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The future of disaster risk management[†]

Allan Lavell[a*] and Andrew Maskrey[b]

[a]*General Secretariat of the Latin American Social Science Faculty (FLACSO), San Jose, Costa Rica;*
[b]*United Nations Office for Disaster Risk Reduction, Geneva, Switzerland*

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The present perspective summarizes and projects the results of a two-day workshop held in 2013 with the presence of 21 known disaster risk specialists from academia and practice. Faced with the disconnect between ever-increasing and even-accelerating disaster losses and the declared progress in disaster risk management (DRM) practice over the last eight years, the document attempts to explain the current situation and project future needs in order to increase the saliency and effect of DRM. A review of current conceptual problems and their impact on knowledge and action, of the current role of DRM in society, of governance aspects and of the notion of transformative development and its relationship to DRM is provided. The critique of current practice and understanding of disaster risk then leads to an attempt to identify key needs for the future and changes that must be introduced in order for DRM to become more mainstream and effective. Among the more central concerns, the document points to the way in which disasters are still many times seen as exogenous happenings as opposed to social constructions, product of skewed development practices. This then is reflected in much governance practice and action that are flawed. The difficulty in moving from a reactive and corrective DRM practice to a more prospective, risk avoidance practice is also highlighted.

Keywords: adaptive management; risk; developing countries

Background

On 18 and 19 April 2013, 21 disaster risk and development specialists met at the headquarters of the Latin American Social Science Faculty (FLACSO) in San Jose, Costa Rica, for an open discussion on the future of disaster risk management (DRM). The meeting brought together professionals from different regions and from academia, international agencies, national DRM organizations and Non governmental organizations (NGOs). Between them, they brought to the table more than 500 years of accumulated experience in research and practice.

The future of DRM is a generic theme of the upcoming 2015 UN Global Assessment Report (GAR) on Disaster Risk Reduction (GAR15), to be published by the United Nations Office on Disaster Risk Reduction (UNISDR). The San Jose meeting was convened to provide direct

[†]Based on the contributions of Johara Bellali, Stephen Bender, Alonso Brenes, Pascal Girot, Michelle Gyles-McDonnough, Ilan Kelman, Kamal Kishore, Christopher Lavell, Franklin McDonald, Alvaro Montero, Richard Olson, Mark Pelling, Aromar Revi, Lilian Reyes, Sahar Safaie, Juan Pablo Sarmiento, Marco Toscano-Rivalta, David Smith-Wiltshire, Gustavo Wilches-Chaux.

*Corresponding author. Email: allanmlavell@gmail.com

inputs to the GAR 15, and to contribute to discussions as regards the new international framework for DRM which will enter into force in 2015 and is known for now as Hyogo 2.

This document hypothesizes or analyzes how the conceptual underpinnings, governance arrangements and the political and economic imperatives for disaster risk reduction (DRR) have or may have developed in a way that helps guarantee that risks and losses will continue to rise. It also identifies and explores pathways for a reinterpretation, and eventually for change in the practice of DRM itself. It offers the result of a collective construction of ideas, concepts and imaginaries that many times challenges the current orthodoxy on how to manage disaster risk.

The present document is not a traditional academic article following traditional academic protocols. It stands at the intersection between an extended editorial or opinion piece and a scientific article. It summarizes the results of an open discussion based on the collective experience and knowledge of the meeting participants. The ideas and conclusions proffered are not referenced in a traditional academic manner, given that these resulted from common agreement among those present in the debate but with no set published piece quoted to substantiate them. Many ideas take the form of hypotheses and suggestion rather than necessarily proven cold fact. These open up areas for enquiry and research rather than close out ideas in fixed format and conclusion. For this reason many times examples and evidence are not provided, but, rather, an invitation to enquiry is proffered.

However, it is clear that the collective ideas of the meeting participants are based on a combination of their own experience and writings, and the intellectual input of many other different authors and scholars. In order to recognize such third party intellectual inputs and offer the reader the opportunity to follow up on reading and debate, we have provided a selective bibliography of some key writings that follow in the vein and provide stimulus to the type of discussion and debate offered here.

A starting point for discussion

The Hyogo Framework for Action (HFA) was endorsed by 168 national governments at the second World Conference on Disaster Reduction held in Kobe, Japan, in 2005. Since then evidence from the self-assessment reports prepared by governments for UNISDR using the online HFA Monitor highlight incomplete but nevertheless gradual progress toward the implementation of the HFA. It would thus appear that nations across the world are making progress, at times recorded as significant, toward the HFA objective of reduced disaster losses and impacts.

