DEVELOPMENT AT RISK

Protecting Gains and Unleashing Opportunities Amid Crisis

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Foreword

Our world is navigating simultaneous structural transitions, from demographic and economic shifts to changing geopolitics, technological transformations, and crossing of planetary boundaries. These transitions are reshaping every aspect of our lives. They are also unleashing complex risks, amplifying uncertainty, and fuelling cascading crises. How the world manages and overcomes these complex risks will play a pivotal role in determining the course of development – and much more – in the years to come. Amid understandable alarm and a forensic attention to the cost of multiplying crises, however, there has been insufficient attention paid to charting a clear path forward through a web of complex risks. The United Nations Development Programme's (UNDP) *Development at Risk* Report aims to address this clear gap in the global discourse, offering fresh insights into the disruption we are witnessing and outlining actionable steps for development policy and public action.

It argues that far too often and for too long, our collective effort in response to structural transitions has been narrowly focused on addressing symptoms or immediate manifestations, through humanitarian assistance, debt relief initiatives, emergency health responses, and reactive regulatory measures in technology, finance, and trade. While these interventions are necessary, they are fundamentally insufficient. Yet, policy paralysis could become the default response to complex risks arising from structural transitions, due to cognitive and institutional overload, the strength of inertia and the power of entrenched interests.

The cost of inaction will mount as time passes, narrowing policy options, potentially reversing development gains, and eroding trust in governance and institutions. Inaction will also prevent us from seizing the opportunities that emerge during structural transitions. *Development at Risk* proposes the script of a different story with a better ending: one that transforms risk from a force for paralysis into a catalyst for innovation and action that creates a more conducive environment for countries, businesses, communities and households to widen the circle of prosperity and ensure peace. Building on UNDP's rich intellectual heritage including its Human Development Reports, the Report argues that the world still has options - but only if people and institutions are willing to embrace risk as a concept of universal resonance at a time of structural transition. This will mean treating risk reduction as a public good and risk management as a core function of governance.

The *Development at Risk* Report points to green shoots of initiative appearing across the world that show how risks can be handled successfully in different settings. It also offers pragmatic recommendations to reshape the purpose of development amid complex risks triggered by structural transitions; reform governance so that it works with people to find and implement solutions, fuelled by growing social capital; and adopt a new way of working within and outside government, shifting from reactive to anticipatory, from rigid to adaptive, and from short-term fixes to systemic, long-term strategies. The likely outcome will be a multiplicity of pathways that enrich our understanding of how to achieve and sustain development at a time of structural transition.

The recommendations in this Report address key areas like development strategy, financing, institutions and international cooperation. They are not prescriptive blueprints but ideas that recognize the diversity of contexts and the need for innovative solutions tailored to local realities. They challenge us to reframe the concept of risk in order to reimagine what is possible. The Report reminds us that the greatest risk we face is not in taking bold action, but in failing to act when the stakes are highest.

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Acronyms

ACLED – Armed Conflict Location & Event Data Project
AI – Artificial Intelligence
CPP – Cyclone Preparedness Programme
DCO – United Nations Development Coordination Office
DPPA – United Nations Department of Political and Peacebuilding Affairs
DPI – Digital Public Infrastructure
DPO – United Nations Department of Peace Operations
FAO – Food and Agriculture Organisation
FCV – Fragility, Conflict and Violence
GCA – Global Citizens' Assembly
GDP – Gross Domestic Product
HDI – Human Development Index
HLCP – High-Level Committee on Programmes
IDA – International Development Association
IEO – Independent Evaluation Office (UNDP)
IGAD – Intergovernmental Authority on Development
IMF – International Monetary Fund
IFIs – International Financial Institutions
INGO – International Non-Governmental Organization
IPCC – Intergovernmental Panel on Climate Change
ISO – International Organization for Standardization
ITU – International Telecommunication Union
LDCs – Least Developed Countries
MPI – Multidimensional Poverty Index
MSMEs – Micro, Small and Medium Enterprises
NGFS – Network for Greening the Financial System
OCHA – United Nations Office for the Coordination of Humanitarian Affairs
OECD – Organisation for Economic Co-operation and Development
PBSO – United Nations Peacebuilding Support Office
SDGs – Sustainable Development Goals
STEEP-V – Social, Technological, Economic, Environmental, Political, and Values Framework
UNCDF – United Nations Capital Development Fund
UNCTAD – United Nations Conference on Trade and Development
UNDESA – United Nations Department of Economic and Social Affairs
UNDP – United Nations Development Programme
UNDRR – United Nations Office for Disaster Risk Reduction
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNHCR – United Nations High Commissioner for Refugees
UNODC – United Nations Office on Drugs and Crime
UNOSSC – United Nations Office for South-South Cooperation
UNU – United Nations University
WEF – World Economic Forum
WMO – World Meteorological Organization
WTO – World Trade Organization

Executive Summary

Development deferred?

The global development landscape is experiencing profound upheaval. Development gains face the threat of slowdown, stagnation or even reversal.

After two consecutive years of decline in 2020 and 2021 – largely due to the COVID-19 pandemic – the global Human Development Index (HDI) began to recover in 2022 and 2023. Yet the pace of recovery has been uneven: while high and very high HDI countries have largely returned to pre-pandemic levels, low-income countries and countries facing conflict or fragility are recovering more slowly (UNDP 2025a).

Today, more than 1.1 billion people remain in multidimensional poverty[1], food insecurity affects nearly 2.3 billion[2], over two billion people work informally, mostly without protections[3], and violent conflict affects two billion people globally. Global conflicts have doubled over the past five years[4]. In 2024, the global average temperature exceeded 1.5°C above pre-industrial levels for the first time over an entire calendar year[5], marking an alarming milestone. Disasters displaced almost 46 million people in 2024 alone, an 85 percent increase from the previous year.[6]

Countries risk mortgaging their future as approximately 3.3 billion people reside in developing countries in which governments allocate more funds to interest payments on debt than to education or health services (UNCTAD 2024a). 'Black swan' events compound matters. The COVID-19 pandemic is an obvious but not the only example from the past decade, underlining the speed and scale at which shocks can erupt in the world today.

Drivers of Disruption

Why do we see a difficult and deteriorating environment for development? The Development at Risk report argues that what we are facing are not isolated setbacks, but **the product of converging structural transitions**[7] that are fundamentally reshaping our world:

- *Demographic shifts*: Rapid growth and youth bulges in some regions contrast with aging and shrinking populations elsewhere, against the background of increasingly urban societies.
- *Shifting dynamics* in the global economy: Breakout economic performance achieved during rapid globalization, especially but not only in Asia and the Pacific, is altering the centre of gravity of the world economy, with significant related shifts in patterns of trade, aid, investment and geopolitical influence.
- *Breakthrough technological advances*: Rapid progress in AI, biotechnology, and digital media are rapidly altering labour markets, social behaviour, and governance.
- *Loss of confidence in governance systems*: Declining trust, social fragmentation, and weakening multilateralism are undermining collective capacity and will to address urgent challenges.
- *Transformation of natural systems*: Rising global temperatures and ecological degradation have crossed critical thresholds, compounding risk across all systems.

These transitions, whether on their own or in combination, are **amplifying uncertainty and unleashing complex risks which are unprecedented**. Left unattended, complex risks pose major, in some cases existential, threats to all people, whether rich or poor. Managed effectively these risks can not only protect development gains achieved over many decades, but also transform governance, well-being and resilience in developing and developed countries. This effort can also help reduce uncertainty.

Overcoming Barriers to Change: Choices and Consequences

Serious action on risk will need to **overcome major barriers to change**. This report interprets these 'barriers' as the cumulative mass of institutions, incentives, interests, norms, mindsets, policies and practices that lead to narrow, reactive, ineffective, and often contested solutions. Complicating matters, the inertia of longstanding habits and mental models stands in the way of recognizing and acting on new challenges. This is reinforced by the wave of converging and deepening risks that threatens to overwhelm governance systems[8] designed for another era of lower, relatively dispersed risks (Kreienkamp and Pegram 2021). The cumulative effect may be to induce **policy paralysis**.

The choice, however, is clear: risks belong at the heart of policy and public action. This report starts a robust conversation about how to do this. The time has come to:

- **Address risk as a priority of universal resonance and relevance**, with some risks shared globally and others that are specific to different contexts.
- **Consider risk reduction as a vital but seriously under-provisioned public good;[9]** and
- **Treat risk management as a core function of governance**, broadly understood, including the State and all stakeholders in society, organized in myriad ways.[10]

Regardless of where people are located and whatever their socioeconomic status, they now live in a '**risk society'** (Beck 1992), where the very engines of progress have become sources of risk and fragility.[11] It follows that "changing how society perceives and responds to systemic risk is critical to turning complexity into opportunity" (Gambhir 2025). This is only possible by exploring new approaches and rewiring 'mental models'.

Moving ahead, however, will require overcoming **three 'blind spots'**:

- *Treating crises and development as unconnected phenomena*. Crises happen because development fails. Development can be passively exposed to complex risks but can also generate new risks when narrowly pursued;
- *Considering complex risks as a 'poor country problem'*. This perspective overlooks growing evidence that everyone is being impacted, everywhere;
- *Concluding that the current risk environment is just 'much more of the same'*, ignoring the qualitative shift in what is happening globally.

Three fundamental failures loom large if there is hesitation or, worse, inaction in the face of complex risks:

- *systemic policy failure*, as the room to act narrows sharply over time and the costs of delayed action escalate to unsustainable levels;
- *potentially irreversible development failure*, as repeated cycles of crisis slow, stop or even roll back development gains; and
- *ethical failure*, as the mismatch between those most at risk and those best able to cope means that the poor and vulnerable pay the highest price, in lost lives, assets and hope.

Navigating Risks and Uncertainty: Three Levers of Change

The stakes are high, but it is not too late. The Development at Risk report rejects a bleak outlook, focusing instead on insight and action. Structural transitions and systemic risks need not spell collapse. The time to act is now. Delay will deepen damage and diminish options. But with bold leadership, strategic investment, and inclusive coalitions, development can recover and flourish amid complex risks and uncertainty. The report concludes with practical, action-oriented recommendations organised along three levers of change to tackle complex risks to protect past development gains and, crucially, create new opportunities for positive transformation.

1. **rethink development outcomes**
2. **reimagine governance**
3. **reboot international cooperation**

Principles underpinning the three Levers of Change proposed in the report

- Openness to different development pathways amid adherence to universal values and rights
- Local experimentation rather than reflexive emulation of external models
- Emphasis on learning and adaptation, accepting and accommodating the possibility of failure
- Preparedness to iterate towards achievement of beneficial outcomes
- Recognition that there are upsides to disruption that create opportunities for better outcomes
- Pragmatism about resources, that is, 'starting and working with what we have' (Ang 2025a) rather than choosing the most advanced and costly options
- Aiming for change through steady accumulation of pressure or effects within a system[12] rather than necessarily pushing for a 'big bang'.

The wide range of the recommendations proposed in the report may raise the question of '**where to start and how to manage?**' The view in this report is that it would be misleading to suggest a uniform approach across a wide diversity of development contexts. The choice of where to start, which options(s) to choose and how to sequence depends on where a country finds itself in its preparedness to deal with complex risks and uncertainty, including its relationship to international cooperation.

The report also recognises that there will be difficult **trade-offs** in making choices, based on factors such as cost, complexity, feasibility, appetite for risk and change, gestation periods, and potential outcomes of different investments, among other considerations. This will intertwine with the **political economy** of the context within which decisions will be made, thus, the relative strength of barriers to change. Reflecting this view, the report proposes a pragmatic approach: working on 'leverage points' within a system; selecting a mix of solutions spanning the range from the incremental or technical to more ambitious undertakings; 'getting started' and experimenting rather than awaiting agreement on a 'grand strategy'; and steadily changing the dynamics of political economy without setting off a backlash.

1. Rethink Development Outcomes

In the context of risk and uncertainty, GDP-related metrics are not enough. The scope of measurement needs to widen – and with it, changes in national accounting systems.

Recommendations

- Complement single-metric and partial measurements of development outcomes such as GDP with multi-metric approaches. Many of the building blocks for more holistic measures attuned to complex risks and uncertainty exist already. This report suggests what these could be (see box),

'We are what we measure': more meaningful development outcomes

The report calls for a broader conception of development success, one rooted in human development but building on concepts of resilience and human security. It proposes development outcomes that are centred on:

- Access to vital assets: health, education, and income.
- A healthy relationship between humans and nature, for current and future generations.
- Freedom from: violence, insecurity and violation of human rights.
- Freedom to: expression and participation.
- Trust in the social contract: acceptance of the 'rules of the game' in society

- Common purpose: willingness to act on shared concerns through individual and civic action.
- Sense of stability: protection from stresses and shocks, and access to means of recovery and transformation

- Develop and institutionalize national accounts that measure the value of social and natural capital, consider factors depleting these types of capital (e.g. loss of biodiversity and forests, cost of crime and violence, disparities), and reflect the productive contributions of women (e.g. through unpaid care work), informal and volunteer labour.
- Promote intergenerational justice and address persistent structural inequalities, particularly between men and women.

2. Reimagine Governance

Governance systems need to evolve to manage complex and interconnected risks. The report identifies the main elements of such change (see below).

Elements of reimagined governance

The report identifies six elements for reimagined governance that can equip societies more effectively to deal with complex risks.

- Agency and capability: Empowering individuals and communities to act, adapt, and innovate in the face of risks.
- Public engagement and deliberation: Anchoring decisions in local knowledge and active participation of stakeholders, especially those most exposed to risk.
- Resilient information ecosystems: Building trusted, timely, and accessible data systems to guide decisions and improve preparedness.
- Trust and legitimacy: Investing in civic trust and building systems and institutions that enjoy broad public support, enabling cooperation and shared accountability.
- Adaptive decision-making and leadership: Learning from experience, enabling iteration, mobilising assets and people, and navigating conflicting interests peacefully.
- Adaptive institutions: Institutionalising systems and capacities for managing risks, decentralising decision-making, and fostering networked governance.

Recommendations

- Reform governance systems considering the six elements of reimagined governance. This would involve decentralization, subsidiarity, and the empowerment of local governments with resources and authority to act effectively. Adaptive, networked institutions—supported by risk-aware civil services—can respond more quickly and flexibly to dynamic conditions. Local capacities, such as disaster teams or early warning systems, should be leveraged for broader risk management, while leadership training in public administration should include risk and systems thinking.
- Prioritise risk reduction and resilience in development strategies. Adapt strategies and plans based on risk signals and scenario analyses, for example, through rolling public investment plans.
- Develop a policy 'toolkit' for risk management using 'buffers' (such as rainy day funds), risk diversification options (to address, for example, monoculture in agricultural production or dependence on a narrow range of export products), flexible, transparent and well-targeted social protection systems, voluntary national prevention strategies to tackle violence and conflict as outlined in the Pact for the Future[13], and an infrastructure backbone for risk management (not least digital public infrastructure).

- Create fiscal space and flexibility for risk management, among other things, by risk-sensitising development finance assessments (DFAs) and Integrated National Financing Frameworks (INFFs), expanding domestic resource mobilisation, tapping innovative financing within debt sustainability parameters (green, blue, resilience and sustainability-linked bonds), using contingency budgeting, ring fencing priority capital and recurrent expenditures and ensuring risk analysis of large infrastructure, production and social development projects.
- Upgrade statistical systems to dynamically inform policymaking using digital technologies to harvest, analyse and monitor a wealth of publicly available data at relatively low cost. Employ AI to make sense of large data sets that can provide valuable inputs into risk management. One powerful application is human-in-the-loop AI, which combines human intelligence and machine learning to, for example, understand conflict dynamics (UNDP 2023). Enable open access to public data sets rather than 'data hoarding'. Freedom of information laws can be vital in this regard.
- Establish inter-disciplinary risk management capacity in key line ministries and planning agencies and, where possible, mirror such capacities at the sub-national level.

3. Reboot International Cooperation

Certain challenges require an effective, efficient and universal multilateral system such as on climate issues. Moreover, there will be limits to what countries or different combinations of actors can do on their own in the absence of effective international cooperation at regional and global scale. The argument in this report is that intensified cooperation required to deal with complex risks and uncertainty will not necessarily happen overnight – but that it can be enabled pragmatically through 'coalitions of the willing' where the space and opportunity to act exists.

Recommendations

- Adapt international cooperation to be more flexible, preventive, and responsive. Developing countries and their partners may want to invest strategically in some long-term bets that advance systemic change. Partnerships can experiment with frameworks based on shared interests and goals rather than detailed actions and budgets, for instance, employing portfolio approaches. Tolerance for innovation – and failure – could be greater, especially when faced with complex risks.
- Innovate around flexible, outcomes-based approaches to financing that are responsive to a broader range of situations over longer time horizons, enabling coverage across preventive, anticipatory, response, recovery and long-term development priorities, and avoiding discontinuities in funding. This would enable, for example, much better integration of humanitarian and development assistance from the onset of a crisis.
- Recalibrate development financing to support derisking in fragile contexts, combining concessional resources with resilience-building investments. Multilateral instruments like the IMF's Resilience and Sustainability Facility and the Loss and Damage Fund are examples to build upon.
- Introduce contingency funding lines for crises – such as the possibility of increased budget support based on agreed triggers – that allow flexibility that is often missing, cutting the time and transaction costs of adjustments to changing conditions.

How is UNDP investing in de-risking development?

As development becomes increasingly exposed to complex risks, UNDP is investing in tools, partnerships, and approaches that help countries manage complex risks and uncertainty.

Using the Development at Risk report as a springboard, UNDP is deepening **risk analytics**, tapping into the work of its Futures Team[14] on signals and foresight that scans for emerging risks as well as the UNDP **Crisis Risk Dashboard (CRD)**[15] which combines data analytics, early warning indicators, and contextual analysis to inform preventive action and risk-informed development planning. Over 30 countries are already using CRDs to guide strategic decision-making. In addition, UNDP's **Africa Transition Index**[16] – part of the **Africa Facility to Support Inclusive Transitions**, a joint UNDP-African Union Commission initiative – helps assess risks and opportunities during political transitions. By monitoring indicators related to governance, inclusion, and institutional capacity, it enables tailored programming that reduces the risk of instability or conflict.

As another follow-up to the report, a package of **risk management advisory services** will be assembled for use by developing countries and partners to address complex risks and uncertainty. Prototyping for eventual rollout is planned for 2025-26 in countries that express an interest in testing new approaches.

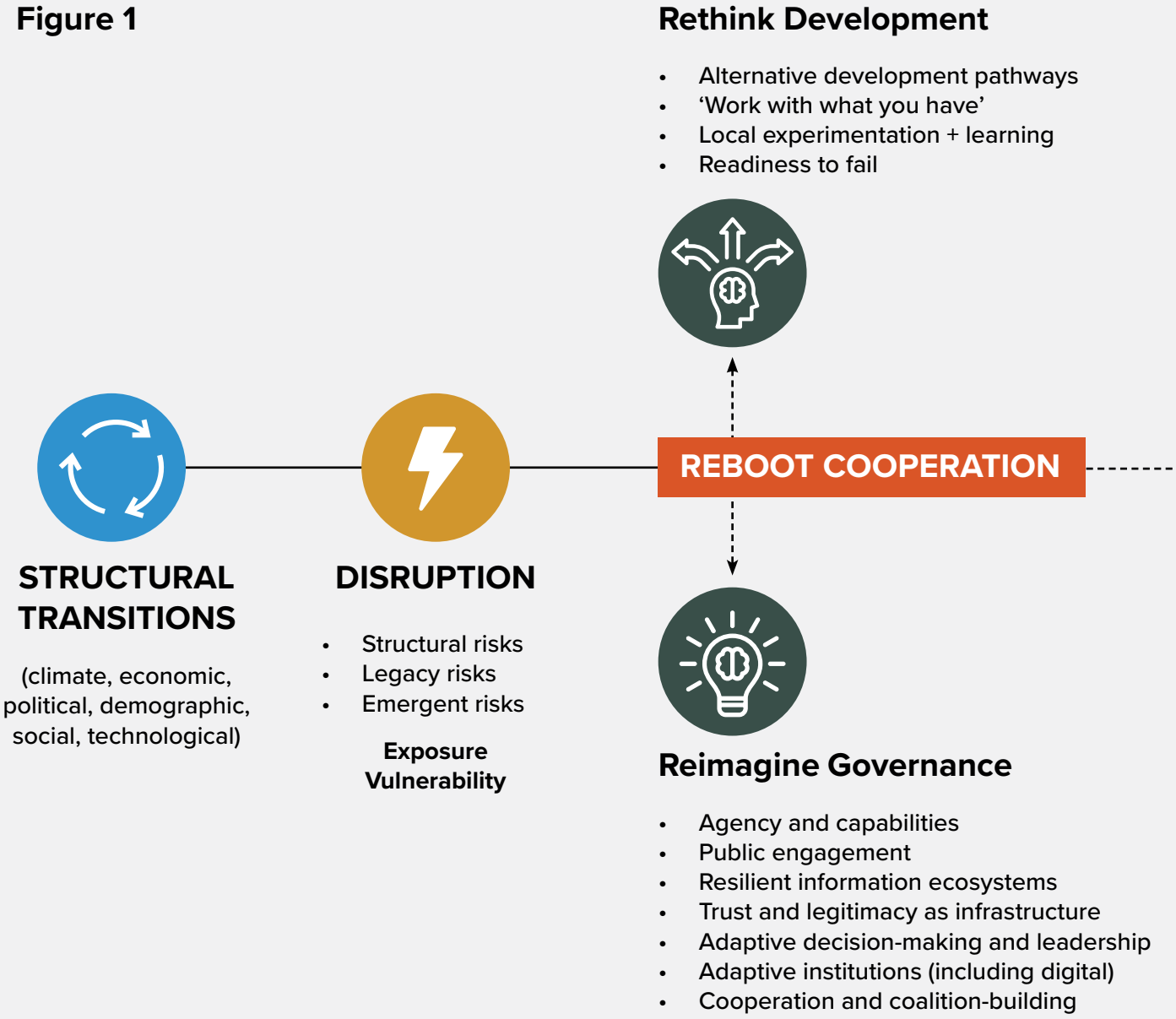
In the area of financing, UNDP is playing a key role in rolling out **Integrated National Financing Frameworks** (INFFs). It is also developing a recovery and resilience financing portfolio that will bring together multiple instruments, several of them employing innovation, to expand capital flows to countries facing high risks or dealing with crisis. A key component of the portfolio will be de-risking investments by international financial institutions (IFIs). Through the **Insurance and Risk Finance Facility** (IRFF)[17], UNDP works with ministries of finance and insurance regulators to integrate risk financing into national strategies. This includes support for climate risk insurance, social protection schemes, and disaster-responsive financing mechanisms in countries like Ghana and Indonesia.

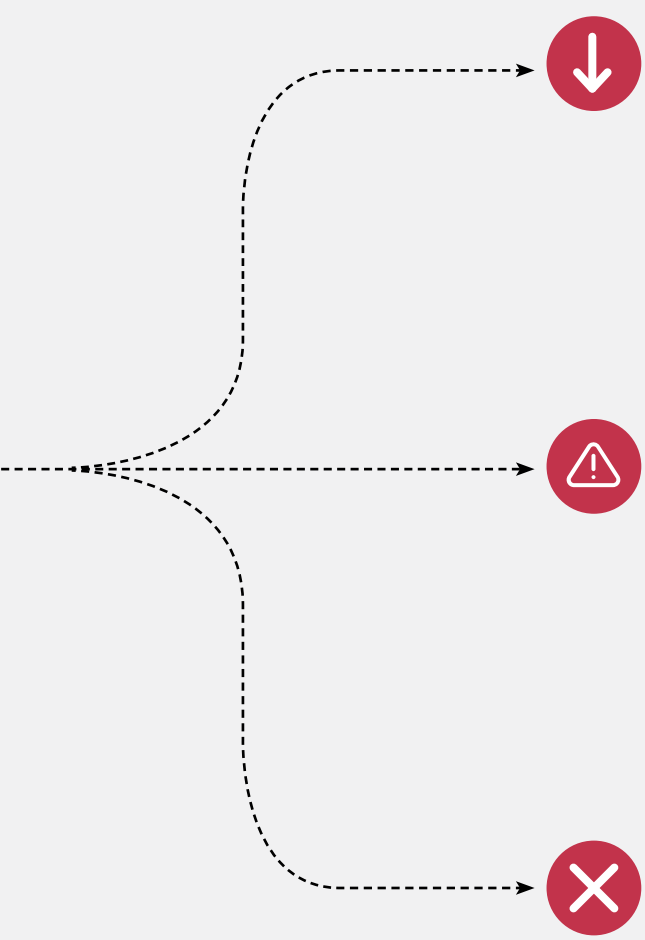
Across the organisation, UNDP has a **wide and deep portfolio addressing prevention, crisis response, recovery, reconstruction and peacebuilding** which is, in effect, a contribution to de-risking development. Among other things, UNDP invests in shared prosperity, governance, national prevention strategies, disaster preparedness and response, stabilisation and early recovery, climate (including climate security), energy, and nature, underpinned by investments in financing, digital and innovation. A core concern throughout is the empowerment, participation and progress of women.

Finally, UNDP is developing a multi-year research agenda on systemic risks and uncertainty to support field practice and shape its policy and learning work.

Reframing our approach to risk: the report's argument

Figure 1





Risk Reduction + Risk Management

Development opportunities

- Human development for the 21st century
- Broad progress on well-being
- New models of leadership + governance
- Revitalized social contract
- Deep + broad international cooperation

Risk Reactive Logic

Development slowdown + stagnation

- Reduced policy space
- Rising direct + opportunity costs
- Deeper inequalities
- Eroding social capital
- Rising social tensions
- Increasing conflict + insecurity
- Growing displacement + migration

Risk Aversion or Denial

Development setbacks

- ‘Crisis trap’
- Irreversible development losses
- Regression
- Unmanageable population movements
- Political instability
- Endemic fragility + crisis

1. A World of Risk

1.1 A view from the precipice

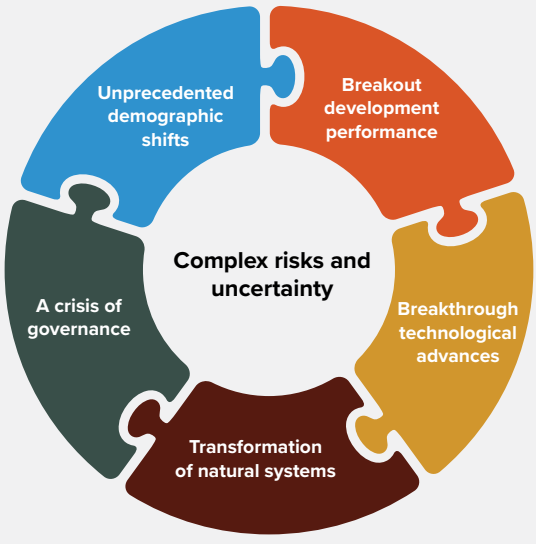
The world is in a state of crisis (United Nations 2021)[18]. Multiple, interconnected, shocks are battering societies and economies, in quick succession, with growing ferocity and impact. Rolling across the globe, they spare no one and no country. This phenomenon has led to the use of terms such as 'polycrisis',[19] or even 'permacrisis', that is, a state of permanent crisis (Brown, El-Erian and Spence 2023).

Something has shifted fundamentally. This report argues that the deluge of disruption being witnessed at present is **attributable to an historic convergence of structural transitions**, understood as periods of deep, sustained and wide-ranging change in the demographic, economic, political, social, cultural and technological foundations of a society that are transformational rather than transient. What makes these transitions unique is that they are happening at the same time and with some variation, everywhere. They are also turbocharged in their effects for two additional and related reasons: greater speed of change or acceleration; and a shortening span of time before major effects become visible, or compression. Deep disruption is the inevitable consequence, both positive and negative, whether these transitions unfold on their own or, more powerfully, in combination. Their net impact is **revolutionary rather than evolutionary**.

What are these structural transitions? They have been documented extensively (UNDP 2025b; World Economic Forum 2024)[20] and include (Figure 2):

- **Major demographic shifts**, which combine rapidly growing and young populations in some regions, such as sub-Saharan Africa, with shrinking populations in Europe and early ageing in East and South-East Asia. Humanity is also becoming predominantly urban, while migration within and across borders escalates due to pull and push factors.
- **Shifting dynamics in the global economy** achieved during rapid globalization, especially but not only in Asia and the Pacific. This is altering the centre of gravity of the world economy, with big shifts in patterns of trade, aid, investment and geopolitical influence.
- **A global loss of confidence in governance systems and a search for alternatives** evident in the steady corrosion of social cohesion, rising polarization, receding trust in the social contract and state institutions, reversal of long held norms, and weakening international cooperation.
- **Breakthrough technological advances** in artificial intelligence (AI), genomics, robotics and materials science, among others, combined with ubiquitous access to digital media. These forces are reshaping individual and social behaviours, entire industries and the labour force, while amplifying social conflict and disinformation and misinformation and changing the tone and conduct of politics.
- **Transformation of natural systems at a global scale**, including the crossing of six of nine planetary boundaries (Richardson et al 2023). These are evident everywhere, putting people's lives and livelihoods at risk. The threats may worsen if the global response moves at a glacial pace or even potentially retreats.

Figure 2: A combination of structural transitions, risks and uncertainty



Box 1 captures some of the **costs, consequences and challenges generated by converging structural transitions,** which are cumulatively pushing many Sustainable Development Goals (SDGs) beyond reach.

Box 1: The Fallout

Slowing human development, precarious livelihoods, and rising poverty and inequality: The global Human Development Index declined in 2020 for the first time since 1990 (UNDP 2022b). It bounced back in 2023, but the difference between countries at the top and bottom grew, highlighting divergence between richer and poorer countries. Despite past progress, 1.1 billion people still live in multidimensional poverty[21]. In 2023, an estimated 28.9 percent of the global population—2.33 billion people—were moderately or severely food insecure (FAO et al. 2024). Livelihoods are increasingly precarious: over 1.4 billion people globally work in informal jobs, typically without legal or social protection. Youth remain disproportionately affected, particularly in low- and middle-income countries, where informal employment accounts for up to 93 percent of their jobs[22]. A worrying underlying trend is growing income inequality within countries, including in the Global South. Ten of the most unequal countries by income are developing/emerging economies[23]. The latest *Human Development Report* has signalled the "narrowing development pathways" affecting countries with the lowest human development (UNDP 2025a, p. 11).

Complicating matters, the World Bank (Chrimes et al. 2024) points to how a "historic reversal in development is under way. Amid stunted economic recoveries, one in three IDA [International Development Association] countries is poorer now than on the eve of the pandemic. Over the five years from 2020 to 2024, half of IDA countries are set to experience a widening gap in their per capita incomes with respect to those of advanced economies. In 2023, the share of people living in extreme poverty in these countries is estimated to have been more than eight times that in the rest of the world. These countries account for 92 percent of the world's food-insecure people, after a doubling of their food-insecure populations since 2019. Half of IDA countries are currently in debt distress or at high risk of it."

Rising insecurity and conflict, within and across frontiers: Approximately 2 billion people now live in conflict-affected areas (United Nations 2023a). State-based armed conflict has been dubbed the biggest risk of 2025 (World Economic Forum 2025), and global conflicts have doubled over the past five years (Armed Conflict Location & Event Data Project 2024). Transnational organized crime exacerbates global instability and weighs on development, particularly in regions such as Central and South America and the Sahel (UNODC 2024). Although the global landscape of violent extremism has shifted compared to a decade ago[24], it remains a major concern in parts of the Arab States, Asia and sub-Saharan Africa.

Increasing extreme weather events: In 2024, the emergency events database (EM-DAT) recorded 393 disasters related to natural hazards. These took 16,753 lives, generated $242 billion in economic losses and adversely impacted 167 million people worldwide[25]. Extreme weather in 2024 led to the highest number of new annual displacements since 2008 (WMO 2025). This came on top of the 26.4 million people displaced by disasters in 2023, with over three quarters moving because of weather-related events.

'Black Swan' events: These pose global consequences that are hard to foresee. The COVID-19 pandemic is an obvious but not the only example from the past decade. With close to 800 million cases, 7 million fatalities and economic costs estimated at between $12 trillion and $28 trillion through 2025[26], the pandemic underlined the speed and scale at which shocks can erupt. Effects cascaded across public health systems, governance, politics, social behaviour, international trade and the economy. No country or community could barricade itself against contagion.

The digital dilemma[27]: Rapidly widening digital and technological divergence is becoming a major driver of inequality within and between countries[28]. Many developing countries are exposed to the adverse impacts of technological change, such as reduced demand for labour-intensive products in global markets. At the same time, they risk missing out on the opportunities of new technologies, whether to deliver public services, boost agricultural production or create new industries. Digital has also opened doors to leapfrogging, compressing the time needed to boost development. A downside is that benefits are not necessarily broadly shared, feeding on disparities between the digitally connected and disconnected, not least those between men and women. Another chal-

lenge with digital technologies stems from how they can change human behaviour in ways that increase social dysfunction and lead to lost skills, from writing to communicating, from complex decision-making to the ability to make well-informed and ethical choices (see Section 4).

Multilateral cooperation and collective action under stress: Despite escalating global problems, geopolitical competition and a focus on domestic issues in several countries are challenging widely accepted multilateral norms and institutions as well as slowing or even reversing actions to address shared concerns (UNDP 2022b). This has led to a policy paradox with potentially destabilizing consequences: disengagement, at least in relative terms, just when the state of the world calls for unprecedented cooperation. The post-1945 multilateral order, designed for collective action to protect and advance shared priorities, across peace and security, human rights and development, is showing signs of serious deterioration.

Where do we go from here? This report argues that **converging structural transitions, on their own and in combination, are amplifying uncertainty and unleashing complex risks** (Box 2), which are unprecedented and growing by the day. This insight is the point of departure.

Left unattended, complex risks pose major, in some cases existential, threats to all people, whether rich or poor. Managed effectively these risks can not only protect development gains achieved painstakingly over many decades, but also transform governance, well-being and resilience in developing and developed countries. This effort can also help reduce uncertainty.

The choice is clear: it is time to bring risks into the heart of policy and public action. This report starts a robust conversation about how to do this.

Box 2: Understanding complex risks[29]

Risk in this report is understood as the possibility or likelihood of an outcome that is harmful to individual and collective well-being, for current and future generations. Risks are multidimensional in nature and intrinsically systemic, with high levels of interdependency and non-linearity. Risks are dynamic, evolving in response to the interplay between context, conditions and action/inaction.

Risks arise from multiple sources and impact individuals and collectives differently, depending on their exposure and vulnerability.

Risk can be understood in a narrow technical sense as generating a range of possible outcomes through known causalities. Probabilities can be assigned to these, the costs and benefits of different responses calculated, and rational decisions made 'based on the facts'.

This report argues for a broader conception of risk better suited to a period of structural transitions, one incorporating high levels of uncertainty and indeterminacy. In this view, risks become complex rather than complicated, and ambiguous in their likelihood rather than statistically precise. This may occur because they are poorly understood or even unknown, their probability cannot be estimated with confidence, and responses to them are only partially developed, untested or not yet designed, and thus have unproven costs and benefits.

In the context of structural transitions, it is useful to consider three types of risks[30]:

- **Structural risks:** Risks that are deeply embedded within a region, country, or community's context. They arise from enduring characteristics such natural endowments, geographic location, historical experiences and narratives, economic, political, cultural and social structures and institutions and demographic factors. They are shaped by longstanding patterns of external relationships, commitments and dependencies. Structural risks can also be generated by factors that are independent of a country's context such as a large-scale geopolitical realignment. Because they are rooted in the foundational structure of societies, they are difficult to change and tend to persist over time.
- **Legacy risks:** Risks that stem from unresolved problems and past choices, decisions, policies, or actions which continue to shape present and future development trajectories in ways that may be difficult to reverse. These risks often persist across generations, reflecting a country's political economy, creating barriers to progress, exacerbating inequalities, and limiting resilience in the face

of new crises. Over time, legacy risks can become embedded in the conditions and institutions of a country, turning into structural risks.

- **Emergent risks:** Risks that are characterized by their uncertainty, complexity, and potential for cascading impacts. They often arise from rapid social, technological, environmental, and economic disruptions, as well as from unforeseen interactions between different systems. These risks may be underestimated and can evolve quickly. Their unpredictable nature ('wild cards') can challenge existing governance and economic structures, deepen inequalities, and create new vulnerabilities. If not addressed early, emergent risks can create long-term consequences, eventually becoming legacy risks.

1.2 Choices and consequences

Is it too late? Has the world crossed a tipping point, in some areas if not across the board? Evidence largely suggests that **the world has not yet 'tipped over'**. But the moment of truth may be much closer than many assume (Lenton et. al. 2008, 2019). Time is of the essence.

The world is not helpless in the face of complex risks. **Change starts with accepting that, regardless of where people are located and whatever their socioeconomic status, they live in a 'risk society'** (Beck 1992)[31]. Growth, wealth creation and power cannot be separated from the risks they generate. It follows that "changing how society perceives and responds to systemic risk is critical to turning complexity into opportunity" (Gambhir 2025). This is only possible by exploring new approaches and rewiring 'mental models'.

The time has come to:

- **Address risk as a priority of universal resonance and relevance**, with some risks shared globally and others that are specific to different contexts.
- **Consider risk reduction as a vital but seriously under provisioned public good[32]**.
- **Treat risk management as a core function of governance,** broadly understood, including the State and all stakeholders in society, organized in myriad ways[33].

Embracing risk reduction as a core policy and social priority requires overcoming **three blind spots** that limit effective action:

- First, *that it still makes sense to treat 'crisis' and 'development' as two separate phenomena* with different sets of causalities and consequences. Crises happen because of failed or failing development. Development can be not only passively exposed to complex risks but also an active driver or generator of them. Choices to propel progress can create new vulnerabilities or amplify existing ones. These risks may be unintended side effects, such as environmental degradation, inequality or job loss. They may be emergent risks that were not foreseen, such as cascading failures in interconnected natural systems.

  In some cases, well-intentioned efforts to address immediate problems have undermined long-term well-being and resilience, or triggered disruptions elsewhere. For instance, the use of 'infant industry' arguments to protect local industries and farmers in some countries has succeeded in building capabilities and increasing output. It has also, over time, reduced competitiveness in regional and global markets and hurt long-term development prospects. The 'middle-income trap' that can take hold as a result of this and other choices is often seen narrowly as an economic challenge. In reality, it is much more – and connected intimately with risk of social instability, as interests vested in the status quo resist change, institutions fail to adapt to new conditions, employment opportunities shrink, standards of living stagnate, disparities widen and social tensions and strife increase.

- Second, *that complex risks are a 'poor country problem'* and only certain contexts - labelled fragile, in crisis or developing - need to worry about them. This overlooks growing evidence that everyone is being impacted, everywhere[34]. The only caveat is that many developing countries have a steeper hill to climb to address risks effectively. They thus face the prospect of incurring costs that they can ill afford.

- Third, *that the current risk environment is just 'much more of the same'*, ignoring the qualitative shift in what is happening globally. This misses the point that while a focus on risks is not entirely new, the intersection of risks triggered by structural transitions is now changing fundamentals that were previously

taken for granted. This convergence potentially drives 'a state of change', calling into question the relevance and efficacy of existing responses[35].

Hesitation and, worse, inaction, in the face of complex risks could precipitate **three fundamental failures:**

- *Systemic policy failure*, as multiplying crises outrun the ability of policymakers, institutions and entire societies to address them, let alone reduce their likelihood and impacts. The net effect will be to turn paralysis into widespread failure, evident in sharply reduced agency and autonomy, an ever-narrower path forward for governments and societies, and spiralling costs of eventual action, assuming that this is even feasible.

  With costs mounting as risks erupt into major national and international crises, it does not take much imagination to fathom the consequences. A thought experiment can help. Imagine a future pandemic with twice or thrice the lethality of COVID-19, occurring in a world suffering from disrupted trade, including for personal protective equipment and vaccines, where supply chains are frozen or breaking down. The risks of a potential recession are high, and one or more major conflicts of global significance are active. Economies have almost no fiscal buffers, and health and transport infrastructure are held for ransom by hackers funded by organized transnational criminal groups. A weakened multilateral system cannot take collective action and provide technical and financial support to avert the worst harms. This may seem like dystopian daydreaming, but all the elements for such a catastrophe are already in place.

- *Potentially irreversible development failure*, as the cumulative adverse effects of risks left unaddressed or insufficiently addressed impose direct costs in terms of slowdown, stagnation, repeated losses of people and assets, and even a reversal of progress. This is happening already in several countries and could become more widespread as others buckle under pressure. It could add a 'crisis trap' to 'poverty traps' in the poorest and most fragile contexts, foreclosing exit, forcing a debilitating dependence on (shrinking) humanitarian assistance and closing off the possibility of human development.

  Some damage may become irreversible, for example, the loss of cognitive development among children unable to go to school during the COVID-19 pandemic[36] . Such an outcome becomes more likely amid the shortcomings of current development models. Gambhir (2025) points to how the intensifying impacts of risks have been driven by the unseen consequences of the prevalent development model. It is one that "to achieve universally high standards of material wealth and ever-greater output, has largely ignored, or at least downplayed, the possibility of accelerating, interconnected risks." Existential failures in one or more vital global systems cannot be ruled out either.

  The opportunity costs of slow or limited action could be considerable as well, as chances are missed to manage risks in ways that turn the challenge to collective advantage, forging thriving, dynamic and innovative countries, businesses, communities and households, living in conditions of peace and prosperity, for current and future generations.

- *Ethical failure*, given the mismatch between the distribution of risks in any given setting and the differing abilities of social groups (and countries) to manage and overcome them. The likeliest outcome under these circumstances is that the poor, dispossessed and marginalized—those left behind in societies and globally as well as future generations—will bear the brunt of the impacts. They will contend with debilitating losses in lives, livelihoods, assets, opportunities, hope and confidence. This raises profound ethical questions about responsibility, justice and the obligations of those with greater capacity, whether individuals, institutions or nations, to prevent harm and protect the most vulnerable from disproportionate burdens they did little to create.

Box 3: Arrested Development: The case of Afghanistan

Afghanistan is perhaps a striking example of arrested development and a convergence of policy, development and ethical failure. It is the only country in the world where girls are banned from attending secondary or tertiary education. 80 percent of school-aged Afghan girls and young women – 3 million people – are out of school. In August 2024 the Propagation of Virtue and Prevention of Vice morality law was issued, which codified and formalized many of the previous severe restrictions on women's rights and introduced further restrictive measures that are having a devastating effect upon the health and mental well-being of women and girls, effectively excluding them from public places and from participating in social and economic life. Women report feeling increasingly unsafe in public places and are spending less and less time outside of the home.

Women's participation in the labour force remains chronically low, with only 7 percent of women in the household employed, compared to 84 percent of men. According to UNDP estimates, continuing to restrict women's full participation in the economy will inflict a cumulative loss of $920 million to GDP between 2024 and 2026[37]. The loss of formal employment for women could reduce household per capita income by 48 percent.

Research on risk has demonstrated that it can divert, delay or even derail development. Several reports have stressed adopting a risk lens in development. Since 2006, the World Economic Forum's *Global Risk Report* has mapped emerging risks at the global level. The seminal Pathways for Peace Report pointed out that "development is central to conflict prevention. But it must be reoriented to be more inclusive and risk-informed" (United Nations and World Bank 2018). The 2019 *Human Development Report* indicated that the ability to tackle unpredictable risks is an essential capability in the 21st century (UNDP 2019). The Intergovernmental Panel on Climate Change's 2021 report laid out a series of scenarios based on action or inaction in the face of growing risks (IPCC 2021). UNDP's 2022 guidance on risk-informed development introduced a broader understanding of systemic risks in managing natural disasters and hazards (UNDP 2022c). The *World Social Report 2024* warned of increasing shocks and crises. It advocated for building systems of resilience in anticipation of future converging crises due to climate events, global economic volatility, food insecurity and health risks (UNDESA 2024).

The United Nations Economic and Social Council (2024) has expressed concern "...at the limited capacity to foresee and build resilience against the diverse challenges originating from multiple shocks in many countries..." and called for "...a rapid upgrade of the risk management function in government and its integration into Sustainable Development Goal-related coordination mechanisms at the highest level." The United Nations Committee of Experts on Public Administration has deliberated on several areas of risk and risk mitigation, concluding that, "Enhancing the capacity of governments at all levels to analyse risks, incentivize investment in resilience, prevention and rehabilitation, and explore the development of tailored financing mechanisms, including parametric approaches to insurance, was seen as urgent" (UNDESA 2023).

The next sections of this report build on this core argument: complex risks triggered by structural transitions need urgent attention in policy and public action to protect and advance development. Section 2 shares ideas for tackling complex risks, based on approaches and solutions that are locally specific, viable, and broadly owned and implemented. Section 3 points to how the status quo can deter, slow or even defeat attempts to tackle complex risks. This happens because 'old ideas have 'long legs', vested interests fight back, cognitive overload occurs, or the sheer immensity of a phenomenon induces policy paralysis. Section 4 offers recommendations to stimulate early and urgent action.

Technical Annex A delves deeper into understanding and analysing complex risks in ways that are relevant to policy with a view towards developing a risk management framework. Technical Annex B provides definitions and examples of structural transitions, risks and human agency.

2. Three Levers of Change

This report proposes three levers of change to tackle complex risks to protect past development gains and, crucially, create new opportunities for positive transformation:

- **Rethink Development Outcomes**
- **Reimagine Governance**
- **Reboot International Cooperation.**

These three levers are shaped by the following principles:

- *openness to different development pathways* amid adherence to universal values and rights;
- *local experimentation* rather than reflexive emulation of external models, with careful and intelligent parsing of the relevance of such models in local contexts;
- *emphasis on learning and adaptation*, thus, accepting and accommodating the possibility of failure in adjusting to new realities;
- *preparedness to iterate* towards achievement of beneficial outcomes;
- *realism about resources*, that is, 'starting and working with what we have' (Ang 2025a) rather than choosing the most advanced and costly options when lower-cost and more affordable and technically viable choices exist locally; and
- *aiming for change through steady accumulation of pressure* or effects within a system[38] rather than necessarily requiring a 'big bang'[39].

2.1 Rethink development outcomes

Any successful effort to address complex risks should start by answering the question 'to what end?'. This requires rethinking desired development outcomes during a period of structural transition, in ways that open up human agency, capabilities, choice and opportunity. These outcomes must also be equitable, between men and women, between generations, in the relationship between humans and nature, and between citizens and state.

What could the desired development outcomes look like in a world of complex risks and uncertainty? 'Resilience' could be an organising idea.[40] This concept has been instrumental in reshaping and retooling the international community's approach to recurrent crises. It focuses on responding and adapting to shocks and stresses by strengthening coping capacities, across countries, societies and communities. This can enhance prevention and improve preparedness and responsiveness. Yet, while the concept of resilience retains strong analytical and policy relevance, it may be incomplete in the face of complex risks. An emphasis on 'coping' and 'bouncing back', essential as it is, may draw attention away from a deeper question: whether development goals, choices and strategies are fundamentally flawed to start with. A focus on resilience, on its own, can overlook the opportunity to 'transform wisely'. Moreover, resilience might be less useful where risks are unknown and unpredictable.

The notion of human security has considerable merit. It draws attention to a vital aspect of life in a world undergoing profound change: security, encompassing safety, well-being and dignity (Sen 1999, 2000; UNDP 1994). It rests on the (implied) concept of 'negative freedoms' or freedoms from poverty, disease and conflict, among other elements. Like resilience, human security is a vital building block. This report, however, aims to extend and embed its meaning within a broader articulation of what development can be in the 21st century, especially in advancing positive freedoms.

Building on both resilience and human security, this report suggests fresh ideas with human development at the core. These comprise:

- **Command of vital assets for a meaningful life**: health, education and learning, and income.
- **Life in a healthy, enabling and sustainable natural environment**: the ability to access and enjoy the benefits of nature, with reduced hazards, and without compromising the same for future generations.
- **Freedom from**: violence, insecurity and violations of universal human rights.
- **Freedom to**: form and express ideas, and participate actively in the economy, politics and society.

- **Trust in the social contract**: acceptance that outcomes in a society, including disparities (current and/or intergenerational), reflect 'fair' rules of the game that are fairly applied, with disputes resolved peacefully through the rule of law and justice.
- **Common purpose**: a willingness to act on shared concerns through individual and civic action.
- **Sense of stability**: protection from stresses and shocks, and access to means of recovery and transformation.

Box 4: Rethinking GDP: The story so far

For over seven decades, gross domestic product (GDP) has dominated how governments, economists and the international community measure development. While still necessary, the use of GDP as the primary proxy for progress has long been seen as insufficient, given its focus on output and its inability to account for well-being, equity, sustainability or resilience. In recent years, a growing body of evidence and practice has called for—and experimented with—alternative, sometimes complementary, metrics that better reflect what matters to people and the planet.

UNDP's own efforts to change development metrics have been central to this shift. The 1990 introduction of the **Human Development Index**, a composite measure of capabilities for living a long, knowledgeable and decent life, marked a foundational move away from GDP. More recently, the **2020 *Human Development Report*** introduced the Planetary Pressures-Adjusted Human Development Index. By accounting for countries' carbon dioxide emissions and material footprint, it aligns development with environmental boundaries, providing a more forward-looking picture of sustainability (UNDP 2020). In 2023, **Our Common Agenda** included a brief that called on United Nations Member States to consider a "renewed political commitment to create a conceptual framework that can accurately 'value what counts for people, the planet and the future" (United Nations 2023, p. 4).

One of the most influential initiatives on metrics was the **Commission on the Measurement of Economic Performance and Social Progress**, chaired by Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi. The commission's report urged policymakers to go 'beyond GDP'. It underscored that what we measure affects what we do, warning that an overreliance on GDP can lead to misguided policies and missed opportunities to improve lives (Stiglitz, Sen and Fitoussi 2009).

Responding to this line of thought, several institutions have proposed multidimensional approaches to measurement. The **Better Life Index**, for example, uses 11 dimensions, ranging from health and education to civic engagement and work-life balance, to assess the quality of life (OECD 2011). Similarly, the **European Commission** (2023) proposes a shift towards well-being in economies, linking measurement reform with broader policy transformation.

Efforts in the Global South have taken unique contexts into account. Bhutan's **Gross National Happiness** framework, developed in the 1970s and officially adopted in 2008, places spiritual, psychological and ecological well-being at the centre of governance. Civil society organizations and think tanks have championed the **Happy Planet Index**, which evaluates countries based on well-being per unit of ecological footprint (NEF 2021). These approaches foreground the disconnect between resource-intensive growth and true societal advancement.

Other initiatives also emphasize sustainability and intergenerational equity. The ***Changing Wealth of Nations 2021*** report advocates for a comprehensive wealth approach, including human capital, natural capital, produced capital and net foreign assets. By tracking 'genuine savings' or adjusted net savings, the report offers a long-term lens on development pathways (World Bank 2021). Adjusted net savings estimates reveal that many resource-dependent economies are depleting their wealth base, undermining the prospects of future generations even as GDP may be rising.

2.2 Reimagine governance

Each society needs to find solutions that it owns and takes forward, considering its resource endowments, exchanges with the rest of the world and possibilities for external assistance. This report argues that to do so, it may need to **reimagine governance**, by accumulating and tapping the full potential of social capital. Meeting the stresses, strains and potential opportunities of the 21st century calls for a shift **from governing *for* people to governing *with* people**. It implies that governance is no longer solely the domain of formal institutions, rules or state structures. Instead, relationships, trust, networks, shared norms and civic engagement are vital in shaping how decisions are made, problems solved, and public value created.

This report draws on four reference points in identifying the contours of reimagined governance:

- **Trust and legitimacy**: Social capital refers to the web of relationships among people who live and work in a society, enabling cooperation and mutual support. Reimagined governance puts social capital at the core, seeing trust and legitimacy in addition to laws or policies as pillars of effective governance.
- **Distributed power**: Rather than a top-down, command-and-control model, governance becomes more decentralized and better able to tap the energy, talent and organising capacities that are spread across societies but are often latent rather than actively engaged. It values voices from the 'bottom-up', informal and scattered networks, and collective action alongside formal authorities.
- **Shared civic responsibility**: Citizens are not just recipients of public services or policy targets; they are co-creators of solutions. A strong sense of community and civic duty becomes essential for resilience, especially in times of crisis, uncertainty or rapid change.
- **Resilient social relationships**: During complex transitions, institutions may falter but social capital – the web of tried and tested connections between people - can carry communities through. Reimagined governance taps into this strength.

Based on these considerations, the report proposes six elements of reimagined governance:

- Agency and capability
- Public engagement and deliberative processes
- Resilient information ecosystems
- Trust and legitimacy
- Adaptive leadership, decision-making and collective memory
- Adaptive institutions

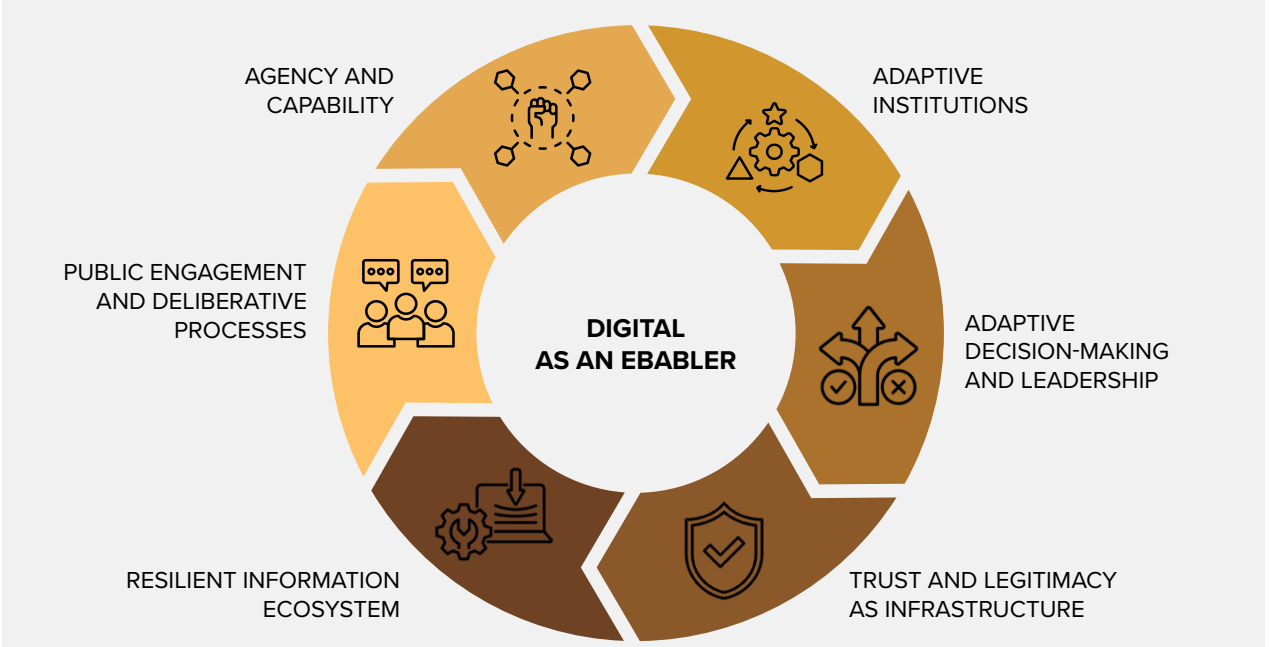


Figure 3: Digital connects six signposts to reimagine governance

A connecting thread across all these elements is the power of digital technologies to 'do good'. When purposively harnessed, these technologies can inform and engage people, create spaces for participation and consultation, boost the transparency and integrity of policy and public action, and speed decision-making (Boxes 5 and 6).

Box 5: The power of digital

Digital technologies hold profound potential for strengthening capacities to assess, respond to and mitigate complex risks. They can directly benefit 70 percent of SDG targets (ITU and UNDP 2023). Unlocking these benefits, however, requires shifting public institutions to operate based on a whole-of-government and whole-of-society perspective. This was particularly evident during the COVID-19 crisis, when many public institutions were unable to meet heightened demands for social assistance in a safe and inclusive way.

New approaches to digital transformation seek to expand connectivity and economic opportunities for local communities while protecting and safeguarding people against potential risks. People-centric design is built in by default.

Digital public infrastructure (DPI), or the digital backbone of modern societies, enables this shift. Designed and implemented with appropriate safeguards, DPI allows secure and seamless interactions between people, businesses and governments. From verifying identities to facilitating fast and reliable digital payments and safe and efficient data exchanges across government services, DPI is a proactive approach to unlocking social and economic value and mitigating risks. For instance, during energy transitions, DPI helps clean energy subsidies or transition assistance to reach the right households, minimizing disruption and inequality (Clark et al. 2025). Towards climate resilience, digital registries and geospatial data integration can help channel adaptation funds to vulnerable populations.

Digital technologies are not a panacea. They may pose challenges to public institutions and societies if inherent risks are left unaddressed. Unevenly distributed across digital systems and countries, these risks could negatively impact development. Proactively addressing them means recognizing that they do not arise purely from technical shortcomings. They can emerge from inadequacies in normative (ethical, legal and regulatory) frameworks as well as from institutional ineffectiveness. The Universal DPI Safeguards Framework offers actionable guidelines and recommendations to design and implement DPI to serve the public interest and safeguard against existing and potential risks (United Nations Office of the Secretary-General's Envoy on Technology and UNDP 2024).

Box 6: Overcoming risks in Zambia's digital transition

Zambia's digital transition, centred on establishing a national digital ID system, reflects a broader strategy to modernize public services and foster socioeconomic development. This process carries substantial societal, social and political risks that must be addressed to avoid deepening existing inequalities.

Societal risks include the exclusion of large population segments due to gaps in infrastructure and digital access. While over 88 percent of adults aged 16 and over currently hold a physical National Registration Card, only 1.5 million out of an estimated 9 million eligible individuals have been enrolled with biometric data under the new Integrated National Registration Information System (UNDP 2024f). Furthermore, limited Internet penetration constrains the population's ability to engage with digital systems and creates a risk of unequal access to government services.

The lack of a unified framework for safeguarding digital identities could lead to misuse, eroding public confidence. Moreover, vulnerable populations—particularly Zambia's over 105,000 refugees and asylum seekers—may be excluded from registration due to legal ambiguity or administrative barriers, cutting them off from essential services (UNHCR 2024).

Political and legal risks require updating legislation, such as the National Registration Act and the Citizenship Act, to reflect digital realities. Without this, rights-based governance of digital ID systems remains limited. The Government began addressing this concern by launching a Legal Digital ID Model Governance Assessment in 2024, with support from UNDP, to guide legal reforms and stakeholder coordination.

2.2.1 Agency and capability

Human agency[41] refers to the degree to which individuals can act on their own behalf, expressing and reflecting their diverse needs, goals and values (Sen 1999). Fostering agency is a core component of development in general and a defining feature of human development.

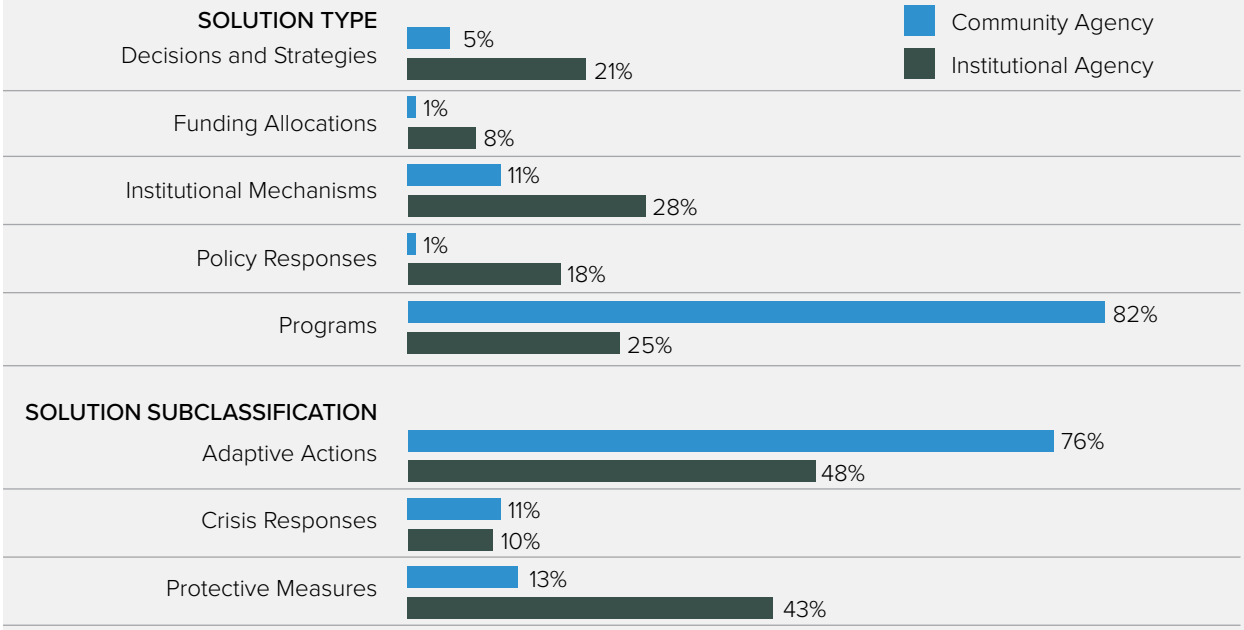
Individual agency does not occur in a vacuum. Individuals often act collectively in the service of shared beliefs, needs, goals or values. This results in expressions of agency that emerge over time and degrees of organizational complexity, from the momentary actions of friends and families to measures initiated for decades by countries and the multilateral system. **Individuals and societies adapt successfully when they possess two key capabilities: the ability to meet essential needs for survival and the ability to seize opportunities for progress.** In both cases, adaptability hinges on agency or the capacity to act deliberately and effectively in pursuit of one's goals. The greater the agency, the greater the ability to navigate uncertainty and shape outcomes (Welzel and Inglehart 2010).

Expressions of collective agency at different levels shape resilience to risk. For instance, families routinely choosing to get vaccinated may improve their resilience to infectious diseases. Grass-roots coalitions in conflict zones often organize mutual aid and triage needs as they emerge. On a larger scale, governments can invest in weather-resilient infrastructure or enact policies to stabilize economies during inflationary shocks, and the United Nations routinely coordinates actions to speed up recovery during disasters. Each of these examples fundamentally mitigates, manages and responds to risks.

Under a human development framing, **entwining agency and capabilities** determines options when people decide to act (Sen 1999; Nussbaum and Sen 1993). For example, a family wishing to evacuate before a natural disaster can only express agency if they have transport, safe passage and awareness of a pending risk. Likewise, a local government planning to erect buffers against flooding may be constrained by geographical considerations and financial limitations. Nation-building following conflict often starts from a position of extreme, multidimensional poverty that impacts access to capital as well as education, food, fuel and communications (UNDP 2024a). At larger scales still, global options to combat the accumulation of carbon in the atmosphere narrow as deadlines for meeting emissions targets are missed.

A comprehensive literature review and analysis of UNDP evaluations of development programmes in the last four decades looked at the interrelationship between human agency and risk management. The findings provide some insights into the positive role of community and institutional agency in designing and implementing solutions to complex risks. Community agency in addressing risks has been supported mostly through programmes. In contrast, solutions implemented by institutions have been more evenly distributed across different options (decisions, policies, funding allocations and programmes). Community agency is strongly associated with adaptive solutions, while preventive measures have been mainly channelled through institutions (Figure 4).

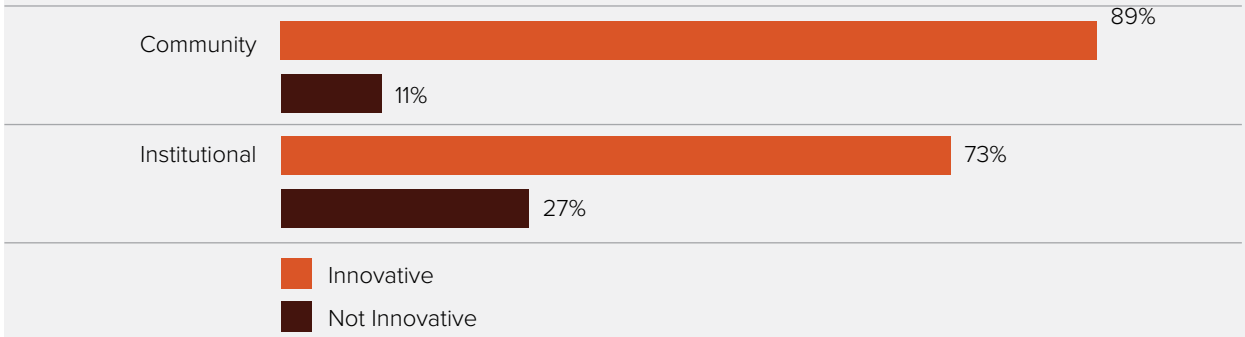
Figure 4: Support for community and institutional agency in addressing risks can vary



Source: A UNDP AI-assisted literature review on risks, uncertainty and agency, conducted in 2025.

While the total share of risk solutions leveraging community agency is relatively low compared to the portion leaning on institutional agency (11 percent compared to 89 percent), solutions implemented at the community level are more likely to be innovative (Figure 5).

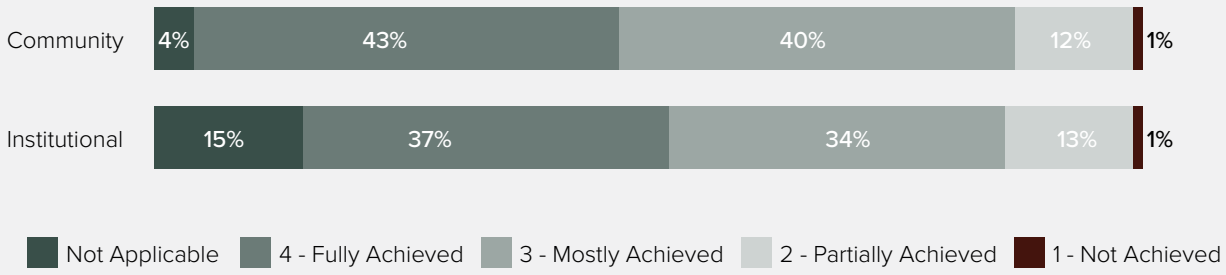
Figure 5: Fewer solutions support community agency even as they tend to be more innovative



Source: A UNDP AI-assisted literature review on risks, uncertainty and agency, conducted in 2025.

An analysis of over 6,700 UNDP evaluations showed that community-led initiatives are also more impactful (Figure 6).

Figure 6: Impact is higher from supporting community agency



Box 7: Local solutions at work

A review of over 6,700 UNDP evaluations conducted by the UNDP Independent Evaluation Office provides ample evidence of locally driven and economically efficient solutions designed to manage systemic risks.

Below are some examples:

- **Empowering community organizations for socio-ecological resilience in Peru** (*Eval_ID: 8913*): Mobilized local associations in rural areas to implement climate-adaptive livelihoods and early warning systems. Fully met its goals using existing community assets, enabling replication across multiple regions.
- **Establishment and enhancement of peace infrastructures in South Sudan** (*Eval_ID: 13761*): Built on traditional conflict resolution systems to create peace committees in fragile zones. Demonstrated scalable impact using culturally embedded practices.
- **GIS systems for local risk mapping in Tuvalu** (*Eval_ID: 9790*): Trained local staff to use open-source tools for disaster vulnerability mapping. Demonstrated cost-effective use of technology that was later scaled up nationally.

- **Modified Taungya system for forest restoration in Ghana:** A grassroots agroforestry model combining forest conservation and food production through local community stewardship. It leveraged Indigenous land-use traditions to pursue both climate and food security gains, outpacing external land management models.
- **Migration and development mainstreaming in local planning in Bosnia and Herzegovina:** Locally developed plans integrated migration governance into municipal risk planning. It demonstrated agility in adapting to demographic shifts.
- **UNV doctors in underserved areas in Trinidad and Tobago:** A bottom-up approach to fill institutional healthcare gaps through local volunteerism. This project demonstrated adaptability but lacked long-term support mechanisms.

Source: UNDP Independent Evaluation Office, review of UNDP evaluations for this report.

2.2.2 Public engagement and deliberative processes

Consultations for this report emphasized anchoring new approaches to governance in local knowledge and risk management practices. They stressed that communities manage risk and implement solutions locally every day and should play leading roles in shaping development decisions. Several experts suggested reversing the conventional order of knowledge generation, transfer and adaptation to draw from risk-informed practices and lessons learnt from communities and the Global South.[42]

Stakeholder consultations should be the foundation for governance systems designed for effective risk management.[43] This entails actively engaging affected individuals or communities to identify salient risks, determine exposures and vulnerabilities, build consensus on priority actions, and advocate and support implementation.[44] Such deliberative processes can enhance human agency by creating spaces where diverse citizens can meaningfully participate in shaping policies that affect their lives (OECD 2020). They can take a variety of forms, comprising campaigns, dialogues, deliberative mini-publics, public hearings, deliberative councils and committees for participatory budgeting (GloCAN/Iswe Foundation 2025).

Processes should start with what stakeholders know and use this information to reach decisions and choose appropriate tools. This approach enhances the legitimacy of choices made and contributes to more consistent implementation (GloCAN/Iswe Foundation 2025).[45]

Costa Rica illustrates how a well-organized, multi-tiered system for public engagement can strengthen both risk identification and emergency response planning (GloCAN/Iswe Foundation 2025). With a long-standing reputation for democratic stability, the country has invested in a comprehensive emergency management framework; emergency committees operate across the community, local, regional and national levels. These bodies bring together public officials, civil society actors and other stakeholders to promote risk awareness and preparedness. In times of normalcy, they focus on training initiatives and simulation exercises in areas prone to disruption. When crises occur, they activate protocols and coordinate immediate action. Although the system was originally designed for natural hazards, it proved highly adaptable during the COVID-19 pandemic. While national authorities managed epidemiological data and policy coordination, local committees played key roles in identifying urgent community needs, such as for medical equipment, and delivering aid swiftly.

Whatever the constellation of actors, and even where donors and other external partners are invited to join the process, the primary impulse should be local. Governments have key roles but are not necessarily the default option for leading such a process. Indeed, even when they are leading, governments can benefit from initiatives managed by independent institutions that are seen as impartial and trustworthy, including faith-based organisations. For risks that are more localized or primarily affect a specific group, a community-driven approach that pulls in government authorities at the appropriate levels would likely be more effective.

2.2.3 Resilient information ecosystems

Human agency requires **access to, and analysis of, relevant and reliable information**. Timely access to accurate information helps communities develop plans and devise solutions. Preparedness simulations and exercises as part of adaptive decision-making can reduce or eliminate the time taken to move to action (Bak-Coleman 2025).

A resilient information ecosystem provides accurate and reliable information as well as rules and norms for collectively distilling it. People depend on it to make sense of the risks they face, which is central to their ability to make risk management plans, policies and investment decisions. Such an ecosystem also provides the means to distribute information to all relevant participants, vertically between authorities and communities on the ground, and/or horizontally between individuals and community groups. Box 8 shows how a resilient and interconnected information ecosystem supported **Bolivia's** energy transition.

Box 8: Derisking the extractive sector in Bolivia through trusted information networks[46]

Alongside Argentina, Chile and Peru, Bolivia is a key player in the energy transition due to its strategic mineral reserves. Yet difficulties in managing risks have affected its ability to leverage its extractive sector and steer the energy transition towards lasting development benefits.

Structural risks: Bolivia has historically relied on extractive industries (silver, tin, gas), creating a mono-export economy vulnerable to global commodity price fluctuations. Persistent social hierarchies and the exclusion of Indigenous and rural communities in resource governance have created enduring barriers to inclusive development. Bolivia's high-altitude salt flats are uniquely suited for lithium extraction but the country's limited infrastructure and lack of access to maritime routes hinder its access to global markets.

Legacy risks: Bolivia's history of nationalizing key industries and legal uncertainty have made foreign actors hesitant to invest, limiting foreign direct investment and technological transfer in the extractive sector. Past policies have neglected the development of processing capacities, locking Bolivia into a role as a raw material exporter rather than a value-added producer. Historically, opposition to mining has come from civil society and local government entities due to tensions over royalty distribution, water source contamination, threats to cultural heritage and tourism impacts. Mining-related pollution has spurred distrust.

Emergent risks: Uncertain global demand and market volatility due to rapid technological shifts could reduce long-term prospects for lithium, impacting Bolivia's economic future. Changing precipitation patterns and water scarcity in the Andean region could disrupt lithium production as the extraction process is water intensive. Technological dependence on foreign expertise may create strategic dependencies that could weaken Bolivia's long-term development strategy.

A UNDP programme to manage complex risks

To address some of these structural impediments, tensions and risks, UNDP implemented a conflict prevention and environmental justice initiative. It focused on strengthening institutional and macro-social capacities by designing preventive and anticipatory governance platforms. These included the Lithium Landscape System. Applying machine learning algorithms, this system integrates quantitative and qualitative information to model scenarios and evaluate decisions, promoting evidence-based dialogue. To manage knowledge and fill information gaps, UNDP also established the Regional Lithium Observatory. It is tasked with analysing regulations, policies and sectoral conflicts; strengthening information management; and generating evidence-based proposals for improvement. The observatory utilizes machine learning and artificial intelligence models developed within the programme. UNDP also helped address human rights violations in gold mining and implement the principles of the Escazú Agreement[47].

A systemic response

UNDP acted as part of a larger, combined set of efforts, involving national authorities, state institutions, universities and local communities. These included an Effective Governance Platform which facilitated dialogue among the Ombudsman's Office, government institutions, civil society, local communities and Indigenous Peoples.

The Bolivia 2050 Energy Transition Forum, organized with the Ministry of Hydrocarbons and Energy, fostered dialogue between government agencies, the private sector, international organizations and research centres. It discussed Bolivia's Strategic Lithium Plan, focusing on sustainable lithium extraction and industrialization while integrating environmental justice principles. Efforts are underway to update the sectoral regulatory framework to secure environmental financing. An energy efficiency law and a biofuels law are being developed as well.

The UNDP programme in Bolivia provides valuable lessons on strengthening governance and helping countries to manage systemic and complex development risks. In a region marked by activist pressures and conflicts related to the exploitation of strategic resources, the interventions demonstrated that an approach based on data science, inclusive participation and environmental justice can transform conflict risks into opportunities for sustainable development.

Source: UNDP 2025c.

2.2.4 Trust and legitimacy

Building and maintaining trust is pivotal. Participatory approaches with governmental authorities, communities and external partners help to cope with uncertainty by building trust and cultivating evidence-based consensus and ownership. They may include prioritizing access to reliable information, fostering open communication, enhancing transparency, building resilience through diverse skillsets, mainstreaming risk management in education and embracing adaptability (UNDP 2025d).

Where individual or collective agency has eroded, trust needs to be rebuilt. This can be difficult, particularly where conflict, polarization, corruption and misleading information have driven the erosion. Empowering local governance to leverage existing trust, respecting community agency in making decisions, allocating resources equitably, supporting traditional journalism and local expertise, and engaging with established and reliable faith-based organizations and social influencers as already-trusted sources of information can help to restore trust.

A vital complement to trust is legitimacy, which empowers one or more actors in a governance space, at any level or of any type, to build trust, achieve consensus, and initiate or speed up action. Legitimacy draws attention to acquiring and exercising authority in ways that are broadly accepted by stakeholders within different institutional settings. Legitimacy is also more likely in contexts where basic civic, political, economic and other rights are respected, and means of remedy are available for violations, based on the rule of law and justice.

2.2.5 Adaptive decision-making and leadership

With risks evolving and interacting dynamically, **solutions need to be adaptable**. This requires adaptive and flexible decision-making to discover, apply and adjust alternative pathways and solutions over time, in response to feedback, results and changing conditions. Such flexibility is more likely where it is grounded in consultative processes and shared collective understanding, guided by explicit principles and intentions. This will enable participants to jointly recognize new information and needs for adaptation and agree on changes. The process should use all relevant information to learn from what has worked and what has not and build adaptive capacities by strengthening institutions and community involvement.

Adaptive decision-making is unlikely to work without adaptive leadership. The latter is the leadership model best suited for managing complex risks and uncertainty. This is a leadership style focused on finding solutions to problems that are only partially glimpsed, thus, comfortable with heightened uncertainty in the policy arena; working across society to bring people together; opening-up to 'bottom-up' engagement and ideas; willing to iterate, learn and adjust, but in a disciplined manner; and capable of managing conflicts and tensions (Heifetz, Grashow and Linksy 2009).

Adaptability will undershoot its potential without valuing learning and collective memory. Experience over the past few years illustrate the point. Lessons from the major global disruption wrought by COVID-19 already appear to have been forgotten. The pandemic exacerbated longstanding vulnerabilities, such as unequal access to vaccines and weak cross-border cooperation, while giving rise to new and paradoxical ones, including opposition to treatment. Notably, it exposed persistent fractures within the international system, such as in R&D capacities, public health infrastructure and distribution mechanisms. These remained unresolved despite earlier

warnings from outbreaks like SARS and the bird flu. Despite some progress, it remains unclear if the international community has fully internalized these lessons as it adapts to the possibility of the next global pandemic.

2.2.6 Adaptive institutions[48]

Change does not have to be sudden or wholesale, stretching beyond the capabilities of relevant governance systems. This would in itself create a major new and complex risk. Rather, the idea is to trigger a multiplier effect, starting with manageable actions or leverage points. The effects of these ripple across a system, gathering strength as they do so, and shifting attitudes, practices and actions. The elements described in Sections 2.2.1 to 2.2.5 fall in this category. Additional helpful elements for creating adaptive institutions include[49]:

- Building risk management teams at the centre of government, in key ministries and parastatals and where possible, sub-national governments;
- Embracing subsidiarity, allowing decisions and actions to be made at the lowest capable level;
- Decentralizing authority and decision-making to create space for quick, informed and effective responses adapted to a variety of contexts;
- Developing networks of organizations and stakeholders to analyse, design and act in order to mobilize knowledge, support and assets on a wide front ;
- Rewiring institutions and aligning budget allocations to make preventive approaches the default, yielding long-term economic savings[50];
- Building from existing good practice in the public and private sector, for instance, in disaster risk reduction or protection of key infrastructure (utilities, IT), where standards, practices and applications for risk management have advanced considerably;
- Pushing forward digitalization and connectivity as well as AI applications to reduce the cost and expand the scope of data collection, develop analytical tools to aid rapid decision-making, compress the time required to act/react, and boost transparency and integrity.

Taken together, all of the elements described above offer a **guide to what can be done rather than a checklist**. The choices made, designs followed, actions taken and leadership provided need to remain local and context-specific.

Box 9: Examples of adaptive institutions

Disaster risk management in the Philippines
In the Philippines, the Disaster Risk Reduction and Management Act provides a legal framework that mandates collaboration among local governments, communities, non-governmental organizations and international organizations. This framework supports continuous learning, updated disaster preparedness plans based on past events, and resilience. Flexible institutions, such as local disaster management offices, play a critical role by implementing and adapting plans based on the specific needs of their communities.

Water resource management in the Colorado River Basin
Faced with water scarcity and competing demands, stakeholders from Mexico, seven states in the United States of America and various organizations have collaborated to develop flexible water-sharing agreements. These provide a foundation for collaboration among Indigenous Peoples and national and sub-national governments. Water management agencies use them to develop and adjust water-sharing strategies based on hydrological data and climate projections. This flexibility ensures sustainable water management while addressing competing demands.

Fisheries management in Alaska
In the North Pacific, the Alaska Fisheries Management Council employs adaptive governance to manage fish stocks sustainably. The Council integrates scientific research, stakeholder input and monitoring systems to adjust fishing quotas and practices based on ecological changes. Local fishing cooperatives implement these adaptive measures, keeping policies tailored to specific community needs.

Flexible urban planning institutions in the Netherlands
The city of Rotterdam in the Netherlands demonstrates the role of flexible institutions in climate resilience. The Rotterdam Climate Initiative collaborates with public and private stakeholders to develop

adaptive urban planning solutions. These include floating buildings and water plazas that mitigate flooding risks while accommodating urban growth.

Forest management in Sweden
Sweden's forest management system exemplifies adaptive governance by balancing economic, ecological and social goals. Stakeholders, including government agencies, private landowners and environmental organizations, collaborate to develop policies based on changing environmental conditions. Regional forest boards implement and adjust these policies based on local needs and feedback.

Box 10: Risk-resilient enterprise

A growing number of countries have put in place mechanisms that channel emergency financial support to micro, small and medium-size enterprises (MSMEs) during crises. These mechanisms, activated in response to crises, include a variety of financial instruments, including direct grants, subsidies and guarantees. Such financial support allows businesses to continue operations throughout crises, safeguarding jobs and livelihoods, particularly for vulnerable populations, and jumpstarting local economic recovery.

Chile has a robust credit guarantee mechanism to support MSMEs through the Fondo de Garantía para Pequeños Empresarios (FOGAPE). It was created in 1980 by the Government to enhance financial inclusion and promote the resilience of small businesses. The fund is managed by BancoEstado, a State-owned commercial bank, and operates through a public-private partnership model; commercial banks provide loans partially guaranteed by the fund. The fund plays a critical role in maintaining the flow of credit to MSMEs, particularly during crises when traditional lenders may become risk averse. After the 2010 earthquake, the fund expanded its guaranteed coverage and facilitated emergency liquidity for affected MSMEs, helping them to restart operations and preserve employment. This demonstrated the mechanism's effectiveness as a rapid-response tool for economic recovery in the face of natural disasters.

The insurance sector has been pioneering derisking instruments in the face of multidimensional crises and shocks. Parametric insurance is a type of derisking mechanism that provides predetermined payouts based on measurable triggers (e.g., rainfall levels, earthquake intensity), eliminating the uncertainty and delays of traditional loss assessments and facilitating rapid financial relief. This reduces the financial risk associated with disasters, enabling quicker recovery and minimizing economic disruption. The **Caribbean Catastrophe Risk Insurance Facility** is a regional risk insurance fund bringing together 16 Caribbean island nations. It offers coverage against hurricanes, earthquakes and excess rainfall to Caribbean and Central American governments. The Facility provides rapid payouts, allowing governments to respond quickly. Belize, Guatemala, Jamiaca and Panama have parametric insurance from the facility in place for earthquakes, hurricanes and excess rainfall.

The **Ethiopia Insurance and Risk Financing Facility** is a new initiative to build resilience against disasters by providing innovative insurance and risk financing solutions. It draws on UNDP's broader insurance and risk financing programme, which operates in 30 countries, and previous micro-insurance testing in Ethiopia. The facility leverages existing expertise and frameworks to develop tailored insurance products, risk assessment tools, and capacity-building initiatives for vulnerable communities and businesses.

Within UNDP, the Insurance and Risk Finance Facility (IRRF) and Integrated National Financing Frameworks (INFF) teams help strengthen the integration of risk finance into INFF processes. This includes closer alignment of IRFF country implementation efforts with INFFs, towards embedding risk considerations in national financing strategies. This work shows how risk analytics can support more resilient and adaptive financial planning. It highlights opportunities to embed risk-informed approaches across INFF components—such as financing assessments, strategy development and monitoring frameworks—as well as tap emerging examples of risk finance and insurance solutions tailored to diverse country contexts. The effort ultimately seeks to help countries develop financing strategies that not only mobilize resources for sustainable development but are also equipped to manage growing risks and build long-term fiscal resilience[51].

These tools help align public finance with investments targets for women's empowerment in areas such as social protection, health, digital access and livelihoods. This is key to mitigating development risks and enhancing systemic resilience in times of crisis.

Through the IRFF, UNDP is also supporting countries to design layered sovereign and sub sovereign risk finance strategies. These combine ex ante budgetary allocations, contingency funds and market-based instruments so that governments have timely access to finance when disasters strike. Such strategies, when linked to INFFs, enhance the coherence of financing for resilience and long-term development.

2.3 Reboot international cooperation

Providing a public good such as risk reduction requires governance systems and 'publics' that can marshal, mobilize and cooperate to avoid the free rider problem[52]. This can happen in a variety of ways, and this report does not argue for an 'ideal' model of cooperation or suggest that current arrangements are sufficient. Experimentation and innovation will be crucial to harness a rapidly wasting asset—the time still available before the costs of inaction or inadequate action become catastrophic. This means starting where and when possible, taking the chance to be a first mover, building and working with interested parties, and initiating action in less-than-ideal conditions. It may involve suboptimal solutions and outcomes, but in a messy world, the alternative would be inaction and worse outcomes. This approach calls for widening coalitions beyond conventional actors, such as governments and multilateral organisations, even as they remain key. Broader networks could include cities, communities, academia, civil society, philanthropies, faith-based groups indigenous groups and the private sector.

To be clear, certain challenges require an effective, efficient and universal multilateral system such as on environmental issues. Moreover, there will be limits to what countries or different combinations of actors can do on their own in the absence of effective international cooperation at regional and global scale. Indeed, it is possible to envisage externalities from each country or group 'doing its own thing' – whether these externalities are on the upside or downside – that will be difficult to manage or mitigate without properly functioning international cooperation. The argument in this report is that intensified cooperation required to deal with complex risks and uncertainty will not necessarily happen overnight – but that it can be enabled pragmatically through '**coalitions of the willing**' where the space and opportunity to act exists. There is plenty of evidence already of such coalitions emerging, a trend that needs to be encouraged and speeded-up.

There are currently numerous constellations of arrangements, some better known than others, that bring together countries and their partners through South-South and Triangular Cooperation; governments at regional level working on a wide spectrum of issues; cities across the globe collaborating on shared interests; issues-based coalitions involving civil society within and across borders; faith-based and inter-denominational dialogue processes spanning far and wide; youth groups connected on- and offline; the private sector organised in all of its complexity from associations tied to specific trades, sectors or businesses at national and sub-national levels all the way to transnational groups; international academic or research collaborations on a wide array of issues; and much more. The list is almost endless.

The point being made is four-fold:

- First, complex risks cannot be addressed without **broad mobilisation across societies and countries**, with much of the foundation already in place;
- Second, **international cooperation needs a more elastic definition** in the face of complex risks than its automatic association with formal, often inter-governmental, arrangements – the latter remain vital and central but could benefit from deeper engagement with, and connections to, the energy, assets and talents that exist outside formal international institutions;
- Third, the associational power present in the world today is grossly under-utilised for lack of a key catalyst – **greater connectedness** of its different parts - to generate unprecedented momentum for development in the face of complex risks; and
- Fourth, there is **no need to wait** for formal arrangements or agreements to be reached – there is tremendous scope to get going with what is known and possible.

A new era of partnerships tapping into associational energy could benefit from **performance-oriented partnerships** that translate shared interests into coordinated action. Partnerships designed with clear incentives, shared accountability, and measurable outcomes can align political and financial commitments toward preparedness, resilience, and long-term development. Localized partnerships improve the effectiveness and legitimacy of risk management by embedding decision-making in communities and enabling rapid, context-sensitive responses. At regional and global levels, joint platforms can enable collective investment, coordinated risk reduction strategies, and the development of pooled financing tools, such as regional insurance schemes that reduce transaction costs and improve efficiency.

Box 12: Collaborative global coalitions and alliances to address complex risks

The **Network for Greening the Financial System**[53] (NGFS) is a global coalition of central banks and financial regulators established in 2017, with 144 members across over 90 countries and 21 observers. Its mission is to enhance the role of the financial sector in managing climate and environmental risks, promote green finance and support a smooth transition to a more sustainable economy. The NGFS shares best practices, conducts financial risk assessments, and encourages the incorporation of risks into financial supervision and monetary policy.

One key resource is the NGFS Scenarios Portal, which offers hypothetical scenarios to help policymakers understand the potential physical and transition risks associated with climate change. These scenarios provide a common reference point for assessing how climate policies and technology trends could evolve, aiding in the development of strategies to mitigate risks and capitalize on opportunities. The NGFS also collaborates with various stakeholders to integrate sustainability considerations into their operations, playing a crucial role in addressing climate challenges posed to the global financial system.

The **C40 Cities Climate Leadership Group**[54] is a global network of nearly 100 cities committed to addressing climate change and driving urban action to reduce greenhouse gas emissions and climate risks. It offers a Rapid Climate Change Risk Assessment Module to help resource-constrained cities to quickly understand and plan for climate risks. Furthermore, C40 supports cities in integrating climate risk assessments into broader climate action planning. This involves developing comprehensive, city-wide, multi-hazard adaptation strategies based on assessments of climate risks. By fostering collaboration and knowledge-sharing among cities, C40 helps urban areas become more resilient to climate change.

Pathfinders for Peaceful, Just and Inclusive Societies[55] is a coalition of governments, multilateral organizations and civil society working together to accelerate implementation of SDG 16+, on peace, justice and strong institutions. By fostering collaboration across sectors, the coalition supports countries in developing practical strategies to reduce violence, increase access to justice and improve governance. The coalition's work spans global advocacy, evidence-based policymaking and support for national action, emphasizing that justice and inclusion are not only moral imperatives but also foundational for development. Through innovation and partnerships, the coalition helps transform commitments into tangible progress.

3. Barriers to Change

3.1 The mental models and political economy holding us back

Bringing risks into the centre of policy and public action – and acting successfully on the three levers of change – will need to **overcome major barriers to change**.

This report interprets 'barriers to change' as the cumulative web of institutions, incentives, interests, norms, mindsets, policies and practices shaped by and for a specific historical period, in this case the Industrial Age, both in its colonial and post-colonial phases. Amidst the disruption triggered by structural transitions ushering in a new and radically different post-Industrial Age, these barriers to change lead to solutions that are narrow, reactive, limited, short-term and often contested. They lock governance systems into political and economic models that appear 'exhausted' and unable to address complex risks and changing expectations.

As Ang (2025b) argues, "If we are to make any meaningful effort in rethinking development, a first and necessary step is to recognize where our ideas come from." What is needed now is a profound rebooting, reordering and rewiring of mental models, institutions, actions and practices. Box 13 illustrates this argument.

Box 13: Breaking barriers

Yuen Yuen Ang makes a convincing argument for a new direction for development. She contends that our existing development paradigm centres on an erroneous mechanical logic, an outgrowth of industrialization. Technocrats take complex systems, whether nature or societies, and study and manage them as complicated systems, similar to rudimentary machines. As Ang explains:

> Banerjee proudly invokes the metaphor of machines to characterize the mission of economists: "Quesnay probably did not realize that when he… wrote in 1763 about what 'propels the economic machine,' he was launching what would become the dominant metaphor in economics."… Almost everyone takes their metaphor for granted as natural and correct, not only because they are authoritative figures, but also as we are so used to an industrial environment. The problem is this: human societies and development processes are not like machines.
>
> Consider the defining attributes of machines. They are made of many separate parts that do not adapt to one another or the surrounding environment[56]. When dealing with machines, processes are linear, and outcomes can be controlled. Press a button for a predictable action: crisp, warm bread pops up. Precisely described, a machine is complicated, but not complex.
>
> Contrasting a toaster is a forest of trees, a system made up of interconnected participants that adapt to one another and the environment. The term 'adapt' is not just a fancy word for change. Rather, it is a particular type of change: the process by which 'an agent fits itself to its environment' (Holland, p. 9.). Many adaptive iterations result in evolution: substantial changes in a given system. Whereas machines are complicated, adaptive systems are complex.
>
> Summed up in a phrase: complex ≠ complicated, just as trees ≠ toasters. The differences between the two are not semantic but have profound implications for the way we understand causality, indeterminacy, human agency, and institutional design.

Ang summarizes the differences between 'complicated' and 'complex' as follows.

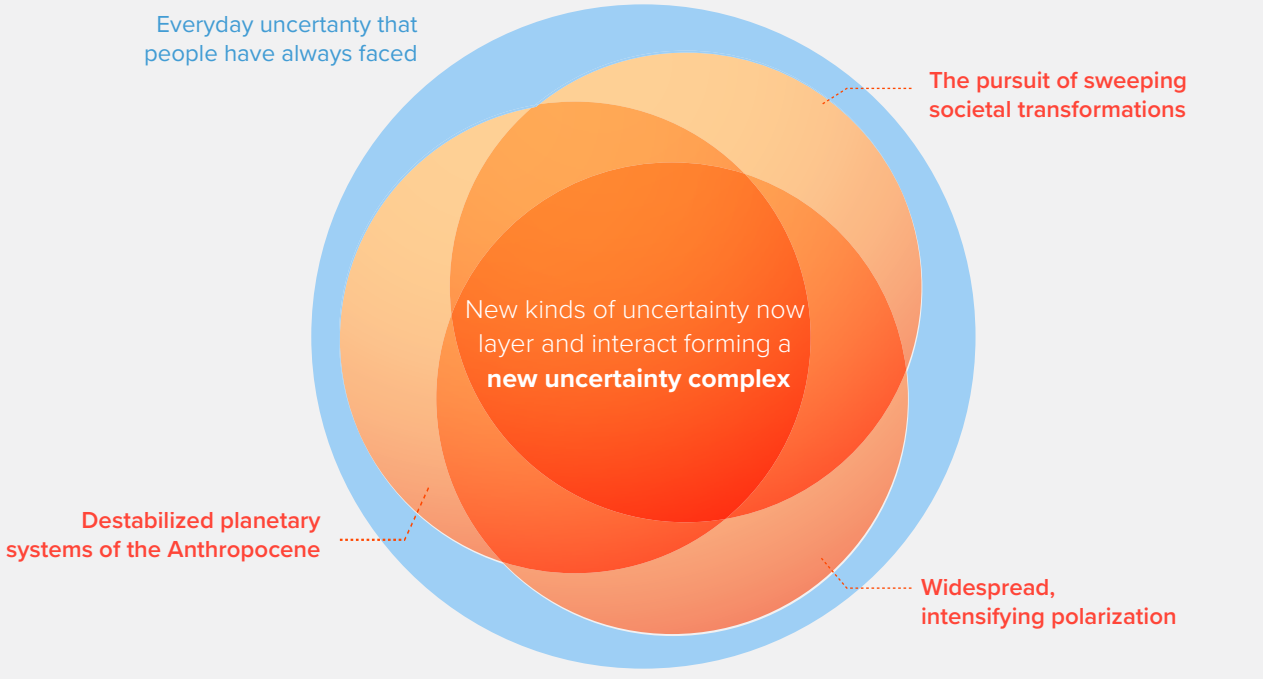
	Complicated	Complex
Defining properties	A *complicated* machine is made up of separate parts that *do not adapt* to one another or the environment.	A *complex system* is made up of interconnected parts that constantly adapt to one another and the environment.
Causality	Dependent (outcome) vs. independent factor (cause)	Interdependent factors (both cause and outcome)
Indeterminacy	Risk – probability	Uncertainty – possibility
Human agency	Control	Adapt, experiment, learn, influence
Institutional design	Institutions (solutions to particular problems)	Meta-institutions (systems for enabling the discovery of solutions)
Examples	Toasters	Trees, ecologies, villages, cities, governments, markets

Source: Ang 2016, p. 52; Ang 2025, p. 8.

3.2 Paralysis is possible

The barriers to change may lead to policy paralysis. The calculus of 'winners' and 'losers' from changes in policy and practice will generate pushback from entrenched interests wedded to current models of 'development' and 'progress', including those protecting and projecting policy orthodoxies[57]. Complicating matters, the inertia of longstanding habits, institutions, tools and mental models will stand in the way of recognizing and acting on new challenges. This could be reinforced by the wave of converging and deepening risks that threatens to overwhelm governance systems[58] designed for another era of lower, relatively dispersed risks (Kreienkamp and Pegram 2021). This **'new uncertainty complex**' (UNDP 2022b) which makes it difficult to identify entry points for action, can lead, in turn, to **policy paralysis** (Figure 7).

Figure 7: The uncertainty complex complicates the search for solutions



Source: UNDP 2022b.

Complicating matters, systems can become stuck in new states even after the shock that caused a change has passed, preventing deeper shifts better adapted to structural transitions (Box 14)[59]. These 'stuck' dynamics (or hysteresis) mean that intuitive or temporary responses can inadvertently deepen vulnerability and entrench dysfunctional development pathways. Understanding this helps shift the mindset from 'bounce back' to 'transform wisely'. Policies that assume reversibility, even when well intentioned, can miss the bigger picture of deeper structural changes and the importance of working with and through them to create new opportunities.

Box 14: Hysteresis during structural transitions

In equilibrium models of complex environments, such as ecological systems, labour markets or political regimes, a shock can push the system past a critical threshold or tipping point, beyond which a new equilibrium emerges. A degraded watershed, once deforested and eroded, may shift from a high-productivity equilibrium to a low-yielding, flood-prone one, even if reforestation begins. Similarly, in conflict-affected countries, a political shock may dismantle institutional trust to such a degree that even after peace is restored, the prior equilibrium of stability and civic participation may not return without deliberate interventions to rebuild norms, institutions and trust (Walker et al. 2020). These dynamics exemplify the irreversibility embedded in many complex systems, a defining feature of hysteresis.

At the end of the day, **the sheer weight and momentum of ongoing structural transitions will change the status quo. The question is whether change will unfold by default or by choice, and at what cost.** To those unconvinced of the need for root and branch reform, it is worth stressing:

- **The lessons of history**, which show that periods of structural transition have always brought large-scale disruption and opportunities that yielded major gains but at great cost, especially when warning signs were ignored or addressed with insufficient urgency. The current convergence of transitions, accompanied by contestation around ideas and eroding collective consensus and action, may be unprecedented, even by historical standards. Why? Because of the significance of what is at stake, and because complex risks are more urgent. The prospect, therefore, is not creative destruction but destruction without deliverance.

- **Rising costs, now and looking ahead, that are orders of magnitude greater than in the past**, in some cases posing threats on a planetary scale. The *Human Development Report 2020* highlights how human activity in the Anthropocene, the first geological age shaped by human activity, is pushing us towards, and even past, several critical tipping points[60]. In 2024, the Pact for the Future, adopted at the United Nations, flagged the "rising catastrophic and existential risks" that the world faces[61] as every country, with no distinction, is impacted and implicated.

- **Turbocharged risks** due to their high levels of interconnectedness and greater uncertainty in origin, occurrence, pace, effects and potential for triggering cascading systemic failures. Risks can no longer be separated easily or fully identified, making it harder to resolve problems in isolation. Furthermore, interconnectedness creates a ripple effect, with impacts harder to trace, ascertain and measure. This makes it more difficult to predict which strategies will be most successful in mitigating and managing risks (UNDP 2025d).

- **Greater exposure and vulnerability of developing countries**. High debts, falling capital inflows, weak domestic resource mobilization and rising vulnerability to shocks thwart the development trajectories of many countries[62]. These are manifestations of a harmful combination of policy shortcomings and exogenous shocks, such as disasters, biodiversity loss, pollution, the COVID-19 pandemic and fallout from the war in Ukraine. Too many countries are spending more of their limited resources on debt servicing than on health, education and infrastructure[63]. In 2023, 52 developing countries, representing 44 percent of the world's population, spent more on servicing their debt than on either education or health[64].

  Such countries are mortgaging their future, including their ability to tackle risks, to pay the bill for past consumption and investment choices that have not yielded expected returns. This has left them without policy and fiscal space to buffer shocks let alone transform their development potential. With limited resources at their disposal, developing countries may also become locked into unsustainable patterns of energy use, production and employment, further compromising their current and future development potential.

4. Navigating Risk and Uncertainty: Recommendations

How can policy and practice reflect this new reality of risks and uncertainty and evolve to become appropriate to contexts, markets and societies? This report pointed out three key levers of change that can expand our menu of choices – rethinking development, reimagining governance, and rebooting international cooperation.

The recommendations follow through with a **menu of actions** in nine key areas grouped within the three levers of change. They have been formulated to 'get started' rather than to wait for ideal solutions, building on a wealth of existing good practices to push further. They are options, not prescriptions, designed to encourage action rather than paralysis. They are directed mostly at national governments and international actors, as a point of departure.

The wide range of the recommendations naturally raises the question of '**where to start and how to manage?**' The view in this report is that it would be misleading to suggest a uniform approach across a wide diversity of development contexts. The choice of where to start, which option(s) to choose and how to sequence depends on where a country finds itself in its preparedness to deal with complex risks and uncertainty, including its relationship to development cooperation. As a rule of thumb and considering UNDP experience as well as the literature, effective risk management demands good data and analysis and a minimum capacity to process and integrate insights and decisions into action. It also makes sense to prototype or experiment in individual sectors or in specific cross-thematic areas such as budgeting and fiscal policy before embarking on broader changes. This reflects the ethos of experimentation, learning, iteration and adaptation that underpins the approach to governance proposed in this report.

The report also recognises that there will be difficult **trade-offs** in making choices, based on factors such as cost, complexity, feasibility, appetite for risk and change, gestation periods, and potential outcomes of different investments, among other considerations. This will intertwine with the **political economy** of the context within which decisions will be made, thus, the relative strength of barriers to change. The messy reality of multiple, sometimes diverging, interests, uneven distribution of influence, access and political power, varying strength of economic sectors, the quality and independence of institutions, and the extant body of laws, policies and regulations make outcomes unpredictable and perhaps tenuous. It is, therefore, exceptionally difficult – indeed, pointless - to determine a priori what will be viable or effective in a particular setting. Reflecting this view, the report proposes a pragmatic approach: working on 'leverage points' within a system; selecting a mix of solutions spanning the range from the incremental or technical to more ambitious undertakings; 'getting started' and experimenting rather than awaiting agreement on a 'grand strategy'; and steadily changing the dynamics of political economy without setting off a backlash.

4.1 Rethink development outcomes

4.1.1 Expand and experiment with a menu of development metrics

- Complement single-metric and partial measurements of development outcomes such as GDP with multi-metric approaches. Many of the building blocks for more holistic measures attuned to complex risks and uncertainty exist already and include:

  – *Social and economic disparities* using the Gini coefficient but looking as well at key gaps in wellbeing by age, between men and women, by location or by other relevant characteristics such as ethnicity.
  – *Scale and quality of social capital*, for example, participation in social groups and associations, volunteerism, number, reach and activities of community-based organisations, charitable giving, public participation in civic, economic and political processes, trust in institutions and fellow citizens, and level of hate speech on social media.
  – *Vulnerability* across multiple domains such as the concentration of exports, debt-to-GDP, foreign exchange reserves, food reserves, informality in the economy and employment, cost of natural disasters, internal displacement and migration, and incidence of violent crime.
  – *Resilience and adaptability* targeting coverage of safety nets, access to insurance, redundancy in food and energy systems, efficiency of resource use (e.g. in agriculture), and resilience of key infrastructure.
  – *Hope and confidence* based on public satisfaction with current conditions and confidence in the future.

4.1.2 Address persistent structural inequalities and intergenerational justice

- Advance equity and intergenerational justice to avoid a situation where short-term development choices shift the burden of environmental, economic, and social costs onto marginalized groups and future generations. Inequalities between men and women is a particular concern, as it deepens exclusion and weakens societal resilience. Governance, investment, and accountability systems need to prioritise and value long-term wellbeing, sustainability, and fairness, spatially, inter-temporally, between sexes, and other relevant characteristics.

4.1.3 Reform national accounts to accurately measure wealth and wellbeing

- Adjust national accounts systems to go beyond output as the primary or sole measure of progress. Building on efforts that have started already, countries can develop and institutionalize augmented national accounts that measure the value of social and natural capital, consider factors depleting these types of capital (e.g. loss of biodiversity and forests, cost of crime and violence, disparities), and address missing measures of the productive contributions of women (e.g. through unpaid care work) and informal labour.

4.2 Reimagine governance

4.2.1 Build the institutional foundations for adaptive and networked governance

- Focus on subsidiarity and decentralization as core principles in public service reforms, for faster action and greater responsiveness and adaptability of public institutions.

- Acknowledge the fundamental role of functional and accountable local governments or authorities in risk management. Recognise that this requires providing local governments with resources that they can prioritise, plan and manage at their level. Over time, adjust the distribution of revenues to create decentralized capacity for faster action and greater responsiveness and adaptability of risk management.

- Leverage existing local structures such as disaster risk management teams, early warning systems, civil defence arrangements or public consultation mechanisms to develop capacities to address a wider range of local risks.

- Build a risk-aware civil service by incorporating adaptive leadership and risk management skills in the curriculum of civil service academies. Encourage public administration and business schools, where they exist, to introduce adaptive leadership and risk management training.

- Foster stakeholder networks that raise awareness, socialize risk management and encourage independent action. This can involve associations that bring together the private sector, civil society, faith-based organizations and community-based groups. Provide ways to orchestrate decentralized networks of partners around a common mission, transcending traditional silos and sectors. Direct policy action towards the discovery, not the predetermination, of (successful) outcomes while leveraging experimentation and bottom-up feedback.

4.2.2 Upgrade statistical systems to dynamically inform policymaking

- Use digital technologies to harvest, analyse and monitor a wealth of publicly available data at relatively low cost. This can provide useful signals and early warnings about the state of the economy and society, while respecting norms for data protection and privacy. Examples abound, such as electricity usage, transactions over e-payments systems, tension or hotspot monitoring, use of key words in social media, and so on.

- Use AI to make sense of large data sets that can provide valuable inputs into risk management. One powerful application is human-in-the-loop AI, which combines human intelligence and machine learning

to, for example, understand conflict dynamics (UNDP 2023). A complement might be open-source AI applications that are more transparent and robust and can speed the development of new use cases.

- Enable open access to public data sets rather than 'data hoarding'. This can allow a wide range of stakeholders to experiment and innovate, thus, expanding the pool of analysis and applications available for risk management. Freedom of information laws can be vital in this regard.

4.2.3 Adjust development strategies for risk reduction and resilience

- Adopt risk reduction and resilience as explicit goals of development strategies and plans. Set targets across key sectors and levels of government.

- Prioritise policy consistency in risk management to avoid creating discontinuities that can be disruptive and send confusing or contradictory signals across the government and society. A lack of consistency is a major source of uncertainty and risk.

- Avoid 'linear' development strategies/plans based on a single pathway from baseline to expected outcomes. Design or at least consider alternative pathways and associated financing and institutional arrangements.

- Develop rolling rather than rigid public investment plans that allow for regular adjustment based on performance and changes in contextual conditions.

- Devise risk management plans for selected high-priority infrastructure and services (e.g., utilities, digital public infrastructure, banking, communications).

4.2.4 Recalibrate development planning capacities and approaches for a networked approach to risk reduction

- Establish risk management teams at the centre of government and in key ministries and parastatals; where possible, mirror such capacities at the subnational level. Link them with the planning system. These teams can form the nucleus of a country-wide risk management system, developed at a pace that is affordable and practical.

- Use adaptive strategies/planning methods that employ strategic foresight and scenario planning to stress test and regularly revisit planning assumptions and responses. Employ simulations to test preparedness for different scenarios and explicitly acknowledge trade-offs [65].

- Introduce 'restricted complexity' (Kreienkamp and Pegram 2021) to socialize simplified systems thinking as a pragmatic response to limited institutional capacity, high uncertainty and/or political volatility.

- Rethink the use of large, single objective projects characterized by years of planning and long implementation timelines – a practice inherently exposed to risks, and inappropriate for navigating uncertainties.

- Create deliberative/consultative platforms that enable collaboration and cross-sectoral decision-making to manage complex risks and uncertainty. These could promote collective intelligence, break gridlock, and steer decisions that enjoy broad support and are more likely to succeed. These platforms need to be open to a wide spectrum of voices, including those who may not normally have access to policy- and decision-makers such as minorities or groups located in remote areas. Polling can also provide a guide to public sentiment, priorities and expectations.

4.2.5 Develop a policy 'toolkit' for risk management

- Target risk reduction directly through 'buffers' such as rainy-day funds, sovereign wealth funds, and strategic food and fuel reserves.

- Consider social protection as key to risk reduction. Develop/reform social safety nets that are targeted to the most vulnerable, have high levels of transparency, are efficient and can be repurposed in response to a range of risks.

- Prioritize economic diversification to address, for example, dependence on a single product or product category for exports, or monoculture in agricultural production. Diversifying investments spreads risk across various asset classes, sectors, and geographies, thereby reducing the impact of any single adverse event.

- Develop the infrastructure 'backbone' for risk management, especially digital public infrastructure, mobile communications, digital payments systems and national registration systems.

4.2.6 Create fiscal space and flexibility for risk management

- Assess and address complex risks in development finance assessments and integrated national financing frameworks. This would provide a holistic view of how financing can be combined to reduce these risks, creating a road map for governments and partners to align financing instruments and flows with multidimensional risks.

- Where not already the case, raise domestic resource mobilization (tax-to-GDP) to the levels of peer economies. While this is not necessarily a 'quick win', a significant number of least developed and middle-income countries have considerable scope to improve their fiscal position by raising resources locally.

- Encourage green, blue, resilience and sustainability-linked bonds to fund critical investments in climate adaptation, resilient infrastructure, sustainable energy and nature-based solutions. Use of debt instruments, however, needs to be guided by debt sustainability criteria to avoid creating new risks.

- Introduce contingency budgeting, especially when there is evidence of high-risk exposure and vulnerability, setting aside a proportion of budgets at the national and local levels for crisis response.

- Ring fence capital and recurrent expenditure to avoid a situation where crisis-related spending compromises long-term risk management and development prospects.

- Adjust risk analysis used for public investments, especially larger infrastructure, production and social projects, to consider complex risks and uncertainty. Spread the practice to the formal private sector, including medium- to large enterprises. Introduce local and/or international risk certification standards that can provide incentives for a wide range of entities to adopt risk management practices.

4.3 Reboot International Cooperation

4.3.1 Recalibrate development financing for derisking and contingencies

- Build on instruments from international financial institutions and bilateral agencies to expand financing that can be more responsive to complex risks during structural transitions. Examples include the International Monetary Fund's Contingency and Compensatory Financing Facility and Resilience and Sustainability Facility, the upcoming Fund for Responding to Loss and Damage, and the African Development Bank's Transition Support Facility.

- Replicate and scale approaches with derisking investments in fragile and crisis contexts with high levels of risk exposure and vulnerability. This can entail combining grant funding from official development assistance for derisking policy, institutional and social reforms with the unblocking of international financial institution project pipelines[66].

- Move beyond models that rely primarily on transferring risk to third parties (such as through insurance) and instead promote mechanisms of shared responsibility. This shift calls for collective investment in resilience, co-financing of preventive infrastructure, and the equitable distribution of risks and rewards across sectors and stakeholders. Such an approach strengthens solidarity, builds trust, and enhances capacities to manage systemic and cascading risks.

4.3.2 Revisit how international cooperation works

Tackle the mismatch between cooperation cycles and systemic change

- Experiment with some long-term bets that address complex risks and uncertainty. This would involve applying lessons from public policy and funding in developed and developing countries alike to tackle complex challenges—and create new markets and industries in the process. Development partners would, in effect, accept the role of being venture capitalists in some instances.

- Address the mismatch between traditional international cooperation policy, project and funding cycles and the longer gestation periods needed for deep reforms to better address complex risks and uncertainty (exercising a form of 'strategic patience'). From a practical standpoint, this might mean providing resources to partners who can insulate funding from short-term pressures (including political cycles) and are better equipped to navigate through uncertainty.

- Accept iterative approaches and the possibility of failure – whether at policy or project level - which is still almost uniformly stigmatized in international cooperation.

- Consider partnerships based on shared interests and goals rather than detailed actions and budgets; and explicitly build in contingencies to enable responsiveness to complex risks and uncertainty.

- Promote programmatic approaches designed for the medium term that are better suited to addressing complex risks embedded in systems. Improve information feedback loops to regularly assess performance and changing contexts, and adjust approaches based on experiences and lessons[67].

Fund differently

- Pursue flexible, outcomes-based approaches that are responsive to a broader range of situations over longer time horizons. This shift would enable coverage across preventive, anticipatory, response, recovery and long-term development priorities, and avoid discontinuities in funding. It would enable, for example, much better integration of humanitarian and development assistance from the onset of a crisis, to ensure adequate coverage of populations in need whilst laying the groundwork, from day one, for exit towards recovery and development which can be an important source of risk reduction.

- Introduce contingency funding lines for crises – such as the possibility of increased budget support based on agreed triggers – that allow flexibility that is often missing, cutting the time and transaction costs of adjustments to changing conditions. A practical, project-level application of this approach would be to insert clauses in project documents that stipulate pre-agreed triggers and associated actions that can come into effect in case of major disruption to operating conditions, thus avoiding long discussions about course corrections in the face of rapidly evolving situations and needs.

Work differently

- Adopt portfolio approaches for collective impact, seeking complementarity through multiple intervention points thereby creating opportunities to align public policy, fiscal planning and infrastructure investment for shared or common objectives.

- Push localisation forward, including through country leadership and coordination, and reliance on national systems and local capacities to design, deliver and monitor programmes. Both humanitarian and development assistance need to incorporate specific, timebound targets for transferring responsibilities and funding to local actors.

How is UNDP investing in de-risking development?

As development becomes increasingly exposed to complex risks, UNDP is investing in tools, partnerships, and approaches that help countries manage complex risks and uncertainty.

Using the Development at Risk report as a springboard, UNDP is deepening **risk analytics**, tapping into the work of its Futures Team[68] on signals and foresight that scans for emerging risks as well as the UNDP **Crisis Risk Dashboard (CRD[69])** which combines data analytics, early warning indicators, and .conceptual insights to inform preventive action and risk-informed development planning. Over 30 countries are already using CRDs to guide strategic decision-making. In addition, UNDP's **Africa Transition Index**[70] – part of the **Africa Facility to Support Inclusive Transitions**, a joint UNDP-African Union Commission initiative – helps assess risks and opportunities during political transitions. By monitoring indicators related to governance, inclusion, and institutional capacity, it enables tailored programming that reduces the risk of instability or conflict.

As another follow-up to the report, a package of **risk management advisory services** will be assembled for use by developing countries and partners to address complex risks and uncertainty. Prototyping for eventual rollout is planned for 2025-26 in countries that express an interest in testing new approaches.

In the area of financing, UNDP is playing a key role in rolling out **Integrated National Financing Frameworks** (INFFs). It is also developing a **recovery and resilience financing portfolio** that will bring together multiple instruments, several of them employing innovation, to expand capital flows to countries facing high risks or dealing with crisis. A key component of the portfolio will be de-risking investments by international financial institutions (IFIs). Through the **Insurance and Risk Finance Facility (IRFF[71])**, UNDP works with ministries of finance and insurance regulators to integrate risk financing into national strategies. This includes support for climate risk insurance, social protection schemes, and disaster-responsive financing mechanisms in countries like Ghana and Indonesia.

Across the organisation, UNDP has a **wide and deep portfolio addressing prevention, crisis response, recovery, reconstruction and peacebuilding** which is, in effect, a contribution to de-risking development. Among other things, UNDP invests in shared prosperity, governance, national prevention strategies, disaster preparedness and response, stabilisation and early recovery, climate (including climate security), energy, and nature, underpinned by investments in financing, digital and innovation. A core concern throughout is the empowerment, participation and progress of women.

Finally, UNDP is developing a multi-year research agenda on systemic risks and uncertainty to support field practice and shape its policy and learning work.

Technical Annex A: Making Sense of Complex Risks

Complex risks are often poorly understood and addressed in public policy and the private sector. Exceptions are in specific sectors such as insurance, banking and utilities, or policy areas such as the macroeconomy, public health and disaster risk reduction. Sophisticated modelling work underpins monetary and fiscal policy. But there is no equivalent in regular use in ministries of planning or finance to identify, understand and analyse complex risks on a macro or countrywide basis, integrating data across multiple sectors; spanning economic, political, social, technological and environmental factors; capable of projection into the future; and equipped to suggest points of leverage for public policy and social action.

Understanding the risk environment is an essential first step, as evidence for action is often fragmented, partial and outdated in developing countries. Behavioural science shows that understanding risks can empower people to weigh benefits and consequences, fostering proactive and strategic actions that increase control over their environment.[72]

This report does not propose commissioning expensive new and large-scale household surveys or constructing complex statistical models as essential for understanding the risk environment. Instead, it suggests **a common sense, flexible, low-cost, scalable approach** that can be modified to suit a variety of purposes. It can operate at any level, from a focus group under a tree in a village to a policy think tank able to design complex models. The approach is **designed for adaptation** rather than mechanical application/replication as a standard template or blueprint. It draws on current knowledge and what UNDP has learned in 60 years of operation. It takes risks beyond enterprises or sectors to the systems affecting development, whether at the community or country level.

This report makes no suggestion that risk analysis and management should become a new and additional element of conditionality in development cooperation. This would go against the autonomy, agency, trust and ownership that are vital for successfully dealing with risks in any society. **The point, instead, is to support decision-makers and stakeholders to make risk-informed choices.**

A.1 Framing the Analysis

A.1.1 Dimensions of impact (positive and negative)

System analysts often draw on the social, technology, economy, environment, politics and values (STEEP-V) framework to map existing and potential risks.[73] The framework is a widely accepted analytical model based on six meta-factors defining any ecosystem (UNDP 2022e). It provides a useful method to analyse multidimensional risks in a rapidly changing world (Table A1).

Table A1: The STEEP-V framework

Dimensions	Description
Social	Demographics, family life, relations between men and women, public health, religion, social norms, access to opportunity
Technological	Information technology, data, AI, biotechnology, manufacturing, science, communications
Economic	GDP, interest rates, indebtedness, inflation, commerce, labour, distribution of income and wealth, fiscal policy, savings and investment
Environmental	Climate, weather, resource availability, agricultural systems, energy, biodiversity, air and water pollution
Political	Elections, levels of polarization, geopolitics, conflict, international relations, legislation, institutions, governance structures
Values	Cultural norms, belief systems, ethics, identity, trust

In each dimension, **risks that are not well-managed can derail progress in all areas of development**. Social risks, such as through demographic shifts and inequality, can exacerbate poverty and limit access to essential services. Technological disruptions, including digital divides and automation, can cause deepening disparities between and within countries. Economic uncertainties, ranging from debt crises to inflation, challenge sustainable growth and fiscal stability. Environmental threats, such as climate impacts and resource degradation and depletion, disproportionately impact vulnerable communities, particularly in the Global South. Political instability, driven by weak governance, conflict and policy unpredictability, can derail long-term development efforts. Finally, shifting cultural norms, belief systems, ethics and identities (values) shape how societies interpret change, make decisions and prioritize what matters most.

Complex risks, handled well, can trigger 'game-changing' adaptation and innovation. Across Africa, Asia and the Pacific, and Latin America and the Caribbean, there are examples of how fintech and agrotech are transforming agriculture in areas with poor or limited infrastructure, scarce services and growing environmental pressures. These technologies provide real-time information on the weather to manage planting and harvesting. They enable low-cost borrowing to finance vital inputs, provide access to insurance products, and deliver data on market prices to limit information asymmetry between farmers and buyers of their products.

As another example, AI can be a powerful tool for making pharmaceutical discoveries in response to new viruses. Huge advances in the recharging times and longevity of electric batteries are taking place as consumers decide to switch to electric vehicles due to concern for the environment (and tax incentives). This demonstrates a powerful combination of consumer preferences, public policy and market incentives in response to a complex risk. Much the same can be said for the renewable energy industry, which has seen dramatic unit cost reductions over the past decade. **The potential upside is considerable when attention, action and investment are aligned.**

A.1.2 Types of risks

It is useful to consider three types of risks during structural transitions.

- **Structural risks**: Risks that are deeply embedded within a region, country or community. They arise from enduring characteristics such as natural endowments; geographic location; historical experiences and narratives; economic, political, cultural and social structures and institutions; and demographic factors. They are shaped by longstanding patterns of external relationships, commitments and dependencies. Structural risks can be generated by factors that are independent of a country's context, such as a large-scale geopolitical realignment. Because they are rooted in the foundational structure of societies, structural risks are difficult to change and tend to persist over time.

- **Legacy risks**: Risks that stem from unresolved problems and past choices, decisions, policies or actions, and that continue to shape present and future development trajectories in ways that may be difficult to reverse. These risks often persist across generations, reflecting a country's political economy. They may create barriers to progress, exacerbate inequalities and limit resilience to new crises. Over time, legacy risks can become embedded in the conditions and institutions of a country, turning into structural risks.

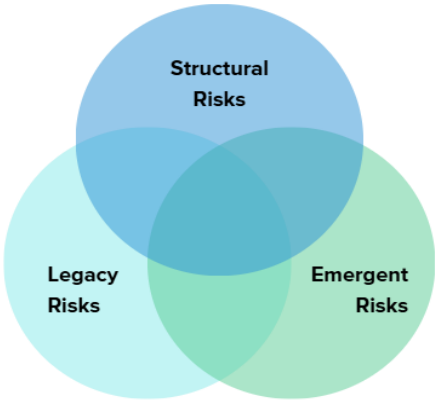
- **Emergent risks**: Risks that are characterized by their uncertainty, complexity and potential for cascading impacts. They often arise from rapid social, technological, environmental and economic disruptions, as well as unforeseen interactions between different systems. These risks may be underestimated and can evolve quickly. Their unpredictable nature ('wildcards') can challenge existing governance and economic structures, deepen inequalities and create new vulnerabilities. If not addressed early, emergent risks can create long-term consequences, eventually becoming legacy risks. At the same time, handled with purpose and a sense of urgency, such risks can unlock new opportunities.

Table A2 shows the scope and impact of these three types of complex risk, and Figure A.1 illustrates their interactions.

Table A2: Three types of complex risks

	Structural risks	Legacy risks	Emergent risks
Scope	Based on long-term systemic factors	Rooted in past decisions/ actions (or lack thereof) but impacting the present	Embedded in signals and hints, future-focused
Impact	Create structural impediments to development (thwarting the development potential of a country)	Prevent structural changes and reforms (creating or exacerbating poverty/crisis traps)	Disrupt the development trajectory (prompting shocks but also generating opportunities)
Examples	**Historical patterns and structural inequality**: Entrenched/ embedded economic structures, legal systems and political institutions, defined throughout the country's history and its transformations, shape current disparities in wealth, relations between men and women and different social groups, economic power and governance. **Disadvantageous geography and natural endowment**: The geographic position or natural habitat of a country (e.g., landlocked, small island developing State, exposed to natural hazards and heat waves, poor in natural resources and biodiversity) constrains development opportunities. **Societal divisions**: Structured social hierarchies grounded in identity, race, social status or access to economic assets that weaken the social fabric and prevent national consensus on development needs. **Conflict and fragility**: Protracted conflicts, civil wars, and colonial-era territorial divisions have left many countries struggling with weak or unfit institutions, internal displacement and cycles of violence.	**Environmental degradation and climate vulnerabilities**: Past industrialization and unsustainable resource use have led to environmental degradation, biodiversity loss and climate vulnerabilities that disproportionately impact developing regions. **Debt accumulation and fiscal constraints**: High levels of sovereign debt inherited from previous regimes or structural adjustment programmes limit a country's ability to invest in education, healthcare and infrastructure. **Discriminatory policies and practices**: Systemic biases based on race, ethnicity, sex or sexual orientation that limit access to opportunities and resources. **Demographic policies**: Rigid (or lack of) family planning policies that undermine future workforce needs. **Food insecurity**: Intensive use of agricultural land, lack of drought mitigation systems, export policies that have damaged domestic food production, food waste.	**AI and labour market disruptions**: The rapid expansion of AI and automation is transforming job markets, potentially displacing millions of workers, particularly in low-skilled sectors. **Digital inequality and algorithmic bias**: Unequal access to digital technologies and biased AI decision-making can reinforce existing disparities in education, employment and social services. **Climate migration and urban pressures**: Rising sea levels, extreme weather events and resource depletion are driving new waves of migration, straining urban infrastructure and social services. **Global pandemics and public health crises**: Novel infectious diseases and antibiotic resistance are emerging as global health threats, straining underfunded healthcare systems. **Financial volatility and cryptocurrencies**: The rapid growth of decentralized finance and cryptocurrencies presents risks of financial instability, illicit activities and regulatory gaps.

Figure A.1: Complex risks intersect with each other



Another way to look at types of risk is the 'futures triangle' created by futurist expert Sohail Inayatullah (2023). This is a valuable foresight method to make sense of systemic risks by mapping the interplay between three forces (or drivers of change):

- *The weight of the past*: opportunities, tensions and constraints that persist (structural)
- *The push of the present*: issues and drivers that have momentum or create inertia (legacy)
- *The pull of the future*: aspirational or disruptive forces (emergent).

This framework presents a dynamic extension of the three types of risks presented earlier, whereby development practitioners and policymakers navigate complex uncertainties by identifying structural risks (deeply embedded structures and constraints), legacy risks (current systemic vulnerabilities and pressures) and emergent risks (new threats and opportunities shaping the future). **This interplay generates the complexity that is the hallmark of risks during current structural transitions.** In this case, structural risks constrain adaptation capacity, legacy risks create urgent pressures, and emergent risks introduce both game-changing solutions and new vulnerabilities (see also Box A.1). The key is to identify where tensions and reinforcements occur among these forces, which can either lock systems into vulnerability or create pathways for transformation.

Box A1: Exposure and vulnerability to risks

Two concepts are key to understanding the impacts of risks.
Exposure is the presence of people, livelihoods, ecosystems, services and resources in places and settings that could be adversely affected (IPCC 2022).

Vulnerability arises from conditions determined by physical, social, political, economic and environmental factors or processes, which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards (United Nations Office for Disaster Risk Reduction 2017).

The impact of a given risk is a function of exposure and vulnerability to that risk. Exposure and vulnerability differ across social groups, regions and countries, and over time (intertemporally and intergenerationally). Their scope can be local, national, international or global, and their impact may be concentrated within certain demographic groups or affect the entire population in any given geographic space.

A.1.3 Risks embedded in systems

Risks do not exist in isolation; they are embedded intrinsically in systems. They are interconnected, cascading and compounding. Risks can add to complexity and uncertainty as they interact with each other, which can change the severity and sometimes the nature of their individual impacts. The manifestation of a risk in one area can trigger or intensify the impact of another risk elsewhere. Conversely, reducing a risk in one area can positively affect outcomes across different groups and sectors. Those affected by a given risk in one area may

also be unaware of the impact of related risks elsewhere. A concrete example is the 2022 global food crisis triggered by the war in Ukraine. The conflict disrupted grain exports, which led to soaring food prices globally. This, in turn, intensified economic vulnerabilities in import-dependent countries, sparking inflation, triggering political unrest and worsening malnutrition. The initial geopolitical risk cascaded through trade, economic and social systems, illustrating how a localized shock occurring within larger, interconnected systems can amplify risks across sectors and regions—often beyond the awareness or control of those most affected.

A.1.4 The intertemporal nature of risks

Risks are not static or equally significant at any particular point in time. Risks evolve over time, gathering or losing strength, and manifesting differently and with varying impacts. Fully understanding complex risks can be especially challenging if the onset of their impacts is gradual. This can cause the full scale of a risk to be underestimated or misdiagnosed, even as its impact is mounting. Tan (2025) observed that "a system with a lot of slack and excess capacity can absorb a lot of bad consequences from misdiagnosis before being observably affected". He cites high-input monocultural agriculture as an illustration of this phenomenon, noting that such practices continue to give high yields because the ecosystem is able, temporarily, to absorb gradually accumulating damage (depletion of soil organic carbon, the build-up of agrochemicals, contamination of water sources and so on). Similarly, although the science has been well-established for decades, awareness of the climate consequences of atmospheric carbon accumulation only became widespread relatively recently as evidence of impacts grew more visible along with the understanding that these will be increasingly difficult to reverse.

A.1.5 Social determinants of risks

There can be significant mismatches between exposure and vulnerability to risk, and the allocation of resources for risk management. This is evident, for example, in "the inherently value-laden, political nature of decision-making …in the case of allocating resilience and climate finance. People living in fragile and conflict-affected countries are among the world's most vulnerable…to climate impacts" (Vazquez 2025). Yet those groups receive just a fraction of climate finance, with the majority going to more stable contexts (ICRC et al. 2022). Moreover, vulnerability need not be limited to one specific risk. **Social vulnerability to disasters can intensify the impact of any given risk, even where exposure to a particular risk is considered minimal** (Box A2).

Box A2: Social vulnerability can compound the impact of risks

The United States Census Bureau's Community Resilience Estimates measure social vulnerability to disasters based on 10 individual and household factors—poverty, unemployment, lack of access to vehicles and broadband access, household crowding, communications barriers, caregiving, lack of health insurance, advanced age and disability. Population groups with three or more of these components are considered at high risk of social vulnerability, which intensifies the impact of a disaster on them and/or complicates and slows their recovery from it.

According to the estimates, about 20 percent of people living in the counties in North Carolina that suffered catastrophic flooding from Hurricane Helene in September 2024 had high social vulnerability to disasters. These predominantly rural areas have greater concentrations of older people, people with disabilities and people living in mobile homes more subject to weather-related damage. High social vulnerability may make recovery particularly difficult and slow for these populations. Some of these factors would also increase vulnerability to other, non-disaster-related risks.

The social determinants of exposure and vulnerability lead to asymmetries in the impacts of any given risk or combination of risks.[74] Impacts vary according to the ability of people to insulate or protect themselves or to avoid or mitigate risks. Of the 1.47 billion people exposed to flood risks globally, 89 percent reside in low- and middle-income countries. Notably, approximately 132 million individuals live in extreme poverty (under $1.90 per day) and in high flood-risk areas, with 55 percent of this group located in sub-Saharan Africa (Salhab and Rentschler 2020). Research covering almost 45,000 neighbourhoods in 276 cities in eight Latin American countries revealed that residents in neighbourhoods with the lowest quintile of educational attainment, a proxy for socioeconomic status, were disproportionately exposed to flooding. Specifically, 24 percent were exposed to flooding, compared to only 5.6 percent in neighbourhoods with the highest educational attainment (Kephart et al. 2025).

A.2 Options for Risk Analysis

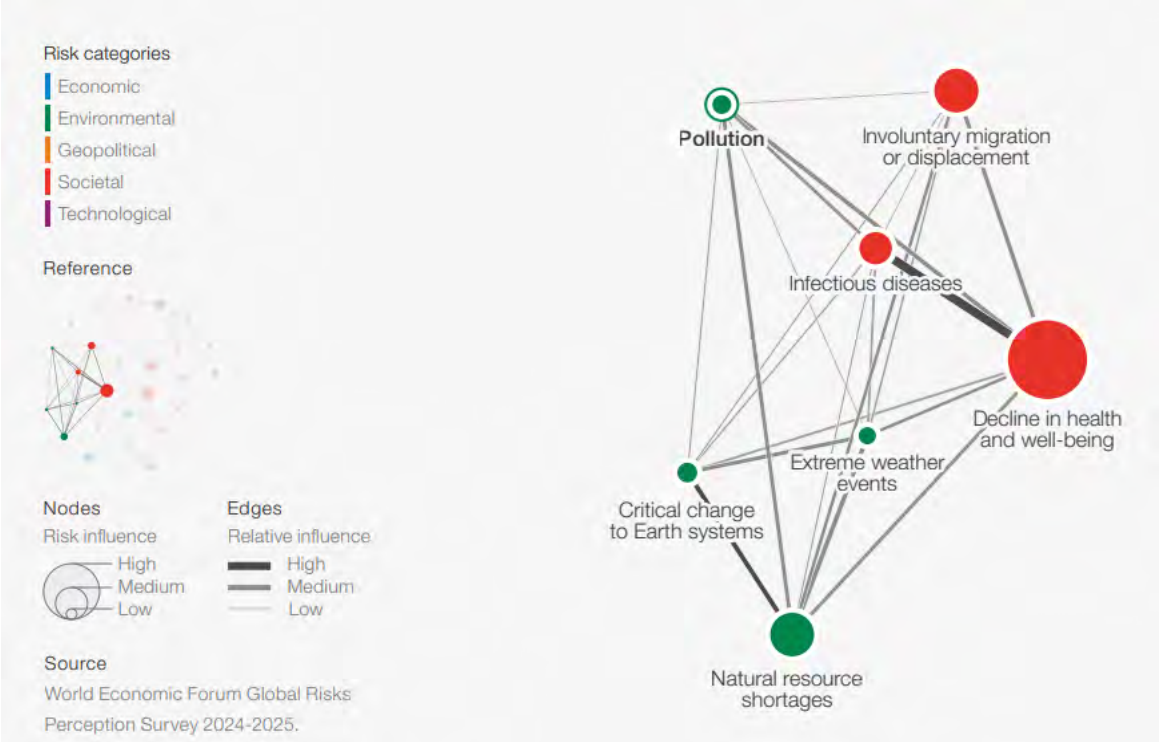
This report proposes a relatively simple approach to analysis that can be adapted, modified and/or scaled up or down. Different combinations of its components can be used at almost any level (from community to country) and by anyone (from civil society or non-governmental organizations working in a few villages to universities, think tanks and governments employing advanced statistical models to guide public policy). At its core, it is a common-sense approach that taps collective intelligence and experiences to manage risks, without necessarily requiring large sums or taking too much time.[75]

The components of this approach are as follows; these can be adapted, dropped and/or assembled in whatever order is appropriate.

- **Harvesting knowledge**: Depending on the availability of time and resources, it may make sense to collect and, where feasible, commission data and analysis to create a strong evidence base— or 'information ecosystem'—to guide reflection, debate and decision-making. It would be a mistake to assume that risk perceptions and priorities are shared even where conditions seem the same in a country or other geographic space. Risk perceptions are often strikingly different, vertically between the community level and decision-makers in the capital, and horizontally among stakeholders (such as between men and women or large landholders and sharecroppers/farmers).[76] Using tools that are both qualitative (e.g., focus group discussions, key informant interviews, oral histories) and quantitative (e.g., quick, repeatable, surveys through mobile phones) it is possible to gain insights into risks that are felt to be most material to well-being. Where information on informal and formal adaptations and innovations in response to risks is absent or limited, working with what people have can point the way towards locally relevant, scalable and low- (or lower-) cost solutions. These may be well suited for replication and able to deliver major gains in risk reduction.

- **Risk mapping and visualization**: STEEP-V provides a useful guide to exploring the risk landscape across multiple dimensions. Risks can be classified as structural, legacy or emergent, and relationships among them visualized to identify their strengths within the system (figure A.2.).

Figure A2: Mapping risks can reveal their links



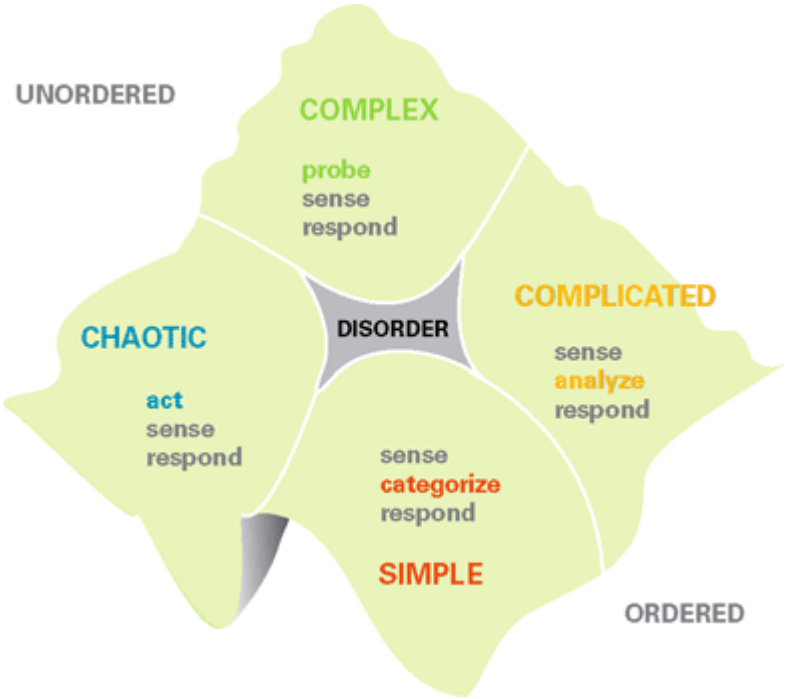
Source: World Economic Forum 2025, p. 49.

- **Risk scoring**: Preparing risk maps helps to assess the significance of specific risks and identify leverage points for action. It may be helpful to rate or score risks, applying the '**5S' approach**:

    - Salience: The degree to which a risk stands out as significant or pressing in a given context. Salience is about the dominance of a specific risk within the system. A risk is salient if it is highly visible, widely recognized and has a high probability of occurring in the near term (0–24 months), thus demanding immediate attention.
    - Severity: The magnitude of change (harm, damage, alteration of existing conditions) that a risk can cause if it materializes. This can refer to physical, economic, social or environmental consequences and is often measured in terms of impact.
    - Scale: The extent or reach of a risk's impact, which can be measured geographically (local, national, regional, global), temporally (short-term or long-term) or by the number of affected entities (individuals, organizations or systems).
    - Scope: The breadth or range of effects a risk may have across different sectors or domains. A broad-scope risk affects multiple areas (e.g., economic, political, social), while a narrow-scope risk is more contained.
    - Susceptibility: The vulnerability of individuals, institutions, systems or countries to a specific risk. This reflects the likelihood of a stakeholder being affected based on their exposure, adaptive capacity and resilience.

- **Stress testing, addressing trade-offs and decision-making**: This is essentially about assessing the feasibility of acting on dominant risks. It involves three elements: agency, the capability to act and decision-making based on trade-offs. This exercise can be understood as a 'reality check' on opportunities and constraints prevailing in the political economy of the setting for the analysis. It can be defined broadly, for example, as the level of awareness and consensus among affected groups about risks, the availability of information and analysis about costs and benefits (including co-benefits), estimation of trade-offs (now and into the future), the preparedness of institutions, the complexity and duration of the proposed response, the availability of resources, the possibility of external support, and the consequences of the pull and push between 'winners' and 'losers'. These factors can be classified as either enabling or hindering. They can also overload participants cognitively. One way of making sense of collective choices is to apply the Cynefin model, which allows decision-makers to clarify alternatives in complex and even chaotic situations (see Figure A3).

Figure A3: The Cynefin model helps clarify alternatives in complex contexts



Source: Snowden and Boone 2007.

- **Future resiliency**: Given that risks are dynamic rather than static and will evolve as action is taken (or not) and broader conditions change, it may make sense to explore the future trajectory of dominant risks in a system using foresight and scenario planning.

These elements can help identify options for action, whether in a community addressing the rising impacts of flooding or a government exploring policy options in an increasingly volatile global trade, aid and investment environment.

A.3 Creating a Purposeful and Adaptive Framework for Risk Management

A good risk management framework should be able to adapt flexibly to dynamic interactions among different risks identified through analysis. Strengthening institutions, community involvement and governance will contribute to building the adaptive capacities of the risk management framework. It should also consider both enabling factors (such as supportive policies and institutional frameworks, community engagement and participation, resource availability, technological advancements, and domestic and international cooperation and partnerships) and hindering factors (institutional inertia and governance gaps, structural and socioeconomic barriers and inequalities, environmental constraints, and political instability and conflict).

The relationship between risk and uncertainty demands explicit consideration in risk management. In many real-world contexts, especially those involving climate change, geopolitical shifts or novel technologies, decision-makers face deep uncertainty. The range of possible outcomes, their likelihoods or even relevant variables are not clearly defined. Traditional risk management frameworks, which rely on forecasting, quantifying and mitigating specific risks, often struggle to address uncertainty that cannot be easily measured or modelled. For example, probabilistic risk assessments assume a degree of stability and predictability that may not hold in highly dynamic or emerging systems, particularly during complex transitions. This creates limitations in anticipating systemic shocks or 'unknown unknowns', and requires complementary approaches—such as scenario planning, stress testing or adaptive governance—to better navigate conditions of uncertainty.

It is essential to integrate 'no-regrets' measures into risk management strategies. Such interventions may yield long-term benefits regardless of the specific risks that eventually materialize, compound or cascade. These measures, often referred to as general purpose resilience assets, help buffer societies against a wide range of shocks. They include robust social protection and welfare systems, cohesive and empowered communities, resilient and adaptive infrastructure, and transparent, participatory governance processes. Together, these foundational elements strengthen a society's capacity to absorb disruptions, adapt to change, and seize opportunity amid uncertainty.

A.3.1 Types of risk responses

Risk responses can be **preventive**, seeking to avoid the impact of the risk entirely or to reduce its incidence; **adaptive**, managing the unavoidable occurrence of a risk to reduce its impact or otherwise absorb it effectively; **or a combination of both**. Choosing a response depends on the assessment of the impact (Box A3). The nature of the response can evolve along with the risk itself. For example, adaptive measures can be the immediate response to contain the impact of a sudden-onset risk, gradually shifting to preventive measures as the immediate crisis is controlled. Where there is uncertainty and the risk is not yet clearly defined, preventive measures may not be feasible. Instead, flexible institutional arrangements capable of reacting rapidly to emerging risky situations would be the appropriate response.

Box A3: Deciding on the appropriate risk response

The objective of the response to a given risk, and the choice of tools used to implement it, depend on whether the source or driver of a risk can be satisfactorily eliminated or at best attenuated.

- *If the risk can be eliminated* (without degrading the outcome of the desired change), the appropriate response would be to avoid the risk entirely. For example, a coastal village threatened by rising sea levels could be relocated to the interior or at least to higher ground.
- *If the risk cannot be fully controlled or eliminated*, the response could be designed to reduce its incidence. This is the rationale behind vaccinations against childhood diseases.
- *If the risk is foreseeable and to some extent measurable but fundamentally unavoidable*, the response should aim to reduce its impact. In areas subject to regular extreme rainfall and flood danger, for example, substantial improvements in infrastructure for water drainage could help divert floodwaters, diminishing their impact.
- *In other cases, where the risk itself cannot be entirely removed or its incidence or impact reduced*, responses should aim to mitigate its possible impact (for example, maintaining a fire department), or failing all else, to absorb the impact. Insurance has this function.

The first two types of responses could be termed **preventive**. They seek to avoid the impact of the risk entirely, or to reduce the incidence of the risk to such an extent that the impact is negligible. The latter two types of responses could be considered **adaptive**. They manage the unavoidable impacts of a risk. Responses to a given risk that combine both types might start with adaptive measures as an immediate response to contain a sudden-onset risk (e.g., the social distancing and mask requirements and stringent quarantining at the outset of the COVID-19 pandemic) before being gradually supplanted by preventive measures as the crisis is controlled (e.g., vaccination).

A similar distinction can be made in efforts to manage uncertainty (i.e., unknown possibilities). Where risks and their impacts are not yet clear, it may be difficult to design and implement effective responses. Preventive measures may not be possible. A monitoring framework and adaptive institutions capable of responding in an agile and flexible way to new information about emerging risks could be the appropriate approach. For example, local authorities can designate a crisis response team to seek guidance on basic infrastructure and immediate measures should a catastrophe of a particular type occur (e.g., an unexpected tornado). That guidance can draw on responses to similar risks elsewhere, so that action can be immediate and effective, even though it is unlikely to cover all needs.

A.3.2 Scaling risk responses

The type of risk and its root causes determine the kinds and objectives of actions to manage it. Defining which actors need to be involved in deciding on and implementing these actions depends in part on where the risk originates.

A fully domestic risk is best addressed through a local response, although external partners can sometimes render useful assistance. For example, a country may be experiencing ethnic tensions that require a compromise between the parties concerned. A trusted external partner could mediate the discussions and facilitate reaching an acceptable compromise.

A local problem that affects multiple countries simultaneously will also require local solutions, but these can be informed by successful experiences in other countries dealing with the same issue. For instance, the Zika virus outbreak prompted localized public health responses in Latin American countries informed by Brazil's earlier vector control campaigns and public awareness initiatives.

A global or systemic risk demands international cooperation, shared standards and often institutional reforms that transcend national boundaries. The COVID-19 pandemic required global collaboration on vaccine development, distribution mechanisms like COVAX and efforts to strengthen pandemic preparedness systems.

A.3.3 Tapping co-benefits

Structural transitions create not only risks and uncertainties but also potential benefits and opportunities. The net cost to a society or economy of shifting to an active risk management framework may therefore be considerably less than expected (Box A4). Effective risk management requires planning and adequate resources to implement necessary measures, but as indicated earlier, it also creates opportunities to generate more favourable societal outcomes. Here, too, the ability to recognize and take advantage of opportunities—in other words, human and collective agency—will vary across individuals, groups and societies.

Box A4: Taking account of co-benefits in assessing the net cost of risk reduction: positive employment impacts of the renewable energy sector

Encouraging the shift to clean and renewable energy sources is an appropriate response to the evident climate impact of the use of fossil fuels. This shift will result in the loss of jobs in fossil fuel industries, but the overall employment impact is likely to be positive as renewable energy installations will generate many more jobs than are lost. The numbers thus far bear this out. During 2019–2022, employment in the renewable energy sector grew roughly 15 percent whereas jobs related to fossil fuels fell by around 4 percent. In 2023, 16.2 million people worldwide worked in renewable energy, up from 13.7 million in 2022. The International Energy Agency reported that prior to the COVID-19 pandemic, the global energy sector employed over 65 million people, with approximately 21 million in the fuel supply sector, which includes fossil fuels. The pandemic led to significant layoffs, particularly in oil and gas supply jobs. By 2022, the number of fossil fuel jobs was around 1.3 million below pre-pandemic levels, totalling approximately 32 million jobs.

The deployment of renewable energy technologies offers scope for local economic development and job creation along the entire value chain. These opportunities are far more widespread than in fossil fuels. In addition, renewable energy technologies are much more scalable and easily localized than fossil fuel energy-based generation facilities, facilitating energy access and reducing the cost of energy for previously underserved communities.

Source: REN21 2024 and IEA 2022.

An extensive review of UNDP evaluations over the past four decades showed many cases of local climate adaptation capacity-building combined with women's leadership, which turned risk framing and validation into a transformational moment. Housing interventions for flood recovery in **Bosnia and Herzegovina**, for example, provided disaster-resilient housing while using the opportunity to formalize women's land tenure and engage them in reconstruction. In this case, crisis recovery was leveraged to address long-term social exclusion (UNDP Independent Evaluation Office n.d.). Co-benefits have to be intentionally built into project design, assuming institutional and community buy-in are in place.

A.3.4 Addressing competing interests

Different impacts and uneven access to benefits and opportunities create 'winners' and 'losers' from risk management. If not explicitly recognized and managed, these outcomes can give rise to potential tensions among different groups, creating additional uncertainty, undermining policy buy-in and imposing an another source of risk.

The political economy of policymaking across transition-related risks can heavily influence how a society responds to them. Even where risks are clearly identified and their impacts precisely measured, vested economic interests and political agendas can hinder appropriate and timely policy responses. The same is true of institutional inertia, resistance to change, shortcomings in governance, structural disparities or political instability and conflict.

Inaction entrenches risk, and over time can cement an emergent risk into a legacy risk, and eventually create a structural risk that could have been avoided.[77] In crises, political economy constraints can often result in immediate interventions that address urgent needs but do not tackle systemic issues, leaving vulnerability to the risk unaddressed.

Technical Annex B: Solutions at Work

This report avoids assuming that there is one-way traffic from developed to developing countries about possible or desirable models. Advancing 'pragmatic pluralism' and risk reduction as a public good, the report views experiences anywhere as having potential for global resonance and relevance. The examples that follow are offered in this spirit.

B.1 Addressing Multiple Risks

Bangladesh, a country with flat coastal land formed by rivers, faces acute vulnerability to cyclones due to a combination of different risk factors. Structurally, its geography and population density render coastal regions highly exposed to storm surges, flooding and high winds. Limited elevation, weak embankments and fragile housing compound the risk of widespread destruction and high fatalities, especially in rural and remote areas.

Legacy risks have stemmed from decades of underinvestment in disaster infrastructure and early warning systems. The catastrophic 1970 Bhola cyclone, which killed hundreds of thousands of people, exposed the lack of preparedness, inadequate communication systems and absence of formal evacuation protocols. Poor infrastructure, such as unpaved roads and limited transport options, further hampered emergency responses. Social factors, including poverty, inequality between men and women and a low level of confidence in institutions, limited people's capacity or willingness to respond to warnings.

Emergent risks have evolved with climate change, leading to more frequent, intense and unpredictable storms. Rising sea levels increase the reach and severity of storm surges, while changing weather patterns challenge forecasting models. Population growth, urban sprawl into hazard-prone zones, and increased pressure on ecosystems create new vulnerabilities, even as older ones are still being addressed.

In response, Bangladesh has implemented a comprehensive suite of risk-responsive strategies. Over 4,000 multi-purpose, storm-resistant cyclone shelters have been constructed, many doubling as schools or community halls to ensure usability and maintenance. The Cyclone Preparedness Programme, with over 76,000 trained community volunteers, ensures localized early warning dissemination and evacuation support. Investments in early warning, embankments, afforestation and education have been critical. These measures have delivered dramatic results. Whereas the 1991 cyclone claimed over 130,000 lives, similar intensity cyclones in the 2000s and 2010s saw fatalities drop to the hundreds or less. The system's strength lies not only in infrastructure, but also in community engagement, local leadership and sustained investment in adaptive capacities.

Bangladesh's experience highlights how layered risks, both old and new, can be effectively mitigated through long-term planning, local participation and infrastructure to build resilience. Originally designed as a disaster risk reduction measure, the cyclone shelter initiative catalysed broader transformation in development planning. It shifted priorities towards integrated, multi-use infrastructure that supports education, health and community resilience, and embedded risk reduction as a core principle across sectors.

B.2 Localizing Solutions

Systemic risks often manifest in locally specific ways, shaped by geography, culture, governance and social dynamics. The localization agenda in development reflects the growing effort to shift power, resources and decision-making closer to the people and communities most affected by development challenges. It has also gained momentum as a response to the movement advocating for transforming the aid architecture (Peace Direct et al. 2021). Area-based approaches and portfolio interventions are increasingly recognized for their effectiveness in addressing complex, localized risks in an integrated manner (UNDP 2022, 2025).

Localizing solutions empowers communities to co-create responses that are context-sensitive, inclusive and agile. By drawing on local knowledge, decentralized decision-making and trusted institutions, responses become more legitimate and adaptive in the face of uncertainty. This approach also enables early detection of emerging risks and supports iterative learning. While global frameworks are essential, locally grounded strategies are crucial to build resilience, reduce blind spots, and make transitions just, equitable and responsive to diverse lived realities.

Box B1: Local solutions at work

A review of over 6,700 UNDP evaluations conducted by the UNDP Independent Evaluation Office provided ample evidence of locally driven and economically efficient solutions designed to manage systemic risks.

Below are some examples:

- **Empowering Community Organizations for Socio-Ecological Resilience in Peru** (Eval_ID: 8913): Mobilized local associations in rural areas to implement climate-adaptive livelihoods and early warning systems. Fully met its goals using existing community assets, enabling replication across multiple regions.
- **Establishment and Enhancement of Peace Infrastructures in South Sudan** (Eval_ID: 13761): Built on traditional conflict resolution systems to create peace committees in fragile zones. Demonstrated scalable impact using culturally embedded practices.
- **GIS Systems for Local Risk Mapping in Tuvalu** (Eval_ID: 9790): Trained local staff to use open-source tools for disaster vulnerability mapping. Demonstrated cost-effective use of technology that was later scaled up nationally.
- **Modified Taungya system for forest restoration in Ghana**: A grassroots agroforestry model combining forest conservation and food production through local community stewardship. It leveraged Indigenous land-use traditions for both climate and food security gains, outpacing external land management models.
- **Migration and development mainstreaming in local planning in Bosnia and Herzegovina**: Locally developed plans integrated migration governance into municipal risk planning. It demonstrated agility in adapting to demographic shifts.
- **UNV doctors in underserved areas in Trinidad and Tobago**: A bottom-up approach to fill institutional healthcare gaps through local volunteerism. This project demonstrated adaptability but lacked long-term support mechanisms.

Source: UNDP Independent Evaluation Office, review of UNDP evaluations for this report.

B.3 Derisking Public Policy

National budgets are the primary vehicle for introducing and applying a risk management approach to development. Several instruments can be leveraged to sustain budget allocations that are fair, inclusive and effective. INFFs have proven to be a sound entry point to finance the 2030 Agenda for Sustainable Development and derisk investments in implementation.

Despite limited evaluative evidence on financing mechanisms, there are indications that integrating risk into budgeting systems, planning frameworks and financing instruments delivers benefits. This is particularly the case when financing is tailored to anticipate rather than just respond to risks. Where risk is not siloed under 'emergency funding' but mainstreamed into planning and public expenditure systems, institutional 'muscle memory' for uncertainty tends to grow.

The review of UNDP evaluations provided some examples of how institutional finance can be adapted to address recurrent challenges:

- In **Cape Verde**, the Capacity Building for Government Transparency initiative improved fiscal resilience by training over 2,000 local government officials on transparent, gender-responsive budgeting. The tools introduced were adaptable and embedded into local planning processes.
- In **Kenya**, the Automated Budget Reporting System introduced digital infrastructure to track public expenditures transparently and in near real-time through a reporting dashboard. It allowed finance officials

to make budget allocations more responsive to the needs of children and youth, and account for differences between men and women.[78]

Evaluations of UNDP programmes in Benin and Kuwait illustrate some common challenges. In **Benin** (Integrating Climate Risk into Budgeting Systems), frameworks were designed for local authorities to assess and budget for climate-related hazards. Yet the absence of downstream funding mechanisms meant these tools remained underused. In **Kuwait**, training on budgeting to advance the needs of women and girls was successful in raising awareness among public finance officials but lacked formal institutional adoption, limiting its impact on actual budgetary outcomes. The key lesson in both cases is that institutional reform, capacity and alignment matter as much as the finance itself.

Besides the INFFs and annual budgets, countries can use various mechanisms to create fiscal buffers, including budget contingencies for unanticipated events, stabilization funds with dedicated assets or sovereign wealth funds. These buffers allow governments to access resources quickly during crises, covering the costs of catastrophic events such as macroeconomic shocks or natural disasters, and minimizing the need for borrowing or aid. The Petroleum Fund of **Timor-Leste** acts as a sovereign wealth fund. Established from the nation's petroleum revenues, it is designed to ensure both immediate crisis responses and long-term fiscal stability. It enables the government to access readily available resources during periods of economic hardship or natural disasters, mitigating the impact of volatile commodity prices on the national budget.

Contingency funds are a vital part of risk management. A contingency fund is a reserve within a government's budget, set aside to respond to unforeseen and urgent spending needs that arise outside the scope of regular appropriations. These funds are crucial for enabling rapid responses to crises. They are typically used to finance initial relief measures, including emergency health services and repairs to critical infrastructure. Not only does a contingency fund allow faster responses to crises but it can also help to maintain fiscal stability so countries are not forced to take on unsustainable levels of debt or use other counterintuitive policy measures to finance a crisis response.

The Philippines has established the Contingent Fund, an annually appropriated reserve designed to finance urgent and unanticipated expenditures. The Contingent Fund is a longstanding inclusion in the annual budget, highlighting the importance the Government places on risk management. The Contingent Fund is managed by the Office of the President, with disbursements facilitated through the Department of Budget and Management. In 2019, the Contingent Fund was used to support government agencies responding to a series of destructive earthquakes in Mindanao, the second largest island in the Philippines, allowing the swift mobilization of emergency services and infrastructure repairs.

At the local government level, the Philippines also maintains the Local Disaster Risk Reduction and Management Fund, formerly known as the Calamity Fund. Established under the Philippine Disaster Risk Reduction and Management Act, 2010, it mandates local governments to set aside at least 5 percent of their annual budgets for disaster preparedness and emergency response. The fund is divided into pre- and post-disaster components, with a portion reserved for immediate relief operations. Following Typhoon Odette in 2021, the fund enabled rapid deployment of local resources for evacuations, emergency health services, food aid and temporary shelters.

B.4 Leveraging micro-, small- and medium-sized enterprises

Micro-, small- and medium-sized enterprises (MSMEs) play crucial roles in developing countries, making up 90 percent of all businesses globally and providing approximately 70 percent of all employment. Many MSMEs, however, operate in the informal economy and are extremely vulnerable to shocks. They generally have low cash-to-asset ratios and are highly reliant on monthly revenue to cover operating costs. When a crisis hits and impacts regular business operations, revenue falls but MSMEs are often still required to meet financial obligations, whether to family, friends, local money lenders or financial institutions. Businesses may be forced to let go of workers to reduce costs, leaving individuals without a source of income. Other businesses turn to loans but already limited access to finance is further reduced as crisis-related risks increase.

Understanding these risks, a growing number of countries have put in place mechanisms that channel emergency financial support to MSMEs during crises. These mechanisms, activated in response to crises, include a variety of financial instruments, including direct grants, subsidies and guarantees. Such financial support allows businesses to continue operations throughout crises, safeguarding jobs and livelihoods, particularly for vulnerable populations, and jumpstarting local economic recovery.

Chile has a robust credit guarantee mechanism to support MSMEs through the Fondo de Garantía para Pequeños Empresarios (FOGAPE). It was created in 1980 by the Government to enhance financial inclusion and promote the resilience of small businesses. The fund is managed by BancoEstado, a State-owned commercial bank, and operates through a public-private partnership model; commercial banks provide loans partially guaranteed by the fund. The

fund plays a critical role in maintaining the flow of credit to MSMEs, particularly during crises when traditional lenders may become risk averse. After the 2010 earthquake in Chile, the fund expanded its guaranteed coverage and facilitated emergency liquidity for affected MSMEs, helping them to restart operations and preserve employment. This demonstrated the mechanism's effectiveness as a rapid-response tool for economic recovery in the face of natural disasters.

The insurance sector has been pioneering derisking instruments in the face of multidimensional crises and shocks. Parametric insurance is a type of derisking mechanism that provides predetermined payouts based on measurable triggers (e.g., rainfall levels, earthquake intensity), eliminating the uncertainty and delays of traditional loss assessments and facilitating rapid financial relief. This reduces the financial risk associated with disasters, enabling quicker recovery and minimizing economic disruption. The **Caribbean Catastrophe Risk Insurance Facility** is a regional risk insurance fund bringing together 16 Caribbean island nations. It offers coverage against hurricanes, earthquakes and excess rainfall to Caribbean and Central American governments. It provides rapid payouts, allowing governments to respond quickly. Belize, Guatemala, Jamaica and Panama have parametric insurance from the facility in place for earthquakes, hurricanes and excess rainfall.

The **Ethiopia** Insurance and Risk Financing Facility is a new initiative to build resilience against disasters by providing innovative insurance and risk financing solutions. It draws on UNDP's broader insurance and risk financing programme, which operates in 30 countries, and previous micro-insurance testing in Ethiopia. The facility leverages existing expertise and frameworks to develop tailored insurance products, risk assessment tools, and capacity-building initiatives for vulnerable communities and businesses.

The **Yemen** case presented in Box B.2. illustrates how multiple actors across national, international and multilateral levels have employed preventive approaches to address both immediate and long-term risks.

Box B2: Derisking the Red Sea's future: the FSO Safer salvage operation in Yemen

On 30 May 2023, the United Nations started an unprecedented operation to remove more than 1 million barrels of oil from the FSO Safer, a decaying super tanker moored off Yemen's Red Sea coast that threatened a humanitarian and environmental disaster. Given the extreme environmental and geopolitical risks involved in salvaging the tanker, the United Nations led the development of a highly complex, bespoke insurance framework to ensure the operation could proceed safely and responsibly.

The operation involved transferring the oil in a conflict zone, exposing it to threats including explosion, pollution, war-related incidents and crew safety risks. The United Nations hired Howden Broking, a specialist insurance broker, to evaluate the risks and negotiate with underwriters. This resulted in a tailored insurance solution.

Multi-line coverage: The insurance package spanned multiple coverage types, including:

- Hull and machinery plus war risk: For both the FSO Safer and the replacement vessel Nautica
- Pollution liability: Covering spills from either vessel during or after transfer
- Cargo insurance: Protecting the oil in transit and while stored onboard the Nautica
- Protection and indemnity: Covering the crew, third-party liabilities and pollution
- Kidnap and ransom: Covering the safety of UNDP experts and crew onsite

Market coordination: Over 100 underwriters from within and outside Lloyd's market participated, roughly 10 times the usual number for a marine or energy risk. This reflected the operation's unique and high-risk nature.

Oversight and compliance: Independent marine warranty surveyors were engaged to monitor technical compliance and provide expert validation.

In a critical step, the salvage support vessel Ndeavor, operated by lead marine salvage company SMIT, was contracted by UNDP to transfer the oil to a secure vessel. Yemeni authorities in the north and south cooperated with the efforts and provided all necessary permissions for the operation to commence. It came after years of political groundwork, fundraising and project development. Salvage efforts were a culmination of tremendous work and coordination among United Nations organizations, maritime lawyers, oil spill experts, insurance companies and many other actors.

Facing a need for extensive risk mitigation, the United Nations secured a unique and comprehensive set of insurance policies covering pollution, explosions, crew safety and vessel liabilities, leading to one of the most complex maritime insurance packages ever arranged.

B.5 Digital Solutions

At the height of the COVID-19 pandemic in 2021, millions of people in low- and middle-income countries gained access to social assistance benefits. Amid unprecedented challenges, many governments adopted new digital means to assess eligibility for welfare payments and ensure timely transfers. For instance, Cambodia used its social registry to expand coverage from 1 to 16 percent of the population, while Timor-Leste relied on its electoral ID system to identify and reach beneficiaries (World Bank 2022). Millions of people received assistance through digital payments, with several countries easing regulations to allow remote access to a bank account. In Jordan, active e-wallets doubled in four months, surpassing 1 million users (The Jordan Times 2020). In Colombia, 22 percent of more than 1.5 million beneficiaries of the Ingreso Solidario emergency transfer programme used their new accounts for deposits and other transactions (Better Than Cash Alliance 2022).

Box B3: Overcoming risks in Zambia's digital transition

Zambia's digital transition, centred on establishing a national digital ID system, reflects a broader strategy to modernize public services and foster socioeconomic development. This process carries substantial societal, social and political risks that must be addressed to avoid deepening existing inequalities.

Societal risks include the exclusion of large population segments due to gaps in infrastructure and digital access. While over 88 percent of adults aged 16 and over currently hold a physical National Registration Card, only 1.5 million out of an estimated 9 million eligible individuals have been enrolled with biometric data under the new Integrated National Registration Information System (UNDP 2024f). Furthermore, limited Internet penetration constrains the population's ability to engage with digital systems and creates a risk of unequal access to government services.

The lack of a unified framework for safeguarding digital identities could lead to misuse, eroding public confidence. Moreover, vulnerable populations—particularly Zambia's over 105,000 refugees and asylum seekers—may be excluded from registration due to legal ambiguity or administrative barriers, cutting them off from essential services (UNHCR 2024).

Political and legal risks require updating legislation, such as the National Registration Act and the Citizenship Act, to reflect digital realities. Without this, rights-based governance of digital ID systems remains limited. The Government began addressing this concern by launching a Legal Digital ID Model Governance Assessment in 2024, with support from UNDP, to guide legal reforms and stakeholder coordination.

Technical Annex C: Structural Transitions, Risks and Agency

C.1 Structural Transitions

Climate-related transitions
• **Decarbonization**: Shifting away from fossil fuels towards renewable energy sources such as wind, solar and geothermal. Countries and companies are striving to meet net-zero emissions targets. • **Climate adaptation**: Preparing for and mitigating the impacts of climate change, including rising sea levels, extreme weather events and biodiversity loss. • **Food security**: Climate change, water shortages and geopolitical instability are threatening global food supplies.
Economic transitions
• **Post-pandemic economic recovery**: 'Building back better' has been the motto of recovery efforts after the COVID-19 pandemic. Success has been very limited, at all levels. • **Globalization to regionalization**: The pandemic, geopolitical tensions and trade wars have led to more focus on regional trade alliances and localized supply chains. An anti-globalization backlash is underway in Western economies but not in the developing world. • **Green economy**: There is a shift toward sustainability-driven growth models, focusing on circular economies, renewable energy and green technologies.
Political transitions
• **From war to peace**: Countries emerging from conflict and violence engage in a complex transition to peace after State institutions, economic systems and social cohesion have been shattered by years of violence, death and forced displacement. • **Return to democratic systems**: Countries returning to democracy after an autocratic experience or unconstitutional changes of government.
Technological transitions
• **Digital transformation**: The rise of digital platforms, AI, machine learning, big data and automation are reshaping industries, economies and everyday life. • **AI and machines**: Both are transforming labour markets, creating new efficiencies but also displacing traditional jobs. • **Materials science**: Emerging technologies drive the discovery and development of materials with transformative potential for energy, sustainability and manufacturing transitions.
Demographic transitions
• **Ageing populations**: Some countries face declining birth rates and ageing populations, impacting labour markets, pensions and healthcare systems. • **Youth booms**: Regions like sub-Saharan Africa, are experiencing youth booms, presenting opportunities for economic growth but also social unrest if the process is not managed well.
Social and cultural transitions
• **Equity, inclusion and human rights**: Movements advocating for racial, gender and economic equity are reshaping social norms and policies. • **Shifts in work and education**: Remote work, the gig economy and online learning have become mainstream, fundamentally changing how we live and work.
Health transitions
• **Post-COVID-19 world**: The pandemic has accelerated health innovation, telemedicine and changes in global health infrastructure. • **Genomics**: The integration of genomics into healthcare has the potential to revolutionize disease prevention and treatment by enabling more precise, personalized medical interventions, marking a transformative shift from reactive to proactive health management.

C.2 Taxonomy of Structural, Legacy and Emergent risks

	Structural risks	Legacy risks	Emergent risks
Definition	Systemic and deeply embedded vulnerabilities within economic, political and social structures and institutions that perpetuate inequalities and hinder progress. These near immutable risks are embedded in the foundations of countries, implying fragility or risks to the unity of the nation. These risks arise from the national endowment and physical geography of a country, its historical patterns, systemic conditions and social hierarchies creating persistent barriers to well-being and opportunity. Addressing these risks requires collective action and multilateral consensus.	Risks that stem from unresolved problems and past decisions, policies or actions that continue to shape present and future development trajectories in ways that may be difficult to reverse. These risks often persist across generations, creating structural barriers to progress, exacerbating inequalities and limiting resilience to new crises. Over time, legacy risks can become embedded in the sociopolitical and economic conditions and institutions of a country, turning into structural risks.	New, evolving, previously underestimated or 'wildcard' threats that arise due to rapid social, technological, environmental and economic disruptions. Unlike structural and legacy risks, emergent risks are characterized by their uncertainty, complexity and potential for cascading impacts. These risks can challenge existing governance and economic structures, deepen inequalities and create new vulnerabilities. The failure to develop structural solutions and responses to emergent risks will generate new legacy risks.
Examples	**Historical patterns and structural inequality**: The economic structures, legal systems and political institutions defined throughout the country's history and its transformations shape current disparities in wealth, relations between men and women, economic power and governance in many societies. **Disadvantageous geography and natural endowment**: The geographic position or natural habitat of a country (e.g., landlocked, small island developing States, exposed to natural hazards and heat waves, poor in natural resources and biodiversity) puts specific requirements and constraints on development opportunities. **Societal divisions**: Structured social hierarchies grounded in identity, race, social status and/or access to economic assets that weaken the social fabric and prevent national consensus on development needs **Conflict and fragility**: Protracted conflicts, civil wars and colonial-era territorial divisions have left many countries struggling with weak or unfit institutions, internal displacement and cycles of violence.	**Environmental degradation and climate vulnerabilities**: Past industrialization and unsustainable resource use have led to environmental degradation, biodiversity loss and climate vulnerabilities that disproportionately impact developing regions. **Debt accumulation and fiscal constraints**: High levels of sovereign debt inherited from previous regimes or structural adjustment programmes limit a country's ability to invest in education, healthcare and infrastructure. **Discriminatory policies and practices**: Systemic biases based on race, ethnicity, sex or sexual orientation that limit access to opportunities and resources. **Demographic policies**: Rigid (or absent) family planning policies that undermine future workforce needs. **Food insecurity**: Intensive use of agricultural land, lack of drought mitigation systems, export policies that have damaged domestic food production, food waste.	**AI and labour market disruptions**: The rapid expansion of AI and automation is transforming job markets, potentially displacing millions of workers, particularly in low-skill sectors. **Digital inequality and algorithmic bias**: Unequal access to digital technologies and biased AI decision-making can reinforce existing disparities in education, employment and social services. **Climate migration and urban pressures**: Rising sea levels, extreme weather events and resource depletion are driving new waves of migration, straining urban infrastructure and social services. **Global pandemics and public health crises**: Novel infectious diseases and antibiotic resistance are emerging as global health threats, straining underfunded healthcare systems. **Financial volatility and cryptocurrencies**: The rapid growth of decentralized finance and cryptocurrencies presents risks of financial instability, illicit activities and regulatory gaps.
Scope	Based on long-term systemic factors.	Rooted in past decisions/actions (or lack thereof) but impacting the present.	Embedded in signals and hints, future-focused.

Impact	Create structural impediments to development (thwarting the development potential of a country).	Prevent structural changes and reforms (creating or exacerbating development/crisis traps).	Disrupt the development trajectory (prompting shocks but also generating opportunities).

Solutions	New economic models/paradigms, land reforms, industrial diversification, trade agreements, constitutional reforms, social protection floors, financing instruments for infrastructure and education, sovereign wealth funds for long-term investment, climate adaptation financing.	Debt restructuring, equitable revenue collection, long-term concessional financing, sovereign debt relief mechanisms, education and public health reforms, social cohesion initiatives and public administration reform.	Agile governance mechanisms, adaptive regulatory frameworks for new technologies, scenario planning, early warning systems, fiscal buffers in public financial management systems, financial inclusion, anticipatory social protection, parametric climate insurance, venture capital for green and digital transitions.
Agency level	Multilateral and national consensus, collective action, and the ability to act at scale and at a systems level.	Multilateral consensus, national and subnational institutions.	Individuals and communities are on the front lines of capturing signals of emergent risks and providing initial responses (prevention, adaptation, mitigation) but scale is the challenge.

C.3 Agency Across Scales

Scale	Action	Direct effects	Indirect effects	Fostering
Individual	A farmer checks the forecast and adjusts watering	Mitigating risks of changing weather patterns	Resilience and robustness of food supplies to climate crisis	Providing localized, accurate and trusted weather forecasts
Family	A family attends a flu vaccine clinic	Robustness to seasonal disease	Reduced spread of disease in populations	Equitable distribution of vaccines, combating misinformation
Community	A community leads a programme to train volunteers to inform citizens when natural disasters occur	Increased community resilience to natural disasters, reduced risks to lives and property	Improved robustness as damage mitigation shortens recovery timelines and frees up resources	Use of climate models to inform communities of changing weather risks
Local governance	Passing new building codes for flood- or earthquake-resistant buildings	Increased resilience to natural disasters	Lessened economic shocks in regions impacted by earthquakes and floods	Supporting and providing evidence-based and locally tailored engineering standards
Regional/national governance	Leveraging satellite and cell phone data to target economic assistance during the COVID-19 pandemic	Resilience of individuals to economic shocks due to pandemic disruptions	Economic stimulus in impacted areas, providing resilience beyond recipients	Investments in resources for governments to understand the heterogenous needs of their people (remote poverty sensing, censuses)
Global governance	United Nations workers provide medicine, shelter and food in conflict zones	Resilience to immediate externalities of war (e.g., famine, disease)	Improved robustness of recovery in the wake of conflict	Coordinating investment and resource allocation

Source: Bak-Coleman 2025.

ANNEX D: Background Materials, Consultations and Peer Reviews

This report was developed between July 2024 and May 2025. The UNDP team, led by its Crisis Bureau, conducted consultations and analyses, and commissioned research papers. These informed the report's framing and findings. Below is an overview.

Research and analysis

- Analysis of past United Nations/UNDP reports on human development, systemic risks and uncertainty.
- An AI-assisted review of existing literature (over 500 documents)
- An AI-assisted analysis of 6,700 UNDP evaluations conducted in partnership with UNDP's Independent Evaluation Office.
- Five expert commentaries commissioned on:
  - A systemic risk framework for contemporary development (Dr. Ajay Gamhir, Accelerator for Systemic Risk Assessment)
  - Rethinking development in a context of uncertainty and polycrisis (Prof. Yuen Yuen Ang, Johns Hopkins University)
  - Reclaiming human agency (Dr. Joe Bak-Coleman, Columbia University)
  - Beyond Solutionism (Mauricio Vazquez, Overseas Development Institute)
  - Decolonizing development (Kishan Khoday, UNDP Resident Representative in Jamaica and the Western Caribbean)
- A study was commissioned on the contribution of public hearings and deliberations to managing risks and uncertainty (Global Citizens Assembly Network and ISWE Foundation).

Technical consultations

- UNDP Reference Group
- 2024 UNDP Resident Representative retreat
- Expanded Reference Group (UNDP and UNOSSC, United Nations Capital Development Fund, Independent Evaluation Office, United Nations University-Macau)
- UNDP consultation in the resilience and governance communities of practice
- Consultation with the Global South-South Thinkers network (facilitated by UNOSSC)
- Survey of youth representatives via the UNDP Youth Team
- Expert interviews on systemic risks, human agency and uncertainty

Partner consultations

- Presentation of the report's framing at the forty-ninth session of the High-Level Committee on Programmes (1 April 2025)
- Consultation with other United Nations entities (Department of Political and Peacebuilding Affairs, Department of Peace Operations, Development Coordination Office, Peacebuilding Support Office, Office for the Coordination of Humanitarian Affairs)
- Consultation with the World Bank's Fragility, Conflict and Violence group and other international financial institutions
- Consultations with UNDP bilateral and multilateral partners

Peer review

- Internal peer review (UNDP)
- External peer review (12 experts and academics)

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Endnotes

1. See UNDP Global Multidimensional Poverty Index, 2024.
2. See FAO et al. The State of Food Insecurity and Nutrition in the World, 2024.
3. See the International Labour Organisation, 2023 https://ilostat.ilo.org/topics/informality/.
4. Armed Conflict Location & Event Data Project 2024.
5. See https://www.newscientist.com/article/2467521-have-we-already-breached-the-1-5c-global-warming-target/.
6. According to the data from the Internal Displacement Monitoring Centre, in 2024 there were 45.8 million climate-related displaced people against 26 million in 2023. See IDMC (2025) Global Report on Internal Displacement 2025. Internal Displacement Monitoring Centre. https://doi.org/10.55363/IDMC.XTGW2833
7. This report interprets 'structural transitions' as periods of deep, sustained and wide-ranging changes in the economic, political, social, cultural and technological foundations of a society. These transitions are transformational rather than transient. See Annex B for an overview.
8. This report refers to 'governance' as the web of rules, norms, procedures, practices and institutions through which collectives, however defined, from community to country level and beyond, come together to assess their condition; articulate, discuss and prioritize their shared interests; enable decision-making; organize action; and ensure accountability, based on trust, legitimacy and consent. This approach encompasses government but also other forms of organized/institutionalized collective action in the private sector, academia, civil society, among faith-based groups and at the community level.
9. A strong argument can be made that risk reduction is a type of public good, non-excludable and non-rival. It faces the same 'free rider' problem and offers benefits that may be small for an individual (although large for a society). The benefits are often realized sometime in the future rather than immediately (although, again, some types of risk reduction may deliver near-term gains). For this reason, while individuals and companies may work on risk reduction, as it offers private gains that they can capture, they do not have any incentive to tackle collective/societal/global risks in the absence of public action.
10. The World Development Report 2014 argued that risk management can be a powerful instrument for development, not only by building people's resilience and thus reducing the effects of adverse events but also by allowing them to take advantage of opportunities for improvement (World Bank 2013). The report argues that the entire governance system should embrace risk management.
11. Beck's concept of the 'risk society' aptly captures today's global condition, where manufactured risks (e.g., climate change, pandemics and technological disruptions) are systemic, transboundary and often unintended consequences of modernization. These risks are no longer confined to specific geographies or classes, making uncertainty and vulnerability a defining feature of daily life across societies. Beck also emphasizes that risk is produced and distributed unequally, reflecting existing power imbalances.
12. Given the scale of challenge and the possibilities for policy paralysis, leverage points are critical to show that change is possible and practical. Leverage points are "places within a complex system…where a small shift in one thing can produce big changes in everything" (Meadows 1999). As Senge (1990) has also indicated, "[s]mall changes can produce big results – but the areas of highest leverage are often the least obvious. Highleverage changes are usually highly nonobvious to most participants in the system. They are not 'close in time and space' to obvious problem symptoms."
13. The Pact for the Future states that it is critical to "strengthen and implement existing national prevention strategies and approaches to sustain peace, and consider developing them where they do not exist, on a voluntary basis and in accordance with national priorities, to address the root causes of violence and armed conflict". See United Nations. (2024). Pact for the Future: Outcome Document of the Summit of the Future. United Nations. Retrieved from https://www.un.org/sites/un2.un.org/files/sotf-pact_for_the_future_adopted.pdf
14. See https://www.undp.org/future-development
15. See https://unstats.un.org/unsd/undataforum/blog/undp-crisis-risk-dashboards/
16. See https://www.undp.org/africa/press-releases/big-step-forward-mapping-political-transition-across-africa
17. See https://irff.undp.org/
18. The 2021 Our Common Agenda of the UN Secretary-General argues that "[h]umanity faces a stark and urgent choice: a breakdown or a breakthrough. The world is under enormous stress, with the COVID-19 pandemic exposing global fragilities and deepening inequalities." (p. 7.)
19. Polycrisis refers to situations where multiple crises occur at the same time, interact and amplify each other's effects, generating substantially greater complexity than would occur otherwise. See Cascade Institute 2024b; Lawrence et al. 2024; Ang 2025a; UNDP 2025; Baylon and Robele 2022.
20. See also Cascade Institute 2024a.
21. See the UNDP Global Multidimensional Poverty Index, 2024.
22. See the International Labour Organisation, Facts on Youth Employment.
23. See the World Inequality Database, 2023.

24. Violent extremist groups have shifted their tactics focusing more on digital playgrounds to recruit new members and disseminate messages. See https://news.un.org/en/story/2024/12/1158426 .
25. See EM-DAT, 2024 disasters in numbers.
26. See, for example, World Health Organization data on COVID-19 cases and the International Monetary Fund's World Economic Outlook reports, 2020 to 2023.
27. The specific issue of AI has been explored in depth by the UNDP Human Development Report 2025, A matter of choice: People and possibilities in the age of AI.
28. The significant gender digital divide in low-income countries continues to hinder women's equal economic opportunities. Globally, as AI reshapes labour markets, it is putting 3.7 percent of women's jobs at risk of automation, compared to 1.4 percent of men's. See ITU 2024.
29. Please see Annex A for a full overview.
30. This working definition is based on economics and finance literature, advanced work on disaster risk reduction and the standard set in ISO 31073. While taking a somewhat different view, this report has benefited from insights from Vaughn Tran, who has also made use of the definition of uncertainty put forward by Frank Knight in 1921.
31. Beck's concept of the 'risk society' aptly captures today's global condition, where manufactured risks (e.g., climate change, pandemics and technological disruptions) are systemic, transboundary and often unintended consequences of modernization. These risks are no longer confined to specific geographies or classes, making uncertainty and vulnerability a defining feature of daily life across societies. Beck also emphasizes that risk is produced and distributed unequally, reflecting existing power imbalances.
32. A strong argument can be made that risk reduction is a type of public good, non-excludable and non-rival. It faces the same 'free rider' problem and offers benefits that may be small for an individual (although large for a society). The benefits are often realized sometime in the future rather than immediately (although, again, some types of risk reduction may deliver near-term gains). For this reason, while individuals and companies may work on risk reduction, as it offers private gains that they can capture, they do not have any incentive to tackle collective/societal/global risks in the absence of public action.
33. The World Development Report 2014 argued that risk management can be a powerful instrument for development, not only by building people's resilience and thus reducing the effects of adverse events but also by allowing them to take advantage of opportunities for improvement (World Bank 2013). The report argues that the entire governance system should embrace risk management.
34. The latest States of Fragility report stressed the limitations of fragility as a label in contrast to the analytical potential of acknowledging "the universality of fragility which exists on a spectrum and can impact on the ability of all contexts to pursue their development goals" (OECD 2025, p. 3).
35. For example, an overshoot in the climate change space could eliminate the efficacy of nature-based solutions in some parts of the world.
36. See, for example, Scott, Rose M., Nguyentran, G., and Sullivan, J. Z., The COVID-19 pandemic and social cognition outcomes in early childhood, Nature, 22 November 2024.
37. UNDP (2025) Asia-Pacific Regional Socio-economic Outlook, 2025. UNDP. (Forthcoming)
38. Given the scale of challenge and the possibilities for policy paralysis, leverage points are critical to show that change is possible and practical. Leverage points are "places within a complex system…where a small shift in one thing can produce big changes in everything" (Meadows 1999). As Senge (1990) has also indicated, "[s]mall changes can produce big results – but the areas of highest leverage are often the least obvious. High leverage changes are usually highly nonobvious to most participants in the system. They are not 'close in time and space' to obvious problem symptoms."
39. An example is the shift in Kenya's mobile banking ecosystem, spurred by regulatory action and widespread adoption of M-Pesa. This leverage point reshaped financial inclusion, informal economies and even social protection mechanisms. What began as a technical solution to a narrow problem (money transfer) altered the broader economic system, unlocking new forms of economic agency, especially for rural women and informal workers. Such interventions illustrate how addressing development risks can mitigate downsides, reducing the likelihood or severity of losses, damages, failures or regression. Leverage points can also create conditions for thriving amid complex risks.
40. The United Nations (2020) defines resilience as "the ability of individuals, households, communities, cities, institutions, systems and societies to prevent, resist, absorb, adapt, respond and recover positively, efficiently and effectively when faced with a wide range of risks, while maintaining an acceptable level of functioning without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all."
41. Quoted from Bak-Coleman 2025.
42. From a UNOSSC-UNDP consultation with the South-South Global Thinkers Network.
43. This is a compelling point made in the context of youth participation in policymaking in the Pacific. See UNDP 2024e.
44. The leaders of affected countries and their private sectors, civil society organizations, community orga-

nizations and individual households all play a part. At the international level, global and regional institutions such as the United Nations, World Bank, regional development banks and regional cooperation agencies are important players.
45. Global citizens' assemblies rooted in local communities could serve as early warning systems and legitimacy-enhancing bodies for global climate governance, ensuring more inclusive, just and effective responses.
46. The 2018 Escazú Agreement focuses on the rights to environmental information, public participation in environmental decision-making, and access to justice in environmental matters. See https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=xxvii-18&chapter=27&clang=_en.
47. This example is based on UNDP (2025) "Gobernanza preventiva y anticipatoria para el litio en Bolivia: Retos y oportunidades en el contexto de la transición energética" Policy Note 31, UNDP.
48. The suggestion here complements and converges with the 11 principles of effective governance for sustainable development, developed by the Committee of Experts on Public Administration and endorsed by the Economic and Social Council in July 2018.
49. Ibid. See also: OECD 2017; Ansell and Gash 2008; Sabel and Zeitlin 2012; Mintzberg 1996.
50. The International Monetary Fund has recently provided a fresh perspective on the financial savings permitted by preventive approaches to conflict. Mueller, H. (2024). The Urgency of Conflict Prevention – A Macroeconomic Perspective (IMF Working Paper No. 2024/256). International Monetary Fund.
51. See UNDP 2022 for more on integrated national financing frameworks and their effectiveness in mobilizing resources.
52. This problem arises when individuals or entities benefit from a public good without contributing to its cost. This leads to under provisioning of the public good as there is less incentive to pay if the benefit can be obtained regardless.
53. See the NGFS Scenarios Portal.
54. See the C40 Knowledge Hub.
55. See more on the Pathfinders coalition.
56. Here, Ang refers to rudimentary machines. With AI, humans are inventing 'smarter' machines that can learn and adapt to users.
57. There is a strong analogy here to the ideas set out by Kuhn 1962.
58. This report refers to 'governance' as the web of rules, norms, procedures, practices and institutions through which collectives, however defined, from community to country level and beyond, come together to assess their condition; articulate, discuss and prioritize their shared interests; enable decision-making; organize action; and ensure accountability, based on trust, legitimacy and consent. This approach encompasses government but also other forms of organized/institutionalized collective action in the private sector, academia, civil society, among faith-based groups and at the community level.
59. A recent example of hysteresis is provided by the level of human development after the COVID-19 pandemic. The 2024 Asia-Pacific Human Development Report (UNDP 2024d) underscored that, despite the region's Human Development Index rebounding to 0.72 in 2022 and surpassing pre-pandemic levels, recovery remains uneven. Persistent disparities and new challenges necessitate a fundamental shift in development strategies to ensure inclusive and sustainable progress.
60. UNDP (2020) identified five tipping points that are immediate risks with another three within a decade. See also Lenton et al. 2023.
61. See the Pact for the Future, Global Digital Compact and Declaration on Future Generations.
62. The United Nations Deputy Secretary-General spoke of an "unprecedented development emergency" due to the COVID-19 pandemic (Mohammed 2020).
63. According to UNCTAD (2024a), approximately 3.3 billion people, almost half the global population, reside in countries where governments allocate more funds to debt interest payments than to education or health services.
64. See the World Inequality Database, 2023.
65. UNDP has gained considerable experience in this regard through its Future of Development initiative. See https://www.undp.org/future-development.
66. UNDP is already working on this issue with the European Investment Bank and the European Union.
67. The International Fund for Agricultural Development (IFAD) supports a multiphase adaptive programme approach, which structures programmes to tackle complex development challenges across phases, offering a dynamic framework for agile responses. This approach is particularly suited to post-conflict and fragile situations, where conditions can change rapidly. By embracing flexibility and allowing for adjustments and iterations as new information emerges, adaptive programme design ensures that development initiatives remain relevant and effective.
68. See https://www.undp.org/future-development
69. See https://unstats.un.org/unsd/undataforum/blog/undp-crisis-risk-dashboards/
70. See https://www.undp.org/africa/press-releases/big-step-forward-mapping-political-transition-across-africa
71. See https://irff.undp.org/

72. The 2021 United Nations Behavioural Science Report highlights how applying behavioural science has led to improved adherence to medical treatments, increased immunization uptake and better financial inclusion. Additionally, Our Common Agenda (United Nations 2021) underscores that systematic application of behavioural science enhances the effectiveness of policies and programmes, enabling proactive and strategic actions that allow individuals to better control their environment.
73. The STEEP-V model is an evolution of the political, economic, social and technological (PEST) analysis originally introduced by Francis J. Aguilar in his 1967 book Scanning the Business Environment.
74. Beck (1992) also emphasizes that risk is produced and distributed unequally, often reflecting existing power imbalances. For Beck, risk is deeply tied to power, knowledge and control.
75. Parts of the approach endorse concepts and tools proposed by Gambhir (2025) and the ASRA Systemic Risk Assessment Pilot Guidance (unpublished).
76. In many development settings, the power to define what counts as a 'risk' and which risks matter most sits far from the communities that are directly affected. Too often, international agencies and external experts hold disproportionate influence over the framing of risks, while local interpretations, shaped by history, culture and daily realities, are sidelined or rendered invisible. As sociologist Pierre Bourdieu (1991) highlighted, the ability to name, classify and legitimize issues is a form of power, called 'symbolic power'. When only certain voices are heard, important risks, such as land loss, insecurity or environmental degradation, can be ignored or misinterpreted.
77. The case of global warming and climate change is instructive. The science linking fossil fuel combustion, greenhouse gases and global warming with climate change is well established and irrefutable. Yet for decades, there has been a concerted effort to downplay this science or even deny it outright. Although the technologies for renewable and clean energy are readily available and much more affordable than in earlier decades, political agendas heavily influenced by the fossil fuel industry continue to obstruct the necessary energy transformation. Policies still foster the use of fossil fuels and slow the transformation to clean and renewable energy, and outright misinformation continues to circulate.
78. UNDP Independent Evaluation Office, review of UNDP evaluations conducted to support this report.

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