

A circular image showing a large concrete dam with a rocky spillway. The water is a vibrant green color. The dam has a walkway with a railing along the top. The image is cropped into a circle.

# Business Climate Resilience

Thriving Through  
the Transformation



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# Foreword

## Message from Sunny Verghese CEO of Olam and Chair of WBCSD

It is becoming impossible to deny the devastating effects that climate change is having on society, the environment and - increasingly - on the economy.

Even though the world has made some progress through the Sustainable Development Goals and the Paris Agreement, current global emissions reductions targets will still result in 3.3°C of warming by 2100, according to the IPCC.

This will have catastrophic impacts.

The world has already warmed 1°C above pre-industrial levels, and we are already seeing impacts on people, biodiversity, crops and our planet more widely. As the climate continues to change, negative effects will intensify. Many are taking action to mitigate the impacts of climate change.

Over the past five years, business has dialed up efforts to address the climate challenge, taking strong steps towards reducing emissions to limit warming in line with the goals of the Paris Agreement.

While we must continue to implement every possible effort to limit global warming and reduce emissions at the proper speed and scale - we also need to focus on adapting to the changes that are already here, while simultaneously preparing for the significant environmental, regulatory and economic changes that are likely to emerge in the near future.

As Chairman of the World Business Council for Sustainable Development, I am encouraged to see our members taking climate resilience seriously through the release of "Thriving through the transformation" - designed to provide a common vision and language for what "climate resilience" means to business and the role the private sector has to play.

The work brings together important global developments on adaptation and resilience - such as new, fit for purpose frameworks for enterprise risk management, as well as the Task Force for Climate-related Financial Disclosure's (TCFD) key recommendations - in order to help business understand the importance of building climate resilience while outlining initial steps for doing so.

Climate risk is something we all face, no matter our geography, sector or socioeconomic status. It is global in nature and will impact every single one of us in one way or another. Taking the appropriate steps to prepare and adapt will be critical for any business who wants to continue operating past 2050.

It is our sincere hope that this report helps propel you forward on your company's journey to resilience.



**Sunny Verghese**  
CEO of Olam and Chair of WBCSD



# Executive summary

The climate emergency is a present-day reality. The world has already warmed 1°C above pre-industrial levels and we are on track to surpass a 1.5°C global temperature rise as soon as 2040.<sup>1</sup>

Already, climate change has displaced over 22.5 million people; more than 800 million people lack sufficient food; and over one million animal species are facing extinction.

**There is an urgent need for governments and the private sector to take bold climate action. This is a critical necessity in order to reduce emissions drastically, and to make the transition to a net-zero emissions world that is aligned with the 1.5°C scenario of the Paris Agreement.**

The report from the [Global Commission on Adaptation \(September 2019\)](#)<sup>2</sup> highlights three key imperatives for action:

1. the human imperative that calls for adaptation for all people;
2. the environmental imperative to reverse the current degradation of the natural environment; and
3. the economic imperative, which shows a cost-benefit ratio of investing in resilience from between 2:1 and 10:1.

Adaptation clearly delivers a triple dividend in terms of avoided losses, economic benefits and social and environmental benefits.

Ambitious mitigation is crucial to reducing long-term climate costs. This ambition will translate into the deep and systemic transformation of global economies and associated business activity. It will require reprioritizing economic issues according to the magnitude of change that is required, the interconnected risks across our global systems, and the urgency of a rapidly diminishing timeframe.

**Successful businesses will be those that are able to adapt to and thrive through this transformation.**

Over the past year, WBCSD has been working with the business community on their imperatives for climate resilience. Companies need to prepare for both the physical risks that are associated with climate change, as well the associated transition risks on the path to an economy that is net-zero greenhouse gas (GHG) emissions. Businesses need to integrate their climate change risks into their Enterprise Risk Management processes, and factor climate action into their decision-making processes.

**There are three key steps that businesses can take to build business climate resilience:**

- 1. Develop and maintain ambitious mitigation efforts.**  
If a business makes progress in its mitigation efforts, it becomes less vulnerable to disruptive risks, such as policy and legal measures, resource scarcity or adverse market developments.
- 2. Adapt to ensure business continuity in the face of climate-related physical risks.** Businesses must assess and evaluate climate-related physical risks throughout their operations, supply chains and across the communities in which they operate.
- 3. Assess the connections, dependencies and value to society and nature.**  
The connections, dependencies and interrelationships between climate and society, climate and nature and climate and sustainable development will increase public pressure on the true purpose of business activities and the role of business in society.

## Key takeaways

- 1 Enterprise risk management and transformation to resilient business models are key elements in building business climate resilience.
- 2 Delivery of the Paris Agreement objectives and the Sustainable Development Goals depends on our ability to connect climate, nature and people to assure a resilient future for business and society.
- 3 The urgent response to climate change will inevitably lead to a reprioritization of economic activities.
- 4 Business climate resilience focuses on understanding, assessing and acting – based on physical and transition climate-related risks.
- 5 Companies need to adopt resilience strategies that include ambitious mitigation measures to adapt to climate change impacts, as well as steps to strategically transform so that they can benefit from new opportunities and address unprecedented risks.

CALL TO ACTION FOR BUSINESS	CALL TO ACTION FOR POLICYMAKERS
Understand and assess business risks	Collaboration between governments and business to achieve net zero emissions
Put resilience at the core of business strategy	Creation of adaptation and resilience plans, including regulatory instruments that support resilient economies
Scale up investment in mitigation efforts alongside efforts to adapt	Strong policies that provide clarity and confidence for businesses to invest in climate action
Communicate with stakeholders	Policy measures supporting TCFD implementation including carbon pricing
Work with others	Data to support business decision-making
Advocate for climate resilience	Capacity building

The case for adaptation and resilience is clear. However, action in this field is not taking place at the immense pace and scale that is required.



**Peter Bakker**  
President and CEO, WBCSD

The urgency of the climate emergency demands clear leadership and strong collaboration. Governments and the private sector have a crucial role to play.



**María Mendiluce**  
Managing Director,  
Senior Management Team, WBCSD

**This report is a call for action to the business community to double down their efforts on building resilience. It is a call to action for the public sector to strengthen win-win collaborations with the private sector as well. It is only by working together that we can adapt and increase our resilience.**

# Resilience

2020 will be a “super year” in the climate agenda bringing focus to the climate emergency.

As the year in which ambition and performance against the Paris Agreement will be assessed, there are a number of major scientific and economic reports which are sounding a clear alarm on the urgency to act now to ensure delivery of a 1.5°C degree world.

