

Sun. Nov 10, 2019

Room 1

Keynote Speech

A Changing Risk Paradigm

Andrew Maskrey

9:41 AM - 9:53 AM Room 1 (Main Hall)

[K00] A Changing Risk Paradigm

Andrew Maskrey (Risk Nexus)

9:41 AM - 9:53 AM

Mon. Nov 11, 2019

Room 1

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Keynote Speech

[K01]

Hidden Stories of the Sendai Framework negotiation processes?

-How Japanese BOUSAI experiences embedded to Sendai Framework-

Kimio Takeya

8:00 AM - 8:20 AM Room 1 (Main Hall)

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[K01] Hidden Stories of the Sendai Framework negotiation processes?

-How Japanese BOUSAI experiences embedded to Sendai Framework-

Kimio Takeya (Distinguished Senior Adviser to the President of JICA)

8:00 AM - 10:00 AM

Tue. Nov 12, 2019

Room 1

Keynote Speech

[K02]

Keynote Speech

Gretchen Kalonji, Denise Konan, Jihyeon Park

8:00 AM - 8:20 AM Room 1 (Main Hall)

[K02]

Gretchen Kalonji (Sichuan University)

[K02]

Denise Konan (University of Hawaii)

[K02]

Jihyeon Park (JHSUSTAIN)

Keynote Speech

## A Changing Risk Paradigm

Andrew Maskrey

Sun. Nov 10, 2019 9:41 AM - 9:53 AM Room 1 (Main Hall)

Risk Nexus

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### [K00] A Changing Risk Paradigm

Andrew Maskrey (Risk Nexus)

9:41 AM - 9:53 AM

# RISK NEXUS INITIATIVE

Metrics, Indicators and Knowledge  
for sustainability and resilience.

## TRANSFORMING A WORLD ON FIRE:

from exotic to quotidian approaches to risk management

San Jose, Costa Rica, April 2019



**FLACSO**  
Secretaría General

Based on a conversation convened by the Risk Nexus Initiative  
in the Latin American Social Science Faculty (FLACSO)  
on January 23 and 24, 2019

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## EXECUTIVE SUMMARY

Over two hundred years ago Hegel reflected: *"It is said that there are no sudden changes in nature, and the common view has it that when we speak of a growth or a destruction, we always imagine a gradual growth or disappearance. Yet we have seen cases in which the alteration of existence involves not only a transition from one proportion to another, but also a transition, by a sudden leap, into a ... qualitatively different thing; an interruption of a gradual process, differing qualitatively from the preceding, the former state"*.

Risk and uncertainty, generated where and when physical and social systems interface, now pervades and dominates the contemporary global landscape. A complex ecosystem of interdependent risk drivers including climate change but also environmental degradation, badly planned and managed urban development, displacement and migration, water and food stress, poverty and inequality translate into increasingly unpredictable outcomes for social and economic development and for the environment.

Wildfires around the world in recent years have become an icon of a rapid, global, qualitative transformation of risks generated at the human-nature interface that eerily echo the insights of Hegel. The world is now moving beyond an equilibrium state, be it in social, economic, political or environmental terms. Models of the future are characterized by increasing uncertainty, as outliers beyond the boundaries of what can be expected are becoming the new normal.

Unfortunately, the public policies pursued by most governments seem ineffective in the face of this qualitative transformation of risk. Risk management has become conceptually and institutionally separated from development, while exotic disciplines such as disaster risk reduction and climate change adaptation are ill equipped to manage the complexity of interdependent risk drivers and radical qualitative change.

The dominant meta-narrative of risk as the impact of extreme, unexpected and exogenous events on *normal* development has meant that such approaches literally *miss the point*, veiling and obscuring the pathways of risk causality. Ultimately, the objectives of these *exotic* approaches to managing risk are fundamentally contradictory: to protect the same development paradigm that generates the risk in the first place.

This paper, building on a two-day conversation held in Costa Rica in January 2019 seeks to conceptualise and unpack the qualitative transformation occurring in global risk, examine why current approaches to risk management are failing and to consolidate an emerging new meta-narrative of managing risks within sustainable and resilient development. The paper argues that a two-fold paradigm shift is required: to integrate existing fragmented approaches to risk management into an integrated and holistic framework, while at the same time transforming the focus from the *exotic* to the *quotidian*, from the corrective and reactive to the prospective and from protecting development against exogenous threats to managing risk as an internality inside sustainable and resilient development.

# TRANSFORMING A WORLD ON FIRE:

from exotic to quotidian approaches to risk management

## Prelude

Following a period of unseasonal warm and dry weather, on Tuesday February 26th the mercury reached 21.2 C. at Kew Gardens, London, the hottest winter temperature on record in the United Kingdom. Later that night and two hundred miles further north, a normally damp and cold area of upland Britain, called Saddleworth Moor, burst into flames. Local residents were reported saying: “it looks like the end of the world, like the apocalypse is happening.”<sup>1</sup>

The Saddleworth Moor blaze is no more than a manifestation of extensive risk, one of thousands of localised, frequently occurring events that occur around the world every day. While natural capital went up in smoke, there were no lives lost, nor buildings destroyed. In contrast, the wildfire that destroyed the town of Paradise in California in November 2018 killed 88 people, destroyed over 18,000 structures and led to direct losses valued at USD16.5 billion.

The destruction of Paradise, together with a sequence of heavily reported events in other regions<sup>2</sup> over the last few years, from Canada, Norway and Sweden to Greece, South Africa and Australia, seem to suggest that the world is already on fire. The subject of this paper, however, is not wildfires per se. The term world on fire is employed as an icon for the rapid, global, qualitative transformation of risks generated at the human-nature interface, as a result of extreme risk accumulation.

The evidence<sup>3</sup> that anthropic climate change along with naturally induced change is forcing radical shifts in climate averages is now unquestionable. And as the averages change, what were previously extreme events become increasingly frequent and may tend to normality and regularity. And much of what have been described as manifestations of extensive risk (regular and recurrent smaller scale events and levels of impact) could now be considered as a normal characteristic of a new climate.

However, anthropic climate change is only one manifestation of how contemporary development configures and then locks risk<sup>4</sup> into the social, economic and physical landscape. The Paradise disaster was driven not only by climate change but by other factors, including unbridled urban growth, the vulnerability to fire of building structures of mainly low and middle-income households and forest management techniques that create conditions for large wildfires. Throughout the world, while still reported as unusual or *extreme* events wildfires are only one visible manifestation of *extreme* risk accumulation in regional economies and their urban centres around the world.

