



UNDP SIGNALS SPOTLIGHT 2023

INSIGHTS FROM UNDP'S
FUTURES NETWORK

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FOREWORD FROM THE ADMINISTRATOR

In an increasingly complex world, UNDP must be prepared not just to cope, but to improve, with uncertainty. To be able to imagine many different futures and consider systematically how they affect what we do. To become more agile and anticipatory, as our Strategic Plan intends.

This *Signals Spotlight* – the first of its kind for UNDP – is part of that effort. It draws on our prototype Future Trends and Signals System, a growing network of UNDP staff who are continuously scanning their horizons for signals of change. The *Spotlight* highlights some of

their most interesting observations, sketches connections and patterns, and asks what these might mean for the future of development.

The signals are highly diverse, sometimes discordant. They capture what UNDP is seeing and learning. The picture is constantly changing, as new signals speed up a trend or divert it into something new. The aim is to get us thinking about changes on the horizon we might not have noticed, or only seen from certain angles. Social fractures, synthetic biology, artificial intelligence... what's happening here and why does it matter for development?

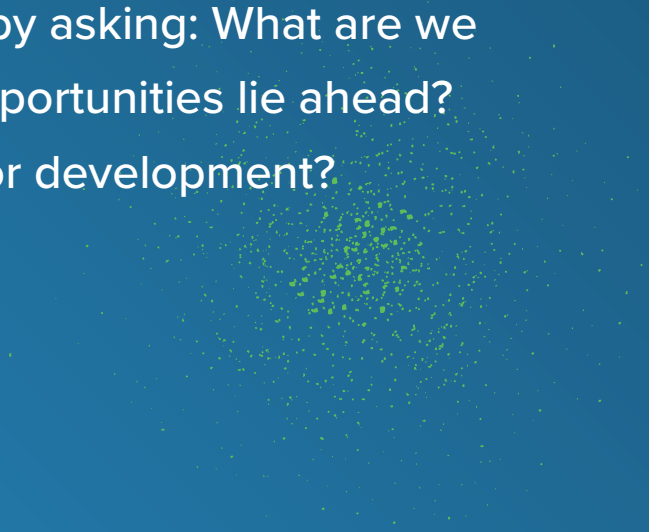


Achim Steiner

Administrator

United Nations Development Programme

The UNDP Signals Spotlight highlights the signals and trends which UNDP sees emerging in the next 3-10 years that we consider will be significant for development. It does not reflect a universal experience or a comprehensive picture of the future of development; rather, it illustrates how UNDP can help illuminate the future by asking: What are we seeing? What risks and opportunities lie ahead? And why do they matter for development?



WHY CAPTURE SIGNALS OF CHANGE?

What kind of world do we want to leave to our children? This is not just a moral question – how we fulfil our responsibility to future generations – it’s a practical one. By 2050 we may see gene-edited babies, flying taxis, lab-grown meat replacing domesticated livestock. What are the opportunities for global health when everyone has a telehealth app on their phone? How will workers in rural areas earn a living when robots handle all the agricultural jobs? Will women’s voices be heard and their pay equal men’s, or will progress towards gender equality remain a rocky path?

It’s hard to contemplate futures that look so different. It’s easier just to think that current trends will continue and that we will have time enough to adapt, if not exactly at our leisure, at least with deliberation. But the speed and complexity of change don’t afford us the luxury of time. “Tectonic shifts... can now happen in a generation.”¹ We have to build faster reflexes to react or even pre-empt change before it materializes. If we wait for evidence to prove our point, we’ll be too late.

Future-readiness is about venturing into domains we might not ordinarily inhabit - pop culture, medicine, technology, art, the metaverse, etc. What precedent might Starlink satellites in Ukraine set for conflict elsewhere? What might

the workforce phenomenon of “quiet quitting”, digital nomads, or a women-only mining company in Zimbabwe, mean for jobs in Africa?

Thinking how to prepare for those futures will help us get better at “adapting to an unfolding unknown reality”². For example, the US Coast Guard’s Project Long View left it better prepared to handle a drastic shift in priorities after 9/11, when its port security workload increased from 2% to 50-60%.³ Scenario exercises at Mont Fleur, South Africa, in 1991-1992 helped build a shared understanding of what was needed to create a better future for all South Africans, paving the way for the peaceful transition of power.

The point of scanning for signals is not to predict the future. Rather, it is to illuminate a few pixels that stand out in a hazy landscape, pixels that might join up into patterns of plausible futures. Investigating these helps reveal the infinite variety of futures ahead – and where we might be able to steer change in the right direction, towards the future we want. From the hundreds of signals contributed to UNDP’s Future Trends and Signals System, this spotlight surfaces some of the most consequential, draws connections, and invites you to write the next chapter: where next?

PURPOSE AND METHODOLOGY

In 2022, UNDP began to develop a Future Trends and Signals System to activate the “noticing” capacity of colleagues across UNDP. This ***Signals Spotlight*** draws on nearly 500 signals submitted to the system between September and December 2022: real-time snippets of information that UNDP “signal scanners” across the world detected as indicators of change that could be significant for the future of development. The UNDP Strategy & Futures Team looked for patterns among the signals and selected the 13 themes that appear below.

The choice of themes, while subjective, was made with three criteria in mind:

- Themes that merit greater attention given their importance for development, now or in the future
- Themes that point to a potentially interesting or consequential change of direction
- Themes highly relevant for development but whose direction or potential impact is unclear

The 13 themes are clustered into three areas: useful tensions, novel collaboration and value investing.

DRIVERS

Long-term shifts that affect the entire world, like urbanization, demographic shifts or climate change.

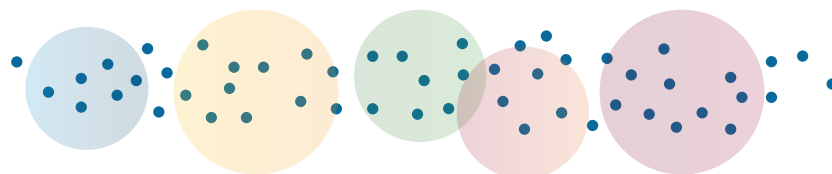
THEMES

A mix of related trends across an area of strategic importance for UNDP.



TRENDS

Directions of change over time, evidenced by a supply of signals.



SIGNALS

A single piece of evidence supporting a trend or indicating a potential change in a trend.



USEFUL TENSIONS

Amidst growing polarization of people and values, and challenges to democracy, can we still derive value from the tensions and conflicts we encounter?

THEME 1

When democracies autocratise

THEME 2

Can the courts save us?

THEME 3

Dare to be unpopular

THEME 4

Shaping our digital lives

THEME 5

Will techno-optimism make us complacent?

T H E M E 1

WHEN
DEMOCRACIES
AUTOCRATISE



In a world of compounding shocks, governing in a state of emergency is becoming the new normal. There is a danger that policies formed in a constant “state of exception” will erode democracy further, at a time when even longstanding democracies are under pressure.

SIGNALS

Threats to democracy are growing, as [global freedom declines](#)⁴ for the 16th consecutive year. Between 2016 and 2021, the number of countries moving towards authoritarianism was more than double⁵ the number moving towards democracy. Satisfaction with democracy has fallen⁶ in most parts of the world. Some 52% of people across 77 countries agreed that [having a strong leader](#)⁷ un beholden to legislatures or elections is a good thing (compared to 38% in 2009).

The [nature of autocratisation is changing, too](#)⁸. 2021 saw six coups, a sharp break from an average 1.2 coups per year since 2000. **Polarization is increasing** to toxic levels, as respect for legitimate opposition and pluralism declines, while autocratic leaders are increasingly using misinformation, repression of civil society and media censorship to empower their agendas. Covid was widely used to justify [restricting civic space](#)⁹. At least 31 countries [used military ordinances](#)¹⁰ or force to enforce pandemic restrictions.


Progress made towards gender equality, interacting with autocratization and polarization, has prompted a [gender backlash](#)¹¹ in several countries.