At the same time, climate resilience is being increasingly framed within the need to also protect nature and achieve resilient communities. Indeed, the delivery of the Sustainable Development Goals (SDGs) depends on our ability to connect climate, nature and people to assure a resilient future for all.

With this report, we aim to clarify the concept of “business climate resilience” for policymakers and companies specifically within the global climate agenda. The goal is to provide stakeholders with a common language and the principles for effective climate action that build resilience, recognizing its connection to nature and society. We also highlight current corporate approaches to climate resilience – underlining strategic actions companies and policymakers can take.

**The Intergovernmental Panel on Climate Change (IPCC) defines resilience and adaptation as follows:**

**Resilience:** The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation.

**Adaptation:** In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.



***Long-term transformative scenarios need to be an integrated part of business strategies, or companies will soon become irrelevant. Businesses who already have a long-term vision are going to be the champions of tomorrow.***

**Joyashree Roy**

IPCC author, and Bangabandhu Chair Professor at Asian Institute of Technology (AIT), Thailand and Professor of Economics at Jadavpur University-online

**The concept of resilience as it relates to the Task Force on Climate-related Financial Disclosures (TCFD):**

Climate resilience requires organizations developing adaptive capacity to respond to climate change to better manage the associated risks and seize opportunities, including the ability to respond to transition risks and physical risks.

Opportunities include improving efficiency, designing new production processes, and developing new products. Opportunities related to resilience may be especially relevant for organizations with long-lived fixed assets or extensive supply or distribution networks; those that depend critically on utility and infrastructure networks or natural resources in their value chain; and those that may require longer-term financing and investment.



# ① How the urgency of climate change will shape global system transformation



# 1 How the urgency of climate change will shape global system transformation

**The 2018 Special Report from the Intergovernmental Panel on Climate Change (IPCC) on the impacts of global warming of 1.5°C<sup>3</sup> made a clear statement: While achieving a limitation of global warming to 1.5°C is possible, economies and societies worldwide must undergo rapid and far-reaching transformation at unprecedented speed and scale.**

The Paris Agreement reached in 2015 is a major milestone in the global response to the climate challenge. Its central aim is to strengthen the response to the climate change threat by keeping the global temperature rise well below 2°C above pre-industrial levels by 2100 and to pursue efforts to limit the temperature increase even further, to stay within 1.5°C warming.

To achieve this, governments set nationally determined targets and long-term strategies designed to achieve overall decarbonization of the global economy. However, these commitments are still not

ambitious enough, and their implementation still not advanced enough, to achieve the long-term goals of the Paris Agreement.

The world is on track to exceed 1.5°C warming as soon as 2040. Projections show that current policies will lead to total global warming of 3.3°C by 2100.

The urgent need for climate action demands leadership from governments and the private sector to achieve urgent emissions reductions and transition to a decarbonized world. This translates into the need for **deep and systemic transformation of economies and associated business activities globally.**

**The private sector has a crucial role to play.**

Companies need to **prepare for both the physical risks associated with climate change as well the associated transition risks on the path to a net-zero greenhouse gas (GHG) emissions economy.**

However, mitigation and adaptation present different challenges. Mitigation is a global challenge while resilience and adaptation require addressing impacts and risks that have the potential to be much more diverse and localized. For business, this means developing and implementing mitigation strategies and targets at the global level (e.g., net zero emissions targets), while also addressing local risks affected by climate change, including water, nature and just transitions for communities, both for operations and sourcing strategies.

**Thus, businesses of all sectors must approach climate change systemically, changing their overall business strategy to better understand, anticipate and navigate new risks and opportunities. Doing so will help businesses that are the most prepared to not just survive but to thrive through the transformation.**



## 1. CLIMATE CHANGE IS NO LONGER JUST A RISK, IT'S A REALITY

The next ten years will be critical to limit global warming to 1.5°C as the global effort to address climate change must accelerate dramatically.

The 2018 IPCC Special Report has provided clear scientific understanding of the current and potential future impacts of climate change, as well as the urgency for governments, society and business to act.

The frequency and intensity of tornadoes, floods and droughts are increasing direct physical risks to human lives and health, infrastructure and buildings, as well as indirect risks to the stability of a region or country.<sup>4</sup>

Unless the private sector is prepared, it will suffer. According to CDP, 215 of the world's 500 largest companies could see USD \$1 trillion in potential costs over the coming decades.<sup>5</sup>

Businesses must incorporate climate change challenges into Enterprise Risk Management (ERM), and will have to learn to develop decision-making processes in a changing climate.

## 2. AMBITIOUS MITIGATION IS CRUCIAL TO ACHIEVING TARGETS AND REDUCING LONG-TERM CLIMATE COSTS

GHG emissions continue to rise globally.

For the first time in human history, carbon concentrations in the atmosphere reached 415 parts per million (ppm) in early 2019. The latest research show that the gap between actual emissions and the world's carbon budget, derived from the Paris Agreement objectives, is wider than ever.

As stated by UN Environment in the findings of its Emissions Gap Report 2018, "the technical feasibility of bridging the 1.5°C gap is dwindling."<sup>6</sup>