Disaster loss and risk data tell a very different story. Mortality associated with floods, winds, drought and other hydro-meteorological events is trending downward globally, because of improved development conditions; the strengthening of legal, institutional and legislative structures and systems for disaster management; early warning and local capacities for preparedness and response. Large-scale events affecting less developed areas such as Cyclone Nargis in Myanmar or Typhoon Haiyan in Philippines can and do still produce massive mortality.

Economic and livelihood losses associated with damaged and destroyed housing, infrastructure, public buildings, businesses and agriculture are, however, all still increasing rapidly together with the mortality associated with geological hazards such as earthquakes and tsunamis. There is thus an evident contrasting of the reported gains associated with HFA implementation on the one hand, and the rising economic and livelihood losses reported in all databases on the other.

This ‘contradiction’ raises a fundamental question: are losses rising because of insufficient HFA implementation or because the *DRR* paradigm embodied in the HFA is not fit for purpose? If a nation fully implements the HFA, will its disaster risks and losses really be reduced? This question is highly relevant when nations are debating how to invest increased

resources further into a second HFA. If the DRR paradigm was not leading to reduced losses, then increasing investment in this paradigm would be tantamount to reinforcing failure. Beyond the basic question as to the relevance of the DRR approach, there is also always the fundamental question as to whether disaster risk is an almost natural consequence of past and current development models and trajectories. In such a case attempting to design a new DRR approach or mainstream this into development, as opposed to implementing a new paradigm of development itself, would of course also lead to failure. Here it could be argued that the idea of a new DRR approach would necessarily have to take account of its role in the definition of modified or new development parameters.

These questions are not only relevant to low- and middle-income countries. The recent impacts of Hurricanes Katrina and Sandy in the USA, flooding in Europe and the Japanese tsunami question the success of the *DRR* paradigm in high-income contexts as well. Evolving climate change may and probably means that all regions and ecosystems, irrespective of their levels of economic development, will face new and emerging hazards that may magnify disaster impacts. Likewise, as economic globalization may radically reshape exposure and vulnerability patterns, both risks and losses could ripple and be transmitted through value and supply chains, meaning that even economies not directly exposed to hazards can be at risk.

The 'contradiction' between stated advances and the reality of risk construction may be approached in two ways. First, reported HFA progress by governments does not necessarily indicate progress on the ground. Countries may be doing far less well in HFA implementation than they believe or have reported. The shift from response-oriented emergency management and disaster preparedness toward the more integral and comprehensive DRR paradigm, expressed in the HFA, is more incipient in reality than in discourse; there is only weak ownership by stakeholders and little real political and economic support. In some countries even basic response capacities may still be lacking.

Legislation is passed but then not implemented. Specialized DRR institutions lack the political authority or technical capacity to influence development sectors. Emerging policy frameworks and institutions designed to address climate change adaptation seldom build on existing experience in DRR. Local governments lack the resources or capacities to fulfill mandated responsibilities. The necessary resources and investments are rarely forthcoming. These and many other shortcomings have been documented and discussed in the UNSIDR Global Assessment Reports for 2009, 2011 and 1013, as well as in other studies and reports. So evidence exists that HFA implementation is more superficial than would appear. Political declarations and discourse have not translated into real political and economic commitment.

The possibility that disaster losses and impacts would continue to rise even if the HFA was fully implemented, however, is real. It is no accident that the policy, institutional and financial implications of HFA Priority for Action 4, calling for risk sensitive development in the social, urban, infrastructure and environment sectors, have achieved least traction. There is no evidence to suggest that disaster risk is widely accounted for in new public and private investments, although isolated successes have been documented. While the HFA created a space for anticipatory or prospective DRM, most nations have yet to tread there. We cannot rule out the possibility that treading there is almost impossible if current economic growth and social inclusion trends are maintained.

HFA implementation is still dominated by the *DRR* paradigm (the very term reduction signifies dealing with existing conditions). Efforts and resources are concentrated in corrective and compensatory risk management, which attempts to reduce or operate in the context of already existing risk. The emphasis is still on reducing or compensating for disaster losses and damage as opposed to transforming the underlying drivers that generate risk in the first place. Moreover, although Hyogo's priority 4, directed at reducing underlying risk factors, points in

the right direction, the mechanisms outlined for this do not really detail or target underlying causes. Rather, they point to the conditions and circumstances these underlying causes lead to – inadequate land use and environmental planning, poverty, etc. Prospective risk management, avoiding future risk construction, is still a distant goal in an age of immediacy.

