhouse gas emissions to mitigate climate change is a perfect illustration of the incentive problems underlying collective action failure. Climate change affects countries unevenly, benefiting some (at least in the short term), and hurting some more than others. Continued scientific uncertainty about the nature and timing of climate change effects, the perceived unevenness of those effects across different populations, and competing domestic policy needs create diverging interests and incentives to take action. As a result, countries have been unable to forge a lasting agreement ratified by all nations, let alone a mechanism to enforce it. In contrast, in two successful examples of international cooperation (eradication of smallpox and protection of the ozone layer), common interests—vulnerability to highly damaging and quickly visible health effects—helped remove barriers to collective action (Table 1). The looming threat of a nuclear war with devastating outcomes for the world also spurred 189 nations to sign a nuclear nonproliferation treaty in 1968 and helped contain the spread of nuclear weapons (Campbell, Einhorn, Reiss 2004; Fitzpatrick 2009).

Diverging incentives and collective action traps also played a role in the slow progress observed in reforming the global financial system in the aftermath of the 2008 crisis. For example, the Basel III regulatory framework designed to strengthen the soundness of the global financial system faced challenges in its formulation and implementation. The desire of individual governments to protect their national banking systems led to divergent views among advanced countries and between advanced and developing countries on the stringency

⁸ Brahmabhatt and Dutta (2008) estimate that efforts to avoid infection through reduced travel or trade account for 60 percent of the economic costs during a pandemic.

of the new standards and the pace of implementation; some countries in turn introduced stricter national regulations above minimum common standards to better safeguard stability in their financial systems, the implications of which require further analysis. In contrast, the G20 Group worked well at the outset of the crisis when most countries adopted expansionary policies to restore economic and financial stability and avoid a global meltdown. Continued cooperation has become more challenging as the speed of recovery diverged across countries.

The slow progress in resolving the problems facing fragile and conflict-affected states has also conflicting national interests at its root. Concerns about whether the resources they allocate to those states are used effectively, added to the domestic fiscal pressures following the global crisis, have made donors more cautious. Donors have reiterated their commitment to continue supporting these states, but have struggled to adapt their systems for implementation to meet these challenges (OECD 2012). Weak commitment to international assistance leaves severe risks unaddressed and increases the eventual cost of engagement, in terms of both financial resources and human life; preventing states from falling into conflict can be more cost-effective than responding once they have failed.⁹ Moreover, the cost of non-engagement goes beyond national borders in an interconnected world, resulting in increased refugee populations, disease, conflict, and economic losses elsewhere. Sharing a border with a fragile state can reduce a country's economic growth by 0.4 percent annually (DFID 2005).

Table 1. Some Key International Community Initiatives

Goal and Results	Underlying reasons for success or failure
Smallpox eradication campaign (1967–79)	
<p>Goals: Eradication of a pandemic disease that killed 300 million–500 million people.</p> <p>Results: World Health Organization (WHO) declared the world free of smallpox in May 1980. First disease eradicated by human effort. Seen as a unique achievement in the history of international cooperation.</p>	<ul style="list-style-type: none"> • Broad cooperation achieved. • Strong leadership and commitment from WHO, backed by political commitment from governments, strong support from U.S (monetary and technical) and other support from U.S. Centers for Disease Control. • Financial and technical assistance to developing countries that lacked resources and capacity to eradicate. • Right incentives that were self-enforcing: <ul style="list-style-type: none"> ○ Costs (about \$300 million worldwide) were negligible, compared with benefits: the United States got back its entire contribution in 26 days (in health costs saved)—a benefit-cost ratio of over 400:1. ○ The disease affected every country (ease of spread with trade and movement of people) with direct consequences; eradication succeeded because smallpox was eliminated everywhere. • Scientific research showing feasibility of eradication; technical breakthrough (new type of needle) lowered the cost of vaccination. • Surveillance and containment strategy: strong focus on preventing the disease from spreading by seeking and monitoring new cases.