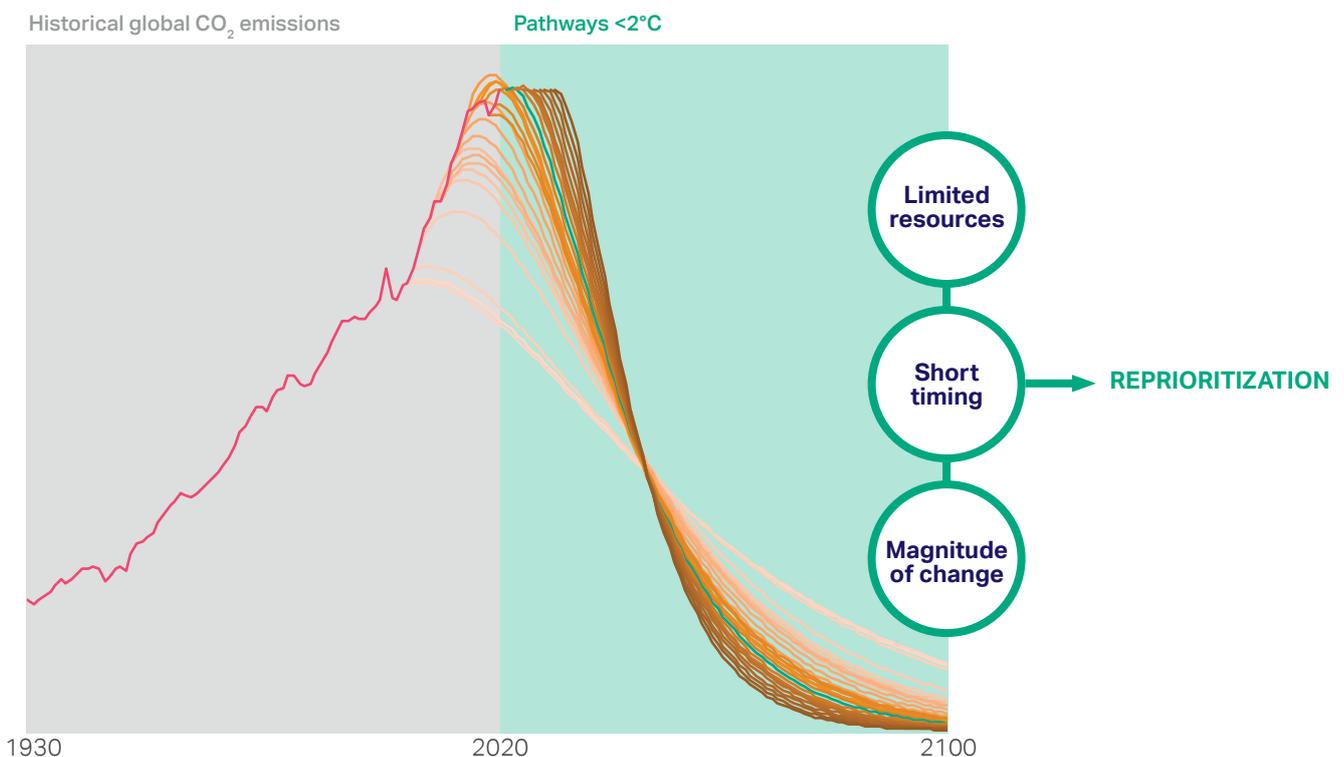
The urgency is clear: governments, businesses and civil society must drastically raise their climate ambitions if the world is to stay within the 1.5°C safe operating space for society and the environment.

**Thus, "business as usual" is incompatible with addressing the climate challenge.**

Systems transformation is inevitable and smart companies are starting to prepare for the transition risks and opportunities as defined by the Task Force on Climate-related Financial Disclosures (TCFD).<sup>7</sup>

Major companies across the chemicals, electric utilities and oil and gas sectors are implementing the TCFD recommendations and taking steps to publicly share their experiences in doing so. Leading food, agriculture and forest products companies are preparing now for TCFD. The goal is to help drive further implementation within and across sectors.

**Figure 1: The scale and urgency of action needed is set to trigger reprioritization of economic activities.**



**Note:** Emission reduction trajectories associated with a 66% chance of avoiding more than 2°C warming by starting year. The solid red line shows historical emissions. Data and chart design from Robbie Andrew at CICERO and the Global Carbon Project.

### 3. REPRIORITIZATION OF ECONOMIC ACTIVITIES WILL BE DRIVEN BY MAGNITUDE OF CHANGE, URGENCY OF THE SHORT TIME FRAME AND THE INTERCONNECTED RISKS ACROSS SYSTEMS

Civil society and recently-launched social initiatives, especially by our youth, are **calling louder than ever for global climate action**, stressing the **urgent need and responsibility** of governments and businesses to transform and decarbonize the global economic system.

**This will lead to a reprioritization of economic activities driven by policy change, consumer habits and business action.**

Business has a vital role to play in taking the lead to ensure their climate actions can have the greatest impact for the future of their business and beyond.

Three main drivers are likely to kickstart this reprioritization across the business sector:

**3a. The expected magnitude of change:** With escalating physical risks and the unprecedented call for action on mitigation, companies will increasingly feel pressured to rapidly decarbonize while implementing adaptation plans.

**3b. The short timeframe:** To align with the decarbonization pathways of the Paris Agreement, the global economy will need to reduce emissions by 50% by 2030, with a goal to becoming carbon neutral before 2050. This will urgently require substantive strategic changes, rapid innovation and great investments with high impact and at scale.

**3c. Connectivity and relationships:** The connections, dependencies and interrelationships between nature and climate, climate and society, and climate and sustainable development highlight the imperative for business to understand broader impacts and dependencies. The low-carbon transition must be just and equitable, prioritizing people, social security, development and well-being. It is also necessary to understand resource constraint implications given the vital and irreplaceable role of nature.

### 4. UNLOCKING AND DE-RISKING INVESTMENTS IN SUSTAINABLE SOLUTIONS REQUIRES FINANCING

According to The New Climate Economy, "The world is expected to invest about USD \$90 trillion on infrastructure in the period up to 2030, more than the entire current stock today.

"Much of this investment will be programed in the next few years.

"[Investing in] the right infrastructure now will deliver a new era of economic growth ... drive innovation, deliver public health benefits, create a host of new jobs and go a long way to tackling the risks of runaway climate change."<sup>8</sup>

The finance sector has increasingly recognized the risks and opportunities associated with climate change. For example, rating agencies such as S&P Global have conducted extensive assessments of potential impacts on business across all sectors exposed to physical risks and transition risks associated with climate change.

Additionally, banks such as BNP Paribas have stated that they will decrease their financing in sectors not aligned with a 2°C scenario (for instance through sectoral policies on coal and unconventional Oil & Gas).

It's clear that economic reprioritization will likely favor the most sustainable option, supporting systems transformation. **Successful businesses will be the ones that are able to adapt and thrive through the transformation.**

### 5. ASSESSING MATERIALITY AND ACTING ON BUSINESS RISKS IS A PRIORITY

There is a clear push for innovative solutions and strategies to encourage business climate action that simultaneously supports emissions reductions and increases business climate resilience while preparing for the likelihood of increasing climate risks ahead.

Specific frameworks like **the COSO and WBCSD framework<sup>9</sup>** for applying enterprise risk management to environmental, social and governance (ESG)-related risks help companies identify and manage new risks and opportunities, including those related to climate change.

The TCFD framework<sup>10</sup> provides a clear pathway to help companies disclose how they're managing these physical and transition risks and pursuing low-carbon opportunities – clarifying where they may be more exposed or more resilient.

Additionally, implementing **Science Based Targets<sup>11</sup>** is a tool for companies to set clear targets and pathways for reducing emissions in line with the Paris Agreement and the 1.5°C target.

## ② Building business climate resilience



**Business resilience to climate change is about preparing for the physical risks associated with climate change while at the same time shifting to a net-zero emissions future.<sup>12</sup> A truly resilient business also works to protect nature and achieve resilient communities.**



Climate resilience is important for all sectors of the economy, but it will look and feel different across industries and activities. For example, the agri-food sector and water-intensive industries are highly vulnerable to physical climate- and nature-related risks and equity of rural communities. The energy sector's challenges are in ensuring security, equity and sustainability; the built environment is facing new demand for sustainable and functional structures that can withstand climate-related impacts.