In the coming decades, as the global economy breaks through planetary boundaries, disaster risk construction and accumulation will accelerate at an increasing rate, driven by factors including continued population and economic growth in exposed locations, pressure on land and water resources, badly planned and managed urban development, increasingly unequal income distribution and economic opportunities, the decline of ecosystem services and climate change and variability. All these risk drivers are manifestations of contemporary global economic development and will magnify the disaster risk levels that nations have been unsuccessful in dealing with so far. The likelihood that risks rise faster than DRR and climate change adaptation can reduce them is a very real one.

If countries make increased investments in order to address and reduce existing risks while failing to address the underlying risk drivers and their underlying causes, more and more effort will lead to diminishing returns. DRR may produce tactical gains in specific places and times, but these gains usually are ephemeral. At the same time as HFA implementation is still incipient, *DRR* is now rowing against a fast rising tide of risk construction and accumulation related directly to existing development trajectories and parameters. There is now a very real possibility that risk accumulation will reach a tipping point after which the effort and resources that are necessary to reduce risk will exceed the capacity of future generations. From this perspective, continuing with the current HFA would reflect Einstein's definition of insanity: 'trying the same thing over, expecting different results'.

Bad star versus downturn: the conceptual underpinnings of DRR

If the conceptual underpinnings of DRR should be flawed, misinterpreted or misused, then the governance arrangements and instrumental systems that flow from those underpinnings will also be flawed and unfit for their intended purpose.

Concepts, research and practice have, since the 1970s, increasingly highlighted how disasters are manifestations of *unresolved development problems* and outcome-based indicators of skewed, unsustainable development processes. Through the analysis of disaster loss data, global risk models, case studies and HFA reports, publications such as the GAR have provided increasingly convincing evidence to support the assertion that hazard exposure and vulnerability are socially constructed through the interaction of economic, territorial, cultural and political processes operating at different spatial and temporal scales.

Most hazards are constructed through the same economic, social and territorial processes that generate exposure and vulnerability. Here it should be made clear that hazard is interpreted as not being the physical event as such, but rather the extent of the danger it represents to existing assets and population. Tropical cyclones, drought and floods are increasingly mediated by environmental degradation, land-use changes and climate change. Earthquake hazard is conditioned by factors such as groundwater extraction and landfill. The scientific consensus that climate change, and the hazards associated with it, is anthropic has been published in the InterGovernmental Panel on climate change (IPCC) Special Study on Managing the Risks of Extreme Events and Disasters – SREX – and the IPCC 5th Assessment Report – AR5.

Disaster and climate change induced risk is therefore increasingly accepted as endogenous to social and economic development. *DRR* as a paradigm, however, continues to be driven by the increasingly outdated notion that disasters are exogenous and unforeseen shocks that affect supposedly normally functioning economic systems and societies rather than endogenous indicators

of failed or skewed development, of unsustainable and insane economic and social processes and of ill-adapted societies. Underneath the technocratic veneer of DRR, the view of disasters as 'Acts of God' (or 'Nature') still resonates.

Despite 40 years of evidence pointing to the contrary, even specialized publications and forums continue to refer to *natural disasters* driven by 'extreme' events, which are often taken to be synonymous with the disaster itself. While social research has prompted a shift toward understanding vulnerability (the human propensity to suffer damage and loss) and extensive risk (that associated with the dispersed and recurrent occurrence of small and medium scale impacts), the dominant focus continues to be modeling *extreme events, associated with intensive risk* and their impacts. This tendency has been reinforced by the climate change discourse and research, which emphasizes extreme events instead of the long-term risk continuums that need to be addressed and which has served to further remove DRR from policy choices on economic, social and territorial development.

Risk has become abstract and compartmentalized and its dependent relationship with development processes has been blurred and obscured. Disaster risk is still considered as an externality to be managed, the act of a 'bad star' (Latin: dis-aster) that must be prepared for, and not as a socially constructed problem driven by underlying processes whose neglect manifests as a predictable and always tragic 'down turn' (Greek: cata-strophe). The tendency for nature to be designated as the 'enemy' never went away and may now be resurgent, as illustrated by animist references to 'assassin' storms, 'killer' earthquakes, etc.

The continued dominance of exogenous disasters over endogenous risks in concepts and imaginaries spills over into language and praxis. The language of DRR is one of malaise, loss, damage, deficit and negativity. Disaster risk is considered de facto as a negative variable to be minimized, as opposed to also being an attribute that can be beneficial, when properly understood and managed, much in the same way that a flood or volcanic eruption is both resource and hazard – a resource where it provides access to fertile soil and livelihood opportunities and hazard when flooding and eruption occasionally occur.

