

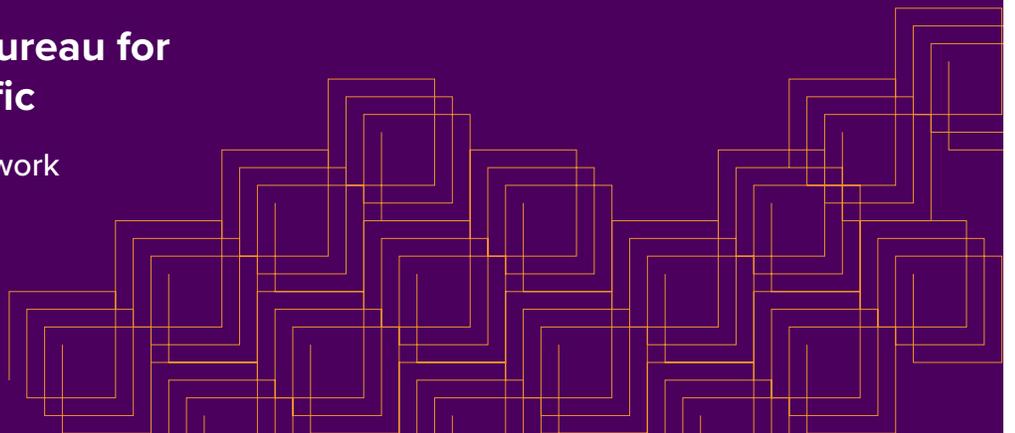


# POLYCRISIS AND LONG-TERM THINKING

REIMAGINING DEVELOPMENT IN ASIA AND THE  
PACIFIC FORESIGHT BRIEF | AUGUST 2022

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## INTRODUCTION

“A society grows great when old men plant trees in whose shade they shall never sit.”

The origin of this proverb is uncertain, but its precepts hold true across societies. It illustrates the importance of thinking and planning for future generations in order to ensure the prosperity of society. Yet our era is overly focused on the short-term, prioritizing immediate consumption and other behaviours that deplete resources at the expense of the long-term well-being of the planet and of humanity. Ensuring that our children and our children’s children are able to meet their needs will depend on our ability to reverse this tide.

This foresight brief examines how the increased pace of globalization since the mid 20th century has brought with it a slew of new, growing risks. Many of these risks are extreme in nature, some being existential ones that threaten our very survival as a society. They also tend to be interconnected, giving rise to new challenges as they have multiplicative effects on other risks and can lead to cascading failures and shocks. Moreover, if these novel, burgeoning risks are left unaddressed, they will continue to expand until they become so large that it is no longer possible to address them.

We see, however, that most traditional frameworks for managing risks are not equipped to deal with the complexities of existential and interconnected ones. Addressing these new, growing risks will require novel approaches. We will need to adopt more innovative modes of thinking, notably in the form of greater long-term thinking. It will also necessitate approaches that make better use of cross-disciplinary thinking. This brief will examine a host of policy measures and governance approaches aimed at fostering these requisite modes of thinking.

## THE ANTHROPOCENE: THE DAWN OF A NEW EPOCH IN HISTORY

In recent decades, the impact of human activities on the planet has been so profound that scientists have suggested that we are living in a new period, the Anthropocene Epoch<sup>1</sup> – the first in history in which humans are the dominant influence on Earth and on its ecosystems. From the mid 20th century onwards, the consumption of fossil fuels accelerated at an exponential rate, enabling greater production of consumer goods and services. Developments in transportation allowed people and goods to travel far longer distances more rapidly, boosting international trade. Increased consumption spurred greater urbanization and population growth, with the earth’s population nearly tripling between 1945 and 2014.<sup>2</sup> Information and communication technologies (ICTs) enabled rapid communication across the globe. This increased globalization marked the advent of unprecedented levels of economic growth.



Yet the benefits of globalization have not come without significant costs, nor have they been evenly distributed. Industrial production has brought a substantial increase in greenhouse gas emissions – 75 percent of the carbon dioxide that humans have emitted into the atmosphere has occurred since 1945<sup>3</sup> – contributing to climate change and causing severe environmental damage. While some of the carbon dioxide that we emit today will be reabsorbed into the oceans, as much as 70 percent may still be present in the atmosphere 100,000 years from now.<sup>4 5</sup>

Global inequity continues to rise, as advanced economies and large corporations are able to accumulate vast wealth and power by emitting large amounts of carbon dioxide and other fossil fuels, while other countries bear the majority of the consequences.<sup>6</sup> Macro-level decision-making across both public and private sectors have largely prioritized short-term consumption and profits at the expense of the long-term future of humanity and our planet.

We are now witnessing the cumulative effects of globalization without forward-looking governance. This includes a slew of new, growing risks that are particularly difficult to manage, including those which are existential and systemic in nature.

## **NEW, GROWING RISKS**

### **Existential risks**

The complexities of the Anthropocene have contributed to an increase in existential risks. These are risks that have the potential to cause humankind's extinction, or at least to severely curtail its potential. This includes those risks that bring us to the edge of the precipice, to permanent societal collapse. While existential risks have always been present, the majority are man-made in the Anthropocene Epoch. Prior to this, humans only had to contend with a very small number of existential risks, mainly natural ones, such as an asteroid's impact or a super volcanic explosion.<sup>7</sup>

The technological innovation of recent decades has brought greater potential for both progress and destruction. Nuclear fission – the breakthrough technology of this era – could be leveraged either to provide energy in the form of nuclear power or to develop nuclear weapons. The development of the atomic bomb in 1945 is considered the first man-made existential risk; for the first time in history the human race developed the ability to engender its own extinction. Another great leap in destructive potential followed with the hydrogen bomb, which was 1,000 times more powerful than the atomic bomb.<sup>8</sup> As the US and USSR stockpiled nuclear weapons during the Cold War and additional countries have become nuclear weapons states, this has increased the risk of a nuclear war that could cause millions of deaths, while further billions might die in a subsequent nuclear winter.

The field of artificial intelligence (AI) has ushered benefits ranging from improved automation in factories to enabling the better diagnosis of medical conditions. While AI systems at present are better than humans at a number of specific tasks, researchers hope to develop AI in the coming decades that will be on par with humans in all areas. Some researchers believe that superintelligence, in which AI surpasses human intelligence in all areas, would soon follow. If this were to materialize, it is possible that humans would be unable to control a superintelligent AI, which could even have the ability to exterminate humanity.<sup>9</sup>

Advances in biotechnology, too, are bringing numerous gains, such as new vaccines and crops that are resistant to pests and disease. Yet biotechnology advances could also lead to a man-made pandemic. Viruses generally become less virulent over time since it is not in their interest to kill their hosts before they can spread. However, humans could genetically engineer a virus to make it more lethal and infectious.<sup>10</sup>

The number of existential risks will continue to grow. As new technologies that have not even been conceived of are developed, new risks will emerge. Importantly, it is not simply that the “risks are [...] greater; they are also different,” as they “reflect a new complex interrelation of planetary changes and social imbalances.”<sup>11</sup>

### **Implications for risk mitigation mechanisms**

These man-made existential risks of the Anthropocene differ from the natural ones we have confronted in the past as they are much more difficult to assess and manage.<sup>12</sup> Natural risks can be estimated relatively accurately as historical data exists on asteroid impacts and the eruption of super volcanos, and these risks have been determined to be quite small.<sup>13</sup> But man-made existential risks are so new that we have almost no data to draw upon. We also have no track record of surviving them; humanity has only survived some 80 years since the development of nuclear weapons. The levels of risk to humanity may therefore be unprecedented.