⁹ Studies have estimated that each dollar spent on conflict prevention can generate, on average, savings of \$4 to the international community (Collier and Hoeffler 2004; Chalmers 2004). Delayed response can also be very costly in terms of human lives, as demonstrated by recent events in Somalia, where a famine took many lives during 2010–11 despite 11 months of repeated early warning, with opportunities for early intervention missed due to perceived political risk (Bailey 2013).

Goal and Results	Underlying reasons for success or failure
Montreal Protocol (1987)	
<p>Goals: Protect ozone layer by banning ozone-depleting chemicals (ODCs).</p> <p>Results: Emissions of most depleting substances were brought under control. There are indications that the ozone layer will recover within the next 100 years; developed countries have reduced their production, consumption, emission of chemicals controlled by the Protocol by 99%; developing countries by 72% and continuing. Some increase in some of the chemicals authorized for short-term substitution.</p>	<ul style="list-style-type: none"> • Broad participation: <ul style="list-style-type: none"> ○ First treaty to reach universal ratification (197 UN nations). (It started with 24 signatories and the European Economic Community in 1987.) • Addressed the problem by chemicals (source) not timetable (targets). • Cost-effective substitutes for ODCs already existed. • Knowledge dissemination: Negotiations included civil society and scientists to overcome informational barriers; high degree of scientific consensus and evidence provided credibility. • Right incentives (and common interests): <ul style="list-style-type: none"> ○ Wide recognition that ozone depletion has serious, quickly visible consequences (health issues such as cancer). ○ Created strong incentives to participate and comply: treaty set out reasonable plans for implementation with appropriate support along with trade restrictions—bans on trade between parties and nonparties in ozone-depleting substances and products—to spur compliance. ○ Recognized importance of developing new technologies using non-depleting alternatives and providing access to developing countries. ○ Set up a multilateral fund to provide incremental funding to developing countries for transitioning to phase out harmful substances; provided institutional support (a key motivation for the participation of developing countries in the Protocol).
Kyoto Protocol (1997)	
<p>Goals: Reduce greenhouse gas emissions of 38 industrialized countries as a confidence-building step to reach the goal of the UN Framework Convention on Climate Change to stabilize greenhouse gas concentrations at a level that would prevent dangerous interference with the climate. Achieve a 5.2% cut on average in the emissions of industrial countries below their 1990 levels between 2008 and 2012.</p> <p>Results: Took effect in February 2005 when the two conditions of ratification were met (ratification by 55 nations and ratification by nations that produce 55% of the emissions). By April 2006, 141 countries ratified the protocol. Many countries did not meet their targets, however, and increased emissions, resulting in a global rise from 1990 levels.</p>	<ul style="list-style-type: none"> • Failed to attract broad-based support, ensure compliance (absence of an effective enforcement mechanism), and make parties take substantial actions. Some of the largest emitters either did not participate (e.g., the US and Canada) or were not required to cut emissions (e.g., China and India). • Bundled together targets for several greenhouse gases to achieve cost-effectiveness, but at the expense of lowering emission reduction targets. • Diverging incentives/interests (no clear self-enforcing common goal) <ul style="list-style-type: none"> ○ Perception that an individual country is too small to make a difference. ○ Climate change does not affect all countries the same way, some benefit from it in the short run while some are hurt more than others. ○ Competing domestic policy imperatives, including political factors, and short-term economic considerations; nonparticipation to avoid hurting growth. ○ Free-rider problems with costly steps to mitigate climate change.

Source: World Bank 2013 based on United Nations Framework Convention on Climate Change 1998; Barrett 2006, 2008; UNEP 2007; Stern 2007; Rae 2012; Center for Global Development, "Case 1: Eradicating Smallpox," http://www.cgdev.org/doc/millions/MS_case_1.pdf; <http://www.who.int>; UNISDR 2006, 2007; OECD and G20 2012.

