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2026 LIVING PLANET REPORT

The Science of Hope

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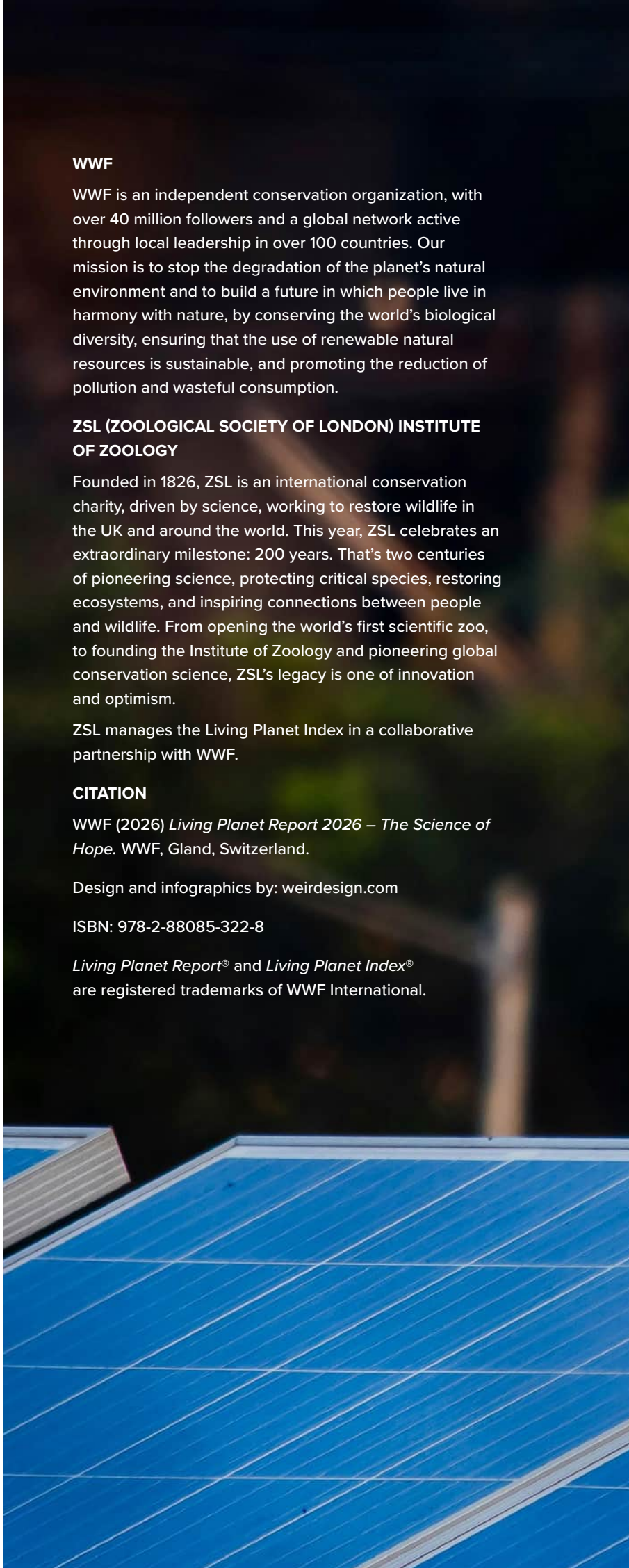
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This report is the result of extensive consultation and contributions from our colleagues across the WWF Network. WWF staff offered their expertise, knowledge and feedback on the content of this Living Planet Report. We express our profound gratitude and respect for their invaluable contributions.

SPECIAL THANKS

We are also grateful for the valuable insight and input provided by our collaborators, Tom Powell and Steven R. Smith, at the University of Exeter. We acknowledge the contributions of our colleagues Neil Burgess (UNEP-WCMC), Cecil Haverkamp (Nature Action Tracker) and EJ Milner-Gulland (University of Oxford). We thank the following contributors: Stuart Butchart (BirdLife International), David Curnick (Zoological Society of London), Adriana De Palma (Natural History Museum), Daisy Halliwell (Zoological Society of London), Craig Hilton-Taylor (IUCN), Sahil Nijhawan (Zoological Society of London), Hannah Puleston (Zoological Society of London), Andy Purvis (Natural History Museum) and Johan du Toit (Zoological Society of London). We further acknowledge the NATURE Impacts and Nature Action Tracker teams, whose foundational work informed the development of Chapter 5. We also extend our sincere thanks to Elena Khishchenko (WWF International) and Patricia Schelle (WWF International) for their contributions to the working group, and to Lucy Young (WWF-United Kingdom) for her partner coordination. We would like to thank everyone who kindly added data to the Living Planet Database (www.livingplanetindex.org) and specifically those who supported data collection in the last two years: Tatiana Dickins; data for Brazil: Filipe Serrano (University of São Paulo), Helga Correa Wiederhecker (WWF-Brazil), Rodrigo Jorge, Elildo Carvalho Jr.,Bruno Sandy and Marcelo Mukira Reis (Instituto Chico Mendes de Conservação da Biodiversidade); data for Africa: Githmi Wijedasa and Ceri Webster.



WWF

WWF is an independent conservation organization, with over 40 million followers and a global network active through local leadership in over 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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Founded in 1826, ZSL is an international conservation charity, driven by science, working to restore wildlife in the UK and around the world. This year, ZSL celebrates an extraordinary milestone: 200 years. That's two centuries of pioneering science, protecting critical species, restoring ecosystems, and inspiring connections between people and wildlife. From opening the world's first scientific zoo, to founding the Institute of Zoology and pioneering global conservation science, ZSL's legacy is one of innovation and optimism.

ZSL manages the Living Planet Index in a collaborative partnership with WWF.

CITATION

WWF (2026) *Living Planet Report 2026 – The Science of Hope.* WWF, Gland, Switzerland.

Design and infographics by: weirdesign.com

ISBN: 978-2-88085-322-8

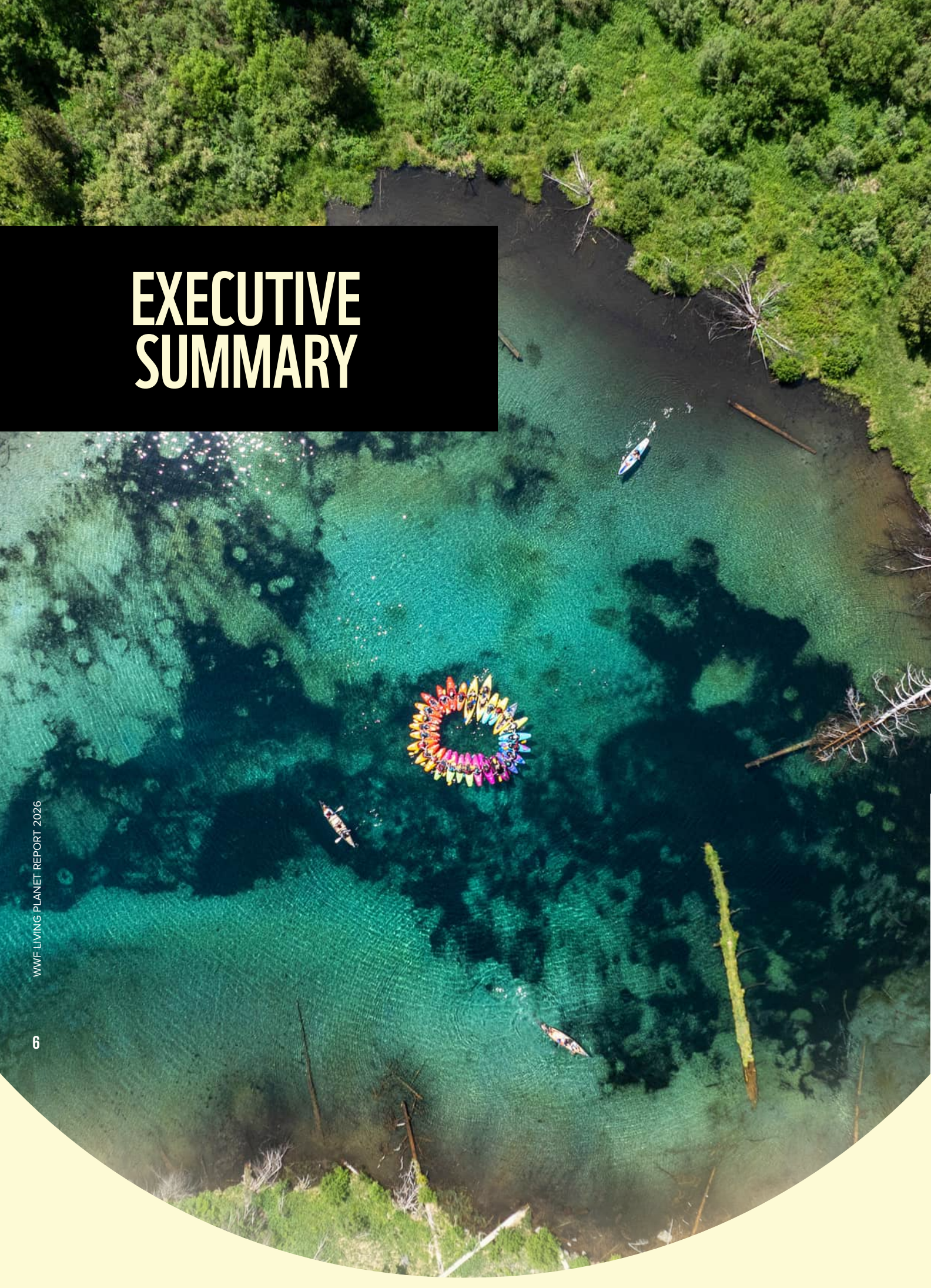
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The Science of Hope

EXECUTIVE SUMMARY



Every plant, animal, fungus and microorganism on Earth is part of a single living system, and we are part of it too.

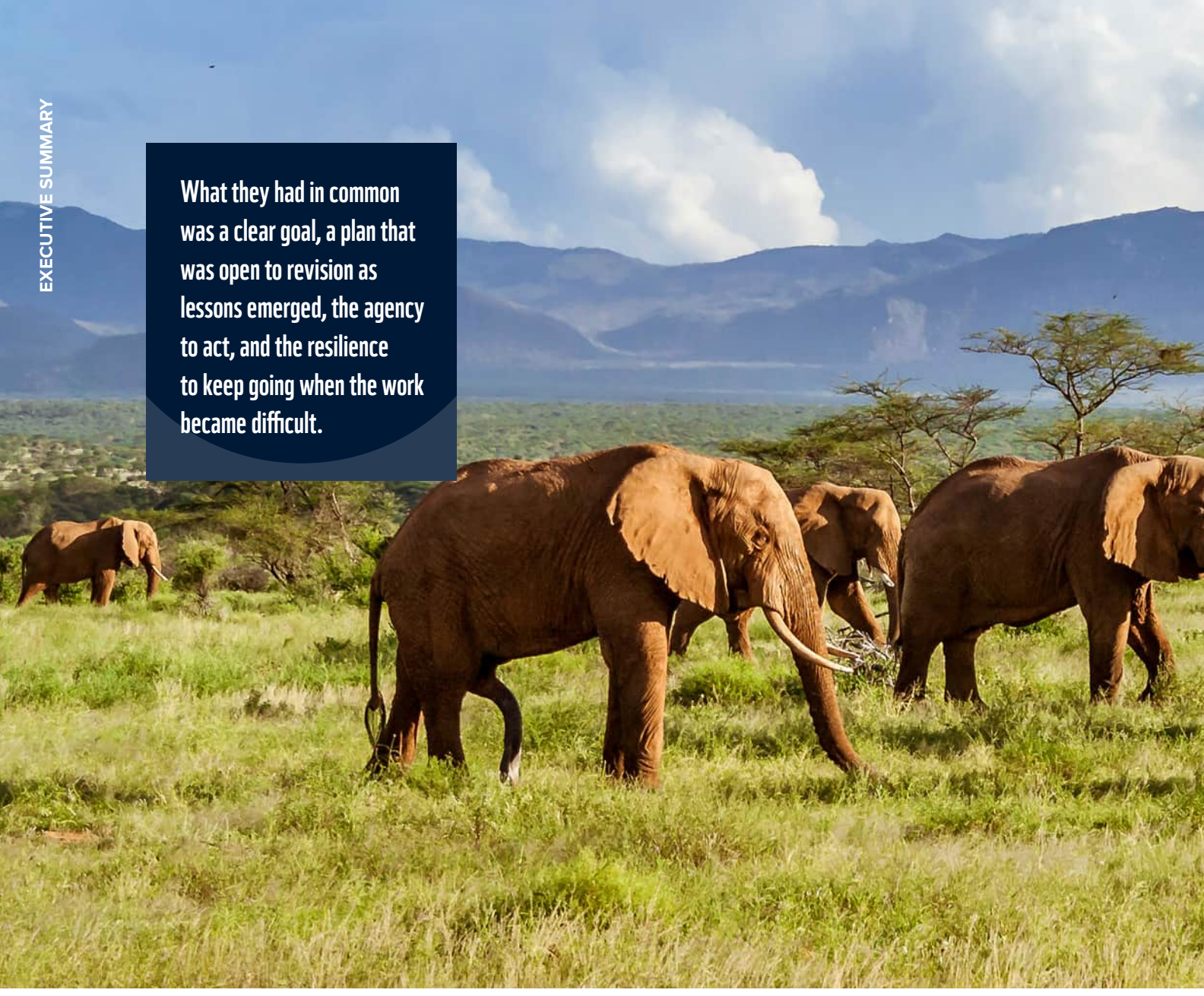
Biodiversity, the variety of life and the ecological relationships that connect it, makes that system work. The food we grow depends on pollinators and the soil microbes that keep cropland productive. Drinking water depends on intact watersheds. Most medicines in our pharmacies originated in molecules first identified in plants, fungi or microorganisms. The climate we depend on is regulated by forests, oceans, peatlands and grasslands. And the economy itself, expressed as a number, rests on these services: about half of global GDP, roughly US$58 trillion in 2023, comes from work that depends in some way on nature. When biodiversity is degraded, the things built on it are degraded along with it.

That degradation is now happening at a pace without precedent in human history. The Living Planet Index (LPI) measures the average change in the size of monitored populations of vertebrate species around the world: mammals, birds, fish, reptiles and amphibians. Between 1970 and 2022, the populations the LPI follows declined by an average of 73%. Other measures of biodiversity describe different parts of the same picture. The Red List Index tracks how the extinction risk of species is changing. The Biodiversity Intactness Index estimates how much of a region's original biodiversity remains compared with pre-industrial conditions. Records of documented extinctions show that species are now disappearing at rates 100 times or more above the pre-human background rate. The four indicators approach biodiversity from different angles, and they point in the same direction.

The global LPI is a global average, so it hides local details. Some regions are losing wildlife much faster than others, while some species and ecosystems are stable or recovering. About half of the populations the global LPI tracks are stable or increasing. This matters because it tells us that decline is not fixed in place. Where people have done the work, wildlife has come back.



Where people have done the work, wildlife has come back.



What they had in common was a clear goal, a plan that was open to revision as lessons emerged, the agency to act, and the resilience to keep going when the work became difficult.

Conservation works, increasingly at large scales

Tigers are one of the clearest examples. In 2010, only around 3,200 wild tigers remained, and the species seemed to be sliding toward extinction. By 2025, the population had grown to roughly 5,700, an increase of more than 70%. Atlantic and Pacific bluefin tuna, which were collapsing after decades of overfishing, have recovered to the point where neither is now considered threatened. Southern African elephants are stable or growing in many of the places where local communities lead the management of the land they share with them. In 2025, the green sea turtle became the first marine turtle ever to be downlisted from Endangered to Least Concern, after 50 years of work across more than 80 nesting countries.

These recoveries took decades. They required people to keep working without knowing whether their efforts would succeed, through political setbacks, funding cuts and long stretches when nothing visible seemed to be changing. What they had in common was a clear goal, a plan that was open to revision as lessons emerged, the agency to act, and the resilience to keep going when the work became difficult. Psychologists call this combination “hope.”



Hope is a process

In conservation, hope is a process that keeps people engaged with complex, uncertain challenges over long periods. It has four components. The first is a goal grounded in something a person or community values. The second is a credible pathway to that goal, a plan that can adapt as conditions change and new information becomes available. The third is agency, the belief that the work you do can make a difference. The fourth is resilience, the capacity to keep going when progress stalls and to find new pathways when old ones close. These four components reinforce one another. When they are reinforced across groups of people, communities, sectors and borders, hope becomes collective. Collective hope is the most reliable predictor we have of whether large-scale change will occur.

The recoveries described above came from collective hope working at scale over time, rather than from luck or a few exceptional individuals.



Figure ES.1 More than a feeling, hope becomes a process to drive transformational change when goals, agency and pathways combine. Resilience provides the fortitude to move forward when barriers are encountered.



Burning coal, oil, and gas to power homes, transport, and industry generates roughly three-quarters of the greenhouse gas emissions driving climate change, which has now become a driver of biodiversity loss across every ecosystem on Earth.

The same pattern can transform the systems driving the loss

These recoveries are real, and they matter. But they sit inside a much larger set of forces driving biodiversity loss in the opposite direction, and those forces are bigger than any single species or place. Three systems are responsible for most of the damage.

The first is the way the world produces and uses energy. Burning coal, oil, and gas to power homes, transport, and industry generates roughly three-quarters of the greenhouse gas emissions driving climate change, which has now become a driver of biodiversity loss across every ecosystem on Earth.

The second is the way the world produces and consumes food. Agriculture is the single largest cause of habitat loss and degradation, the leading driver of biodiversity decline, a major source of greenhouse gas emissions, and a growing contributor to the rise of diet-related disease. The planet has already crossed seven of the nine planetary boundaries that scientists use to define safe operating conditions for the Earth system, and the food system is responsible for most of that pressure. The system also fails the people it is meant to feed: more than 673 million people are undernourished, and more than a billion are obese.

The third is the financial system. Capital allocation – the decisions about which industries receive investment and which do not – determines which activities grow and which shrink. In 2023, around US$7.3 trillion flowed into activities that harm nature, while only US$220 billion went toward activities that protect or restore it. Until that ratio shifts, the underlying drivers of biodiversity loss will continue to be funded.

Conservation alone cannot reverse what these three systems produce. But the same hope that drove the recoveries of tigers, tuna, elephants, and sea turtles, grounded in clear goals, credible pathways, agency, and resilience, held by enough people for long enough, can also be directed at the systems themselves. When strategic, focused, and sustained effort is brought to bear on a complex system in the right way, change in that system can shift from slow and contested to fast and self-reinforcing. Scientists call this kind of shift a positive tipping point.

Positive tipping points

Transforming systems at this scale can feel impossible because the infrastructure, regulations, markets and habits that hold them in place are enormous and have decades of momentum behind them. But complex systems do not always change in a linear way. Pressure can build beneath the surface for years while little appears to be moving. Then a threshold is crossed, and change accelerates. Tipping points are usually discussed in negative terms, such as the collapse of coral reefs or the loss of the Amazon rainforest as a carbon sink, but the same dynamic can work in the other direction. A positive tipping point occurs when a system crosses a threshold into a healthier state, and the change begins to reinforce itself through amplifying feedback loops. Once that happens, the change becomes faster, cheaper and harder to reverse.

The energy transition is demonstrating this in real time. Twenty years ago, solar power was a niche technology used mostly in satellites and pocket calculators. Today, it is the cheapest source of new electricity generation in most countries, and global solar capacity is doubling every three years. Electric vehicles accounted for more than 25% of new car sales globally in 2024, and coal use is declining in many of the world's wealthiest economies. None of this was guaranteed when it began. It took 50 years of policy support, false starts and patient effort before the economics shifted. Now, the change is reinforcing itself. The global energy system has passed a positive tipping point and entered its acceleration phase, with renewable technologies displacing fossil fuels at a pace few people predicted even a decade ago.

The path to that point was not smooth, and the path forward will not be either. Every phase of the transition has produced resistance from industries and political interests whose dominance is threatened by it. In recent years, that resistance has intensified in some parts of the world. The pushback is part of how transformations work, and it indicates that the change has become disruptive enough to matter. Moving through this phase takes resilience, a willingness to adjust and the determination to keep going.



Every phase of the energy transition has produced resistance from industries and political interests whose dominance is threatened by it.



Progress feels slow because the visible payoffs are still ahead. But this is the part of the process in which the foundations for acceleration are laid and staying engaged matters most.

Food and finance are at an earlier stage. They are in what scientists call the enabling phase, in which ideas are tested, policies developed and coalitions built. Progress feels slow because the visible payoffs are still ahead. But this is the part of the process in which the foundations for acceleration are laid and staying engaged matters most. The levers needed to tip these systems are already known. In food, the priorities are nature-positive production, healthy and sustainable diets, and reductions in food loss and waste. In finance, they are creating regulatory certainty, requiring institutions to value nature and climate as material financial risks, stopping the financing of activities that harm nature, and closing a biodiversity finance gap of around US$1.3 trillion a year. None of this requires technology that does not exist. It requires decisions and the persistence to keep making them through the slow stretches when the results are not yet visible.

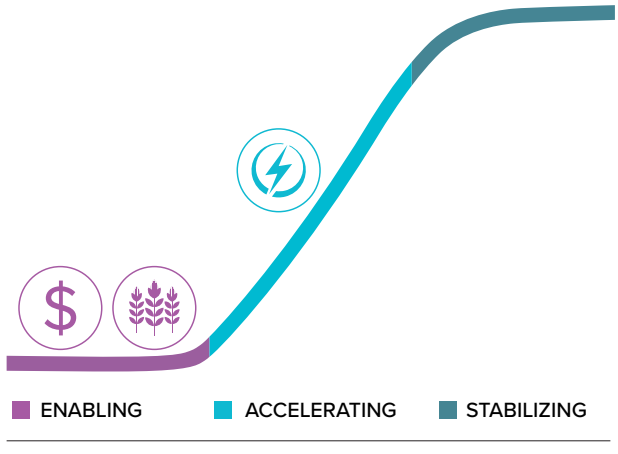


Figure ES.2 The phases of tipping dynamics, or the S-curve: Along the S-curve, positive tipping dynamics proceed through three broad phases of change: enabling, accelerating and stabilizing. Energy is in the accelerating phase, while food and finance are in the enabling phase.

The scale of the financial flows now driving the wrong outcomes shows how much room there is to move. Around US$470 billion a year is spent globally on agricultural subsidies that drive environmental damage, and around US$7 trillion supports fossil fuels. Redirecting even a portion of those flows would shift the economics of the entire transformation.

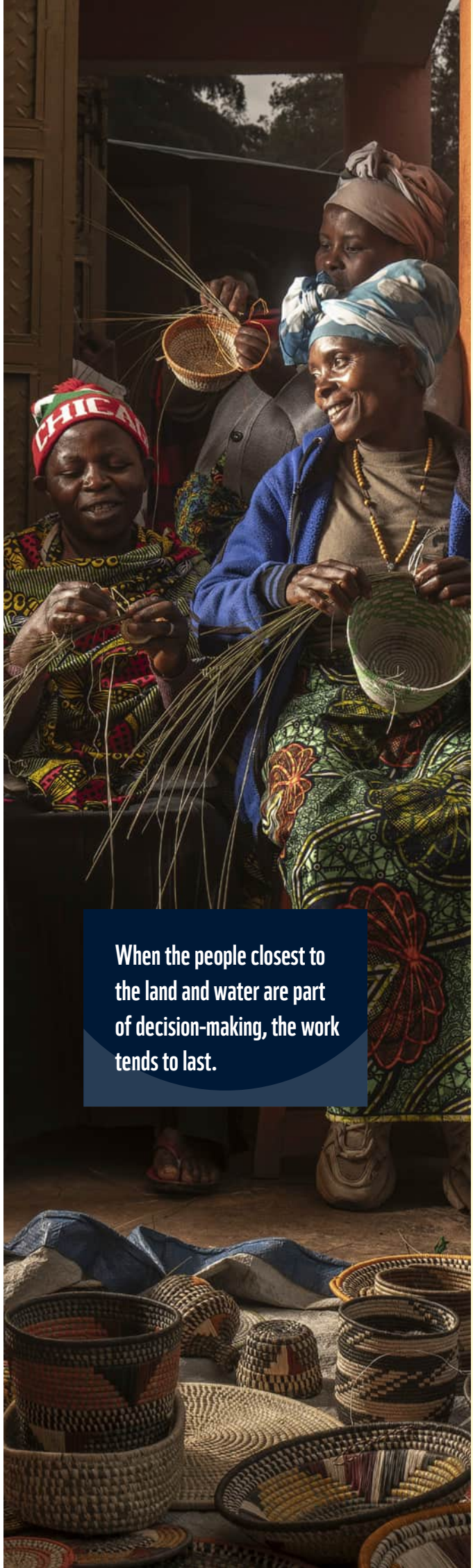
Fairness is part of how this works

A transformation at the scale of energy, food and finance redistributes costs, benefits, jobs and political influence. How that redistribution is handled determines whether the transformation succeeds or falls apart. The people most affected by the loss of nature and the people most affected by the work to address it are often the same people – and often those with the least power to shape the outcome. They include smallholder farmers and fishers, workers in industries that will need to transition, low-income households that will feel changes in food and energy prices first, and Indigenous Peoples and local communities who steward many of the world's most biodiverse lands and waters.

These communities are not stakeholders to be consulted at the end of a process. They are central to whether the process works at all. Evidence from across the world is clear: conservation outcomes are stronger where Indigenous Peoples and local communities have legal recognition of their rights and genuine authority over the lands and waters they manage. Forest loss is significantly lower in Indigenous-managed territories. Fisheries recover faster when local fishing communities help to design and enforce protections. When the people closest to the land and water are part of decision-making, the work tends to last.

The same logic extends across the wider transformation. Workers whose livelihoods are tied to fossil fuels need genuine pathways to new work, with retraining, social protection and investment in the affected regions, rather than abstract promises. Farmers shifting to nature-positive practices need access to finance, technical support and markets that will buy what they produce. Wealthy countries with high consumption footprints need to take responsibility for the environmental damage their consumption causes in the countries from which they import, not only for what happens inside their own borders. And the benefits of new industries, jobs and investment must reach the places and people most exposed to the costs of change.

When transitions concentrate benefits at the top and costs at the bottom, support for change collapses. The people who are excluded often end up defending the very systems we need to leave behind. Fairness in this work decides whether a transformation holds together over time or comes apart under pressure.



When the people closest to the land and water are part of decision-making, the work tends to last.

A whole-of-society approach, anchored in 2030

In 2022, almost every country in the world agreed to a shared plan to halt and reverse biodiversity loss by 2030, on the way to a world living in harmony with nature by 2050. That plan is the Kunming-Montreal Global Biodiversity Framework, the most coordinated commitment to nature any generation has ever made. It sets out clear targets and provides a structure for cooperation, but the action being taken under it is not yet at the scale needed to deliver what it promises. Three things have to change.

First, countries should set commitments that match the scale of their actual global impact, not only what is politically convenient at home. A country whose consumption drives deforestation, water depletion or species loss in other parts of the world must take responsibility for those impacts. A country that holds some of the world's richest biodiversity needs finance and support that reflect the global value of what it is stewarding.

Second, governments need to use the tools available only to them to create the conditions in which positive tipping points become possible. Most actors in the economy cannot move at the pace required without the certainty that government policy provides. Finance is a clear example. A bank that decides on its own to stop financing activities that harm nature loses business to competitors that have not, and this first-mover penalty keeps the whole sector locked into funding the status quo. When governments, central banks, and financial regulators require all institutions to assess and disclose how their lending and investment affects nature and climate, the penalty disappears, and capital can begin to move at scale toward sustainable activities. The same logic applies in energy and food, where subsidy reform, mandatory disclosure, public procurement, tax policy, and clear long-term regulation are the instruments through which governments turn an enabling phase into acceleration. Without them, even the most committed businesses, investors and communities cannot move fast enough.

Governments cannot deliver transformation on their own. A whole-of-society approach means that everyone with the ability to shape outcomes uses what they have. Businesses change what they produce. Investors change where they invest. Subnational governments shape the cities and regions where most people live. Civil society organizations advocate, hold institutions accountable and create public support for change. Indigenous Peoples and local communities exercise authority over the lands and waters they steward. The most durable progress comes from coalitions that hold these contributions together through difficulty.

Not every action will happen through every national government, and some will not be able to wait for multilateral agreement. Some of the most consequential progress is now coming from coalitions of countries acting together where global processes move too slowly to match the urgency. The Tropical Forest Forever Facility, which brings Brazil, the Democratic Republic of Congo and Indonesia together with European partners to provide annual compensation for keeping forests standing, is one such effort. The Santa Marta gathering of countries committed to transitioning away from fossil fuels is another. These coalitions sit alongside the Global Biodiversity Framework rather than replacing it. They allow committed governments to move at the pace the science requires while broader processes catch up.

Third, progress must be tracked independently and honestly. Without a clear and credible way to see what countries and other actors are actually doing, what is working, and where things are stuck, commitments drift, momentum fades, and the chance to learn and adjust is lost.





Some of the most consequential progress is now coming from coalitions of countries acting together where global processes move too slowly to match the urgency.



The urgency of 2030

The information, technology, finance, and framework needed to halt and reverse biodiversity loss are available, and large parts of the world have already begun to act. What is in short supply is time. The targets agreed in the Global Biodiversity Framework are anchored to 2030, the year by which the world has committed to halting and reversing biodiversity loss and making substantial progress in transforming the systems that drive it. Energy has already crossed a positive tipping point and is in its acceleration phase. But food and finance remain in the enabling phase, and they need to reach their own tipping points within this decade if the 2030 goals are to remain within reach. Every year the enabling phase continues without tipping is a year subtracted from the time available for the changes to spread, stabilize and begin to repair what has already been lost.

Triggering those tipping points is the central task of the next several years, and the actions that can do so are known. They include repurposing the subsidies that currently drive environmental damage; requiring financial institutions to disclose how their activities affect nature; using public procurement to create steady demand for food produced in ways that protect ecosystems; setting policy signals strong enough to give businesses and investors the certainty to invest; expanding coalitions of countries willing to act ahead of broader agreement; and giving Indigenous Peoples and local communities genuine authority in shaping the work. None of these levers are sufficient on their own. Used together, with intent and coordination, they can shift the economics, politics and social acceptability of the systems we need to transform fast enough for the change to compound before 2030.

The work will not move in a straight line. There will be setbacks, periods when the results seem too small for the scale of what is needed and stretches when the people doing the work feel exhausted. But none of this means the effort is failing. What determines whether we succeed is whether enough people, institutions and countries stay engaged in the conservation work together for long enough for the change to become self-sustaining.

The species increases and recoveries documented in this report happened because people committed to outcomes they could not guarantee, often for results they would not live to see. The transformations now required in energy, food and finance ask the same of us, at a much larger scale and with much less time. The window in which a different future is still possible is narrowing, but it remains open. We have credible pathways, the capacity to act and a goal worth the work. What 2030 requires is that we use them.



Kirsten Schuijt
Director General
WWF International

A message of hope

The opportunity before us is significant. With the right choices today, we can build a future where both people and nature thrive – but realizing that future will require transformation at a speed and scale unlike anything we have seen before.

The science in the *Living Planet Report 2026* is clear: the systems that have driven economic growth are accelerating nature loss at an unprecedented rate. Halting and reversing this trend will require transformation across entire systems – from how we produce energy and food to how we finance our economies. This transformation must be ambitious, and it must reshape global systems in a manner that is fair, equitable and inclusive.

Lasting change is never the work of one actor alone. Businesses, financial institutions, Indigenous Peoples and local communities, civil society, governments and individuals all have a role to play. When efforts align and are sustained over time, change takes hold – building on years of collective effort and strengthening momentum already underway.

This is where hope becomes a powerful driver of change. As the *Living Planet Report 2026* reveals, we have already seen hope can make possible in the recovery of species and in shifting energy systems. Now, we must carry that momentum forward and extend it further, matching our ambition to meet the scale of the challenge.





From pressure to progress

A tipping point is often pictured as a moment of sudden change. In reality, it is the result of pressures built over time, often out of sight, until a threshold is crossed.

Progress follows a similar pattern, and it rarely moves in a straight line. It takes shape gradually – through persistence, cooperation and repeated choices – until what once seemed uncertain begins to move with speed and purpose.

The pressures driving nature loss and climate change remain significant. Habitat loss and degradation, overexploitation and climate change continue to threaten species, driven by the ways we produce energy, grow food and finance our economies. Together, these forces are pushing the natural systems we depend on ever closer to their limits.

But they do not tell the full story. Alongside these pressures, a different dynamic is emerging – one that points to possibility.

The recovery of iconic species such as tigers, Atlantic and Pacific bluefin tuna, southern African elephants and green sea turtles shows what sustained, coordinated effort can achieve over time. Long-term success, however, depends on addressing the root causes of nature loss by transforming the systems that drive it.

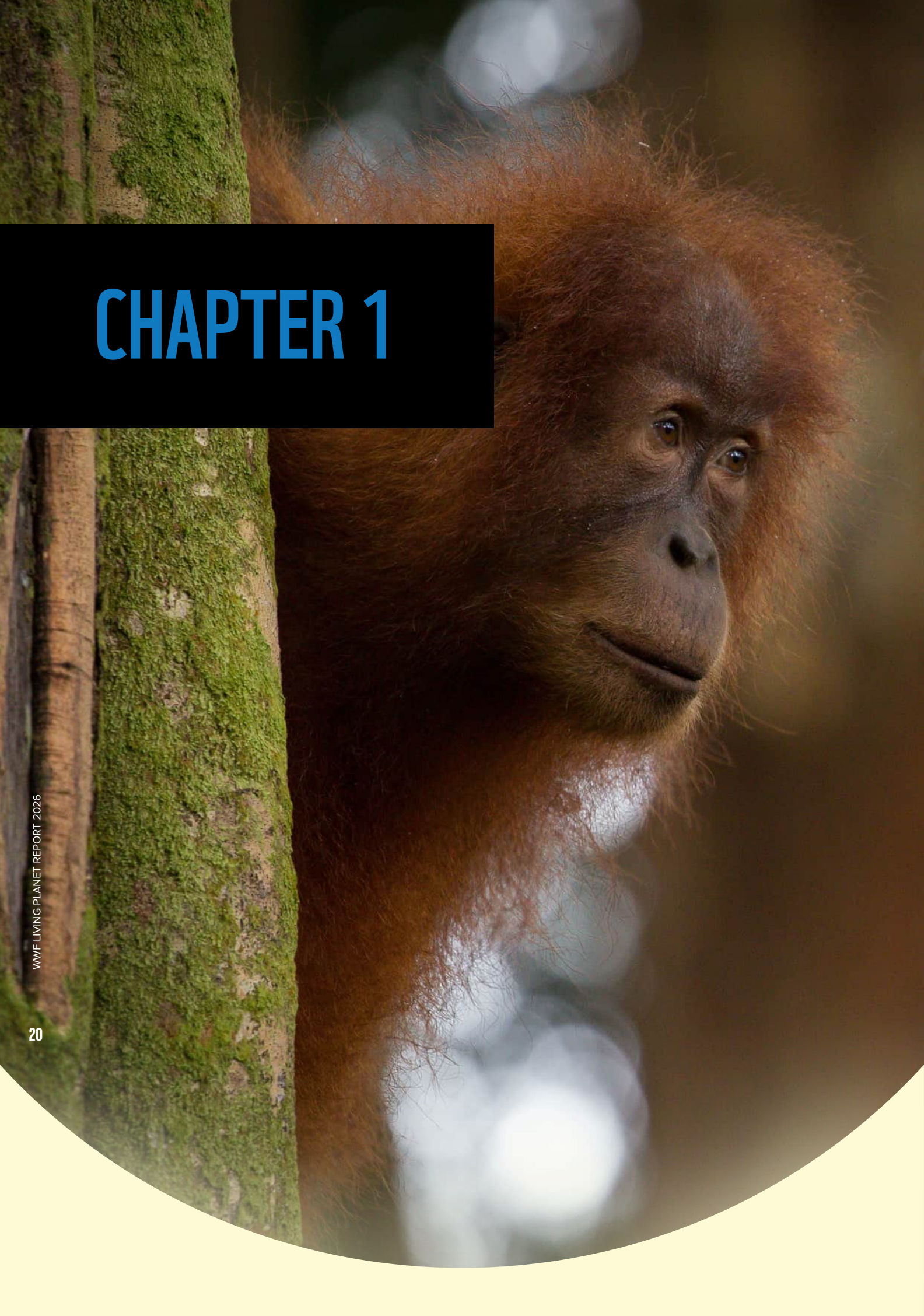
Encouragingly, progress is already underway. Not everywhere, and not yet at the scale required, but enough to demonstrate that change is possible.

In the energy sector, a transition considered distant only a decade ago is now accelerating. Solar power has become the cheapest source of new electricity generation in most countries, and electric vehicles accounted for a quarter of global new car sales in 2024.

This shift reflects decades of policy, innovation and collaborative effort long before results were visible at scale. Extending this progress across borders, sectors and communities is exactly the kind of transformation required, so that action in one place reinforces action in another.

Change is in motion, but its course is still being written. Whether early progress develops into something more sustained will depend on the choices made now – and the pace at which they are carried forward.

We have the knowledge, the tools and the pathways. What matters now is our collective resolve to act – together.



CHAPTER 1

Measuring nature's trends

What is biodiversity and why is it important?

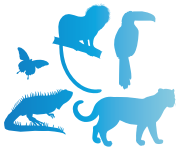
Our planet is home to an unimaginable variety of living creatures, interconnected in extraordinary ways. Collectively, we refer to the variability of all living organisms and the ecological interactions between them as biodiversity.

Like every other species on Earth, people depend on biodiversity, on nature. It provides us with food, water and clean air. Biodiversity cycles nutrients and regulates our climate. It buffers coasts from storms, soaks up flood waters and holds back erosion. Fertile soils, pollination, pest control: biodiversity. Aspirin, penicillin, novel cancer treatments: biodiversity. Spiritual renewal and cultural grounding: biodiversity. Our livelihoods, our well-being, our prosperity, our spirituality, our way of knowing: biodiversity underpins them.[1]

Box 1.1 The diversity of biodiversity



Genetic diversity: Genetic diversity is the variation in genes, alleles and genetic traits across plants, animals and microorganisms that enables a population or species to adapt to a changing environment or new threats. Conserving genetic diversity helps ecosystems remain resilient to change and preserves a unique, invaluable library of genetic information to respond to future changes.



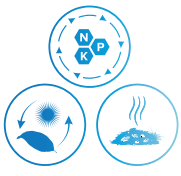
Species diversity: Species diversity is the variation and abundance of different species within an area, combining both the number of species (or "richness") and how abundant they are relative to each other (or "evenness"). High species diversity usually means a healthy, resilient system full of unique life forms. When species go extinct and diversity declines, ecological interactions are interrupted and the system becomes less stable.



Population diversity: Population diversity is the variation and distribution of individuals, traits, behaviours and genetic composition within and between groups of individuals of the same species. Maintaining this diversity preserves local adaptations that enable species to persist through future shifting climates, emerging diseases and altered landscapes. Monitoring the number of individuals within wildlife populations can provide a useful indication of their overall health and that of the environment they live in.



Ecosystem diversity: Ecosystem diversity is the variety of ecosystem types within a region, from forests and grasslands to soils, wetlands, rivers, lakes and coral reefs. It reflects structural and functional complexity that supports many species and processes, enhancing resilience and productivity. Each ecosystem type represents a distinct, irreplaceable way that life is organized and sustained. Where ecosystem diversity declines, so do the functions and services they provide.



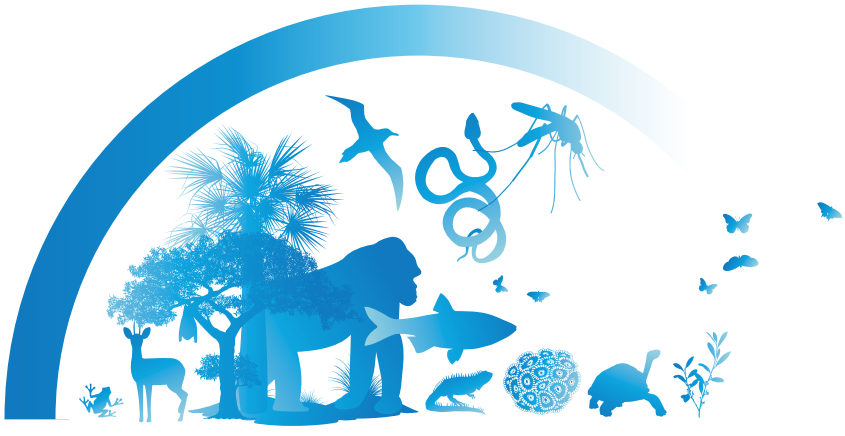
Functional diversity: Functional diversity is the range of roles, behaviours and traits that influence how an ecosystem functions through processes such as pollination, and nutrient cycling and decomposition that keep soils fertile, waters clean and systems productive.



Ecosystem services: The benefits people obtain from the natural world including clean air, clean water, pollination and carbon sequestration.



Together, the different dimensions of nature, including biodiversity, create resilient living systems and strengthen the life-support foundations on which people depend (Box 1.1). When they are degraded or destroyed, it reduces ecosystems' ability to recover from abrupt shocks, affecting human health, food security and economies.[2] Conversely, targeted action to protect and recover nature increases resilience of living systems and therefore security for humans.[3]



Living Planet Index 2026: what it measures

The Living Planet Index (LPI) measures the average change in the size of wild populations of vertebrate species over time (Box 1.2). These populations may contain many thousands of animals, as is the case for large bird nesting colonies or bat maternity roosts, or comprise just a few individuals. For example, large predators such as tigers and polar bears naturally occur at low densities.[4] In all cases, the LPI tracks variations in *relative* abundance of different populations rather than absolute numbers: a population that has fallen from 20,000 to 10,000 individuals and another that has gone from 200 to 100 have both experienced a 50% reduction, even though far fewer individuals have been lost from the latter.[5] This allows data from different populations to be compared and combined into an index to track the overall trend. The technical report for this edition of the *Living Planet Report* (LPR) includes a full data summary and steps involved in calculating the LPI. This deep dive into the LPI also illustrates the sensitivity tests conducted each time the index is calculated. See the LPI 2026 technical report at www.livingplanetindex.org.[5]

Measuring changes in relative abundance is critically important for conservation. It gives us an idea of which species groups are most at risk and can provide an early warning signal of an ecosystem degrading. This can spur action to prevent the loss of species, protecting ecosystems and the services they provide to people including water provision, climate stabilization and pollination, to name a few.

The latest global index shows an overall decline of 73.2% (range: -78% to -67%) between 1970 and 2022, representing an average annual decline of 2.5%. This is based on 35,803 populations of 5,790 vertebrate species, almost 300 more species than the previous report (Figure 1.1). This means that over more than half a century, the size of monitored wildlife populations in the LPI has reduced, on average, by 73%. Although the overall trend is negative, 50% of the populations in the LPI are declining and the remainder show stable or increasing trends. The technical report explains how the variety of increasing and declining trends among different species and regions leads to a 73% decline in the global index.

Box 1.2 What the LPI tells us and what it doesn't

The LPI measures changes in the sizes of 35,803 populations of 5,790 vertebrate species (amphibians, birds, fishes, mammals and reptiles) that have been monitored over time. The latest LPI shows a decline of 73% (73.2%). This means that the size of these populations fell by, on average, 73% between 1970 and 2022.

This doesn't mean that there are 73% fewer wild animals in total today than in 1970. The LPI measures changes in relative abundance, not the total number of animals. Changes in small populations with few individuals are averaged with changes in large populations of thousands of animals. Nor does it mean that 73% of species or populations are declining. In fact, around half of the studied populations are stable or increasing – but these gains are outweighed by the greater magnitude of losses elsewhere when calculating a global average.

The 2024 LPR reported a decline of 73% (72.9%). This doesn't imply that average wildlife population sizes have remained stable in the last two years. Rather, it is because new datasets from a wider range of populations covering different, sometimes earlier time periods are continually added to the LPI, resulting in a slightly different but progressively more representative index, and a revised estimate of average change over time. Compared to the 2024 LPR, 967 additional populations and 295 new species have been added to the dataset, and 669 populations have been updated with new data.

Some types of species, like charismatic birds and mammals and commercially harvested fish, are better monitored than others. Species from temperate regions – where biodiversity has declined over many centuries – are often better represented in long-term monitoring schemes than species from the tropics, which have seen steeper declines since 1970. As well as actively seeking more data from underrepresented areas, a way to mitigate these biases is giving greater weight to populations from more biodiverse regions and species groups. This is explained further in the technical report.

The LPI is not designed to be a comprehensive indicator as it represents just one measure of the state of Earth's biodiversity. But the declines it indicates are supported by other metrics and highlight the need for urgent action.

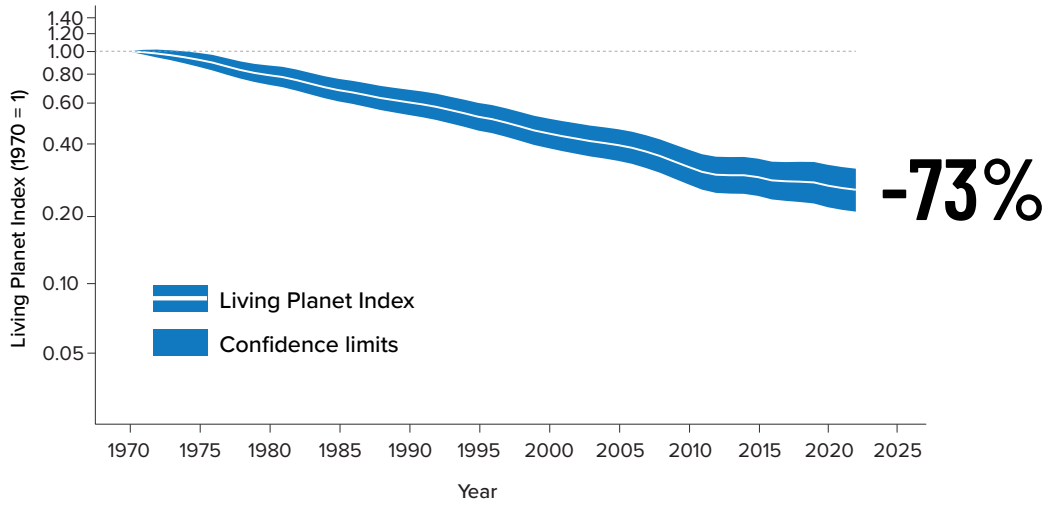


Figure 1.1 The global Living Planet Index from 1970 to 2022 based on 35,803 monitored populations of 5,790 vertebrate species. The white line represents the index values, and the shaded areas represent the statistical uncertainty around them. We use a logarithmic scale for the y-axis in the Living Planet Index charts, which helps show changes in the index more accurately.[5,6]

The global LPI is calculated by averaging three indices (Figure 1.2) that measure change in the abundance of species on land, in rivers and lakes, and in the ocean. The marine index shows a 59% decline (range: -69% to -45%) over the 52-year period, translating to an average annual decline of 1.7%. This is the slowest decline across the three systems. This index is dominated by fish species, and particularly managed fish stocks. Better incentives, regulations and enforcement, as well as electronic monitoring and reporting systems that increase transparency are contributing to recent recoveries and stability following years of decline due to overfishing, and this is reflected in the lower overall decline.[7,8] Many other marine fish such as sharks and rays, however, continue to show steep declines, and this is often not apparent in a global average.[9,10]

The terrestrial index includes species from different land-based habitats such as forests, deserts and grasslands, and shows a trend of similar magnitude to the global index: 69% decline (range: -78% to -57%), with an average annual decline of 2.3%. Most of the new data in the LPI was added to this index, with 254 new species included. The main driver of change for terrestrial biodiversity is the loss and degradation of natural habitat.[1] For example, while deforestation rates have slowed globally, forest loss continues with an estimated 420 million hectares deforested between 1990 and 2020, of which conversion to permanent agriculture is the leading driver.[11,12]

The freshwater index shows an overall decline of 85% (range: -90% to -77%); average annual decline of 3.6%. Freshwater species are vulnerable to pressures across river basins, including changes in terrestrial environments, and therefore face a wide range of threats, from pollution and overharvesting to habitat change. Some are also restricted in range to bodies of water.[13] This means it is difficult for them to adapt to new environmental conditions. For example, fish are often threatened by alterations to their habitat, including dams and diversions, which can block essential migration routes.[14] Hydropower infrastructure also affects other freshwater megafauna species – such as hippos, otters, crocodilians and large turtles – that require large and complex habitats.[15]

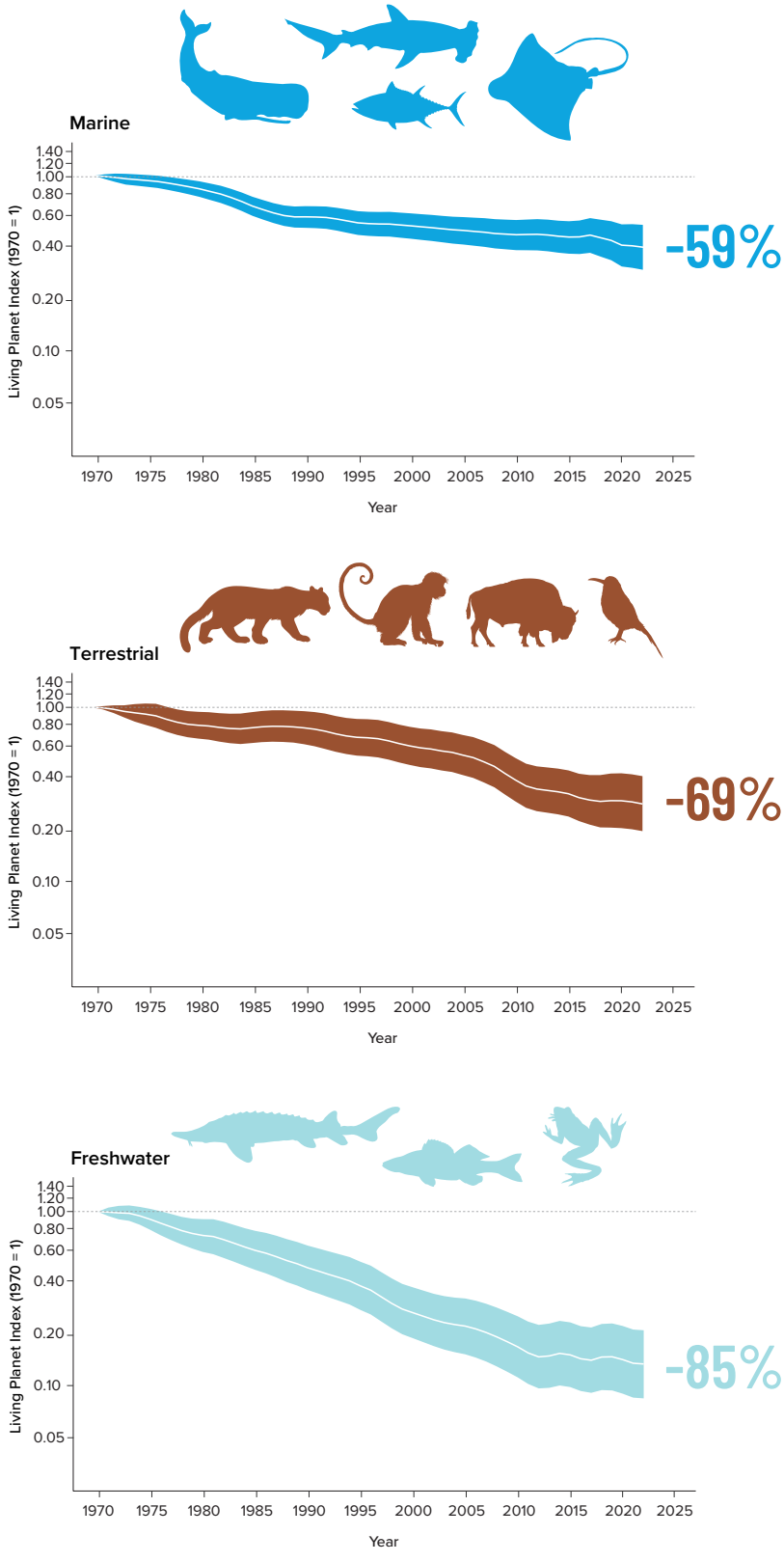


Figure 1.2 The Living Planet Index by ecosystem type from 1970 to 2022 based on 16,458 populations of 1,801 marine species, 12,461 populations of 2,773 terrestrial species, and 6,884 populations of 1,510 freshwater species. White lines represent the index values, and the shaded areas represent the statistical uncertainty surrounding the values.



Just as trends vary by ecosystem type, they also vary geographically. Trends were calculated for terrestrial and freshwater populations by region following the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) (Figure 1.3).[16] For analytical purposes, the Americas were further subdivided into North America (Canada and the US) and Latin America and the Caribbean (Mexico, Central America, the Caribbean and South America). While Mexico is geographically part of North America, it is grouped here within Latin America and the Caribbean to reflect shared environmental change trajectories. The amount of data included in each regional LPI depends on how much species monitoring data is available, which varies widely by region. The numbers of species and populations for each index are shown in Figure 1.3 and the trends are described in more detail in the LPI 2026 technical report.

Understanding change to nature through regional perspectives

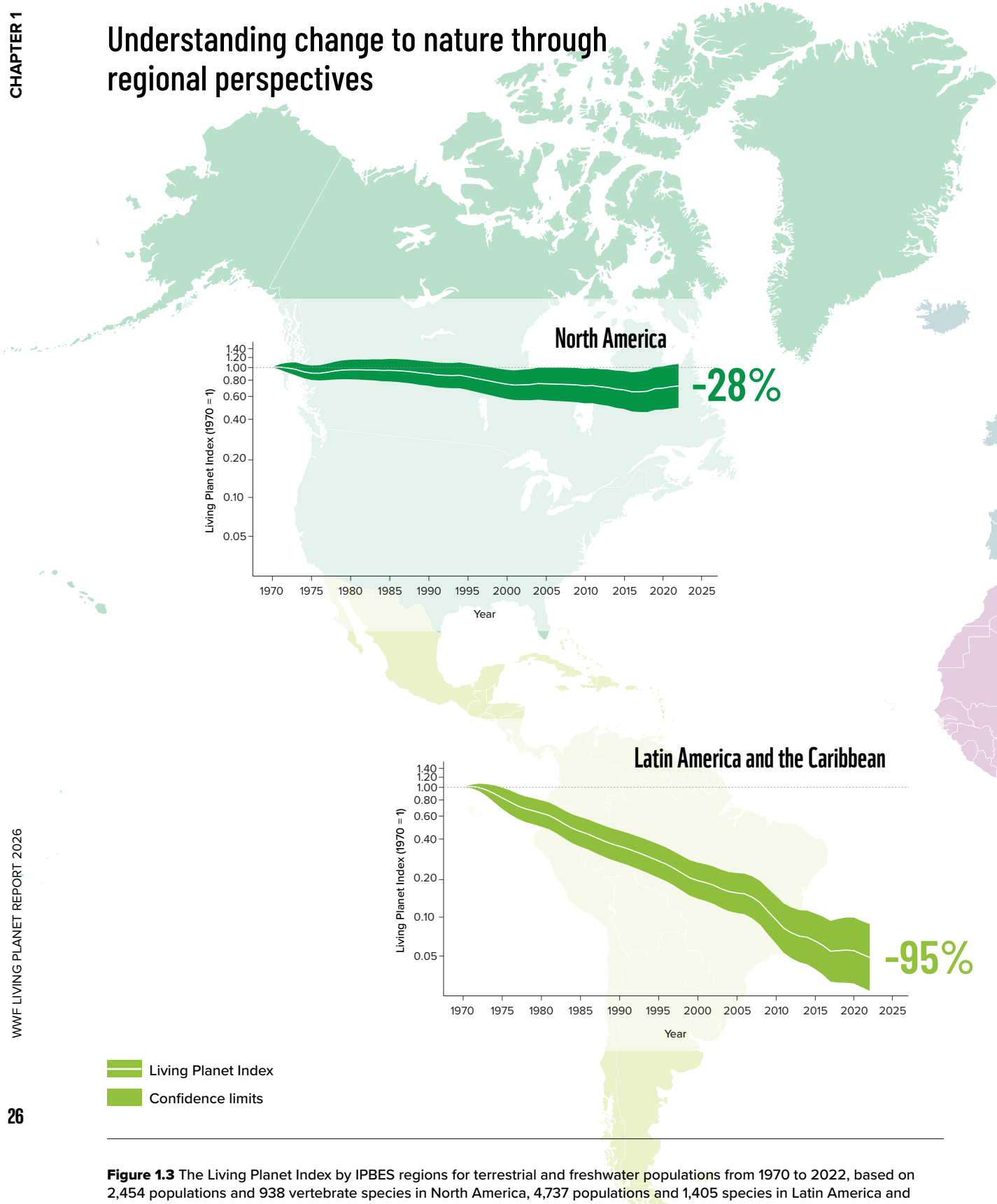
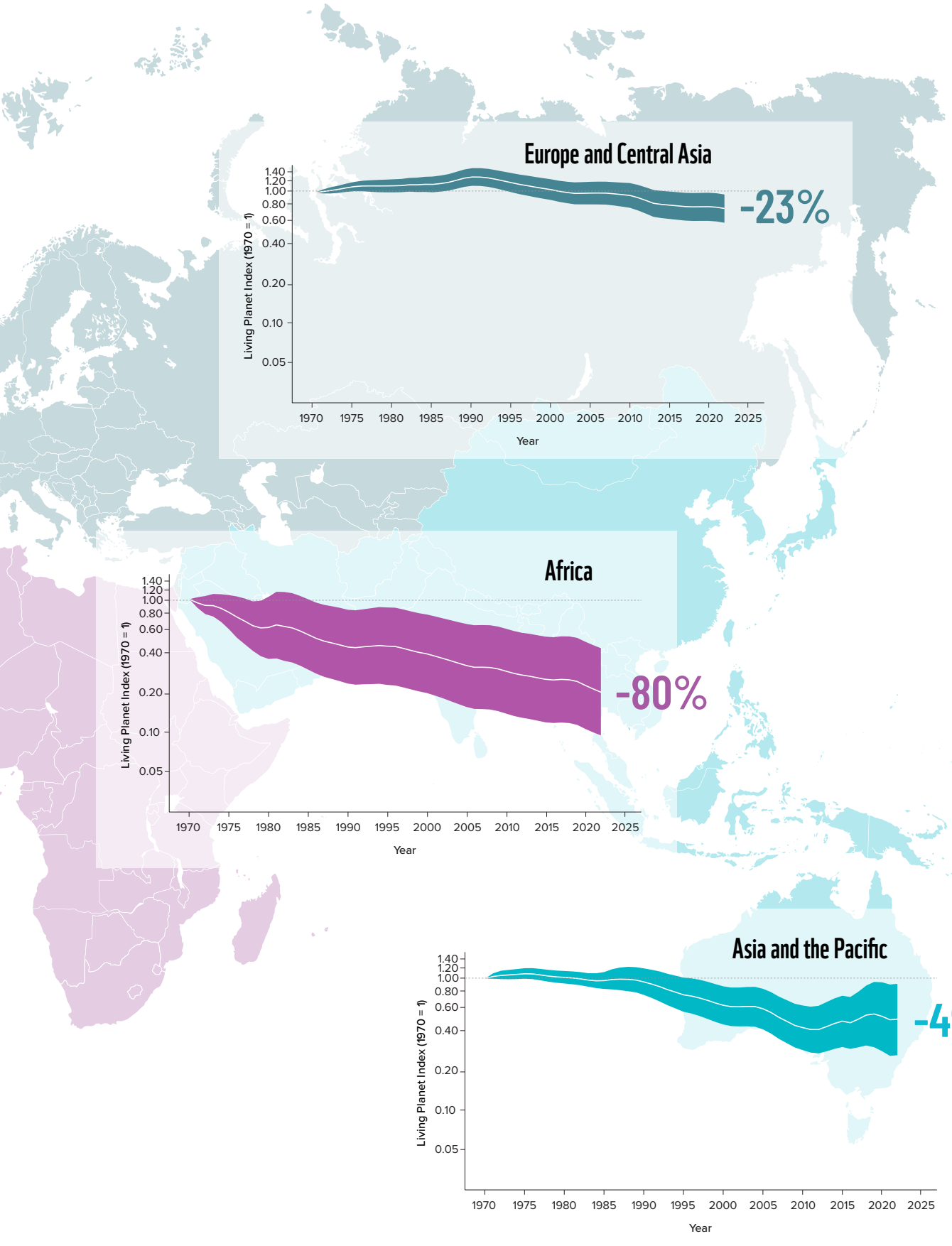


Figure 1.3 The Living Planet Index by IPBES regions for terrestrial and freshwater populations from 1970 to 2022, based on 2,454 populations and 938 vertebrate species in North America, 4,737 populations and 1,405 species in Latin America and the Caribbean, 4,868 populations and 645 species in Europe and Central Asia, 4,664 populations and 787 species in Asia and the Pacific, and 2,622 populations and 759 species in Africa. White lines represent the index values, and the shaded areas represent the statistical uncertainty surrounding the values. Trends for each species group are weighted by the number of species found in each IPBES region.


Europe and Central Asia
-23%
Living Planet Index (1970 = 1)
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.10
0.05
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025
Year
Africa
-80%
Living Planet Index (1970 = 1)
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.10
0.05
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025
Year
Asia and the Pacific
-49%
Living Planet Index (1970 = 1)
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.10
0.05
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025
Year

In addition to population trends, the LPI database stores information on up to three drivers of change to specific populations (Box 1.3, Figure 1.4). Looking at this data in different IPBES regions (currently available for 3,116 populations) can help us understand what factors might be influencing the regional indices.

Box 1.3 Dominant drivers of change

The dominant drivers of change vary by ecosystem type, species and population.



Habitat loss/degradation: This refers to the modification of the environment where a species lives, by either complete removal, fragmentation or reduction in the quality of key habitat. Common changes in use are caused by the expansion of agriculture, logging, transportation, residential or commercial development, energy production and mining. For freshwater habitats, fragmentation of rivers and streams and abstraction of water are common causes.[17] Marine habitats can be impacted by both activity on land, for example coastal development, and at sea, such as bottom trawling or dredging that can damage seabed habitats.



Overexploitation: There are both direct and indirect forms of overexploitation. Direct overexploitation refers to unsustainable hunting and poaching or harvesting, whether for subsistence or for trade. Indirect overexploitation occurs when non-target species are killed unintentionally, for example as bycatch in fisheries.



Climate change: As temperature and precipitation patterns change, and the magnitude and frequency of extreme events increase as a consequence, some species will need to adapt by shifting their range to track a suitable climate. The effects of climate change on species are often indirect. Changes in temperatures can confound signals that trigger seasonal behaviours such as migration and reproduction, causing misalignment between a behaviour and environmental conditions.[18] For example, migrating birds may have evolved to arrive in a habitat at the same time as the emergence of insect prey. Climate change may cause insect emergence to happen earlier, and the birds may arrive to find limited food available to them.[19]



Invasive species: Invasive species can compete with native species for space, food and other resources; they can also be predators of native species.



Pollution: Pollution can directly affect a species by making the environment unsuitable for its survival. This is what happens, for example, in the case of an oil spill. It can also affect a species indirectly, through food availability or reproductive performance, reducing population numbers over time.[20,21]



Disease: Diseases harmful to wildlife can spread to new areas of the planet through both people and the movement of species. Other threats such as climate change and habitat degradation can increase a species' susceptibility to disease.[22]



The North America index shows a 28% decline between 1970 and 2022 (range: -51% to +5%), which is equivalent to 0.6% decline per year (Figure 1.3). In this region, large-scale impacts on nature had already taken place before 1970, and many populations of species may have stabilized or are increasing from a lower baseline here, leading to a less negative trend.[23] Conservation successes for individual species include the sea otter (*Enhydra lutris*), the green sea turtle (*Chelonia mydas*) in Florida, and salmon species after the removal of dams.[24–27]

The index for Latin America and the Caribbean shows the fastest rate of change of any regional LPI since 1970, with a 95% decline between 1970 and 2022 (range: -97% to -91%) (Figure 1.3). Home to 6 of the 7 megadiverse countries in the Americas – countries especially rich in nature and species found only here – the Latin America and Caribbean region is affected by a multitude of threats.[28] The conversion of grasslands, forests and wetlands, and damming of rivers; the overexploitation of species, and – more so than in other regions – climate change and disease, have contributed to the stark decline. In some cases, drivers of change interact, for example in amphibians where climate change impacts can make species more vulnerable to infection.[29–31]

The LPI for Europe and Central Asia shows the slowest rate of change of any IPBES region at 23% (range: -37% to -3%), equivalent to 0.5% per year (Figure 1.3). As in North America, much of this region's biodiversity was already in a poorer state by the baseline year of 1970. Europe, in particular, has seen the comeback of many mammal and bird species due to conservation efforts, but freshwater fish, amphibians and reptiles are still declining, and are at a greater risk of extinction compared to other groups.[32–34]

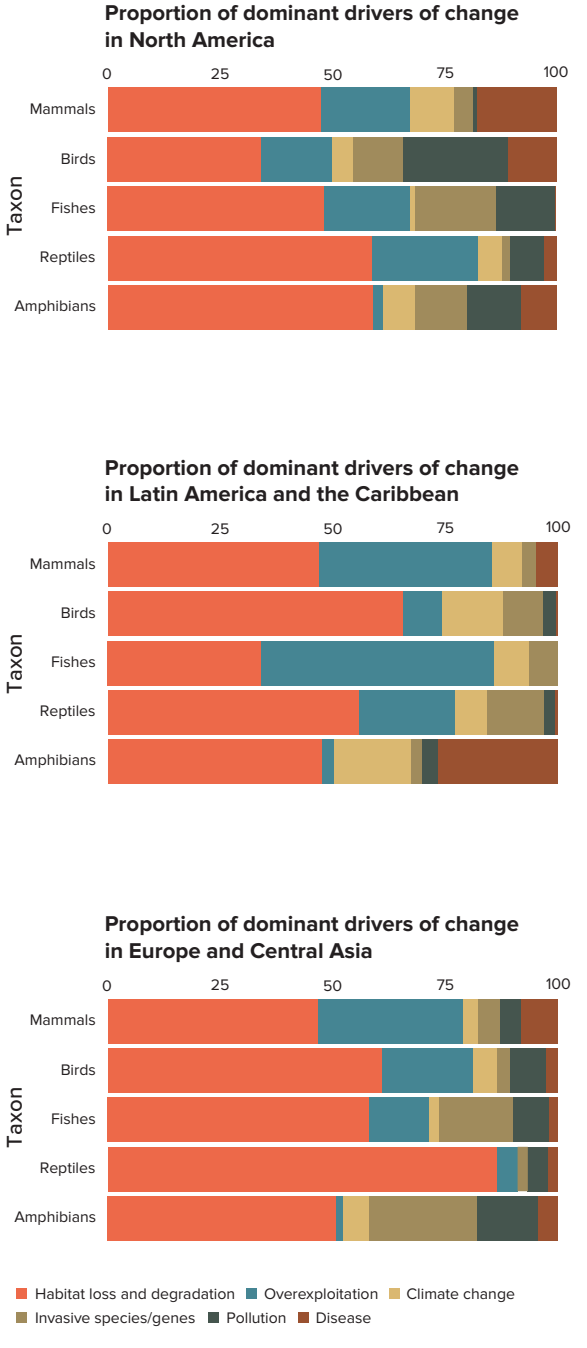


Figure 1.4 The proportion of dominant threats (habitat loss/degradation, overexploitation, climate change, invasive species/genes, pollution and disease) cited for a total of 3,116 populations across different IPBES regions.

The Africa index shows a decline of 80% (range: -91% to -57%), equivalent to 3.1% per year (Figure 1.3). While trends are negative on average in all taxa, monitored freshwater fish are the most severely affected. Information on freshwater systems remains scarce in the region, so there is an urgent need to expand research and target conservation efforts.[35] In southern Africa, such targeted interventions have allowed elephant populations to thrive, with the involvement of local people (Chapter 2), showing that conservation can play a role in preserving the continent's unique natural assets and rich biodiversity.[36]

The Asia and the Pacific region is rich in biodiversity across varied habitats including small and large islands, providing vital ecosystem services for around half of the world's population.[37] The LPI for this region has declined by 49% (range: -72% to -8%), equivalent to 1.3% per year (Figure 1.3). Multiple drivers of change are leading to negative trends on average across all species groups, ranging from invasive species threatening Pacific island endemics to overexploitation and habitat degradation for fish in freshwater systems, for example in the lower Mekong.[38–40]

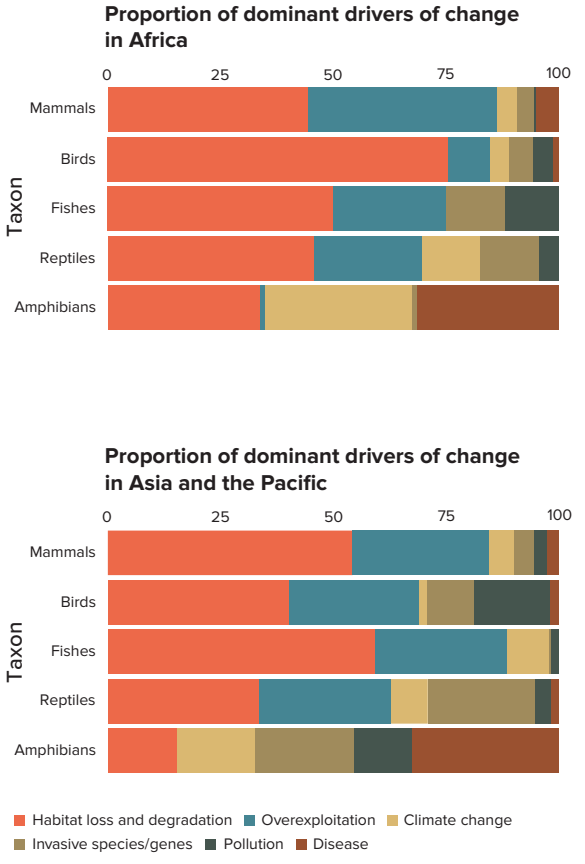


Figure 1.4 The proportion of dominant threats (habitat loss/degradation, overexploitation, climate change, invasive species/genes, pollution and disease) cited for a total of 3,116 populations across different IPBES regions.

Other metrics of biodiversity show similar trends

The LPI reveals important insights on the status of biodiversity within different regions, biomes and species groups (Figure 1.5a). But it is only one part of the picture. Given the complex, multidimensional nature of biodiversity, looking at additional indicators can help us understand how its different aspects are changing.

Changes in species extinction risk

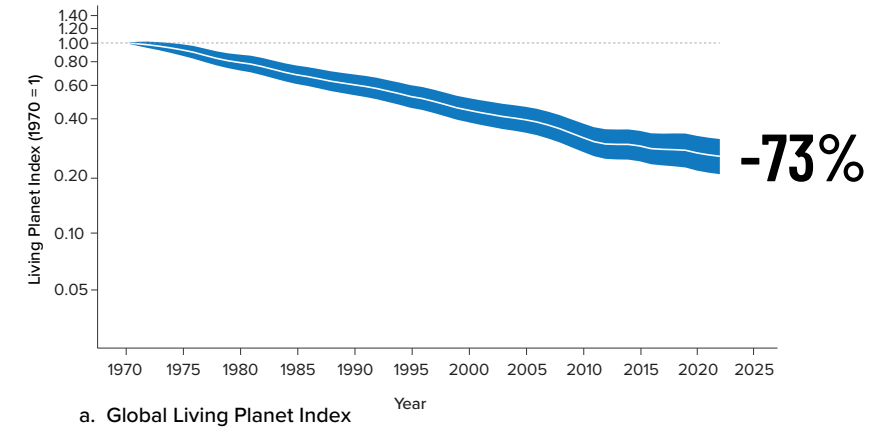
The Red List Index tracks change in overall extinction risk for a set of species by combining repeated assessments from the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.[41,42] Lower index values mean higher average extinction risk. Across all monitored species groups, the downward trends show that extinction risk is increasing (Figure 1.5b). As extinction risk worsens and local extinctions occur, species may no longer perform their ecological roles. This weakens the functioning and resilience of the whole ecosystem, with implications for productivity, human well-being and security. For example, local declines in forest wildlife can lead to a reduction in key ecosystem functions that maintain and restore the forest, such as seed dispersal. When these ecological roles are diminished, this can present a threat to the integrity of the forest and the benefits forests provide for people.[43]

Changes in species extinctions

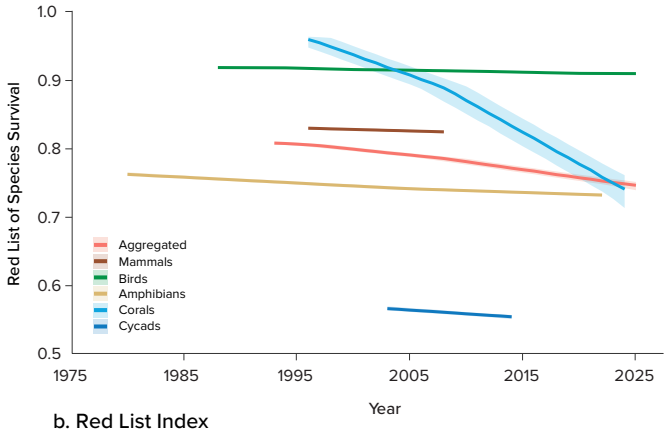
Over longer timescales, declines in population abundance can lead to permanent losses of species. Scientists estimate that current extinction rates are running at one hundred times or more than in pre-human times, including recent estimates of plant extinctions (Figure 1.5c).[44,45] This has led experts to conclude that we are causing a mass extinction event, the sixth in Earth's history.[46,47]

Changes in biodiversity intactness

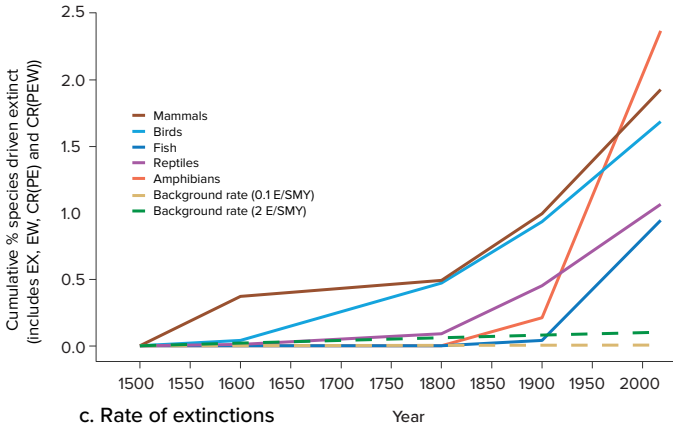
The Biodiversity Intactness Index estimates how much of a region's original biodiversity remains, relative to a pre-industrial baseline. Since 1800, intactness in terrestrial communities, the interconnected set of species within an ecosystem, has declined across all regions (Figure 1.5d), reflecting the effects of land-use change, especially agricultural expansion and intensification.[48] Lower intactness indicates communities that are less able to maintain the functions that keep ecosystems productive and resilient.



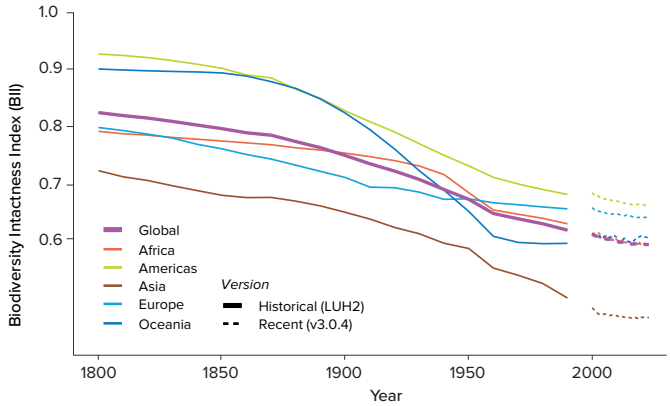
a. Global Living Planet Index



b. Red List Index



c. Rate of extinctions



Note: Historical data (<2000) have been recalibrated to align with more recent BII estimates.

NHM, CC BY–NC–SA 4.0

d. Biodiversity Intactness Index

Figure 1.5 Indicators show changes in biodiversity across different timescales. The Living Planet Index (a) tracks animal populations and allows us to interpret recent changes in nature.[6] The Red List Index (b) shows extinction risk for groups of species and incorporates recent trends and future threats.[42] The number of extinctions (c) shows a longer-term trend from 1500 and tracks the cumulative number of species known to have gone extinct.[1] The background rates of extinction are from the literature.[47] See the Red List for details on categories.[41,42] The Biodiversity Intactness Index (BII) (d) highlights long-term trends and shows how intact terrestrial biodiversity is compared to the year 1800.[49] BII historical data (1800 to 1990, solid line) are generated using 0.25 degree LUH2 land-use data, while recent data (2000 onwards, dotted line) use higher resolution land-use data and are rescaled to align with historical trends.

Can we reverse the decline?

Overall, these four indicators point to a decline in biodiversity at a global scale. Yet these headline statistics do not tell the whole story: hidden within are the results of conservation efforts that have halted and sometimes reversed precipitous declines in species populations. Since 1993, conservation actions have prevented the extinction of an estimated 32 birds and 16 mammals.[50] Multiple studies demonstrate that a range of conservation interventions – encompassing species-focused programmes, protected and conserved areas, habitat restoration and sustainable management – can be effective.[51]

The global LPI data holds numerous examples of targeted conservation interventions that have successfully slowed declines and even promoted recoveries of vertebrate populations.[52,53] In fact, 50% of the populations in the LPI show stable or positive trends, and among these are examples demonstrating that halting and reversing population losses is possible with sustained targeted conservation interventions.[5]

For example, sea otters (*Enhydra lutris*) nearly became extinct at the end of the 19th century, following overexploitation for the commercial fur trade. Since then, otter abundance has increased due to a combination of legal protection and translocations.[54,55] The species now occupies areas of its historic range (eastern Asia to North America) from which it had been absent for over a century.[24,25]

In some cases, it is the actions of local and Indigenous communities that makes the difference. On the island of Masakambing in Indonesia, a village regulation making it illegal to trap, own or transport the Critically Endangered yellow-crested cockatoo (*Cacatua sulphurea*) likely contributed to numbers doubling in just 10 years.[56] The species had declined rapidly primarily due to the cagebird trade.[57]

The many seabird species nesting and foraging on the islands off the Baja California peninsula in Mexico have been affected by introduced mammals that prey on native wildlife and overgraze vegetation. On Guadalupe Island, the removal of feral goats and cats began in 2003, resulting in a steep rise in the Laysan albatross (*Phoebastria immutabilis*) population, with numbers increasing by 454% between 2014 and 2019.[58,59]

In each of these examples, people committed to coordinated, sustained action without knowing whether they would succeed.

Establishing a protected or conserved area, passing a policy, or taking action at the community level may halt or reverse the decline for individual populations. But isolated actions are rarely enough. To change the trend in the LPI – to begin restoring the abundance of the biodiversity on which we all depend – we need sustained conservation action on a much greater scale. And we need to address the underlying drivers of the majority of biodiversity loss from the food, energy and finance sectors, which will require transformational shifts in how people relate to nature.[60,61]

The recoveries hold an important lesson: each one happened because people acted with conviction despite uncertainty. Sea otters were brought back by people who couldn't know the population would recover. The villagers of Masakambing created their cockatoo regulation without knowing it would double the population within a decade. Conservation is full of decisions made under uncertainty, in pursuit of outcomes the decision-makers themselves may never see.

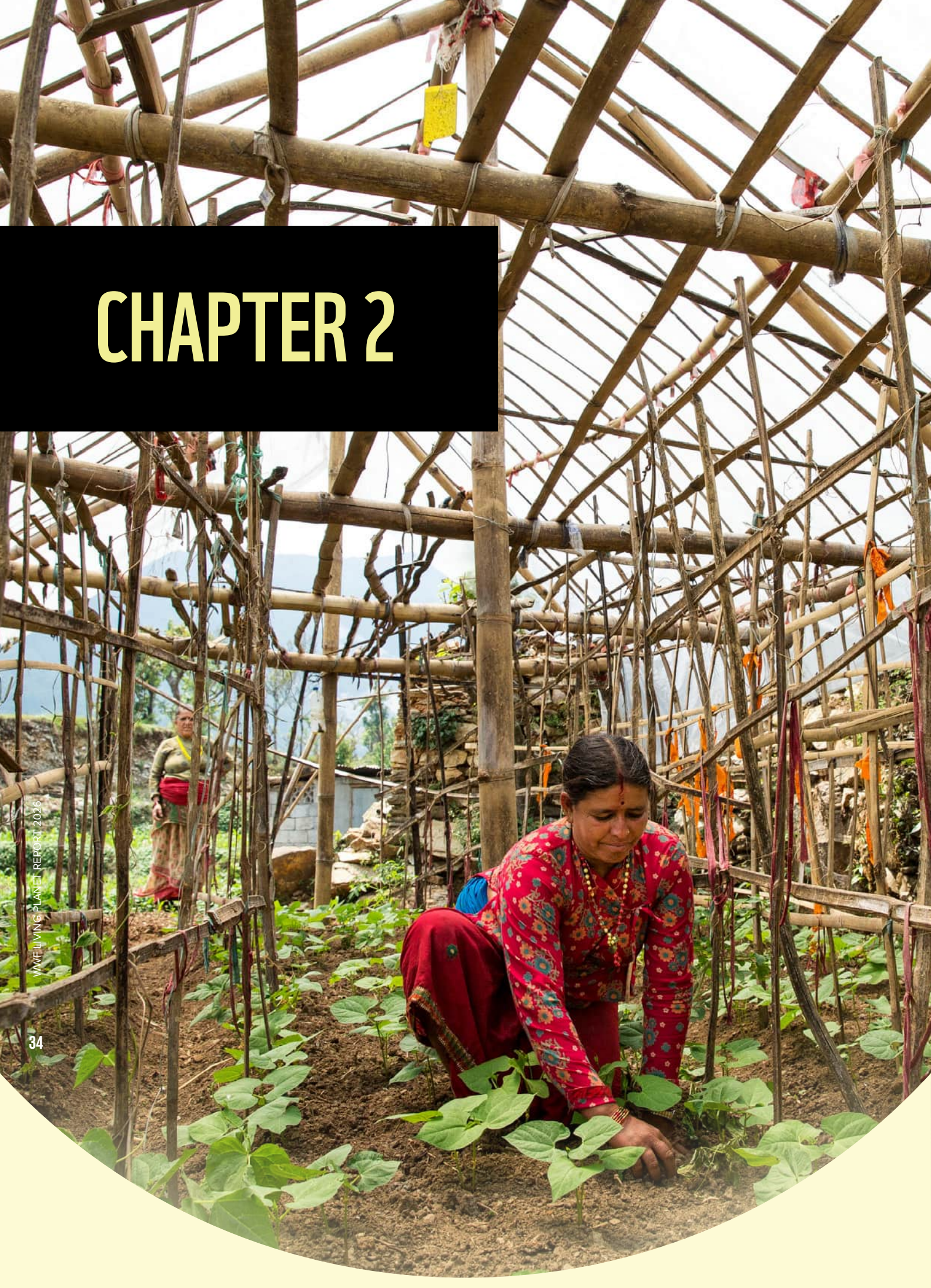
The capacity to act on behalf of a future you cannot guarantee is what psychologists call hope. It is not optimism, nor is it naive. It is a discipline, and it can be cultivated. The next chapter examines how and why it matters for the systemic transformation described throughout the rest of the report.





To change the trend in the LPI – to begin restoring the abundance of the biodiversity on which we all depend – we need sustained conservation action on a much greater scale.

CHAPTER 2



The power of hope

Halting and reversing the decline in biodiversity requires a massive, sustained and collective effort. The transformation needed is not only technical, but also social, cultural, ethical, political, economic and psychological. It demands vision and sustained action under conditions of uncertainty. It requires people to participate, to change their behaviours and to recognize the values and practices of local stewards of nature across diverse cultural contexts. It may force us to rethink our relationship with nature. And one of our most powerful resources for this work, both personally and collectively, is hope.

The science of hope

Hope is not a static trait, and it is more than a positive emotion. It is not optimism or wishful thinking. It is a process that keeps people engaged with difficult, uncertain challenges.[62] It develops when people connect what they value to actions they believe can make a difference, even when success is not guaranteed.

In psychology, hope has three components.[63,64] The first is a goal grounded in a person's values, identity and culture, framed around what you want to protect rather than what you want to avoid losing.[65,66] The second is a pathway, or a credible route to the goal, even if the route is uncertain and needs adjustment as barriers arise.[67] The third is agency, or the belief that you can act to achieve your goal and make a difference. Agency strongly shapes whether intentions become sustained action under uncertainty.[68]

When all three are present and mutually reinforcing, hope is sustained.[69] Goals set direction, pathways provide a route and agency supplies momentum (Figure 2.1). Hope solidifies when these reinforce each other over time, allowing individuals and groups to continue striving toward transformational change even as conditions change and obstacles arise. Some research finds this framework to be robust across cultures, though other scholars argue we are only just beginning to understand how hope is experienced across different world views.[70,71]



Figure 2.1 More than a feeling, hope becomes a process to drive transformational change when goals, agency and pathways combine. Resilience provides the fortitude to move forward when barriers are encountered.

Two distinctions matter for conservation. First, hope is not optimism. Optimism is the expectation that the future will be favourable regardless of what you do, and optimistic messaging on environmental issues consistently reduces motivation to act because it leads people to underestimate risk.[72,73] Second, hope is not false hope. False hope ignores facts, raises unrealistic expectations, or refuses to adapt when a pathway closes.[74] Real hope uses evidence and is honest about what is and isn't working, and it is willing to revise the pathway when the evidence requires it.



This matters because data alone does not drive action. Reporting a decline in the LPI does not, on its own, motivate response. People act when they connect information to things they value, identify routes they believe will make a difference, and feel that their effort is moving toward outcomes they care about.[65,74] Where concern is high, but agency is low, the typical response is not action but withdrawal, denial or paralysis.[75–77] Where concern is paired with a sense of agency and supportive social conditions, it becomes the foundation of sustained engagement.[78–80]

The four species recoveries described later in this chapter illustrate what the three components of hope look like in practice. The tiger recovery had a clear goal (doubling wild populations), backed by credible pathways (protected areas, anti-poaching enforcement, cross-border coordination) and reinforced by collective agency at every level from rangers to heads of state. The bluefin tuna effort had an explicit recovery target, science-based quotas as the pathway, and coordinated agency across regional fisheries management organizations, retailers, chefs, and consumers. Each recovery is hope operating at scale.

Building collective hope

The version of hope that drives conservation outcomes is almost never solely individual. It is a property of groups of people, communities, coalitions, and institutions, and it depends on people seeing their individual effort as part of something larger.[81–83]

The version of hope that drives conservation outcomes is almost never solely individual. It is a property of groups of people, communities, coalitions, and institutions, and it depends on people seeing their individual effort as part of something larger.

Social cognitive theory distinguishes between three forms of agency that operate together.[68,79] Individual agency is a purposeful choice and includes lifestyle and consumption choices, such as avoiding products linked to deforestation, and civic acts, like voting. Collective agency is a group's shared belief in its power to reach a goal, and it appears in community conservation and social movements. Proxy agency is supporting others to act on your behalf such as donating to an organization, backing a campaign or electing representatives committed to change.[84–86]

Most significant conservation outcomes require all three, but collective agency is the engine of change. People are significantly more likely to participate when they can do so with others and when institutions support participatory governance and inclusive decision-making, thereby sustaining engagement when results are uncertain.[82,87,88] In this context, hope is a shared property, defined by shared goals and mutual trust.[82,83] The Indigenous Waorani movement that protected 200,000 hectares of Amazon rainforest from oil extraction began with the recognition that the community could act together.[89] The global youth climate movement that mobilized six million people across 125 countries during one week in September 2019 began with a single fifteen-year-old sitting outside the Swedish parliament.[90,91] In 2024, youth-led litigation in Hawai'i secured a binding state commitment to decarbonize transportation.[92] In 2018, the A'i Cofan community of Sinangoe in Ecuador won a constitutional ruling annulling 52 gold mining concessions on their ancestral lands, setting a precedent for Indigenous consultation across the country.[93]

None of these conservation outcomes was guaranteed at the outset. Each became possible because people shared a goal, decided their effort would matter and acted together. That is what collective agency looks like in practice, and it is the most reliable predictor of whether a conservation goal will be reached.

Hope is not accessible to all

The components of hope (goals, agency and pathways) are not equally accessible to all. For people marginalized by poverty, race, gender, caste, disability, displacement, or the historical and ongoing dispossession faced by many Indigenous Peoples, conditions that foster agency are often restricted.[94,95] Exclusion from decision-making, insecure land and resource rights, criminalization of traditional practices, and the uneven distribution of environmental burdens and benefits all narrow the pathways through which marginalized groups can pursue their goals.[96,97] Low agency here isn't a personal failing. It is a realistic assessment of systems that deny recognition, voice and authority.[98]

But marginalization does not eliminate agency. Extensive evidence shows that when marginalized peoples secure rights, recognition and a meaningful role in governance, both their well-being and biodiversity outcomes improve.[99,100] Agency in these contexts is often expressed through cultural continuity, kinship, reciprocity with the more-than-human world, and long traditions of resistance and stewardship.[101] Movements led by Indigenous women, Afro-descendant communities, small-scale fishers, pastoralists and peasant organizations have repeatedly demonstrated that hope can be cultivated even under conditions of structural disadvantage, often by framing goals around sovereignty, justice and self-determination rather than around external agendas alone.[102]

For hope to be a genuine resource for transformation in conservation, conservation cannot simply invite marginalized groups into existing processes. It must support the plural knowledge systems, worldviews, and the conditions under which agency can be exercised.[96,103]



Extensive evidence shows that when marginalized peoples secure rights, recognition and a meaningful role in governance, both their well-being and biodiversity outcomes improve.

Resilience and hope

If hope provides the direction and momentum, resilience provides the capacity to absorb setbacks and continue striving when progress stalls or reverses. Resilience is not an individual trait of stoic endurance, but a dynamic capacity operating across psychological, social and ecological scales.[104,105] At the individual level, it involves the cognitive and emotional toolkit that lets people face hard truths about biodiversity loss without falling into despair, disengagement or denial.[106] It grows through the development of meaning, emotional regulation and connection to values bigger than immediate outcomes, allowing worry to be translated into sustained commitment.[65,107]

Individual resilience is rarely sufficient on its own. Just as hope strengthens when held collectively, resilience is amplified when it is distributed across networks of relationships, institutions and shared practices.[108] Communities that maintain strong social ties, inclusive governance and cultural continuity adapt better to ecological change while staying focused on conservation goals.[105] Hope and resilience operate in tandem: hope motivates action toward valued futures, while resilience protects the psychological, relational and institutional conditions that allow that action to continue when pathways narrow or agency is tested.

Hope at scale

Collective action has delivered remarkable conservation outcomes. The following are stories of four iconic species that are recovering through coordinated effort across continents, communities, cultures, governments, businesses, scientists and social movements.

These stories embody hope as a process. Fear of loss becomes shared recovery goals, supported by science-based pathways, reinforced by collective action and institutional commitment. Success is not immediate, but persistence through early uncertainty is sustained by trust, participation and tangible progress.





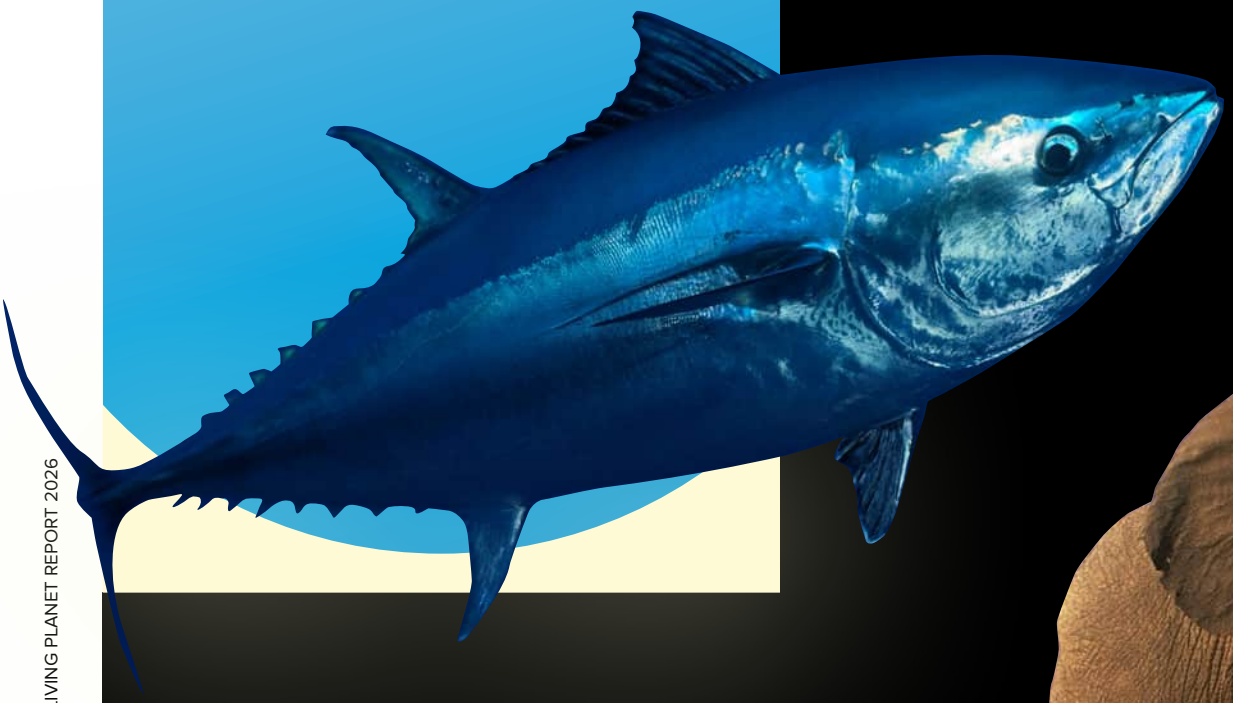
Just as hope strengthens when held collectively, resilience is amplified when it is distributed across networks of relationships, institutions and shared practices.

CASE STUDIES

Tigers

70% increase

Between 2010 and 2025, global wild tiger (*Panthera tigris*) numbers increased by over 70%, the first documented reversal of their long-term decline. Camera-trap estimates indicate an increase from 3,200 to around 5,700 individuals.[109,110] The achievement came from coordinated action across scales: national tiger recovery plans, intergovernmental commitments through the Global Tiger Initiative, professionalized ranger units, protected area expansion, cross-border anti-trafficking work, and demand-reduction campaigns.[111] None of these alone would have been sufficient. Tiger recovery is a testament to what can be achieved through coordinated, long-term investment and collective action by governments, Indigenous Peoples, local communities, NGOs, donors and other partners. The recovery is fragile and tigers still occupy less than 8% of their historic range.[112] The species remains Endangered, and to maintain the gains, there is an urgent need to scale community-led coexistence interventions and human-wildlife conflict management.[113–115] But the trend reversed, which a decade ago many believed was not possible.





Atlantic and Pacific bluefin tuna

Population recovery

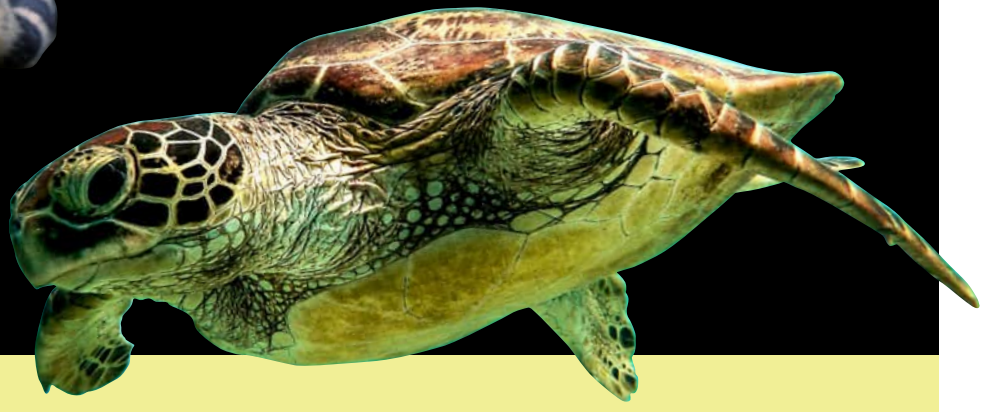
By 2010, Atlantic bluefin tuna (*Thunnus thynnus*) populations had fallen by 80% and the species was listed as Endangered. Pacific bluefin tuna (*Thunnus orientalis*) had collapsed to 2% of unfished levels and was classified as Vulnerable. With both species on trajectories to extinction, nations and industry worldwide took decisive action to reverse the trend. Both have now recovered to the point where neither is considered overfished or a species of major concern.[116] The recovery came from a combination of consumer campaigns and supplier boycotts, chef and retailer commitments, recreational fishing reforms, and coordinated regional fisheries management that imposed reduced quotas, size limits, spawning-area protections, and dockside monitoring.[117–124] Sustaining recovery as ocean waters warm will require resilience management approaches and continued vigilance, particularly against illegal and unregulated fishing.

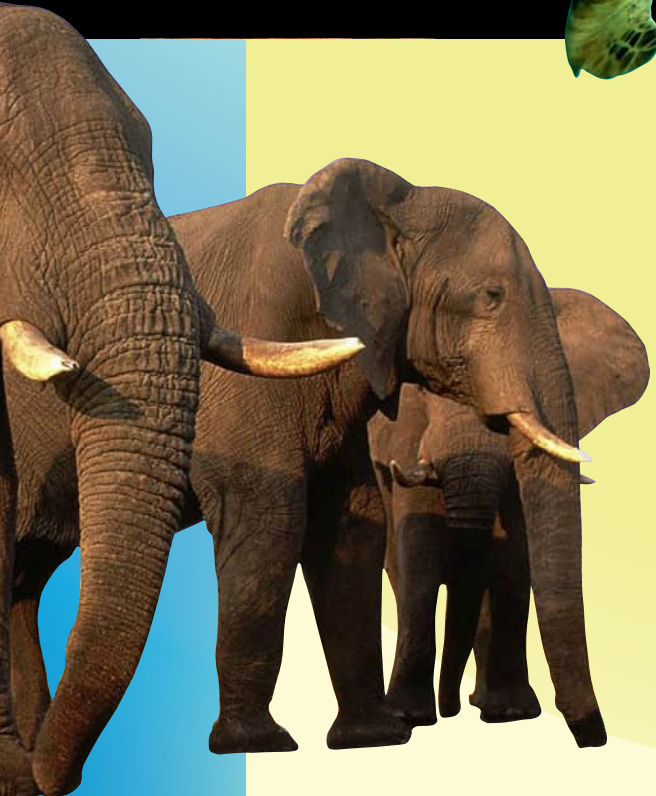


Green sea turtles

Downlisted from Endangered to Least Concern

In 2025, the green sea turtle (*Chelonia mydas*) became the first marine turtle ever downlisted from Endangered to Least Concern on the IUCN Red List.[130] The recovery reflects 50 years of coordinated work across some 80 nesting countries: protection of nesting females and eggs, beach management, lighting regulations, turtle excluder devices and other bycatch reduction measures on fishing gear, enforcement against illegal take, and sustained community engagement.[131] Annual nesting activity at consistently monitored sites rose from around 419,000 clutches in 2011 to roughly 526,000 in 2024.[130] The downlisting is a milestone, not an endpoint, as several subpopulations remain threatened in the central south and west Pacific, eastern Pacific, north Indian Ocean and Mediterranean, and climate change continues to pressure nesting beaches, but it demonstrates what is possible when many actors hold a shared goal across generations.





Southern African elephants

Increases in select areas

While African savannah elephants (*Loxodonta africana*) are declining across much of their range and remain Endangered overall, there are populations in southern Africa which, in some places, are increasing.[125] The difference is governance. Southern African countries have built legal frameworks that give local communities direct stakes in elephant stewardship through community-based natural resource management, which devolves rights and responsibilities for wildlife to communities that benefit directly from sustainable stewardship.[126,127] These on-the-ground efforts are reinforced by anti-trafficking work, judicial reform and reduced corruption.[128,129] High densities now produce their own challenges including human-wildlife conflict and habitat degradation from local overabundance, but the foundation is community agency over a shared resource, and it has held.

Each recovery is a different shape, but each follows the same structure: a clear goal, a credible pathway, agency exercised at multiple scales, and persistence across decades. They all happened because enough people decided the goal was worthy and the effort was worth making together.



Hope as a strategic resource for transformation

A 70% increase in wild tigers, bluefin tuna brought back from the brink of commercial extinction, healthy elephant populations sustained under pressure, green sea turtles downlisted from Endangered to Least Concern – these are powerful demonstrations of hope at work across individuals, communities and institutions, built through years of coordinated effort.

Yet these results are fragile. Without continued investment, even species that are the focus of conservation efforts will continue to decline without sustained investment to address the underlying drivers of environmental change that threaten their long-term survival and biodiversity more broadly.[132] Conservation operates within economic, political and social systems that are fundamentally at odds with nature. We cannot fix biodiversity loss one species at a time. Unless conservation addresses the systemic drivers of nature loss, even remarkable successes will not endure.

What is required is **transformative change** – a fundamental, system-wide overhaul across society (Figure 2.2).[103] Transformative change moves beyond incremental, species-by-species efforts to address the root causes. It means:

- Transitioning away from the **fossil-fuel energy system** driving climate change;
- Transforming our voracious **food system**, the leading cause of habitat destruction;[133]
- Reforming the **finance system,** which channels trillions of dollars annually into activities that degrade nature.[134]

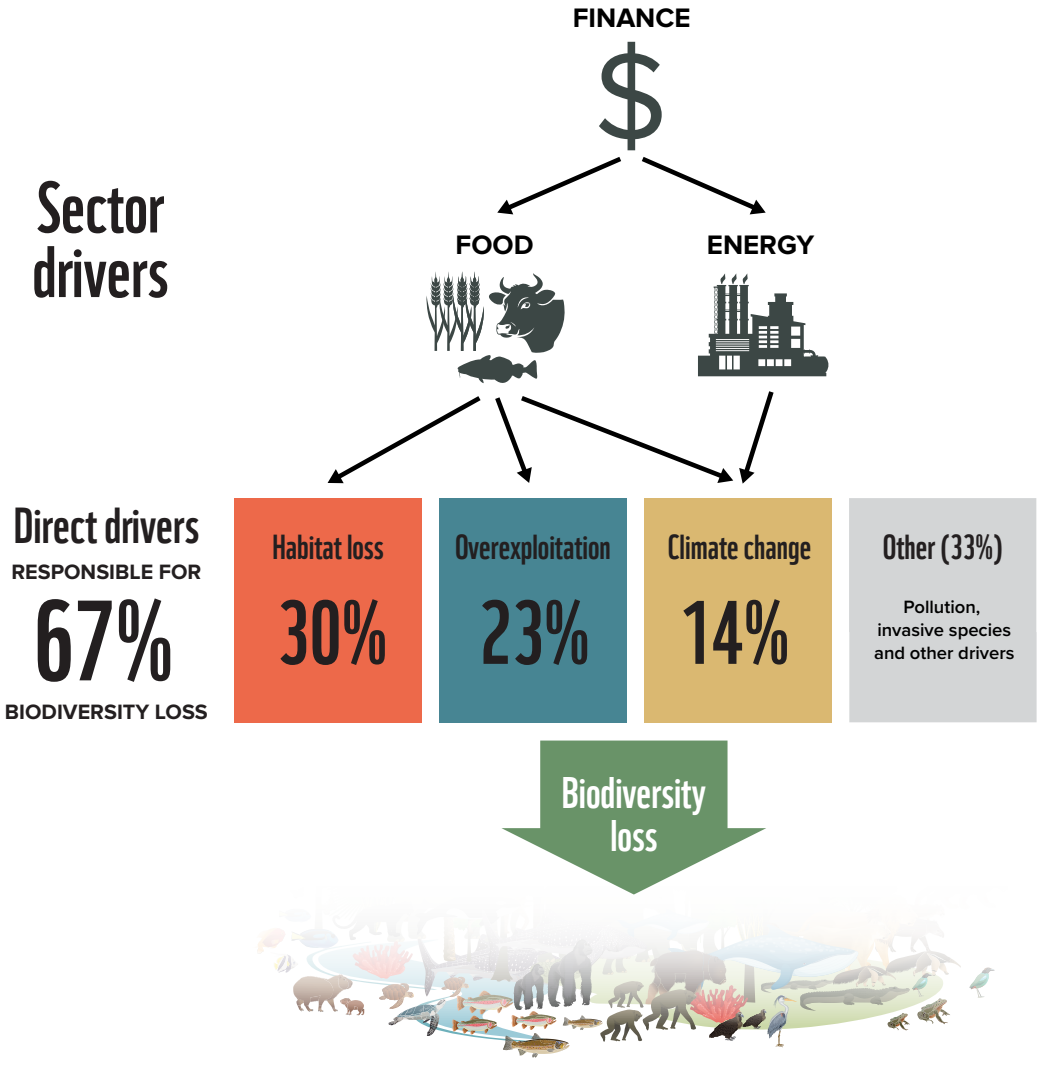


Figure 2.2 Transforming the sectors that drive biodiversity loss. Transforming the food & agriculture and energy sectors and the financial flows that sustain them are priorities for halting biodiversity loss. Arrows are read top-to-bottom as a causal chain: the capital allocation shapes sectoral activity, sectoral activity creates direct drivers, and those direct drivers determine how much biodiversity is lost. Habitat loss (30%), overexploitation (23%) and climate change (14%) are responsible for 67% of the biodiversity loss: across terrestrial, marine and freshwater ecosystems, the majority of which stems food & agriculture and the energy sectors. Habitat loss is responsible for most biodiversity loss in terrestrial and freshwater ecosystems, overharvest in the marine systems, and climate change is distributed more evenly across ecosystem types. Values are from the *IPBES Global Assessment Report on Biodiversity and Ecosystem Services,* Chapter 2.2, Section 2.2.6.2, derived from a systematic review of 163 multi-driver studies.[136,137] Direct driver shares are relative impacts, not absolute magnitudes.[1] The agriculture-fisheries, energy, and finance framing follows the *IPBES Transformative Change Assessment,* which identifies agriculture, forestry, fisheries, energy and infrastructure as the sectors most responsible for the direct drivers shown.[61]

These systems are so vast and entrenched that transforming them might feel overwhelming, making even the most successful collective efforts seem insignificant.[135]

They do not have to be. Hope is a resource that allows individuals, institutions and coalitions to remain engaged with goals far larger than any single actor can deliver.[75,79] Goals provide direction. Pathways provide a route. Agency, especially collective agency, provides the conviction that effort matters. When these reinforce each other across time, transformation becomes possible and history shows it can happen faster than expected.

The next chapter explains how.

CHAPTER 3



Positive tipping points for transformation

The previous chapter argued that hope is a science built from goals, pathways and agency, and that it operates most powerfully at collective scale. We now turn from the psychology of hope to its mechanics: what pathways and agency look like at the scale of systems. The recoveries described in Chapter 2 show that coordinated, collective action can reverse decline for individual species. Tigers, Atlantic and Pacific bluefin tuna, southern African elephants and green sea turtles are real victories, secured through clear goals, credible pathways and sustained collective effort across decades. But halting biodiversity loss globally requires change of a different order – the transformation of the systems that drive their decline.

Three systems drive most of the decline. The energy system, built on fossil fuels, is the principal cause of climate change. The food and agriculture system is the leading cause of habitat destruction. The financial system channels the capital that sustains the destructive practices of both. Transforming these systems is a far larger undertaking than recovering a species, and on the surface, it looks slower, harder and less tractable. The drivers are entrenched, the interests defending them are powerful, and the timescales involved seem incompatible with the urgency of the crisis.

This chapter introduces a framework for positive tipping points that makes such transformation tractable and shows how the same components that sustain hope at the human scale – credible pathways and collective agency – can become the levers that transform entire systems. Complex systems do not always change slowly and linearly. Under the right conditions, pressure accumulates until a threshold is crossed and change becomes self-amplifying.[138,139] This is a tipping point. We will explore how to design positive tipping points to halt and reverse the loss of biodiversity at the scale and pace required by 2030. We will draw on examples from the ongoing transition in the energy sector, where accelerating change is already apparent.

The potential for the positive tipping points framework to transform our energy, food, and finance systems and to reverse the decline of biodiversity is explored in detail in the following chapter.

Positive tipping point concepts

A positive tipping point occurs when a system surpasses a critical threshold, beyond which beneficial change becomes self-amplifying and difficult to reverse. Prior to this threshold, entrenched opposing forces or dampening feedbacks typically dominate, so progress is slow and inconsistent. After crossing the tipping point, amplifying feedbacks accelerate the system's transformation to a new state (Figure 3.1). Although the term 'positive' is inherently subjective, the concept is anchored in widely accepted goals of sustainability and social justice, fostering conditions in which both people and nature can thrive.[140] Signs of positive tipping dynamics can be seen in the rapid transition to renewable energy, broad adoption of low- or zero-carbon modes of travel, shifts toward healthy and more sustainable diets, or the spread of nature-positive farming practices.[141]

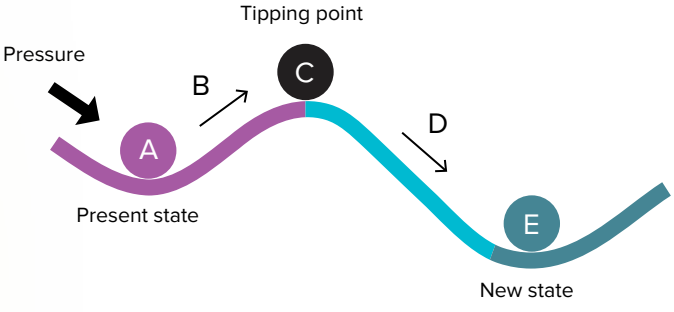


Figure 3.1 A system remains within its present state (A, purple circle) even if small-scale changes continuously occur, as long as it can absorb the pressures (or drivers of change). However, the pressure (B) can either gradually, or through a shock, push a system to its limit or tipping point (C, black circle). When a system reaches a tipping point change accelerates (D) until it reaches a new stable state (E, teal circle).[142]

In contrast to negative or harmful Earth-system tipping points, which should be avoided, positive tipping points can be intentionally facilitated. This typically requires deliberate strategies and interventions aimed at destabilizing unsustainable systems and establishing alternatives aligned with sustainability and justice objectives.[143] Systemic change seldom results from a single intervention; rather, political, behavioural and technological dynamics interact and reinforce each other.[144] Policy alters rules and incentives, technological advancements make alternatives viable, and evolving norms and behaviours redefine social acceptability. Aligning these dynamics can result in rapid transformation.



Box 3.1 Social-ecological amplifying feedbacks

Changes in governance and social norms can interact with ecological dynamics to produce powerful amplifying feedbacks. For example, policies for establishing marine protected areas can trigger rapid recovery of fish stocks when effective protection allows populations to reach thresholds for exponential reproduction.[145] Beyond this tipping point, spillover effects benefit surrounding fisheries, creating economic incentives for continued protection and compliance.[146] In some cases, marine protected areas have contributed to broad ecosystem recovery, including coral reef regeneration, with benefits for biodiversity, tourism, fisheries and food security.[147,148] This is a local positive feedback loop.



Community-based governance of common-pool resources provides other vivid examples.[149] For example, in parts of rural India, the restoration of traditional rainwater harvesting structures (johads) and community groundwater management triggered a social tipping point, as the benefits led communities to cooperate to restore more johads.[150] As water availability increased, vegetation recovered, agricultural productivity improved, women's workload declined and men returned home. Social norms, ecological feedbacks and the perceived benefits to families and communities all reinforced each other, producing durable gains for both ecosystem and human health.[148]

Phases of tipping dynamics

Positive tipping dynamics proceed through three broad phases of change: *enabling, accelerating* and *stabilizing,* often illustrated through an S-curve (Figure 3.2).[151] In the enabling phase, interventions focus on weakening existing obstacles to change, or lock-ins, and protecting or nurturing the vulnerable 'challenger' innovation, building its capabilities and appeal (Figure 3.2b, Box 3.2). Initial growth is slow as innovations are developed and early adopters engage in experimentation and learning. Depending on the system, the enabling phase may extend from years to decades. The tipping point is reached when self-reinforcing processes accelerate adoption. In the accelerating phase, amplifying feedbacks take over as the new rapidly replaces the old (Figure 3.2a, Box 3.1). In the stabilizing phase, the rate of new adoption declines as the transformation matures. The new system configuration becomes resilient and locked in.

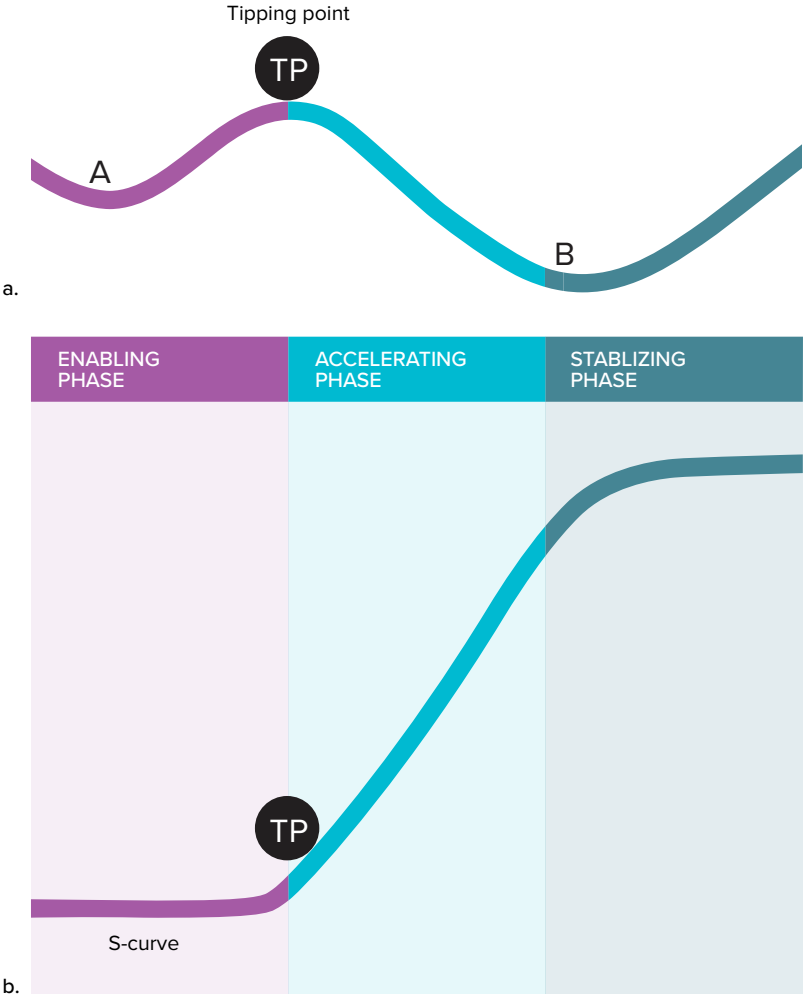


Figure 3.2 The relationship between a tipping point and an S-curve: (a) Tipping point curve: A system remains in its present, stable state (A) until it is pushed, either gradually or through a shock, to its tipping point (TP) after which amplifying feedbacks accelerate the system to a new stable system state (B); (b) The phases of tipping dynamics, or the S-curve: Along the S-curve, positive tipping dynamics proceed through three broad phases of change: enabling, accelerating and stabilizing. During the enabling phase, a goal for a new system state drives innovation, experimentation and learning. When amplifying feedbacks become greater than dampening feedbacks, the change can become self-reinforcing, leading to a tipping point (TP) and into the accelerating phase. In the stabilizing phase, the rate of new adoption declines as the transformation matures.[152]



Box 3.2 Amplifying and dampening feedback mechanisms

Amplifying feedback mechanisms can trigger acceleration and self-propelling change.



Social contagion: Individuals adopt new technologies and behaviours after observing others, with each new adopter lowering barriers for subsequent adoption.[154] For example, when one person installs rooftop solar panels on a residential street, others follow. Social media can dramatically increase the reach and speed of social contagion.



Economies of scale: Increased production volume reduces unit costs.[157] Early electric vehicles (EVs) were significantly more expensive than petrol or diesel counterparts, but prices have now fallen significantly.



Learning-by-doing: Increased production experience leads to improvements in manufacturing efficiency and product quality or performance. Over the past 30 years, battery costs have decreased by 99%, while energy density (the amount of energy a battery can store relative to its weight) has increased fivefold.[158,159]



Technological reinforcement: Use of one technology encourages the development of complementary technologies and practices, enhancing its utility. For instance, as the number of EVs increases, charging infrastructure expands to support them.[160]



Amplifying politics: As change progresses, it can create a favourable environment for additional reinforcing policies.[161] For example, the expansion of clean technology employment strengthens political support for additional policy action.



Amplifying policy: Policies provide subsidies, credits or other financial incentives or benefits for specific market choices or investment, such as tax credits for installing solar panels (Figure 3.3a).[162]

Dampening feedbacks that resist change must be overcome or neutralized.



Lock-ins: Various forms of systemic inertia act as obstacles to change. For example, institutions and cultural groups maintain established customs and social norms, while infrastructures such as buildings, transport networks and pipelines are expensive and challenging to replace.[163]



Dampening politics: Political opposition and lobbying can prevent policy action. For example, special interests can exploit concerns around costs and job losses to oppose the clean energy transition (Figure 3.3b).[164]



Dampening policy: Existing policies can impede the uptake of a new technology. For example, subsidies for fossil fuels hinder the transition to renewable energy.[165]



Negative discourses: Vested interests disseminate disinformation to generate doubt and confusion, as seen in industry-funded studies that question climate science.



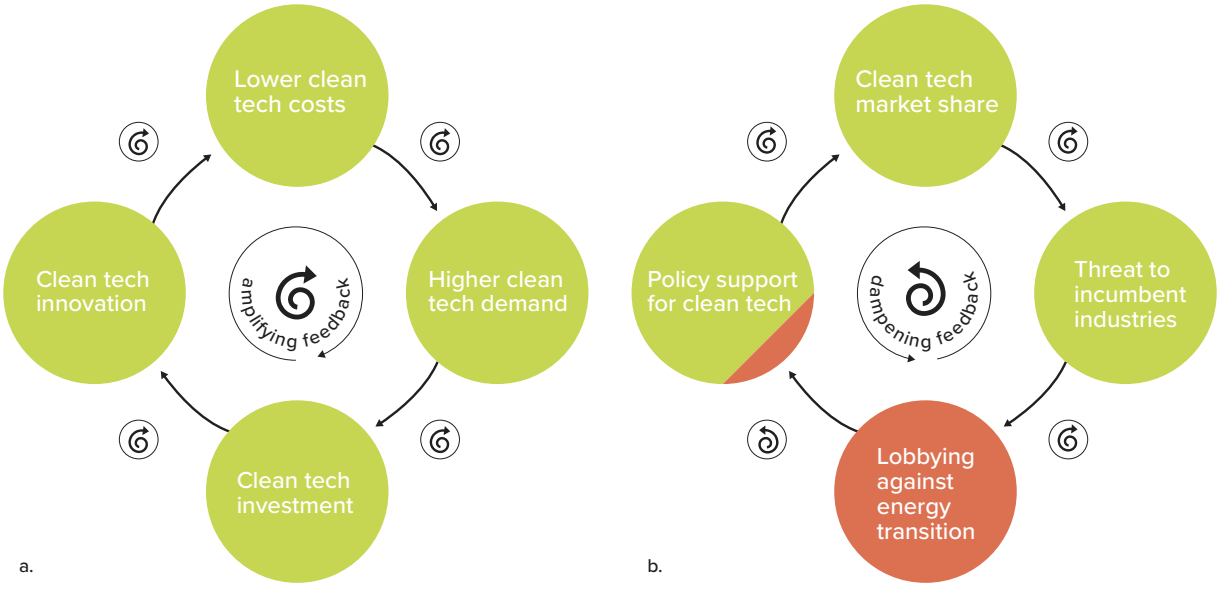


Figure 3.3 Amplifying and dampening feedbacks: (a) Amplifying feedback loop of clean technology development and diffusion; (b) Dampening feedback loop showing that industry lobbying can have a negative effect on policy support for clean technology transition.[153]

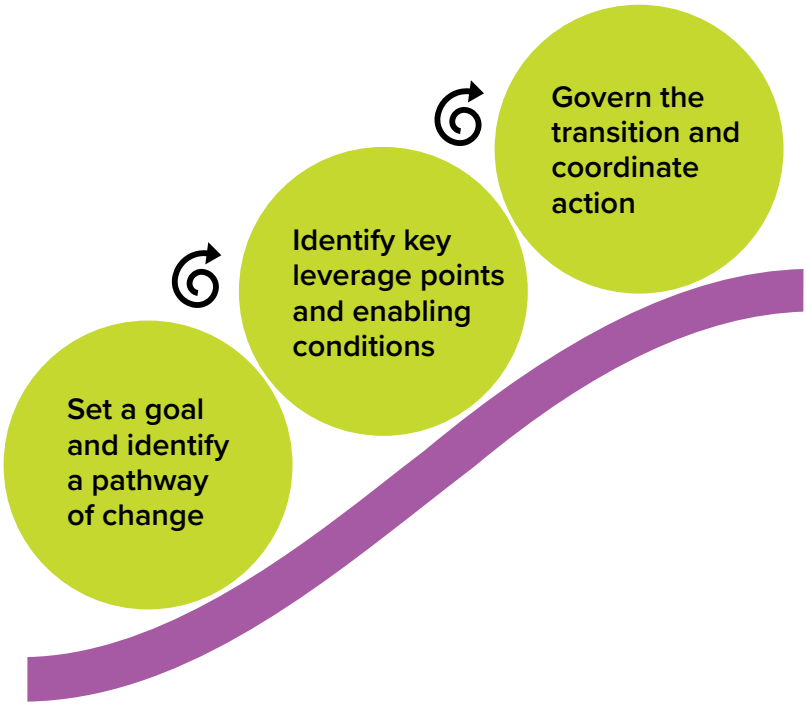
For example, the ongoing renewable energy transition, particularly in solar power, is following an S-curve trajectory. Its potential to replace fossil fuels in electricity generation represents a significant positive tipping point. Positive tipping point dynamics have also been observed in a range of social innovations, for example in public health (such as banning smoking in public places), public safety regulations (such as seat belt laws), and social norms (such as marriage equality).[154,155]

Not all systems are equally prone to tipping dynamics. Changes that are easy to replicate – such as installing solar panels or stopping smoking – are more likely to tip. Systems with high capital costs, slow replacement rates or deeply culturally entrenched practices tend to change more slowly and tipping them requires multiple, coordinated interventions over a longer time period.[156] Recognizing these differences upfront is essential to avoid raising expectations and to allocate resources toward interventions with the highest potential for positive tipping at each of the phases.

Interactions and positive tipping cascades

Positive tipping rarely occurs in isolation. In complex systems, positive tipping points are most often the result of multiple, interacting actions across sectors and scales. These interactions can create positive tipping cascades.[160] In the energy system, the plummeting cost of battery energy storage makes solar and wind power a more viable, cheaper option. Cheaper renewable energy, in turn, makes the production of green hydrogen more economically viable, improving the prospects for producing green steel or making green ammonia for fertilizers and alternative shipping fuel.[166] These interactions underscore the potential for 'super leverage points' – places to intervene to affect multiple systems across multiple scales and sectors – and the importance of cooperating to coordinate and sequence actions and policies nationally and internationally.[141]

Creating a positive tipping point



Positive tipping points emerge from a sequence of deliberate interventions that weaken the dampening feedbacks that maintain the status quo while strengthening the amplifying feedbacks that accelerate change.[143,144] Interventions in three areas are particularly important in shaping positive tipping dynamics:

1. Setting a goal and identifying a pathway of change
2. Identifying the key leverage points and enabling conditions
3. Governing the transition and coordinating action





1. Setting a goal and identifying a pathway of change

As discussed in the previous chapter, clear goals, credible pathways and agency are critical components in the hope that drives the creation of positive tipping points. Setting a goal, or aligning with an existing global goal, and identifying a pathway of systemic change helps individuals, communities, governments, businesses and civil society to unite around a common strategy, leading to innovation, investment and adaptations that accelerate the transition. Where goals have already been set – such as halting the loss of biodiversity or keeping global temperature rise to 1.5°C – the focus should be on how to contribute within a specific sphere of influence. Importantly, any positive tipping strategy needs to reflect the values and identities of those whose lives and livelihoods will be impacted or the change risks remaining contested and fragile.

Creating a positive tipping point can involve an extended enabling phase before change becomes apparent, during which public and political support may erode.[165,167] Maintaining confidence in the longer-term goal through the enabling phase is vital. Confidence is strengthened when early interventions generate tangible, near-term co-benefits – such as improved health, lower costs, employment or better public services.[162,164] Sequencing interventions so that some benefits are realized early helps build strong coalitions that sustain support during the later, more disruptive phases when dampening feedbacks may become stronger.[161,168,169] In setting or implementing a shared goal, honest, transparent conversations that acknowledge uncertainty, difficult trade-offs and setbacks can reinforce trust and legitimacy, particularly in contexts of declining confidence in government and other institutions.[170,171]

2. Identifying key leverage points and enabling conditions

Once a clear direction is established, the next step is to identify leverage points or interventions capable of catalysing and accelerating change. Positive tipping points rarely arise from isolated actions but emerge from multiple simultaneous or sequenced interventions.[156] These interventions may include:

- Technological innovations, which improve performance/quality and reduce costs
- Economic incentives, such as subsidies or taxes
- Policy interventions, such as those that encourage and finance infrastructure development (e.g. charging networks for EVs)
- Social norm change, which increases public acceptance and demand
- Communication and visibility, which spread awareness and imitation

These interventions create enabling conditions important for rapid transformation: affordability (innovations become cost-competitive with existing alternatives), attractiveness (innovations offer clear advantages, in terms of improved performance, convenience or social value), and accessibility (innovations provide infrastructure, financing and other forms of support that allow large numbers of people to participate).

When these interventions interact, they reinforce each other.[144] Falling costs increase demand, higher demand encourages investment, and increased visibility strengthens social acceptance and increases demand. For example, effective campaigning in Norway led to policy incentives to increase the use of electric cars.[172] As adoption increased, manufacturers expanded production, improved performance and reduced costs. At the same time, investment in charging stations and improved battery performance made electric cars more practical for everyday use.[160]



3. Governing the transition and coordinating action

Governance shapes the emergence, direction and consequences of tipping dynamics.[140,173] All actors – in government, business and civil society – have roles to play at different stages. Grassroots movements can help shift social norms and build public support for new ideas.[174] Businesses and investors can scale innovations and mobilize capital. Governments can create enabling policies, infrastructure and regulatory frameworks that encourage adoption. Progress happens through the (sometimes coordinated) interactions between these actors. Early experimentation and small-scale successes at local or regional levels can inspire and influence later national or global policy.[140,173] At the same time, policy can help scale innovations developed by entrepreneurs, researchers and communities. Three governance roles are particularly important:

- Building the conditions for change
- Recognizing and acting on windows of opportunity
- Stabilizing new system states

Building the conditions for change

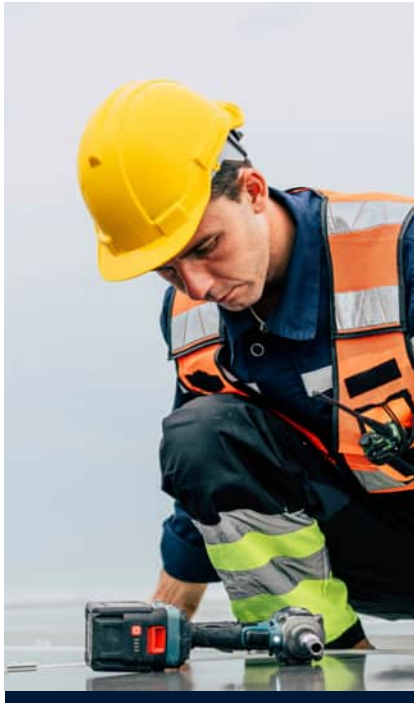
Before tipping occurs, governance focuses on creating the conditions that allow solutions to develop and spread. This initial enabling phase often involves long periods of experimentation, investment and coalition-building before major changes become visible. Governments, philanthropic organizations and other institutions support early-stage innovation and help create markets for emerging technologies and practices. A key principle at this stage is 'first build, then break': new systems must first become viable before existing systems can be replaced.[168,175] For example, many countries invested in renewable energy research and demonstration projects decades before renewables became widely cost-competitive with fossil fuels. Denmark made a decisive shift toward wind power following the global energy crisis of the 1970s.[176] These early investments built technical capabilities, supply chains and public familiarity.

Governance during this phase focuses less on immediate disruption and more on nurturing alternatives that can eventually scale. Understanding the existing system is also important. Many systems are kept in place by infrastructures, regulations, subsidies, economic interests and social habits that can make change difficult. Identifying these sources of resistance can help policymakers and other actors design strategies that weaken them while strengthening emerging alternatives and enabling a just transition to a new stable state.

Recognizing and acting on windows of opportunity

Tipping dynamics often accelerate during periods when a system becomes unusually sensitive to change. These moments, sometimes described as windows of opportunity or critical junctures, may arise from technological breakthroughs, economic shifts, political change, environmental crises or shifts in public opinion.[143,156] For example, when natural gas supplies to the EU were disrupted by the conflict in Ukraine in 2022, the EU sought to reduce dependence on natural gas by accelerating the transition to renewable energy sources and improving energy efficiency. EU gas demand fell by 13% in 2022 alone – the steepest drop in its history – with renewable capacity additions, efficiency improvements and behavioural changes contributing to structural reductions in gas demand.[177]

The challenge is to recognize these moments and act quickly. Delayed action can allow opposing forces to reassert themselves and slow or even reverse progress. Preparing for these moments may involve scenario planning, monitoring and modelling the system dynamics, and building coalitions capable of decisive action when conditions shift.[163,174]



Practical measures may include participatory decision-making, social protections, reskilling programmes and targeted public investment. These measures can all help maintain public trust and political legitimacy during periods of disruptive change.

Stabilizing new system states

After a tipping point has been crossed, rapid change may continue for some time before a new system stabilizes. Ensuring that the transition leads to durable and equitable outcomes is critical because transitions are more likely to succeed when they are perceived as fair, equitable and inclusive.[178] Many environmental challenges are closely linked to social and economic inequalities, and poorly governed transitions can deepen those inequalities.[179] To ensure that rapid change does not create new inequalities, bottlenecks or environmental impacts, the costs and benefits of change should be fairly distributed, decision-making processes should be transparent and inclusive, and diverse values and livelihoods should be recognized. Practical measures may include participatory decision-making, social protections, reskilling programmes and targeted public investment.[180] These measures can all help maintain public trust and political legitimacy during periods of disruptive change. Transitions that neglect these considerations risk triggering widespread resistance and backlash.

The switch to renewable energy, for example, involves high upfront costs, changes to supply chains and workforce skills, and new grid infrastructure. Without careful management, these challenges can undermine public support and destabilize the emerging system. Governance during this phase therefore involves strengthening institutions and public support, as well as implementing regulations and infrastructure that support an emerging system. Germany's Structural Strengthening Act for Coal Regions illustrates the scale involved. It committed €40 billion to support retraining of affected workers and finance new infrastructure and electrical grid and transport upgrades needed to integrate higher shares of renewables.[181] Policies will need to address longer-term social and economic impacts and ensure that the benefits of the transition will be broadly shared.[175,182,183]

A central challenge in governing tipping dynamics to a new stable state is uncertainty. Complex systems are inherently difficult to predict, and social, ecological, economic and political system dynamics must be addressed together. Rather than attempting to control change precisely, governance strategies often need to emphasize adaptability and learning. Monitoring systems, revising strategies and responding to new information are essential components of managing transformative change.[184] In practice, this means treating policies and interventions as evolving processes rather than fixed plans.

How to recognize when a positive tipping point is near or achieved

Identifying the signals that indicate a system is approaching or crossing a tipping threshold can help decision-makers adjust their strategies and reallocate resources to where they are most effective. Calling these moments too early may lead to premature withdrawal of support for emerging solutions. Recognizing them too late may lead to missed opportunities to strengthen and stabilize a new system state. In practice, tipping points rarely appear as single, clearly defined events. Instead, they tend to become apparent over time.

Several kinds of signals can indicate a system is approaching or crossing a tipping threshold:

1. **Accelerating change:** One of the clearest indicators is acceleration or non-linear change. Acceleration alone does not necessarily indicate a tipping point. Rapid growth can sometimes result from temporary incentives and short-lived enthusiasm. Tipping is more likely when acceleration continues even after initial support measures are reduced or removed.
2. **Growing reaction:** As emerging innovations approach a tipping point, their potential to disrupt and displace the status quo becomes more apparent, provoking increasingly hostile countermeasures. When incumbents shift from predominantly shaping the system to defending their declining power, this indicates an increasingly unstable system at the edge of transition. This unstable, volatile and unpredictable period can be considered a messy middle ground in which government policy, corporate commitment, public debate and financial investment can alternately strengthen and weaken rather than follow a smooth, consistent path.
3. **Weakening resistance:** As a transition gains momentum, the power and ability of incumbents to resist change declines.
4. **Shifting expectations:** Changes in expectations can also signal that a tipping point has been reached. Governments, investors, businesses and households may begin making anticipatory decisions based on the assumption a new system will prevail. Examples include long-term investment in new infrastructure, workforce training for emerging industries, or new regulatory standards aligned with future technologies.[160]
5. **Self-amplifying dynamics:** The strongest indication that a tipping point has been crossed is when changes become self-propelling. At this stage, self-amplifying processes continue to drive transformation even without sustained external input. For example, falling costs and expanding markets attract private investment without the need for public subsidy, or new norms spread by imitation without the need for organized campaigns.[154]

Constructing and adaptively managing positive tipping point processes to accelerate transformations is essential to achieve global goals for nature, climate and human well-being at the scale and pace we need. In the next chapter, we examine the potential for positive tipping points in three of the most important direct drivers of biodiversity loss and climate change: our energy, food and finance systems.





Constructing and adaptively managing positive tipping point processes to accelerate transformations is essential to achieve global goals for nature, climate and human well-being at the scale and pace we need.

CHAPTER 4



Tipping the systems that drive biodiversity loss

Understanding the dynamics of positive tipping points, as outlined in the previous chapter, can help us strategically design interventions and coordinate collective actions to create transformation at the scale and pace we need. Identifying where each of us, as individuals or as a collective, can exert leverage opens credible pathways and increases agency, building hope.

The agency to trigger or accelerate positive tipping points can lie with many different actors and at many different scales: from individuals to institutions, from startups to transnational companies, from local councils to national governments, from community groups to multilateral institutions. Positive tipping points may unfold at different rates and in different ways from country to country or across scales from the local to the global, all with the same overarching goal.

Coordinated action can cause tipping points to cascade across scales and between countries and sectors. For example, in the ongoing energy transformation solar panels are now the cheapest technology for electricity generation in a majority of countries globally; their development and production has been led by only a handful of countries (Germany, Japan, China and the US), but the availability of cheap solar photovoltaic (PV) systems is now driving innovation and implementation in many contexts, electrifying rural households, improving the resilience of food and medical supply chains in Asia and sub-Saharan Africa, and accelerating electrification of transport and home heating (Box 4.1).[166]

Here we focus on the potential for positive tipping points in the energy, food and finance sectors through accelerating energy decarbonization, changing models of food production and consumption, and shifting financial flows and incentives.

Here we focus on the potential for positive tipping points in the energy, food and finance sectors through accelerating energy decarbonization, changing models of food production and consumption, and shifting financial flows and incentives, respectively. In the following explorations, we examine the signs of progress toward a positive tipping point, the potential leverage points to be activated for continued progress, and barriers to overcome to accelerate transformation to a new stable state. We also discuss key areas that need to be addressed to ensure transformations are just and equitable and avoid unintended negative consequences. We compare the progress of each of these sectors by identifying where the transformation lies on the S-curve (the enabling, accelerating or stabilizing phase) and make recommendations for future interventions to accelerate the transformations.



Transforming energy systems

A shift from fossil fuels to renewable energy is critical to address climate change and the resulting damage to nature. Our energy system contributes to three-quarters of all greenhouse gas emissions.[185] A liveable, sustainable future depends on decarbonizing our energy system, making rapid emissions reductions while ensuring everyone can access the energy they need.[186,187] This includes supporting equitable growth and development in countries that bear the least responsibility for climate change while avoiding trajectories relying on fossil fuels.

Continued reliance on fossil fuels undermines energy security and threatens economic stability.

Renewable energies and increased electrification offer the only credible pathway. Solar and wind energy can be rapidly deployed because of their modularity, mass replicability and fast learning curve for deployment.[188,189] For both solar and wind generation, costs have fallen and performance has improved dramatically in the last two decades, with solar power becoming the fastest-growing generation technology in history (Box 4.1).[189] Beyond climate change, a new energy system based on renewables and electrified homes, transport and industries also avoids the environmental and social harms caused by the extraction, processing, transport and burning of fossil fuels.

Energy security, sovereignty and price stability are also vital considerations. Fifty years of oil crises, from the 1973–1974 oil embargo when prices quadrupled overnight to the closure of the Strait of Hormuz in 2026, show that continued reliance on fossil fuels undermines energy security and threatens economic stability.[190–192] Fossil fuels are globally traded, geopolitically exposed and prone to price spikes. In contrast, solar and wind power harvest abundant domestic energy securely, at relatively low cost.

The economic, security, climate and social benefits of a transition from fossil fuels to renewable energy are evident, but even renewables will have an environmental impact that must be carefully managed. For example, solar and wind systems require critical minerals, which are sourced from only a few locations globally. While this will require new mining for some minerals, it has far greater potential for circular, recycling-based business models that recover and reuse key minerals indefinitely. In aggressive scenarios, mining of 125 million tonnes of minerals could supply the batteries to electrify the entire global car fleet and once extracted, be recycled indefinitely; this is 17 times smaller than the amount of oil extracted and processed each year.[159] As well as reducing impacts on nature, particularly when renewable generation is sited to avoid high biodiversity locations, the new energy system will also give us cleaner air, better health and quieter cities.[193,194]



Electrified energy systems based on low-cost, modular renewables like solar PV and wind can make the transition **fairer**, because they are more flexible, adaptable, low-cost and resilient; **greener**, because they reduce greenhouse gas emissions and minimize physical impacts on nature since they require lower resource extraction compared to fossil fuels and have less intrusive infrastructure than other renewable energy sources; and **faster**, because their modularity and fast learning rates give them potential for exponential growth in deployment.

Box 4.1 The rise of solar power

The current exponential growth of solar PV technology was not inevitable. It is the result of a series of deliberate, policy-driven responses to recurring energy security crises, strategies for energy sovereignty, and environmental and health concerns.

Solar cells were invented in 1883, but the first commercially available model was developed in 1954 by the American company Bell Labs and found a niche market powering space satellites.[195] The 1973–1974 oil embargo revealed the vulnerability of economies that rely on imported oil and gas, prompting governments – especially the US and Japan – to invest in alternatives as a national security priority.[196] This drove improvements in solar cell design and production methods. US interest waned during the 1980s, but the Japanese government continued to back solar innovation and market creation, first through consumer electronics and later through rooftop solar programmes. Policy incentives allowing Japanese households to sell their excess solar power back to the grid (feed-in tariffs) helped to embed solar into the energy system. By 2000 the cost of a solar panel had fallen by a factor of 20 and Japan was the global market leader.[196]

A second major inflection point came in the early 2000s, this time led by Germany. Mandated targets for solar power and attractive feed-in tariffs for consumers drove rapid accelerations of supply and demand. Social contagion played a big role in public uptake, with early adopters providing information to neighbours. At the same time, the Chinese government recognized solar PV as a strategic industrial opportunity. It heavily subsidized domestic production, which scaled rapidly with strong export demand from Germany and international finance. This led to a 100-fold increase in capacity from 2005 to 2010, a dramatic fall in the price of solar panels, and China capturing 60% of the global market. With targeted support, China has also developed a large domestic market.[197]

Recent surges in solar deployment also reflect a renewed emphasis on energy security. Solar power – which is modular, rapidly deployable and domestically producible – has the potential to again become the focus of national strategies for energy security and economic stability. As solar PV rises rapidly up an ever-steeper acceleration phase of the S-curve, what was once a niche technology is fast becoming a cornerstone of secure and sovereign energy systems.



Tracking progress along the S-curve

Profound changes in energy systems are already under way. Solar power is now the cheapest option for electricity generation in most countries: new utility-scale solar averages US$38–78/MWh, versus US$48–109/MWh for gas.[198,199] As a result, it is growing exponentially, doubling every three years (Figure 4.1) and consistently exceeding predictions.[200,201] Record solar growth in 2025 meant that for the first time, clean power sources grew fast enough to meet all new electricity demand.[202] Wind power is also accelerating, albeit at a slower rate.[203] Globally, we are well past the tipping point and into the acceleration phase (Figure 4.3a).

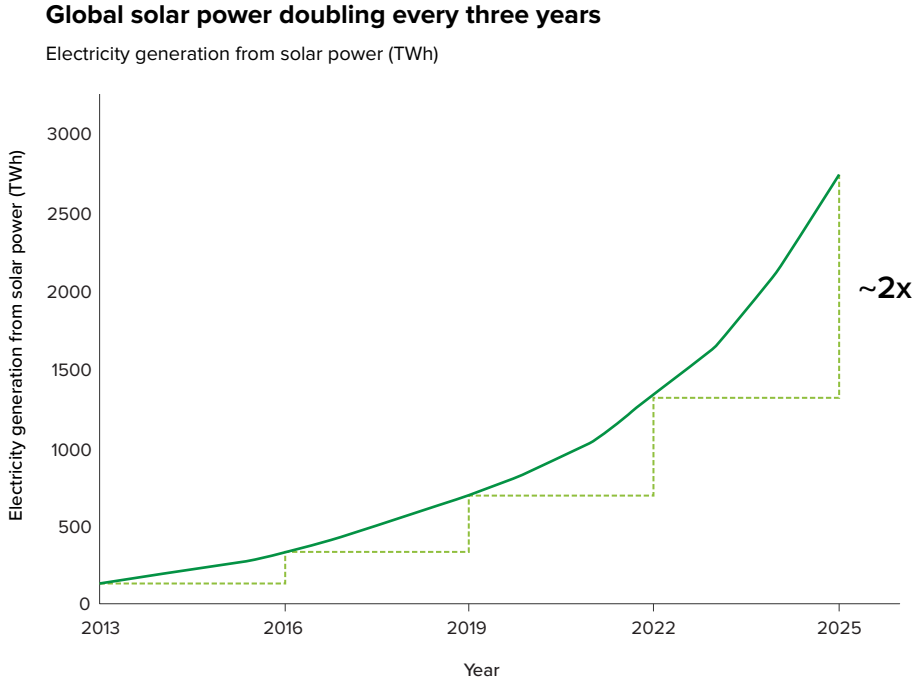


Figure 4.1 Global solar power generation (TWh) is doubling every three years, with the fastest growth rate from 2021 to 2024, and is now the cheapest energy source for electricity generation in most countries. Figure adapted from Ember 2026.[204]

Although countries vary considerably in their position on the S-curve, conditions for rapid growth exist almost everywhere. Chinese mass production of solar panels has reduced prices sufficiently to make household solar systems widely accessible in many countries.[205] Pakistan's 'solar rush' (Box 4.2) is a particularly striking, bottom-up example of people exercising their collective agency to influence decision-makers and markets.[189]



Box 4.2 A solar rush in Pakistan

Pakistan imported 17GW of solar panels in 2024, doubling the previous year and becoming the world's third-largest market for new solar installations. Devaluing of the rupee driven by Pakistan's economic crisis, high global fuel prices, mandatory fixed costs to maintain underutilized thermal power plants, and removal of subsidies for industrial and domestic users have driven spiralling electricity costs. With electricity tariffs increasing up to 155% over three years, grid power has become both unaffordable and increasingly unreliable as demand and investment have fallen. Simultaneously, rapid falls in global prices for solar panels coupled with government policies – including the decision to exempt solar panels from import duties and sales taxes – mean rooftop solar offers a cheaper, more reliable electricity supply than a grid connection.

The same is true in the agricultural sector, where removal of diesel subsidies has tipped the balance toward solar irrigation pumps. Farming contributes nearly 20% of Pakistan's GDP, employs 38% of its workforce and relies to a significant extent on up to 2 million irrigation wells. These previously relied on generators running on expensive imported diesel, but the rapid shift to solar has led to a restructuring of energy demand and access in rural Pakistan, with agricultural electricity use jumping by 34% in 2024 alone.

The vast majority of Pakistan's solar imports are driven by individual consumers for low-cost, small-scale distributed and off-grid installations, with only around 2% of imports between 2019 and 2024 used in utility-scale installations. The amplifying feedbacks of social contagion and learning-by-doing have played a vital role in driving adoption while building installation capacity and experience and strengthening local economies through resilient, reliable and cheap access to electricity.[189,206]



Investment and import markets for green technologies are now growing rapidly across Asia, Africa and Latin America, where countries are shifting to renewables and electrifying faster than the EU and US (Figure 4.2).[207,208] This enables countries to expand electricity access and economic growth while avoiding emissions and enhancing energy security. In turn, the availability of low-cost, resilient electricity generation is enabling local innovation and new economic opportunity in transport, software, digital technologies and related industrial sectors.

Emerging market leapfrog has strong momentum

Solar and wind (%)

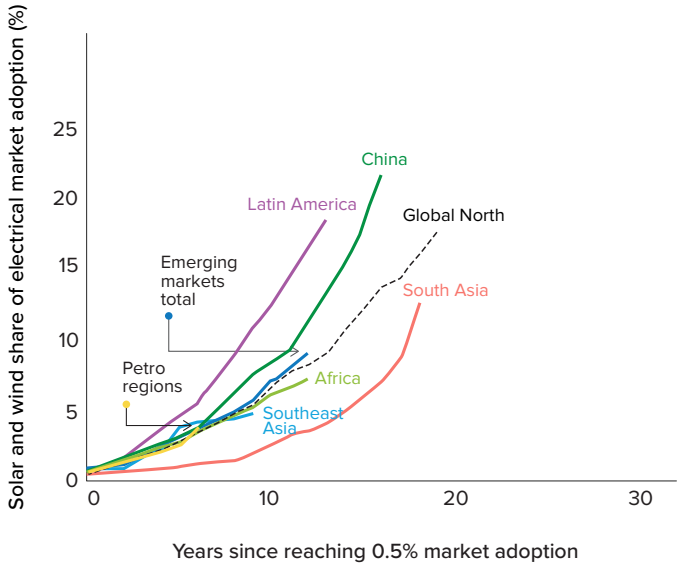
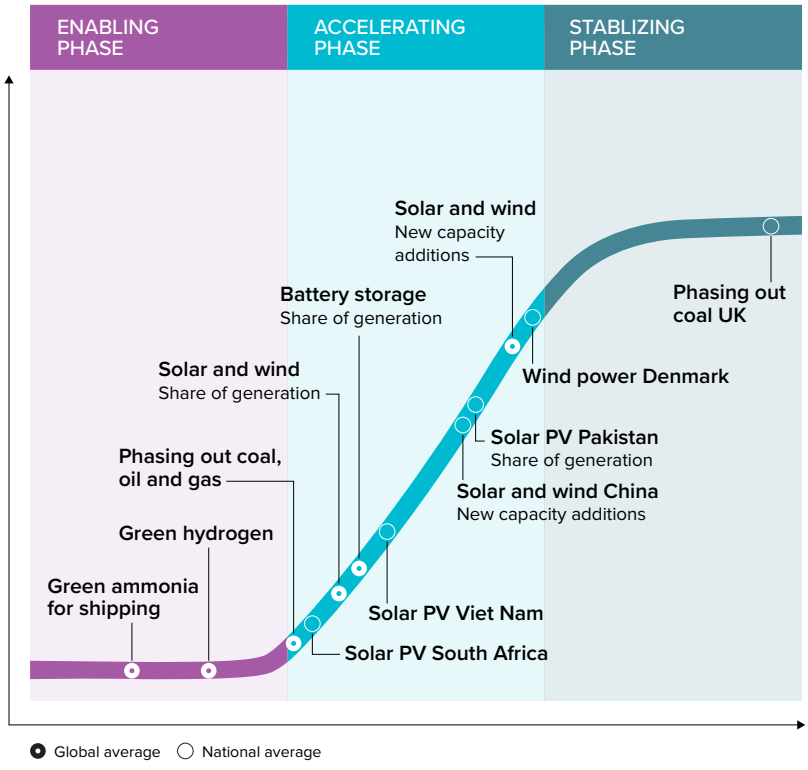




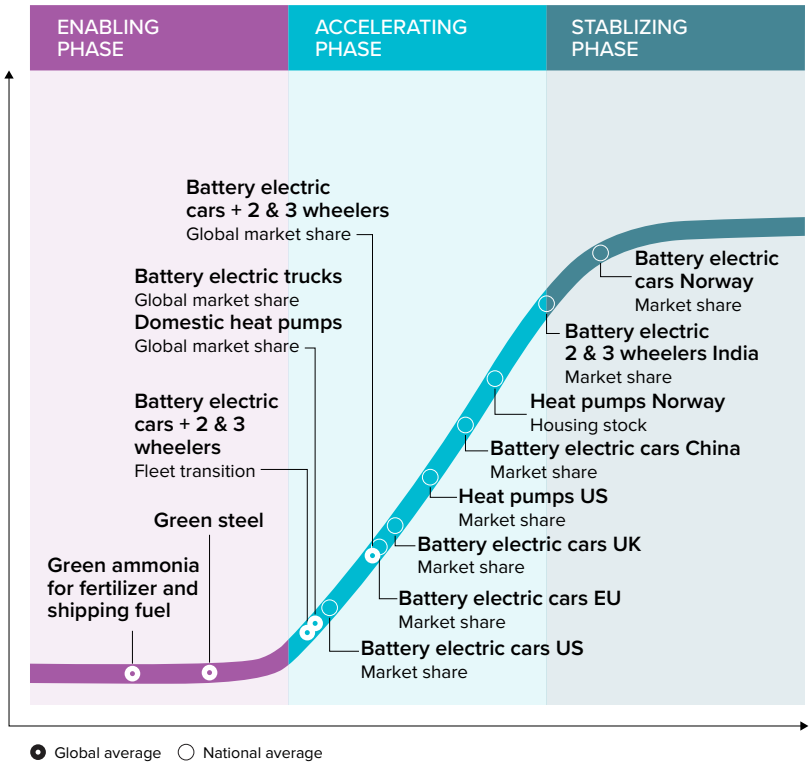
Figure 4.2 Emerging markets have strong momentum in the adoption of renewable energies for electricity generation, and in many cases the transition is faster than in the Global North. The graph shows the market share of renewable electricity generation in the years since it reached 0.5% of the market. Emerging markets have outpaced the Global North with Latin America and China leading the way. Emerging markets include Latin America, Africa, South Asia and Southeast Asia. The petro regions (in yellow), including the Middle East and Eurasia markets, have been slower to adopt renewable energy technologies. Sources for data: IEA, RMI, and Ember. Figure adapted from Ember 2026.[204,209]

For household-scale installations (such as rooftop solar on residential properties), social contagion is playing an important role in driving adoption. People are learning from the experiences of their neighbours and peers, and increasing visibility builds awareness and trust.[210,211] At the same time, learning-by-doing enhances the capacity of installers and the wider solar value chain. This, in turn, reduces barriers to adoption and strengthens advocacy for the sector, influencing policy.[212]

While electricity is only part of our energy system, as the costs of renewable electricity fall, technologies that electrify energy demand are accelerating rapidly, particularly in emerging economies. Domestic heat pumps for buildings already dominate in some markets. In the US, heat pumps outsold gas furnaces by 30% in 2024, while in Norway, 60% of buildings are equipped with heat pumps (Figure 4.3b).[166] Sharing experience internationally could help overcome barriers and accelerate change in markets where adoption has been slower.



a. Renewable energy supply transition examples along the S-curve



b. Renewable energy demand transition examples along the S-curve

Figure 4.3 Example of progress of the renewable energy supply (a) and demand (b) transition along the S-curve. The transition of the whole global energy system has likely passed a tipping point through achieving self-propelling acceleration in both renewable energy supply and electrification of a key demand-side sector in mobility. Globally, the energy system is now likely a third to midway through the acceleration phase (examples above the curve). The rate of progress is very country dependent (examples below the curve).

Transport is decarbonizing exponentially, driven by cost reductions and improved battery performance through economies of scale and learning-by-doing (Figure 4.3b). While Norway is the leader in transport electrification, the fastest growth globally is in small two- and three-wheeled vehicles for transport and last-mile delivery in urban centres, with key centres of innovation in India, East Africa, Southeast Asia and China (Figure 4.3b). In 2024, 38% of global two-wheeler sales and 80% of three-wheeler sales were electric.[213]

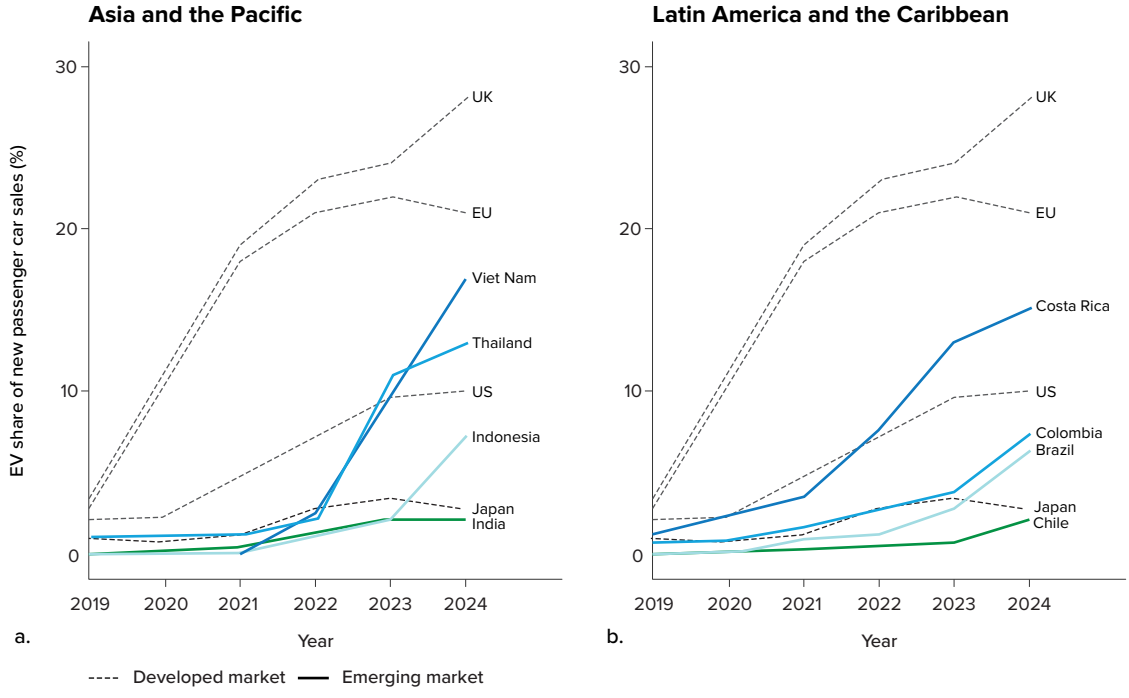
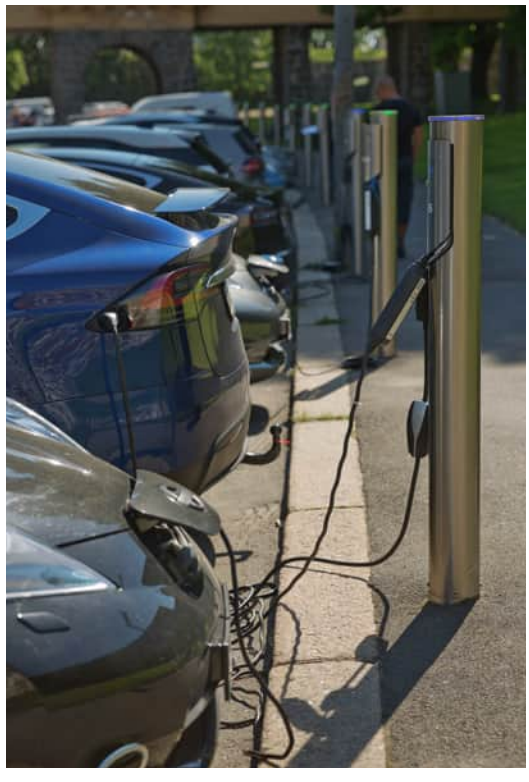


Figure 4.4 The EV share of new passenger vehicles is growing rapidly in emerging markets in (a) Asia and the Pacific and (b) Latin America and the Caribbean relative to developed markets. Coloured lines show the percentage share of EVs in new car sales, while the grey lines show the same in developed markets. EVs includes plug-in hybrid electric and battery electric vehicles. Data sources: IEA.[209] Figures adapted from Ember 2025.[214]

The switch to battery electric cars has been led by traditional major markets in Europe, China and the US, but is now cascading into other markets as manufacturers, especially in China, seek to grow exports (Figure 4.4).[215] More than 25% of all new cars sold in 2024 were EVs, and the global stock of around 58 million battery EVs is displacing around 1.8 million barrels of oil consumption every day.[202] In Norway, battery EVs accounted for 96% of new vehicle sales in 2025, while in China, the world's largest car market, battery EVs passed 50% of new sales in July 2024.[213,216] Electric trucks are behind cars but are moving quickly from the enabling to the acceleration phase.[217]

Improved, cheaper batteries developed for EVs are, in turn, enabling continued acceleration in solar and wind power.[160,202] Utility-scale battery installations, as well as the distributed storage capacity of millions of EVs, offer a flexible, cheap and responsive means of balancing supply and demand on electricity grids and maximizing the use of intermittent solar and wind power by storing surplus renewable energy and using it later to displace fossil fuel generation throughout the day.[189,202]





While many countries have passed the tipping point in building the energy system we need, it will take time to displace the old one. But here too, the indicators are positive. In 2024 solar and wind together contributed around 14% of actual global electricity generation, up from less than 5% in 2015. In contrast, fossil fuels contributed less than 60% of global electricity generation for the first time since the 1940s.[189] Both China and India appear to be on the cusp of decoupling economic growth from rising fossil fuel consumption, with India shifting toward a solar-powered economy even faster than China.[189,202,208] The phase-out of fossil fuels is still in its early stages globally, but well into the acceleration or even stabilization phases in some markets. The UK ended coal burning on its grid in 2024 (Figure 4.3a), and others are rapidly following with with 27 of the 38 Organization for Economic Co-operation and Development (OECD) countries committed to being coal-free by 2030.[218,219] As wind and solar begin to replace our current fossil-fuel infrastructure and deliver most global electricity generation, the new, renewables-based energy system will enter its stabilization phase.

The strong feedbacks between increasingly affordable, attractive and accessible energy supply and electrified energy demand make the two sides of this transition mutually reinforcing, unlocking a self-propelling cascade of transformation across the whole energy system (Figure 4.5).

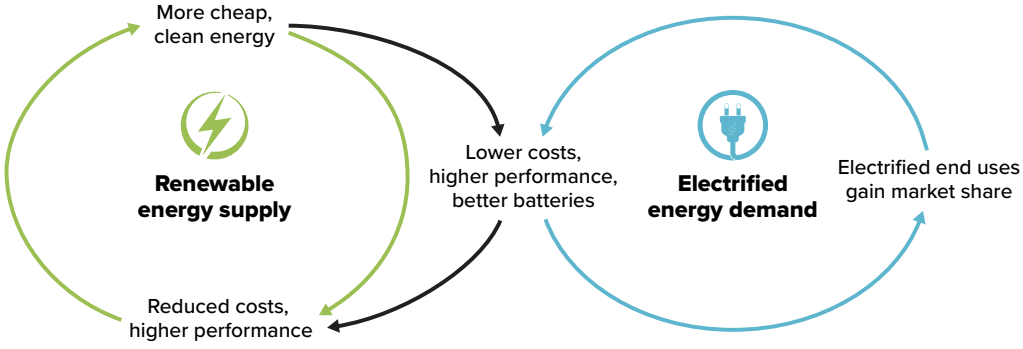


Figure 4.5 The supply- and demand-side transitions create reinforcing feedback loops where advances in technology (renewable energy supply) and changes in behaviour (electrified energy demand) accelerate one another.

Despite this momentum, the transition is not yet happening fast enough to avoid dangerous climate change, and the rate of progress varies significantly between countries, sectors and applications. Multiple political, economic and technical challenges remain, from supply-chain bottlenecks to grid infrastructure to the way energy markets are structured. For some energy-intensive industries, such as shipping, aviation and certain chemicals, zero-carbon solutions are still emerging and are far from commercially viable.[166] Continued investment in innovation remains critical.



Identifying leverage points

By identifying and acting on key leverage points, we can accelerate the transition ongoing in the global energy system.

Supply-side leverage points

- **Invest in resilient supply chains and domestic manufacturing capacity for renewable energy**, strengthening energy sovereignty and security while providing new jobs and driving economic growth. The renewable energy sector employs at least 16.6 million people globally, and drove 10% of global GDP growth in 2023, a contribution which is expanding rapidly, especially for leaders like China.[220–222] Countries that are exporters of the critical minerals that underpin the green transition, and which bear the environmental costs of their extraction, should be able to benefit from value enhancements along the supply chain, such as value created after processing.
- **Boost training, skills and employment across the renewable energy value chain** to reduce barriers to installations. This creates a positive feedback loop, as more long-term jobs and tangible economic benefits drive support for stronger clean energy policy.[212,223]
- **Design policies and regulations to speed up planning consent** for renewable installations and grid connections, while minimizing damage to nature and addressing public concerns. 'Safe zones' for new renewable energy developments (onshore and offshore) could help accelerate rollout.[194,224]
- **Unlock capital investment** in renewables through electricity market structures that ensure stable returns, subsidies and other favourable fiscal measures. In the Global South, financial risk reduction measures like debt guarantees can help facilitate investment.[225] Successful early investments can generate their own amplifying feedbacks by encouraging other investors to crowd into the space.
- **Remove fossil fuel subsidies and impose costs on carbon-intensive generation.** Funds can be reallocated to support investment into renewable energy generation, and to support a socially just transition.
- **Scale up flexible storage** for electricity generated by intermittent sources like solar and wind. Battery storage capacity is accelerating rapidly, but long-duration storage is still an important gap.[202] Pumped hydropower, which provides 90% of the world's long-duration energy storage, can help fill this gap, but is limited by geography.[226] Long-term energy storage solutions under development range from redox-flow, solid-state and sodium-ion batteries to compressed and liquid air energy storage plants.
- **Improve grid transmission** to accommodate the variable electricity supply from solar and wind. Investment into upgraded grid capacity is increasing, but a critical mass of successful grid development experience is needed to reach a positive tipping point. China is the leader, having invested heavily in high-voltage grid design and installation over the past decade to enable efficient transmission from renewable energy generation sources in the west to the large cities in the east.

Demand-side leverage points

- **Increase the competitiveness of battery EVs, heat pumps and other electrified end-uses.** Lowering the cost of electricity through accelerating deployment of renewables, fiscal measures, subsidies, flexible tariffs and other interventions increases the economic attractiveness of electrified technologies, an important tipping threshold. Public procurement (for example, cities purchasing electric buses) can help to grow niche markets. Favourable tax policy and subsidies can encourage uptake.[227] Innovation can improve accessibility and attractiveness: new, zero-carbon alternatives do not have to be like-for-like replacements.
- **Invest in charging infrastructure for battery EVs.** Public charging infrastructure has in general kept pace with EV adoption, but higher ratios of chargers to vehicles help to make EVs more attractive.[199,215,228] Continued investment in accelerating rollout and improving accessibility through standardization and technological improvements are essential.
- **Commit to strong policy goals including mandated targets** to provide certainty to businesses and investors. Examples include coordinated cutoffs for ending sales of new petrol and diesel vehicles across multiple markets, or regulations requiring new buildings to have heat pumps and solar panels.[215]
- **Develop circular processes to limit the environmental impacts of critical materials.** Although causing far less environmental damage than fossil fuel extraction, renewable energy technologies require materials that must be mined from specific locations. Opportunities exist to limit these impacts through reducing the need by improving efficiency, replacing rare materials such as lithium with more commonly available alternatives like sodium, and recycling the materials used.[229,230]
- **Focus on key household renovation and purchasing moments**, for example, when heating systems are being replaced. Aligning standards, incentives, finance offers and delivery capacity at these moments increases uptake.[231,232]
- **Accelerate the transition to electric cooking.** Alternatives to the use of fossil fuels or wood-burning for cooking are an urgent global priority, and there is evidence of increasing global take-up as small-scale solar energy accessibility expands.[233] Economic incentives are required to lower the upfront cost of electric cookers, as well as efforts to convince consumers of the benefits despite cultural familiarity with existing cooking methods.
- **Address barriers to building electrification**, for example the high upfront cost, lack of installers and consumer concern. Effective approaches include providing cheap and accessible finance, training/certification and quality assurance, and information campaigns for consumers.[234]





Governing the transition

Any large-scale energy transition redistributes costs, benefits and political influence. If this is not governed well, the transition will be slower, less fair and more politically volatile.[235] There are many actions proponents can take to actively steward the transition from the enabling phase to the stabilizing phase, as outlined below.

Manage incumbency and stranded assets. As policy, technology and market expectations shift, some fossil-fuel reserves and infrastructure will lose value and become 'stranded' assets. Stranded assets in the upstream oil and gas sector alone could exceed US$1 trillion under plausible shifts in climate policy expectations, with much of the risk ultimately born by OECD-based private investors, including through pension funds and financial markets.[236] If poorly managed, these losses could spill into pension savings, public finances and broader financial stability. Mitigating these risks requires an orderly phase-out of fossil fuel finance, stronger financial regulation and international cooperation to prevent capital from simply shifting to less regulated markets.[237]

Transition livelihoods. Workers and communities whose livelihoods are dependent on fossil fuels must be supported through social protection, active labour-market policies, retraining and regional economic development. These measures need to be planned early in collaboration with workers, employers, local authorities and affected communities, rather than offered only after closures are announced.[238–240]

Support should also include the remediation and repurposing of former mining and fossil energy sites, so that closure is visibly tied to local redevelopment rather than long-term decline.[239,240] A just transition must also govern the scale-up of critical minerals responsibly. Many energy transition metal resources are in high-risk social and environmental contexts, requiring due diligence, community consent, labour protections, traceability and robust environmental safeguards.[241,242]

Partner with Indigenous Peoples and local communities. The take-up and sustainable use of new energy systems will depend upon buy-in from local consumers. There may be factors indirectly related to shifting energy use, such as cultural preferences or atypical local conditions, that cannot be identified externally but must be integrated during the design phase to achieve successful and lasting results. Early engagement and collaboration with Indigenous Peoples and local communities is essential to reach a resilient and positive outcome.

Ensure access and affordability. Electrification strategies need to ensure fair access to clean alternatives, targeted support for low-income households and renters, and investment plans for underserved regions.[243] For many lower-income and emerging economies, fossil fuel phase-out remains sensitive, particularly where energy access gaps persist and development priorities are pressing. International climate finance is especially important where financing costs and debt stress are high. In practice, calls to leave fossil fuels in the ground are credible only when paired with affordable clean energy alternatives, lower-cost capital and support for electrification plans, including decentralized renewable solutions where they are least-cost options.

Build nature-safe infrastructure. Large-scale wind and solar farms, offshore infrastructure, transmission lines and critical mineral development all have spatial footprints. This demands strategic spatial planning, environmental impact assessment, early public participation and visible local benefit-sharing. Energy planning should prioritize previously developed areas and projects that are compatible with agriculture and other land uses and avoid biodiversity hotspots to ensure that new developments are nature-safe as well as climate-safe.[244,245]

The underlying economics of the energy transition are already self-reinforcing. Governing the transition is now the work of managing those political risks fast enough that the technology and economics can do what they are already doing.



Transforming food and agriculture systems

The global food system is the largest single driver of biodiversity loss through habitat destruction, accounts for roughly 30% of greenhouse gas emissions, and has propelled Earth systems past seven of the nine planetary boundaries.[246,247] It is also failing humanity: 673 million people are undernourished while over a billion are obese, and less than 1% of the world population eats within both planetary and nutritional boundaries.[247–249] The hidden environmental and health costs of the current agriculture and food system are estimated to be more than US$10 trillion per year, or roughly 12% of global GDP.[250] Transforming the global food system would require a US$500 billion investment per year, but this would generate a net economic benefit of US$5–10 trillion annually, save 174 million lives by 2050, turn farmland into a carbon sink by 2040, and create 1.2–1.7 million km^2 of habitat for biodiversity.[250,251]

Transformative action on the food system delivers extraordinary benefits in environmental, economic and human health.

Three connected elements of the food system can tip the system: (1) a transition to nature-positive production and harvest, (2) a shift to healthy and sustainable diets, and (3) a reduction in food loss and waste (Figure 4.6). Production and diets are the primary tipping elements while reductions in loss and waste act as an enabler that amplifies both. Together they hold the potential to turn the food system from the single greatest driver of nature loss into an ongoing contributor in nature restoration.

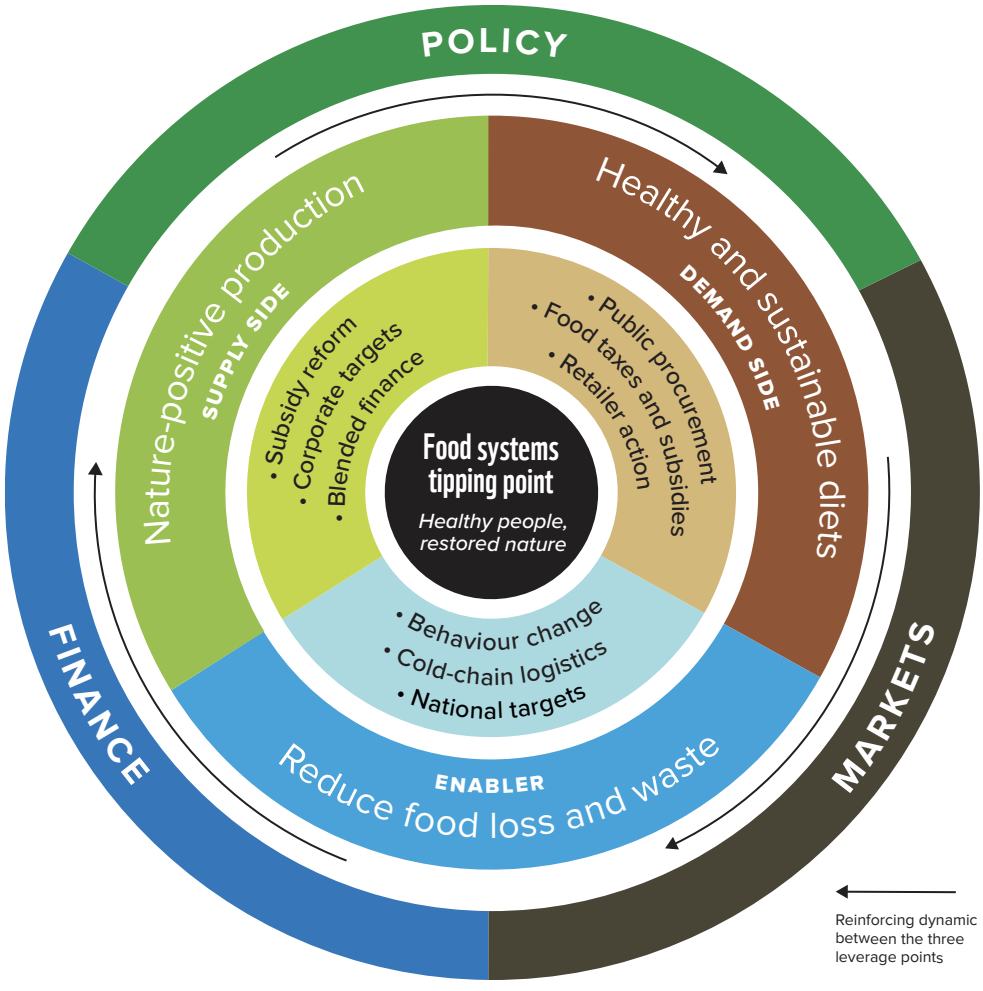


Figure 4.6 Tipping the food system requires three scaling mechanisms: policy, finance and markets. All need to be implemented simultaneously to achieve a positive tipping point that can propel change at the pace and scale required to halt the loss of biodiversity and stabilize the climate. Each tipping element has multiple tipping levers (inner concentric circle) that can be deployed. Three example are provided.

Central to this is ending the conversion of intact natural lands and waters for food production. Humanity already farms 4.8 billion hectares (37% of global land area) and needs no more land area to meet its food production needs. This means producing more from existing land while restoring soil, water and ecosystem services.[247,252] It also demands a shift away from overconsumption of terrestrial animal-based foods and associated feed production, which use as much as 20 times more land per gram of protein than plant-based foods (Figure 4.7).[253–255]

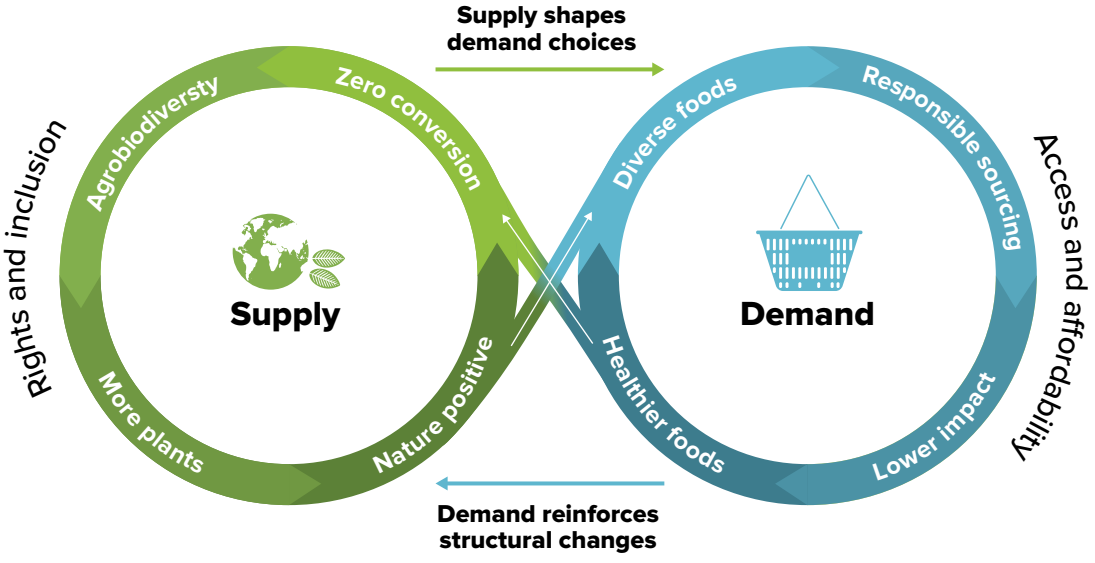


Figure 4.7 Tipping the food system requires simultaneous action on supply (nature-positive production) and demand (healthy and sustainable diets). These two tipping elements are deeply interconnected. When enabled by reductions in food loss and waste, they hold potential to transition the global food system from the single greatest driver of nature loss to an active contributor to nature's restoration, while providing healthy and nutritious food for everyone.

Tracking progress along the S-curve

The food system transformation is in the enabling phase of the S-curve on both the supply (production) and the demand (diets) sides, with no country having reached a tipping point (Figure 4.8). Commitments are in place at every level of governance on both supply and demand sides, but tangible progress is uneven and slow, with advances in some countries and setbacks in others. Dampening feedbacks remain strong and policies and incentives in major markets still reward high productivity, low food prices and capital-intensive, technology-led solutions at the expense of sustainable production of healthy foods.[256,257] Financing and extension services continue to favour unsustainable practices and commercial actors who have a strong vested interest in the status quo exert disproportionate influence.[258]

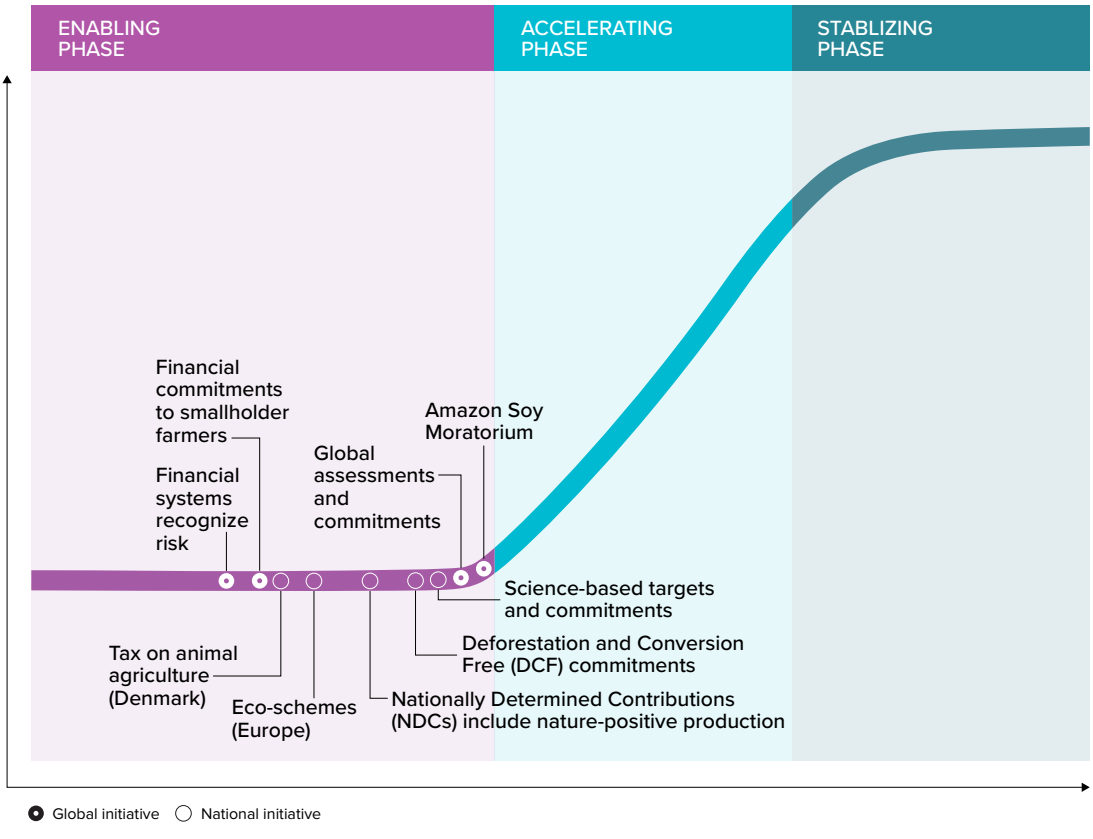
The most consequential dampening feedbacks are subsidies. Governments spend approximately US$540 billion per year supporting agricultural producers, of which US$470 billion (87%) goes toward price-distorting or environmentally harmful activities.[259] Without a repurposing of subsidies, nature-positive production cannot compete.

The most consequential dampening feedbacks are subsidies. Governments spend approximately US$540 billion per year supporting agricultural producers, of which US$470 billion (87%) goes toward price-distorting or environmentally harmful activities.



Of the three tipping elements, most progress has been made on nature-positive production (Figure 4.6), particularly on tackling commodity-driven deforestation.[260] Over 400 companies have set science-based targets for reducing greenhouse gas emissions from their forest, land and agriculture supply chains, and a growing number have set similar targets for reducing their impacts on nature.[261–263] Mandatory due diligence and disclosure requirements, most notably the EU Deforestation Regulation, have accelerated advances in traceability and monitoring systems. Companies have also begun to set commitments beyond deforestation and conversion by integrating nature-positive agriculture into their sustainability strategies.[264] Denmark has gone further, introducing the world's first carbon tax on agriculture, due to take effect in 2030, with rebates to farmers who achieve low emissions through improved soil health, change in fertilizer use and habitat restoration.[265]

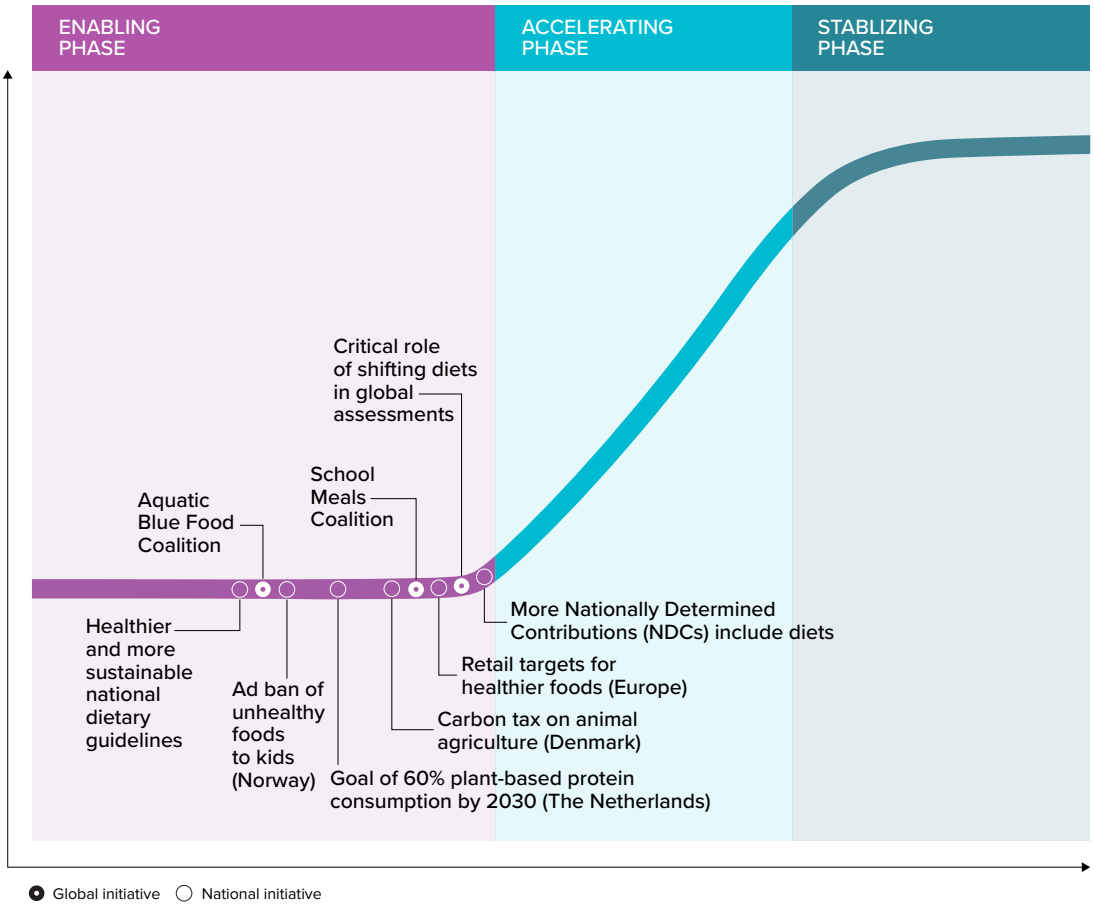
The finance system is beginning to recognize the risks related to nature degradation and climate change caused by food production by mapping their risk exposure, conducting due diligence on clients and disclosing the risk in their portfolio.[266] Very few governments have passed enabling regulatory policies, and financial regulators have yet to adopt precautionary approaches on nature risk. Both will be required to push nature-positive food production into the accelerating phase.



a. Food supply transition examples along the S-curve

Figure 4.8 Examples of progress of the food (a) supply and (b, on the following page) demand transition along the S-curve. The transformation of the global food system on both the supply and the demand side is in the enabling phase of the S-curve and neither has reached a positive tipping point in any country. Globally, experimentation to catalyse the food system transformation is in its early stages of conducting global assessments, building coalitions, and setting targets and commitments (examples above the S-curve), while a few countries have taken leadership positions (examples below the S-curve).

On the demand side, the picture for sustainable diets is mixed and the momentum is concentrated in Europe (Figure 4.8b). This has an outsized influence on global food markets since the diets of the wealthiest 30% of the global population account for more than 70% of damage to biodiversity and the climate from food systems.[247] Both the EU and national governments are setting policies to encourage consumption of healthier foods and restructuring dietary guidelines in recognition of the economic, human health and environmental costs of the current food system.[267] The European Commission's science and knowledge service recently published voluntary criteria for sustainable public procurement of food.[268,269] Norway has banned the marketing of unhealthy foods and drinks to children.[270]



b. Food demand transition examples along the S-curve

Figure 4.8 (continued) Examples of progress of the food (a) supply and (b) demand transition along the S-curve. The transformation of the global food system on both the supply and the demand side is in the enabling phase of the S-curve and neither has reached a positive tipping point in any country. Globally, experimentation to catalyse the food system transformation is in its early stages of conducting global assessments, building coalitions, and setting targets and commitments (examples above the S-curve), while a few countries have taken leadership positions (examples below the S-curve).

Identifying leverage points

Nature-positive production

Nature-positive production is the umbrella term for forms of agriculture, fisheries, and aquaculture (including agroecology, regenerative agriculture and climate-smart agriculture) that prevent further conversion of natural lands and waters, manage production sustainably, and restore soil, water and ecosystem services (Figure 4.6).[271,272] The central question is whether nature-positive production approaches can compete with industrial-scale systems on productivity. A review of agroecological practices in low- and middle-income countries found higher crop yields in 63% of studies, along with increased net income, and improved pest regulation and resilience.[273] Many other promising examples are demonstrating that nature-positive approaches can compete with existing, less sustainable production models.[247,274–277] In many cases, nature-positive production generates amplifying feedbacks as improved ecosystem health enhances productivity and resilience, which in turn supports livelihoods and encourages further adoption.[278,279] The barriers are financial, institutional and behavioural, not technical.

Policy

More than 130 countries have national-level strategic plans for food system transformation, but commitments have not translated into supportive policies and financial incentives that allow nature-positive production to compete with the incumbent.[280,281] Repurposing even a fraction of the US$470 billion in harmful subsidies would change the dynamics. New South Wales' Nature Positive Farming programme, a certification scheme that provides financial rewards to farmers who improve the biodiversity value of their land, illustrates the repurposing of incentives at a subnational scale.[282,283] Aligning national climate plans and biodiversity strategies with sectoral food system targets could help create the policy certainty needed to attract long-term investment.



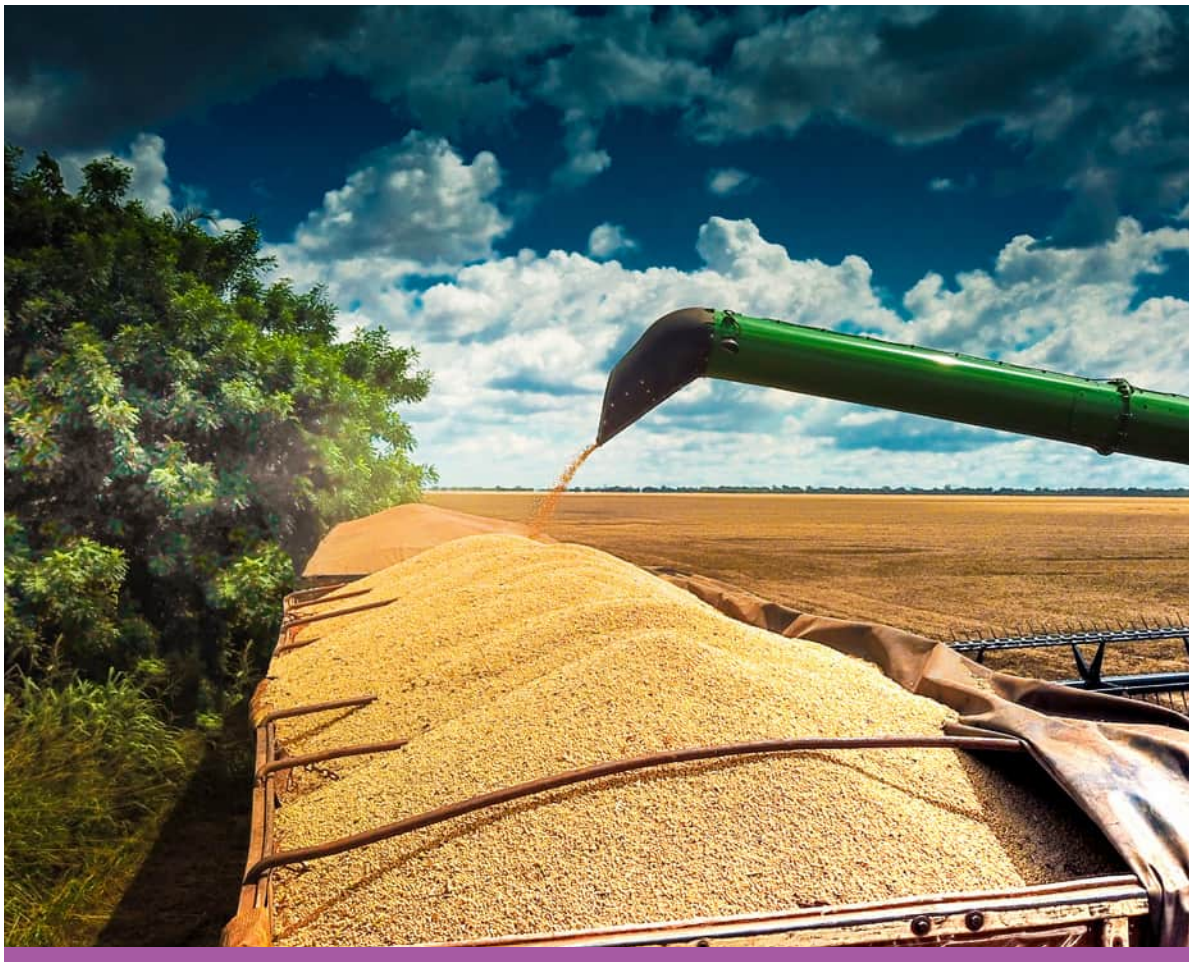
Repurposing even a fraction of the US$470 billion in harmful subsidies would change the dynamics of the food system.

Markets

Businesses shape what is produced, how it is grown or caught and the standards that ripple through global supply chains. This gives them considerable leverage, particularly over high-risk commodities such as soy and palm oil. Their purchasing policies send signals to suppliers, farmers and fishers, and their investments can accelerate – or hinder – the shift to nature-positive production. The Amazon Soy Moratorium illustrates both the speed at which coordinated market intervention can move and the fragility of voluntary commitments without the necessary policy supports (Box 4.3). In contrast, the trajectory of sustainably caught tuna demonstrates what happens when demand signals are sustained: independently certified volumes have increased from 1 million tonnes in 2017 to over 3 million tonnes annually as of May 2026, more than half the global catch.[284]

Finance

Financing the transition requires governments to enact policies for stricter disclosure, lending and investment standards, while simultaneously developing financial products that support nature-positive production.[285,286] Public funding and subsidies must be redirected from harmful uses toward sustainable practices.[287,288] Blended financing, or pooling public, private and philanthropic capital, can derisk early-stage investment in the enabling phase for regenerative agriculture and aquaculture and strategically target specific sectoral and local financial needs.[289]



Box 4.3 Brazil soy and the limits of supply-chain interventions

Brazil's Amazon Soy Moratorium, introduced in 2006, brought commodity traders, civil society and government together to exclude soy grown on land deforested after 2008 from the market.[290] Before the agreement, nearly 30% of soy expansion in the Brazilian Amazon resulted in deforestation.[291] Within a decade, this figure fell to 2%, making the Amazon Soy Moratorium one of the most successful coordinated supply chain interventions to reduce deforestation.[290,291]

Global demand for soy, driven largely by livestock feed, continued to grow, maintaining pressure for land conversion. In January 2026, after sustained pressure by local stakeholders and political interests of those who profit from cheap land expansion over natural habitats, major producers and traders withdrew from the agreement, increasing the risks for more Amazon deforestation attached to soy production and expansion, very likely affecting most of the soy supply chain.[292]







Key to shifting diets is addressing the food environment, or the physical, economic, political and sociocultural contexts that shape people's food choices.

Healthy and sustainable diets

Shifting diets is one of the most effective ways to reduce the environmental impacts of the food system and a prerequisite for avoiding further conversion of natural lands.[247,252,293] There is no one-size-fits-all prescription in the shift to healthier and sustainable diets. In countries where animal-source foods are overconsumed, a large reduction is needed, while in areas that still suffer from poor nutrition, an increase in consumption of animal protein may be beneficial. Across most of the world, increased consumption of fruits, vegetables, legumes, nuts and low-trophic marine and aquatic foods (e.g. molluscs, small pelagic fishes or aquatic plants) is needed to meet sustainability and health goals.[247,252,294]

Key to shifting diets is addressing the food environment, or the physical, economic, political and sociocultural contexts that shape people's food choices. Three thresholds matter most: affordability, attractiveness and accessibility.[295] Food choices are highly influenced by cost, and rapid scaling becomes possible when policy and market action move healthy and sustainable food to reach price parity with less healthy or unsustainable options.[296]

Policy

There are many policy levers to increase sustainable healthy diets. Combining taxes of 10–15% on unhealthy, unsustainably produced foods with subsidies for healthy, sustainable options has been shown to significantly influence consumer behaviour.[297,298] Food assistance and voucher programmes increase the purchase of healthy foods, improving food security and enhancing nutrition knowledge.[299] National dietary guidelines should integrate environmental criteria alongside health.[300] National policies should incorporate healthy and sustainable diets into mechanisms such as climate plans (nationally determined contributions, or NDCs) and national biodiversity strategies and action plans.

Public procurement is a powerful lever for changing the food environment. Governments are major food buyers, and their procurement policies can simultaneously determine what food is purchased (e.g. local, diverse, nutritious), from whom (e.g. local or family farmers, small enterprises, women and youth), and from what type of production (e.g. nature-positive farming, sustainable fisheries).[301] Under Sweden's national procurement framework, the city of Malmö now sources 70% organic food in public kitchens and has cut food-related greenhouse gas emissions by 30%.[302] Subsidized school meal programmes can address undernutrition, obesity and environmental sustainability at the same time.[303]

Markets

In many countries, 50–60% of all food is purchased through food retailers, with a few chains controlling most of the market.[304,305] This concentration can be a powerful lever for rapidly accelerating a transition to healthier, more sustainable diets, when leading retailers commit to change and competitors are forced to follow (Box 4.4). Greater availability and prominence of healthier, more sustainable options on the shelf normalize new eating patterns and accelerate further demand.[306]

Box 4.4 A tipping point toward healthy diets in Germany



Consumer demand for plant-based foods is already substantial and growing.[307] Germany is Europe's largest plant-based food market, and around 70% of food consumed there is sold by traditional retailers.[308,309] Several German retailers have developed explicit protein diversification targets, treating the expansion of plant-based proteins as a core strategy rather than a niche. Retailers are responding to growing consumer interest in healthier and more sustainable diets, improving the price competitiveness of plant-based products and developing new categories of plant-based foods.[310]

This is how positive tipping points form in retail food markets. Beyond a threshold of 25% of the market participating, competitive dynamics begin to reinforce the transition.[311] Germany is projected to reach the stabilization phase on the S-curve in sustainable diets between 2034 and 2043 in which sustainable diets are the norm.[310] It's no longer a question of whether a tipping point will be reached – only when.



Food loss and waste

Reducing food loss and waste is another critical tipping element. Globally, 13% of food is lost after production and before it reaches store shelves and another 19% is wasted in our homes, supermarkets and restaurants.[312,313] Together, these account for 8–10% of global greenhouse gas emissions and waste nearly 30% of all agricultural land. Enough food to feed 1 billion people is lost because of inadequate refrigeration during transport and storage.[313] Halving food loss and waste could lift 137 million people out of hunger by 2030.[314]

Food loss and waste is not a primary tipping element as it does not generate the same self-amplifying dynamics as production or diet change, but it amplifies both. Every tonne not wasted or lost reduces the pressure to produce more, easing the burden on natural lands and waters.

Policy

A growing number of countries have set broad national goals, but progress depends on quantifiable targets, baseline assessments, harmonized measurement across the supply chains, and integration into biodiversity and climate policies.[315–317] Regulatory measures including taxes, landfill bans and subsidies would improve supply-chain efficiency.[318] Allowing surplus food to be safely fed to livestock, currently prohibited in some jurisdictions on food-safety grounds, would create a closed loop in the system.[247,319]

Markets

Shortening supply chains and improving cold storage in transit, particularly in emerging markets where post-harvest losses are greatest, would dramatically reduce food loss.[313,320] The availability of cheap, modular renewable energy can provide unprecedented access to refrigerated storage, reduce irrigation costs and drive investment into transport infrastructure, a dynamic that illustrates the interconnected nature of the food and energy systems.[321]



Governing the transition

Individual targets, voluntary commitments and standalone initiatives have been essential in the enabling phase, but they are not sufficient to drive acceleration. Moving from enabling to acceleration requires coordinated action across governments, businesses, financial institutions, producers and civil society.

National governments hold the key levers: setting sectoral and economic policies, repurposing public budgets, reorienting fiscal incentives, regulating markets, offering legal protection, aligning trade and domestic policy, and de-risking critical private investments.[322,323] The single most consequential intervention available is subsidy reform. Redirecting a portion of the US$470 billion in harmful subsidies toward nature-positive production, healthy diets and farmer transition support would change the economics of the food system.[259]

Governments must also ensure farmers and fishers, particularly smallholders and local communities, are not left behind. This includes securing land and tenure rights, and improving access to markets, technologies, insurance and information services.[324] Landscape- and seascape-wide initiatives can deliver these services cost-effectively while supporting existing and emerging regulations.[325]

Standards and disclosure need to be harmonized and strengthened. Indicators should be aligned with actionable frameworks for setting and reporting on targets for nature.[326] Digital public infrastructure can enable transparent data collection and reporting, complementing traceability systems and supporting public-private coordination.[327] This will help demonstrate that production complies with deforestation-free and sustainability criteria in line with emerging regulatory requirements and help target technical services to farmers and fishers to support compliance.[328]

Finance for this transformation must be sequenced and layered. Carbon finance, payments for ecosystem services, blended finance and direct producer support can be combined with financial regulation and subsidy reform to generate financing at scale.[329] Linking producers who are following nature-positive practices in specific landscapes and seascapes with markets that privilege sustainable supply closes the loop between supply- and demand-side transition and could trigger amplifying feedbacks toward a tipping point.

The transformation of the food sector is plausible, urgent and economically rational. Nature-positive production and harvest can spread quickly when the local benefits are clear, financial resources are available, productivity is optimized and governance is inclusive. Scaling these approaches together can generate self-amplifying feedbacks across food production, ecosystem restoration, and rural livelihoods and well-being.[166] Concurrently, a shift toward healthy and sustainable diets and a reduction in food loss and waste are urgently needed to relieve demand-side pressures. There are already signs in some high-income countries that a positive tipping point toward healthy and sustainable diets is within reach. Together, these three leverage points can accelerate a just transition toward a sustainable food system – one in which every person has access to healthy food produced in ways that protect, manage and restore nature.



Unlocking finance: how the right conditions can accelerate the sustainability transition

The role of the financial sector

The financial sector determines which activities get funded, which industries grow and which technologies scale. Every investment decision, from a coal mine to a solar farm, from a deforestation-linked supply chain to a regenerative agriculture fund, passes through its hands. Global financial assets encompass capital markets, banking and insurance activities. Within this system, assets under management alone exceed US$140 trillion, finance is the connective tissue of the global economy and one of the most powerful levers available for accelerating, or obstructing, the sustainability transformation (Box 4.5).[330]

Finance is the connective tissue of the global economy and one of the most powerful levers available for accelerating, or obstructing, the sustainability transformation.

For decades, financial flows have not consistently aligned with sustainability outcomes, reflecting underlying incentives and market conditions rather than deliberate intent. According to the United Nations Environment Programme (UNEP), in 2023, US$7.3 trillion flowed into nature-negative activities, of which US$4.9 trillion came from the private sector.[331] In the same year, only US$220 billion supported nature-based solutions, the vast majority of which came from public spending.

Banks have provided hundreds of billions of dollars annually in financing for fossil fuel expansion, and asset managers have held major equity stakes in companies driving deforestation and biodiversity loss.[332,333] This is not due to malice; it is due to incentives. Carbon has been free to emit. Biodiversity has been free to destroy. This has resulted in significant profits for the private sector and investors, while the costs are borne by communities, ecosystems and future generations.

At the same time, the science is increasingly clear that every business depends directly or indirectly on biodiversity and the ecosystem services it provides, from material inputs to climate and water regulation.[334] The same logic that makes finance part of the problem makes it a potential engine of the solution. The rapid scaling of renewable energy investment, initially driven by policy incentives, then by improving economics, and ultimately shifting investor sentiment, demonstrates that financial systems can reallocate capital rapidly when the conditions are right. The question is how to replicate that dynamic across the full range of sustainability challenges, from climate and biodiversity to ensuring just transitions. The answer lies in redesigning the rules of the game and shifting incentives, aiming toward a tipping point where financing sustainably becomes more attractive than the alternative.



Box 4.5 What is the financial system?

The financial system is the network of institutions, markets and instruments through which money is created, allocated and governed. It channels capital from those with surplus funds (households, pension funds, sovereign wealth funds) to those who are in need and eligible. It manages risk through insurance, diversification and hedging. And it underpins the transactions that make economic activity possible, from everyday purchases to cross-border investment.

The financial system's key actors include commercial and investment banks, asset managers, pension funds and insurers, operating across stock, bond and derivatives markets, and overseen by central banks, finance ministries and financial regulators.

Public and multilateral development banks, including institutions such as the World Bank, regional development banks and national development finance institutions, play a distinct and critical role: sitting at the intersection of public policy and private markets, they can deploy concessional finance (loans or equity provided at below-market rates, often by development banks, to make projects financially viable that would otherwise not attract private capital), guarantees (where a public institution agrees to cover losses if an investment fails, reducing the risk borne by private investors) and blended instruments (the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development) to mobilize private capital toward development and sustainability objectives, particularly in markets where commercial finance alone will not flow.

Embedded within the financial system are norms and assumptions, such as the appropriate time horizon for returns, the reliability of market signals and the boundaries of institutional responsibility, that shape decision-making processes. These norms have evolved over time, and they can evolve further. Understanding them is part of understanding both why the financial system has fallen short on sustainability, and where the opportunities for change lie.[335]

Where things stand

A decade of regulatory and voluntary progress, and its limits

Over the past decade, disclosure requirements for companies and financial institutions have shifted significantly, particularly with regard to their environmental and social impacts. This has been driven by growing recognition that climate change, resource depletion and social inequality pose material risks to long-term financial performance, and that companies must account for the value they create or destroy beyond their balance sheets.

In Europe, the Sustainable Finance Disclosure Regulation and Corporate Sustainability Reporting Directive (CSRD) now require large companies and financial institutions to report on sustainability-related risks and impacts.[336,337] Globally, the Task Force on Climate-related Financial Disclosures (TCFD), now consolidated under the International Sustainability Standards Board's IFRS S1 and S2 standards, alongside the Taskforce on Nature-related Financial Disclosures (TNFD) have established widely recognized frameworks that guide how organizations assess and communicate these risks. Initially focused on climate change and the net-zero transition, this is now extending to nature-related issues, reflecting the Kunming-Montreal Global Biodiversity Framework (GBF) Target 15 which requires governments to implement legal, administrative or policy measures to encourage and enable businesses – especially large and transnational companies – to monitor, assess and transparently disclose their biodiversity-related risks, impacts and dependencies by 2030.[338]

This transparency is starting to matter. Research shows that when disclosure becomes standard, it directly affects investment behaviour: standardized sustainability metrics measurably increase the probability that investors direct capital toward activities classified as sustainable.[339]

However, transparency alone is not enough, just as shining a light on the nature investment gap will not automatically close it. For financial institutions to change their behaviour at scale, the underlying economics must change too: sustainable investments must become more attractive, and harmful ones less so.

Here, progress has been far more limited. High-carbon investments continue to generate substantial profits, and the assets that underpin them remain financially viable. The risk that those assets will lose their value before the end of their expected life and therefore become stranded, whether by tightening regulation, falling demand or physical climate impacts, is real.[340] However, most financial institutions continue to regard it as largely theoretical. And the competitive dynamics of financial markets create powerful pressures against unilateral action to address it.

Currently, investment incentives stem from the underlying economics of an investment, or the probability it will make a positive rate of return. Shifting them at scale will require much stronger policy and regulation, which governments have been slow to introduce. Indeed, the underlying economic situation has worsened in recent years, as inflation, increases in debt, reductions in aid and geopolitical tensions are reducing the fiscal space and the bandwidth economic policymakers need to drive the transition.[341]



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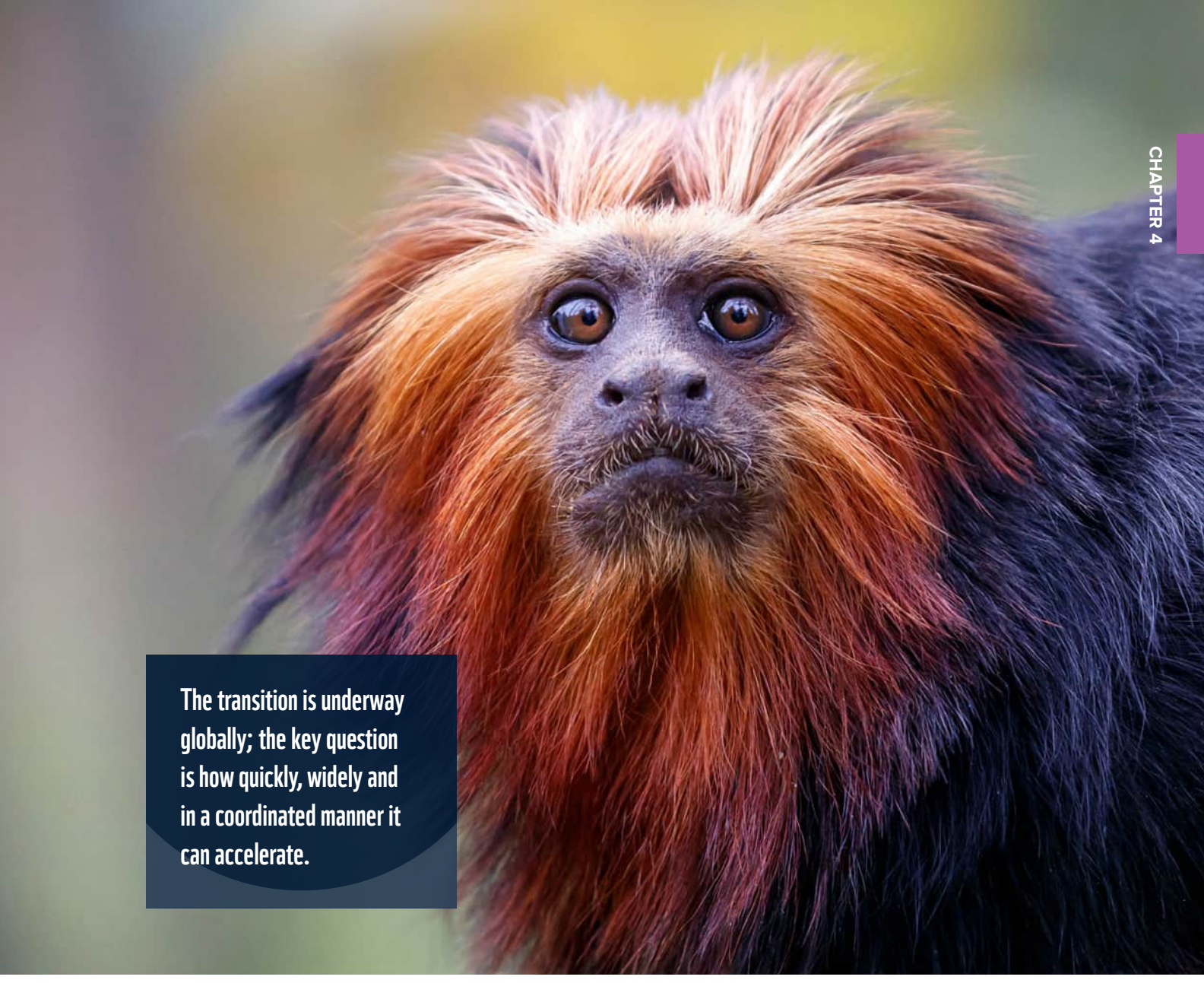
Political shifts undermining what has been built, but not everywhere

There has been a notable political shift away from sustainability initiatives in regions where they were already in motion. For example, in the EU, the Omnibus package, ostensibly a simplification exercise, has significantly narrowed the scope of the disclosure requirements, exempting smaller companies from requirements specifically designed to drive supply chain accountability.[336,342,343] Countries such as the UK have been slow to mandate company sustainability transition plans despite previous commitments.[344]

In the US, there has been a reversal of sustainability-related financial policy. The Securities and Exchange Commission's climate disclosure rule, finalized in 2024 after years of development, was effectively abandoned in early 2025.[345] At the state level, climate disclosure requirements are facing legal challenges, calling into question their expected mandatory implementation.[346] At the same time, several major US financial institutions have exited net-zero coalitions, slowing down the pace of progress that collective action can encourage.[347] There is now a much less supportive context to drive the private sector transition.

The consequences are direct. Financial institutions that built sustainability into their strategies, whether by making early investments in transition finance, developing new products or making public commitments, now find themselves caught between progressive institutional investors and political pressure to retreat. The value of those early investments has been undermined, and companies are now much quieter about their efforts to transition ("greenhushing"), though evidence suggests most of them continue to make progress, albeit more slowly.[348] As a result, some leading voluntary sustainable finance initiatives have undergone significant restructuring or ceased operations altogether (e.g. Glasgow Financial Alliance for Net Zero and Net Zero Banking Alliance).





The transition is underway globally; the key question is how quickly, widely and in a coordinated manner it can accelerate.

However, this shift is not universal. Elsewhere, the direction of travel is different. Across much of Asia, sustainability-related financial regulation is advancing: Malaysia, Japan, Singapore and South Korea have strengthened climate disclosure requirements, while China continues to expand its green investments supported by a green finance taxonomy (a classification system that defines which economic activities are environmentally sustainable) and its sustainable bond market.[349]

In Latin America, Brazil is leading efforts to develop transition finance frameworks to reduce financing costs and expand capital mobilization for the energy transformation and has taken a prominent role in international climate finance negotiations.[350]

These economies are not standing still while others retreat; they are building the regulatory infrastructure and market capabilities that will position them to capture the economic opportunities of the transformation to a net-zero, nature-positive and resilient economy.

The result is a world increasingly divided in two: countries facing political backlash, where regulatory uncertainty is slowing investment and punishing early movers; and countries pressing forward, where clearer policy signals are attracting the capital, industries and jobs of the future. Given the known economic impacts of climate change and biodiversity loss, countries in the first group are increasingly exposed to both environmental and economic risks. The transition is underway globally; the key question is how quickly, widely and in a coordinated manner it can accelerate.



Even when the economics of a transition make sense overall, no single company or investor will move first if others can wait, meaning that without external coordination, nothing gets started.

Structural market failures that policy must address

Governments have a crucial role in driving the transition and mobilizing the private sector. Indeed, there are fundamental barriers which do not allow the financial sector to drive the sustainability transformation alone. Short-termism is the most pervasive barrier: quarterly reporting cycles and annual performance benchmarks systematically discourage investment in long-term sustainability outcomes. Ecosystem services (e.g. clean water, pollination, flood regulation, carbon sequestration) are largely not valued in financial markets, meaning that activities destroying them incur no financial penalty.[351] And even when the economics of a transition make sense overall, no single company or investor will move first if others can wait, meaning that without external coordination, nothing gets started.

These barriers are structural features. Addressing them requires active policy intervention by governments and financial authorities, including central banks and financial supervisors. Examples include carbon pricing, mandatory transition planning, and regulatory frameworks that systematically redirect the incentives that drive not only financial institutions but most economic actors.[352–354] Importantly, while the risks of climate change are generally understood (though not adequately addressed) by economic decision-makers, the crucial role of nature in underpinning the economy, and the resulting economic threats from nature loss, are less widely understood and accepted.

The levers of change

Changing the incentives facing the financial sector requires operating simultaneously on multiple fronts:

- **Financial sector regulation:** Prudential regulators (central banks and financial supervisors) are uniquely positioned to drive coordinated market transition because they operate at system level. By requiring all regulated institutions to assess, manage and disclose climate- and nature-related financial risks, they can provide the clarity and stability needed to shift market behaviour in a coordinated way, removing the competitive disadvantage faced by early movers.[355] The WWF roadmap on central banking and financial supervision sets out a clear pathway from acknowledgement to full integration of sustainability risk into regulatory frameworks.[356] When all institutions must internalize these risks, none are penalized for doing so.
- **Shareholder pressure:** Institutional investors filing climate and nature resolutions and engaging directly with boards have demonstrated real influence.[357] However, the effectiveness of this lever has been diminished by the political backlash, as some asset managers retreat from sustainability-focused stewardship. Clearer regulatory backing for shareholder engagement and greater coordination among institutional investors is needed to restore and extend its force.
- **Customer demand:** When savers and institutional clients seek sustainable products, financial institutions have commercial incentives to develop them. The challenge is ensuring that sustainability labelling is rigorous enough to be meaningful, translating product demand into genuine changes in underlying portfolio allocation rather than superficial rebranding. Consumer demand also has limits: where internalizing environmental costs raises prices, it may dampen the appetite it is meant to channel.
- **Data and metrics:** Disclosure and investment decisions are only as good as the underlying data. Companies need standardized, location-specific (geo-referenced) metrics to collect and report on nature-related risks and impacts.[358–360] Without these, disclosure frameworks cannot function as intended. Investors face an equally acute gap: while carbon intensity is broadly visible across portfolios, exposure to deforestation and progress in reducing it remain largely opaque, making nature transition finance far harder to mobilize than climate finance.[361] Closing this data gap is a precondition for the other levers to operate effectively.
- **The economics of the transformation:** This is the most powerful lever. Where sustainable investment is genuinely more profitable, the financial sector will follow without coercion. Solar, wind and EVs have crossed cost thresholds at which the economics are self-reinforcing.[362,363] The Net Zero Asset Owner Alliance, a group of 86 asset owners representing over US$9 trillion in assets under management who have committed to individually transitioning their own investment portfolios to net-zero greenhouse gas emissions by 2050, has called for increased policy ambition to rapidly reduce oil and gas demand. The United Nations Conference on Trade and Development's analysis of Article 2.1(c) of the Paris Agreement similarly makes clear that policy measures are essential for realigning private capital flows with climate goals.[364] Both emphasize that policy and regulatory measures are not in opposition to market dynamics but are their precondition: they make it commercially rational to invest in the sustainability transformation, creating the conditions for positive tipping points to take hold.



Box 4.6 The S-curve: how the transformation actually happens

The trajectory of renewable energy investment offers both a source of inspiration and a note of caution. Solar, wind and EVs have travelled further along the S-curve than almost any other sustainability transition technology. Costs have collapsed, markets have deepened and investment has scaled dramatically. But even here, policy has not become optional. Feed-in tariffs (a policy mechanism to accelerate investment in renewable energy technologies by offering long-term contracts to producers), tax credits, procurement mandates and carbon pricing have been essential at every stage and remain so.[365] Without continued policy support to price in environmental externalities and phase out fossil fuel subsidies, the transition will stall.[366] The lesson from energy is not that policy eventually becomes unnecessary. It is that the right policies, sustained over time, can drive a transition to the point where momentum becomes increasingly difficult to reverse.

Progress along the S-curve is not a smooth, uninterrupted path. Progress generates resistance. The policy changes of recent years, such as subsidy reversals, weakened disclosure rules and institutions retreating from net-zero commitments, are precisely what disruptions in the accelerating phase of the S-curve looks like.[367] But it is worth noting what has not happened. The cost advantages of renewables have not been erased. The institutional knowledge has not disappeared. The investor appetite has not vanished. The ground gained is largely held, even if the pace has slowed. For a financial transformation, progress along the S-curve has been slowed, not stalled, and not indefinitely nor everywhere.

For nature-based solutions, biodiversity finance and sustainable land use, the honest assessment is that we are at a much earlier stage and the path forward is less clear. Unlike in renewable energy, there is limited evidence as yet of a self-reinforcing cost curve in regenerative agriculture, ecosystem restoration or nature-positive supply chains.[368,369] Markets are thin, metrics are contested and the network effects that drove clean energy scaling have not yet materialized.[370] These sectors may never follow the same trajectory as renewables. The underlying economics are different, and the environmental externalities are arguably even harder to value. Policy will not just be a catalyst here; it will need to be a sustained structural feature of the market for the foreseeable future.

But this is not a counsel of despair. It is, in fact, clarifying. We know what the enabling work looks like: building the data infrastructure, developing credible metrics, establishing disclosure requirements, reforming harmful subsidies, and creating the blended finance structures that can attract early private capital.[331,371–374]

We know that momentum, once built, is resilient, and that even when political conditions deteriorate, the progress made is not simply undone. And we know that when the political moment shifts again, the foundations laid will allow investment to accelerate rapidly. The energy transition took decades of painstaking groundwork before it reached its inflection point. Nature finance is earlier in that journey, but it is on the same path. The task is to keep building, keep the coalition together and be ready to move fast when the window reopens.



Positive tipping points in the financial system

Amid the setbacks previously described, there is a compelling reason for hope that we can create the change needed: the financial system contains the potential for a positive tipping point, a threshold at which change becomes self-reinforcing, where early movers create conditions for others to follow, and where the logic of capital allocation shifts from short-term extraction to long-term sustainability (Box 4.6). There are three interconnected leverage points that, triggered in combination, could shift the financial system onto a trajectory aligned with the Paris Agreement and the GBF.

These leverage points are not independent but form a mutually reinforcing system. (1) Creating the enabling environment is the foundation: without clear regulatory signals, the other mechanisms lack the certainty needed to trigger. That certainty enables (2) valuing nature and climate to function as a genuine market signal rather than a compliance exercise. Once risk is visible and consistently priced, capital begins to move. The rising cost of holding stranded assets, made visible by disclosure and accelerated by shifting economics, drives (3) the coordinated stopping of harmful financing, freeing up capital and institutional bandwidth. That freed capital, channelled toward biodiversity accelerates mobilization of capital where it is needed most, closing the nature funding gap, normalizing nature-positive investment and creating the asset classes and track record needed to sustain momentum (Figure 4.9).

Taken together, these leverage points describe the conditions under which the financial system's own S-curve inflects: the shift from a system in which sustainable investment is niche, expensive and risky to one in which it is mainstream, competitive and self-sustaining. Each tipping point removes a barrier or amplifies a signal; in combination, they can push the system past the threshold from which momentum becomes its own driver.

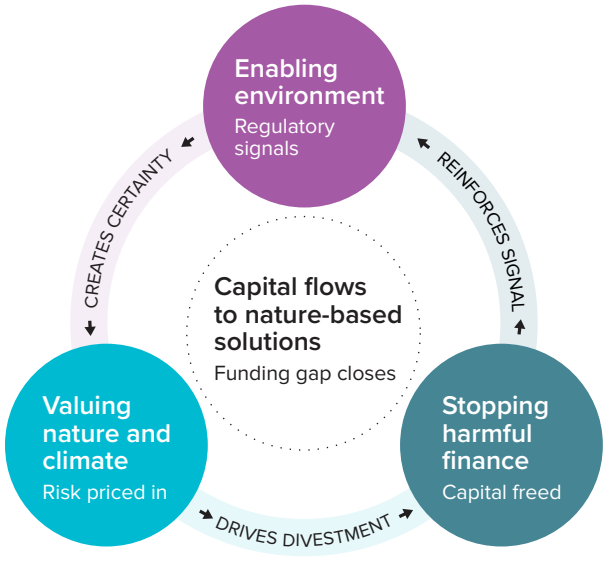


Figure 4.9 The three leverage points for shifting the financial system to align with the Paris Agreement and the GBF operate as a self-reinforcing cycle rather than as independent interventions. In the enabling phase, we will need to provide clear regulatory signals to build the foundation of certainty needed for 'Valuing nature and climate' in which environmental risk becomes visible and consistently priced as a genuine market signal. As stranded-asset risk becomes economically material and capital begins to move, there will need to be a coordinated effort to stop harmful finance and subsidies. This divestment reinforces the regulatory signal that began the cycle, freeing capital to flow toward nature-based solutions and closing the nature funding gap. This builds new asset classes and normalizes nature-positive investment, accelerating a transition to a new stable state.



Creating an enabling environment to accelerate the transition

When investors and policymakers converge on shared transition plans and regulatory roadmaps, a virtuous cycle begins: policy incentives and policy certainty to support the transition for the long term encourage private investment; private investment validates policy ambition; ambition attracts more capital. Countries including the UK and France that have begun translating biodiversity targets into sector-level strategies are providing the early signals toward the nature-positive transition that long-term investors need, building on similar existing approaches to the net-zero transition.[375] This alignment is the foundation on which every other tipping point depends.

Central banks and financial supervisors play a critical anchoring role within this enabling environment. When regulators integrate nature and climate risk into the prudential frameworks that ensure that banks manage risk, maintain sufficient capital and liquidity, and have credible recovery plans (including stress testing, capital requirements, supervisory expectations), they create the regulatory floor that removes the competitive penalty for early movers on sustainability. When central banks systematically integrate climate and nature into their monetary policies, they lead by example and send the right signal to market participants.[356] By ensuring that the systemic risks all institutions face are reflected in the rules all must follow, central banks and financial regulators help transform sustainability from a discretionary choice into a core component of financial risk management by all.

Valuing nature and climate: turning disclosure into market signal

Markets and institutions can only act on what they can see, and for decades, the financial system operated with an incomplete picture of risk. Climate- and nature-related dependencies, impacts and values, and the associated risks and opportunities they generate, remained largely invisible and therefore excluded from risk assessment, investment strategies and supervisory frameworks. That is now beginning to change, and the shift in information is itself a tipping mechanism.

Climate-related disclosures have demonstrated what becomes possible once risk is made legible: as physical and transition climate risks became systematically disclosed, they increasingly shaped business and finance strategies, credit assessments and financial supervision. Nature related risk is now at an earlier but comparable stage, and the trajectory is accelerating. With more than 800 organizations already committed to disclosing nature related risks aligned with the TNFD framework and the International Sustainability Standards Board's ongoing nature-related standard-setting, disclosure is moving beyond niche leadership toward broader market adoption.[376] Critically, these disclosures must capture both the impacts organizations have on nature, and the potential threats posed to organizations that arise from their own and society's dependencies and impacts on nature.

Ignoring nature-related risk, impacts and values becomes the position that requires justification, not the default.

As more institutions assess and disclose their dependencies and impacts on nature, the dynamics shift. Information asymmetries narrow, peer pressure increases and the burden of proof inverts: ignoring nature-related risk, impacts and values becomes the position that requires justification, not the default. The finance sector can start to integrate this information systematically in financial decision-making, which will then start to be reflected in pricing mechanisms. Alongside other tipping points, this should ultimately enable changes in access to finance, insurance and supervisory expectations. Disclosure is not an end in itself, but a foundational condition that enables markets to systematically account for nature just as they do for other sources of risk and opportunity.[358,377,378]

Stopping the financing of harmful activities

Public subsidies are one of the most powerful drivers of harmful financing, so reforming them is one of the most powerful levers for change available.[379] As long as governments are subsidizing the problem, it is hard for financial institutions to justify moving away from it. Globally, fossil fuel subsidies reached a record US$7 trillion in 2022, and harmful agricultural subsidies (those that support harmful practices that drive deforestation, soil degradation and water depletion) amount to an estimated US$470 billion annually.[259,380] These subsidies systematically tilt the playing field against sustainable investment. Ending them is a precondition for stopping the flow of capital to harmful activities; redirecting them toward low-carbon and nature-positive alternatives would change the investment calculus across the entire financial system.[379]

The financial sector also faces a coordination problem of its own. Take carbon: any institution that moves first to exit fossil fuel financing loses business to competitors who have not. The same logic applies to deforestation-linked commodities, or any other harmful activity that remains profitable. No individual actor can solve this alone. Overcoming it requires clear regulatory signals, mandatory transition planning, and coordinated commitments across institutions and countries, so that the rules of the game change for everyone at once. As more institutions and countries commit, the risk of being left holding stranded assets rises for those who lag, and moving early becomes a source of competitive advantage rather than a commercial penalty.



Accelerating capital mobilization where it is needed most and closing the nature finance gap

In addition to closing the tap on finance flowing to harmful activities, we also need to mobilize genuinely new finance for activities that have a positive impact on nature and climate, at the scale the crisis demands.

That scale is considerable. The biodiversity financing gap, the difference between what is currently spent on nature and what is needed to halt and reverse biodiversity loss, stands at an estimated US$1.3 trillion annually.[381] Closing the gap is not a tipping point, but the threshold at which biodiversity finance shifts from fragile and marginal to self-sustaining and systemic.

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GBF Target 19 sets a goal of at least US$200 billion annually in new public and private biodiversity finance by 2030, representing the additional capital needed once subsidy reform does its part.[338] Together, these two tracks define what closing the gap actually requires, and why it demands both political will and financial innovation in equal measure.

The returns justify the ambition. Investing in nature through both restoration and conservation makes overwhelming socioeconomic sense. The IPBES finds that the benefits of large-scale nature restoration are on average ten times higher than the costs.[382] The European Commission's impact assessment for the EU Nature Restoration Law reinforces this case: every €1 invested in land restoration generates between €8 and €38 in economic returns, through climate change mitigation, reduced natural disaster risk, improved water quality, healthier soils, and gains for human health.[383] The evidence for conservation investment is equally striking: a 2024 analysis found that closing the US$7.4 trillion natural capital gap (the gap between the state of the Earth's remaining natural assets and the state that those assets need to be in to meet selected nature-related SDG targets) across 40 countries would generate US$152 trillion in benefits, equivalent to US$20 for every US$1 invested.[384] Looking ahead, a 2022 World Economic Forum report estimated that nature-positive policies could unlock US$10 trillion in business value and support 395 million jobs globally.[385] Crucially, these benefits accrue regardless of whether climate disasters occur, generated through job creation, productivity gains and healthier communities, making the case for nature investment on straightforward economic grounds.



Blended finance structures have demonstrated proof of concept in sustainable forestry, regenerative agriculture and marine conservation.

Mobilizing this capital, particularly in the markets where biodiversity is most at risk, requires bridging the gap between available private capital and investable opportunities. Strategic deployment of public finance – for example by providing guarantees or low-interest loans – can unlock the private capital that is available in abundance but held back by perceived risk, particularly in emerging markets.[335] Blended finance structures have demonstrated proof of concept in sustainable forestry, regenerative agriculture and marine conservation.[386] Dedicated efforts are translating this approach into practice: the Dutch Fund for Climate and Development deploys blended finance to unlock private investment in climate-resilient and nature-positive projects in developing countries, while Bankable Nature Solutions structure nature-related investments so that they meet the risk-return requirements of private capital.[387,388]

The logic is self-reinforcing once it gains momentum. As early investments prove successful, private investors gain confidence and the cost of capital falls. More private capital flows in, further reducing perceived risk and decreasing the total public investment needed. While these system dynamics play out over time, early transactions help protect the places where action is needed most. Where investment has already reached critical mass, market dynamics can take over. Solar module costs have fallen by over 90% since 2010; battery costs by a similar order of magnitude, results of cumulative investment and learning-by-doing.[166] Once clean technologies cross cost thresholds, their advantages become self-reinforcing and may start to crowd out fossil-fuel alternatives. The financial system plays a decisive role in reaching these thresholds by concentrating capital at sufficient scale and speed. Analogous dynamics are beginning to emerge in nature-based solutions; identifying and crossing the equivalent thresholds there is the next frontier.

Yet mobilizing capital is insufficient if it bypasses those who need it most. Indigenous Peoples and local communities steward much biodiversity in lands and waters across the globe but receive only a small fraction of the financing for conservation. Ensuring their direct and equitable access, for example through simplified accreditation, community-led governance and recognition of customary tenure, is not a peripheral equity concern but a prerequisite for effective outcomes.

Recommendations

- **Strengthen and defend mandatory climate- and nature-related disclosures.** Policymakers should support science-based taxonomies, a double materiality approach, and transition plans drawing on credible frameworks such as the TNFD, enabling credible implementation of the GBF Target 15. Transition plans should include explicit statements of the policy and regulatory conditions required to make those investments viable, creating a feedback loop that holds governments accountable for providing the enabling environment they have committed to. Political pressure to weaken or delay such efforts must be resisted.
- **Move from general guidance to concrete action on nature risk**. Financial regulators and central banks should set clear standards for metrics, data and due diligence, and run their own nature-related stress tests. The results should shape both supervisory expectations for banks and insurers and central bank operations, ensuring nature risk is managed with the same rigour as climate risk and that central banks are not inadvertently amplifying it through their own balance sheets.[349]
- **Develop integrated net-zero and nature-positive sectoral pathways.** While clear net-zero pathways already exist for many sectors, nature-positive pathways are still lacking. Financial institutions cannot credibly plan their nature-related transition without clear, science-based pathways defining what nature-positive looks like for agriculture, forestry, fisheries, real estate and other high-impact sectors. Developing these pathways, drawing on the GBF targets and national biodiversity strategies and action plans, and integrating them with net-zero pathways given the clear interlinkages, is an urgent priority.
- **Scale blended finance for emerging markets.** Multilateral development banks, development finance institutions and philanthropic capital should be deployed strategically to de-risk nature-positive investments and crowd in private capital, addressing the capital cost barriers.
- **Restore and strengthen net-zero and nature-positive coalitions.** Financial institutions should rebuild coalitions to encourage collective progress and accountability. This is an essential condition to level the playing field and promote institutional action.



Capital is ready to flow, if the incentives are there

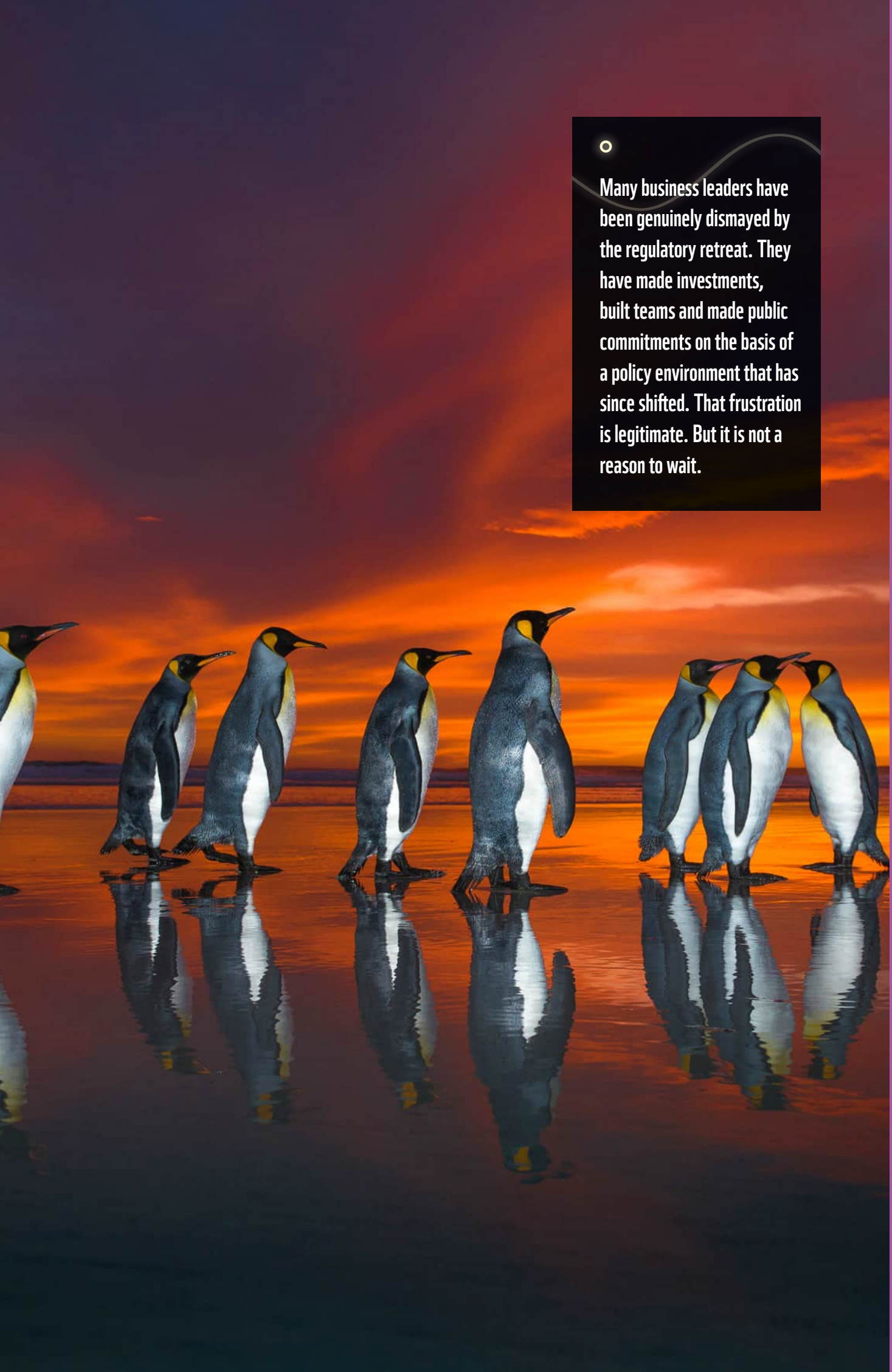
The political backlash of recent years should not be mistaken for a loss of private sector conviction. *The Path to Resilience* report, drawing on a business survey across 19 countries, explores how businesses understand and are responding to the fair transition to a net-zero, nature-positive future, including the opportunities they see, the barriers they face and the opportunity to unlock faster and fairer progress.[389]

Many business leaders have been genuinely dismayed by the regulatory retreat. They have made investments, built teams and made public commitments on the basis of a policy environment that has since shifted. That frustration is legitimate. But it is not a reason to wait.

The S-curve of sustainable investment had been gathering momentum. In renewable energy, EVs and sustainable agriculture, the dynamics of learning-by-doing were beginning to make green investment not just responsible but commercially compelling. The progress along the S-curve has slowed but it has not stalled, and it can accelerate again. The cost advantages of clean technology are real. The risks of climate and biodiversity loss are already materializing on balance sheets. The business case for acting on supply chain resilience, resource efficiency, long-term asset value and access to the markets of the future does not depend on governments moving first. Leading financial institutions, asset managers and corporations have demonstrated that ambitious action is commercially viable, even in a difficult policy environment. That leadership matters: it builds the track record, creates the market infrastructure and establishes the norms that make it easier for others to follow.

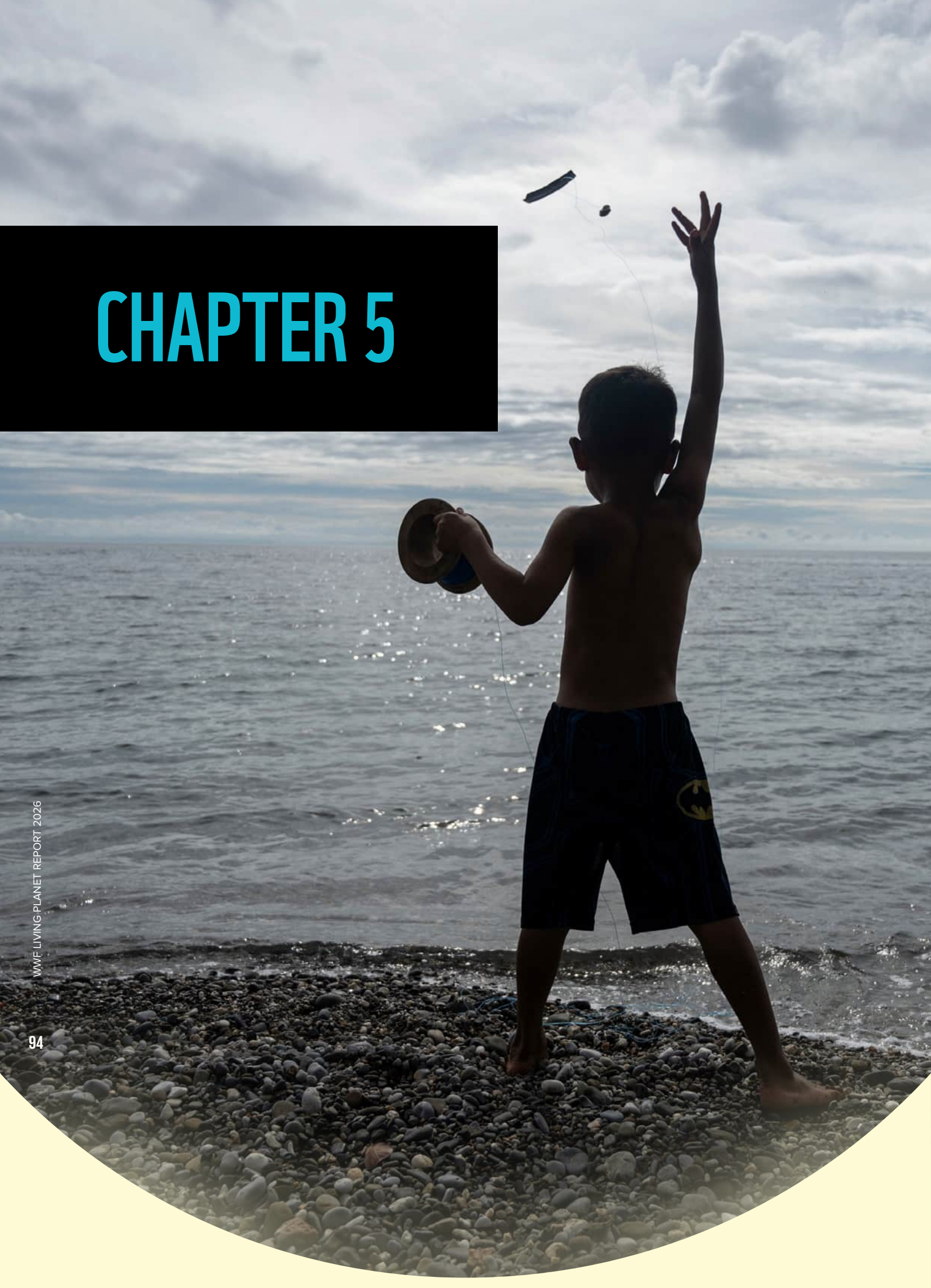
At the same time, individual ambition has limits. Structural barriers like short-termism, unpriced externalities and coordination failures cannot be resolved by any single institution acting alone. Stronger policy, regulation and public investment remain essential to level the playing field, remove the competitive penalty for early movers, and ensure the transition happens at the speed and scale the science demands. The private sector and policymakers need to move together. The conditions for a tipping point are within reach. The task now is to act.





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CHAPTER 5



Aligning and accelerating global action

For almost 30 years, WWF's *Living Planet Report* has charted the continued decline in global biodiversity. What will it take to reverse this trend?

The Kunming-Montreal Global Biodiversity Framework (GBF) – agreed by almost every country through the UN Convention on Biological Diversity (CBD) – provides a goal and a credible pathway. Its long-term vision is a world living in harmony with nature, and its four goals for 2050 include increasing the abundance of native wild species to healthy and resilient levels. The GBF's 23 targets for 2030 aim to catalyse urgent action to halt and reverse biodiversity loss and put nature on a path to recovery.

A key strength of the GBF is its broad perspective: going beyond traditional conservation actions, it calls for a whole-of-society approach to transform our relationship with nature. A whole-of-society approach emphasizes individual and collective agency: everyone has a role to play. Success depends on cooperation across all levels of society and across a coalition of countries acting together where multilateral progress is slow, integrating biodiversity into all sectors, aligning financial flows with nature-positive outcomes, and supportive policies and governance at every scale.

Achieving the GBF goals will require a fundamental transformation – from extractive, wasteful economies that drive nature loss to systems that are sustainable, regenerative and based on long-term stewardship of nature for the benefit of all.[103] That means rapid transformation in the three systems discussed in the previous chapter: energy, the leading driver of climate change; food, the main cause of habitat loss; and finance, which bankrolls activities that damage the natural world.

Achieving the GBF goals will require a fundamental transformation – from extractive, wasteful economies that drive nature loss to systems that are sustainable, regenerative and based on long-term stewardship of nature for the benefit of all.

Taking advantage of positive tipping dynamics will be essential to propel change at this scale in such a short timeframe. To reach a new system state – a world living in harmony with nature by 2050 – will require rapidly accelerating, self-amplifying transition over the next two decades. But to set this in motion, we need to get the enabling phase right. With its targets and actions for 2030, the GBF could guide this process – but current implementation is not delivering enough. While the GBF provides the central multilateral anchor, much of the dynamic global action is unfolding alongside it through coalitions of willing governments, multilateral finance initiatives, and sector-specific compacts that can accelerate progress on shared GBF targets. Examples include the Tropical Forest Forever Facility which brings together the tropical forest nations of Brazil, the Democratic Republic of Congo and Indonesia with European partners to provide annual compensation to keep forests standing, the Santa Marta gathering of countries committed to transitioning away from fossil fuels, and the Finance for Biodiversity Pledge through which more than 200 financial institutions are aligning their portfolios with nature-positive outcomes.

As parties to the CBD, national governments bear primary responsibility for taking the lead in halting and reversing biodiversity loss and the destruction of nature. But crucially, this should include creating effective policy and regulatory conditions to motivate the private sector and other non-state actors – the whole-of-society approach. Early reporting on progress against national biodiversity strategies and action plans suggests that nations are not yet facilitating the whole-of-society approach.[390] Many nations are overlooking enabling policies to mobilize contributions from subnational and non-state actors, such as local communities, Indigenous Peoples, civil society and the private sector.

Countries are also falling short when it comes to the concept of differentiated responsibility. Under the GBF, each country is expected to contribute to achieving the global goals and targets in accordance with national circumstances, priorities and capabilities.[391] But countries themselves get to decide what that contribution looks like, with no comprehensive analysis or guidance on how best to make their contribution count (Box 5.1). Instead of strategic cooperation and complementary action, the global ambition as currently represented by the sum of the parties' commitments is a fraction of what is required to deliver the GBF targets.



Box 5.1 Differentiated biodiversity commitments

Differentiated national commitments mean each country develops contributions tailored to its unique assets, responsibilities and capacities to achieve the GBF targets. But without international coordination, these national contributions may add up to less than the sum of their parts. Since the GBF does not set explicit, measurable goals for decreasing international footprints and spillovers, domestic efforts to reduce impact can even inadvertently lead to increased damage elsewhere.

For example, imagine Country A succeeds in domestic conservation efforts but fails to address external impacts stemming from trade practices, imports or financial flows. Country A can report progress while still contributing substantially to deforestation, pollution and unsustainable extraction in Country B. Meanwhile, Country B – a biodiversity-rich country highly dependent on exporting raw materials – struggles to achieve national conservation gains. The result is a net loss of global biodiversity.

These structural asymmetries reveal a deeper issue: without greater clarity, critical dialogue and public accountability, countries tend to prioritize actions that are politically or economically convenient at home rather than those urgently needed to reduce the global drivers of loss. National reports do not currently assess the cumulative impacts of domestic and international actions, making it difficult to determine whether the overall contribution to global objectives is positive or negative.

Country A: Industrialized, lower biodiversity

30x30 met with lower-biodiversity lands and waters





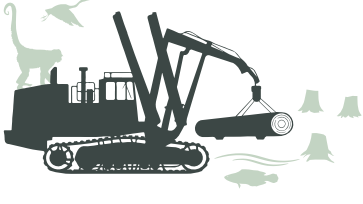
Country B: Biodiversity-rich under conversion pressure

30x30 undermined by export demand



Both report 30x30 progress. Global biodiversity still declines.

30x30 counts hectares, not the biodiversity value of what is protected.



The GBF does not measure what one country's consumption does to another's ecosystems.

Adapted from Milner-Gulland et al., 2026[392]

So what needs to change to meet the GBF targets and to accelerate the transformation we need beyond 2030? First, countries need to deliver strategic differentiated commitments that will make the greatest contribution to global targets. Second, these commitments need to be underpinned by policies that coordinate and facilitate a whole-of-society approach. And third, we need to monitor progress across all societal contributions so we can see what's working and what isn't, adapt and reallocate resources where necessary, and hold governments and other actors to account.

Determining differentiated national commitments

In the climate arena, science-driven, locally grounded methods for modelling, comparing and prioritizing specific national policy pathways are well developed. A similar process is needed to support countries in developing strategic, science-based pathways for GBF implementation.

While national biodiversity strategies and action plans often reflect stewardship of the country's own biodiversity and ecosystems, they rarely account for the international impacts of national economies and policies, especially those that influence consumption and trade-driven impacts in the energy, food and finance sectors.[393] As a result, national plans do not yet adequately reflect what is needed for transformative change with global impact.[390]

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It is essential to step back and critically assess the differentiated actions each country could take to deliver the greatest potential outcomes for both global and national impact. This includes comparing the advantages of domestic action with those of reducing a country's global footprint now and into the future.

For example, high-income, low-biodiversity countries with high rates of consumption of raw materials from highly biodiverse countries might find their most impactful commitment to achieving the GBF targets globally is to implement national policies that reduce their intake of these raw materials (Box 5.1). Conducting analyses of these impacts can guide differentiated national commitments and actions and provide essential information about how to strategically raise their ambition, particularly in priority sectors such as energy, food and finance.

To support the national-level prioritization of commitments and actions, we will need to evaluate the likely global and national impacts. Scientific models are being developed that can enable this, though these should be sense-checked and underpinned by consultation with experts in the relevant fields.[394] This would provide the information needed to optimize national commitments to the GBF targets and clarify the policy choices for implementing those commitments.[392]

Designing positive tipping points for the GBF implementation

Countries also need to develop policies to incentivize accelerated action toward their differentiated commitments in a whole-of-society approach – recognizing that national governments, while essential actors, are not the only implementing partners. The positive tipping points framework discussed in this report can help design effective policies: creating the right enabling environment through regulatory and incentive structures, identifying key leverage points, coordinating action and ensuring a just transition.

There are growing numbers of examples worldwide of local communities, civil society, the private sector, the public sector, and coalitions of countries working together to create catalytic change in the energy, food and finance sectors leading to positive tipping points at local, regional and national scales. Existing case studies and ongoing experimentation and knowledge sharing can build a better understanding of which policies trigger positive tipping points for specific outcomes.



Communities and subnational governments are expanding green spaces, planning urban and regional development, and supporting local conservation action.

Measuring whole-of-society progress toward positive tipping points

Lastly, there needs to be a full accounting of the whole-of-society outcomes. Many notable efforts, innovations and actions that contribute to the GBF targets are only now beginning to be recognized in national government reporting.[395] For example, Indigenous Peoples are establishing protected areas under their own laws and conditions that balance conservation with traditional livelihoods. Communities and subnational governments are expanding green spaces, planning urban and regional development, and supporting local conservation action. Private sector companies are adopting new operational plans to reduce environmental risks and impacts. Coalitions of countries are developing initiatives outside the formal CBD reporting cycle. Although the CBD provides an online reporting platform where other actors apart from national governments can voluntarily submit their biodiversity actions, this reporting is incomplete and uncoordinated.[396] Failing to capture whole-of-society approaches leaves gaps in reporting, verification and long-term accountability.

Official data needs to account for all efforts, across all sectors, civil society and levels of government, so the cumulative results are visible and provide insights for learning and improvement. At the same time, there is a clear need for an independent mechanism to track and assess national efforts to achieve the targets of the GBF, in the same way that the independent Climate Action Tracker monitors climate action – a Nature Action Tracker.[392]

This Nature Action Tracker should be capable of capturing and verifying real-world progress on policy-driven action, identifying obstacles to implementation, and enhancing public accountability, critical debate and policy learning to deepen and accelerate global action on nature. It should draw from a network of in-country experts, researchers and practitioners to assess practical implementation status, progress and obstacles, while also capturing non-governmental initiatives and lessons so far not included in government reporting. This would complement existing multilateral monitoring frameworks to reinforce the GBF, strengthen public accountability and drive action.

Outlook

Humanity has never been wealthier, more technologically advanced or better informed – yet the fabric of life underpinning our prosperity is unravelling at an unprecedented pace, driving increasing inequality. Global biodiversity loss is now widely recognized as an existential threat to economic stability, geopolitical security and human well-being.

We know what is driving the destruction – and we also know how to stop it. To achieve the targets of the GBF, we need genuinely differentiated, coordinated national commitments that meet the global scale of the challenge. Ambition must be backed by effective implementation, with the policy support and finance needed to drive action across the whole of society. And we need to track progress, building public accountability and enabling evidence-informed decisions.

The goal of a world in harmony with nature is one worth achieving. We have credible pathways to get there and, in different ways, each one of us has agency. Transformation, through positive tipping points, can happen more rapidly than we think. Seemingly against the odds, we have a rational basis for hope.



Seemingly against the odds, we have a rational basis for hope.

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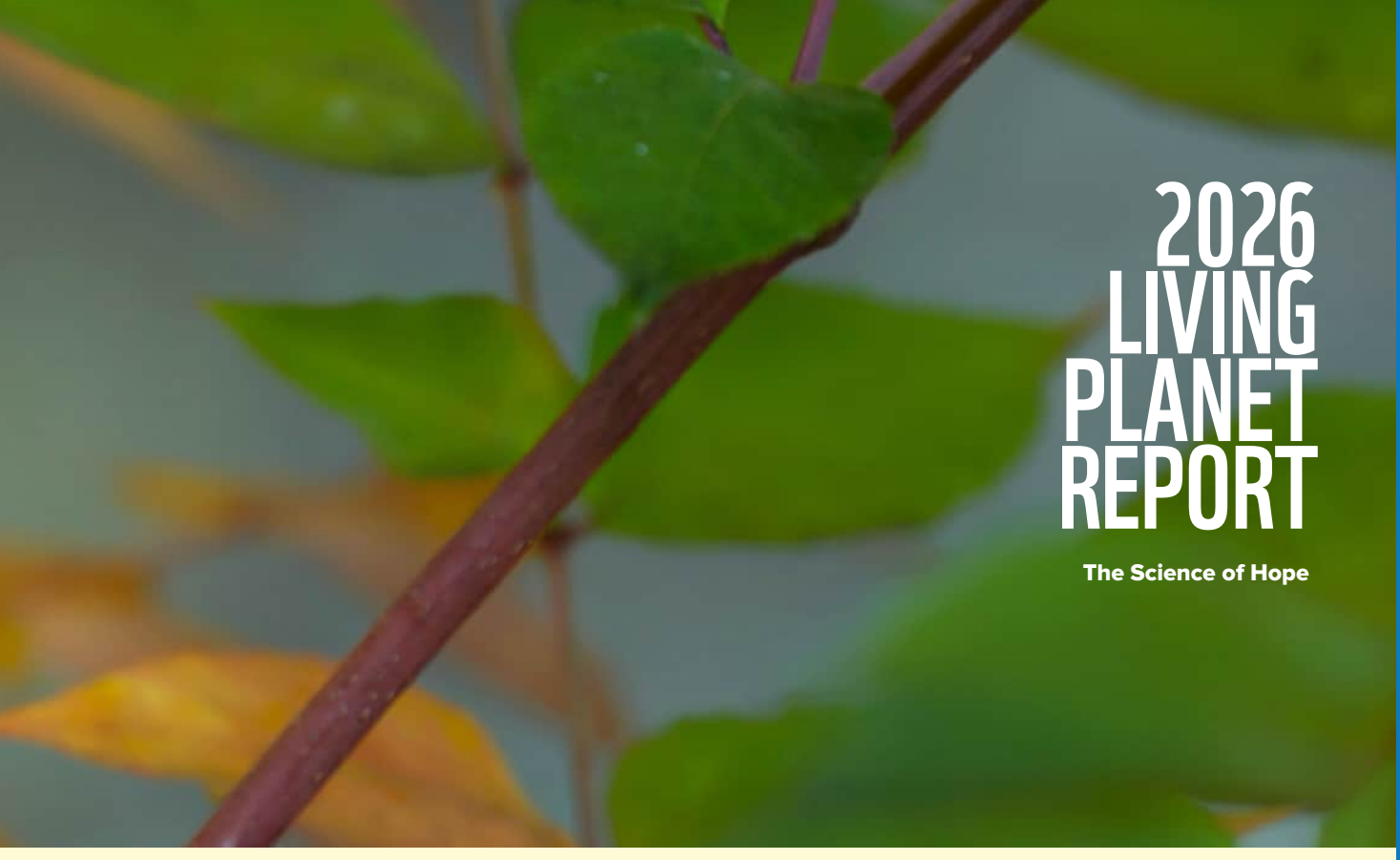
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WWF-World Wide Fund for Nature (formerly World Wildlife Fund) is the foundation established in 1961 with its registered office in Gland, Switzerland and commonly referred to as WWF International.



PUBLICATION DETAILS

Published in October 2026 by WWF – World Wide Fund for Nature (Formerly World Wildlife Fund), Gland, Switzerland ("WWF").

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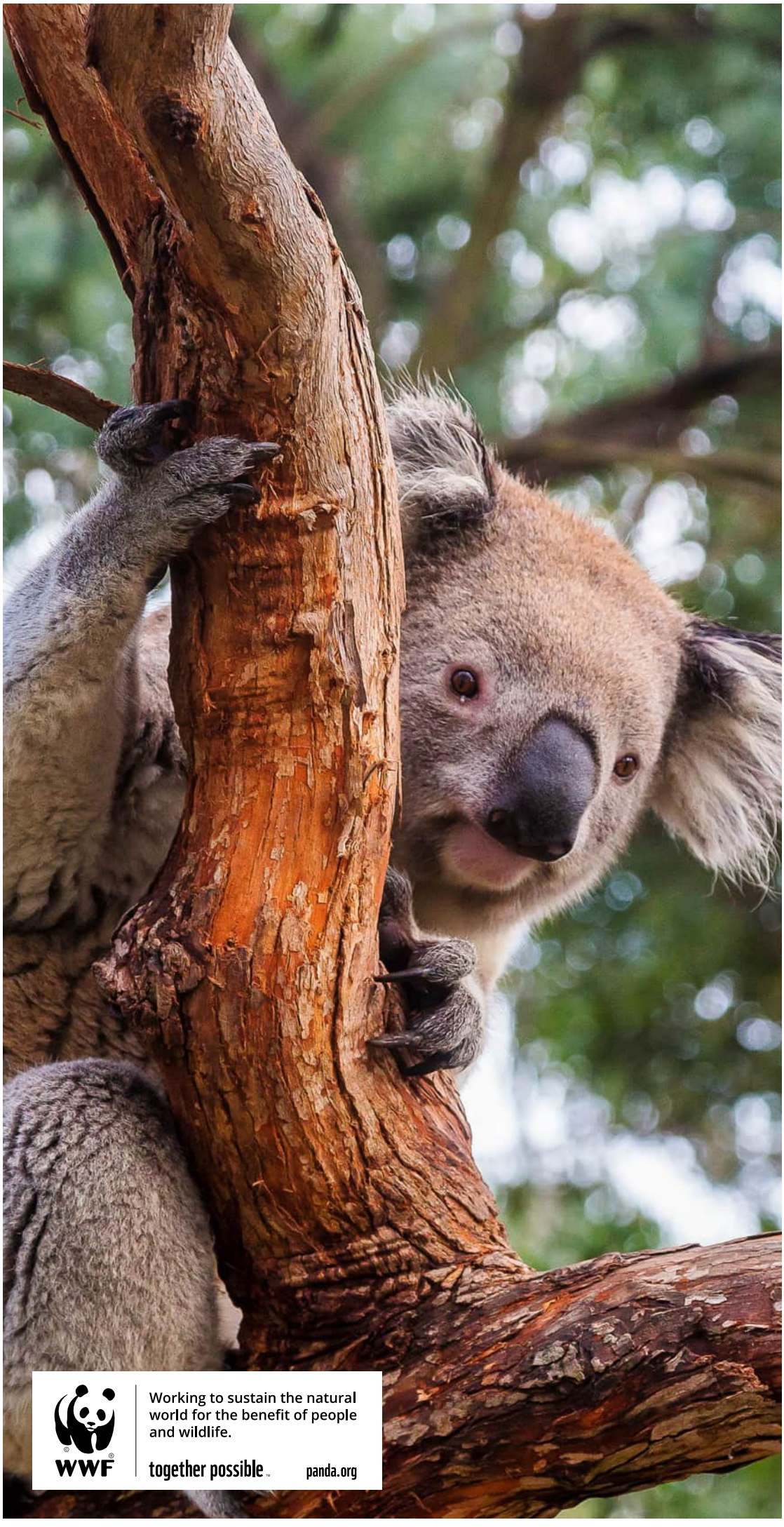
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2026 LIVING PLANET REPORT

The Science of Hope

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