This section details a new framing of climate resilience that applies specifically to business and draws on the TCFD's categorization of physical and transition risks associated with climate change (see TCFD climate-related risks box).<sup>13</sup>

**In a time of climate emergency, it's important for businesses to move beyond responses to extreme weather events and supply chain disruption and consider the transformational changes and associated transition risks needed to achieve climate resilience.**

In other words, business plans for climate resilience must include both managing the physical risks of climate change (e.g., building recovery capacity to extreme weather events), to integrating active, strategic and meaningful transformation to net-zero emissions.

**TCFD climate-related risks<sup>14</sup>**

Climate change will lead to risks and opportunities linked to policy and market shifts (transition risks), as well as physical changes to the environment.

**Transition risks/opportunities**

The transition to a low-carbon economy may entail extensive policy, legal, technology and market changes to address climate change mitigation and adaptation requirements. Efforts to mitigate and adapt to climate change can also produce opportunities, for example, through resource efficiency and cost savings and the development of new products and services.

**Physical risks**

Physical risks resulting from climate change can be acute (e.g., extreme weather events) or chronic (e.g., sustained higher temperatures). Physical risks may have financial implications for companies, such as direct damage to assets and indirect impacts from supply chain disruption.

**COMPANIES SHOULD PREPARE TO WITHSTAND THE PHYSICAL RISKS OF CLIMATE CHANGE.**

The first aspect of business resilience is related to continuity. **Continuity planning, linked to risk severity and likelihood, put plans in place for a company to withstand and absorb climate shocks, recover and then return to normal operations as soon as possible.** Specific actions to enhance continuity can include developing sourcing and operational contingencies, implementing infrastructure protection, creating flexible and adaptive supply chains, and predictive analysis for future shocks.

These measures are crucial for business continuity as they constitute an approach to the physical risks of climate change – adding to direct climate resilience actions.

Physical climate change risks can have a significant impact on basic economic system functions.

All sectors depend directly or indirectly on the provision of key economic system functions and access to the infrastructure that enables them, such as electricity, water, roads and the internet.

EDF Group, a major electricity company, has put in place a set of adaptation policies to minimize climate change shocks on its utilities and distribution infrastructure. It has also developed strong meteorological and climate services to anticipate climate impacts.

## COMPANIES MUST TRANSFORM TO ADDRESS TRANSITION RISKS AND SEIZE NEW OPPORTUNITIES AS THE ECONOMY STRIVES TO ACHIEVE CARBON NEUTRALITY.

As climate change impacts increase, major environmental, social, cultural and economic shifts will occur, fueled by the reprioritization of economic activities. Business as usual will no longer be a viable option.

This reprioritization comprises a proactive approach to resilience that considers long-term strategic changes supporting system transformation.

Companies will need to consider the various risks associated with the transition, including public opinion, investor sentiment and responses to differential costs, competitor behavior, and actions taken by other sectors or governments.

To guarantee a higher degree of reliability, adaptation and flexibility, companies will often need innovative and disruptive solutions.

As a result, companies may plan to – or may ultimately be forced to – transform their business models.

Transformational measures will always need to involve the strategic planning function and should apply to business models and strategic direction.

Business must therefore consider different time horizons and both physical risk management and strategic development aligned with resilience and net-zero emissions.

**Those who thrive will be able to connect both physical and transition risks and opportunities to business actions and strategies.**

## MAKING THE TRANSITION MEANINGFUL FOR KEY STAKEHOLDERS BEYOND THE COMPANY.

Business has a significant role to play in helping deliver the Sustainable Development Goals (SDGs) which help translate sustainable development priorities into business strategies. In doing so, the SDGs enable companies to better manage their risks and unlock opportunities.

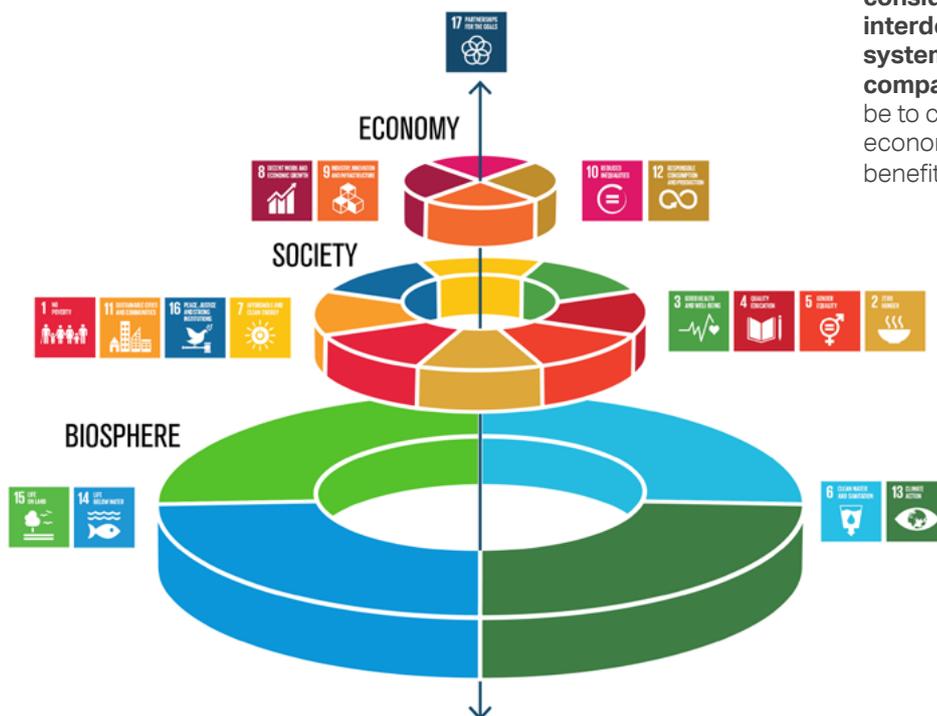
Business activities should foster further societal development and support the functions and resources provided by nature.

The Stockholm Resilience Centre highlighted that the health of the biosphere – that is, the environment – is the basis on which all the other SDGs sit.<sup>15</sup> This connects all 17 SDGs, making nature critical to ensuring resilience.

To become truly resilient, companies will need to help ensure the success and vitality of the environment and communities in which they operate.

**Business resilience strategies should also consider relationships and interdependencies across systems and beyond the company itself.** The aim should be to contribute to wider socio-economic and environmental benefits across the board.