V. POLICY IMPLICATIONS

Why has it been so difficult to secure international cooperation on risks that transcend national and generational borders? In a world with a tight network of interconnections, global problems need global solutions and an international architecture that keeps pace with the connectivity that glues the world and with the complexities such connectivity creates (Lagarde 2012). But the absence of global enforcement authorities with appropriate powers and accountability to forge global cooperation on the different areas of risk has hindered progress. Over time, this has raised questions about the ability of the international community to foster collective action on global problems. This collective inaction poses significant challenges to the stated goals of the international community, from poverty reduction to peace, prosperity, economic and financial stability, and a more equitable distribution of income and access to resources around the world.

Does this mean the world should give up on the goal of attaining global solutions and rely, instead, on individual countries' preparedness to take action in addressing the complex risks that have been collectively created? Not at all. Moving away from global cooperative solutions would be costly, especially for developing countries and the poor that have benefited the most from improved access to credit, foreign investment flows, and scientific knowledge and knowhow facilitated by globalization. Taking advantage of the positive steps being taken at the national and individual levels, and building on the lessons learned from the successful examples of international cooperation, the international community should strive to preserve the gains from globalization and continue its efforts to find the right tools, incentives, and institutions to promote international cooperation.

Successful international cooperation requires a *cohesive* international community where national interests are well aligned. And it requires an international community that has the capacity to mobilize resources and establish mechanisms that can facilitate cooperation, even when not all countries are willing to cooperate. That capacity, in turn, rests on the ability of the international community to realign incentives around shared goals and to attract participation of major players capable of achieving progress. The international community can scale up risk management to the extent it can devise new mechanisms that have a better chance of securing cooperation with appropriate combinations of knowledge, protection, insurance and coping tools (see Table 2 for examples of tools that could be used to scale up the management of various risks exceeding national capacity).


A. When Incentives Are Well Aligned: Full Participation

International cooperation works best when incentives are naturally well aligned. In these cases, the international community is able to undertake proactive, well-coordinated interventions. Some global risks such as the risk of financial crises or pandemics that generate rapid spillovers (and “spillbacks”¹⁰) have sometimes helped to align national interests toward well-coordinated national actions to contain risks at the source. The evidence

¹⁰ A term recently coined by the IMF to indicate a situation where potential negative feedback effects from country B as a result of a spillover from another country A, starts in turn hurting country A.

shows that the effectiveness of these actions has depended critically on (i) prompt sharing of information and resources and (ii) appropriate capacity and infrastructure to monitor, identify, and contain emerging risks. Without effective information sharing or adequate infrastructure, efforts to prevent problems from arising and spreading beyond national borders are rarely successful.

Table 2. Priorities to Improve Risk Management at the International Community

	POLICIES TO SUPPORT RISK MANAGEMENT	
	Foundational	Advanced
Knowledge	Improve data quality and availability	Eliminate Information gaps on financial institutions and exposures
	Intensify scientific research, improve knowledge on global risks and step up information/education campaigns to raise risk awareness on importance of preparation	
	Provide TA on basic RM tools, EWS, contingency planning, market/institutional development, communication, governance	Advisory on EWS, contingency planning, debt/reserve management, hedging instruments
Protection	Design targeted global rules, regulations, standards and ensure collaboration through platforms for policy dialogue	
	Financing for disaster prevention and preparedness; mitigation and adaptation; contingency planning mechanisms/EWSs	Facilitate implementation of mitigation/adaptation, contingency planning mechanisms, EWSs
	Vaccination, basic nutrition, education programs, technology transfer, Peacekeeping effort	Subsidies/Financing of R&D
Insurance	Contingent credit lines with grant elements	Contingent credit lines including Global Safety Net
	Facilitate regional reserve pool and catastrophe insurance mechanisms	
Coping	Humanitarian, emergency response and reconstruction relief (food, shelter, health...)	Technical support for emergency response & reconstruction
	Stabilization and targeted development financing	Emergency liquidity / Swap lines

Source: World Bank 2013.

Note: TA stands for technical assistance; RM for risk management; EWS for early warning systems; and R&D for research and development.

Access to knowledge is fundamental to broadening perspectives and addressing the problems when they emerge. Improving access to knowledge then should be the first step in achieving collective action and boosting countries' risk-management capacity. Greater efforts from the international community are particularly needed to:

- *Narrow existing information gaps and address cognitive and behavioral biases.* More systematic, frequent, and targeted dissemination of key information and best practices can help build longer-term perspectives on rare, high-impact, or distant risks and raise awareness of the dangers of inaction and spillover effects. Targeted education and

information campaigns by IFIs, national governments, as well as civil society and global media, can go a long way in helping people realize the implications of their actions (or inactions) for themselves and for others.

- *Reduce the degree of uncertainty about key risks facing the global system.* More resources should be devoted to scientific research that can expand knowledge on the likelihood and nature of complex risks and increase the ability to assess the need for collective action. The successful global campaigns to eradicate smallpox and protect the ozone layer show that partnerships between international organizations, governments, the scientific community, and civil society can offer persuasive evidence for action.
- *Promote systematic, integrated risk management.* The experience with the evolution of several risks underscores the need for systematic, proactive, and integrated risk management, and the need to consider the complexity and connectivity of risks with a long-term view. The transformation of the global financial crisis to the sovereign debt crisis in Europe and a subsequent real sector crisis worldwide highlights such complexity and connectivity, and the importance of mainstreaming proactive risk management strategies into the global development agenda.

The international community should focus on providing greater *resources for capacity building* and risk management actions to ease existing capacity and resource constraints:

- *Ease capacity constraints.* Efforts to support capacity building could focus on: designing proactive contingency plans to limit the risk of introducing suboptimal policies in the midst of a crisis with unintended consequences down the road; building buffers that dampen the impact of future negative outcomes; setting up monitoring, early-warning, and communication systems; analyzing complexities and networks of connections; and developing insurance and hedging markets and making them more accessible to facilitate private sector risk-sharing solutions.
- *Ease financial resource constraints.* Financial support to vulnerable countries and populations could augment national resources and facilitate risk-pooling solutions. But financing should be allocated to areas that matter the most to reduce vulnerabilities and build resilience, and to people most exposed to such shocks. Rewarding self-insurance and protection, making financing contingent on adequate risk management, and providing technical assistance to build risk management capacity can limit moral hazard and encourage preparation that over time should reduce the need for future support.

B. When Incentives Are Not Well Aligned: Incremental Approaches

When progress on fostering collective action is slow, it is necessary to consider new ways to bring about international cooperation. Where the consequences of inaction are potentially catastrophic and irreversible (as with climate change, loss of biodiversity, or similar environmental risks), lack of full certainty about the precise impacts and critical thresholds should not be used as a reason for postponing all action. On the contrary, preventive action

should be taken in the face of uncertainty (the precautionary principle).¹¹ For these risks, progress can still be made without a multilateral treaty or agreement with full-participation.

This could be achieved with incremental deals and actions by an initially small group of participants, while maintaining collective action with full participation as the ultimate goal. If it can demonstrate benefits from action, the incremental approach can serve as a building block to global deals. Countries, international organizations, and specialized entities could form “coalitions of the willing” to coordinate, advocate, and take prompt action, while creating incentives for others to join, through information and peer pressure, converging over time on a global deal with full participation. Ideally, those coalitions should include actors that contribute the most to the problem and those most affected by it, as well as engaging civil society, media, and the scientific community. For example, after global climate change negotiations made limited progress in 2009-10, calls for such coalitions for climate change have increased.^{12 13}

The crucial step in the incremental approach is finding a common goal around which “like-minded” participants can work to realign national interests and incentives to examine complex issues and take concrete actions. For global initiatives where incentives are not well-aligned, or where potential participants are not immediately persuaded that the needed action is in their interest, peer pressure can be a powerful device for persuading new participants to join. A number of global or regional agreements have been reached through such incremental approaches that started from smaller-scale initiatives to address a pressing problem of common interest (including the Montreal Protocol, the Nuclear Non-Proliferation Treaty, the European Union, and the World Trade Organization). The ways to identify and agree on a common goal and to realign diverging national interests around it are not very different from the essential elements of reaching a global deal with full participation:

- *Improved access to knowledge and advocacy.* The small coalition should facilitate information sharing and provide longer-term perspectives through targeted information and education campaigns. Convincing evidence from the scientific community and its clear communication to the public can help bring diverging views closer, creating a greater sense of urgency for collective action to avoid disastrous outcomes that would affect not only the future, but also the current, generations in its absence.¹⁴ Such evidence and broad-based public campaigns delivered through partnerships with civil society and scientific community were crucial in resolving the ozone layer and smallpox problems.
- *Financial and technological transfers* could help lower participation costs, providing incentives for other countries to join the coalition—particularly important for developing

¹¹ See, for example, the United Nations Rio Declaration from the 1992 United Nations Earth Summit; http://www.unesco.org/education/nfsunesco/pdf/RIO_E.PDF.

¹² Falkner, Stephan, and Vogler 2010; Goldin 2013; Hale 2011; Naím 2013; a <http://www.euractiv.com/climate-environment/europe-looks-coalition-willing-d-news-508909>.

¹³ Further details and background for this approach are provided in World Development Report 2014.

¹⁴ It is quite telling in this context that President of the United States, one of the top contributors to greenhouse gas emissions, called for urgent action in the 2014 Climate Change Summit in New York, noting that “We are the first generation to feel the effect of climate change and the last generation who can do something about it.”

countries that have the least ability to cope. For example, for climate change, technology transfers from developed countries could stimulate non-carbon-based industries and induce the use of cleaner technologies to counteract greenhouse gas concentrations and support climate change mitigation and adaptation. Climate finance can also support adaptation and mitigation efforts of the financially-constrained developing countries.¹⁵ International cooperation benefited greatly from such transfers in eradicating smallpox and protecting the ozone layer.

- *Positive and negative financial incentives* can also help internalize the cost of externalities created by individual actions (examples of such incentives include carbon taxes, reduced fuel subsidies to encourage more climate-friendly energy options, or trade restrictions to encourage participation and compliance with agreements). Subsidies could reward companies that undertake research to develop green technologies. Carbon taxes and incentives for energy efficiency have been introduced in many places in recent years, including in China and several U.S. states (World Bank 2013 provides further details). Larger-scale and coordinated efforts are needed, however, to make a material difference and avoid distortions.
- *Mechanisms to internalize the cost of short-termism.* The challenge of persuading politically short-sighted governments to take long-term decisions is a key obstacle to making progress on some of the global risks that require urgent attention, such as climate change and resource degradation. Encouraging countries to account for environmental degradation and resource depletion in their national accounts (“environmental accounting”—World Bank 2010) can provide a mechanism to internalize the environmental costs of certain economic actions and policies and play a role in dampening the incentive for such actions and policies.

The incremental approach is, of course, not without risks and is clearly a second best to a global solution with full cooperation, including because it formalizes free riding by those outside the coalition. There is also no guarantee that the incremental actions will succeed in scaling up efforts and participation to full global action. Moreover, for certain risks, global collective action is still the only viable approach, given the rapid spillover risks in a tightly interconnected world. For example, once a pandemic is under way, no individual country or region can unilaterally protect itself without global cooperation that enables information to be shared and assists countries lacking the capacity to detect and contain the contagion. The eradication of smallpox in 1979 would not be possible if it were not eliminated in every country through global cooperation. Resolving global financial crises in a highly connected world also requires global cooperation with well-coordinated policy responses and information sharing. Uncoordinated actions are unable to prevent contagion and prevent activities from moving to less well-regulated locations that can retain systemic risk.

¹⁵ In this context, developed countries made a collective commitment to provide new and additional resources for adaptation and mitigation for developing countries in the 2009 and 2010 climate negotiations, but scaling up funding requires substantial efforts to mobilize existing and new sources of finance (see World Bank 2009, 2012b, 2012c; Caravani and others 2012; Schalatek and others 2012a, 2012b).

With these limitations notwithstanding, the alternative of waiting until an acceptable deal is reached by all and until all the uncertainties resolved is also not viable for global risks such as climate change, if the irreversible consequences of inaction on climate change or other similar global risks are to be avoided, for current and future generations. For these risks, to achieve more traction and converge to full cooperation, the international community can anchor its actions to existing global frameworks to demonstrate that incremental and global deals are connected. One way to achieve this is through establishment of an international risk board in the form of an international panel on global systemic risks, which could invite the scientific and expert community around the world to pool all available knowledge to identify, assess, and manage the major global risks that cross national and generational boundaries in the near and longer term. Through its long-term orientation, interdisciplinary nature, and the participation of global experts, the board could focus on providing credible, reliable, and impartial assessments of the causes, dynamics, and consequences of key systemic risks that pose threats to development, analyze the interactions and prioritize across risks and bring its analysis systematically to the attention of policymakers and the international community. In so doing, it could provide valuable inputs to the coalition of the willing on the specific issues that require urgent attention and offer credibility and legitimacy to the coalition's efforts.

VI. CONCLUSIONS AND KEY TAKEAWAYS

This paper has focused on key global risks with implications that go beyond geographical and generational boundaries and require collective action at the global scale to be resolved. Mismanagement of those risks is capable of reversing gains in development and jeopardizing the well-being of generations. While growing interconnectedness through travel, communications, trade, and finance has opened many development opportunities, it has also helped magnify the impact of these global risks and complicated their management, as the international architecture to manage risks has not kept pace with the growing connectivity and complexity of the world.

The international community, the key supplier of global public goods and facilitator of international cooperation, has had limited effectiveness in managing these risks, despite significant efforts and resources devoted to date. Six years after the onset of the global financial crisis, economies and financial systems of many countries remain vulnerable. Climate change continues to bring the world closer to a tipping point any passing day, despite substantial knowledge on the dangers of inaction. Systematic prevention and preparation for pandemic risk remains a challenge, and outbreaks continue to happen around the world. And conflict and fragility continue to undermine economic, political, and social stability in the Middle East, Africa, and Europe, reversing precious gains in development. The failure to forge forceful collective action is likely to make any future solution much more costly and create irreversible outcomes on the future generations.

The underlying causes of failure to resolve these risks are complex and reflect a host of factors, including, insufficient knowledge, deep uncertainty, and limited resources and capacity that hamper the accumulation and use of knowledge to take appropriate risk management action. But diverging national interests and priorities remain the key impediment to international cooperation in the absence of a global governance authority,

explicit enforcement mechanisms, and perceived common goals that can elicit collective action, even when knowledge on the risks and their consequences are well understood.

Giving up on global cooperative solutions is too costly for stability and development. It is necessary to take advantage of the positive steps at the national and individual levels, and build on the lessons learned from successful examples of international cooperation to search for the right tools, incentives, and institutions to promote global cooperation. The first-best solution is a cohesive international community that enables its actors to work collectively around a perceived common goal by facilitating buildup and sharing of knowledge, devoting more resources to research and capacity building, and protecting the vulnerable. When some key countries fail to cooperate, the international community can still forge cooperation if it has the capacity to mobilize global resources and establish mechanisms to enforce agreements, including by realigning incentives and demonstrating benefit from action through incremental steps toward full cooperation.

Going forward, these principles are essential in a world where increasingly more complex and interconnected risks will continue to emerge and derail development efforts. Failure to mitigate and adapt to climate change, for example, will continue to increase the risk of more frequent and severe extreme weather events, displaced populations, and spread of contagious diseases. The resulting water and food security and displaced populations will add to the problems of fragility and conflict. Increased fiscal and financial costs of such disasters will affect health and resilience of financial institutions and sovereigns, with the negative feedback loops compounding the adverse consequences of the other global risks. Failures to see these interconnections will not only undermine the efforts to prepare for the risks but also complicate their management when risks materialize, highlighting the need for systematic, proactive and integrated risk management and contingency planning mechanisms at both national and international levels.

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