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1 The Independent, February 27th, 2019

2 There is no up to date published record of wildfires which allows a trend to be established. The Global Fire Monitoring Centre states: “A preliminary multi-year global database of vegetation fires for use in climate modelling has been established by the GFMC by the support of the German Federal Ministry for Education and Research in the frame of the German Climate Research Programme DEKLIM (BMBF 01 LD 0105). This dataset is not yet published. A complementary statistical enquiry is the GFMC Global Wildland Fire Assessment which currently is in a premature and developing stage.( <http://gfmc.online/inventory/statistic.html>)”

3 IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

4 In the context of this paper the term risk covers what are currently described as climate, disaster and environmental risks, as well as associated drivers and outcomes such as displacement, migration, conflict, impoverishment, insolvency and other social and economic stresses. Other risks including those associated with cybercrime, terrorism, financial mismanagement, technological and industrial accidents will not be discussed here, except in the case of cascading and synchronic risks (for example droughts affecting power generation).



Risk and uncertainty, generated where and when physical and social systems interface, now pervades and dominates the contemporary global landscape. A complex ecosystem of interdependent risk drivers including climate change but also environmental degradation, badly planned and managed urban development, displacement and migration, water and food stress, poverty and inequality translate into increasingly unpredictable outcomes for social and economic development and for the environment. The world is now moving beyond an equilibrium state, be it in social, economic, political or environmental terms. Models of the future are characterized by increasing uncertainty, as outliers beyond the boundaries of what can be expected are becoming the new normal.

Over two hundred years ago Hegel<sup>5</sup> reflected: *“It is said that there are no sudden changes in nature, and the common view has it that when we speak of a growth or a destruction, we always imagine a gradual growth or disappearance. Yet we have seen cases in which the alteration of existence involves not only a transition from one proportion to another, but also a transition, by a sudden leap, into a ... qualitatively different thing; an interruption of a gradual process, differing qualitatively from the preceding, the former state”*.

Interdependent global risks such as multiple breadbasket failure and concatenated and cascading systems collapse are now increasingly possible, indicating that such a radical qualitative transformation in global risk is indeed already taking place. At the same time, *extreme* risk accumulation in many countries, and not only in so-called fragile states, is challenging already limited capacities to provide adequate basic services and infrastructure, manage risks and achieve the 2030 Agenda for Sustainable Development.<sup>6</sup>

Unfortunately, if the *world is on fire*, the public policies pursued by most governments seem ineffective in the face of the qualitative transformation of risk now taking place. Research, policy and practice all exhibit the classic problem of *fragmented science*<sup>7</sup> while institutional action seems trapped in impermeable silos. Risk management has become conceptually and institutionally separated from development, while *exotic*<sup>8</sup> disciplines such as disaster risk reduction and climate change adaptation are ill equipped to manage the complexity of interdependent risk drivers and radical qualitative change. The dominant meta-narrative of risk as the impact of extreme, unexpected and exogenous events on normal development has meant that such approaches literally miss the point, veiling and obscuring the pathways of risk causality.

This paper, building on a two-day conversation held in Costa Rica in January 2019 seeks to conceptualise and unpack the qualitative transformation occurring in global risk, examine why current approaches to risk management are failing and to consolidate an emerging new meta-narrative of managing risks within sustainable and resilient development based on concepts such as inter-dependence and endogeneity.

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5 Hegel, Friedrich, 2015, *The Science of Logic*, Cambridge University Press

6 including the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction: 2015-2030, as well as the Paris Agreement on Climate Change, the Agenda for Humanity, and the New Urban Agenda.

7 Bohm and Peat, 1986, *Science, Order and Creativity*, Routledge

8 We use the adjective exotic here in that these approaches address problems that are conceptualised as exogenous threats to development. These exotic approaches therefore end-up as being exogenous to mainstream development planning and investment.

## FROM EXTREME RISK ACCUMULATION TO THE RISK NEXUS

### When the veneer of development starts to fade

Increasing levels of loss and damage in the context of disasters and conflict, including those associated with displacement, slow-onset impacts and climate change, provide indicators of *extreme* risk accumulation and of the qualitative transformation in global risk posed by Hegel.

The accumulated value of all finished goods and services produced globally, commonly known as GDP, is currently estimated at around USD 80 trillion per year. Global GDP growth is expected to be 2.9% in 2019, representing, therefore, approximately USD 2.4 trillion<sup>9</sup>.

Unfortunately, the development paradigm that generates global GDP growth is now generating both manifest and future risks the costs of which greatly exceeds the value generated.

The value of lost or damaged natural capital is now estimated at around USD 4.7 trillion per year<sup>10</sup> and the cost of wildfires in the USA alone is estimated at between USD 71 – 348 billion per year. Thus, the cost of environmental destruction alone is already equivalent to around double the expected annual growth in GDP

The direct financial costs associated with armed conflict and interpersonal violence, including capital destruction and costs associated with security systems and medical care, were estimated at approximately USD 1 trillion<sup>11</sup> in 2016. Indirect costs are generated by productivity loss, lost life-time, economic output of victims and reduced economic growth resulting from a prolonged war or conflict. For example, Afghanistan's per capita income has remained at its 1970s level due to the continued war, and Somalia's per capita income has dropped by more than 40 percent over the same period<sup>12</sup>.

In terms of disaster risk, an extrapolation from global probabilistic estimates<sup>13</sup> from 2017<sup>14</sup> implies future direct disaster losses of approximately USD 700 billion per year and indirect disaster losses<sup>15</sup> of approximately USD 1 trillion. To the risks associated with conflict and disaster, it would be necessary to add the cost of both disaster and conflict driven displacement as well as the costs of other risks associated with air and water pollution, crime, lack of sanitation and other hazards.