**Figure 2:**  
In the transition to a climate resilient world, economies and societies must be seen as embedded parts of the biosphere.  
(© Azote Images for Stockholm Resilience Centre)



## CASE STUDY



In 2018, **Tata Chemicals** launched a center for marine biodiversity and coastal ecosystem conservation in India. Through this project, Tata is increasing its knowledge of ecosystems that are an integral part of its business model and at the same time preserving and restoring those ecosystems.

**Enel** promotes the achievement of the 17 SDGs by aligning its own strategy with them. It has the ambitious goal of **steering the energy transition** and the related **electrification of energy consumption** through all facets of the “future of energy”: efficiency, flexibility, digitalization, electric mobility and the integration of renewable energy, and the role of customers.

While Enel is actively working on mitigation, it is also transforming itself for the greater good of society by actively engaging in the circular economy. Enel has made the circular economy a driver of its strategy, setting out a global vision and developing concrete actions for its business lines in various countries. For instance, Enel Green Power has combined the group’s approach to the circular economy with its own activities, focusing on the reuse, recovery and recycling of materials during work site, plant and office management phases.

## CASE STUDIES ON THE AGRICULTURE SECTOR



**The WBCSD and Opus Insights agri-tech initiative, CocoaCloud, aims to provide critical data for farmers and industry.<sup>16</sup>**

With the target of reaching one million farmers in Ghana and Côte d’Ivoire by 2024, the **CocoaCloud data platform** generates, translates and disseminates critical information – such as weather forecasts and location-specific agricultural advice – **supporting “climate-smart” decisions for agriculture.**

The impact initiative already supports 7,500 cocoa farmers, extension advisors and wider community members in the western region of Ghana by providing training and localized weather forecasting services (including mobile phone alerts), enhanced by four weather stations installed locally in 2018.



**Olam, a leading food agribusiness, has developed AtSource, a sustainable sourcing solution designed to promote the long-term resilience of agricultural raw materials and food ingredients.<sup>17</sup>**

In 2018, Olam International launched **AtSource<sup>18</sup>** – a sustainable and traceable sourcing solution that provides unrivalled environmental and social insights into the journey of agricultural raw materials and food ingredients from the farm to manufacturing and retail customers.

AtSource will also enhance Olam’s ability to assess and positively influence the environmental footprint of the 4.8 million farmers in the company’s supply chain, the vast majority of whom are smallholders growing crops such as cocoa, coffee and cashews in emerging markets.

## CASE STUDY



### DSM

Climate Change is at the core of DSM's business model driving innovation, risk management and growth. Feike Sijbesma, DSM's CEO, strongly believes the company cannot succeed or call itself successful, in a world that fails. For DSM, combating climate change is not just a responsibility but also a business opportunity and essential part of future-proofing the business. The company's climate agenda is structured around three core areas, addressing both ambitious climate mitigation efforts and accelerated climate adaptation, by:

- 1. improving** the carbon footprint from DSM's operations and value chains to meet the company's NetZero by 2050 target, and working to assess and protect DSM's assets and value chains from emerging climate-related physical risks. This includes transparency on the progress and working towards TCFD aligned reporting.
- 2. enabling** customers to reduce their emissions by developing low-carbon solutions, and providing solutions aimed at supporting societies' ability to adapt to the adverse effects of climate change.\*
- 3. advocating** for accelerated climate action and long-term policies, particularly related to renewable energy and meaningful carbon pricing, but also long-term climate-smart investments, collaboration between actors and better transparency on climate risks as mainstreamed climate risk and opportunity assessment are key for ensuring that financial flows are directed appropriately. DSM and DSM's CEO Feike Sijbesma is actively engaged and leading in several business networks for climate action, including acting as a Commissioner for the recently established Global Center on Adaptation.

**DSM's climate agenda demonstrates how companies can integrate climate action into their business strategy in order to increase both resilience and competitiveness.**



***"Research is showing that adapting to climate change is a real competitive advantage for businesses. Transition opportunities really help companies since climate change drives innovation."***

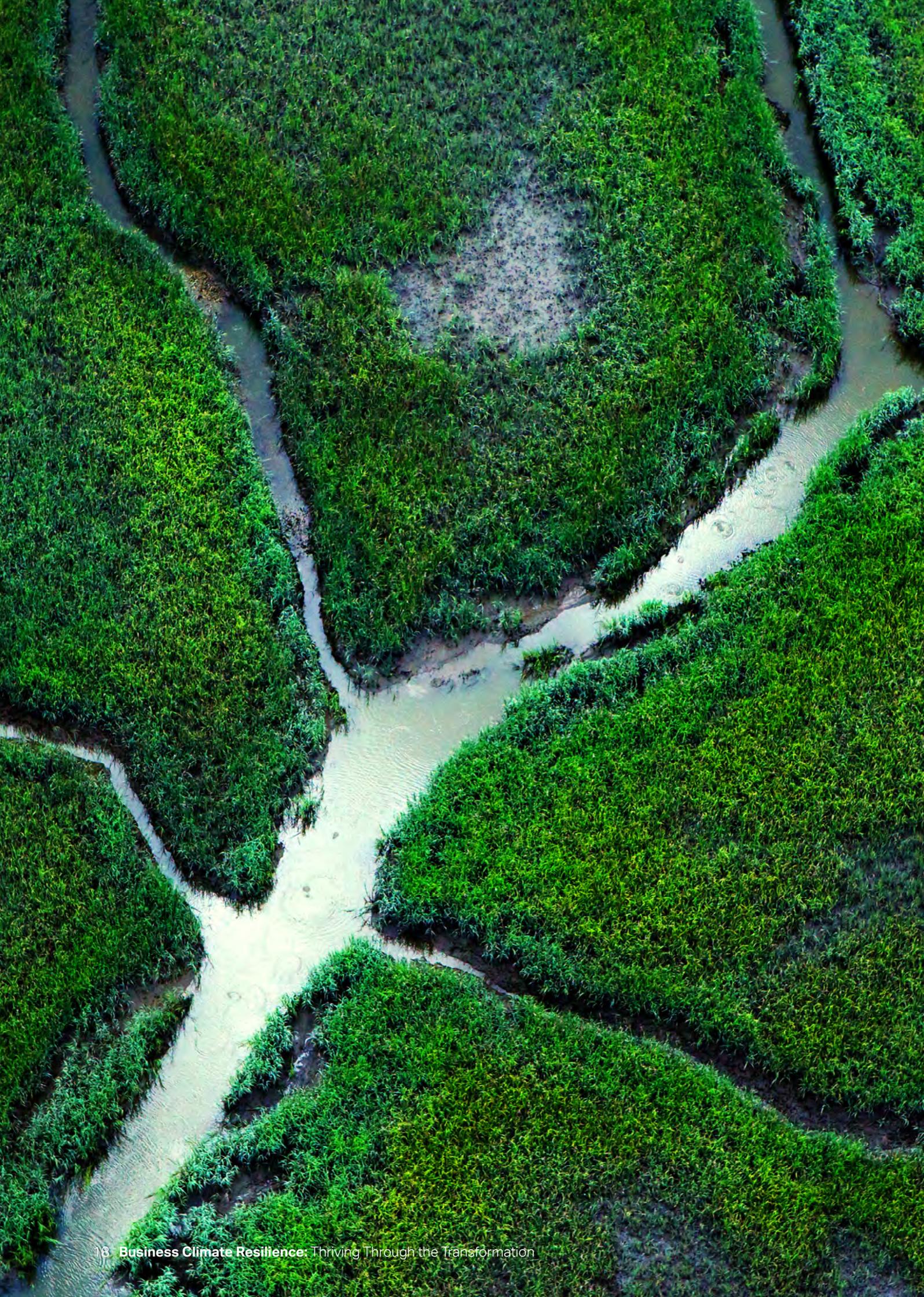
***"By improving the impact of our own operations, enabling sustainable solutions for our customers and advocating sustainable business, we can grow faster and reduce our cost and risk profile"***

**Jeff Turner**

Vice President Sustainability, DSM



\* Examples of DSM innovations with significant emissions reduction potential are Clean Cow, a feed additive that reduces 30% methane emissions from cattle and Niaga®, technology for fully recyclable carpets and mattresses. DSM solutions provide also solutions improving society's' resilience. Together with Syngenta DSM has developed microbial-based agricultural solutions including bio-controls, bio-pesticides and bio-stimulants, which can prevent increase of food loss in rising temperatures combat resistance and enhance plant productivity and fertility. These also include applications of DSM advanced materials to protect infrastructure and buildings and-DSM advanced Solar solutions increasing energy resilience in increasingly demanding climates, as well solutions compensating the nutrition value loss of crops caused by climate change, such as Supercereal+ and fortified rice.



# 3 Practical steps to achieve business climate resilience

Business climate resilience means developing and implementing strategies which address:

1. Mitigation
2. Adaptation
3. Transformation

Business leaders who effectively address all three can realize unprecedented transition opportunities and mitigate climate-related risks.

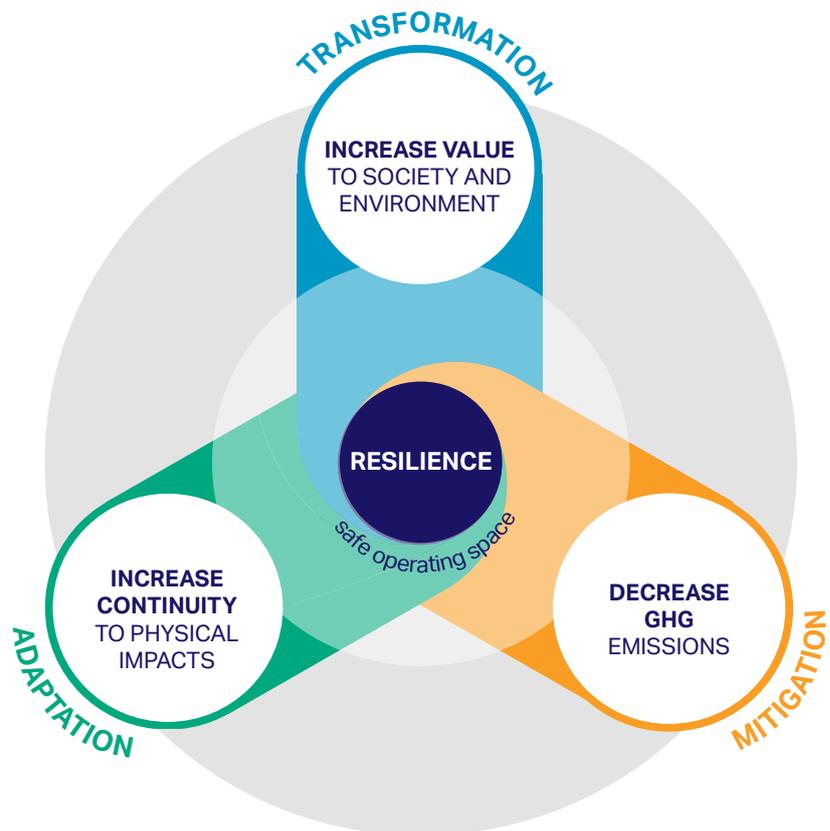
This section outlines practical steps that companies can take to understand where they are and where they can make progress along their resilience journey by linking three concepts: **mitigation, adaptation and transformation.**



*Cultivating and sustaining climate resilience is commensurate with sound business practice. Beyond bolstering the long-term competitiveness of companies, it helps them to establish new and constructive connections with surrounding communities, and to forge new levels of adaptive collaboration across businesses facing similar climate impacts.*



**Youssef Nassef**  
 Director, Adaptation programme,  
 UNFCCC secretariat



1

## DEVELOPING AND MAINTAINING AMBITIOUS MITIGATION EFFORTS IS A KEY COMPONENT OF BUSINESS RESILIENCE

If a business makes progress in its mitigation efforts, it becomes less vulnerable to disruptive risks, such as policy and legal measures, resource scarcity or market developments.

**In the long term, climate mitigation efforts will enable companies to reduce the cost of adaptation to climate-related physical impacts.**

Mitigation is a likely driver behind the surge of climate action commitments companies are making around the world, with many businesses taking concrete action already.

For example, though the We Mean Business Coalition, more than 900 companies representing over USD \$19 trillion in market capital have made nearly 1,500 commitments to climate action. As part of this, more than 630 companies have committed to setting science-based emissions reductions targets through the **Science Based Targets initiative**.<sup>19</sup>

**WBCSD's Low Carbon Technology Partnerships initiative (LCTPi)**<sup>20</sup> offers proof that business is moving beyond talk to implement real solutions by bringing different sectors together to sharply reduce emissions.

2

## BUSINESS MUST ADAPT TO ENSURE BUSINESS CONTINUITY IN THE FACE OF CLIMATE-RELATED PHYSICAL RISKS

Businesses must assess and evaluate climate-related physical risks throughout operations, supply chains and across the communities in which they operate.

Specific frameworks, such as the [COSO and WBCSD framework](#)<sup>21</sup> aimed at applying enterprise risk management to ESG-related risks, help companies identify and manage new risks and opportunities, including those related to the physical impacts of climate change.