There are [diverse motivations and methods](#)¹² behind **democratic backsliding**. The personalization of politics has been reinforced by social media and a more digitalized world where everyone has a voice, no matter how ill-intentioned or informed. Where democracy was already under pressure or institutions are weak, shocks can serve as an accelerant. A new study of the effects of extreme weather on small island nations concluded that natural [disasters could fuel autocracy](#)¹³, as constant shocks [overwhelm countries’ ability to respond](#)¹⁴.

There are also signs of democracies being tested, but proving resilient. The response to the 2021 attack on the US Capitol, for example, showed that institutions of democracy can and do function to preserve democratic freedoms.



TRENDS

- Democratic backsliding 
- Increasing polarization
- Climate shocks - more intense, more frequent

ILLUSTRATIVE SIGNALS

- Covid widely used to justify restricting civic space
- Autocratic leaders increasingly using misinformation, repression of civil society and media censorship
- New study shows natural disasters could fuel autocracy
- Contested elections (eg US, Brazil)

Brazil's elections chief¹⁵ was granted unilateral power to order removal of online misinformation ahead of national elections (though prompting concerns that this was itself a potentially dangerous expansion of power). Chile responded to demands for a more inclusive democracy through an elected [Constitutional Assembly](#)¹⁶, although its new proposed constitution was rejected by voters.

SO WHAT FOR DEVELOPMENT?

Crisis management requires “command and control”. Some 9 out of 10 constitutions worldwide in force today [include emergency clauses](#)¹⁷ that allow the government to step outside the ordinary constitutional framework to **take emergency action** (and some countries have adopted brand new legislation granting governments new powers to respond to COVID-19).

Such measures can, and sometimes do, lead to abuse of power and the deterioration of democratic principles in the long term. **How do we balance the need to govern effectively in crisis with the preservation of democratic principles?** In an age of crisis and shocks (unforeseen by constitutions centuries old), finding

this balance – agile and adaptable government that is still effective, accountable and inclusive – demands **new ways of governing**. For example: decentralized autonomous organizations, which can give everyone in a community equal rights, recording decisions in a transparent, immutable manner on the blockchain, [depending how they are set up](#)¹⁸.

Regardless of what these alternative governance systems look like, to be trusted and effective they need to be grounded in **inclusive and equitable social contracts** that reflect the needs of our and future generations. Yet as autocrats [minimize women's equal rights](#)¹⁹ and their participation in the workforce and politics, women are left underrepresented and their choices constrained, a profoundly undemocratic outcome. The **gender backlash** includes pushback on reproductive rights, gender-sensitive education and ending gender-based violence, further threatening women's rights and opportunities.

The uncertainty of today's world is **increasing human insecurity**, fueling [polarization](#)²⁰, distrust and embrace of extreme views. That in turn makes it even harder for people to come together around difficult choices for sustainable change, creating a vicious circle as people are further entrenched in their own like-minded groups.

NEWS FROM 2040

Cellphones banned

n° 1

Feb 2040

Government bans all private cellphone use “until further notice,” citing risks from unspecified malware. Rights groups condemn “outrageous overreach” of government powers.

T H E M E 2

CAN THE COURTS SAVE US?



The law is increasingly being invoked to protect the rights of nature, with recent court rulings leading to policy shifts by public and private institutions (though not all in the same direction). Now the rights of future generations are being asserted, too. The Intergovernmental Panel on Climate Change recognized in 2022 that climate-related litigation has, in some cases, influenced the outcomes and ambition of climate governance - but are the courts a last recourse or the new frontier for climate justice?

SIGNALS

Climate change-related litigation cases worldwide have more than doubled since 2015. Over 1,200 cases have been filed in the last eight years in almost 60 countries. There is an increasing **use of international bodies**. Vanuatu is leading a group of Pacific island nations taking climate change to the [International Court of Justice](#)²¹.

Litigants are increasingly arguing on grounds of **intergenerational equity**. Nepal's Supreme Court declared climate action necessary [to ensure intergenerational justice](#)²². The German Constitutional Court in 2021 ordered the legislature [to set more ambitious greenhouse gas reduction targets](#)²³, deciding that the burden of reductions had been unfairly placed on future generations. In 2022 young plaintiffs [filed a new challenge](#)²⁴, arguing that the latest evidence of climate change meant these increased targets would still fail to protect their rights.

The UN General Assembly declared access to a clean, healthy and sustainable environment [a universal human right](#).²⁵

We are also seeing the continued **expansion of legal rights to ecosystems and natural resources**, since [Ecuador became the first country](#)²⁶ to formally recognize and implement the "rights of nature", in 2008, and Colombia gave legal personhood to the [Atrato River](#)²⁷ in 2016 in recognition of indigenous communities' biocultural rights. In 2022 India's Madras High Court ruled that ["mother nature" has the status of a legal person](#)²⁸, with "all corresponding rights, duties and liabilities of a living person." Europe's largest saltwater lagoon, the [Mar Menor](#)²⁹, was also given legal personhood. [Panama](#)³⁰ adopted a Rights of Nature law. Sporting group Ocean Race proposed the [oceans be given legal rights](#)³¹ under a Universal Declaration of Ocean Rights.



TRENDS

- Growing concern for future generations
- Increase in climate litigation
- Climate activism expanding

ILLUSTRATIVE SIGNALS

- Vanuatu is leading a group of Pacific island nations taking climate change to the International Court of Justice (ICJ)
- India's Madras High Court ruled that "mother nature" has the status of a legal person
- German Constitutional Court ordered the legislature to set more ambitious greenhouse gas reduction targets

But the courts haven't always sided with plaintiffs in support of more ambitious climate action or biodiversity protection. The US Supreme Court [curbed the Environmental Protection Agency's power](#)³² to regulate carbon emissions from power plants.

SO WHAT FOR DEVELOPMENT?

Whether litigation can significantly influence climate governance is not yet clear, but more and more plaintiffs seem to think so. In Germany, at least, it delivered more ambitious goals: lawmakers raised the GHG reduction target for 2030 from 55% to 65% and advanced the target year for carbon neutrality from 2050 to 2045.

The **legitimacy and efficiency of the courts** matter. Litigation may not be a promising route in countries with weak judicial capacity, while activists are unlikely to make use of the courts if the judiciary is not trusted.

Action in **international, rather than national, courts**, may offer a new venue for a conversation about justice and who is responsible for harm across borders (for example, when the smokestack and the flooding island are far from each other, or a river flows through several countries), or who bears the responsibility for future generations.

Giving legal rights to nature and future generations is one step towards greater protection, but **translating these into action** to protect natural resources or future generations may be harder. There may be [few precedents](#)³³ for how to do so. Financing may be a barrier to less well-funded local groups taking action to enforce these rights against powerful companies or governments. Enforcing rights and decisions at supra-national level may be an especial challenge.

Could the courts be a means to force change in other areas of development? Could legal rights for nature lend new strength to animal rights? Combined with technological advances like [lab-grown meat](#)³⁴, what might that mean for the food, medical and other industries?



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Development Programme** ✓ @undp



Arctic Ocean is suing the North Sea – now legally a person! – for the warm water it's channelling into the Arctic, melting its precious icebergs. They're claiming substantial damages – but who will pay? [#tweetfrom2040](#)

6:30 · 24/12/2040

132

432

787



T H E M E 3

DARE
TO BE
UNPOPULAR



Some governments appear ready to challenge longstanding popular preferences in shifting policies towards sustainability. This might mirror changing values. Where it doesn't, governments will have to be prepared to manage the opposition – or face civil unrest.

SIGNALS

Amid a climate emergency and increasing concern that global warming will exceed 1.5°C, some governments appear **ready to challenge popular preferences** or vocal lobbies if that's what it takes to adopt more sustainable policies. Barbados this year reinstated its [ban on single-use plastics](#)³⁵, declaring its commitment to global environmental goals despite considerable local resistance. Chile, too, [banned single-use plastic](#)³⁶ products for food.

From 2025, a new agricultural emissions-pricing system will [tax New Zealand's cattle farmers](#)³⁷ on their livestock's emissions. Meanwhile global warming is leading the European Commission and some parliamentarians [to consider allowing gene-edited crops](#)³⁸ for greater drought resistance, despite the fact that European consumers have long been suspicious of genetically-altered foods. Kenya recently [lifted its ban on GMOs](#)³⁹ as a way of tackling food insecurity, not without criticism of the potential threats to biodiversity.