Conflict, disaster and economic and political crisis, often magnified by other risk drivers, are leading to unprecedented levels of migration and displacement, if refugees and those internally and externally displaced are considered<sup>16</sup>. For example, in 2018, approximately 700,000 Rohingya

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9 [www.worldbank.org/en/publication/global-economic-prospects](http://www.worldbank.org/en/publication/global-economic-prospects)

10 <https://www.naturalcapitalcoalition.org/wp-content/uploads/2016/07/Trucost-Nat-Cap-at-Risk-Final-Report-web.pdf>

11 <http://visionofhumanity.org/app/uploads/2018/11/Economic-Value-of-Peace-2018.pdf>

12 <https://openknowledge.worldbank.org/bitstream/handle/10986/28337/211162ov.pdf?sequence=6&isAllowed=y>

13 The Average Annual Loss (AAL) in the built environment associated with physical hazards such as earthquakes, tsunamis, tropical cyclones and riverine floods has been estimated at USD 293,000 million. Assuming extensive risk adds an additional 30% to the AAL and that the agricultural drought AAL represents 10% of global agricultural GDP the total AAL would be around USD 700,000 million. Given that indirect disaster losses average at approximately 1.5 times direct losses, global indirect losses could be of an order of magnitude of USD 1 trillion-

14 United Nations, 2017, GAR Atlas, Geneva.

15 Reference UN terminology

16 IDMC, 2019, Global Report on Internal Displacement (forthcoming)

were forced to leave Myanmar to live in highly-vulnerable and hazard exposed conditions in Bangladesh, generating new risks. Around 3 million Venezuelans have abandoned their country due to deteriorating economic conditions, poverty and malnutrition. At the end of 2018, more people than ever were living in internal displacement; 41.3 million or around two-thirds of people displaced worldwide.

Displacement incurs additional direct and indirect financial costs that are currently not appearing on the balance sheets of national budgets. The direct cost of internal displacement is estimated to be USD 13 billion globally<sup>17</sup> In the Central African Republic, for example, the direct economic impacts of internal displacement associated with conflict were around USD230 million every year, the equivalent of 11 per cent of the country's pre-crisis GDP. In Somalia, recent drought-related displacement resulted in direct costs of USD315 million per year or 4.7 per cent of pre-2017 GDP. When assessing the financing gaps that countries will face when experiencing disaster-displacement, many will not be able to absorb the associated costs. For example, Bangladesh would not be able to absorb the economic impacts of displacement associated with a 1 in 10 years disaster event<sup>18</sup>

These different global totals cannot be simply added together, given that some are estimates of what is currently being lost while others are probabilistic estimates of future risk. It is beyond the scope of this paper to try and reconcile the methodologies used. However, what is clear is that as an order of magnitude, the total risk associated with disasters, conflict, displacement and natural capital loss would now seem to be several times greater than the value of global GDP growth. This implies that development is increasingly fragile as the costs incurred and risks generated now greatly exceed the value created.

Short term gains and capital accumulation in specific social and territorial geographies continue to provide an illusion of development. However, in much of the world the smoke-screen is now rapidly dissipating, revealing contemporary development pathways as a thin veneer covering broad-based economic, social and ecological collapse.

This has very serious implications for the 2030 Agenda for Sustainable Development. Ultimately, risk is a contingent liability for future development. This implies that in any given country, when risk starts to represent a significant percentage of the value generated by development, governments will not be able to increase or even maintain the capital investments or social expenditure they need to achieve the Sustainable Development Goals (SDG).

For example, in Syria, Afghanistan and Iraq the economic cost of violence is estimated to be 68%, 63% and 51 %per cent of the value of their GDP respectively<sup>19</sup>. In Guatemala, Honduras and El Salvador the economic costs of crime and violence were already estimated to account for between 8 and 11 percent of GDP in 2011<sup>20</sup>. Subsequently they may have increased. In countries like Philippines and Myanmar, estimates of average annual disaster risk in the built environment now exceed 100% of their social budgets<sup>21</sup>

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17 IDMC 2019: Unveiling the cost of internal displacement. Thematic series The Ripple Effect. February 2019.

18 IDMC and IIASA 2019: Points of no return. Estimating governments' fiscal resilience to internal displacement. IDMC Thematic series: The Ripple Effect: economic impacts of internal displacement. March 2019.

19 <http://visionofhumanity.org/app/uploads/2018/11/Economic-Value-of-Peace-2018.pdf>

20 World Bank, 2011, Crime and Violence in Central America: A Development Challenge.

21 United Nations, 2017 op.cit.

In all these different contexts, the risks generated by development now heavily compromise progress towards the achievement of the SDG. At the same time, neither the benefits nor the risks generated through development are accumulated or distributed equally in territorial or social terms. The geography of risk inequality occurs at all scales, between regions and countries, within countries and even within cities and localities.

## THE HIDDEN VEINS OF RISK ACCUMULATION

The fact that risk itself is now reaching extreme levels, highlights the operation of underlying risk drivers which articulate contemporary development to the configuration and accumulation of risk. Many of these drivers are at the same time risk outcomes. Forced displacement, for example, occurs after both disaster and conflict. Displaced populations are often forced to occupy hazard exposed areas in extremely vulnerable living conditions, therefore increasing disaster risk. Displacement and migration can also create new conflict risks. For example, many of the countries that absorb displacement and migration, for example Lebanon in the case of Syria, Colombia in the case of Venezuela or Bangladesh in the case of Myanmar, are themselves countries with high-levels of risk, associated with conflict, physical hazards or both. Risk, therefore, is increasingly fluid, flowing and spilling over from crisis in neighbouring countries, and permeating and exacerbating existing situations.

Contemporary development, with its single-minded pursuit of economic growth above all other considerations, seems to reward risk accumulation. Opportunities for short-term capital accumulation continue to outweigh concerns about future sustainability, resulting in a massive discounting of all future risk. This leads to large flows of capital into hazard-exposed areas, where hidden contingent liabilities come bundled together with the comparative advantages offered to investors. The level of risk in many such locations is rarely explicit to investors and is often disregarded in the public investment that creates the necessary infrastructure or in the private investment that follows, as became brutally manifest in the flooding of industrial estates on the outskirts of Bangkok in 2011. With regional and global impacts in sectors such as semiconductors and automobiles, this disaster revealed how risk is locked into much new capital investment in hazard-exposed regions<sup>22</sup>.

At the same time, instead of being liable for the risk that private and public actors generate, risk is actively and often openly transferred to and borne by others, citizens, local governments and vulnerable populations. For the 2 billion people on the world living on less than USD 3.2 per day and the 800 million living on less than USD 1.9 per day, even small increases in income can lead to major gains in social welfare. However, the material gains from development are concentrated in a very small percentage of the global population, while the risks are transferred to the majority or to the global commons.

Poverty and inequality are both underlying risk drivers as well as risk outcomes. Sectors and territories without comparative advantages for capital accumulation are left behind. In those areas, risk is associated with an absence of development characterized by low levels of investment in infrastructure, weak or non-existent social and environmental protection, and rural and urban

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22 United Nations, 2013, Global Assessment Report on Disaster Risk Reduction: The Business Case for Disaster Risk Reduction, Geneva.

poverty. This drastically reduces the space for managing risks in livelihoods, settlement or health for the vast majority, with the result that both every-day and extensive risk become embedded as attributes of multi-dimensional poverty.

Economic poverty, together with other poverty factors such as powerlessness, exclusion, low literacy and discrimination, translates into conditions of everyday risk, associated with poor health, crime, drug addiction, domestic violence and homelessness, which in turn reinforce poverty and generate patterns of extensive and intensive risk. Damage to housing, local infrastructure, livestock and crops then feeds back into a range of outcomes that include further impoverishment, displacement and increased conflict risk.

With opportunities constrained, political instability becomes another risk outcome, which in turn further erodes the consensus required to address risk.

Urban growth is also generally characterized by unequal access to urban space, infrastructure, services and security. This generates new patterns of both extensive and intensive disaster risk, particularly in informal settlements with deficient or non-existent infrastructure and social protection, and high levels of environmental degradation. At the same time, social and spatial segregation of risk in cities, contributes to the proliferation of other shocks and stresses, such as crime, high youth unemployment and political instability, all of which exacerbate vulnerabilities and social tensions and generate a vicious cycle of risk generation. Rapidly expanding city regions also generate new risks, as landscapes and ecosystems are degraded through mechanisms such as a low-density urban expansion, exhausting resources such as water in the surrounding regions, generating unsustainability. With exposure and vulnerability increasingly concentrated in urban areas, more people and assets are put at risk. Today, more than 80% of the global population at risk of being displaced by floods live in urban and peri-urban areas<sup>23</sup>

Meanwhile, contemporary development is characterised by an increasing and unsustainable over-consumption of energy, fresh water, forests and marine habitats, clean air and rich soil. The loss of critical regulatory ecosystem services, including forests, mangroves, wetlands, coral reefs and aquifers, means that many ecosystems are now approaching tipping points beyond which recovery is difficult or impossible, with unpredictable but potentially dangerous implications for future risk. Water stress and land degradation have particularly dangerous implication for food security.

Global climate change is now fundamentally changing the risk landscape, magnifying the number and kind of hazards, through changing temperatures, precipitation and sea levels, among other factors. While ongoing changes in climate averages, sea level rise and ice cover constitute the principal stress to production, livelihood and settlement patterns, for example, reduced agricultural production due to declining water availability, climate change is still considered synonymous with extreme events, thus confusing changing climate variability with the underlying problem of a changing climate.

Climate change transfers risk as many of the territories most affected are those which have contributed least to greenhouse gas emissions. But at the same time, climate change is a meta-risk

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23 IDMC, 2019: Global Report on Internal Displacement. An urban perspective, Geneva.

driver, as both its causes and consequences are global. In certain contexts, climate change-related effects may exacerbate existing tensions and influence other factors in a way that increases the risk of conflict, often linked to the control over natural resources at times of scarcity. In East Africa, for example, climate-conflict pathways include worsening livelihood conditions, increasing migration and changing pastoral mobility patterns<sup>24</sup>. Fluctuations in agricultural production and food prices are other climate-related risk drivers<sup>25</sup>.

## INTERDEPENDENCE AND NON-LINEARITY

These risk drivers are closely interrelated and concatenated, and they are increasingly shaping local realities. Interactions between the different risk drivers create increasingly unpredictable risk outcomes, where risk drivers in physical systems translate into drivers in other systems and vice versa through feedback loops. Given the multiple feedback loops between the different drivers and their non-linearity and given that change seems to be occurring at a faster rate than expected, even slight changes in the evolution of any one driver can generate unexpected and radical changes in another, while at the same time magnifying and increasing interdependent global risk. The world seems now increasingly characterised by unknown things changing rapidly.

Examples of interdependence and feedback abound. The East Japan earthquake of 2011 triggered a tsunami, which damaged a nuclear power plant, in turn leading to cascading effects on energy production, food systems and water supplies. Concatenated drivers such as climate change, the growth of city regions and environmental degradation can lead to low levels of water recharge which are generating catastrophic water stress in major metropolitan areas such as Sao Paulo, Brazil and regions such as the South Western Cape in South Africa. Excessive extraction of groundwater is causing cities like Jakarta and Bangkok to sink, further exposing them to rising sea levels and flooding.

Many countries and communities in conflict, for example, in the Middle East and North Africa are also in regions severely affected by climate change, water stress and land degradation. Their capacity to deal with these risks is reduced by conflict, while risk outcomes, such as displacement at the same time magnify conflict risk. In Syria, almost all people displaced by heavy floods in 2018 had previously fled the conflict, resulting in cyclical and protracted displacement that humanitarian actors and government agencies alike were not equipped to deal with. In Greece, the capacity of government to respond to devastating wildfires in recent years was severely constrained by underinvestment in fire and emergency services following an ongoing and decadal financial crisis.

The risk nexus, therefore is characterised by a range of increasingly concatenated and interdependent risk drivers, outcomes such as disasters, migration, displacement, conflict and political instability, ongoing welfare, livelihood and life style impacts and unsustainable levels of risk. Extreme risk accumulation is also undermining the already weak and fraying political consensus that underpins the contemporary development paradigm. The risk nexus, would now seem to be the salient characteristic of our *world on fire*.

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24 Van Balen, S. & Mobjörk, M. 2016. A Coming Anarchy? Pathways from climate change to violent conflict in East Africa. Stockholm University, SIPRI.

25 Busby, J. 2018. Climate and Security: Bridging the Policy-Academic Gap. PRIO blog, 15 May, 2018.



## THE LIMITS OF RISK MANAGEMENT

### From fragmented science to a communication breakdown

Because disasters, conflicts and crises are not recognised for what they are, as the manifest consequences of our development choices, the way the international community as well as most countries are currently addressing the risk nexus can be characterised more as another underlying risk driver than as an effective approach to risk management.

Disaster risk, conflict risk, displacement risk and risks associated with climate change and declining biodiversity continue to be examined analytically as separate categories, even though the increasing degree of interdependence between these risk categories, the underlying risk drivers and the range of risk outcomes has already eroded their value as compartmentalised fields<sup>26</sup>.

In general, research, policy and practice in risk management exhibit the classic problem of *fragmented science*. Specialised research communities have developed in disaster risk management, climate change adaptation, displacement and migration and conflict prevention, with only weak channels of communication between them. For example, climate change and disaster risk reduction discourse are largely absent from the global conflict agenda. While attention has been given to elucidating the links between climate change impacts and the risk of violent conflict, much less focus has been given to analysing how conflict undermines the capacity to address other kinds of emerging threats and risks.

Academic journals have sprung up to service each research community, which normally only quote literature from within that community. Even within the disaster risk management and climate change adaptation research communities, which are addressing risks with a very large degree of commonality, few researchers in one community read or quote literature produced by the other, despite sporadic efforts to encourage convergence<sup>27</sup>. The distance between these research communities and those working on conflict and displacement are greater still. Within each community there is further fragmentation as researchers focus in on specific analytical areas.

Research communities thrive by fabricating interpretative paradigms that distinguish them from other communities, for example between climate change adaptation and disaster risk reduction. But these paradigms often serve more to veil than to reveal the underlying commonality. As a consequence, dialogue on the risk nexus between different communities is hampered by differences in concepts, terminology and epistemology.

Fragmented science is associated with highly-specialized approaches that may work well within their particular (often narrowly defined) context but which are ill-equipped to address the interdependence and concatenation between different risk drivers. For example, wetland conservation could be seen as a disaster risk management issue, as it reduces flood risk, as a climate change adaptation issue, as well as a water availability, biodiversity and livelihood issue. The fragmentation of policies, budgets and bureaucracies conspires against addressing such issues in ways that could potentially produce multiple benefits and co-benefits.

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<sup>26</sup> An issue already highlighted by Von Humboldt two hundred years ago.

<sup>27</sup> Reference IPCC SREX report

The 2030 Agenda consists of a number of distinct international policy frameworks<sup>28</sup> for sustainable development, climate change, disaster risk reduction and urban development, each supported by their own international bureaucracies. In 2018, the two Global Compacts to address and manage international migration and refugee flows respectively resulted from and reinforced separate institutional agendas. Each of the main agreements comes with its own structures and systems of monitoring and reporting that not only creates burdens on governments but which tend to reinforce separation and fragmentation.

For example, the Sendai Framework has no reference to conflict and displacement, while making progress towards one SDG may negatively affect progress towards another. For example, large investments in the infrastructure of hazard-exposed coastal cities may be necessary to achieve SDG9 but may result in forced resettlement of low-income households negatively affecting the achievement of SDG1 and SDG11, as well as leading to increasing future disaster loss, contrary to Sendai Global Targets A – D.

In the New Urban Agenda disaster risk is still viewed as an independent and discrete problem, referred to in 17 of the 180 paragraphs of the agenda. But the nexus between disaster risk and its drivers in bad urban planning, resource depletion, land ownership patterns and others are never made explicit.

At the national level, most governments have also developed separate and competing policy frameworks and bureaucracies for addressing disaster risk and climate change, and in some cases issues such as migration or displacement, inhibiting a more holistic vision of the risk nexus. This fragmentation is further reinforced in the budgeting processes where separate budget lines are approved for each policy area or sector. The result is often competition for resources between competing bureaucracies which address overlapping issues and challenges. This is often further aggravated by financial mechanisms, such as under the Green Climate Fund for climate adaption and mitigation or the World Bank's IDA for refugee response, which each tend to foster off-budget funding streams and project-based approaches.

And despite calls for flexibility in order to manage risk in complex environments, and agreed DAC<sup>29</sup> policy, many donors have great difficulty to relinquish ear-marking and control, further reinforcing fragmentation. The entrenchment of fragmentation in many bilateral and multilateral institutions has itself become a major barrier to implementation of the 2030 Agenda and the need for a more holistic approach to managing risk.

Humanitarian action<sup>30</sup> to address the needs of those displaced by conflict, disaster or collapsing ecosystems, does not have means nor the mandate to deal with underlying risk. For example, between 2011 and 2018 the number of operations to deal with increasingly complex and prolonged emergencies by organisations such as the World Food Programme (WFP) has increased enormously while appeals for financial support rarely achieve more than 60 percent of their targets. The call by both the former and current Secretary Generals of the United Nations to transfer the

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28 The Sendai Framework for Disaster Risk Reduction: 2015 – 2030, the Sustainable Development Goals, the Paris Climate Change Agreement the New Urban Agenda

29 OECD Development Assistance Committee

30 ALNAP's State of the Humanitarian System 2018, p 227, the chapter on Connectedness <https://www.alnap.org/help-library/the-state-of-the-humanitarian-system-2018-full-report>



focus of action from one dominated by ex post humanitarian assistance to a nexus approach where greater investment is made in sustainable livelihoods and prevention has yet to achieve traction.

For states with limited governance and institutional capacity, this makes a holistic and integrated approach to risk management difficult if not impossible. In the Caribbean, for example, governments are pursuing the different international agendas along separate institutional tracks despite the fact that they are all expected to deliver resilient and sustainable societies. Furthermore, decentralisation of responsibility for managing crises and risk more often than not does not come with the commensurate devolvement of resources to local levels. Limitations to resource flows from national to local governments and initiatives are a major gap, exacerbated by an almost complete absence of meaningful international multilateral or bilateral funding mechanisms to support capacity and investment directly to the local level.

## EXOTIC APPROACHES TO MANAGING RISK

These fragmented and competing frameworks for addressing risk, however, do have an underlying commonality. The dominant narrative in contemporary development continues to be one of conceptualising risk as an exogenous variable or an external threat. Despite the evidence that risk is endogenous to development, the narrative remains one of protecting development against disasters or of adapting development to climate change. Conflict, displacement, disasters and the effects of climate change are still seen as externalities which affect normal development, rather than as indicators of “failed or skewed development, of unsustainable economic and social processes, and of ill-adapted societies”<sup>31</sup>.

Given this dominant narrative, approaches such as climate change adaptation and disaster risk reduction, should more properly be considered as *exotic*<sup>32</sup> approaches, which partially address specific compartmentalised manifestations of risk, rather than the underlying drivers that configure the risk nexus. As such they only nibble around the edges of the growing and *extreme* accumulation of interdependent risk. These *exotic* approaches continue to be understood and practised as sets of instrumental and administrative mechanisms to protect development against tangible external threats. Logically, if risk is conceptualized as an exogenous threat, then instruments can be designed to protect against it. By definition, interpreting risk in this way weakens responsibility and accountability for risk generation.

The emergence and widespread adoption of resilience as a concept and goal may be making the transition to an integrated approach even more difficult. Countries are expected to be able to absorb the impact and *bounce* back from a growing number of *intractable* risks. This unfortunately can be understood as reinforcing the status quo rather than recognising the need for transformation of the conditions of underlying risk. Climate change adaptation is similarly a recognition and acceptance of the status quo.

To compound the situation, responsibilities for risk management and reduction have often been vested in organisations set up to respond to disasters, conflict, displacement and other crisis

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31 Lavell, Maskrey, 2011, The Future of Disaster Risk Management, Environmental Hazards, Vol 10.

32 These disciplines are exotic not only in the sense that they view risk as exogenous to development but also in that they are themselves exogenous to mainstream development planning and investment and public administration.

rather than to address the underlying risks. These responsibilities were added on in syncretic fashion to the governance arrangements for emergency management. These organisations rarely have either the political authority or the technical capacity to engage with mainstream development sectors in government, such as planning and finance ministries. The concepts that guide the work of these organisations, is a major barrier to change and the emergence of more effective and modern frameworks for risk management.

In the Caribbean, for example, despite seventeen years of promoting Comprehensive Disaster Management, there has been little systematic investment in addressing the underlying risk drivers in the region, creating conditions that manifested in the impact Hurricanes Irma and Maria in 2017. While the post event political discourse acknowledged the devastating nature of the outcome, it did so in terms of the unprecedented nature of the events and expressed little understanding or appreciation of the fact that the risk drivers could have been at least partially addressed.

Many countries in the region have hinged their economic development on tourism seeking to maximize the revenues the sector is able to generate at all costs. However, investments in tourism infrastructure has potentially breached the carrying capacities of vital regulatory ecosystems thus contributing to increasing risk, ultimately to economic development itself. In Central America, despite the clear lessons from Hurricane Mitch, 20 years-ago, and the political statements on the social construction of risk and the need for transformation, risk continues to grow rapidly and losses also.

These contradictions can be seen when examining the increasingly accepted distinction between corrective, prospective and reactive disaster risk and climate change management<sup>33</sup>. Corrective risk management, searching to reduce existing risk, can easily be incorporated by the disaster risk management sector, given that the risk already exists, likewise, reactive management, given that it addresses unresolved risk that will and does convert into disaster. Prospective risk management, however, is an uncomfortable bed-partner for the disaster risk management sector. Given that its objective is to avoid future risk construction, in other words to avoid disaster by avoiding risk, it should be an integral part of mainstream development planning and investment. The fact that an *exotic* sector like disaster risk management is expected to ensure prospective risk management, which is and should be part of quotidian development is therefore a guarantee more of failure than of success.

Ultimately, the objectives of these exotic approaches to managing risk are fundamentally contradictory: to protect the same development paradigm that generates the risk in the first place. If increased investments are made to protect development without addressing the underlying risk drivers, more and more effort leads to diminishing returns. Given the evidence of a qualitative transformation of the risk nexus and of a world on fire, there is now a very real possibility that unless risk management is transformed, a tipping point will be reached in which the debate will not be about the achievement of the SDG or the Sendai Framework targets, but rather about survival itself.

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33 See United Nations General Assembly, Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, December 2016 for official definitions of these concepts.

## *FIT TO SURVIVE:*

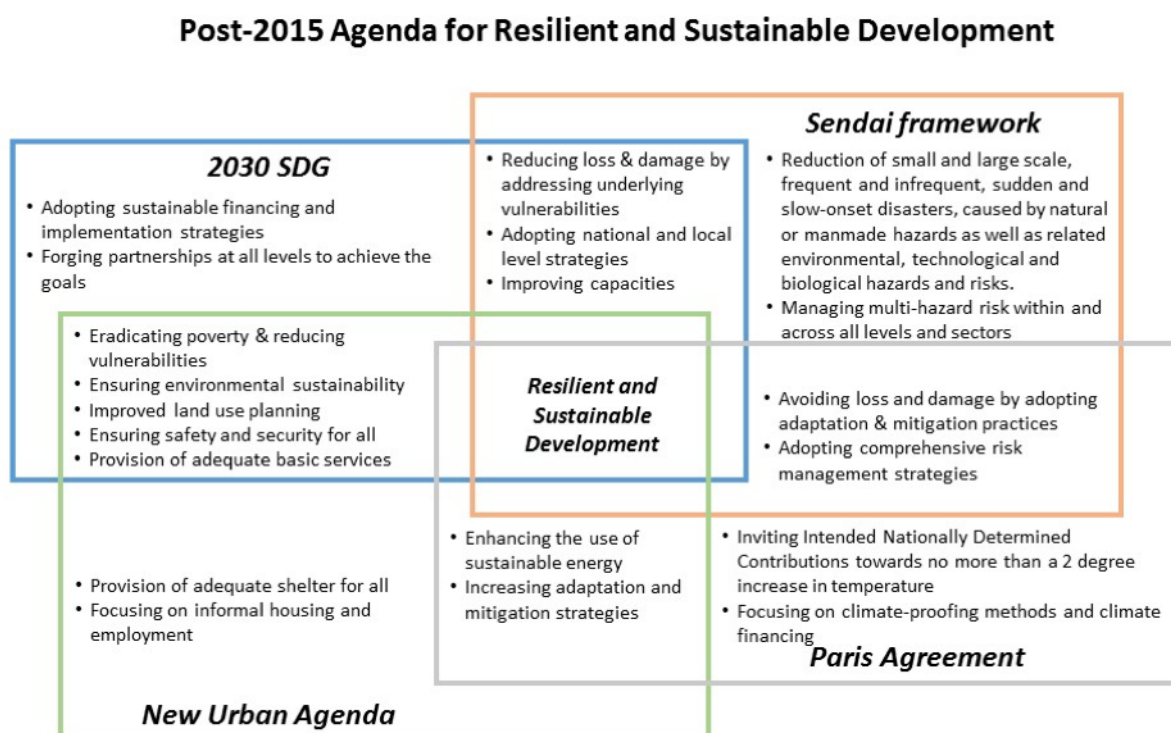
From exotic risk management to a quotidian approach to sustainable and resilient development

### Bringing risk management home

Given that these *exotic* approaches have proven ineffective to manage escalating global risk it is clear that if our *world on fire* is to be transformed into a world fit to survive then a new approach to risk management is required. If risk is an endogenous indicator of a flawed development paradigm, then the management of risks depends on the transformation of that paradigm.

Firstly, prospective risk management should now be considered as a quotidian mechanism for sustainable and resilient development, rather than a component of disaster risk reduction. Seen in such a light, it then becomes an agenda for development sectors rather than for the entrenched crisis and disaster management sector. Addressing risk within the broader framework of sustainable and resilient development can also help to bring coherence to 2030 Agenda.

Figure 1, highlights the existence of a common space around resilient and sustainable development where Agenda 2030, the Sendai Framework, the New Urban Agenda and the Paris Agreement converge and where the perspectives on risk and risk management in each framework can come together.



If that common space can be strengthened and reinforced, discussions on the mainstreaming of disaster risk reduction or climate change adaptation into sustainable development or into the new urban agenda become irrelevant. Mainstreaming, by definition, is still derived from the conception that disasters and climate change are external threats rather than endogenous or internal

characteristics of development and that exotic approaches need to be mainstreamed into the quotidian. Planning for extremes must now be closely integrated into planning for a new normality. The extreme levels of inequality, instability, environmental degradation, climate change, disaster, displacement and conflict that now characterise global development cannot be reduced to the status of an externality.

Managing risk as an internality inside development requires a very different approach to mainstreaming risk management into development to protect against externalities. It implies that risk management and resilience should become a normal and quotidian characteristic of sustainable development. Managing risks now has to become endogenous to the DNA of sustainable development, in the same way as gender or environment, instead of an *exotic* add-on that needs to be mainstreamed.

If risk management is allowed to weave and flow through normal, day-to-day development planning and decision-making across sectors and territories, then the differentiation between risk governance and development governance also becomes unnecessary. Instead of assigning responsibilities for disaster risk management or climate change adaptation to specialized sectors, these responsibilities would be vested in the sectors and territorial governments that plan, invest in and regulate development.

The paradigm shift required therefore is two-fold: to integrate existing fragmented approaches to managing risk into an integrated and holistic framework, while at the same time transforming the focus from the exotic to the quotidian, from the corrective and reactive to the prospective and from protecting development against exogenous threats to managing risk as an internality inside sustainable and resilient development.

The approach therefore becomes one of advancing sustainable and resilient development through a risk management lens, addressing the underlying risk drivers and draining energy out of risk accumulation processes. This includes the urgent need to start addressing displacement and conflict as endogenous risks rather than as an exclusively humanitarian issue. At the same time, shifting the paradigm will not happen overnight. As risk creation has deep historical roots, so managing risk creation in the future is a long-term societal process.

## OPPORTUNITIES FOR TRANSFORMATION

All development decisions, whether they are related to capital investment, social expenditure or environmental protection, have the potential to either reduce or increase risks. As a first step, therefore, risk metrics need to be developed to inform such decisions and to ensure that the associated costs and benefits are fully encoded into public and private investment at all levels, into the financial system and integrated as a normal part of government, business planning and decision-making processes, including processes of joint planning with the international community<sup>34</sup>

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34 For example, the United Nations Common Country Assessments (CCA) and Development Assistance Frameworks (UNDAF)

Probabilistic global assessments of disaster risk already exist<sup>35</sup> but further work is required to fully integrate slow-onset hazards, such as drought, water stress and the effects of climate change and to address the non-stationarity of hazard, exposure and vulnerability. At the same time, it will be necessary to address displacement, conflict, food insecurity, environmental degradation both as underlying drivers and aggravating factors but also as risk outcomes and to model the effects that investments and policies can produce on each risk component.

While expanding existing global models in this way is a significant technical challenge, it is a necessary bedrock for underpinning the paradigm shift towards sustainable and resilient development. The identification and assessment of risk, including the inter-linkages and knock-on effects facilitates a better understanding of risk and allow for better budgeting and resource allocation that can be measured, monitored, evaluated and adjusted as required.

Once such metrics are developed, they will become a critical tool to inform national planning processes, for example, revealing risks to sustainability and to the achievement of the SDG, that are currently not being taken into account and enabling an appropriate layering of risk.

Such expanded and country-specific risk metrics can be used by and with governments to examine the risk implications of different future development pathways, for example, through periodic risk audits, the agreement of national resilience targets, and the measurement of how different development pathways impact on the achievement of each SDG. This can lead to an improved understanding of how different drivers contribute to multidimensional risk and to the planning of investments in key development sectors such as infrastructure, education or employment in a way that they contribute to resilience and sustainability. In the same way they can also be used to address risk in UN system planning instruments such as the Common Country Assessment (CCA) and the United Nations Development Assistance Framework (UNDAF). Currently risk is not systematically considered in these instruments.

Future infrastructure development can be seen both as a challenge as well as an opportunity. By 2030, an estimated US\$25 trillion to US\$30 trillion will be invested globally in new infrastructure, including urban road construction, water and sanitation, energy and transport systems, and buildings. Most of this investment will occur in regions with weak capacities for territorial planning and governance. Whether or not this investment is sustainable and resilient will have a determining influence on the future of risk. Risk metrics therefore are also vital to develop appropriate standards and to create tangible incentives to both governments and the private sector to invest in sustainable and resilient infrastructure.

Similarly, risk metrics can and should also be fully encoded into the financial system and available to institutional investors, including pension and sovereign wealth funds. Currently, capital flows are managed and regulated largely by considerations of profitable returns rather than by the risk they may be accumulating. Financial managers and regulators have to move from measuring the potential risks inherent in portfolios of assets, which can represent a risk to those investing in these instruments, to considering the broader risks posed by the investments.

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35 See for example, United Nations, 2017, GAR Atlas, UNISDR, Geneva

Direct, indirect and downstream risks generated by increased exposure and vulnerability have to become a key parameter of credit and debt ratings, and in indices that measure the attractiveness of sectors and countries for investment in performance forecasts and in statutory reporting. Encoding risk metrics into broader investment metrics is critical to changing investor behaviour in a way that encourages investment to flow into asset classes such as resilient infrastructure, that contribute to taking the energy out of risk accumulation.

A key challenge to addressing the risk nexus remains the configuration of appropriate governance arrangements at the national and local levels. In many of those countries with the highest risks, limited institutional capacity remains fragmented in silos and with little space to engage new and unforeseen risks. Available human and financial resources are thinly spread across multiple agendas. And even when cross-ministerial councils and similar mechanisms have been created to address risk, budgets are often still locked into sector-based silos. The burden of responsibility currently vested in specialised disaster management and climate change adaptation offices needs to be shifted to mainstream government sectors. To get traction and action, the same actors currently involved risk configuration and accumulation should be those that take a lead role in risk management. The incentives for rewarding those institutions that engage in cross-cutting, inter-sectoral prospective planning also need to be aligned.

Paradoxically, disasters and crisis often create opportunities for reviewing governance mechanisms and, through increasing media attention, offer opportunities to identify accountability and responsibility for past failures to regulate development. But such windows of opportunity are transient, pointing to the need for the legislation, staffing and budgeting plans, implementing procedures and identified champions to be pre-positioned to take advantage of propitious circumstances when they arise.

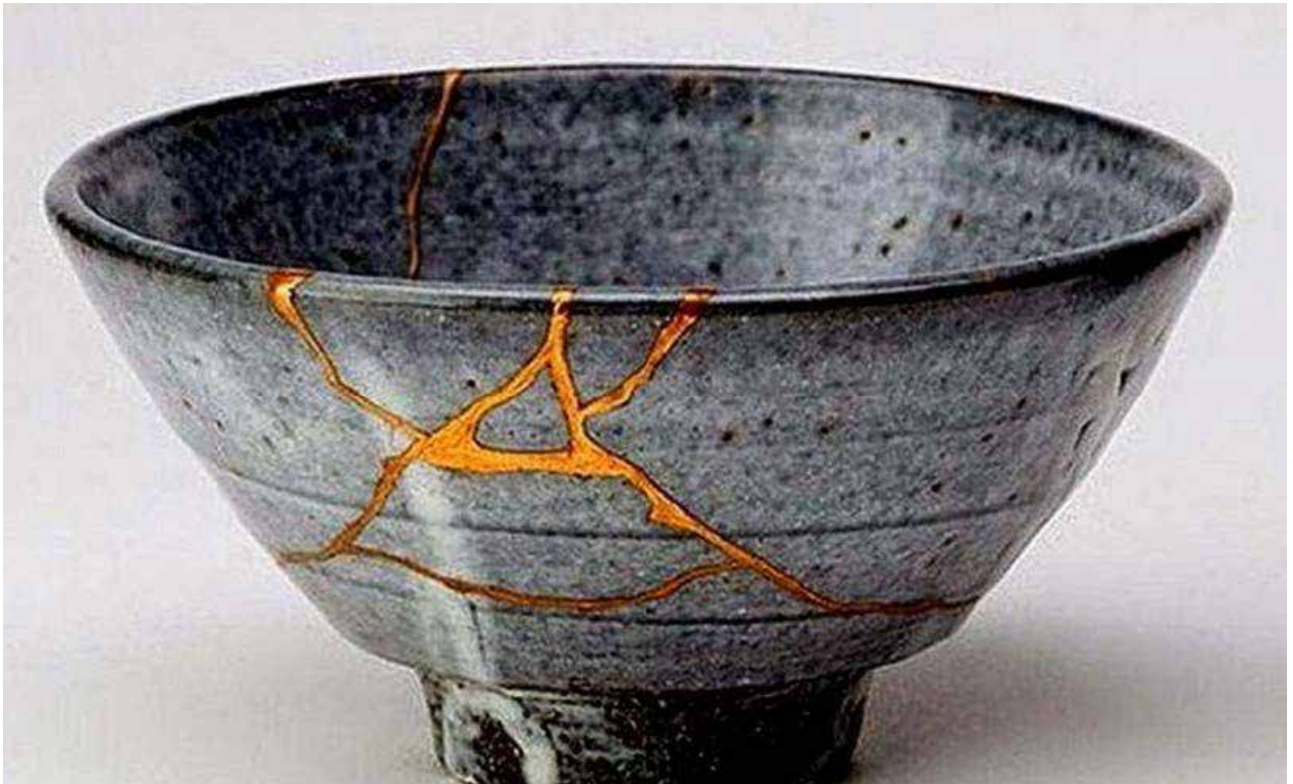
In particular, territorial governance needs to be strengthened. Territories, at different scales, internalize all the risks, drivers and outcomes in a holistic manner. National policies, strategies, plans and budgets in different sectors need to be integrated at the local level, which is where the different risk drivers literally come to ground and where localities need to manage risks in a way that is appropriate to their own needs and challenges. Currently, even those countries that have adopted innovative national level policy frameworks, for example risk-informed public investment, experienced problems in implementation due to weak or ineffective territorial planning and governance. Along with risk-informed territorial planning and investment, mechanisms for compliance also need to be strengthened, whether through risk ombudsman, periodic risk audits or incorporating risk into the remit of national controller or audit offices.



## CODA

If a *world on fire* is iconic of a qualitative transformation in global risk, a concept that is iconic of the paradigm shift required in risk management is that of *kintsukuroi* a Japanese word that refers to repairing broken ceramics with seams of gold.

The underlying philosophy of *kintsukuroi* is an understanding that the new piece of ceramic is more beautiful for having been broken. The relevance of *kintsukuroi* to contemporary development is that in crisis lies an opportunity if the future of the planet and society can be made more sustainable precisely for having once been broken.



Keynote Speech

[K01]

Hidden Stories of the Sendai Framework negotiation processes?

-How Japanese BOUSAI experiences embedded to Sendai Framework-

Kimio Takeya

Mon. Nov 11, 2019 8:00 AM - 8:20 AM Room 1 (Main Hall)

Distinguished Senior Adviser to the President of JICA

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[K01] Hidden Stories of the Sendai Framework negotiation processes?

-How Japanese BOUSAI experiences embedded to Sendai Framework-

Kimio Takeya (Distinguished Senior Adviser to the President of JICA)

8:00 AM - 10:00 AM



8:00 AM - 10:00 AM (Mon. Nov 11, 2019 8:00 AM - 8:20 AM Room 1)

[K01] Hidden Stories of the Sendai Framework negotiation processes?  
-How Japanese BOUSAI experiences embedded to Sendai  
Framework-

Kimio Takeya (Distinguished Senior Adviser to the President of JICA)

Keynote Speech

[K02]

## Keynote Speech

Gretchen Kalonji, Denise Konan, Jihyeon Park

Tue. Nov 12, 2019 8:00 AM - 8:20 AM Room 1 (Main Hall)

Sichuan University, University of Hawaii, JHSUSTAIN

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[K02]

Gretchen Kalonji (Sichuan University)

[K02]

Denise Konan (University of Hawaii)

[K02]

Jihyeon Park (JHSUSTAIN)

(Tue. Nov 12, 2019 8:00 AM - 8:20 AM Room 1)

[K02]

Gretchen Kalonji (Sichuan University)

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(Tue. Nov 12, 2019 8:00 AM - 8:20 AM Room 1)

[K02]

Denise Konan (University of Hawaii)

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(Tue. Nov 12, 2019 8:00 AM - 8:20 AM Room 1)

[K02]

Jihyeon Park (JHSUSTAIN)