Additionally, the World Business Council For Sustainable Development (WBCSD) developed in 2014 the [Building a Resilient Power Sector](#)<sup>22</sup>, a comprehensive report that analyzes climate impacts on power systems, explores how to better forecast weather and long-term climate risk, and shares companies best practices from around the world.

Through the [Building Resilience in Global Supply Chains report](#)<sup>23</sup> we also gave businesses the tools they need to implement productive adaptation measures throughout their value chain and global operations.

Through case studies in contrasting sectors, we highlight the lessons learned across business activities and different kinds of supply chains.

3

## BUSINESSES MUST ASSESS THE DEPENDENCIES AND VALUE TO SOCIETY AND NATURE

The connections, dependencies and interrelationships between climate and society, climate and nature and climate and sustainable development will enhance public pressure on the true purpose of business activities and the role of business in society.

Business should encourage policy measures which provide political and economic priority to activities with the best outcomes for society and the environment.

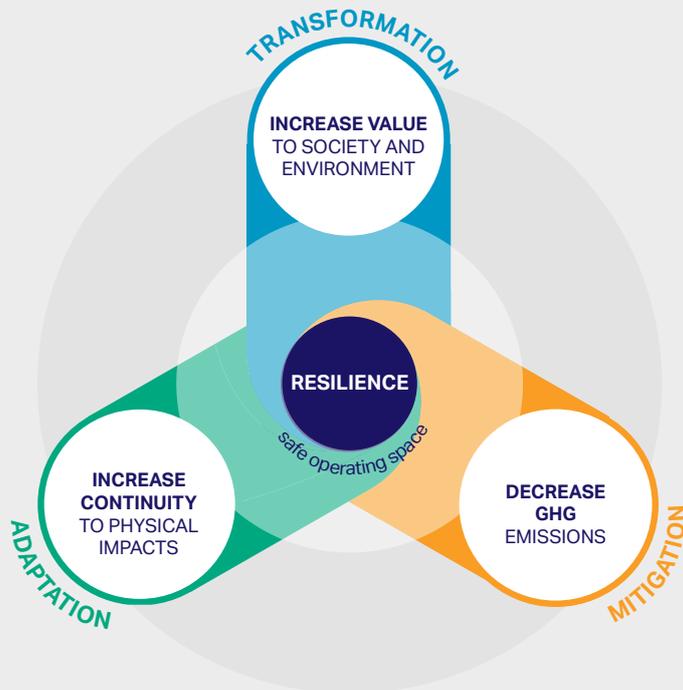
Assessing a company's value to society and nature is a challenging task. [The Natural Capital Protocol](#),<sup>24</sup> and the [Social Capital and Human Capital Protocol](#),<sup>25</sup> which WBCSD helped to develop, provide the methodology and approach to assess the materiality and value.

A diverse, and powerful group of 14 organizations (including and hosted by WBCSD) working with business on environmental issues have come together behind [Business for Nature](#)<sup>26</sup> to align business action behind impactful commitment platforms and solutions. The coalition aims to build a business movement that gives context and voice to the many good, but fragmented, commitment and action platforms that, exist while ensuring effective impact.

**CASE STUDY ON INNOVATION TO FOSTER SOCIETY AND BIOSPHERE RESILIENCE WHILE REDUCING GHG EMISSIONS AND INCREASE ADAPTATION TO THE CLIMATE CHANGE IMPACTS ON WATER RESOURCES:**



Suez is producing clean energy from wastewater in Chile<sup>27</sup>



**TRANSFORMATION :**

The project was launched in 2017 to pioneer innovative circular wastewater treatment solutions in Santiago and to provide increased value to society and the environment.

Once the water is treated and disinfected, it can serve as a clean source of irrigation for farmers. The farmers then produce food, which eventually returns to the city.

Life has returned to the Mapocho river, which used to be a dead zone due to the wastewater.

**GHG MITIGATION:**

All three treatment plants will be carbon neutral, energy self-sufficient and zero waste by 2022. Biofactories convert sewer sludge into clean energy.

**ADAPTATION TO THE EFFECTS OF CLIMATE CHANGE ON THE WATER RESOURCES:**

The plants secure the provision of water to Santiago despite the climate conditions in the area.

# ④ Call to action for businesses



**Businesses will have to prepare for the physical risks associated with climate change while at the same time preparing to shift to a net-zero emissions future.**

**Limiting global warming to 1.5°C will require a deep transformation of economic systems, eventually leading to a reprioritization of economic activities. Only those companies that are most prepared, creative and skillful will thrive.**

Companies that embed resilience will benefit from strong value propositions and strategic differentiators – all of this while actively leading through the transition.

Here’s how to start:

## UNDERSTAND AND ASSESS BUSINESS RISKS

Companies increasingly face a variety of physical and transition climate-related risks, depending on sectoral and regional impact, such as water-related physical risks and likely regulatory instruments that impact water prices.

Frameworks such as the [WBCSD and COSO framework](#) for applying enterprise risk management to ESG-related risks are supporting companies to better assess and understand their risk exposure. While the TCFD recommendations help companies communicate these risks and opportunities to the financial markets (see “Communicate with stakeholders” below). Additionally, data provided by governments or regional authorities, as well as innovations in data and smart technologies will support companies and suppliers in taking risk-informed decisions (e.g., climate-smart agriculture).

## PUT RESILIENCE AT THE CORE OF BUSINESS STRATEGY

Companies that will thrive through the transformation must ensure that their operations, products, services and solutions are compatible with a net-zero emissions world.

Companies should review their business models and portfolios to embed resilience as part of strategic planning to mitigate risks and seize new opportunities.

Addressing climate-related risks and opportunities should therefore extend far beyond the remit of sustainability departments

to include core business concerns, including finance, strategic planning, innovation, business development and more.

Setting science-based targets to assess and strengthen resilience will be crucial. Physical climate impacts can be highly diverse and are localized. Transition risks can be both locally dependent or on a larger scale. Thus, both risks need clear strategic planning for companies to tackle them successfully.

We list some of the cutting-edge solutions available to help companies take practical steps to start on the road to climate resilience below.

## RESOURCES

<b>WBCSD (2014)</b> <a href="#">Building a Resilient Power Sector</a>	●	●
<b>WBCSD (2015)</b> <a href="#">Building Resilience in Global Supply Chains</a>	●	
<b>COSO &amp; WBCSD (2018)</b> <a href="#">Enterprise Risk Management: Applying enterprise risk management to environmental, social and governance related risks</a>	●	●
<b>WBCSD (2015)</b> <a href="#">Climate Resilience: A Guide for the CEO</a>		●
<b>WBCSD (2018)</b> <a href="#">Why carbon pricing matters: A guide for implementation</a>		●
<b>WBCSD (2018)</b> <a href="#">Low Carbon Technology Partnerships Initiative: Going further, faster</a>		●
<b>TCFD (2017)</b> <a href="#">Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures</a> and <a href="#">WBCSD sector-specific resources on TCFD implementation</a>	●	●

- **CONTINUITY** undergoing the physical impacts of climate change
- **TRANSFORMATION** of business models and activities towards a net-zero emissions economy

## SCALE UP INVESTMENT IN MITIGATION EFFORTS ALONGSIDE EFFORTS TO ADAPT

Meeting the Paris Agreement climate targets will require a substantial reallocation of investments globally. There is a clear business call to action to scale up investments in mitigation and adaptation measures. According to the World Bank, investing in more resilient infrastructure in low - and middle-income countries would return USD \$4 in benefits for each USD \$1 invested.<sup>28</sup>

## COMMUNICATE WITH STAKEHOLDERS

To ensure that key stakeholders – including investors and lenders – understand the efforts companies are making to address climate-related risks and opportunities, follow mainstream recommendations to share mitigation and adaptation efforts. The [TCFD Recommendations](#)<sup>29</sup> are the best place to start.

## WORK WITH OTHERS

No single company can address the climate challenge alone. To be effective, companies should join forces with others to find effective solutions that help drive systemic change across markets.

Companies can connect with other businesses that are leading the change. Initiatives such as the [Global Resilience Partnership](#)<sup>30</sup> and the [Global Center on Adaptation](#)<sup>31</sup> provide excellent opportunities to share experiences and best practices.

## ADVOCATE FOR CLIMATE RESILIENCE

The private sector can catalyze increased action on resilience across entire sectors and economies. By sending strong climate action messages, companies can help shift the needle. Whether individually or through strategic collaboration, companies must reinforce the momentum around the need for more mitigation and adaptation, sending clear signals to policymakers and markets.



### INDIA WATER TOOL:

The [India Water Tool](#)<sup>32</sup> is a comprehensive and user-friendly application that makes water data from the government and other organizations available on a publicly accessible platform. The goal is to assist stakeholders in identifying water risks and planning for better water management in India.

Water scarcity is an urgent risk in the country. A 2018 report by India's policy think-tank NITI Aayog<sup>33</sup> highlights that the country is facing the worst water crisis in history, which could lead to a potential 6% decrease in the country's GDP by 2030.

Businesses face significant risks from water scarcity and have real opportunities to gain from addressing the challenge. The India Water Tool encourages stakeholders to act, whether at national, watershed or facility level. It includes:

- Over 20 datasets from key Indian government authorities and other organizations
- A dataset on real-time satellite capture of surface water availability from NASA and the US Geological Survey (USGS)
- Water stress models developed by the World Resources Institute (WRI) and Columbia Water Center (CWC).

It provides companies with a data-led approach to working with the other water users for better water management in local geographies.

## CASE STUDY ON PARTNERSHIPS:



### Veolia and Swiss RE partnering to enable resilient cities<sup>34</sup>

In 2016, Veolia and Swiss Re, under the auspices of the Rockefeller Foundation, launched a partnership aimed at protecting cities' vital infrastructure from the impact of natural catastrophes.

Under this partnership, Swiss Re and Veolia have agreed to work with cities to understand the risk exposure of critical assets under current and future climate scenarios. Based on these assessments, cities can develop resilience plans to lessen the risk of climate change affecting these assets and simultaneously reduce their risk exposure over time. By planning for major shocks and stresses, cities not only strengthen the resistance of their vital infrastructure, they also limit economic interruption and begin to quickly repair damage without waiting for insurance assessments, payouts and solicitations for repair proposals.

The result of this partnership will arm cities with new tools to deal with the constantly evolving risks they face and will also ensure the livability and vibrancy of cities by building their economic and physical resilience.

## CASE STUDY ON THE CEMENT SECTOR:



### Valuing biomass wastes from açai production in Brazil - Votorantim Cimentos reducing GHG footprint while developing local value chain

Around 40% of CO<sub>2</sub> emissions in the cement process come from the use of fossil fuels. Finding alternatives to use different types of waste derived fuels and/or biomass is a key driver to mitigate emissions from the sector. Votorantim Cimentos has been using different sources of wastes and biomass for fuel substitution. An example of a successful case is the Açai Project in Primavera, in the state of Pará, north Brazil.

The company invested in research and development to find a local raw material waste in its production process. The famous Brazilian superfood called "açai bowl" coming from the açai berry, is traditionally consumed for its high-energy value. Under this project, communities, small farmers and suppliers in the region collect the açai pits that would otherwise be discarded, and after a process, the pits arrive at the cement plant to replace part of the imported petroleum coke, the fuel used in the cement kilns.

This co-processing process, implemented by Votorantim Cimentos results in a series of social, economic and environmental benefits, such as reduction of CO<sub>2</sub> emissions, local job creation, income generation, and inclusion of local communities in the state of Pará.

In 2018, Votorantim Cimentos used 40,000 tons of açai pits, resulting in 14.3% thermal substitution and bringing a reduction of 44,000 tons/year of CO<sub>2</sub>. The company aims to keep increasing usage to achieve 30% of the thermal substitution.

## CASE STUDY FROM HEAVY INDUSTRY IN INDIA:



ADITYA BIRLA GROUP

***The Aditya Birla Group (ABG) endeavours to become the leading Indian conglomerate for sustainable business practices across its global operations.***

**K. M. Birla**

Chairman, Aditya Birla Group



The Group has implemented a three-step approach towards sustainability:

- 1. Responsible Stewardship** – ABG has created a framework to move towards international standards and mitigate their impact on externalities.
- 2. Strategic Stakeholder Engagement** – Gaining knowledge to understand how fast “External Factors” will change and when disruptions will occur as we approach a two degree sustainable world.
- 3. Future Proofing** – ABG is transforming their strategic business plan to include additional mitigation and adaptation to changes in the “External Factors”.

Together with [Forum for the Future](#), Aditya Birla also decided to “look forward to the year 2040 and produced a set of materials to help businesses understand what the journey to climate resilience might look like”. The report, **<2°C Futures: 2040 worlds on a trajectory to stay below two degrees centigrade of warming above pre-industrial levels**, includes

1. Baseline infographics conveying the physical changes we can expect in 2040 due to climate change, and the ‘transition’ changes that are needed to get on a <2°C trajectory,
2. Four scenarios that represent different pathways, and
3. