E3G

REPORT JULY 2016

UNITED WE STAND

REFORMING THE UNITED NATIONS TO REDUCE CLIMATE RISK

CAMILLA BORN & NICK MABEY

About E3G

E3G is an independent climate change think tank operating in the public interest to accelerate the global transition to a low carbon economy. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2016, E3G was ranked the number one environmental think tank in the UK. **www.e3g.org**

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EXECUTIVE SUMMARY

Climate risk poses a direct threat to the UN's mission

Out of the ashes of World War II, the United Nations (UN) was founded to maintain global peace and security. Today, the world is a dramatically different place. Since 1945 the UN has helped institutionalise human rights across the world, assisted millions of refugees fleeing persecution and built agreements to address emergent global challenges like climate change[1].

These successes are grounds for hope, not complacency. Since 1945, the risks to international peace and security have also transformed. Today, our international systems are faced with interconnected and increasingly prolonged periods of challenge and volatility. The world is facing a cocktail of escalating resource pressures, demographic shifts, mass urbanisation, widening inequality and political instability. What's more, these global challenges are compounded by a world of escalating climate risks.

In 2016, the World Economic Forum singled out the risk of inaction on climate change as the world's most impactful global risk. Devastating weather events disrupt communities, drawn out weather patterns weaken support systems and in turn climate impacts cascade in complex and often unforeseen ways. Last year worldwide losses from extreme weather events totalled $250-300bn[2]. In 2016, Venezuela cut the public sector working week to 2 days as sustained drought limited hydroelectric power generation[3]. And in Syria, a conflict born out of drought, food crisis and political uprising, continues today[4].

Today, climate risk threatens the very operating mission of the United Nations. Climate risk is an existential threat to maintaining peace, rights and security. Peacebuilding efforts unravel where communities compete for access to climate stressed food and water supply. People migrate from resource depressed climates in search of stability and challenge the UN's ability to deliver humanitarian aid at scale. And amidst multiple crises, the capacity to prioritise fundamental pillars of UN governance such as human rights and international law is thinly spread.

The UN has a legacy of innovation and reform

The UN has consistently reformed to keep pace with global change. In 1957, the International Atomic Energy Agency was founded in response to the growing threat of

[1] United Nations (2016) **70 Ways the UN Makes a Difference**

[2] World Economic Forum (2016) **The Global Risk Report 2016**

[3] FT (2016) **Venezuelan civil servants put on two-day week to cut power usage**

[4] Kelley et al (2015) **Climate change in the Fertile Crescent and implications of the recent Syrian drought**

nuclear proliferation. In the early 1990's, NGO's mounted an unprecedented reform challenge to the UN Human Rights regime which led to the creation of the Office of the High Commissioner for Human Rights. And in 1992, the UN established the United Nations Framework Convention on Climate Change (UNFCCC) to reach multilateral agreement to limit the global warming before impacts posed a major threat.

To support the efforts of the UNFCCC the climate regime evolved to incorporate representation, information and implementation bodies across the UN and broader international system. In December 2015 the world harnessed these tools and came together in global agreement to tackle climate change. The pathway to the agreement was longer and more challenging than thought in 1992 but at the 21st Conference of the Parties (COP21) countries multilaterally agreed to limit climate risk to a level considered manageable by the most vulnerable.

By 2015 climate impacts were not a future threat but a contemporary reality presenting an existential future threat if not reduced. The world could curb climate risks but even if emissions ceased immediately, inertia in the climate system mean climate impacts will continue to worsen for decades. As a result, the Paris Agreement was constructed to address the full spectrum of climate risk management – a) mitigation, b) adaptation and C) contingency planning for loss and damage. The Agreement established a five-yearly process to review and submit new ambition to build climate resilience and achieve net zero greenhouse gas (GHG) emissions in the second half of the century.

In addition, two other agreements were reached which broaden and deepen the 2015 mandate. Firstly, the Sendai Framework for Disaster Risk Reduction offers a toolkit for reducing the risks of extreme weather events. The framework mandates countries to improve their understanding of disaster risk, increase early warning mechanisms and build resilience, including through 'building-back-better' following disaster events. Secondly, the Sustainable Development Goals (SDGs) formed the 2030 Agenda. These goals explicitly recognise that there is no sustainable development without addressing climate change and so embed climate compatible development across all 17 goals. These goals are designed to facilitate faster deployment of clean energy and ensure development objectives are resilient to future climate scenarios.

By the end of 2015, the global consensus for acting on climate change had transformed. The 2015 mandate has implications for each and every UN institution, country, sector and community.

The UN system must reform to deliver on the 2015 mandate

Today the UN system has a choice to make. It can either implement the 2015 mandate or face the impacts of worsening crises which will eventually inhibit the UN from fulfilling its core mission to maintain peace, rights and stability.

The current system has a number of missing functions that require attention to deliver on the 2015 mandate.

- The first set of reforms should **address the responsibility-gap for managing climate risk**. UN institutions often have designated capacity to mobilise support for climate action projects but there is no consistent mechanism for understanding or managing institutional exposure to climate risk. Similarly there is a gap at the inter-agency level of understanding and management of interrelated climate risk exposure.
- The second set of reforms should **improve understanding of climate risk**. There is a growing evidence and knowledge base on climate change however there is a lack of accessible information for underpinning a reform agenda. Complementing the IPCC's role, these reforms should address the lack of timely information for decision-makers, particularly with regard to second order (systemic e.g. food, water) and third order (political e.g. uprising, conflict) climate impacts.
- The specific challenge of **monitoring climate tipping points** spans responsibility and risk reform agendas. Despite their globally catastrophic potential, current understanding is woefully insufficient. Today - whilst the world faces the partial breach of known climate tipping points such as the collapse of the West Antarctic Ice Sheet - there is no process for monitoring and managing these tipping points.

The histories of international risk regimes give lessons for UN climate risk reform

The UN has only remained relevant over its seven decade history as a result of its willingness to embrace reform. Other regimes have implemented similar or analogous reforms to those required to deliver the 2015 mandate. The examples history provides demonstrate that UN reform is possible and doable.

Allocating Responsibility

- **Independent oversight builds accountability and effectiveness in risk regimes.** In the nuclear proliferation regime this comprises a specific body in the form of the International Atomic Energy Agency. Whereas in the human rights, pandemics, food security and humanitarian regimes much of this function is held by NGO's, as a function of core regime institutions (e.g. UN OCHA) and in some cases by appointed Commissioners.
- **Sustained public mandate and institutional resourcing hardwires reform potential into institutional structures.** The regimes with the most impactful integration across complimentary bodies include food security, human rights, anti-terrorism and pandemics. In each case these issues have a sustained public mandate. The regimes have consistently engaged with complimentary governance structures to facilitate and safeguard the realisation of their

objectives. This hardwiring of responsibility into complementary regimes enables more expedient reform as required, often in response to crises or evaluated failures.

- **The UN's most significant political initiation capacity is consistently provided by the UN Security Council (UNSC) and the UN Secretary General (UNSG).** For example, the UNSC serves to focus the interventions made by the humanitarian regime whilst concurrently orchestrating other UN bodies to contain the crisis. The permission held by the UNSG to address the Security Council also helps make the body accountable beyond its national geopolitical priorities. Concentrating initiation at the highest political level generates greater permissions for complimentary action and can help reorient prioritisation.

Understanding Risk:

- **Risk disclosure and data sharing shapes prioritisation of risk management.** Action to respond to a threat requires risk assessment and analytical information systems to direct prioritisation. For example, the threat of terrorism has generated the mandate for unprecedented data collection and sharing in a manner which has helped facilitate corresponding policy change.

- **Forecasting informs prioritisation urgent action.** Forecasting is consistently used to prioritise the risk management actions. Forecasting is most effective when linked to powerful political initiation bodies such as the Security Council or G20 Financial Stability Board. The finance regime stress-tests and risk assesses financial risks through the G20 FSB to inform the priorities of the G20 countries.

- **Practitioners can provide an information feedback loop to generate reforms**. Practitioners working in the pandemic, food security and finance regime intersect at differing levels of governance to try and test approaches, share best practice and disseminate guidelines to support effective action. As a result practitioners from across the multi-layered system engage in evaluation and in some cases institutionalise new forms of best practice.

Aligning the Drivers for Reform:

The histories of international risk regimes show that events are a consistent driver of reforms. In some instances events are manufactured, such as a summit, leadership intervention or research release. In others, events are unexpected crises, such as an environmental disaster, conflict or period of extreme economic instability. In any case it is the regime's institutional and decision-making structure which determines its capacity to adjust and reform to respond to emergent contexts.

Successful UN reform is typically delivered by coalitions of willing countries/and NGOs, great power countries and the Secretary General. The mandates for their high-level intervention are built from national-interest, media prioritisation, NGO lobbying and a public mandate.

The Paris Agreement itself shows a UN best practice example for aligning the drivers of reform. The Paris moment was seized to build the High Ambition Coalition, align leaders and mobilise large number of constituencies to form a political platform to secure and implement the Paris Agreement. In future climate weather events are projected to increase and under the Paris Agreement countries will return every 5 years to review and increase their climate action commitments. The climate risk regime will be required to consistently seize these moments to drive reforms in support of improved climate risk management.

Managing climate risk will help maintain peace, rights and security

Integration across complimentary risk regimes increases alignment and fosters mutual benefits. For example, the understanding that food security impinges upon the likelihood of achieving development, humanitarian and human rights outcomes resulted in the integration of food security into their operations. In turn this built resilience, helping to protect the outcomes of development, humanitarian, human rights and food security risk regime.

Given the impact of climate change on all UN activities integrating climate risk management is the only option to safeguard the UN's core mission of protecting peace, rights and security.

The 2015 mandate provides a lever for UN reform. The UN must stress-test its operations against climate risk and address the risk and responsibility gaps in international climate risk management. As the histories of other regimes demonstrate, this will require institution building to accelerate learning and award sufficient prioritisation to the task. The following 6 recommendations offer a vision of achievable reform by 2020.

1. An independent oversight body to assess climate risk management

Independent oversight builds confidence in implementation and brings credibility to the regime. This body would stress-test UN operations against climate risk. It would corroborate or challenge climate data, analysis and decision-making on mitigation, adaptation and loss & damage action.

Delivery Recommendation: An oversight function should be delivered by a new independent institution proposed by the UN Secretary General or an expanded secretariat under the UNFCCC.

2. Allocated internal capacity in each UN institution to manage operational exposure to climate risks

This capacity would hold the responsibility to understand climate risks to institutional operations, in cooperation with the independent body and instigate the testing and implement of reformed operations. This capacity would also hold responsibility for socialising their emerging understanding of risk and reform to reinforce and deploy reform at speed and scale across the UN system.

Delivery recommendation: UN Secretary General should address the UN General Assembly with the view of developing a recommendation to each UN institution to establish a unit which holds responsibility for managing institutional, operational climate risk.

3. A political initiation and prioritisation function for urgent climate risk reform

High-level political leadership interventions are a prerequisite to delivering the adequate speed and scale of climate risk reform. This function would prompt rapid responses to significant shifts in the climate system, the breach of tipping points or advances in climate science, technology and innovation.

Delivery Recommendation: a collation of countries should instigate a debate in the Security Council about where the responsibility for addressing significant shifts in climate risk should be located in the UN system.

4. Expansion of the research base and monitoring of climate tipping points

At present, the implications of crossing climate tipping points are not well understood nor are they being tracked or prepared for. Further research would deepen our understanding, informing contingency planning and preventive action.

Delivery Recommendation: The G7 and/or G20 should announce commissioning of research into climate tipping points and expansion early warning system capacities to track their likelihood. The Global Framework for Climate Services (GFCS) should aggregate tracking data and deliver an annual report to the UN Security Council to prompt urgent reforms.

5. All UN institutions and large operating partners to annually disclose their exposure to climate risk

Disclosing risk will build institutional accountability of the climate risks of inaction. Building a culture of climate risk disclosure requires a realignment of incentives - international institutions are positioned to lead by example.

Delivery recommendation: Annual submissions should be made to the independent body described in recommendation 1. In addition, *a*ll UN institutions should be invited

by the UNFCCC to undertake institutional climate risk assessment as part of the 5 yearly ambition cycle 'stocktake' as defined by the Paris 2015 agreement.

6. UN institutions annually engage in climate risk data, analysis and methodology feedback

Accessible and comprehensive systems for data, analysis and methodology sharing equip decision-makers and practitioners to better integrate climate risk into their operations. The iterative process would develop deeper understanding of climate impacts and corresponding climate action to give guidance for best practice decision-making.

Delivery recommendation: the GFCS should annually convene UN institutions to provide the platform for knowledge sharing and co-development of UN best practice climate risk management. Outputs of this engagement would also provide inputs to the independent oversight body outlined in recommendation 1.

The United Nations is the best tool the world has to maintain international peace, rights and security. These recommendations mark the beginning of a complex and iterative set of reforms to protect the UN's operations against climate risks. These reforms are in reach, it is now up to the international community to make its choice – will the UN become fit for purpose in a changing climate?

CHAPTER 1

CLIMATE RISK POSES A DIRECT THREAT TO THE UN'S MISSION

The climate is changing and will continue to do so over the course of the century. Even if emissions stopped today, inertia in the climate system mean climate impacts will continue to worsen for decades[5]. The Paris Agreement reduces the probability of unmanageable climate risk but under any emissions scenario, climate risks will be numerous. In 2016 the failure of climate change mitigation and adaptation is cited as the most impactful risk facing the world[6].

Emissions are locked into the lifetimes of much of today's critical infrastructure. Cascade risks will unfold from the climate impacts baked into the system. And the swift deployment of climate solutions to achieve zero carbon resilience will not be exempt from risk. The risks of disentangling mutual dependencies in high carbon societies and the prospects of maladaptation are significant. Moreover climate change cannot be seen in isolation. It is one of a number of systemic, interconnected risks requiring the attention of the international community.

Climate risks pose an existential threat to the United Nation's mission to maintain international peace, rights and security. Climate risk threatens the UN's operations to:

- Maintain International Peace and Security
- Promote Sustainable Development
- Protect Human Rights
- Uphold International Law
- Deliver Humanitarian Aid

[5] IPCC (2014) **Fifth Assessment Report**

[6] World Economic Forum (2016) **The Global Risks Report 2016**

Maintain International Peace and Security

"By tackling climate change we can help address the underlying [in]securities that feed and exacerbate conflicts and instability. By ignoring it we resign ourselves to the same crises flaring up again and again. And new ones emerging. So climate change is not an alternative security agenda. It is a broadening and deepening of our understanding as to how we best tackle that existing agenda."

Rt. Hon. Margaret Beckett, United Kingdom Foreign Secretary, 2006

Climate change is a risk multiplier of conflict, insecurity and fragility. The combination of extreme weather and other stressors can disrupt the stability of states and societies. In already fragile and conflict-affected states, the capacity to respond to climate change is limited and so impacts are more extreme. Additionally, in recuperating states, peacekeeping approaches are increasingly exposed to disruption from climate risks.

- **Climate change will cause more extreme weather events which if unmanaged can increase the likelihood of conflict.** The 2006-2010 Syrian Drought is the worst ever recorded in the region. It destroyed agriculture in the North of the country leaving farmers destitute and driving a surge in rural to urban migration. The fall-out from the drought combined with government mismanagement has been highlighted in a number of studies as a primary driver in the 2011 uprising.[7] Since, the conflict in Syria has killed and displaced hundreds of thousands of civilians.

- **In fragile states climate change can enhance the competition for resources which can trigger conflict.** UNEP found that in the Sahel, climate change in tandem with social, economic and political factors, was triggering conflict between livelihood groups[8]. For example, in Niger climate stresses had sparked conflict between herders and pastoralists as they began pushing the boundaries of contested dividing lines in a quest for resources. Similarly, the World Bank predicts that water scarcity exacerbated by climate change could spur migration, spark conflict and cost some regions up to 6% of their GDP[9].

- **Peacebuilding efforts can unravel unless climate solutions are integrated.** A study for the 2015 G7 showed that the integration of climate solutions is imperative to achieving long-term peace. Practitioners from across the world – including DRC, Rwanda and Sierra Leon[10] – have begun encountering the

[7] Kelley et al (2015) **Climate change in the Fertile Crescent and implications of the recent Syrian drought**

[8] UNEP (2011) **Livelihood Security, Climate Change, Migration and Conflict**

[9] World Bank (2016) **High and Dry: Climate change, Water and the Economy**

[10] Matthew and Hammill (2012) **Peacebuilding and Adaptation to Climate Change**

inefficiencies of peacebuilding methods which do not account for climate change.

Promote Sustainable Development

Above all, there is one trend – climate change – which will determine whether or not we can deliver on our ambitions. Scientific evidence of the direct threat from climate change has mounted. The stresses of unsustainable production and consumption patterns have become clear, in areas like deforestation, water scarcity, food waste, and high carbon emissions. Losses from natural disasters–including drought, floods, and storms – have increased at an alarming rate. People living in poverty will suffer first and worst from climate change. The cost of taking action now will be much less than the cost of dealing with the consequences later.

United Nations report of the High-level Panel for the Post-2015 Development Agenda

Many previously championed and celebrated forms of development are no longer sustainable in a changing climate. Not only does the world have to shift its energy investment from dirty to clean but all investments must become climate compatible. Advancements in development practice must be resilient to shifting environmental, political and social impacts arising from a changing climate.

- **GDP and growth is under threat from climate change.** Slow-onset and extreme events associated with climate change are placing $158trn of assets under threat[11]. Some regions could see their growth rates decline by as much as 6 percent of GDP by 2050 as a result of water-related losses in agriculture, health, income, and property alone[12]. And the cost of extreme weather is also growing, in 2015 losses associated with heatwaves and drought reached €12 billion.

- **Climate change substantially increases the costs of development in the poorest countries.** The World Bank estimates that climate change will increase the costs of development by 25-30 percent in the poorest countries. Commensurate levels of finance will be required, working with ever more actors, to deliver sustainable development.[13]

- **Sustainable development may not be achievable everywhere.** Little is known about achieving sustainable development under extreme, high risk climate change scenarios[14]. Climate change could cause sustainable development to

[11] Guardian (2016) **Climate Change Puts 1.3bn people and $158tn at risk, says World Bank**

[12] World Bank (2016) **High and Dry: Climate change, Water and the Economy**

[13] World Bank (2014) **Rachel Kyte: Climate Change is a Challenge for Sustainable Development**

[14] IPPC (2014) **Fifth Assessment Report, Working Group 2**

become unobtainable in some areas which are currently habitable. Migration as adaptation is one strategy but will require political support and resources[15]. For example, compared to 2000 it is projected that between 114 and 192 million more people will move to exposed Asian and African flood plains in search of water by 2060[16].

Protect Human rights

'Climate change is undermining human rights all over the world and undermining people's livelihoods, undermining people's health, forcing people to leave their homes because of drought or flooding—often, actually, also causing them loss of life.'

Mary Robinson, December 2015

Climate risks make upholding human rights ever more challenging. Extreme weather events bring acute disruptions to the normal rhythms of human life and squeeze access to basic human needs. Alongside, zero carbon transition risks and slow-onset weather events lean upon systems which underpin people's access to stability and prosperity.

- **Climate impacts are impinging on people's basic human rights, especially those of the most vulnerable.** The most recent IPCC report observes that climate change is disproportionally affecting the most vulnerable and already denying people their basic needs – health, housing, water and food.

- **As impacts worsen crash climate solutions could negate human rights.** Managing climate risks will involve trade-offs and difficult choices. There is a danger that radical climate solutions such as mega-dams, geoengineering or mass renewables deployment could infringe upon human rights. A recent example is seen in Brazil where the government is being investigated for human rights abuses associated with building a mega-dam in the Amazon[17].

- **Climate instabilities could lead to protectionist approaches which deprioritise investments in global citizenship.** As climate impacts become more severe all across the world some countries could resort to protectionist measures. For example during the UK floods in late 2015 some political

[15] UK Climate Change and Migration Coalition (2015) **Migration as climate adaptation: from coping strategy to policy?**

[16] The Government Office for Science, London (2011) **Foresight: Migration and Global Environmental Change**

[17] Climate Home (2016) **Brazil Faces Human Rights Probe Over Amazon Hydropower Dam**

figures and the media began stoking a discussion to reallocate overseas development assistance to help those affected by the UK floods[18].

Uphold International Law

'Many areas of international law are relevant to the problems raised by climate justice but the law as it stands was not created with the challenge of climate change in mind and is not always well suited to address it.'

International Bar Association, 2014

The recent Paris Agreement demonstrates the multilateral commitment to a legally binding approach to collectively limiting climate change. However, as the challenges of zero carbon transition and climate impacts become more acute, the international legal system will be pressed beyond its conventional limits. The non-linear production and consumption of climate change does not fit neatly within the lines of current international law.

- **Extreme climate solutions and impacts can slip between the cracks of international law.** There is no legal precedent for the governance of extreme global climate solutions, such as geoengineering[19] or global cascade impacts, like the breach of tipping points[20]. As warming rises and impacts worsen, both become more probable. In turn, the lack of legal protection heightens the likelihood of social and political unrest resulting from their mismanagement.
- **The system could be overwhelmed by legal challenge.** A culture of climate-related legal action is growing, with challengers deploying human rights law to enforce accountability over climate policy choices. For example, last year a court in The Hague ruled that the insufficiency of Dutch climate policy made it unlawful[21]. As Phillipe Sands QC has commented, '[climate change] transcends the classical structure of an international legal order that divides our planet into territorially defined areas over which States are said to have sovereignty'[22]. There is no uniform approach to a climate legal challenge and the system will have to adapt to respond to this unique globally produced and consumed problem.
- **A lack of legal clarity could drive countries to neglect their responsibilities enshrined in international law.** For example, there is international law to protect refugees; however there are no legal instruments directly applicable

[18]Daily Mail (2015) **Misery for the Residents of Towns Swamped by Flooding – but Britain Still Sends £1billion in Aid to the World's Most Corrupt Nation's**

[19]Royal Society (2012) **Geoengineering the climate: an overview and update**

[20] Mabey et al (2011) **Degrees of Risk, Defining a Risk Management Framework for Climate Security**

[21] Urgenda (2016) **http://www.urgenda.nl/en/climate-case/**

[22] Sands QC (2015) **Climate Change and The Rule of Law: Adjudicating the Future in International Law**

to climate change related migration. However, the IPCC warns that droughts and coastal floods could cause "large-scale demographic responses – for example, through migration"[23]. The international applicability of refugee law to climate migration has begun to be questioned. However, in an increasingly resource constrained world the lack of clarity provides attractive loopholes for protectionist governments[24].

Deliver Humanitarian Aid

'125 million people...need humanitarian assistance, mostly as a result of conflicts but also because of natural disasters. In 2014, every day 42,500 people were displaced by violence and conflict, while 53,000 people per day were forced from their homes by natural disasters, 90 per cent of which were due to weather-related events. Today, with violent extremism and climate change those figures are certain to be even higher—as will the cost to respond.'

United Nations High-level Panel on Humanitarian Financing, 2016

In 2015 climate change was a factor in 92% of humanitarian crises; as climate impacts worsen so will humanitarian crises[25]. Weather events are also known to prompt other carry-over crises such as famine, conflict and drought. The humanitarian regime is under mounting pressure to jointly address acute challenges whilst preventing the likelihood of subsequent carry-over crises.

- **Demand for humanitarian support could outstrip supply as climate impacts worsen.** The high level panel on humanitarian financing estimate a current funding gap of US$ 15 billion[26]. As climate change causes more extreme events and multiplies the likelihood of other humanitarian tragedies, this funding gap is set to widen.

- **In addition to climate change, other intersecting crises also threaten to overwhelm the humanitarian system.** Humanitarian response is expected to integrate solution-driven approaches to an increasing number of intersecting challenges, including climate change, inequality and peacekeeping[27]. Tools and methods to do so are emerging but as pressure on the system grows, the space for innovation is squeezed.

- **As extreme weather events become the 'new normal' public and leadership interest could diminish.** The drama of extreme events has provided the fuel

[23] IPCC (2001) **Working Group II: Impacts, Adaptation and Vulnerability**

[24] UN (2014) **FEATURE: Should international refugee law accommodate climate change?**

[25] UNOCHA (2016) **World Humanitarian Data and Trends 2015**

[26] High Level Panel on Humanitarian Financing (2016) **Too important to fail – addressing the humanitarian financing gap**

[27] World Humanitarian Summit Secretariat (2015) **Restoring Humanity global Voices Calling for Action**, consultation synthesis report

to mobilise resources to respond to humanitarian events. Drawn out and carry-over effects can be equally devastating but may require different approaches to mobilise humanitarian responses.

The UN system engages in a continuous cycle of reform, keeping pace with global change, to make its institutions fit for purpose. This paper will explore reform options for the UN system in a changing climate. It will make an assessment of the current climate regime and take lessons from the evolution of other risk regimes to provide implementable recommendations.

CHAPTER 2
ORDERLY TRANSITION: THE CASE FOR CLIMATE RISK MANAGEMENT

Climate change is unavoidable. In 2015 NASA reported that the world had warmed by 0.87°C since pre-industrial times[28]. However, the possibility of avoiding unmanageable climate change remains within reach. Climate risk management attempts to cope with current and inevitable climate change whilst avoiding the worst climate risks in future.

Risk management approaches vary depending on the area of concern but consistently rest upon on the following assumptions:

- Setting clear objectives
- Thorough assessment of the threat and underlying vulnerabilities
- A willingness to address worst-case scenarios
- A process for explicitly managing and understanding the risk implication of the uncertainties that inevitably occur in large-scale complex problems

Climate risk management is both an art and a science. It should use the best possible data whilst not allowing uncertainties be a barrier to action. It makes aware what is known what is unknown and what cannot be known. It requires trade-offs and decision making on the basis of quantifiable and unquantifiable factors. It is both long-term and reactive.

The international community agreed under the Paris 2015 agreement to limit warming to well below 2°C, aiming for 1.5°C. This limit represents the globally accepted manageable level of climate risk. Whilst establishing a global average temperature limit has united the international community to act on climate, it does mask several factors. Firstly long-tail risks hidden within probability distributions are not explicit and so lower levels of warming could breach tipping points (see Box 1) and lead to more extreme climate change impacts. Secondly it does not capture regional variability. In fragile regions like Africa, the Arctic and Antarctica for example, temperature rise could be up to 50% higher than the global average. And finally, it negates recognition of the consequences of breaching key vulnerability and impact thresholds at higher, or in some cases marginally higher, temperatures.

A responsible climate risk management approach should simultaneously pursue the globally agreed temperature target whilst prudently preparing for higher levels of

[28] NASA (2015) **Global Average Temperature**

warming and worst case scenarios. E3G's climate risk methodology[29] builds on a three-tier 'ABC' framework (see Table 2.1):

- **Aim** to mitigate and stay well below 2°C, aiming for 1.5°C
- **Build** and budget for resilience to 3-4°C
- **Contingency** plan for capability to respond to 5-7°C

In the case of climate risk management a core multilateral component is paramount. No country can manage their exposure to climate risk alone. Emissions can be locally produced but cause global warming. And increasingly we understand that locally experience climate impacts can have cross-boundary first (direct e.g. flooding), second (systemic e.g. supply-chain) and third (political e.g. conflict) implications.

This report builds from this methodology to inform a discussion on how to better manage international climate risk by learning from the evolution of other international risk regimes.

Aim to stay below 2°C	Sufficient mitigation goals
	Increased investment in transformational RD&D
	Resilient and flexible global climate regime
	Independent progress and risk assessment
Build and budget for 3-4°C	Adaptation strategies include 'perfect storms' and interdependent impacts
	Improved cooperation on preventive and humanitarian intervention
	Increased resilience of international resource management frameworks
	Provision of data and tools that decision makers need
Contingency plan for 5-7°C	Contingency 'crash mitigation' planning
	Systematic monitoring of tipping points

Table 2.1: E3G's Climate Risk Management Framework. Source, E3G (2011)

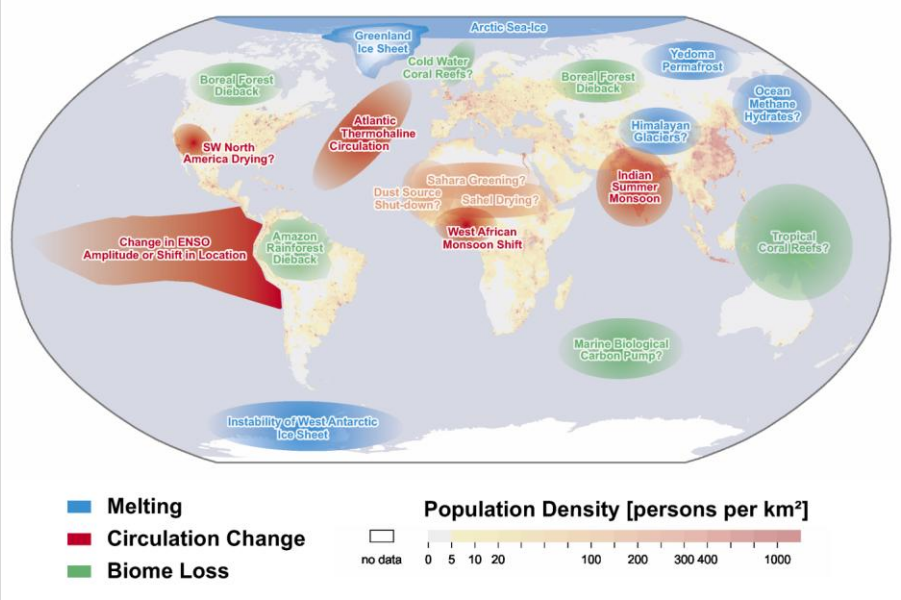
[29] See Mabey et al (2011) **Degrees of Risk, Defining a Risk Management Framework for Climate Security** for more information

BOX 1: Climate Tipping Points

Many assume that climate change will be a slow, linear process toward a moderately warmer future. But scientists agree there are likely to be elements of the climate system that function like light switches – rapidly changing to a qualitatively different state. Scientists believe these tipping elements include abrupt shifts in sea ice and ocean circulation patterns, as well as abrupt shifts in vegetation and marine productivity.

Decision makers are used to thinking in terms of low-probability but high-impact events, and those that are high-probability but low-impact. However, the clear existence of climate system tipping points means that – unless global emissions are dramatically reduced - high impact events will have high probability. This unfamiliar scenario often seems hard for decision makers to absorb. Good risk management requires us to rigorously account for the full range of possible outcomes, and to understand the deficiencies of our institutional systems in dealing with them.

Extracts taken from E3G (2011) **Degrees of Risk**



Lenton et al (2008)**Tipping Element's in the Earth's Climate System**

CHAPTER 3
THE INTERNATIONAL CLIMATE REGIME AND FORGING THE PARIS AGREEMENT

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 as the international authority on climate science. Subsequently, the Rio Earth Summit in 1992 marked the inception of the international climate governance regime with the birth of its keystone institution, the United Nations Framework Convention on Climate Change (UNFCCC). Whilst the UNFCCC's guiding role persists, the regime (see Figure 3.1) has evolved and expanded to include complimentary bodies that channel information, provide political mandates and initiate implementation. The 2015 Paris Agreement harnessed decades of climate action and is widely recognised as a turning point in the regime's evolution[30].

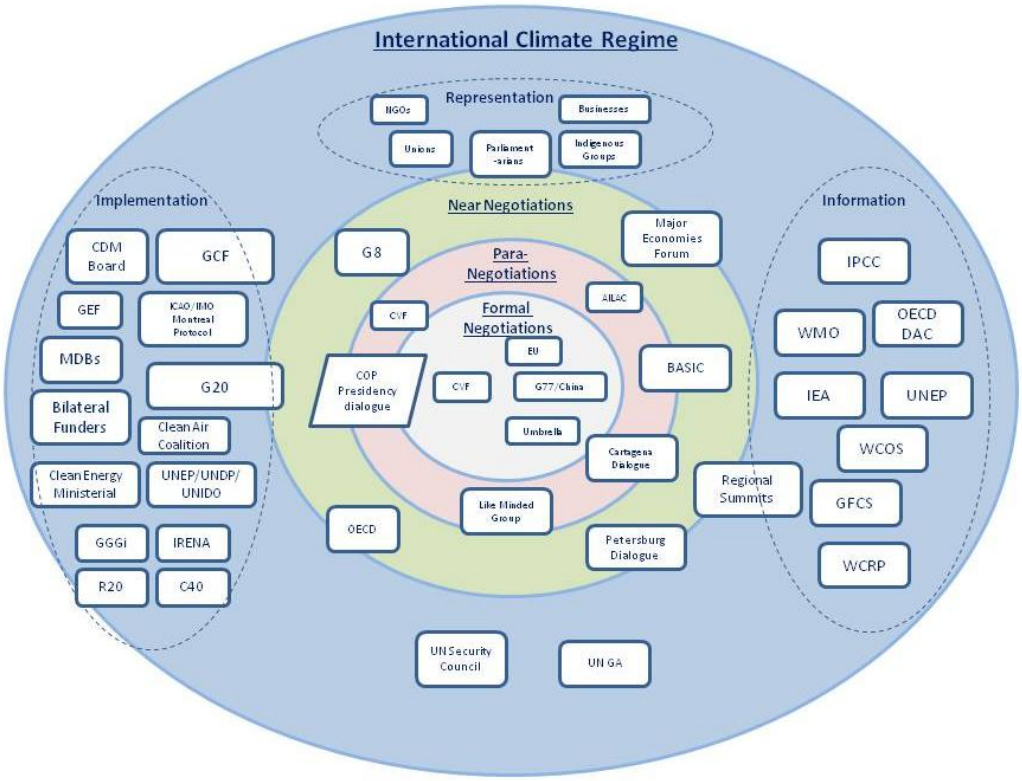
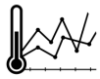


Figure 3.1: The International Climate Regime

[30] E3G (2015) **What Paris Means for Leaders**



The IPCC and other climate information institutions providing climate analysis, data and science

The dominant challenge posed to the climate science community is addressing the deficit in accessible data for decision-making. The coverage in collection of raw climate and weather data is improving and the IPCC and WMO continue to communicate long-term trends. However the following functions - required to equip decision makers - are insufficiently addressed: real-time advice on impending impacts; high-resolution data and advice on regional, national and local climate scenarios; a locus for determining research priorities; vehicles for the decision-making community to highlight needs.

Climate science, data and the flow of information inform the choices made by decision-making and implementation bodies which pursue climate action. A plethora of institutions service the international climate regimes to inform its operations.

The Intergovernmental Panel on Climate Change (IPCC)

The IPCC serves as the key authority on climate science for international and national decision-making. The IPCC does not conduct any of its own research but brings together scientists from across the world to review the latest science every 5-7 years to produce a consensus assessment.

Each IPCC assessment reflects the outputs and priorities of the national and international research institutions which it depends upon to provide the latest climate science. From its founding in 1988 the institution has moved from assessments which articulate basic science, to assessments which take a broader, deeper approach with far greater emphasis on the socio-economic implications of climate change. The latest iteration, the fifth assessment report[31], went even further and assessed the science of climate risk management choices – i.e. the relative value of mitigation and adaptation action.

The output of the IPCC provides an input to decision-making processes on climate. However the IPCC's potential to provide accessible guidance for decision-making is limited by the lack of exchange between the scientific and decision-making communities. Breaking with convention, in Paris the UNFCCC invited the IPCC to provide a special report on 1.5°C scenarios. The IPCC will choose whether to accept or decline this request in 2016. Traditionally requests from the UNFCCC have focused on

[31] IPCC (2014) **Fifth Assessment Report**

technical guidance (e.g. GHG accounting) however this precedent has potential to extend the IPCC's utility.

At present, the IPCC does not provide real-time advice on impending impacts; high-resolution data and advice on regional, national and local climate scenarios; or determine research priorities informed through its observation of gaps in research; or insufficiencies flagged by the decision-making community. As a result, research is lacking in some key areas required by decision-makers including: in sectors which require immediate priority action, the consequences of tipping points, developing country impacts and responses, and high-end risk scenarios.

Complimentary institutions

The capacity for data collection is varied and inconsistent across the world[32]. Developed countries have far greater capabilities for weather forecasting, whereas many who are more immediately affected - in poorer countries with vulnerable climates - are less able to gain understanding of their vulnerabilities. The **World Meteorological Organisation (WMO)** serves as a platform for data to coalesce, functioning as an authoritative voice on the 'state and behaviour of the world's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources'[33]. Like the IPCC, the WMO provides trend data and does not pass judgement on its implications. Their output supports the work of bodies which protect the environment but does not generate analysis, flag priority issues, provide direction or determine the utility of the data.

Two UN co-sponsored programmes, the **World Climate Research Programme** and the **Global Climate Observing System**, synthesise raw climate and weather data. A further programme - the **Global Framework for Climate Services** – goes even further, aiming to 'provide climate information in a way that assists decision making by individuals and organizations'[34]. Their work serves to make climate science fit for purpose, making data and research more applicable to decision-making. Beginning with four priority sectors (health, water, food security and Disaster Risk Reduction) their 2014 implementation plan aims to improve climate services worldwide within the next 10 years. A suite of UN agencies and member-state institutions have lent support but further resourcing is required to improve the probability of delivery[35].

Despite an uptick in availability of information to inform decision-making on climate, a disconnect with decision-making bodies persists. The bodies described above do not have a mandate to inform decision-making, only to create the appropriate data for

[32] Adelphi et al (2015) **A New Climate for Peace**

[33] WMO (2016) **Mission Statement**

[34] Global Framework for Climate Services (2016) **Mission Statement**

[35] The GFCS was initiated in 2009 and held its first session in 2013, work is ongoing

decision-making. And this has its limitations; ultimately data is used if an institution, country or other user can use it to achieve their objectives.

The most significant shifts in improving data to facilitate effective decision-making are beginning to surface from the bottom-up. For example, in the United States, efforts are underway to establish and in some cases strengthen collaboration between policymakers and the scientific and research communities in both the public and private sector. This was prompted in part by requests from the US Department of Defense and Navy Task Force Climate Change to ensure that decision-makers in government have access to the latest climate science, models and tools and has prompted a set of reforms in climate services and multi-agency initiatives[36]. Similarly, there were also a number of climate services initiatives launched to respond to vulnerable country demand in the run up to COP21 in Paris. The US-UK led 'Public-Private Partnership to Empower Climate-Resilient Developing Nations'[37] was created to make best use of advanced economy and private sector skill and data in a manner that corresponded with vulnerable country needs and so increased utility.

Generating a multilateral political mandate for data which aids decision-making can be challenging. The disconnection between climate science and policy-making can serve as a protection against making hard policy choices. For example, at COP20 in Lima parties significantly watered down an official review of the intended nationally determined contributions (iNDCs) in a bid to limit scrutiny on their national pledges. However, the need for this input to inform policy choices for the Paris Agreement did not disappear. Think-tanks and non-government actor were leaned upon to generate the data[38] . These bodies were able to fulfil some of this function but it should not go unrecognised that the absence of a multilateral mandate and government resourcing limited its political relevance. Non-government institutions can struggle to obtain funding; often have less political credibility and authority; are subject to restrictions in some jurisdictions; and can have inferior access to data.

UNFCCC data generation

The 5 yearly stocktake of climate action and Monitoring Reporting and Verification (MRV) regime established under the Paris agreement signals greater demand and a strengthened political mandate for transparency and clarity of data. If countries are better equipped to track their progress they can better assess their needs and choices with regards to ambition, resilience, policy and resourcing.

The stocktake will also respond to the demand for guidance in adaptation planning by defining the current and globally projected temperature trajectory. These global

[36] DoD (2012) T**he department of defense and climate change: initiating the dialogue**;NOAA (2014) **NOAA launches research on next generation of high performance weather, climate models**;

[37] White House (2015) **Fact Sheet: Launching a Public-Private Partnership to Empower Climate-Resilient Developing Nations**

[38] The UNEP gap report and US led State of the Climate Report provides some analysis on mitigation action and impacts science. However neither have the mandate to consistently inform decision-making.

trends will give parameters to inform decision-making but they have limitations. A global average cannot reveal all regional and local climate realities. For example, IPCC AR5 shows us that a global average rise of 4°C actually produces an increase in warming of 6-8°C in parts of Africa[39]. Further complementary inputs will be required to provide greater guidance for regional and local climate decision-making.

The United Nations Framework Convention on Climate Change and the Paris Agreement

The UNFCCC is the core decision-making body for addressing global climate change. The international climate regime has come a long way since its inception but is far from achieving global climate protection. Historically the regime predominantly focused on mitigating against climate change however the Paris Agreement marks a rebalancing of the climate regime to better address the full spectrum of climate impacts.

At the founding of the UNFCCC in 1992, climate change was regarded as a future challenge and the institution therefore was biased towards delivering mitigation in order to reduce or eliminate the challenge before impacts posed a major threat[40]. As climate impacts have proliferated, planning for adaptation and more recently loss and damage, gained greater prominence in the UNFCCC but mitigation has persisted as the dominant priority.

The UNFCCC provides a platform for its 196 parties to negotiate a collective response to climate change (see figure 3.2 for a compressed history). In Paris at COP21 the advanced submission of Intended Nationally Determined Contributions (iNDCs) enabled parties to communicate commitments which reflected their national interest whilst pursuing multilateral solutions.

[39] IPCC (2014) **Fifth Assessment Report**

[40] The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner." As such, the founding objective of the convention was to drive mitigation action and avoid dangerous climate change before it posed a systemic threat. **http://unfccc.int/essential_background/convention/items/6036.php**

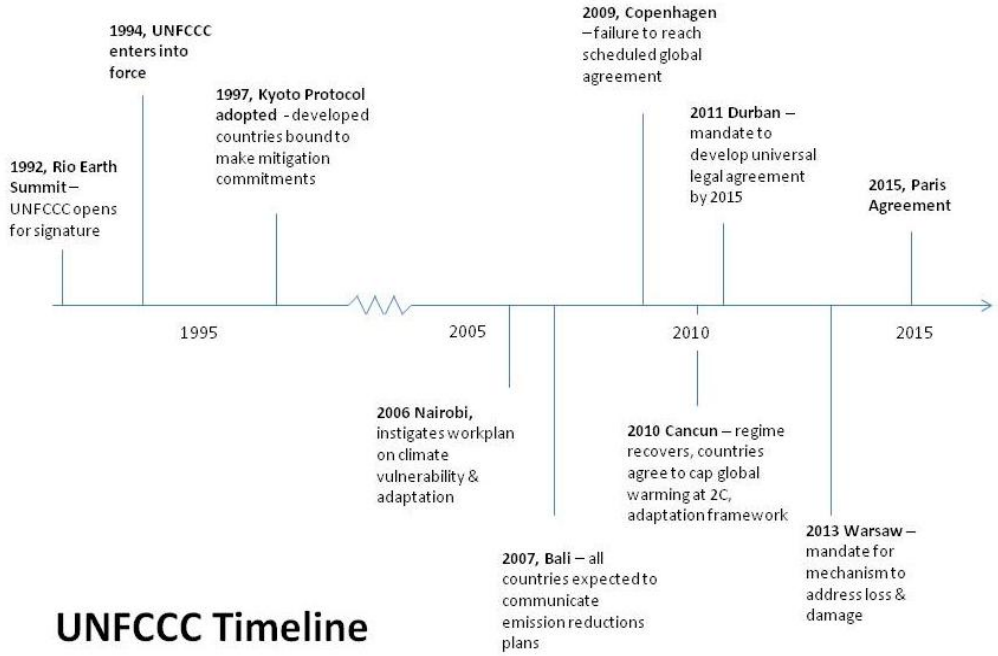


Figure 3.2: compressed history of the UNFCCC 1992-2015

Addressing the full spectrum of climate risk: the Paris Agreement

The Paris 2015 Agreement carries the UNFCCC into a new era with a renewed hope in multilateralism. The Agreement is universal, enduring, dynamic and iterative. The components are not exhaustive but provide an anchor to multilateral action which rebalances the regime across the full spectrum of climate risk management – A) mitigation, B) adaptation and C) contingency planning for loss and damage.
5 key components of the Paris Agreement:

1. **A stronger understanding of manageable global climate risk:** the Paris agreement strengthened the global limit on warming from of 2°C to 'well below 2 °C...and to pursue efforts to limit the temperature increase to 1.5°C'[41]. The political attention given to establishing a more stringent limit served to refocus debate on the consequences of climate impacts. The 5 yearly stocktake will maintain a regular assessment of the aggregate level of global action and include climate science inputs from the IPCC. In turn this stocktake will inform a debate about commensurate national and international climate action on mitigation, adaptation and loss & damage.
2. **An ambition mechanism to achieve net zero emissions:** the Paris Agreement formally acknowledges the inevitability that net zero emissions will need to be

[41] UNFCCC (2015) **Adoption of the Paris Agreement**

reached in the second half of the century to limit warming well below 2°C. To reach this end, the Agreement established an ambition mechanism where countries take stock, revisit and submit additional efforts every 5 years. In tandem all countries are expected to achieve resilience to climate impacts**.** The long-term, universal and iterative process allows parties to update their level of effort in line with evolving lived, scientific, political and technological realties.

3. **Contingency planning for the worst climate impacts:** The tools for managing climate risks expanded to incorporate contingency planning for the worst climate impacts, known in the UNFCCC as loss & damage. These tools will help countries understand their full spectrum of exposure to climate risks and should inform corresponding management strategies to deal with climate change.
4. **Sustained support for the most vulnerable:** Developing countries, with particular reference to the Least Developed Countries (LDCs) and Small Island Developing States (SIDS), will receive increasing support to manage climate risk and cope with climate impacts. Steps were also taken to trigger the process of making all financial flows climate consistent, including a request to UN institutions to climate proof development assistance.
5. **A form of empowering multilateralism:** The Paris Agreement was achieved by actors from across the political and professional spectrum, far beyond traditional nation-state to nation-state multilateralism. Actors including cities, multilateral institutions, frontline communities, business and NGOs each played a role in forging the agreement (see BOX 2). The diversity of its consensus awards confidence in implementation beyond the limits of policy-certainty and government leadership.

BOX 2: The Lima-Paris Action Agenda (LPAA)

The Lima-Paris Action Agenda facilitated the submission of **11,619** informal commitments to the UNFCCC, many of which came from non-state actors. This effort enabled actors to pledge commitments in a shared collaborative effort to make their efforts greater than the sum of their parts. This dynamic is recognised as a key element of diplomatic efforts in the run-up to Paris (**Chatham House**, 2016). To maintain multilateral climate consensus and collaboration will require sustained investment into this form of effort.

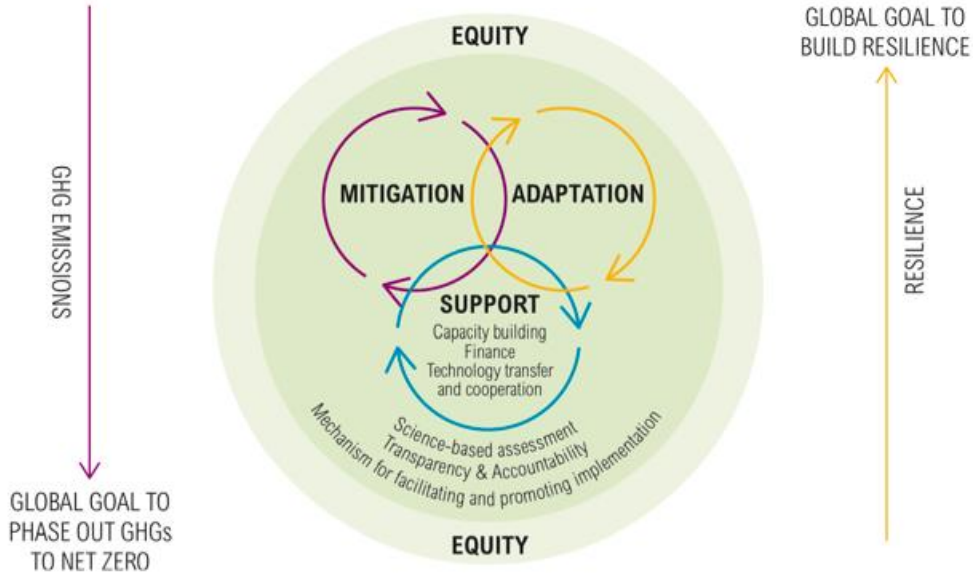


Figure 3.3 Core Components of the 2015 Paris Agreement. **Source:** ACT 2015, 2015

The rebalancing of the regime – to manage impacts as well as avoid them – is especially significant given that the first round of nationally determined mitigation contributions to the Paris Agreement in themselves fall short in limiting warming well below 2°C[42]. However, it is important to recognise that adaptation and loss & damage policy and practice is much less developed than mitigation. Adaptation policy has provided thin and incremental guidance for building resilience at the national and local level but has not taken a systemic or transformational economy-wide approach[43]. Adaptation outcomes have historically been pursued by more vulnerable countries and the global, collective value of adaptation action has been inconsistently recognised[44]. The progress made on loss and damage is impressive given the infancy of the policy area (first operationalised in 2013[45]) but remains underdeveloped to address the scale of the challenge. To cope with the level of current, locked-in and impending impacts countries, cities, investors, businesses and institutions will need to test and refine new innovative approaches to protect themselves from the changing climate.

[42] UNFCCC (2015) **Synthesis report on the aggregate effect of the intended nationally determined contributions**

[43] World Resources Institute (2014) **What is the Role for Transformation in Adaptation?**

[44] IDDRI (2015) **National Adaptation is Also a Global Concern**

[45] UNFCCC (2013) **Warsaw Decision on Loss and Damage**

Climate Decision-Making in International Political Fora

There is a fragmented process across major international fora to discuss climate change. Discussions are predominantly prompted by significant moments in the UNFCCC calendar rather than in response to the experience or increased awareness of the scale of climate risks. Accountability in these fora is inconsistent and has posed challenges to implementation.

Climate diplomacy has evolved in its scope and complexity far beyond the UNFCCC. A range of multilateral decision-making bodies have discussed climate change and instigated climate action.

Climate change has been on the agenda of both the **G20 and G7** and have endorsed the obligation to limit warming below 2°C prior to Paris[46]. The G20 has agreed to phase out fossil fuel subsidies, and promoted action on green growth and low carbon finance. In 2015 the G7 refined its endorsement of the 2°C obligation by articulating their commitment to decarbonising the global economy in the second half of the century[47]. Beyond mitigation these bodies have also begun exploring more comprehensive measures to manage climate risks. The Financial Stability Board under the G20 is investigating the risks to investments from climate related actions. And the 2015 meeting of G7 leaders agreed to insure up to 400 million more vulnerable people against climate extremes. In addition, the G7 foreign ministers meeting endorsed a report entitled 'A New climate for Peace'[48] outlining reform processes to tackle climate-fragility risks. The outcomes created by both fora have been productive in sending political signals of intent but processes for implementation are inconsistent. For example, whilst the fossil fuel subsidy phase-out agreement was reached in 2009 there is still no roadmap for delivery.

Other bodies dedicated to building consensus and ambition of country positions under UNFCCC have also emerged. The **Major Economies Forum** (MEF) and **Petersberg dialogue** provide complementary discussion spaces for major negotiating groups to advance their positions. The MEF has taken an additional diplomatic step by founding initiatives and joint ventures but they have predominantly focused on mitigation efforts to improve negotiating politics in the UNFCCC. Deeper discussions on the implications of climate risk on countries and economies have been largely absent from these fora.

[46] G7 (2015) **Leaders Declaration G7 Summit**, G20 (2015) **G20 Leaders Communiqué agreed in Antalya**

[47] Ibid

[48] Adelphi et al (2015) **A New Climate for Peace**

The **UN Security Council** has hosted a number of debates considering the implications of climate change on security. These debates have succeeded in recording evidence of country experience but have not been without challenge. The debates included participation from China and other major developing countries but there have been tensions over hosting this debate in a membership-limited forum. Members and others have also cautioned against 'securitising' the debate, voicing concerns that fundamental human security threats will be crowded out in this forum[49].

The **UN General Assembly** (UNGA) has also provided a space for governments to form their positions on climate. The adoption of the **Sustainable Development Goals** (SDGs) in 2015 marks a significant shift in the global approach to managing climate risk (see Box 3). Emerging from the Rio +20 process, these goals succeed the Millennium Development Goals (MDGs) to respond to a new normal of climate instability and resource constraint. The UNGA also provides a platform for the UN Secretary General to foster climate leadership. For example, in September 2014 Ban Ki Moon hosted his 'Climate Summit' to kick-start the run up to COP21 in Paris. As a consensus body, the role and success of the UNGA as a fora to further climate action is driven by leadership from the UN Secretary General and/or coalitions of countries. The UNFCCC timetable has consistently provided the strongest steer for the timing of UNGA climate interventions.

BOX 3: How do the Sustainable Development Goals address climate risk?

The debate surrounding the SDGs was always rooted in the reality that you could not achieve sustainable development without tackling climate change. Goal 13 is specifically dedicated to 'Climate Action' and includes a target to 'integrate climate change measures into national policies, strategies and planning'. In addition there specific components across the goals that further climate action, these include:

	Goal	Summary
Mitigation	Energy, Growth, Cities, Consumption & Production	Mandate for providing sustainable energy access for all, decoupling growth from environmental degradation
Adaptation	Poverty, Hunger, Cities, Infrastructure, Inequality, Land	Predominantly focused on triggering a swift surge in preparations for escalating impact and frequency of extreme weather events
Awareness	Hunger, Health, Consumption & production, Oceans	Increased in early warning measures and mandate to improve understanding of systemic climate impacts
Transparency	Peace, Partnerships	Principles concerning access to data, information and support will help to achieve climate outcomes

Climate Governance across the UN System

UN institutions have played an essential role in mobilising climate action but have made less progress in reducing exposure to climate risks in its own operations. However, the 2015 mandate awarded by the Sendai framework for disaster risk reduction, the Sustainable Development Goals and the Paris Agreement demonstrates a maturation of the UN system's approach to adapting to climate impacts.

Complementary political fora have helped to bolster and strengthen the international climate regime. These fora have provided opportunities to build political will, test innovative approaches and improve consistency of alignment across international priorities.

ECOSOC was founded under the 1946 UN charter as 'the principal body for coordination, policy review, policy dialogue and recommendations on economic, social and environmental issues, as well as for implementation of the internationally agreed development goals'. Despite a number of reform processes[50], ECOSOC has consistently struggled with inadequate resources to deliver its extensive mandate. It is currently undergoing review in order to incorporate the **Sustainable Development Goals** (SDG's) mandate to the **High Level Political Forum** (under the auspicious of ECOSOC) to follow-up and review the **2030 agenda**. To bridge the gap whilst ECOSOC has under-delivered, a number of supplementary organisations and initiatives have emerged.

The UN system's activities are coordinated through the **'Working Group on Climate Change'** which comes under the high-level committee on programmes[51]. The group is chaired by the **WMO** and meets approximately every 6 weeks to exchange information on the UN's climate activities. The list of participant UN institutions in this group is extensive but its mandate is predominantly focused on information sharing and alignment. It has generated some inter-agency collaboration and the creation of discrete projects (e.g. UN REDD, Climate Smart Agriculture) but does not have a mandate to generate reform within UN institutions in order to manage climate risks.

Across the UN system a number of tools and mechanisms are deployed to help prompt climate action. Treaties and frameworks are one such tool. Emissions reductions in shipping[52] and aviation[53] are discussed under respective UN policy

[50] Global Policy Forum (2016) **Reform of the ECOSOC and The Social Economic Policy Processes at the UN**

[51] **High Level Committee on Programmes, chaired by UNEP**

[52] **International Maritime Organisation, IMO**

[53] **International Civil Aviation Organisation, ICAO**

frameworks. Governments act as the main conduit between the objectives laid out in the UNFCCC and their translation in each UN body or treaty but consistency in negotiating positions is far from guaranteed. The UNFCCC has limited formal capacity to align these treaties and mandate that they accelerate climate action. However, given the political significance of the Paris Agreement many actors are demonstrating renewed hope in integration across the UN system[54].

In some areas the implications of climate and carbon risks are being felt more immediately and in turn are being more comprehensively responded to. **UN-Energy** facilitates inter-agency coordination to promote coherence in energy projects. Here there is progress in shifting investment from high to low carbon energy but low carbon energy is not yet guaranteed as a de-facto choice for UN investment. Low carbon energy is becoming more of a reality than aspiration however the UN's transition is not exempt from the economic, social and political challenges experienced across the world.

Climate impacts have begun impinging on the operations of programmes concerned with cities, food security and disaster risk reduction. To take one example, the **World Food Programme** states that almost half of their emergency and recovery operations totalling US$23billion on helping food insecure people recover from climate-related disasters[55]. Programmes like these have been forced to reform their operations to continue delivering on their objectives. This progress was captured in the adoption of the cities and food security **Sustainable Development Goals** (SDGs) which take a more advanced approach to integrating climate resilience in to their activities. Similarly, the **Sendai framework** took steps to incorporate current climate risks into Disaster Risk Reduction (DRR). However, in most cases these reform efforts largely respond to current levels of climate impacts and do not prepare for forecast rises in temperature trajectories. The Sendai framework is set to last for the next 15 years but only captures guidance for DRR on the basis of disasters in the context of marginal climate change and is not set up to absorb the dynamic reality of evolving climate risks. Both the SDG's and DRR outcomes mark progress in adapting to climate impacts in the UN system but do not protect against the full spectrum of future climate risks.

There are also a number of pilot projects and initiatives in the areas of health, migration, technology and the private sector. Institutions that cover these briefs have begun developing pilot projects but the approach is not yet integrated into their broader work. For example, health related agencies are collaborating through the Global Framework for Climate Services to anticipate outbreaks of malaria, cholera and other diseases affected by a changing climate in Malawi and Tanzania[56]. This project shows promise but is limited in its geographic reach and only has the mandate to develop understanding of the risks which alone will not guarantee the delivery of

[54] European Commission (2016) **Commission welcomes landmark deal on CO2 standards for aircrafts**

[55] World Food Programme (2015) **Climate Change Adaptation**

[56] Global Framework for Climate Services (2015) **Projects Map**

reforms needed to manage these risks. Similarly UN migration agencies are only just beginning to understand the climate change implications on their operations; they have yet to take proactive reforms to protect themselves from climate risks[57]. Technology[58] and private sector projects have gone beyond research to enable the implementation of climate action but these capture isolated best practice rather than fundamental shifts in the sectors operational behaviour.

The Bretton Woods institutions, the **World Bank and International Monetary Fund** (IMF), play a significant role in delivering upon UN objectives. Neither have had a consistently strong reputation in delivering sustainable development and tended toward a two track, high and low carbon approach. More recently both institutions have begun to better recognise climate risks. Christine Lagarde managing director of the IMF recently commented that climate change was 'one of the great existential questions of our age' and is exploring reform options inside the institution[59]. The World Bank created the position of Vice President and special envoy for climate change in early 2014 to carry the institution into a new era which avoided the 'ultimate curve ball' for delivering development[60]. These advances reinforce the low carbon resilient direction of travel and will shape the real economy to aid the implementation of the SDGs and the Paris Agreement.

The **UN Secretary General** (UNSG) also has their own role to play and has permission to elevate security concerns like climate change to the UNSC. The guidelines of their role are informed by member-state priorities but they are awarded certain freedoms to intervene if the values and moral authority of the UN are challenged. Current UNSG Ban Ki-moon has consistently put sustainable development at the top of his priority list during his term. Ban has played an active role in the discussions on the SDGs and Paris 2015 agreement and launched of a number of initiatives (see box 4 for one example). The next UNSG will take office in 2017, their positioning on climate and sustainable development will undoubtedly effect the implementation of 2015's climate outcomes.

[57] UNCHR (2015) **The Storm Ahead**

[58] UN-OHRLLS (2015) **Least Developed Countries Move Toward Greater Access to Science, Technology and Innovation**

[59] IMF (2015) **Policymakers Face Historic Opportunity to Fight Climate Change**

[60] FT (2014) **World Bank Climate Change Envoy Rachel Kyte on Her New Mission**

BOX 4: A2R – Anticipate, Absorb, Reshape

At COP21 in Paris Ban Ki Moon launched his contribution to the rebalancing of the international climate regime. The 'A2R' initiative seeks to extend existing action on early warning systems, climate insurance and other adaptation projects, whilst sowing the seeds of a bigger reform agenda – 'reshape'. This initiative was welcomed by state, non-state actors as well as UN institutions. In 2016 FAO, UNEP and the UN SG's climate office will form the secretariat of this initiative. The appointment of the next Secretary General, to take office in 2017 could constrain or expand the potential of the initiative.

In summary, despite fragmented attempts, the scale and speed of climate action across the UN system is insufficient to respond to the scale of the threat. The UN is not comprehensively assessing or managing its exposure to climate risk. The distorted understanding of UN exposure is limiting demand for climate action and not addressing the full spectrum of climate risks.

If this is not addressed then the UN's ability to deliver on its mission of maintaining international peace, rights and security is under threat. The 2015 mandate provides a lever for UN reform to make all UN operations climate compatible. To embrace reform the UN system will have to consider where the responsibility lies to manage climate risk and stress-test its operations against future climate scenarios.

CHAPTER 4
THE UN SYSTEM MUST REFORM TO DELIVER ON THE 2015 MANDATE

The international climate regime has helped mobilised climate action across the world. The Paris Agreement captured decades of progress and set up a framework for acceleration to limit the probability of encountering the worst climate impacts. However despite the step-change, efforts are still insufficient and the world remains exposed to unmanageable levels of climate risk. The climate regime's historic bias towards mitigation in is no longer fit for purpose in a world where climate impacts are a daily reality all across the world.

In 2015, the world recognised that the regime would need to rebalance to safeguard against the full spectrum of inevitable and possible climate risks. The Sendai Framework outlined a toolkit for reducing disaster risk. The Sustainable Development Goals affirmed that all development must be resilient to future climate scenarios. And the Paris 2015 Agreement expanded the mandate for adaptation and loss and damage and so addressed the full spectrum of climate risks.

The climate regime has existing functions that will help implement the 2015 mandate.

Functions of the Current International Climate Regime

The functions of the current international climate regime are as follows:

- **An obligation to limit global warming well below 2°C and pursue efforts to deliver 1.5°C:** All 196 UNFCCC parties agreed that the Paris agreement would hold 'the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C'[61]. Governments and the international system will need to swiftly recalibrate their planning assumptions in line with the strengthened goal to gain a similar level of political and cultural acceptance as that associated with the obligation to limit warming to 2 °C . At present neither the 2°C limit, nor the strengthened post-Paris articulation, have been fully internalised into institutional operations at the national or international level to deliver appropriate mitigation, adaptation and contingency planning for high risk scenarios.
- **A locus for collectively increasing mitigation ambition:** The Paris agreement mandates all UNFCCC parties to take stock of their climate action and return

[61] UNFCCC (2015) **Adoption of the Paris Agreement**

with subsequent commitments every 5 years. This process will endure and intends to deliver net zero Greenhouse Gas emissions in the second half of the century.

- **An emergent shared system for Monitoring Reporting and Verification (MRV) of climate action:** Under the UNFCCC, there is an evolving system for the MRV of mitigation and finance. There are also voluntary emissions and mitigation disclosure schemes for companies (e.g. CDP). The MRV regime initiated by the Paris agreement will strengthen, deepen and converge toward a common system for all countries in the coming years. A strong MRV regime is crucial for building confidence between actors to collectively deliver decarbonisation and aide understanding of the parameters (i.e. global temperature trajectory) in which to build resilience.

- **Long-term trend analysis and fragmented short-term climate data:** The IPCC provides a consensus-based compilation of current climate science to outline long-term emissions and impacts trajectories. A range of other initiatives produce short-term climate and weather data at the national and international level but coverage is inconsistent and fragmented. The production of climate data and science remains largely disconnected from decision-making needs which limits utility.

- **Mandate for climate resilient development:** The recently adopted Sustainable Development Goals (SDG) provide a mandate to the development community to integrate climate risks into planning and investment. Universal implementation of these goals is in its early stages and the High Level Political Forum has been designated as the platform to review progress. The Paris Agreement also invited international, regional and national institutions to climate proof development financing. To be successful in implementation will require reforms across development banks, government and non-government development organisations, UN institutions and government decision-making.

- **National Adaptation planning processes:** The Paris Agreement established a process to prepare and protect countries from climate impacts. Countries will take stock and revisit their efforts every 5 years toward achieving the long-term goal where all communities are resilient to climate impacts**.** The Paris Agreement also expanded efforts to prepare for the worst climate impacts known in the UNFCCC as 'loss & damage'.

- **Rapid response to extreme climate impact events:** The humanitarian regime and Sendai framework give guidance for responding and reducing the risks of extreme climate impact events. Neither the humanitarian nor disaster risk reduction regime's have a consistent process to build climate resilience into their operating systems. Climate, alongside other global challenges, is beginning to breach the carrying capacity of these regimes. The humanitarian regime has consistently responded to extreme climate impact events however given the rising frequency and severity of impact, will likely become overwhelmed if its operating system does not undergo reform.

- **Platforms for cross UN engagement:** the Working Group on Climate Change, ECOSOC and the UNGA has brought together UN institutions to consider options for increasing mitigation ambition. However, they have not yet internalised climate risks to their operations and allocated appropriate responsibilities to deliver necessary reforms.

Gaps in the Current International Climate Regime

Despite a number of functions which will aid the implementation of the 2015 mandate, gaps in the regime persist. Much of these gaps are created by the lack of allocated responsibility for managing climate risk exposure to communities, constituencies and sectors. In turn there are also considerable gaps in understanding climate risk exposure in a way which informs decision-making.

Missing functions in the international system include:

- **Comprehensive understanding of systemic adaptation challenges:** Adaptation to climate change is predominantly considered a local issue. The dominant understanding of adaptation conjures images of city flood protection, farmland water management or passive cooling systems. Adaptation is rarely approached systemically. However as this report has shown, climate change will impinge on operating systems beyond local, national or regional boarders. To date cascading and systemic climate impacts have not been well recognised or internalised at the international level.
- **Accountability and allocated institutional responsibility to manage climate risk:** The allocation of responsibility to manage climate risk is inconsistent and tends to fall between responsibilities for adaptation and mitigation. Neither adaptation nor mitigation alone can address the whole of the challenge. Conventionally there is no locus of responsibility to understand institutional climate risk and make corresponding choices about appropriate climate risk management strategies. Mitigation, adaptation and contingency planning for loss & damage provide tools to respond to climate risks in the institutional or national interest.
- **Sufficient accessible information for decision-makers:** The suitability and accessibility of climate science for decision-makers is inadequate. The international system insufficiently provides: real-time advice on impending impacts; high-resolution data and advice on regional, national and local climate scenarios; a locus for determining research priorities; vehicles for the decision-making community to flag insufficiencies.
- **Culture of climate risk disclosure:** There is a perception that disclosing climate risk dampens investor and/or citizen confidence. Given the deficit in understanding of climate risk, building a culture which embraces disclosure is essential. Aligning incentives for disclosure will be a necessary step. For

example, some commentators have begun positioning climate disclosure as a means of legal protection[62].

- **Understanding and contingency planning for climate tipping points:** There are tipping points within the climate system (e.g. collapse of the West Antarctic ice sheet) which will have irreversible, cascading and global implications. However the research into the implications of breaching tipping points remains limited. Currently there is no mechanism to forecast, contingency plan or respond to impending tipping points. The Humanitarian and DRR regimes can respond to immediate, geographically specific, short-term secondary human challenges but are not equipped to respond to longer-term, catastrophic or transformational changes.
- **Tried and tested methodologies and approaches for introducing institutional adaptation:** Given the lack of value placed on international and system-wide adaptation there are limited methodologies for managing institutional adaptation. The conventional wisdom has focused on mainstreaming climate into development choices. However, arguably the international community has attempted to mainstream before developing the tools to take action. Parallel approaches which facilitate the innovation and testing of methodologies will be required.
- **Independent oversight and scrutiny of climate risk management:** Accountability for climate risk management is limited. Non-state actors have helped to maintain accountability in climate decision-making processes and within discreet jurisdictions. However, unlike other regimes there is no independent oversight body which helps to maintain accountability on risk management choices and implementation. Allocating responsibility will help to provide a locus for accountability but further mechanisms and institutions will need to be encouraged to flourish to provide independent oversight and scrutiny.
- **Systemic decision-making functions in the international system:** The international system is faced by a number of systemic threats. Joint coordination and escalation capacities are struggling to deal with these challenges which take new forms beyond a shared threat posed by military intervention. The reforms necessary to comprehensively manage climate risk will likely require innovation to embrace new technologies, methodologies, tools and approaches. However, existing regimes also provide guidance to kick-start reform.

[62] Financial Stability Board (2016) **Phase 1 Report of the Task-Force on Climate-Related Financial Disclosures**

CHAPTER 5
INTERNATIONAL RISK REGIMES

Risk management is a core function of multilateralism. The histories and legacies of other risk management regimes provide lessons to inform the evolution of the climate risk regime. The histories of the following 7 regimes (nuclear proliferation, pandemics, humanitarian, human rights, food security, terrorism and finance) offer examples of reform processes, political dynamics, institutions and mechanisms that have improved regime capacity.

Nuclear proliferation

Objective: reduce the proliferation and development of nuclear weapons

Comparability to climate risk: unlike climate risk which is systemic, the risk of nuclear proliferation is acute. An acute risk is easier to contain and its management has less implications upon other institutions. Given that nation-states are the core actors with access to nuclear weapons this also limits the diversity of actors with vested interests in outcomes. The implications of failure also differ as unlike climate, the implications of nuclear attack are more consistent across geographies.

Key functions:

- **Trust and verification processes** build trust amongst countries overseen by an independent inspectorate in the International Atomic Energy Agency (IAEA)
- **Information feedback loop** and organisational support provided to the regime by the IAEA and UN Office for Disarmament Affairs (UNODA)
- The multilateral Nuclear Non-Proliferation Treaty is **strengthened by bi-lateral, plurilateral and regional agreements**
- Further **analysis and accountability provided by complimentary institutions**, including scientific institutions (American Association for the Advancement of Science), and expert research institutes (i.e. Brookings Institute, Centre for Nuclear Non-Proliferation and Disarmament, Chatham House)
- **Lived-memory of short and long-term crisis** helps maintains political focus on the regime

The nuclear proliferation regime emerged in the wake of devastating lived-experience: the 1945 Hiroshima and Nagasaki bombing. The nuclear threat had become reality and required global attention. The following year the United Nations Atomic Energy Commission was established.

The regime held for a few years, but insecurities escalated as interest in nuclear power begun to grow. In 1953, US President Eisenhower delivered his famous 'Atoms for Peace' speech and began exploring additional safeguards. He brought together a group of leadership countries who identified the need for an independent oversight organisation to monitor the challenge. In 1957, the International Atomic Energy Agency (IAEA) was founded.

In the 1950s and early 1960s, Cold War political posturing sufficed as a deterrent to nuclear bombing. However, this failed to mitigate nuclear build-up, and events such as the Cuban Missile crisis exposed the instability of the regime. To control the growing risk, the Nuclear Non-Proliferation Treaty (NPT) was founded in 1968 by the US, Soviet Union and the UK. Since, the NPT has evolved into a more comprehensive, multilateral agreement with 190 country signatories[63]. Alongside, the regime continues to be strengthened by regional agreements (e.g. the Latin American pact or the IAEA European Atomic energy community), and bi-lateral agreements (e.g. US and Russian Federation[64]). In parallel the United Nations Office for Disarmament Affairs (UNODA) provides an information service on multilateral disarmament to member states, other UN agencies, intergovernmental institutions and civil society.

The end of the cold war dramatically changed the composition of the nuclear threat. The nuclear threat had diminished in many ways, but the loss of the implicit hold that the US and Soviet Union had over nuclear deployment gave way to new forms of threats. Today, there are far fewer nuclear weapons than during the Cold War but some claim that the risks of nuclear war have grown[65].More countries in areas of instability are able to acquire nuclear weapons and there is greater potential that weapons may fall into the hands of terrorist groups. Nuclear-armed states are also increasingly vulnerable to non-state attacks, including cyber attack.

The recent progress in negotiations between Iran and key international powers are evidence of contemporary evolution. The deal's verification process has inbuilt scientific measurements, utilising the IAEA as an independent inspector. The inspection process will inform the gradual removal of sanctions and manage uncertainties over the pace of change in the proliferation field.

Reform drivers: nuclear disasters, multilateral emergency-response, great power relations (i.e. the cold war), great power leadership interventions and the dispersal of power beyond the nation-state.

[63] IAEA (1968) **Treaty on the Non-Proliferation of Nuclear Weapons (NPT)**

[64]IAEA (2016) **IAEA Related Treaties**

[65] Evans et al (2015) **Nuclear Weapons: The State of Play 2015**

Lessons for managing climate risk

- An institution comparable to the IAEA could provide independent monitoring of climate impacts and tipping points to build confidence in climate risk disclosure and management.
- Whilst maintaining the significance of multilateral agreement, bilateral and plurilateral agreements could take a more prominent role in nurturing innovative governance and implementation approaches to later be absorbed into the broader regime.
- The lived-memory of nuclear risk awards attention and credibility to the regime. The climate risk regime would benefit from communication strategies which helped publics internalise the consequences of climate impacts.

Pandemics

Objective: limit the spread of global disease outbreaks

Comparability to climate risk: like climate, the risk posed by pandemics is systemic – specifically, posing a threat to global health. However, the climate threat differs because it results in more enduring, persistent impacts beyond the length of most pandemic events. Pandemics have historically been containable but like climate also require mitigation, adaptation and contingency planning by practitioners at multiple levels.

Key functions:

- Broad and deep **collaboration between UN, government and non-government health organisations** to support regime operations during Pandemic events
- Anchored by the World Health Organisation (WHO) the regime **helps improve standards, provide guidance for priority reforms and channel support to national health bodies**
- **Multi-level intersecting governance**, regional (e.g. African CDC), plurilateral (e.g. GHSI) and multilateral (e.g. World Bank) forums to discuss health regulation and best practice
- **Information feedback loop generated by a spectrum of health practitioners**: grassroots health workers, government and NGO medical professionals, researchers, academics, lawyers, activists, aid workers, diplomats, pharmaceutical professionals
- **Consistent public mandate to prioritise health and** given the often global nature of pandemics, **engage in multilateral collaboration**

Scientists and decision-makers had observed that globalisation was dramatically increasing the spread of disease through travel and trade for centuries. However, it was the post-WWII recognition of the role of global health in maintaining peace that finally resulted in the founding of the World Health Organisation in 1948.The WHO's constitution learnt from previous failed attempts to develop overarching global treaties[66] and captured best practice in detection, prevention and treatment of diseases[67].

In the following decades, a lack of capacity to deliver on all WHO objectives prompted the proliferation of non-government global health institutions such as the International Committee of the Red Cross and Médicins Sans Frontièrs (MSF). Other organisations have also emerged to respond to longer-term priority threats. For example, UNAIDs responds to the aids epidemic and similar institutions respond to malaria and tuberculosis.

The regime has absorbed many changes in global health policy and practice. In part it is able to do so because of its authority to facilitate an information feedback loop between national and international health organisations. The professional community of health practitioners are active conduits for this knowledge exchange. They provide a wealth of information from their lived experience which feeds the system and builds an evidence base which can prompt reforms in the global health regime.

However, it is important to recognise that evidence alone cannot prompt reform. Health is an immediate and well-established concern for governments and the public this awards the regime an authority to mobilise political mandates, the public and resources. As such, global health organisations like the WHO are awarded a high-level of permission to mandate countries, the public and international institutions. However, implementation is not always consistent.

In 2005, to formalise and strengthen the WHO mandate (partly prompted by the SARs outbreak[68]) the International Health Regulations (IHR) were adopted by all 196 countries. They outline a number of rights and obligations for countries to work with the WHO, for example in reporting and control of disease and through strengthening surveillance at travel crossings. However, there have been compliance issues with the IHRs, especially in developing countries where capacity can be limited.

Another strength of the pandemic regime is its integration across other international fora and risk regimes. For example, during the Ebola crisis, the G20 coordinated their work through the Global Health Security Initiative (GHSI) advised by the WHO working within the IHRs. The GHSI was originally designed as a mechanism to fight bio-

[66] WHO (2016) **Origin and Development of Health Cooperation**

[67] Hoffman (2010) **The evolution, etiology and eventualities of the global health security regime**

[68] WHO (2008) **International Health Regulations**

terrorism, but in December 2002 its mandate was strengthened to include the public health threats posed by pandemics[69].

The Ebola crisis also exposed failings in the global health regime signalling that further evolution will be necessary[70]. The regime is responsive to pandemics but forecasting and preparation is more challenging. There have been preliminary attempts to better address early warning and response capacity through the emergent Pandemics Emergency Facility, a collaboration between the World Bank, the WHO and a number of other international partners. Experts have argued that the WHO has long been in much need of reform, but that the governance structure has stifles transformative reforms[71]. Exploration of the successes and failures of the Ebola crisis response are ongoing and further reforms are predicted.

Reform drivers: pandemic events, sustained public permission to deploy resources to health priorities, regular and extensive collaboration amongst diverse practitioners and evaluation of pandemic response.

Lessons for managing Climate Risk

- Practitioner engagement across multiple levels of governance helps facilitate an information feedback loop which generates implementable reforms making best use of practitioner buy-in. With more active engagement from practitioners affected by climate impacts (e.g. planners, strategists, investors, mayors, CEOs etc) a more iterative reform process could be facilitated. The lack of accessible information on climate impacts will need to be addressed to achieve this form of engagement.
- The innovation of creating parallel institutions to deal with priority issues (e.g. AIDS) could also be used by the climate community. This could be one way to address the adaptation deficit in core sectors e.g. food, migration, development, humanitarian response.
- Sustained, public lived-experience of health challenge helps give a mandate to governments and plurilateral institutions to respond to health crisis through short and longer-term responses. The climate risk regime requires better articulation of the broader context of climate impact events by political leaders and advocates.

[69] Global Health Security Initiative (2001) **Overview**

[70] Katz and Dowell (2015) **Reviewing the International Health Regulations: call for a 2017 review conference**

[71] Chatham House (2014) **What's the World Health Organization For?**

Humanitarian

Objective: reduce humanitarian risks resulting from crisis through international response

Comparability to climate risk: A multilateral capacity is required to respond to humanitarian challenges which exceed national and bilateral capacities. Comparably the climate regime responds to a specific globally produced and experienced risk. Unlike climate risk, humanitarian risk corresponds to specific crisis moments in specific geographies. The likelihood of these crises is mitigated through other risk regimes (e.g. conflict, climate etc) but the means to respond and contain the crisis is determined by the humanitarian regime.

Key functions:

- **Initiation capacity** to respond internationally to humanitarian crisis, concentrated in great power institutions like the UN Security Council
- **Forecasting and coordination** between UN agencies and non-government organisations through the Inter-Agency Standing Committee in response to humanitarian flashpoints
- The collaboration of multiple actors, UN agencies, government and non-government organisations provides a tacit **accountability function**
- **Regional initiatives** facilitate greater country/regional ownership, e.g. African Union

The humanitarian regime concretised in the aftermath of WWII as global leaders rallied around calls for a protection and care function at the international level. Extending beyond post-war "emergency relief", post-colonial liberation movements called on Western powers to maintain the broader development function they had provided under colonial rule within the humanitarian regime. This prompted the development of institutions focused on delivering peace and security such as the UN Security Council and the extension of mandates for organisations like UNICEF[72].

In the following decades the regime struggled to evolve in a comprehensive manner. The political bind of cold war geopolitics and a series of perceived regime failures[73] hampered progress until the early 1970's. In this period, a proliferation of non-state humanitarian organisations emerged to strengthen the regime, including the now well known International Red Cross and Red Crescent, Oxfam and CARE international[74]. These institutions helped to establish a stronger accountability culture at the local,

[72] UNICEF was originally created to assist in support of war-affected children, but in 1950 its mandate was extended.

[73] Such as the Nigerian Biafra conflict, The Guardian (2007) **Humanitarian Errors**

[74] Davey et al (2013) **A history of the humanitarian system: Western origins and foundations**

national and international level and gave clearer criteria and guidance for intervention. This innovation remains crucial to this day in bringing predictability, transparency and diversity to the data collection, feedback and evaluation of the humanitarian regime.

Following the end of the cold war there was greater opportunity to support humanitarian interventions in conflict. The Security Council supported a much greater number of humanitarian interventions, backed by a large increase in peacekeeping forces, and the establishment of UN coordinating organisations such as the Inter-Agency Standing Committee (IASC) [75]. The IASC remains a key part of the humanitarian system today, involving both UN and non-UN partners. It produces bi-annual risk reports, forecasting the scale and pace of humanitarian crises over the coming six months. To maintain relevance, its work is reoriented and updated to keep pace with UN innovations like the SDGs. Task-forces are deployed to explore challenges; recently these included the integration of DRR, resilience and preparedness as well as processes to identify growing gaps in country capacity. The results of these taskforces are used to improve humanitarian action by providing analysis to international, regional and national humanitarian bodies, financing institutions (e.g. Central Emergency Response Fund) and leadership groups (e.g. Emergency Directors group).

Tensions over developing country ownership of humanitarian institutions have prompted innovations in the form of regional initiatives to compliment the international regime. Examples include, the African Union Peace and Security Council and Latin America Network for Genocide and Mass Atrocity Prevention.

The success of the humanitarian regime has been consistently challenged. A well-integrated system at the UN level requires the support of a coherent multilateral system capable of long, medium and short-term interventions. Despite efforts to evolve its structures, the regime is now being overwhelmed by the rapid acceleration of humanitarian flashpoints. The pressure on the system is understandably squeezing resources into short-term responses but in doing so is diverting resources away from medium and long-term preventative action. This is resulting in a negative-feedback loop which is weakening the system.

To date there has not been sufficient country-leadership or institutional willingness (e.g. within the UNSC) to reform the system. In response to this deadlock, UNSG Ban Ki-moon has established a multi-stakeholder process to outline a new humanitarian agenda fit for the future at the World Humanitarian Summit (WHS) in May 2016. Consultations have gathered a vast quantity of practitioner and researcher input. New and increasingly interconnected risks including those in climate, development and conflict are dominant themes. The implications of the WHS remain unknown but the case for reform is growing.

[75] Ibid

Reform drivers: humanitarian crises, inter-agency coordination and forecasting, failures in humanitarian response, shared geopolitical priorities, regular high level political interventions from the Security Council and consistent engagement of the UNSG.

Lessons for managing climate risk

- The political initiation capacity provided by the UN Security Council helps focus the regime for crisis intervention. The climate regime has no such political initiation capacity to prompt swift mobilisation of resources. The UNSC does not provide a fail-safe locus for this capacity but could be better utilised by the climate risk regime in future.
- Forecasting of future challenges through inter-agency coordination helps the humanitarian regime to prepare for emergency response. However, this function is less agile at prompting investment in preventative action. The climate risk regime would benefit from forecasting functions that gave guidance to prepare for crisis-response and implementable longer-term preventative actions.
- The innovation of complimentary regional institutions has helped create broader country ownership. This approach could help rebalance power dynamics in the climate regime which have hampered climate action.

Human rights

Objective: develop and incorporate human rights principles in all decision-making and implementation

Comparability to climate risk: To uphold transcendent human rights standards requires a multilateral mechanism. Comparably the climate regime responds to a specific globally produced and experienced risk. Like the climate challenge, it is sustained and dynamic, evolving as the global context progresses. Unlike climate, the vision to incorporate human rights into all human interactions is not viewed as time sensitive. Managing risks to human rights carries transcendent urgency but does not carry the same time-sensitive systemic lock-in challenges as the climate system.

Key functions:

- **UN Declaration on Human Rights** maintained through **treaties and institutions** like the Human Rights Council to facilitate **implementation** in the decision-making and operations of governments, NGOs, business and institutions
- **Alarm function** for emerging human rights abuses and **platform to discuss the evolution and inclusion of additional contemporary human rights** (e.g. lesbian, gay, bisexual, transgender, queer, intersex (LGBTQI) rights) provided by the Special Procedure Function

- **Knowledge share, transparency and accountability through collaboration** between NGO's, governments, the legal system and the UN regime
- **Legal accountability framework** to challenge human-rights abuse at all scales from citizen to international level

Human rights were sewn into the foundation of the UN regime. These 'norms' continue to benchmark the success of the international system. In 1948, the UN Declaration of Human Rights was approved and the Human Rights Council was created.

In response to the human rights abuses associated with the South African apartheid the 'Special Procedure Function' (SPF) was created under the human rights council in 1967. The SPF was designed with investigatory powers to address escalations in human rights abuses and the ability to make country recommendations on thematic issues (such as domestic violence). These functions enable the SPF to promote human rights which keep pace with contemporary global events and needs. This can be through addressing gaps in international human rights law, e.g. the new recommendation to combat violence against women; or by highlighting emerging trends that may impinge on human rights, e.g. the use of drones in extraterritorial lethal counter-terrorism operations[76].

UN institutions have a limited mandate; as such gaps in capacity and function have resulted in the creation of complementary NGOs like Amnesty international. These actors expand capacity, accountability and transparency to strengthen the regime. Similarly, business engagement through platforms like the UN global compact strengthens the regime and extends the integration of human rights into business operations. The 1993 World Conference on Human Rights provided an arena for NGO's to mount an unprecedented reform challenge to the UN. This led to the creation of the Office of the High Commissioner for Human Rights. Under this framework government, UN and non-UN organisations can raise individual and systemic complaints relating to the signatories of specific treaties.

The main compliance function of this regime is international law. Law provides a vehicle for citizens, activists, researchers, NGO's, academics and other entities to hold international, regional and national institutions accountable. This compliance system is not free from challenges and there are extensive critiques. Some question the inconsistency of citizen access across geographic, political, cultural and economic communities. And others comment that great powers abuse use their power to 'pick and choose' which human rights they want to comply with. However, despite its challenges, the combination of top-down rules and law with bottom-up accountability awards the human rights regime an unrivalled credibility to establish global norms.

[76] UNOCHR (2014) **Report on the twenty-first annual meeting of special rapporteurs/representatives, independent experts and working groups of the special procedures of the Human Rights Council, including updated information on the special procedures**

Reform drivers: deployment of the 'Special Procedure Function' to respond to emergent challenges, NGO led reform challenge, summits and legal challenge.

Lessons for managing climate risk

- Transparency and accountability to abide by human rights principles is strengthened through multistakeholder collaboration. For example, in 1993 this operating principle empowered NGO's to prompt reform. Increased multistakeholder involvement for managing climate risk could help support accountability in the regime and build confidence in implementation.
- The special procedures function helps flag short and longer term regime needs. A similar function in the climate risk regime could give guidance to the operations of the UNFCCC, UN institutions, national governments, civil society and business. This would help the regime to maintain relevance and build confidence in implementation.
- The human-rights legal framework helps maintain accountability. This legal architecture is unrivalled and is unlikely to be replicated, however in the future evolution of the climate risk regime legal strategies could be deployed to strengthen the compliance architecture.

Food security

Objective: stabilise global food supply

Comparability to climate risk: Large scale food security challenges can exceed national and bilateral capacities and require multilateral attention. Comparably, the climate regime responds to a specific globally produced and subsequently experienced risk. Food security requires preventative and crisis-driven reactive approaches. Like the climate system, the food system underpins functioning human societies. Unlike climate, food security risks are derived from multiple, sometimes unforeseen drivers. Managing risks to food security is an enduring challenge and cannot be as readily mitigated as climate risks.

Key functions:

- **Institutional support and guidance for short and long-term responses** provided by the Food and Agriculture Organisation (FAO) and World Food Programme (WFP)
- **Align the development and human rights agenda** to incorporate food security into other regime operations
- Provide short-term emergency relief to areas suffering food shortages through WFP and **collaboration between UN agencies, national aid organisation and international NGOs**

➢ Forecast food shortages and threats to the food system

The beginnings of an international food security regime emerged during WWII. US President Roosevelt gathered 44 developed and developing countries who committed to founding a permanent organisation for food and agriculture, which became the FAO. From its inception, the broader rights agenda was integrated into the food regime. The 'Right to Food' drew inspiration from the UN Declaration on Human Rights and the International Covenant on Civil and Political Rights (1966). This integration has helped the regime to align with evolutions in the wider development and rights agenda, such as the MDG now SDG process.

By the 1960's, failures to deal with food supply in times of crisis led US President Kennedy and Director of the US Food for Peace Programme George McGovern to call for a dedicated multilateral body to deliver food aid, and the World Food Programme (WFP) was founded. Given the focus on food security and food aid, there is significant cross-over with the government and NGO functions of the humanitarian regime. However, this innovation was not enough to handle the 1970's spike in food prices and the subsequent evolution saw a shift towards 'food security' and new institutions such as the World Food Council and Committee on World Food Security were created.

Following the food crises in the mid 20th century, a broader focus on the root causes of food insecurity engendered change in the system. The WFP evolved to not only provide emergency relief, but to deliver greater preventative capacity alongside the FAO. And the FAO launched the Special Programme for Food Security in 1994 to make better use of emerging technologies and scientific understanding. However, these efforts did not prove enough to prevent the 2007-8 food price crises and a High-Level Panel was established to develop a Comprehensive Framework for Action on food security.

Today, the WFP undertakes food security monitoring across the globe, working with other UN agencies, national governments and NGOs[77]. Alongside the FAO, the WFP conducts an annual State of Food Insecurity in the World analysis[78]. This is a highly valued input, but is by no means comprehensive and has particular limitations in its ability to provide early warnings such as forewarning spikes in staple food prices.

The regime is leaned upon to respond to short-term crises but has not been able to mobilise the resources and political mandate to build long-term resilience. The weakness in long-term focus has resulted from a number of forces including the inconsistent forecasting of slow-onset crises, a minimal capacity for information sharing, challenges in incorporating technological improvement and insufficient ability to mandate other UN institutions to operate to the benefit of the food regime. As such, the system is increasingly vulnerable to series of intersecting systemic threats.

[77] World Food Programme (2016) **Food Security Analysis**

[78] FAO (2014) **The State of Food Insecurity in the World 2014**

Drivers for Reform: great power leadership interventions, failures in food crises response, failures in food crises preparedness such as preventing food price spikes, developments in intersecting regimes and crises forecasting.

Lessons for the climate risk regime

- The food regime shifted focus toward 'food security' to embrace a broader spectrum of food-related risks. Some are concerned that a focus on climate risk and security would militarise the approach to climate change. However, the food security regime gives an example of a regime which highlighted security concerns without encountering the pitfalls of militarisation.
- The annual state of food insecurity analysis helps the regime respond to the contemporary context. However, this information is not effectively coupled with initiation capacity to deliver decision-making. In the evolution of the climate risk regime, the creation of new accessible resources to aid decision makers should be tied to specific decision-making processes.
- The food regime has reformed to improve its crisis-response but its failure to escalate investment in preventative action is damaging the regime. The climate risk regime should take a two pronged approach investing in crisis-response functions (e.g. for tipping points) and long-term preventative action (e.g. UNFCCC ambition mechanism).

Terrorism

Objective: reduce the level of terrorist threat from state and non-state actors

Comparability to climate risk: the terrorism regime is comparable to climate risk in that it responds to a specific, emergent threat to global peace. Terrorism predominantly requires action from government-directed institutions whereas climate action requires the mobilisation of a more diverse set of stakeholders. Efforts to combat terrorism are unlikely to fundamentally change the operations of most institutions, whereas managing climate risk requires institutional reform. Terrorism is disruptive, but events are contained by time and space, whereas climate impacts are persistent and ubiquitous.

Key functions

- **Information sharing and collaboration between counterterrorism organisations at multiple-levels** – multilateral, plurilateral (G7 and Security Council) , regional (EU) and national
- **Military interventions** in regions of instability where terrorist groups can gain safe harbour

- **Prompt reform in shared-global security systems** in response to emerging threats e.g. airport, cyber
- **Incremental approach to addressing the root causes of terrorism**

The terrorism regime has emerged as a patchwork response to unpredictable international terrorist shocks and events. Terrorism was first placed on the international agenda in 1934 when the League of Nations called a meeting in response to the assassination of King Alexander I of Yugoslavia by separatist rebels. This meeting established a convention for the prevention and punishment of terrorism. However, it never came into force. The regime remained relatively stable until the 1960s, where the increase in aircraft high-jacking generated the creation of further conventions[79]. The next shift resulted from the 1972 Munich Olympics attack which rocked the international community and prompted rapid reform[80]. In the following decades the Cold-War absorbed the bandwidth of global community and terrorism persisted without much international intervention.

Following the Cold War, the international community returned their attention to terrorism. This was in part due to the reallocation of capacity formerly dedicated to the Cold War but also resulted from an increase in terrorist opportunity in a more globalised world. The renewed attention enabled an uptick in UN-backed intervention against terrorism, for example the Security Council led interventions in Libya and Sudan.

The 9/11 terror attacks produced an unparalleled reform in the terrorism regime. Shocked, exposed governments and publics were quick to accept greater mobilisation of resources and expansion of counter-terrorism regulation, such as those introduced in air travel. The UN coalesced around reforms pushed by UNSG Kofi Annan; such as the formation of the Global Counterterrorism Strategy. In parallel there was considerable expansion of anti-terrorism measures at all levels of governance; plurilateral (G7), regional (EU) and national. The layered approach meant a range of approaches could be developed and deployed most appropriate to each cultural context. The proliferation, institution building and reform in this space immediately after 9/11 speak to the huge public and leadership attention given to this event's significance.

There are tensions in the international regime over the scale of institutional and Security Council interest in terrorism. Systemic underlying root causes such as poverty, inequality and organised crime are recognised, but are often not mobilised in the UN system as a means for addressing the terrorist threat.

[79] United Nations Action To Counter Terrorism (2016) **International Legal Instruments**

[80] United Nations Action To Counter Terrorism (2016) **General Assembly Actions to Counter Terrorism**

The authority of the terrorist regime is further bolstered by media attention. The media helps to garner public attention and support for the regime through personal, relatable, contemporary experience. This gives the regime an expansive mandate for responding to events, enabling rapid system change; examples include air travel and internet privacy.

Drivers for Reform: terrorist attacks, divergent and aligned geopolitical interests, great power interventions, national and bilateral institution/policy development, media attention and public mandate.

Lessons for the climate risk regime

- The media has played an invaluable role in dramatising terrorist events. This has mobilised public and leadership buy-in for reforms to the regime. Efforts to reorientate the media conversation on climate away from science toward lived-experience could help mobilise political will for reform of the climate risk regime.
- Management of terrorist risks occurs at multiple levels helping it to be fit for purpose in different cultural contexts. Similarly, nurturing climate risk management at multiple levels in complimentary institutions could aid innovation and implementation.
- The terrorist regime has predominantly produced reform in systems immediately confronted by terrorist challenges e.g. air travel. However, to secure sustained risk reduction requires diverse and varied action to address root causes. The climate risk regime should avoid this pitfall and mobilise preventative action in other regimes.

Finance

Objective: reduce financial risks across banking, financial centres and institutions

Comparability to climate risk: the financial risk regime emerged as a bottom-up response to threats posed to the operations of the financial system. It emerged bottom-up, from national and multinational actors inside the financial community rather than an international threat. It later took international forms. Despite financial risk posing systemic, societal risks the regime does not conventionally embrace diverse stakeholder participation. Like the climate system the financial system is threatened by cascade risks and tipping points which carry implications far beyond their regimes.

Key functions:

- Provide **authoritative, tried and tested guidance** for best practice risk management strategies
- **Use and mainstream bottom-up reform** of risk management models and tools prompted by innovations in individual International Financial Institutions (IFIs)
- **React to financial crises by investigating root financial causes**, aided by financial institutions, some research institutions and central bank governors
- Some mechanisms to **forecast systemic faults** like the failure to manage climate risk, however implementation is not guaranteed

The international finance regime has benefited from a bottom-up business demand for more effective risk management. Post-WWII, in the face of increased globalisation and the absence of global leadership, large companies began developing self-insurance mechanisms against risk. However, these self-insurance mechanisms became costly and incomplete as more business risks became uninsurable.

From the 1970s, multiple, interlinking processes generated reform, driven bottom-up from the banking sector and top-down from central bank governors. Following the breakdown of the Bretton Woods system of managed exchange rates, with serious repercussions throughout the banking system, a plurilateral G10 grouping of central bank governors set up what would become the Basel Committee on Banking Commission. Today, the Basel Committee has representation from 28 jurisdictions. From its inception, the aim of the Basel Committee was to ensure that there were no gaps in the international supervision of banks. It set out principles around the supervision of banks' foreign establishments, and has been revised to attempt to keep pace with the acceleration of globalisation. It responded to international crises, like the Latin American debt crisis of the 1980s, and broader instability through the Basel Capital Accord (Basel I).

Meanwhile, the reform agenda pursued by individual IFIs in the 1980's, led to the use of sophisticated and complex instruments like derivatives to manage insurable and uninsurable risk. In the late 1980s, large financial institutions were spurred on by high market volatility to develop risk management frameworks supported by specific departmental functions (i.e. JP Morgan- RiskMetrics/CreditMetrics). These models have proved useful to the wider regime, and have been integrated into guidance from the Basel committee. However, these individual actions weren't enough to prevent a series of high-profile bankruptcies associated with misuse or speculation of derivatives (Proctor and Gamble- 1994, Barings Bank- 1995). Such episodes expose the regime's weakness to using hedging practices to allay other risks.

Further major defaults in the late 1990s and the Enron bankruptcy in 2001, provided the context for a new round of reforms in Basel II which introduced more robust rules for banks, including new rules around credit and operational risk. The 2007 financial

crisis highlighted the vast inadequacy in the system for managing risk and shocks. Conflicts of interest amongst ratings agencies underpinning a housing bubble, along with a lack of market transparency and unwillingness or inability of central banks to regulate the hyper-risky financial environment were cited as drivers which begun to be responded to in Basel III. In parallel the G20, which formed in 1999 to promote financial stability, has become one of the preeminent plurilateral actors within the system. The Financial Stability Board (FSB) of the G20 has played a particularly significant role in driving reform, aided by the IMF and World Bank.

While the financial risk management system has some strength in its ability to develop reform from both bottom-up and top-down influences, it remains exposed to a number of systemic risks. Reforms have generally been reactive to crises moments and the regime has struggled to internalise externalities such as climate change. However, more recently the G20 FSB has been commissioned to undertake work of this kind. The success in implementing foresight reforms like these has yet to be tested. While these large financial institutions can catalyse reform they also lack accountability and can use their power to mask and distort risks in the regime.

Drivers for Reform: institutional and systemic financial crises, global banks, industry led demand for risk management tools and regulation, government bailout and public pressure.

Lessons for the climate risk regime

- Bottom-up reform is captured and disseminated international in the finance regime. A similar approach could be taken to capture and disseminate best practice climate risk management; especially significant for rapidly expanding tools for adaptation to climate impacts.
- The role of leadership groups to forecast and engage in risk assessment helps bring shared ownership and responsibility to new financial risks. The ongoing G20 attempt to assess climate risks to the financial system is a promising innovation which should be pursued and could be replicated elsewhere.
- Crisis and challenge have prompted bottom-up actors to crave guidance for financial risk management. In these cases implementation becomes less contingent on legal compliance. Similarly, as climate impacts become more taxing there will likely be more demand for guidance in making choices about climate risk management.

CHAPTER 6
CONCLUSIONS: THE 2015 MANDATE PROVIDES A LEVER FOR UN REFORM

Climate poses an existential threat to the UN system

The UN system is faced with interconnected and prolonged periods of challenge. Climate risks threaten to overwhelm the UN's operating system if not adequately managed.

The UN system in its current form will not be able to manage the risks posed by the unprecedented transformation of the global energy system and escalation of climate impacts. The system is better equipped to accelerate low carbon energy transition but has not fully gripped the challenge of managing climate impacts. If the system does not reform to respond to the scale of global environmental, social and political risk posed by climate change the UN will be insufficiently equipped to pursue its mission to maintain international peace, rights and security.

2015 marks a rebalancing of the international climate regime to better address the full spectrum of climate risk. In Paris the international community succeeded in capping the probability of runaway climate risk. Countries pledged contributions to mitigate against climate change and set the structures in place to increase ambition and deliver net zero emissions over the coming decades.

Progress toward rebalancing the regime to better address climate impacts was outlined in Sendai, the SDGs and in Paris through increased focus on adaptation and contingency planning for loss & damage. However, the historic emphasis on mitigation means the international community has under prioritised the development of tools and methodologies to achieve climate resilience. As climate impacts hit diverse communities across the world – drought in Iran or flooding in the UK – theoretical risks are becoming lived realities that can no longer be ignored. 2015 has empowered the international community to grip this problem. In 2016 and beyond, the climate risks posed to citizens, cities, businesses, investors, governments and institutions must and can be addressed.

The UN is faced with a challenge. It must reform to fulfil the 2015 mandate and protect its mission of maintaining international peace, rights and security:

- **Responsibility:** Institutional responsibility for managing climate risks to the operations of UN agencies and decision-making bodies is diffuse and accountability is limited. Dedicated responsibility would enable institutions to

assess their risks, make choices about how to manage their exposure and so strengthen the resilience of their intended outcomes.

- **Risk:** Access to data and information which can inform climate risk compatible decision-making is inconsistent. Most institutions do not understand their operational exposure to climate risk. The UN system has largely depended upon moments of high public and leadership interest (e.g COP21 in Paris) to generate climate action. Better understanding climate risks would aid the development and deployment of institutional climate risk management.

Lessons of international risk regime reform

International risk regimes are constantly revaluated and reformed to keep pace with the changing world. There are a number of shared challenges across international regimes which provide similar and analogous reforms deliver the 2015 mandate.

Events are a consistent driver of reform. In some instances events are manufactured, such as a summit, leadership intervention or research release. In others, these events are unexpected crises, such as an environmental disaster, conflict or period of extreme economic instability. In any case it is the regime's institutional and decision-making structure which determines its capacity to adjust and reform to respond to the emergent context.

Successful UN reform is typically delivered by coalitions of willing countries/and NGOs, great power countries and the Secretary General. The mandates for their high-level intervention are built from national-interest, media prioritisation, NGO lobbying and a public mandate.

The histories of international risk regimes provide lessons for UN reform to better manage climate risk:

Allocating Responsibility

- **Independent oversight builds accountability and effectiveness in risk regimes.** In the nuclear proliferation regime this comprises a specific body in the form of the International Atomic Energy Agency. Whereas in the human rights, pandemics, food security and humanitarian regimes much of this function is held by NGO's, as a function of core regime institutions (e.g. UN OCHA) and in some cases by appointed Commissioners.

- **Sustained public mandate and institutional resourcing hardwires reform potential into institutional structures.** The regimes with the most impactful integration across complimentary bodies include food security, human rights, anti-terrorism and pandemics. In each case these issues have a sustained public mandate. The regimes have consistently engaged with complimentary governance structures to facilitate and safeguard the realisation of their

objectives. This hardwiring of responsibility into complementary regimes enables more expedient reform as required, often in response to crises or evaluated failures.

- **The UN's most significant political initiation capacity is consistently provided by the UN Security Council (UNSC) and the UN Secretary General (UNSG).** For example, the UNSC serves to focus the interventions made by the humanitarian regime whilst concurrently orchestrating other UN bodies to contain the crisis. The permission held by the UNSG to address the Security Council also helps make the body accountable beyond its national geopolitical priorities. Concentrating initiation at the highest political level generates greater permissions for complimentary action and can help reorient prioritisation.

Understanding Risk:

- **Risk disclosure and data sharing shapes prioritisation of risk management.** Action to respond to a threat requires risk assessment and analytical information systems to direct prioritisation. For example, the threat of terrorism has generated the mandate for unprecedented data collection and sharing in a manner which has helped facilitate corresponding policy change.

- **Forecasting informs prioritisation urgent action.** Forecasting is consistently used to prioritise the risk management actions. Forecasting is most effective when linked to powerful political initiation bodies such as the Security Council or G20 Financial Stability Board. The finance regime stress-tests and risk assesses financial risks through the G20 FSB to inform the priorities of the G20 countries.

- **Practitioners can provide an information feedback loop to generate reforms**. Practitioners working in the pandemic, food security and finance regime intersect at differing levels of governance to try and test approaches, share best practice and disseminate guidelines to support effective action. As a result practitioners from across the multi-layered system engage in evaluation and in some cases institutionalise new forms of best practice.

CHAPTER 7
RECOMMENDATIONS FOR REFORM

Risk regime reform is an iterative process. To manage the UN's exposure to climate risk will require a series of complex and multi-layered reforms. The recommendations made in this report take a two pronged approach to reforming the UN system and delivering on the 2015 mandate:

- **Allocate responsibility**
- **Improve understanding of climate risk**

These 6 recommendations offer a vision of achievable reform by 2020 (see figure 7.1).

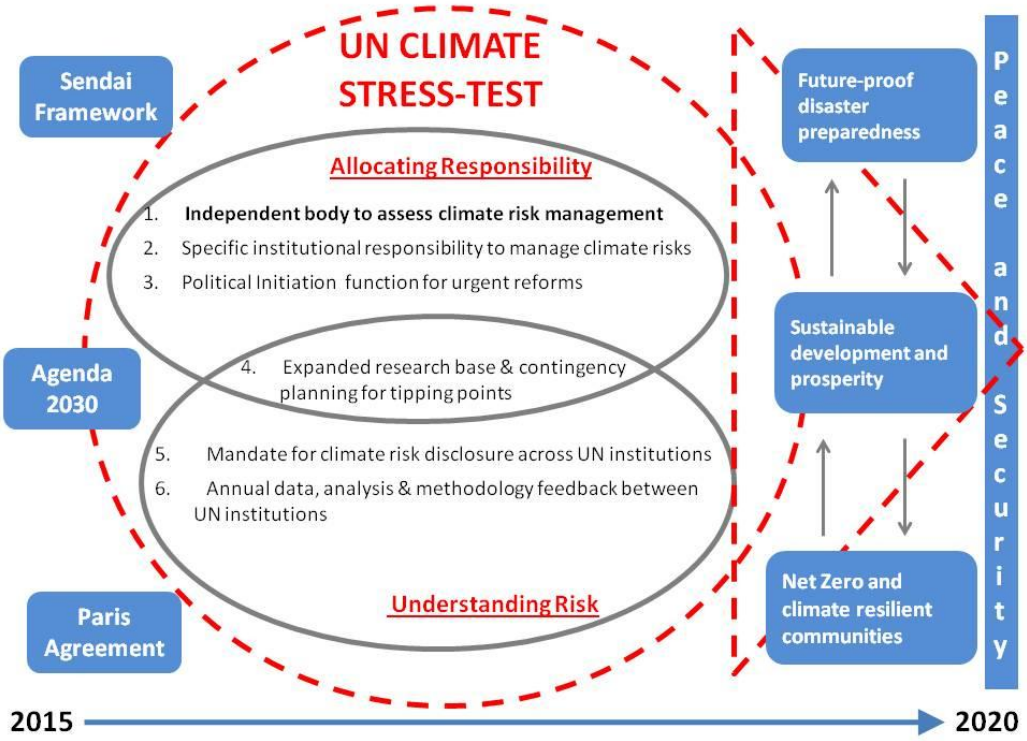


Figure 7.1. Recommendations for UN climate risk reform

1. An independent oversight body to assess climate risk management

Independent oversight builds confidence in implementation and brings credibility to the regime. This body would stress-test UN operations against climate risk. It would corroborate or challenge climate data, analysis and decision-making on mitigation, adaptation and loss & damage action.

Delivery Recommendation: An oversight function should be delivered by a new independent institution proposed by the UN Secretary General or an expanded secretariat under the UNFCCC.

2. Allocated internal capacity in each UN institution to manage operational exposure to climate risks

This capacity would hold the responsibility to understand climate risks to institutional operations, in cooperation with the independent body and instigate the testing and implement of reformed operations. This capacity would also hold responsibility for socialising their emerging understanding of risk and reform to reinforce and deploy reform at speed and scale across the UN system.

Delivery recommendation: UN Secretary General should address the UN General Assembly with the view of developing a recommendation to each UN institution to establish a unit which holds responsibility for managing institutional, operational climate risk.

3. A political initiation and prioritisation function for urgent climate risk reform

High-level political leadership interventions are a prerequisite to delivering the adequate speed and scale of climate risk reform. This function would prompt rapid responses to significant shifts in the climate system, the breach of tipping points or advances in climate science, technology and innovation.

Delivery Recommendation: a collation of countries should instigate a debate in the Security Council about where the responsibility for addressing significant shifts in climate risk should be located in the UN system.

4. Expansion of the research base and monitoring of climate tipping points

At present, the implications of crossing climate tipping points are not well understood nor are they being tracked or prepared for. Further research would deepen our understanding, informing contingency planning and preventive action.

Delivery Recommendation: The G7 and/or G20 should announce commissioning of research into climate tipping points and expansion early warning system capacities to track their likelihood. The Global Framework for Climate Services (GFCS) should aggregate tracking data and deliver an annual report to the UN Security Council to prompt urgent reforms.

5. All UN institutions and large operating partners to annually disclose their exposure to climate risk

Disclosing risk will build institutional accountability of the climate risks of inaction. Building a culture of climate risk disclosure requires a realignment of incentives - international institutions are positioned to lead by example.

Delivery recommendation: Annual submissions should be made to the independent body described in recommendation 1. In addition, *a*ll UN institutions should be invited by the UNFCCC to undertake institutional climate risk assessment as part of the 5 yearly ambition cycle 'stocktake' as defined by the Paris 2015 agreement.

6. UN institutions annually engage in climate risk data, analysis and methodology feedback

Accessible and comprehensive systems for data, analysis and methodology sharing equip decision-makers and practitioners to better integrate climate risk into their operations. The iterative process would develop deeper understanding of climate impacts and corresponding climate action to give guidance for best practice decision-making.

Delivery recommendation: the GFCS should annually convene UN institutions to provide the platform for knowledge sharing and co-development of UN best practice climate risk management. Outputs of this engagement would also provide inputs to the independent oversight body outlined in recommendation 1.

GLOSSARY

2015 Mandate – the sum mandate of the Sendai Framework for Disaster Risk Reduction, the 2030 Agenda comprising the Sustainable Development Goals and the Paris 2015 Climate Agreement, all of which were agreed in 2015.

1st order climate impacts – direct climate impacts such as flooding and drought

2nd order climate impacts – carry over climate impacts which have systemic consequences such as disruptions to supply-chains, the food or water system

3rd order climate impacts – cascade climate impacts which impact political systems such as causing conflict

Adaptation – adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. (UNFCCC, 2016)

Agenda 2030 – The 2030 Agenda for Sustainable Development is a plan of action for people, planet and prosperity which includes 17 Sustainable Development Goals (SDGs).

Climate Risk – the risks associated with climate inaction and action. These includes risks related to climate impacts and the transition to net zero economies.

Climate Tipping Point - elements of the climate system that function like light switches – rapidly changing to a qualitatively different state. Scientists believe these tipping elements include abrupt shifts in sea ice and ocean circulation patterns, as well as abrupt shifts in vegetation and marine productivity (E3G, 2011)

International Climate Regime – the constellation of institutions anchored by the UNFCCC and IPCC which incorporates decision-making, information and implementation bodies to manage international climate risk

Loss & Damage – loss and damages associated with climate change impacts (UNFCCC, 2016)

Mitigation - reducing GHG emissions and enhancing sinks and reservoirs (UNFCCC, 2016)

Net Zero Emissions – 'balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century' (Paris Agreement, 2015)

Paris (2015) Agreement – the Agreement reached at the 21st Conference of the Parties under the United Nations Framework Convention on Climate Change to manage dangerous climate change

Sendai Framework for Disaster Risk Reduction – a 15-year, voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk

but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders (UNISDR, 2016)

UN's mission – the UN's core mission is to pursue peace, rights and security. The five operating missions of the UN are as follows: maintain International Peace and Security, promote Sustainable Development, protect Human Rights, uphold International Law and deliver Humanitarian Aid (UN, 2016)

Acronyms

COP(21) – (21st) Conference of the Parties

ECOSOC – United Nations Economic and Social Council

FAO – Food and Agriculture Organisation of the United Nations

G7 – Group of 7 (Canada, France, Germany, Italy, Japan, UK and US)

G20 – Group of 20 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, South Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, UK, US and the EU)

G20 FSB – Group of 20 Financial Stability Board

GCOS – Global Climate Observing System

GFCS – Global Framework for Climate Services)

GHG – Greenhouse Gas Emissions

HLPF – High-level Political Forum

IAEA – International Atomic Energy Association

IASC – Inter-agency Standing Committee (UN)

IMF – International Monetary Fund

IPCC – Intergovernmental Panel on Climate Change

IPCC AR5 – 5th Assessment Report of the Intergovernmental Panel on Climate Change

LDCs – Least Developed Countries

LPAA – Lima-Paris Action Agenda

MEF – Major Economies Forum

MRV – Measurement Reporting and Verification

NASA – National Aeronautics and Space Administration (US)

(i)NDC – (intended) Nationally Determined Contribution

UN - United Nations

UNFCCC – United Nations Framework Convention on Climate Change

UN GA – United Nations General Assembly

UN OCHA – United Nations Office for the Coordination of Humanitarian Affairs

UNSC – United Nations Security Council

UNSG – United Nations Secretary General

SDGs – Sustainable Development Goals

SIDS – Small Island Developing States

SPF – Special Procedures Function (UN)

WB – World Bank

WCRP – World Climate Research Programme

WFP – World Food Programme (UN)

WHO – World Health Organisation (UN)

WMO – World Meteorological Organisation