Moreover, conventional risk assessment and mitigation practices have evolved based on learning from past disasters. When new risks manifest, the approach is generally to analyse the new pitfall, to limit the damage as much as possible, and then to incorporate the lessons learned from the disaster for next time. However, with existential risks, there is no opportunity for a ‘do over’.<sup>14</sup> When it comes to complex natural or social systems, tipping events that result from interactions across systems do not simply produce costs that can be learned from and then overcome; rather they can produce hysteresis, or “an absence of simple reversibility,”<sup>15</sup> that makes it impossible to return to the previously recognized systemic equilibrium.

In addition, as Homer-Dixon et al. (2022) argue, governance and risk analysis measures that fail to address the causal links between multiple existential crises could lead to a situation in which we face a “global polycrisis — a single, macro-crisis of interconnected, runaway failures of Earth’s vital natural and social systems that irreversibly degrades humanity’s prospects.” Avoiding this fate calls for new types of research and analysis frameworks to understand the causal dynamics that connect systemic risks and to inform actions to generate positive feedbacks.<sup>16</sup>

### **Interconnected and systemic risk**

Many of the existential risks discussed above also represent interconnected risks. While natural and social systems have always been characterized by interconnectedness, this has significantly increased in the Anthropocene Epoch. The broader repercussions of human activity on the Earth’s natural cycles are increasingly triggering a series of ‘feedback loops’, in which an impact on one element in the cycle further impinges on other elements, amplifying the effect of the initial reverberation. Man-made interconnectivities have increased in this period as well, as evidenced by greater global trade, transport, and communication networks and by interlinked supply chains and financial markets – and which are all also subject to feedback loops.<sup>17</sup>



These cycles are often part of complex systems, or of systems with a large number of highly interconnected elements. Complex systems interact with each other in continuous, multidimensional ways, making them unpredictable and prone to shocks, or unexpected events with severe impacts.<sup>18 19</sup> In a hypothetical example known as ‘the butterfly effect’, an effect as small as the flap of a butterfly’s wings in Brazil could be capable of causing a tornado in Texas several weeks later.<sup>20</sup> This renders complex systems liable to systemic risk – put simply, this means an event can spread to other parts of an interconnected system, accompanied by cascading failures, which occur when a single event triggers the collapse of an entire system.<sup>21 22 23 24</sup>

It also means that the impacts of risk can spread more rapidly than before, spurred on by the greater interconnectivities in communications and transport networks.<sup>25 26 27</sup> Risk impacts also reverberate more widely as the outcomes of these interconnected risks tend to be global.

**FIGURE 1: Climate change – forest fire feedback loop**

Image adapted from KAP Design, <https://www.kapdesign.ca/work/kap-infographics>

## Climate Change and Forest Fires

The number of forest fires appears to be on the rise. Here is how the climate change - forest fire feedback loop works.



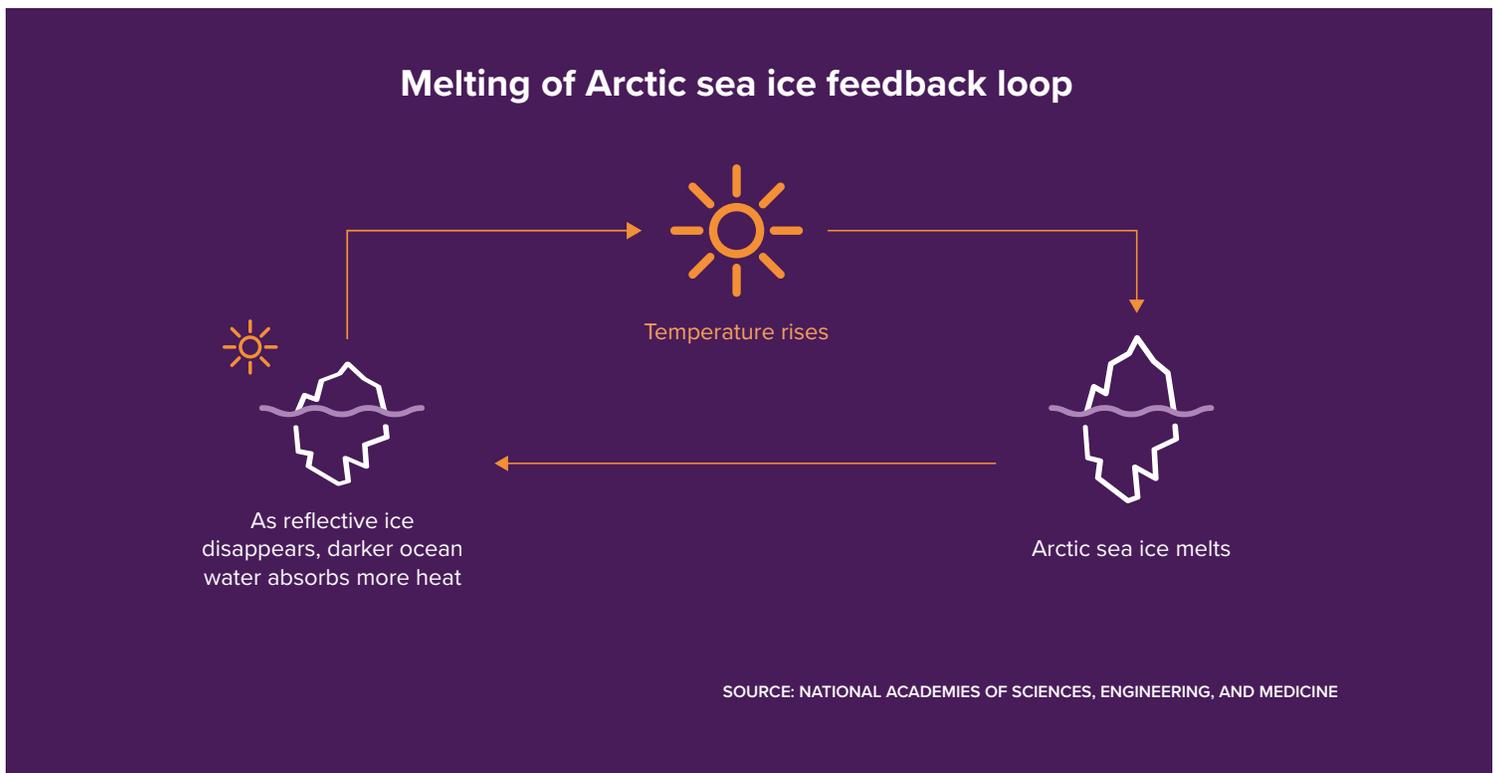
SOURCES: <sup>1</sup>Centre for Climate and Energy Solutions, [www.c2es.org](http://www.c2es.org), World Resources Institute

Climate change provides an apt illustration of how human-driven impacts can interact with the interconnectivities present in nature to amplify them.<sup>28</sup> As humans burn fossil fuels that release greenhouse gases into the atmosphere, trapping the sun's heat and causing rising temperatures due to the 'greenhouse effect', this triggers a series of feedback loops that lead to further global warming.

Rising temperatures create drier conditions that are more likely to fuel forest fires, which release carbon dioxide, further increasing temperatures.<sup>29</sup> Growing temperatures also cause the polar ice caps to melt, increasing the amount of dark ocean water that is less reflective of the sun so that the oceans absorb more heat, further causing the ice caps to melt and thereby increasing temperatures.<sup>30</sup>

**FIGURE 3:** Melting of Arctic sea ice feedback loop

Image adapted from "When nature harms itself: Five scary climate feedback loops," [www.dw.com](http://www.dw.com); Source: National Academies of Sciences, Engineering, and Medicine



Climate change has cascading effects on a host of other risks including pandemics, which have been brought into stark focus by COVID-19. Warmer weather expands the geographic range of disease-carrying mosquitoes, while increased incidences of flooding can impede access to clean drinking water and cause an uptick in waterborne diseases. Other human-driven trends amplify these effects. Increased urbanization results in more people living in overcrowded and unsanitary conditions and greater human-animal contact, which create more opportunities for disease transmission.

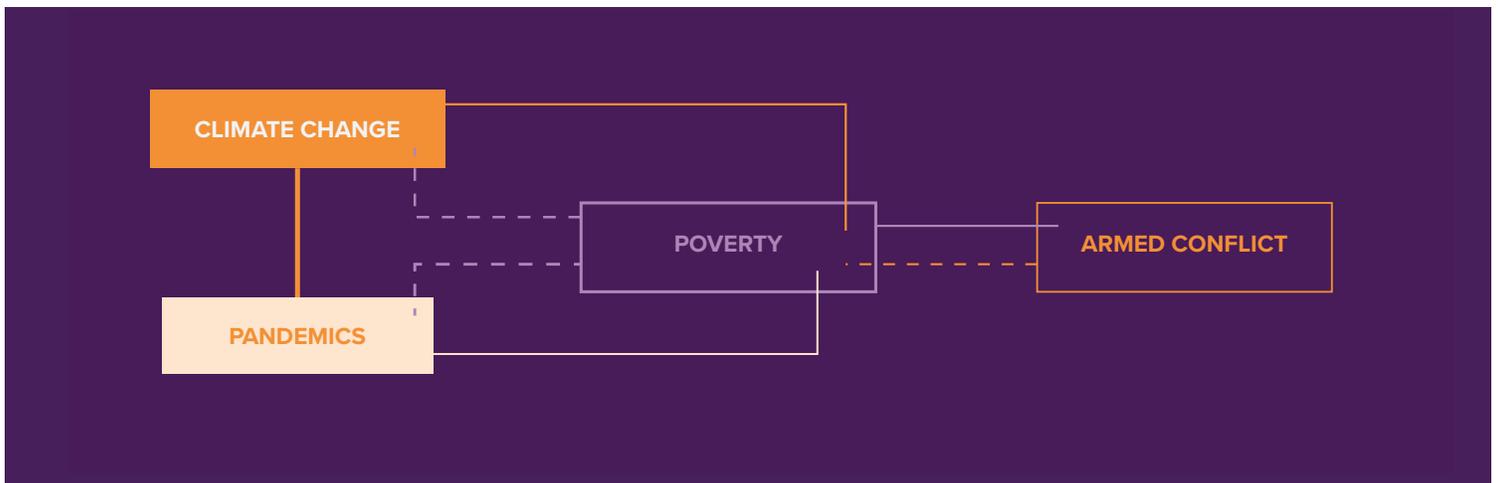
The impact of factors such as climate change and pandemics can exacerbate poverty and inequality. Climate change-induced extreme weather causes a decline in crop yields,<sup>31</sup> which harms household livelihoods and also has repercussions on the food supply,<sup>32</sup> resulting in malnutrition

and declining health. This has consequences for labour productivity and economic growth.<sup>33</sup> Meanwhile, pandemics result in job losses, causing economic hardship for workers. Once pushed into poverty, people can become trapped within feedback loops that imprison them for generations: intergenerational poverty begets poor health and a lack of education, impacting people's ability to work and further catapulting them into indigence as part of a vicious 'cycle of poverty'.<sup>34 35</sup>

Poverty and inequality in turn also increase climate change and pandemic risks. Lower-income countries may not have the luxury of curbing their greenhouse gas emissions, increasing global warming, while a lack of resources can result in poor sanitary conditions that trigger pandemic outbreaks.

As poverty and inequality increase, so does the risk of conflict.<sup>36</sup> Such conditions can fuel social unrest, including protests and riots as citizens demand change. Poverty and inequality can also lead to armed conflict between states, as countries must compete for scarcer resources, and some may engage in armed aggression to access them. Chronic conflict also contributes to poverty and inequality.<sup>37</sup> Since climate change exacerbates a number of existing threats, including to security, it has been termed a 'threat multiplier'.<sup>38</sup>

**FIGURE 4:** Cascading effects of climate change on other risk areas



### Implications for risk mitigation mechanisms

Akin to existential risks, those risks that are increasingly systemic are much more difficult to evaluate and manage than conventional ones. Conventional risks can be isolated relatively easily and can thus be effectively managed with step-by-step, linear approaches, as current risk management practices rely on. Such frameworks ultimately work best for risks that function through relatively predictable trends and cause-and-effect relationships. In such cases, one can assign probability ratings to the risks, thereby making it easier to design mitigation strategies and to prioritize investments. However, effective methods for evaluating and managing systemic risks remain limited.<sup>39</sup>

The longer these emerging risks are left unaddressed, the larger they grow and the more unknown their potential magnitude. As they increase in magnitude, they also become much difficult to tackle. This means that if sufficient efforts are not made now to address them, they will become so large in coming decades that they may become insuperable.

What we are grappling with is more than an increase of risks – looming larger is the resulting surge in uncertainty. It is not just that existential risks are growing, but they are converging at faster rates and causing new types of tipping points across borders and across critical areas. For example, in 2022, the conflict in Ukraine, compounded by global events related to climate change and food production constraints, led to heightened vulnerability in Pakistan across numerous dimensions – from severe wheat shortages to a reduced energy supply. Uncertainty has become an increasingly nebulous concept in today’s global risk landscape, as it reflects “uncertainties in the minds of people about future events that may or may not happen.”<sup>40</sup>

Examples like this also underscore the reality that “in the Anthropocene, the local is no longer local” and “the global is not just global [...] with patterns and processes that may rapidly disperse as a consequence of scale, connectivity and speed.”<sup>41</sup> It means that a risk analysis framework for a policy or programme has to account for not only the known, or knowable, variables but also for the unknowns and unknown unknowns, including the ways the outcomes of a local intervention may be influenced by and trigger effects in other areas and regions.

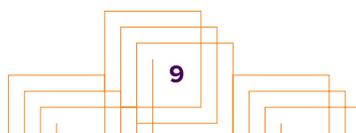
Equally, designing measures for adaptive corrections in programming, risk management and funding allocation becomes all the more important as the likelihood of future disruptions means that “development pathways that are considered sustainable now will eventually be pushed in unsustainable directions” and assessments that conclude that certain future pathways “should be sustainable will eventually turn out to be wrong.”<sup>42</sup>

Part of the new thinking required for dealing with risks in the Anthropocene is also an ability to recognize the fallacies of binary thought models that characterize many paradigms at the heart of sustainable development policy. This includes reliance on definitions of “nature” as something distinct from humanity and, by extension, on the limitations embodied by the concept of “environmental” policy itself or economic models that frame and reinforce understandings of human behaviour as “concerned only with cost optimization.”<sup>43</sup>

Such thought frameworks risk perpetuating forms of analyses and mitigation strategies that treat the “natural world and human world separately [and miss] emergent phenomena such as critical tipping points”, and the feedback loops between human norms and behaviour and the earth system’s dynamics.<sup>44</sup>

## ADDRESSING THESE CHALLENGES

How, then, do we tackle these new and pressing challenges? The risk analysis techniques that we have developed in the past and employed until now are no longer fit for purpose in managing the existential, systemic and uncertain risks of our era. We need new approaches to understand and prepare for these risks, which exhort us to embrace new ways of thinking.



## Long-term thinking

### The need for long-term thinking

These are all major, complex challenges for which no quick fix is available. Addressing them will require more long-term thinking to reframe the decisions behind development processes. Long-term thinking can be thought of as an intentional consideration of what might happen in the future, the choices for influencing it and the consequences of those choices.<sup>45</sup> It has always been necessary, but perhaps not as urgent to integrate into policy contexts were the risks confronting us not existential or as systemic in their effects. It is imperative to encourage policymakers and practitioners to not only practice thinking for the long-term, but equally to question how existing design processes and accountability frameworks for change management support or contradict the possibility of acting on the basis of long-term thinking.

Many of the challenges of the Anthropocene could result in catastrophic consequences today, tomorrow and certainly within our lifetimes. If we had been better prepared for a shock like COVID-19, the number of deaths and the economic fallout could have been reduced. Yet, as the pandemic has illustrated, long-term thinking and analysis in itself is not enough. Many had forecast an event like COVID-19, but its presence in rigorous futures analyses failed to translate into governments and development actors making significant investments in macro-level preparedness. Long-term thinking, coupled with long-term planning, can increase general preparedness and resilience in order to either prevent shocks or to minimize their impact. But ensuring its application requires us to also examine the incentive structures that drive decision-making, including the mechanisms for funding, assessment and the forms of evidence that hold the greatest weight in development contexts.

As problems we fail to address now continue to unfold over multiple lifespans, they will continue to increase in scale and complexity, eventually becoming unmanageable. Many decisions we arrive at today will have an impact for centuries. If we do not sufficiently curb our greenhouse gas emissions, we will reach a tipping point – after which runaway climate change will be unrelenting. Similarly, if we do not design AI systems that are compatible with human values early on, it may be impossible to reengineer them after the fact.<sup>46</sup>

Yet this also means that we have an opportunity now to affect the future for the better if we make wise decisions. The nature of interconnected systems means that – much like the butterfly that flaps its wings – we may only need to make small changes now in order to exert a major impact over the long-term. It additionally means that spending to resolve long-term problems now is more cost effective than if we wait until they have snowballed; investments in prevention pay for themselves many times over, although many fail to realize this fact.<sup>47</sup> Long-term thinking will be crucial to ensure that our children and our children's children have a prosperous future. Given the existential nature of some of these challenges, it will also safeguard the long-term survival of the human race.

## DEFINING LONG-TERM THINKING FOR DEVELOPMENT INSTITUTIONS

While for an individual, long-term thinking might simply mean considering the long-term impacts of the decisions we make, long-term thinking in the context of an institution pertains as much to the mental models of the individuals as it does to the question of what it means to align governance structures with future-oriented modes of knowledge creation and action.

A more structural definition of long-term thinking could encompass sets of operating principles or characteristics by which an institution can be more responsive to the long-term, or to the nature of development challenges understood through a futures lens. For instance, if the future is:

- Uncertain, then institutional long-term thinking could entail: adaptive programming mechanisms, guided by long-term visions and strategies that consider many future possibilities.
- Dynamic, then institutional long-term thinking could entail: learning-centric decision-making models, with shorter action-learning cycles to regularly test assumptions about the future and programmatic means of navigation.
- Interconnected, then institutional long-term thinking could entail: research, knowledge and collaboration mechanisms that reduce organizational siloes, with accountability frameworks that incentivise joint, long-term outcomes.

While this section ultimately outlines the value of long-term thinking as a means of more effectively navigating the complex risks and uncertainties of our time, it should be noted that it does so with a view to its limitations (discussed further under “Constraints”). Most notably, if one dimension of long-term thinking pertains to considering the future and the well-being and interests of future generations when determining actions in the present, the other lies in reconciling the outcomes with the reality that no matter how sophisticated the analysis methods, or how intensive the investments in long-term thinking, the future still remains unknown. Likewise, the experiences and desires of future generations, while possible to imagine, are impossible to know.

This inherent tension does not negate the value of efforts to assess future dynamics, ultimately derived from a combination of existing evidence and patterns, informed imagination and abductive reasoning. Rather, it points to the necessity of a nuanced conceptualization of long-term thinking: one that cannot be divorced from governance systems, mental models and organizational cultures that allow decisions and actions to be *guided* by rigorous consideration of possible future risks and opportunities, but *not wedded* to any singular course when events unfold differently than anticipated, or futures-informed actions yield unforeseen effects.

### How to foster greater long-term thinking

Achieving greater long-term thinking will require governments to overcome their tendencies towards the short-term. This is especially true of democratic systems of governance, where electoral cycles incentivise politicians to pursue policies that generate quick wins for their re-election campaigns rather than address critical long-term challenges that might take decades to get results. This is exacerbated by the 24/7 news cycle, made even more fast-paced by the advent of online news, which further impels politicians to focus on the present.

### ***i. Embedding long-term thinking into political mandates and structures***

A central question concerns how we can revamp governance systems in order to allow for long-term thinking.<sup>48</sup> Some countries have taken the approach of establishing a future generations commissioner, who advises the government on how decisions will impact future generations. Wales is the most prominent example, with its creation of a Future Generations Commissioner in 2016. The role was enshrined into law with the Well-Being of Future Generations (Wales) Act 2015, giving it a compelling sense of permanency.

#### **DO FUTURE GENERATIONS COMMISSIONERS HAVE THE POWER TO CATALYSE INSTITUTIONAL CHANGE?**

Some have questioned whether the Welsh Future Generations Commissioner has enough power, given that the office only has the authority to make recommendations. However, its advisory role may imbue it with its best chance of success, as in other instances future generations commissioners had powers that were dissolved, perhaps because they were regarded as inhibiting work underway, rather than as enablers of better policy.

Israel and Hungary both had Commissioners for Future Generations established within their Parliaments<sup>1</sup> with robust powers to veto or impede the passing of legislation, and they used those powers frequently.<sup>49 50 51</sup> In Israel the Commissioner's mandate was simply not renewed when it expired, while in Hungary the role was combined with others to create a Commissioner for Fundamental Rights whose powers are more limited. These shifts followed government regime changes, and while budget cuts were cited as the official reasons, it was likely because they delayed legislation too frequently.

One must also recognize potential tensions and trade-offs between decisions that prioritize the well-being of current and future generations. In some contexts, future-fit strategies that prioritize long-term goals could in fact reduce efficiency in achieving certain outcomes in the short-term. Thus, even conceptions of what constitutes 'better policy' or 'impediments' may require elucidating among stakeholders. Gaining buy-in for a Commissioner for Future Generations, for instance, might require advocacy that articulates its value as a means to strengthen existing goals and procedures, while also supporting a dialogue that gradually broadens perceptions of good policy, notions of urgency and the metrics of effectiveness when considered against long-term policy priorities.

Countries working to embed long-term thinking often look to their Parliaments as the most appropriate venue for this exercise. Finland set up a Parliamentary Committee for the Future while Scotland established the Scotland's Futures Forum in their respective parliaments. Both of these organizations act in a think tank-like capacity. This makes them particularly effective as it helps them to be perceived as enablers that support the development of better policies.

Enshrining long-term thinking elements into law is another approach, as the difficulty of changing legislation makes it an extremely powerful tool. In recent years a number of countries have adopted constitutions, or updated them, to reflect their responsibility to future generations.<sup>52</sup> This approach of legislating broad general principles rather than overly specific requirements that might need to be changed later is ideal, otherwise the effect could be to constrain rather than enable good policies.

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1 Israel from 2001-2006 and Hungary from 2008-2012

This is also relevant at the sub constitutional level, as an approach to structure operational strategies and programmes. Designing programmes as a collection of interconnected experiments towards a high-level vision, strategic intent, or a set of broad principles, as opposed to overly detailed outcomes, for instance, can provide more opportunity for iterative learning and programmatic adaption in pursuit of long-term goals.

It is also worth noting the relationship between long-term thinking and governance movements focused on well-being. Where governments have sought to prioritize well-being as an organizing principle for economies, for instance, it has generally translated into policymaking with longer time horizons, and greater prioritization of the intertwined future well-being of people and the planet in economic decision-making. Most critically, well-being economies have proved a valuable entry point for institutionalizing a long-term and future generations-focused mindset into processes and structures. Some governments have adopted more holistic policymaking through “national policy frameworks that mandate collaboration between government departments and public bodies, place well-being in the centre of budgeting decisions, and introduce indicators of prosperity other than gross domestic product (GDP).”<sup>53</sup> New Zealand has led on this, adopting a Well-Being Budget in 2019 that looks not just at GDP, but also at 12 other indicators of well-being, including housing and social connections.<sup>54</sup> <sup>55</sup> It has enabled new ways of defining and tracking progress that explicitly factor in the “long-term impact for future generations,” while also introducing new ways of working and designing interventions to meet these long-term, systemic outcomes.<sup>56</sup>

## ***ii. Applying long-term and anticipatory thinking to evolve planning and governance models***

One approach to enhancing long-term thinking that governments or organizations can use more broadly is the use of strategic foresight methods, a discipline that involves exploring different possible futures to be able to better prepare for them. In order for foresight to be effective, both the production of high-quality foresight output documents and ensuring the findings are implemented in government policy are needed. This includes having policymakers take part in the foresight work itself, which helps make the resulting analyses more tangible and useful to policymakers, hence more likely to actually be implemented in policy.

Embedding long-term thinking also relies on long-term planning.<sup>57</sup> Strategic foresight is a valuable entry point, given that long-term planning requires anticipating what may occur in the future and understanding the implications.<sup>58</sup> Foresight insights may be used during planning to consider how effectively responding to multiple possible futures might be achieved and to integrate these options into policies, including how to prioritize and invest in the resources to actualize these goals.

More than the utility and relevance of foresight-informed insights, however, institutionalizing the use of foresight into planning processes calls for future-fit governance systems. Anticipatory governance is one such model. The applied use of foresight – and the shifts needed at the level of institutional processes, infrastructure, operational agility, culture, relationships and mindsets to make space for the meaningful application of knowledge about future risks and opportunities in decision-making, planning, and implementation of policies and programmes – is the work of anticipatory governance. It entails processes to build the supportive ecosystems and institutional muscles to realize the transformational effects of more forward-looking mindsets and methods for planning and programming.

Some core pillars for building anticipatory governance include: 1) a foresight system (providing the means to generate and interpret knowledge about the future); 2) pathways to integrate intelligence

about the future into policies and implementation; 3) a feedback system to assess outcomes; and 4) an overall shift in culture and structures.<sup>59</sup>

### CASE STUDY: SINGAPORE CENTRE FOR STRATEGIC FUTURES

In Singapore, the Centre for Strategic Futures, a think tank within the Prime Minister's Office dedicated to foresight, has been extremely successful at both producing high-quality foresight work and implementing its policymaking precepts as part of a broader anticipatory governance system. It has achieved this through over a decade-long iterative process of investing heavily in training its civil servants in foresight methodologies.<sup>60</sup> This has ensured their significant involvement in the foresight work itself. It is also structured to identify priorities for the whole of government and to coordinate them across ministries and agencies, and to then integrate them into the planning process.<sup>61</sup>

An important aspect of anticipatory governance and planning is to maintain a degree of agility, given the uncertainty of the future. This is even more vital with the accelerating pace of change, and when complex systems are involved. It is difficult to anticipate what people's lives will be like even a few decades into the future, and thus what their preferences and needs will be. While long-term planning is essential, we need to plan for uncertainty and be ready to adapt rapidly when confronted with change. Achieving adaptivity and agility in the context of well-established governance systems or policy frameworks may require considerable investment in evolving current structures.

It could also entail prioritizing applications of foresight initially in contexts that already have a higher risk appetite or flexible mechanisms for funding or reprogramming that enable adaptations as the risk and opportunity landscape shifts. Some areas to look for flexibility, or to consider opportunities for gradual reforms, include touchpoints for reflection and adaptation within standard planning cycles; budgeting and resource allocation processes; planning artifacts, including the rigidity of a project document, a policy, or a guideline; and accountability mechanisms, including the ways indicators and theories of change are formulated.

### *iii. Assessment methods to support long-term thinking in policies and programmes*

Future impact assessments of major policies and programmes can be an important way to inject more long-term thinking. Impact assessments are a process for thinking through what the consequences of proposed actions might be when there is still a chance to modify or even stop them. They generally consider the impact on people and the environment, and it will be important to extend these to also reflect their impact on future generations. One such attempt is the "Framework for Assessing Intergenerational Fairness" developed by the School of International Futures, in partnership with the Calouste Gulbenkian Foundation. The framework was designed to assess the impact of a policy over the long-term and whether it is fair to present and future generations.<sup>62 63</sup>

Another framework that can be adapted to multiple contexts for more futures-conscious policy design is the emerging futures impact assessment being worked on by UNDP RBAP (see Appendix 1). It offers lines of inquiry related to policy substance and process to support an analysis that addresses the overarching question, "Could this policy restrict future choices or opportunities for the policy's target population?"

Beyond introducing future impact assessments, it is important to understand the existing decision-making ecosystems, from the current premise and evidence base used for decision-making to the

structures and incentives that grant more legitimacy to certain insights over others. Starting from this understanding of the ‘why’ and ‘how’ of current planning processes also helps to inform the leverage points for the uptake of a tool like a future impact assessment. Such analysis should clarify, among other dynamics, the relationship between a stakeholder group’s rhetorical or mandated interests in the long-term and the realities of informal incentive structures that might force one to forfeit these.

This could range from political relationships to delivery pressures at the operational level that render short-term, visible outcomes more appealing for a civil servant or the organization as a whole to prioritize rather than undertake further analyses that might expose the long-term costs of current ways of working. (See Appendix 2 for some lines of inquiry to inform a decision-making ecosystem analysis.)

Another way to foster long-term thinking involves using a lower discount rate when assessing whether or not to undertake projects that have long-term impacts. A discount rate is based on the idea one dollar today is more valuable than one dollar in the future. There are a number of reasons for this, including that you can invest that dollar today and earn interest on it,<sup>2</sup> and that people by nature prefer to have a dollar today rather than a dollar in the future<sup>3</sup>. Discount rates are used by governments, international organizations, companies, NGOs and others when calculating the benefit-cost ratio of a project with long-term impacts.

A high discount rate gives a significantly higher weight to present benefits relative to future benefits, while a discount rate of zero weighs present benefits and future benefits equally. In order to take greater account of the needs of future generations, those making decisions on projects that have long-term impacts may want to consider using lower discount rates than what they have been using up until now. More broadly, a decision-maker should consider ways to expand the discount rate to also factor in social and ecological benefits. Combining it with a future impact assessment might support this more holistic cost-benefit analysis.

#### ***iv. Supporting long-term thinking in the private sector***

It will also be important to induce companies to operate in ways that support long-term interests. As discussed earlier, a number of corporations emit large amounts of carbon dioxide that contribute to climate change. Other companies are involved in designing tech products in areas such as AI or biotechnology that could pose existential risks to humanity if they are not designed or handled in a responsible manner.

Most concerning, the underlying structure and *raison d’être* of much of the business sector orients it toward the short-term. The issue of short-term incentive structures in the private sector has significant knock-on effects for societal development as a whole. The “fundamental role [businesses] play in bolstering and/or undermining development, human rights and peacebuilding,” coupled with megatrends of decreasing legitimacy of social contracts, trust in government and evolving understandings of the centrality of the state in governing public goods in many places, further underscores the inextricable connection between the realization of long-term thinking in both the public and private sectors.<sup>64</sup>

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2 Known as the ‘time value of money’

3 Known as ‘time preference’

In the context of democracy more broadly, we see these connections in the steep influence of corporations on policy decision-making processes. For instance, it appears in the ways that “unchecked corporate power has enabled private interests to discredit science and delay action on issues from toxic chemicals to global warming.”<sup>65</sup> Likewise, an important channel of influence exists in the increasing role of private companies in controlling infrastructure governance pertaining to democratic processes, such as social media spaces that enable public debate or social movements.

The more the lines between the governance function of the state and businesses blur, the more important public-private sector collaboration and aligned measures of value creation beyond financial gains become as enablers of institutional long-term thinking in themselves. This includes the ability for a government to act on decisions that prioritize the long-term, even when they potentially work against the bottom line of powerful corporations.

A number of proposals have been put forward to address these issues through reforming the business model of companies. One is to discourage companies from issuing short-term earnings guidance, and to require the ones that do to put that guidance in the context of their long-term strategy.<sup>66</sup> Another is to introduce cumulative earnings reporting, so each quarter builds on the next.<sup>67</sup> Giving greater voting rights to investors that have held stocks for longer periods would also be beneficial,<sup>68</sup> as would linking the pay of executives to sustainability targets – something that some companies have already started to do.<sup>69</sup>

Another way to get the financial sector to move away from overly focusing on economic growth at the expense of sustainability is to promote complementary measures to GDP that account for other long-term measures.<sup>70</sup> In the public sector, this has occurred through budgets tied to measures of progress beyond economic growth, such as New Zealand’s incorporation of 12 indicators of well-being, including housing and social connections in its annual “Well-Being Budget.”<sup>71 72</sup>

Companies can similarly follow this example of accounting for social and environmental outcomes in the formulation of contracts and evaluations of their returns on investments.<sup>73</sup> However, this also requires a broader paradigm shift in the business ecosystem, so that businesses that choose to prioritize social benefits as much as financial returns are able to sustain themselves amid competitors. This includes through the influence of government policies on business incentives and on regulatory environments.

There is also considerable cross-over in the mentalities and end game of long-term thinking and rights-based thinking. For businesses in particular, frameworks like the United Nations Guiding Principles on Business and Human Rights can provide benchmarks of accountability conducive to the interests of both present and future generations. Prioritizing human rights as an operating principle for doing business can help to mitigate the emphasis on short-term financial gains at the expense of human well-being and long-term equity in societies at large.

## Cross-disciplinary thinking

### The need for cross-disciplinary thinking

Longstanding mainstream intellectual traditions of treating issues in isolation may have been appropriate in an era where risks were less systemic, but it is no longer sufficient for our highly interconnected world where those interrelations continue to increase. Addressing issues such as poverty and inequality requires expertise from fields such as climate change, pandemics, armed conflict and a host of other spheres. It is therefore paramount to encourage policymakers to embed cross-disciplinary thinking, or approaches that combine a wide array of disciplines, into their decision-making frameworks and institutional knowledge architectures.

Cross-disciplinary thinking is also needed because operating within complex systems means that policies in one area may have trade-offs for others; reducing risk in one area might cause an increase in risk in another. For example, efforts to reduce poverty and inequality by fostering economic growth in countries with low levels of industrialization might result in increased carbon emissions thereby contributing to increasing climate change. Managing these trade-offs requires a holistic understanding of these interconnections that can only come with a cross-disciplinary approach.

At the same time, the dynamics of complex systems can provide major opportunities, as policies in one area could also have benefits that apply to a number of other spheres. While at present, various feedback loops are intensifying many of the critical challenges we face, it is also possible to leverage feedback loops so that they can have outsized impacts on reducing these challenges. That is, a policy intervention to reduce a risk in one area that is a root cause of a number of other risks could – with its impact being magnified by feedback loops – also reduce risks in a large number of other areas. Doing this successfully requires cross-disciplinary expertise in order to obtain a keen understanding of the complex interactions involved, especially given the potential for unintended effects. If this is achieved, however, it can generate significant efficiency benefits and cost savings.

### How to foster greater cross-disciplinary thinking

Fostering greater cross-disciplinary thinking requires intentionally designing development strategies on the basis of these interconnections, or understanding the nature of interconnectivity in risk and opportunity management. For a government, this could include considering what it might mean to embed interdisciplinary thinking into how it structures its core machinery, its frameworks for measuring and funding outcomes, or leveraging various collaboration architectures across the stages of a policy process. An application of cross-disciplinary thinking applied to public budget mechanisms, for instance, could include expanding the use of co-financing, or financing approaches in which “two or more sectors [...] co-fund an intervention or broader investment area which advances their respective objectives simultaneously.”<sup>74</sup>

Operating from a cross-disciplinary perspective, however, is not only about combining insights across different sectoral bodies of knowledge from mainstream institutions, but, on another level, reducing binaries and siloes across different ways of knowing and forms of expertise. In considering the implications of new types of threats, challenges and opportunities that 21st century governance must confront, UNDP (2022) recommends that development actors “engage with governance as both a technical and political undertaking,” “mainstream trust-building approaches through development work” and “draw upon feminist approaches to ‘build forward better’.”<sup>75</sup>

The recommendations speak to a fundamental aspect of instigating long-term thinking in governance contexts more broadly – the ability to work with the intangible factors that influence individual and institutional behaviour – from cultural and social norms to mental models, relationships and power dynamics. Moving towards long-term thinking entails the introduction of planning, data collection and sensemaking approaches that call for greater risk appetite, deeper collaboration, and openness to thinking ‘outside the box,’ while still working within the confines of long-established and often quite formalized boxes for decision-making. The work is therefore just as much about building relationships, trust and political will, and spaces for psychological safety and reflexivity on power dynamics in order to address barriers to collective thinking, as it is about technical expertise, tools for strategic foresight, or cross-disciplinary academic research and evidence.

While the rhetoric of the ‘whole-of-government’ approach has grown in recent years to realize this model in the public sector, particularly in the context of the means of implementation to achieve the 2030 Agenda for Sustainable Development, meaningful cross-government collaboration remains a challenge in many contexts. Many governments have placed an emphasis on the establishment of cross-government forums, task forces or digital infrastructure to facilitate more joint thinking and planning. However, understanding the locus of power that dictates decision-making and the incentives to privilege certain information, or certain outcomes over others, must complement the establishment of any structures whose primary function is to generate more cross-sectoral knowledge and idea generation.

Particularly for policy contexts, it is helpful to have tailored systems thinking tools that both depict the interconnections across elements of a development ecosystem, and that help to make explicit the potential trade-offs or multiplier effects of different policy or intervention options. The UNDP SDG Accelerator and Bottleneck Assessment Tool, for instance, enables governments to move from analysing a system to identifying concrete policy entry points based on such analysis, which can be integrated into implementation and monitoring plans.<sup>76</sup>

However, as with the application of cross-disciplinary thinking, translating systems thinking into policy decisions and action, particularly in the public sector, requires “room to change the structures and functioning of government in line with systemic needs.”<sup>77</sup> Here, it might be more valuable to consider pathways for incorporating applications of “systemic design” as opposed to systems thinking alone: that is, the combination of systems thinking with design practices to help translate new thinking into action.<sup>78</sup>

Rather than thinking about the ability to work within systems from simply an analytical perspective or as a function of tools for mapping its dynamics, the systemic design orientation entails a more holistic effort to adapt the enabling ecosystems through which collective decision-making processes can be most responsive to emergence and complexity. The ‘design’ element is also helpful in marrying systems thinking with experimentation, making it possible to expand learning about a system, including leverage points for change and the relationships among them, by way of continuously intervening in the system and reflecting on the resulting effects.

Expanding capabilities for systemic design may also support pathways for reforming institutional structures and culture to embody systems thinking, particularly in contexts where it is impossible to predict or engineer the outcomes of interventions to achieve long-term goals. The systemic design principles that Bijl-Brouwer and Malcolm (2020) propose offer some starting points for adapting the processes and focus of co-creation, decision-making and learning spaces to cultivate more systems-oriented modes of thinking and acting. They include “opening up and acknowledging the interrelatedness of problems; developing empathy with the system; strengthening human relationships to enable learning and creativity; influencing mental models to enable change; and adopting an evolutionary design approach.”<sup>79</sup>

Finally, fostering research regarding the development of new methodologies to manage interconnected risks would be an important way to encourage cross-disciplinary thinking. As discussed earlier, our traditional risk assessment practices do not account for interconnected and systemic risks. There has been some preliminary research undertaken regarding how we might be able to extend these practices to account for them. One option is to move from the traditional risk assessment practice involving just two dimensions of risk – impact and likelihood – to a four-dimensional approach that also considers interconnectivity and velocity.<sup>80</sup> Another is the use of horizon scanning approaches as part of risk analyses in order to systematically scan for long-term drivers of risks and signals of change, and integrate their implications into the prioritization of risk mitigation measures. However, much more work is needed in this area.

Likewise, as described previously, any introduction of new tools and practices to support more long-term approaches to risk mitigation mechanisms and systemic design – including those approaches which create more touchpoints for learning and relationship-building as part of any work to reframe understandings of systems – cannot happen in isolation. They should be considered within broader efforts to transform governance structures in ways that create more space for anticipatory and adaptive decision-making.

## 5. CONSTRAINTS

This paper advocates for greater investment in long-term thinking, offering pathways to infuse more intentionality into ways of thinking about the future and its implications for policy and governance contexts. At the same time, it is important to reiterate that while these methods can help to enhance preparedness, the mindsets – particularly the posture of humility – by which such pathways are pursued play a key role in their efficacy.

Like any other tool, techniques for long-term thinking can yield very different outcomes depending on the intentions and understandings of their outcomes. While they can help to catalyse more systems-oriented, future-facing, and ultimately, transformational development processes, they could also be used to reinforce the same kind of ‘God Complex’ that characterizes many conventional, linear approaches to development planning by presuming a capacity to predict what is unknowable, or to engineer what is complex and uncertain.

Two overarching areas for further consideration and research pertain to how to navigate the constraints of long-term thinking in relation to the following:

**1. Establishing what people in the future will care about**, as a standard by which long-term thinking is meaningful. Among the challenges many governments face is how to genuinely make space for, listen to and make decisions based on the needs, interests and aspirations of communities who bear the brunt of harm and risk in the present. Long-term thinking compounds this challenge, extending the question to what it means to meaningfully ‘listen’ to the interests of those in the future – as part of what is required to achieve ethical, just and sustainable governance. While these are distinct challenges, both call for enhanced capabilities and infrastructure by which policymakers and societies can exercise moral imagination and dialectical thinking.

As part of this, whether attending to present or future populations, the process to derive meaning and arrive at decisions from data that is qualitative, divergent, subjective, and – in the case of future generations – imagined, the legitimacy and utility of resulting decisions lie in large part in the transparency of the meaning-making processes themselves. The less possible it is to rely on technocratic solutions, engineering and objective facts for decision-making – as is increasingly true of challenges in the Anthropocene – the greater the urgency to create mechanisms to acknowledge the sources of, to agree upon and to consistently revisit the relevance of the values, visions and principles against which inherently incomplete information is translated into decisions for the public good. This applies whether it be information about the future, or about diverse populations’ experiences and priorities in the present.

This transparency around how shared values are deliberated is also critical for designing risk mitigation frameworks to navigate extremely volatile futures, which calls for shifting away from the largely financially-driven premise of many conventional risk frames. With less risks that can be “priced and crystallizable” when thinking about long-term development trajectories, one needs to also “talk about the price or value of a human and how to price risk to human life, or price the risk to human thriving and development.” Without this shift, these categories of risks and the “non-asset owners” in societies will remain largely ignored.<sup>81</sup>

**2. Designing governance and risk frameworks optimized not only for future risk, but also future uncertainty.** While strengthening resilience in the face of uncertainty is in part a function of incorporating more systematic consideration of long-term, future risk within ongoing policy or programmatic analyses, the risk lens to navigate the future is not a catch-all.

Whereas a risk-driven approach to long-term thinking supports the formulation of actions on the basis of what *might* occur – that is, potential risks that can be hypothesized through known research, trends and signals of change – it is equally necessary to plan for unknown unknowns. This seemingly paradoxical form of planning ultimately connects to the ways that governance frameworks are designed.

Most mainstream governance is optimized to address what is, or theoretically can be, known with a relative degree of predictability. For instance, defining measurement frameworks and success indicators on the basis of evidence and patterns from the past, or projections of the future, means that more attention and resources are channelled to the ‘known’ or conceivable development trajectories and, in some cases, anticipated disruptions or risks. The question then is how can governance be designed to ascribe as much weight to what cannot be assigned any reliable probability of unfolding, or to what cannot even be conceived of.

This includes the ability to respond to the kinds of accelerating and increasingly unpredictable convergence of risks that create tipping points that are either completely new, or unpredictable in their scale or sites of influence. Responding proactively in the face of these partially imaginable, but still uncertain, tipping points will also mean learning how to define thresholds for action and investments on the basis of new types of criteria and logics than what may have been appropriate in the past.

While these remain areas for further exploration, some institutions and researchers have started to articulate the kinds of underlying logic that will be crucial. This includes Demos Helsinki's concept of "humble government," being piloted by the Finnish Government, in which "policy-making begins with an acknowledgment of the prevailing uncertainty and is thus built as a continuously iterative process, in which actors are willing to (and allowed to) change their mind as new information arises."<sup>82</sup>

## CONCLUSION

We have seen that the rise in existential and interconnected, systemic risks means that we need to radically change our ways of thinking in order to incorporate both long-term and cross-disciplinary approaches to address these crucial issues. In this paper we have presented a number of ways of applying long-term thinking in development policy and governance contexts. Taking them up will be essential to overcome the excessively short-term, consumption-driven nature of decision-making in the Anthropocene Epoch such that it is instead characterized as an age of wisdom and responsibility, one in which we have planted the seeds for future generations to flourish.

## APPENDIX 1 – FUTURES IMPACT ASSESSMENT (WORKING DRAFT)

The UNDP RBAP Futures Impact Assessment, an emerging approach under elaboration, is designed to analyse the impacts of policy interventions on the universality of life, intergenerational justice and the capabilities and freedoms needed to ensure that long-term impacts do not unfairly privilege one group over another.

The fundamental question that this futures impact assessment aims to answer is: **Could this policy restrict choice or opportunity for the target population in the future?**

To obtain that answer, this impact assessment is divided into two components – Substance and Process.

FUTURES IMPACT ASSESSMENT	
<b>Substance</b>	What assumptions have been made about whether this policy will have relevance for people in the future?
	Could the policy contribute to tipping points <sup>1</sup> that might increase risk or uncertainty in other areas?
	In what ways could this policy mitigate identified future risk in the short-, medium- and long-term (indicate timeline)?
	In what ways could the target population be harmed (or have existing harms amplified) by the impacts and consequences of this policy in the short-, medium- and long-term?
	Has this policy considered how issues of fairness, justice and equity might evolve for the target population into the future, and has it included mechanisms to protect these precepts?
	What development possibilities might be foreclosed in the future by implementing this policy today?
<b>Process</b>	Utilizing systems modelling, how does this policy impact interconnected risks that have been identified?
	Given uncertainty, how frequently will this policy be reviewed for adjustments and course corrections?
	Which baseline indicators in this policy could evolve over time that might render it ineffective or obsolete?
	Do the policy's governance arrangements include pathways that allow target populations to hold policy designers accountable, or to seek redress if they are negatively impacted in the future?
	Using a tradeoff analysis, what is the outcome of pursuing this policy intervention at the expense of another and what are the defined organizational and societal values that have been identified by pursuing this line?
	Who will retain fiduciary, legal and moral accountability for the future consequence of this policy?

SOURCE: Aarathi Krishnan with Pedro Conceição, UNDP

## APPENDIX 2 – LINES OF INQUIRY TO ASSESS THE DECISION-MAKING ECOSYSTEM

These questions can be used ahead of a planning or policy design process that plans to integrate analytical methods, such as strategic foresight, that support long-term thinking and future-fit governance. These help to understand the dynamics of the decision-making ecosystem and potential entry points or barriers to develop processes towards more forward-looking planning and programming.

### DECISION-MAKING ECOSYSTEM ANALYSIS

- Is there considerable risk appetite for change, particularly among influential decision-makers?
- What is the end game/what are stakeholders most hoping to influence or change? (E.g. Is it to inspire new forms of action? Change a policy or strategy? Shift planning and governance at large so that it becomes more anticipatory?)
- What is the relationship between formal and informal incentive structures in influencing policy or programming decisions? (i.e. are people motivated to prioritize something that aligns most closely with a mandate, or with other political, relational, professional and other considerations?)
- What underlying assumptions drive decision-making? This could include assumptions about what constitutes data, what types of evidence is considered most legitimate.
- What processes are used to identify the landscape of change? What time horizons does it focus on and why?
- What kind of data is most significant in decision-making processes? How is this data used?
- Where does data or evidence not translate into decisions? Why?
- Where do visible or emergent tensions exist between the current processes, decision-making frameworks, and policies, and the realities of the issues being addressed or proclaimed as priorities of decision-makers?
- Are there potential champions of long-term thinking within this ecosystem? Where do they have influence in the planning process?

SOURCE: Sophia Robele, UNDP

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