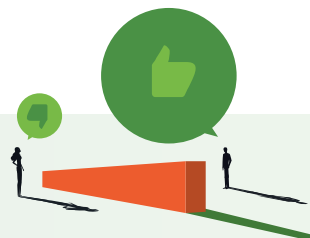
Colombia plans to [raise the price of gas](#)⁴⁰, while [Kazakhstan, Ecuador](#)⁴¹, Nigeria and others [face protests](#)⁴² against cutting longstanding fossil fuel subsidies.

TRENDS

- Climate shocks - more intense, more frequent
- Increasing polarization
- Rise in social unrest

ILLUSTRATIVE SIGNALS

- Barbados reinstates its ban on single-use plastics
- Kenya lifts its ban on GMOs to tackle food insecurity
- New tax planned on New Zealand cattle's emissions
- Kazakhstan, Ecuador & Nigeria face protests against cutting fossil fuel subsidies



SO WHAT FOR DEVELOPMENT?

Should we be talking about a **values-driven transition to sustainability**? Global warming or food insecurity might persuade people to value climate-adapted crops more than they object to genetically-altered foods. This might open the door to a more anticipatory approach: to spot openings where values are already shifting, and use those to introduce policy change in that spirit or direction.

But this raises the question: whose values? Different groups within a society may have very

different values around a given question. Unknown values can prove unexpected obstacles to change (Covid revealed surprising degrees of vaccine hesitancy). In that case, might the conversation focus more usefully on **shared interests** and the pathways towards collective goals, rather than divergent values?

The stakes can be even higher when the **impact of unpopular policies is felt unevenly**. Without careful implementation that shields the most vulnerable, protests are likely. [Civil unrest](#)⁴³, in turn, could prompt tougher approaches to law and order.

NEWS FROM 2040

World halts the sale of beef

n° 1

Feb 2040

After tense negotiations, global agreement finally reached for a worldwide moratorium on beef production until ambitious climate change goals are met.

T H E M E 4

SHAPING OUR DIGITAL LIVES



One third of the world's people may come online in the next 20 years. They're arriving in an anxious, crowded space. Online life is becoming steadily more immersive and people are spending even more time there. Huge amounts of (valuable) data are being generated - but there's little transparency over how it is used, shared or sold. Massive advances in computing power and super-smart algorithms are also shaping this area, fast. The health and prosperity of societies will be shaped by how people live their digital lives, so our choices now regarding how the parameters are drawn are crucial.

SIGNALS

Generative AI (algorithms that use existing content to create new plausible content) is improving exponentially, **transforming our information landscape**. Images from DALL-E 2, an AI system that turns text descriptions into hyper-realistic images, have got [four times more detailed](#)⁴⁴ in just one year. [Text-to-video](#)⁴⁵ is already here. AI can now [recreate voices](#)⁴⁶ of the dead. ChatGPT, OpenAI's chatbot that gives highly detailed (sometimes inaccurate) responses to questions, attracted [one million users](#)⁴⁷ in 5 days.

Superapps (one-stop-shops for a seamless online life) [are expanding in Africa](#)⁴⁸, as communications and financial companies add different services to their platforms. And they're becoming indispensable; banned WeChat users in China [send handwritten notes](#)⁴⁹ pleading for their accounts to be restored.

There's some pushback against the relentless **capture of people's data**. Gig workers [in India](#)⁵⁰ and ride-hailing drivers [in Indonesia](#)⁵¹ are banding together to protect their data and take back control from algorithms.

As digital public infrastructure grows, so does awareness of the **implications for equity**. Some digital ID systems are accused of [excluding](#)⁵² certain groups, like women or particular ethnicities, or failing to ensure [data privacy](#)⁵³. The Vice-President of Bolivia called for a national debate on the metaverse and "[recolonization 2.0](#)"⁵⁴ to consider how to defend freedom, sovereignty, health and justice. With [e-payments in Africa](#)⁵⁵ projected to grow to \$40 billion by 2025, governance frameworks that allow, for example, interoperable digital IDs will be key to the success of the African Continental Free Trade Area.



TRENDS

- Growing concern for privacy
- Ever-stronger AI
- Increasingly digital lives

ILLUSTRATIVE SIGNALS

- ChatGPT attracted one million users in just 5 days
- Superapps are expanding in Middle East and Africa
- Bots reinforce gender bias
- Digital ID systems are being accused of excluding certain groups or failing to ensure data privacy

38% of women in 51 countries have experienced online violence, forcing nearly 9 in 10 of them to limit their online activity, further expanding the **digital gender divide**. Some experts say that the proliferation of [ethical frameworks for AI](#)⁵⁶, often founded on abstract principles, means they do not really address AI's risks.

equitably unless the underlying AI is trained on diverse datasets. Datasets from particular population samples can produce [AI healthcare tools](#)⁵⁹, for example, that don't work accurately or fairly with different groups, or bots that reinforce [gender bias](#)⁶⁰. Should people be compensated for the use of their data, including in creating these sets?

SO WHAT FOR DEVELOPMENT?

Exponential advances in digital technology are **increasing the gap** between the haves and the have-nots, those who aren't shaping our digital world, or aren't even able to participate in or benefit from it. In such a rapidly-changing field, can **policy and regulation** – including the institutional capacities to legislate and regulate – keep up?

Digital public infrastructure offers potentially huge efficiency gains, like [a2i](#)⁵⁷ in Bangladesh or Togo's [cash transfer](#)⁵⁸ programme during Covid. But public services can't serve everyone

As people become more immersed in their digital lives, the opportunities are growing for surveillance and **social control** (but also for deeper civic engagement).

How can people assert **greater agency over their identity and data**? One option could be self-sovereign (or self-managed) IDs, where individuals establish and control their own identity without having to share their personal data or be locked into a single identity provider. Data unions, an intermediary between the user and big tech or government, may put the user in control, given appropriate governance. They enable the user to decide how much privacy they want to retain, and how much they're willing to cede.



THEME 5

WILL
TECHNO-OPTIMISM
MAKE US
COMPLACENT?



Technologies like synthetic biology or quantum computing offer the chance of tackling global problems like climate change, disease or pollution. Energy microgrids or urban farming can alleviate pressure on resources in dense cities. But does “techno-optimism” risk weakening the drive for radical change in current policies and behaviours, as we reassure ourselves that tech has all the answers?

SIGNALS

A [fusion reaction](#)⁶¹ produced more energy than was used to trigger it. *Science* magazine named [AI-powered protein prediction](#)⁶² its 2021 Breakthrough of the Year for its potential to speed biological research and help understand and fight disease. AI and machine learning promise to make [drug development](#)⁶³ dramatically faster and cheaper, [predict crop yields](#)⁶⁴ and improve food security.

Arizona State University in the US is testing [prototype artificial trees](#)⁶⁵ – carbon-absorbing columns – that suck up carbon dioxide a thousand times more effectively than real trees. Researchers at Sichuan University, China, designed a self-propelled [robo-fish](#)⁶⁶ that can absorb microplastics from oceans and rivers. Abu Dhabi-based startup Manhat is developing a [floating solar-powered desalination device](#)⁶⁷, while an Indian company is [mechanizing ocean farming](#)⁶⁸ with its “Sea Combine,” a catamaran that simultaneously harvests and replants seaweed in the ocean.

Signals are popping up worldwide of cheap(er) renewable energy, from [solar microgrids](#)⁶⁹ providing electricity to remote Indonesian islands or women’s enterprises in [India](#)⁷⁰, to [micro-turbines](#)⁷¹ in Singapore that harvest power from light breezes. Firefighters in China are using big data [to predict fires](#)⁷².

TRENDS

- Boom in breakthrough tech
- Inequitable distribution of tech persists
- Distributed energy solutions proliferate

ILLUSTRATIVE SIGNALS

- A fusion reaction produced more energy than was used to trigger it
- Prototype artificial trees suck up carbon dioxide 1000x more effectively than real trees
- Abu Dhabi-based startup Manhat is developing a floating solar-powered desalination device
- China designed a self-propelled robo-fish that can absorb microplastics from oceans



SO WHAT FOR DEVELOPMENT?

Technology could be falsely reassuring if used to **address the symptoms, not the causes**, of a challenge like climate change (eg Tuvalu's creation of its own [digital twin](#)⁷³ in the metaverse so it could continue to function as a sovereign state, even if its people were forced by climate change to live somewhere else). Weather modification can alleviate some symptoms of global warming, but without addressing its root causes. Should we introduce [solar radiation modification](#)⁷⁴ when countries continue to fall short on their promise to deliver \$100bn per year for climate action in developing countries?

More localized applications of technology, grounded in local knowledge and needs (like energy microgrids or vertical farming) might enable them to deliver **more resilient solutions** (especially pertinent if national systems are lacking). But in the rush to tech-powered solutions, might people get left behind? Over-reliance on tech might **marginalize local or indigenous knowledge**, indispensable for that context – and likely harder to recover once lost.

Technology offers tremendous opportunities to tackle global development challenges at scale, and open source science is surfacing development solutions more efficiently. But the **benefits are still not equitably distributed**. Women, for example, [are 25% less likely](#)⁷⁵ than men to know how to use digital tech for basic purposes, depriving them of opportunities and making them less likely to be heard in conversations around tech governance. Women hold only [20% of roles creating bots](#)⁷⁶ in major tech companies, a discrepancy that will perpetuate biases against women.

Public investment and incentives can help create and shape markets in the public interest (eg for electric vehicles). But parallel policy changes may be needed to take account of second-order impacts of such change; for example, as American cars became more fuel-efficient in the 2010's, potential environmental gains [were lost](#)⁷⁷ as US consumers simply switched to bigger cars. Rather than complacently accepting (and consuming) the gains of tech, how do we **invest them in sustainable ways** that don't compound the original problems we are trying to solve?



UNDP Country Office in Ruritania ✓ @undp



"Great results from our digital twin experiment! We ran a gender project in our digital twin CO and partner ministry – and it increased by 25% the number of Ruritanian women attending university. Next stop: real life implementation!" [#tweetfrom2040](#)

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NOVEL COLLABORATION

As multilateral structures and ways of collaborating change and proliferate, how can we shape them in the public interest?

THEME 6

Regulating the unknown

THEME 7

“OPECs” for everything

THEME 8

Climate changing the financial system

THEME 9

A new wave of debt swaps for climate and nature



T H E M E 6

REGULATING
THE UNKNOWN

Technology holds extraordinary potential for development. But regulation is not keeping up with the pace of change. Unless the world gets a handle on regulation, new or rapidly growing technologies (especially where they cross borders, like geoengineering, seabed mining or the metaverse) could escape control, with unknown and potentially malign consequences.

SIGNALS

At least 50 countries are already using [weather-modifying technology](#)⁷⁸, from China (with the [world's largest programme](#)⁷⁹, covering some 50% of its land area) to [cloud seeding technology in the Gulf](#)⁸⁰. Many scientists are sceptical, however, about the technical success of weather modification (and some note its potential as a [source of tension](#)⁸¹).

Solar geoengineering, like [spraying chemicals into the atmosphere](#)⁸² to deflect solar radiation, or manufacturing in outer space thin-film structures known as [space bubbles](#)⁸³, is also controversial. Some researchers have called for a [global ban on sun-dimming technologies](#)⁸⁴, saying we don't know how it could alter Earth's atmosphere. Others point to the **challenges of governance**, with nations unlikely to agree on whether planet-altering tech should be used.

As more companies and people move into the **metaverse**, **its regulation** (or lack of it) is getting attention. Concerns range from sexual [abuse of avatars](#)⁸⁵, [hate speech](#)⁸⁶ and sexual assault, to [financial crime](#)⁸⁷, to the potential for [real-life abuse of children](#)⁸⁸. The Republic of Korea has drafted [ethical principles](#)⁸⁹ for the metaverse.

Chile (prompted by its own Future Challenges Commission) is pioneering the protection of [neurorights](#)⁹⁰, in anticipation of the continued rapid development of neurotechnology.

Existing regulatory authorities **may expand into new areas** as technology advances. For example, the International Seabed Authority (ISA) authorized the first [large scale metals mining](#)⁹¹ from the Pacific seabed – to [criticism](#)⁹² from environmentalists arguing its impact on marine ecosystems was insufficiently understood and the ISA's decisions were not transparent.

TRENDS

- Boom in breakthrough tech
- Increased use of weather-modifying tech
- Growth in metaverse users

ILLUSTRATIVE SIGNALS

- 50+ countries are already using weather-modifying technology
- Researchers call for a global ban on sun-dimming technologies
- International Seabed Authority greenlit first large-scale metals mining from the Pacific seabed
- Reports of avatar abuse, hate speech, sexual assault and financial crime in the metaverse



SO WHAT FOR DEVELOPMENT?

Can **we govern at the speed** with which these technologies change? And **who should regulate what?** – especially of technologies whose planetary impacts are as yet unknown, like solar geoengineering.

Where the implications of these technologies cross borders, international cooperation is vital, not just to understand the consequences but also to leverage shared interests. It must also protect the interests of countries and people who are not even part of the debate. The ISA's decisions on metals mining in the Pacific, for example, may set precedents for exploitation of the ocean floor in other regions. Can the current multilateral system accommodate truly **inclusive decision-making**?

In an increasingly interconnected world, **where should these decisions be made?** [Legislative proposals](#)⁹³ to force companies to address the safety of children in the metaverse are under discussion in the EU. Cities are sometimes [taking the lead in regulation and policymaking](#)⁹⁴ in rapidly advancing areas like AI or data privacy, where state or global governance, or companies' own ethical frameworks, seem inadequate.

Could older conventions serve as useful regulation mechanisms? It's been suggested that the best mechanism for policing [weather modification](#)⁹⁵, for example, is the [ENMOD Convention](#)⁹⁶ of 1978, ratified by 78 countries, including Russia, the US, China and Germany.



T H E M E 7

“OPECs”
FOR
EVERYTHING



Developing countries are forming new alliances to demand a fairer deal for their natural resources and protect the global commons of nature. Whether by selling their resources or conserving them, these are coalitions designed to accrue maximum value to their members of the resources they own.

SIGNALS

The green transition is set to drive **hugely increased demand**⁹⁷ for the critical minerals used in clean energy technologies, like lithium, nickel and cobalt. Demand for lithium, for example, used in electric vehicles and batteries, is **expected to grow at least thirteenfold**⁹⁸ by 2040. Given these growing opportunities, lithium producers Bolivia, Argentina and Chile are considering establishing something like an “OPEC for lithium”⁹⁹, while **Indonesia is looking at**¹⁰⁰ a similar structure for nickel, cobalt and manganese.

Meanwhile, Brazil, Indonesia and the Democratic Republic of the Congo have signed a **partnership to cooperate** on **rainforest preservation**¹⁰¹, saying countries should be paid to maintain forests as carbon sinks. Ghana and Cote d’Ivoire, who produce two-thirds of the world’s cocoa, **boycotted**¹⁰² the 2022 meeting of the World Cocoa Foundation, demanding fairer cocoa prices for farmers.

New **alliances for global commons** are emerging elsewhere, too. 27 companies committed to using water sustainably have formed a **Water Resilience Coalition**¹⁰³, while the **Ocean Rights Alliance**¹⁰⁴ launched at COP27 brings companies together around ocean conservation.



TRENDS

- Developing countries assert themselves
- Race for scarce resources
- New alliances for the global commons

ILLUSTRATIVE SIGNALS

- Demand for lithium used in electric vehicles and batteries expected to grow at least thirteenfold by 2040
- Argentina, Bolivia and Chile consider “OPEC for lithium”. Indonesia considers similar structure for nickel, cobalt and manganese
- Brazil, Indonesia and DRC sign rainforest preservation alliance
- Ocean Rights Alliance brings companies together around ocean conservation

SO WHAT FOR DEVELOPMENT?

Formation of new negotiating blocs around scarce resources critical to the green transition is shaping **a more fluid, multipolar landscape**. With lithium resources concentrated in a few countries, such new alliances could be disruptive. How might these tensions play out, including among private sector players?

Who owns, controls and benefits from extracting oil, gas, minerals and forests can have significant implications for **inequality and climate change**. Nickel mining is causing [social and environmental damage in Indonesia](#)¹⁰⁵, the world's largest nickel producer. Given the high social and environmental costs of extraction, and associated geopolitical tensions, the Paris Peace Forum [initiative on governance of critical minerals](#)¹⁰⁶ aims to foster collaboration around

responsible production and shared benefits. Will new alliances converge around such principles?

As new blocs form to promote their economic interests and strengthen their negotiating power, the question of **ownership of resources will be central**. 50 million indigenous people live in or [depend on tropical rainforests](#)¹⁰⁷. A study of over 5,000 mining projects showed over [54% were located on or near indigenous peoples' lands](#)¹⁰⁸. In conserving or managing those resources, how will those who live there be consulted, and the benefits of sustainable management shared?

Could the challenge of exploiting scarce minerals, and growing awareness of the environmental costs, **incentivize research** and exploration of alternatives, like [sodium-ion batteries](#)¹⁰⁹?

NEWS FROM 2040

n° 1

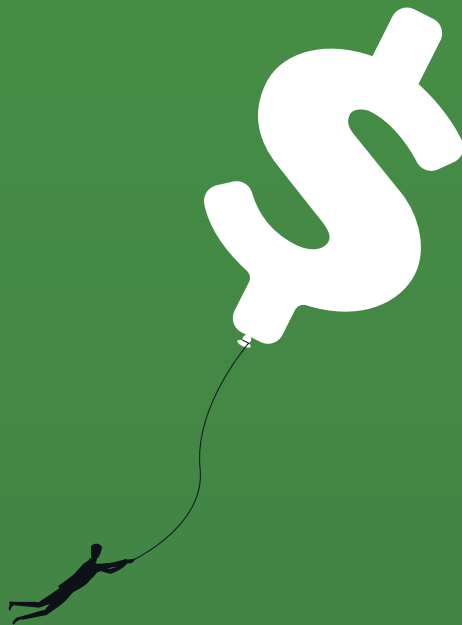
Global water prices spike by 15%

Feb 2040

The Organisation of Water Exporting Countries announces a 15% price rise for drinking water to 100 aquadollars per barrel

T H E M E 8

CLIMATE CHANGING
THE FINANCIAL
SYSTEM



The conversation around climate finance is shifting, from volumes of financing to restructuring the systems that provide it. It was recognized at the UN Climate Conference (COP27) that developing countries exposed to climate change, hit by repeated crises, cannot progress towards sustainable development without a reduction in borrowing costs and more flexible, SDG-directed lending and investment. This is adding urgency to calls for reform of the global financing architecture, which are getting broader support.

SIGNALS

Low-income countries contribute only a fraction of greenhouse gases, yet bear a disproportionate burden of climate change. COP27 finally agreed a “[loss and damage](#)” fund¹¹⁰ for countries most vulnerable. Designing how it will work, though, is still to be decided; its success will depend not just on amounts of financing pledged, but its structure and how well it fits into the broader **climate finance system**.

With energy markets disrupted by the war in Ukraine and many developing countries facing debt crises, the [2022 Bridgetown Initiative](#)¹¹¹, first proposed by Barbados in 2021, was presented with increased urgency at COP27. It proposes \$1 trillion in low-interest loans for climate action in developing countries – but also fundamental **reforms of the climate finance architecture**. The Vulnerable Twenty (V20) group, likewise, called for [urgent debt relief](#)¹¹² and immediate [reform of sovereign debt restructuring architecture](#)¹¹³. The multilateral development banks (MDBs) are [responding to the pressure](#)¹¹⁴. IMF Director Kristalina Georgieva is [broadly supportive](#)¹¹⁵ of the initiative, while the President of the World Bank [welcomed](#)¹¹⁶ calls to significantly increase the Bank’s climate finance. The US Treasury Secretary [called on MDBs](#)¹¹⁷ to tackle global as well as country challenges and possibly take on more risk.

TRENDS

- Developing countries assert themselves
- Climate shocks - more intense, more frequent
- New alliances for the global commons

ILLUSTRATIVE SIGNALS

- COP27 agrees historic ‘loss and damage’ fund for climate impact in developing countries
- Bridgetown Initiative proposes \$1 trillion in low-interest loans for climate action - and fundamental reforms of the climate finance architecture
- V20 calls for urgent debt relief and immediate reform of sovereign debt restructuring architecture



SO WHAT FOR DEVELOPMENT?

Low income countries and vulnerable states are not able to access the funding they need to manage cumulative shocks and interconnected crises: Covid, the war in Ukraine, increased food and fuel prices, climate impacts and debt. As well as intensifying hardship for the poorest, this delays global action on climate change. Moreover, it is these countries which will be worst hit by climate change (both directly and because of their limited adaptation capacity), and the most vulnerable groups within them will suffer most – **compounding inequalities**¹¹⁸ between and within countries.

The loss and damage fund agreed at COP27 is a recognition of responsibility for climate change. While the fund will be designed by a dedicated **transitional committee**¹¹⁹, the context of its creation is the wider debate about re-

form of the multilateral development banks and indeed the global financial system. Discussion at the 2023 spring meetings of the World Bank and the IMF may indicate the **prospects of the global financial system becoming fairer** to developing countries. That would set the scene for decisions on how the loss and damage fund is governed; whether, for example, it **is complemented**¹²⁰ by other funding mechanisms for climate-vulnerable countries, or is free of the sort of constraints those countries already face in accessing other funds.

Can financing the climate response be **integrated into the sustainable finance architecture**, not be merely an add-on? How can climate finance providers expand development financing and accept more risk, not just finance the most bankable projects? Can the inherent inequality of the climate crisis be addressed through new models of decision-making, decentralisation and ownership?

THEME 9

A NEW WAVE OF DEBT SWAPS FOR CLIMATE AND NATURE



More than 50 of the poorest developing countries are in danger of defaulting on their debt¹²¹ and becoming effectively bankrupt, including 28 of the world's top 50¹²² most climate-vulnerable countries. While they represent just 3% of the global economy, they account for over half of people living in extreme poverty. Debt swaps for climate or nature are not new, but a new wave of substantially larger deals might be part of the solution to debt distress and a way of directing additional resources to climate and conservation.

SIGNALS

58 of the developing countries most vulnerable to climate change have almost \$500 billion of debt servicing payments¹²³ due in the next four years. Several are calling publicly for more debt-for-nature swaps: 20 countries announced they were considering halting repayment¹²⁴ of \$685 billion, ideally swapping debt for investment in climate projects, while the President of Ghana at COP 27 said, “I urge those who hold African debt to commit to debt for climate swap initiatives¹²⁵.” The Bridgetown Initiative¹²⁶ declared, “We cannot be good at rescuing banks but bad at saving countries.”

Belize's debt for nature swap with The Nature Conservancy reduced the country's external debt by 10% of GDP¹²⁷ and is helping to protect the longest coral reef in the western hemisphere. Other deals under evaluation include Gabon¹²⁸, Sri Lanka,¹²⁹ Ecuador¹³⁰ and Cape Verde¹³¹, while Lao PDR is working with UNDP to explore a potential debt-for-nature restructure¹³².

TRENDS

- Growing number of countries in debt distress
- Climate shocks - more intense, more frequent
- Developing countries assert themselves

ILLUSTRATIVE SIGNALS

- 20 countries consider halting repayment of \$685bn debt, swapping debt for investment in climate
- Belize's debt for nature swap with The Nature Conservancy reduced its external debt by 10% of GDP
- Other deals under evaluation include Gabon, Sri Lanka, Ecuador, Cape Verde and Lao PDR



SO WHAT FOR DEVELOPMENT?

Heavily-indebted countries vulnerable to climate change are **caught in a vicious circle**: debt servicing reduces fiscal space for investments to address climate change. Meanwhile, climate change degrades productive capacity and triggers natural disasters (and expensive reconstruction), making it even harder for countries to service their debt.

Debt swaps for climate and nature could be **part of the answer**, providing an incentive for creditors to participate in debt relief in exchange for environmental investments. That might bring in [new money or new actors](#)¹³³. They “[could even create additional revenue](#)”¹³⁴ for countries with valuable biodiversity by allowing them to charge others for protecting it

and providing a global public good”. But there are still questions over the relative merits of debt swaps compared to alternative measures such as conditional grants and comprehensive debt restructuring. A recent [IMF](#)¹³⁵ report evaluated these options.

Debt swaps remain for the present a niche instrument in the market, but one with great potential. Going forward, they might not be limited to climate and nature, but could **potentially expand to other SDG areas**, as happened with the thematic bond market, which began with “green bonds” and then developed to include social and other sustainability targets.

If developing countries assert themselves increasingly forcefully on existential issues like debt and climate change, what would that mean for multilateral cooperation?

VALUE INVESTING

Where are the biggest openings for SDG-aligned investment – in the environment, climate, nature, human capital and resilience – and can changing values be harnessed to help?

THEME 10

Rethinking the governance of ESG

THEME 11

The changing face of altruism

THEME 12

Why aren't we talking about a social recession?

THEME 13

The looming jobs crisis

T H E M E 1 0

RETHINKING
THE GOVERNANCE
OF ESG



The growing demand for truly sustainable investments masks some tensions. While there is some pushback against ESG (environmental, social and governance), for example legislation in some US states¹³⁶ threatening businesses with missions like cutting carbon emissions or DEI (diversity, equity and inclusion), there are also increasing calls for better ESG standards, greater transparency, and rejection of greenwashing. Governments, recognizing the importance of stronger ESG governance, are adopting new regulations to govern standards and reporting.

SIGNALS

Global ESG assets [may reach \\$53 trillion](#)¹³⁷ by 2025. **Demand for sustainable investments is exceeding supply**¹³⁸. 550 financial institutions have joined the [Glasgow Financial Alliance for Net Zero](#)¹³⁹. ESG-labelled bonds made up 16% of global EUR- and USD-denominated international syndicated bonds issued in 2022, up from 14% in 2021. The number of companies (in 62 countries) appointing [chief sustainability officers](#)¹⁴⁰ jumped threefold in 2021. An Australian energy firm was fined for [greenwashing](#)¹⁴¹.

There has been some **backlash against ESG**, like Florida [pulling \\$2 billion in assets](#)¹⁴² from BlackRock to protest its support for ESG, climate action and stakeholder capitalism; and Vanguard, the world's second largest asset manager, [resigning](#)¹⁴³ from the Net Zero Asset Managers Initiative.

Several recent policies create significant **new incentives to invest** in renewables and sustainability, like the US Inflation Reduction Act, the [EU's cross border tax on carbon](#)¹⁴⁴ and the global convention on biodiversity target to [protect 30% of the planet](#)¹⁴⁵ for nature.

Regulations governing ESG are [highly fragmented](#)¹⁴⁶. There are over 600 ways to assess corporate ESG activity, but **no global, standardised corporate disclosure requirements**. While there is more data available for verifiability, ESG ratings providers all use different methods to rate companies' performance, so investors find the ratings hard to interpret. Indeed, investors identify lack of standardisation across ESG bond ratings as the [top barrier to investment](#)¹⁴⁷.

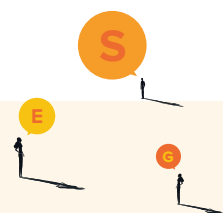
Progress towards improving standards includes the International Sustainability Standards Board's [proposed global standards](#)¹⁴⁸ for ESG reporting; an [EU directive](#)¹⁴⁹ that significantly expands ESG reporting obligations; and the G20 Sustain-

TRENDS

- ESG regulation in the spotlight
- Increasing consumer demand for sustainability
- Growing demand for new forms of governance

ILLUSTRATIVE SIGNALS

- International Sustainability Standards Board proposes global standards for ESG reporting
- Companies appointing Chief Sustainability Officers in 62 countries trebled in 2021
- Florida pulls \$2 billion in assets from BlackRock to protest its support for ESG
- UN Sustainable Stock Exchanges Initiative works to improve ESG disclosure in emerging markets



able Finance Roadmap, which encourages nature- and biodiversity-related disclosures. The UN Sustainable Stock Exchanges Initiative¹⁵⁰ is working to improve ESG disclosure¹⁵¹ in emerging markets. Mongolia issued guidance on sustainability¹⁵² reporting for Mongolian companies.

SO WHAT FOR DEVELOPMENT?

Major investors, like pension funds, might steer clear of ESG-aligned companies - either because mandated to do so, or because they do not see ESG as a useful risk mitigation strategy. ESG's opaque framework and inconsistent regulations are costly to navigate, and undermine trust in ESG.

How this will pan out remains to be seen. There are plenty of more positive ESG signals – investor demand, government interest, changing values – that suggest fertile ground for im-

proved standards and accountability. Development of clear, **verifiable, standardised metrics** is important – which the proliferation of data may complicate, as well as help.

Are we failing to **communicate the real value of ESG**? The term has become fraught with so many shades of meaning that the simple “good business” message is often lost. Yet as the Business Commission on Sustainable Development notes, “Contributing to the SDGs offers a **compelling growth strategy**¹⁵³ for businesses.” Achieving **gender equity**¹⁵⁴ alone could increase the size of the global economy by 26%. **Gender equality-focused bonds**¹⁵⁵ are growing, albeit from a low base.

Something to watch: **how the data and tech sectors respond** to new incentives to invest in sustainability, perhaps identifying business startup opportunities fuelled by tax credits, or new demand for data collection and verification as ESG standards converge?

T H E M E 11

THE
CHANGING
FACE OF
ALTRUISM



Charitable donations are increasing, with new ways of giving and, in some cases, more emphasis on long term results. Meanwhile development needs more flexible, risk-tolerant, longer-term funding, especially with Official Development Assistance (ODA) under pressure. While philanthropy is only a part of the funding available for sustainable development, can it inspire a more risk-tolerant approach that looks to the interests of future generations?

SIGNALS

Worldwide **more people are giving to charity**¹⁵⁶, helping strangers and doing voluntary work: their numbers have increased by a quarter since before Covid. There are **new ways to give**: you can donate bitcoin; Manifold Markets has established a **charity prediction market**¹⁵⁷; UNICEF has used **non-fungible tokens (NFTs)**¹⁵⁸ to raise money for internet access in schools, giving donors a way to track when their funds are used. Oxfam has partnered with universities to trial a **blockchain-powered platform**¹⁵⁹ that supports real-time donations, triggered by conditions their donors set.

The founder of clothing company Patagonia **has donated**¹⁶⁰ the company to a charitable trust to fight the climate crisis. In 2021 **effective altruists spent \$600m**¹⁶¹ on global health and development (although the collapse of cryptocurrency exchange FTX has **shut down its philanthropic Future Fund**)¹⁶². Meanwhile some longstanding donors are reducing their commitments to ODA.

TRENDS

- More tech innovations for philanthropy
- Growing concern for future generations
- New alliances for the global commons

ILLUSTRATIVE SIGNALS

- Oxfam trials blockchain platform that triggers donations when donors' conditions are met
- Founder of Patagonia gives company to charitable trust to fight climate change
- "Effective altruists" spend \$600m on health & development in 2021
- Collapse of FTX shuts its philanthropic Future Fund



SO WHAT FOR DEVELOPMENT?

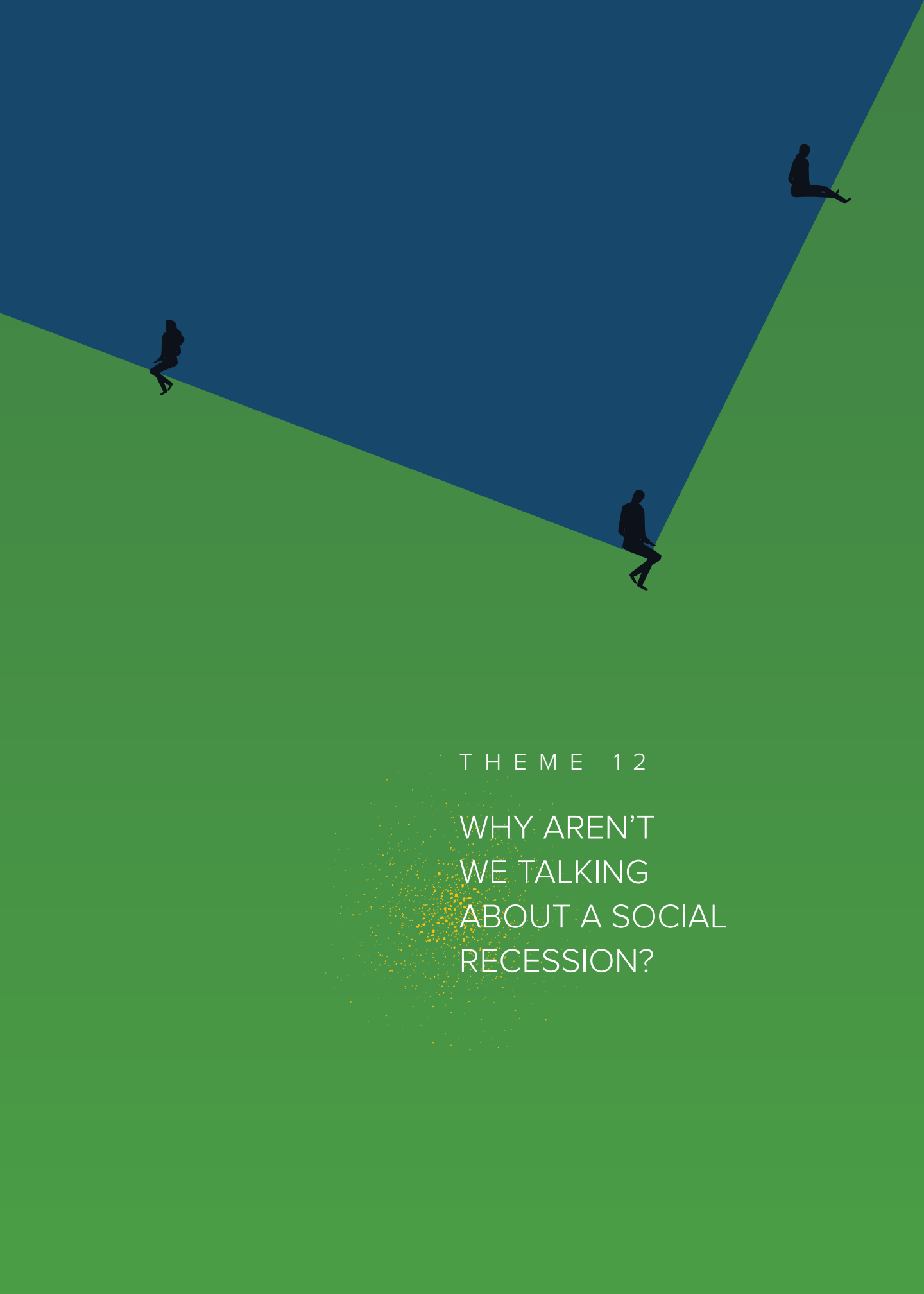
Flows of philanthropic funding are relatively modest compared to ODA. However, at a time when development is calling for **more flexible, risk-tolerant funding** that can be put to work towards long term results, private donors – with no taxpayers to answer to – might be less risk-averse partners than government donors.

Major philanthropic donations may come with **conditions or values attached** that don't always align with recipients' or with the SDGs. They might focus on a single issue, or prioritise short-term results, rather than trying to address systemic or structural challenges. In return for **relatively modest contributions**¹⁶³, philanthropists and private donors may secure an influential role in decision-making and agenda-setting.

New mechanisms for giving can be risky – NFTs and cryptocurrencies are highly volatile. But new technology might offer opportunities; for example, could blockchain help demonstrate development results more robustly (winning wider support for ODA) or engage donors more closely?

The effective altruism movement – finding unusually good ways to help people for maximum benefit, including people not yet born – has drawn attention to funding for long term impact. Is focusing on **long-termism a promising direction**, or do distant outcomes appeal to people even less?

How can we reframe our thinking on altruism so that it's less about giving and receiving, more about sharing, and directed towards **attaining a common future**?



THEME 12

WHY AREN'T
WE TALKING
ABOUT A SOCIAL
RECESSION?

With the global economy on the brink of recession, we are in the midst of a social recession that is equally consequential for societies and economies but is much less factored into calculations about our future: loneliness, mental health declines, stress in the workplace and trust at an all-time low.

SIGNALS

A 2021 survey showed 33% of adults worldwide experienced feelings of [loneliness](#)¹⁶⁴. The [WHO](#)¹⁶⁵ notes that widespread social isolation among older people harms their health and quality of life, while loneliness is growing across western societies, with young people among the [worst affected](#)¹⁶⁶. Friendships and community involvement [are declining](#)¹⁶⁷ in the US. [Distrust](#)¹⁶⁸ is society's default emotion; fewer than 30% of people globally believe most people can be trusted. These trends affect physical health; one study of Chinese adults showed that [loneliness can speed the ageing](#)¹⁶⁹ process more than smoking. Austrian doctors are writing "[social prescriptions](#)¹⁷⁰" against loneliness.

With one in eight people worldwide suffering from mental health issues, providing [mental health and psychosocial support](#)¹⁷¹ is more necessary than ever. Those excluded by the [digital divide](#)¹⁷² are at particular risk. In Jordan, [increasing suicides](#)¹⁷³ are prompting calls for additional mental health services. UNDP's Arab States' [Women Innovators Programme](#)¹⁷⁴ is attracting more startups focusing on mental health. [Friendship Benches](#)¹⁷⁵ – where grandmothers provide talk therapy – are addressing loneliness and fostering inter-generational connectedness in Zimbabwe and beyond.

A gender backlash is hurting women, ranging from [misogyny](#)¹⁷⁶ to [lethal violence](#)¹⁷⁷ within their own families. Intersecting inequalities put some at heightened risk: girls and [women with disabilities](#)¹⁷⁸ are more likely to be illiterate, unemployed or living in poverty; a survey of LGBTQI+ people in Thailand showed that half of the respondents had [contemplated suicide](#)¹⁷⁹.

TRENDS

- Mental health stressed
- Shifting nature of work
- Backlash against gender equality

ILLUSTRATIVE SIGNALS

- 33% of adults worldwide feel lonely
- 30-35% of young people in 45 countries have taken time off work due to stress
- In Thailand, half of LGBTQI+ respondents to survey had contemplated suicide
- Grandmothers provide talk therapy on Friendship Benches in Zimbabwe and beyond

Some 30-35% of young people surveyed in 45 countries have taken [time off work](#)¹⁸⁰ due to stress. “[Quiet quitting](#)¹⁸¹” by burned-out employees is gaining momentum in the US. Only one-fifth of employees globally describe themselves as “[engaged](#)” [at work](#)¹⁸² and stress has reached an all-time high. Wellbeing in South Asia and Europe dropped 5 percentage points in the past year, and workers’ hopes for the future declined too. Only 10% of workers in Sub-Saharan Africa are living comfortably on their present household income. Covid hit [women’s livelihoods](#)¹⁸³ particularly hard; 58% of employed women work in the informal sector, without paid sick leave or unemployment benefits, with an unpaid care burden three times greater than men’s.

freedom and ability to live life as they choose. We understand increasingly well the importance of mental health, trust and social cohesion for progress towards the SDGs – so **why are we still under-investing in them?**

The strength of the social fabric – and the future of societies - depends on these connections, trust and ties of community. **Preserving or rebuilding people’s sense of trust and community** is especially important when polarization is growing and social contracts need to be rethought or reinvigorated. This is perhaps even more true in countries that are more at risk (eg highly indebted, or vulnerable to climate change), fragile or conflict-affected, even though these may have the fewest resources to address them.

SO WHAT FOR DEVELOPMENT?

A loss of hope and optimism for the future will have devastating consequences for economies and societies, especially for younger generations. The Human Development Report [demonstrated](#)¹⁸⁴ how mental distress constrains human development, limiting people’s

What broader insights can these social or health indicators reveal? For example, studies in [China](#)¹⁸⁵ and Viet Nam have shown links between [corruption and psychological distress](#)¹⁸⁶ or depression. What other intersections might be relevant for societies and how they are governed?

NEWS FROM 2040

n° 1

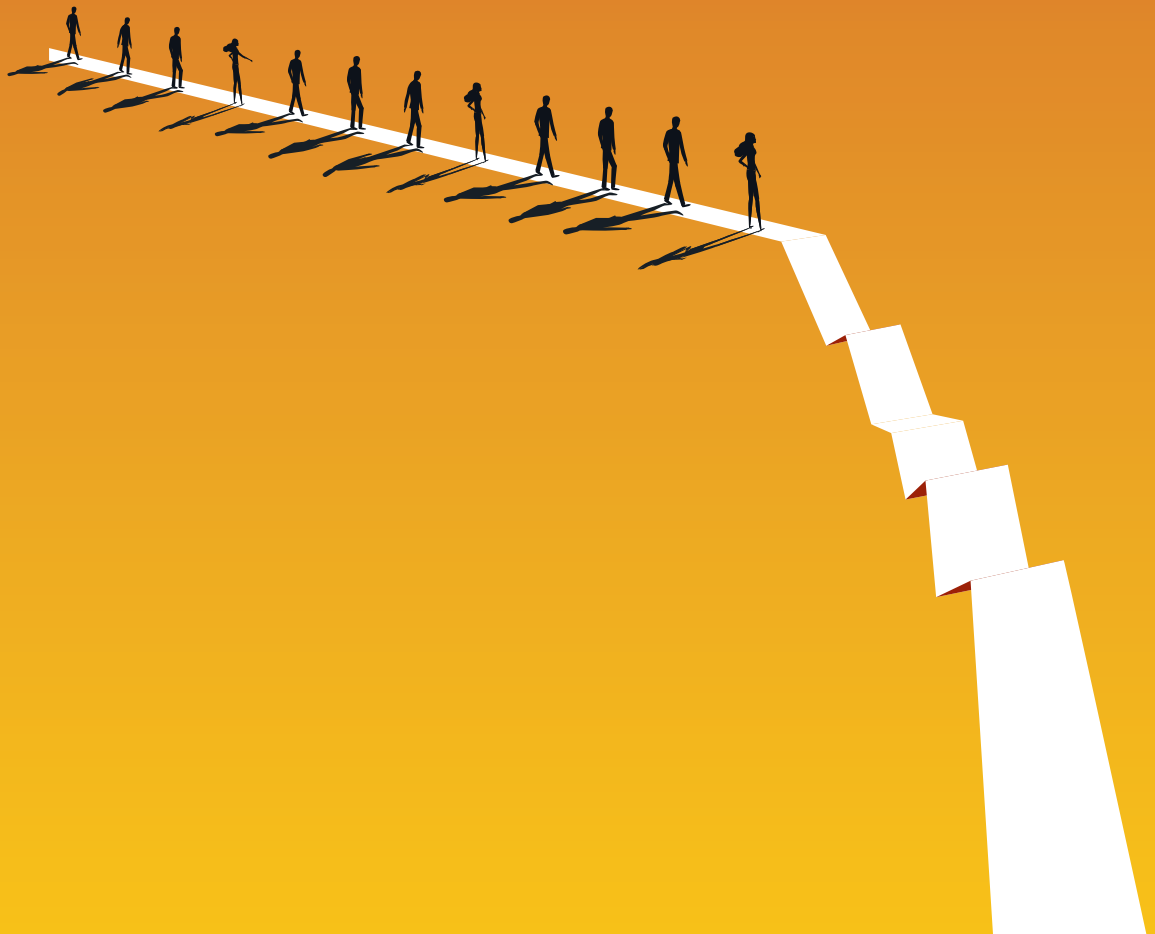
Empathy on the rise, says UNDP

Feb 2040

Thriving communities.... Better mental health outcomes....
The UN’s human development “empathy index”
rises globally five years in a row.

THEME 13

THE LOOMING JOBS CRISIS



Major economies are not replacing their populations fast enough to stave off future labour shortages in key industries, while in Africa, a rapidly-growing young population means millions of new jobs will be needed. Today's labour policies will determine how successfully countries meet these challenges, which will require them to create high quality jobs and invest in the education and training workers need to fill them.

SIGNALS

Labour shortages in some regions are predicted to grow, the result of various factors including the **Covid aftermath**¹⁸⁷, ageing populations, early retirement, immigration policies and **mismatches**¹⁸⁸ between available skills and job profiles. Spain is the latest EU country to offer “**digital nomad**”¹⁸⁹ visas for non-EU citizens to live there and work remotely, hoping to boost talent and investment in the country. Technological advances, like robotics or AI, will not solve these problems if workers **don't have the right skills**¹⁹⁰ to leverage these tools.

Africa's population is expected to **double by 2050**¹⁹¹. In 10 years' time, half the entrants to the job market will come from **sub-Saharan Africa**¹⁹², where the working-age population will increase by 20 million a year over the next two decades: a “youth bulge” that could mean serious problems for stability, migration and societal health if millions of young people can't find jobs. Sub-Saharan Africa has the highest percentage of employees – 40% - who say they are **likely to move**¹⁹³ this year: a potential drain on the continent's human capital. However, young Africans appear more optimistic than their older counterparts; 54% of 15- to 29-year-olds in sub-Saharan Africa said their **standard of living was improving**¹⁹⁴ in 2021, compared with 42% of those aged 30-49 and 36% of those over 50.



TRENDS

- Growing youth bulge in many developing countries
- Shifting nature of work
- Social contracts under pressure

ILLUSTRATIVE SIGNALS

- Labour shortages in some regions predicted to grow
- Spain latest EU country to offer “digital nomad” visas for non-EU citizens
- Half the job market entrants 10 years from now will come from sub-Saharan Africa
- Sub-Saharan Africa has highest percentage of employees – 40% - likely to move this year

SO WHAT FOR DEVELOPMENT?

A youth bulge won't deliver a dividend without some smart choices. How can governments work with the private sector to **invest in human capital**, develop better working standards to attract and retain labour and create better employment opportunities?

The technology of the fourth industrial revolution, like automation and robotics, will not solve these problems if there is a **skills mismatch** with the talent needed in a more technologically advanced world. Investment in human capital is needed to prepare people for the jobs of tomorrow. This means not just

education and training (including for jobs we don't even know yet) but also preparation for entirely new markets.

In regions with more young people, especially Africa, will their skills match the needs of a "labour export market", where their labour and services are in demand beyond Africa? If not, how might millions of disillusioned, unemployed young people affect the **stability of societies**, and what will be the impact on migration? Can the continent instead find a more positive trajectory, seizing on the current hopefulness among young Africans to build an alternative, better future by creating a competitive labour market and preparing young people for the economies and jobs of tomorrow?



[abbreviated from text generated by ChatGPT]



WHERE NEXT?

This *Signals Spotlight* is highly selective. The signals described are a small sample of ones UNDP has picked up across the world, so they reflect our perspectives. You may not see the same signals where you are, or they may be weak. But everything connects; what's happening faraway can alert you to opportunities and risks you might otherwise not notice, or which might only gradually be emerging.

This paper aims to spark conversations that engage multiple different perspectives, throwing a new or altered light on things. These might prompt you to think how similar signals of change could play out in your context, or to draw different conclusions. This can help you

incorporate a variety of futures into your planning, becoming more anticipatory and more effective in the face of uncertainty.

The variety described here may give the impression of an increasingly fractured world where all are heading in different directions in pursuit of their own goals. While there are certainly infinite paths available to us (and that is cause for hope), in the end we are talking about common challenges that face humanity. Those we can only solve together. The takeaway from this paper is not consensus or recommendations, but conversation starters: where next for development?

ENDNOTES

Why capture signals of change?

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