In contrast, the broader language of risk, as used in other ambits and sciences, brings concepts of transformation, opportunity, stakes, trade-offs earnings and human and ecosystem security to the table. Risk is a normal and inseparable part of economic activities and development that may signify earnings and benefit for some, while damage and loss for others; or earnings and profit at one time and loss and damage at another according to how the resource-hazard continuum plays out historically. The opportunities associated with risks may become visible immediately after disasters, sometimes leading to a temporary *un-freeze* of the dominant imaginary. However, pre-existing conceptions soon lock back into place and the opportunity for transformation and change is rarely seized on.

The imaginary of protection against external shocks and threats is also reflected in institutional terminologies. There are Ministries of Disasters and Emergency Management not Ministries of Resilience and Sustainability or using some other nomenclature reflecting more positive attributes. In contrast, other sectors or areas have Ministries of Health not Ministries of Illness, or Ministries of Public Safety not Ministries of Crime. Emphasis is rarely placed on the positive social and economic attributes that can result from effectively managing 'disaster' risk. Disaster risk research is becoming established as an independent field of inquiry, rather than a much more complex, integrated and mutually influencing process where financial, health, economic and social risks are considered as both facets and at the same time contributing factors in an interdependent process of risk creation, accumulation, reduction, transference and, at some point, manifestation.

The imaginary of exogenous events underpins the *DRR* paradigm embodied in the HFA. The very term *DRR* points to reducing risks that are there, rather than addressing the processes that

generate risk in the first place. By reducing risks, the magnitude of loss, realized or actualized risk is reduced. DRR is understood as *protecting development against* a tangible external threat. As disaster risk is a *thing*, then tangible instruments ranging from response and preparedness, to corrective risk management and insurance can be designed to reduce that *thing.* The outcome is a product-oriented approach designed to protect precisely those economic processes and relations that generate risk in the first place. Terms such as *financial protection* point toward protecting public finances against external threats, rather than recognizing that the way those finances are used either reduces or accelerates risk accumulation. In the private sector, risk analysis is often limited to financial risk and internal rates of return on investment. In the best of cases disaster risk is considered an externality rather than reflecting complex interrelationships between development and society. Development gains are privatized and disaster losses socialized (distributed among many that have had no part in their construction and existence) or usually subsidized by the public sector or treasury as residual risk.

How disasters and risks are conceived is therefore of critical importance. The imaginary of DRR has influenced both how the problem is defined and constructed, and how the governance arrangements, incentives and instrumental systems developed to address the problematic have been designed. DRR has become, at best, an add-on to development and, at worst, an autonomous sector largely removed from development processes. In essence, DRR has become a *band-aid* that is applied to development, an *airbag* that inflates (often too late) when there is a crisis but under other circumstances receives very little attention or finance.

Getting rid of both the 'disaster' connotation and the 'reduction' paradigm would therefore seem to be essential preconditions for *developing* in a different way that avoids generating and accumulating new risks. In the same way, concepts such as 'developed' or 'developing' countries need to be replaced by 'sustainable or adaptable' or 'unsustainable and non-adaptable' countries or countries whose 'sustainability depends on the unsustainability of others'.

Understanding disaster risk as a holistic and endogenous characteristic of particular development pathways and practices, constructed through day-to-day decisions by those with stakes in those pathways and practices, implies a very different approach. This more holistic vision of risk is coherent with the idea of a risk continuum and a linked set of incremental, systemic, adaptation and evolutionary responses. DRM (as opposed to reduction) then becomes a question of choosing development pathways in the context of underlying values, ethics, morality and equity.

The recognition that disasters are outcomes of skewed development should be taken as the starting point for constructing a new conceptual paradigm and a fresh imaginary of disaster risk and its management. This implies shifting focus from reducing existing risks to addressing development-based risk drivers and processes. Sustainability or security implies the construction and accumulation not of risk, but of resilience and transformative capabilities in society and its communities, based less on short-term greed and overconsumption and more on equity and solidarity.

DRM should be understood as a pathway toward sustainable development, human welfare and well-being, rather than as a means to protect unsustainable development. It therefore becomes a vehicle for risk-sensitive development decisions that make explicit the links between privatized economic benefits and socialized risks, including disaster risk and the different channels through which risks are accumulated, shared and transferred, between sectors, in space and in time. Disaster risk, as with other types of risk, is constructed as much on the resource, capital and output side of the development equation as on the hazard and potential loss side. As such measures to reduce risks in one sector may increase risks in another.

Understanding DRM in this way implies recognizing the sustainability and opportunity embedded in resource use and locational choice. Risk and risk taking are natural to human existence and development. Managing rather than reducing risks implies identifying trade-offs

between the benefits that accrue from assuming certain risks, the potential price to be paid for taking these risks and the external and shared benefits and costs. And, ecosystems' dynamics, needs and 'priorities' must also be taken very much into account, not just human needs and priorities.

Many of the concepts required to underpin such a shift already exist. But the adoption of concepts depends on values and imaginaries. Reality is arbitrary and is built on individual and collective imaginaries. Replacing an imaginary of extreme, exogenous events with an imaginary of managing risks in day-to-day development processes depends on how values and aspirations change. If these continue to prioritize short-term gain over longer-term sustainability and the privatization of gains irrespective of the socialization of risks, then the prospects for a paradigm shift are slim. However, if underlying values change to reflect equity and sustainability, then DRM could become an integral part of new development decisions.

Risk governance and institutions

The *DRR* paradigm has become conventional wisdom and locked into the policies, governance arrangements and instrumental systems through which the HFA is interpreted. The governance arrangements for DRR still essentially consist of creating exogenous organizations and norms, looking inwards to the disaster risk problem as opposed to looking outwards. This approach, which downplays how risks are accumulated, also inhibits any real possibility of taking advantage of traditional community-based knowledge systems or of building on the multiple existing cultures of risk reduction embedded in many societies and institutions. Such cultures are many times 'intuitively expert' in risk management and adaptation and intuitive generators of knowledge under other scientific paradigms.

The conceptualization of disasters and risks as objective *things* rather than as inherent characteristics of evolving processes and relationships fosters technocracy and technocratic and bureaucratic approaches to DRR. Silos are created, technocracy is instilled and promoted and technical prowess, as opposed to effective decision-maker and/or stakeholder engagement, dominates practice These in turn reinforce the dominant paradigm. As a consequence, DRR has disconnected itself from development practice and has constructed itself as an autonomous, specialized, apolitical sector of intervention and concern, isolated from mainstream concerns of government, including economic growth, employment and food prices, or in the case of local governments, water and power supplies, transport and waste management.

Over the years, the governance arrangements for DRR have evolved from stand-alone mechanisms for disaster response (such as civil defense and civil protection organizations) into more sophisticated and comprehensive institutional systems. These systems typically have decentralized territorial structures, based on a principle of subsidiarity and whether responsibilities are assigned to regional and local governments, as well as mechanisms for cross-sector coordination, via a variety of committees, platforms, etc. This evolution has been syncretic, from a starting point of disaster response, and has taken place in closed institutional silos. As such even the more modern systems are unable to reflect the inherent complexity and interrelated nature of risk and risk management.

DRR becomes a 'sector created by and for specialists', reinforced by considerations of job creation, the preservation of the status quo and the search for implicit or explicit power and control over roles and functions. While an increasing number of *systems* have taken on board modern risk management concepts and terminology, and explicitly highlight the link between risk and development, the gap between discourse and practice is huge. The HFA Monitor highlights a continued and fundamental focus on preparedness and response together with a growing interest in corrective and compensatory risk management. While in discourse prospective DRM is

included, in practice it rarely gains traction, given that it is shoehorned into structures fundamentally designed for response. Moreover, concepts have and can become smoke screens for carrying out preparedness and response but using updated and 'correct' etiquettes. For example, in the 1990s 'disaster prevention' units were set up in many national organizations but in reality focusing on disaster preparedness rather than risk management and reduction.

There is little evidence to show that the DRR sector has successfully intervened or modified the underlying risk drivers, much less the fundamental underlying causes of such drivers. Some institutional systems with strong and charismatic leadership may have enjoyed fleeting success in this respect but have not led to any real transformation of development. The ephemeral character of DRR has been reinforced through an approach based on short-term projects, again reflecting a vision of disasters as events rather than as manifestations of risk accumulation processes. The lack of monitoring and empirical evidence of success or failure further reinforces the lack of buy-in and commitment for all but the most conservatively conceived projects.

At the same time, even though development sectors themselves are also influenced by the dominant imaginary of disasters such as exogenous shocks, good development practices that have improved the management of disaster risk (such as improved building codes, incorporation of risk reduction criteria in public investment decisions or environmental management) have generally been promoted by other sectors without an explicit linkage to DRR institutions. Here it is wise to indicate that much risk control has and will continue to be practiced by professionals from engineering, agronomy, water resource management and other practices who neither talk of DRM or know anything about Hyogo and other such frameworks. They are simply and correctly practicing their professions well.

While DRR policies or legislation may require risk sensitive development, the translation into on-the-ground implementation has met with mixed success, even in high-income countries. Passing new laws is often an excuse not to enforce existing ones. Dealing with informality as opposed to formality has received little attention. Land use zoning, building codes and environmental regulations are all regularly distorted by implicit or explicit corruption as the implacable logic of privatizing short-term gains and socializing the resultant risks to other sectors through space and time takes precedence over considerations of sustainability.

Stakeholders and decision-makers hold different stakes in the risk equation but are often amorphous and difficult to identify. The need to influence and incorporate them is usually called for, but little real analysis has been undertaken as to who these stakeholders are and what stakes they hold. While risk assessment has become increasingly sophisticated, it is still rare to identify, and much less quantify, which stakeholders bear the risk and which contribute to its construction. Risk becomes objectivized or else externalized somewhere into the commons, meaning that risk constructors are not answerable to risk bearers. Nor are those that should mediate and engage in explicit risk management practices clearly identified. This discourages accountability and responsibility. Mechanisms through which risk constructors can be held to account by risk bearers are generally not in place or do not function as such. Whether laws and regulations are implemented, or ignored, is rarely monitored and evaluated. Studies on how disaster risk is constructed continue to be published, but rarely have a lasting impact.

No ombudsman, chief risk officer or a similar figure generally exists and disasters are rarely submitted to a deep 'forensic' analysis in order to reveal causal processes and risk generators, as is the case of air traffic or technological accidents. Nature is still assumed to be the culprit and government compensation or insurance is all too frequently assumed to be the solution: the human right to security is still overshadowed by the dominant discourse of inevitable 'acts of nature' or 'bad stars' that dilutes responsibility and accountability from the tragically recurring 'down turns'.

The fact that the territories and rhythms of risk construction do not always coincide with the territories or rhythms of disaster impact further complicates the spatial and jurisdictional disconnect between risk constructors and risk bearers. This can be seen, for example, where upstream deforestation in one country or region affects risk levels downstream in another country or region. In addition, globalization only adds to the complexity of the problem.

Viewing risk governance as an integral part of development governance would therefore seem to be essential if DRM is to address issues of social justice and equity (including environmental justice and environmental equity). Rather than sitting in an institutional silo, DRM should be seen as part of the normal business of sector ministries and territorial (local and city) government. Building safe schools should be second nature to the ministry of education. Ensuring a sound waste management system (hence avoiding garbage blocked storm drains) should be second nature to a municipal government.

This implies that instruments and strategies deriving from multiple other areas of public policy such as poverty reduction; land use planning; environmental management and provision of clean water, adequate wastewater and drainage facilities. would become primary instruments for managing disaster risks. Rather than having to mainstream DRR into development, DRM would be *inside* development. Managing risks could become a 'normal' co-benefit of day-to-day development planning and investment, rather than a stand-alone sector. DRM then becomes a vehicle for the sustainable and equitable management of land and water resources, energy efficient building and similar development choices, rather than a technocratic vehicle focused on reducing losses. All of these, of course, should be based on transitions in development parameters as such and the instrumentation of evolved development models which in themselves promote and are based on sustainability.

From that perspective risk governance should become a development 'practice' rather than just a set of governmental policies, rules and regulations. Currently, there is momentum in a number of areas, ranging from green building and organic agriculture to new approaches in utility provision that highlight the potential of innovative alliances between civil society groups, communities, businesses and local governments to manage risks.

These new forms of risk governance, underpinned by a combination of new communication technologies and open access risk information at a scale and in a format that enables dialog on risk and its ownership directly between stakeholders, can facilitate dialog with business, civil society and government around risk management priorities and strategies. Within such a vision, good governance would be redefined in terms of how well risk is managed for all.

Risk governance then becomes structured around partnerships and networks between civil society, business and government rather than hierarchies and technocracy and can be viewed through lenses such as citizenry, human and children's rights and developing mechanisms. Based on social demand and business opportunity, it can take advantage of transformations in the structure of communication and information flows, through social media, mobile devices and other new technology. Visualizing risk governance as a development practice also facilitates a transition from the current segregation of research from practice in favor of a more integrated and horizontal approach to generating and sharing knowledge.

Households, communities and businesses, large and small, national and transnational, need to discriminately operate within a framework of risk governance that can allow them to manage risks according to their own specific needs and reality, while considering the risks they may generate for third parties. As such risk governance also has to embrace informality, for example, through a social approach to the enforcement of regulations. While conventionally an 'informal' sector is considered to be outside of the 'formal' sector, much of what occurs in the formal sector is actually informal and vice versa. For example, activities such as badly planned urbanization and

environmentally damaging mining may have fulfilled certain legal requirements. However, they are not 'legal' from the perspective of the ecosystems and communities that are negatively affected.

Instruments are required that increase accountability and responsibility for risk construction and that address the general lack of compliance with laws, norms, guidelines and standards. For example, transparent methods to price risk and mandatory or voluntary certification could make risk construction and transfer explicit and facilitate enforcement. While decision-makers require tools to manage risks, households and communities also require access to tools to hold those same decision-makers to account or risk removal from office. The figure of a government chief risk officer or risk ombudsman who is responsible for providing a holistic vision of risks in a country or region and for overseeing compliance across sectors or territories could be a way of ensuring a level of accountability that is currently absent.

Instruments to measure transfers of risk across sectors and territories are also required. There will always be trade offs: attracting foreign direct investment often implies loosening employment regulations and tax regimes. Strengthening environmental rules may deter investment. However, as in the center piece of a Rubik cube, there should also be non-negotiable priorities, such as those that guarantee the sustainability and viability of territories, their population and resources.

The political and economic imperative for DRR

Disasters on a *global* scale, associated with the 2011 Thailand floods or East Japan earthquake, to nationally significant manifestations of extensive risk, for example, associated with the 2010/2011 ENSO event in Colombia and Central America, are increasingly costly to governments, citizens and businesses. Yet despite these growing impacts the imperative to address the underlying risk drivers remains weak.

The imperative for disaster preparedness and response has always been strong, and the imperative to invest in corrective risk management and risk financing is growing in concert with increasing losses. But with exceptions, such as attempts to incorporate disaster risk considerations into the planning and evaluation of public investment projects, commitment to risk reduction is still an outlier on the political horizon. The evolution of DRR as a stand-alone sector, its isolation from other political and economic imperatives, the fact that stakeholders are not clearly identified and the perverse incentives often implicit in disaster response and reconstruction have not made it easy to build real political and economic commitment. DRR is rarely related to the concrete on the ground concerns of households, communities, businesses or indeed of central and local governments.

Arguments to invest in DRR generally refer to the potential impacts of infrequent extreme events, which rarely make it onto the political agenda as ongoing priority for decision-makers and politicians. Fear of unlikely future events rarely influences political decisions, which tend to play off potential long-term benefits against short-term imperatives. Reducing hypothetical losses and avoiding theoretical impacts do not gain political traction, as the lack of progress to mitigate climate change highlights. Very few politicians, nationally or locally, have won an election on a platform of reducing future disaster losses and risks.

Efforts to broaden the spectrum of concern, by focusing on extensive risk and recurrent small and medium scale disasters, have likewise not gained traction, because of the invisibility of the impacts which mainly affect low-income households, informal businesses or small enterprises. Extensive risk rarely poses a threat to strategic or transnational economic interests and therefore seldom makes it onto the political agenda. Despite the now well-established premise that disaster risk and disaster are manifestations of the everyday risks that characterize low-income urban and

rural households around the world, the links between DRR and poverty alleviation and reduction are still tenuous.

DRR is far removed from debates on economic policy and futures. Links with financial, economic, social and technological risks have only been weakly established. The root causes of the global financial crisis that erupted in 2007–2008 and the causes of disaster risk accumulation are broadly similar. However, disaster risk analysis is generally restricted to the immediate effects and impacts rather than to the identification of how economic processes generated the risk in the first place and how direct and indirect impacts then run through the economy affecting future development in diverse ways.

The lack of political engagement is reinforced by education and public awareness programs that focus on preparedness and emergency management of exogenous disasters, and which obscure and hide processes of risk construction and accumulation. Predictably, popular music, novels, films and songs continue to predominantly highlight the dramatic and exotic nature of extreme events rather than the underlying conditions of risk that characterize unsustainable development.

The DRR paradigm implies that governments increase their investments in corrective and compensatory risk management. The lack of resources for DRR then becomes a critical limiting issue, particularly in countries with constrained fiscal spaces and high levels of national debt. However, the role of international financial institutions in facilitating debt-financed risk accumulation in such countries, through infrastructure development, for example, has not been seriously analyzed, nor has the impact of international organizations 'implanting' homogenous models of legislative and institutional systems which countries are then unable to resource or implement. Paradoxically, the same international financial institutions that financed risk accumulation are now promoting insurance pools to strengthen countries' economic resilience and to avoid financing gaps.

As a contrast to the weak political or economic imperative to address the underlying risk drivers, there is growing enthusiasm for insurance and other forms of risk financing in order to protect against *exogenous shock* and, in discourse at least, to strengthen resilience. Governments are supposedly responsible for the security of their citizens. However, the development of risk financing schemes normally reflects a narrower notion of the state. Often it is government and its international financial arrangements that are protected against disasters but not the nation and the many individuals of which it consists.

If an imperative for DRM is to take root, it must also take into account considerations of political opportunity and political risk, human welfare and well-being, justice and equity. It should therefore be defined primarily in terms of positive development benefits, measured with sensitive and sensible indicators, rather than strictly and uniquely in terms of the avoidance of negative consequences. Local elections can be won by providing clean and plentiful water, clean cities, reliable transport and infrastructure and a safe and healthy environment. If DRM is considered a normal co-benefit of good development practices and a promoter of good development as such, the imperative is then for good development and good development must necessarily internalize, compensate, resolve or manage the risks it generates.

Reframing the DRM paradigm in this way shifts the stakeholder focus from specialized technocratic agencies to those involved in everyday development processes, at all levels. Incentives for sustainable development are already locking increasingly in place as the attractiveness of neoliberal-inspired consumerism starts to fade. There is a realization in a growing number of people, stuck on a conveyor belt from cradle to the grave, that when they are not busy buying they are busy being sold.

Incorporating risk management into prevailing cultural norms (as opposed to fomenting a separate 'culture of prevention' which, as with DRR, creates the image of exogenous risks and disasters) through user-centric design and social marketing strategies is therefore critical. DRM

needs to become as ubiquitous as recycling waste or conserving water. Managing risks needs to have more sex appeal than responding to disasters. The risk management profession should be more closely associated with cool designers than with disaster responders.

A more integrative DRM paradigm focused on anticipatory or prospective risk management and sustainable development does not necessarily require significant additional financial resources and can in fact be promoted as a way to reduce the cost of development. By linking disaster risk holistically to other kinds of risk, including those of financial and economic origin, macro-economic policies could also take into account the potential macro-economic impacts deriving from latent disaster risks. Once again managing disaster risks would become a normal part of managing a country's economy and finances.

The imperative of resilience and its schizophrenic goal to protect development against itself needs to be replaced with an imperative of transformative development. DRM would then characterize the transformation of development pathways and practices based on principles of equity, efficiency and sustainability.

Concluding: toward a new imaginary of DRM

The imaginary of disasters as exogenous events and DRR as a sector continues to permeate research, policy and practice at all levels. The ambiguous way concepts such as resilience have now been woven into the discourse of both DRR and climate change adaptation has further muddied the conceptual waters. Resilience is implicitly or explicitly presented as protecting the development processes and forms that constructed risk in the first place, a schizophrenic construct that has been taken up as a mantra.

However, the complexity of the contemporary world and the velocity of the interconnected economic, social and territorial drivers that are transforming it are too great to be captured in a specialized knowledge domain called DRR. Anthropogenic risk in co-evolved socio-ecological systems is now being created and concentrated at rates that are rare in natural systems. Response and adaptation times are being compacted, as respite time contracts. Anthropogenic risk, such as climate change, also has cascading effects, and feedback loops that reinforce and magnify its effects. For example, as the tundra melts with soaring temperatures, the methane currently locked in the frozen bogs of Siberia and Northern Canada will be freed, further compounding the greenhouse effect. A runaway world is producing runaway risks.

The increasingly evident contrast between the supposed increasing progress toward achieving the HFA and growing disaster losses looms heavily on the conventional DRR paradigm. This does not of course mean that the corrective and compensatory approaches should be abandoned, especially given the high existing levels of risk and the lack of resources to reduce many of them to reasonable levels. It does mean however that a radical shift in approach is required anchored in a very different imaginary of risk and risk management than that informed by the HFA to date.

Everything that flows from an imaginary of disasters as exogenous shocks affecting normally functioning economies is flawed from origin. Investing additional efforts and resources through an unreconstructed HFA2 or other initiatives built on that imaginary will only reinforce failure. As global society and economy break through planetary boundaries, disaster losses can only rise unless a new DRM practice is constructed built on an imaginary of managing risks holistically within a more sustainable and equitable development model. An HFA2 and corresponding practice that represent a direct continuity from the approach taken in the existing HFA will only reinforce a paradigm that has been inconclusive at best and a risk driver at worst. Strengthening the DRR paradigm will not lead to reduced risks or losses or more sustainable and equitable development. It will simply reinforce the status quo.

Imagining a new conceptual framework for risk management, developing governance arrangements that bridge and integrate holistically rather than isolate risk, and which emphasize accountability and responsibility, identifying transformative development practices that can attract political and economic support and using social networks, education and cutting-edge design as paradigms for making risk management as attractive as clean energy, green architecture and organic cuisine must become priorities if a tipping point in which disaster risk becomes increasingly unmanageable is to be avoided.

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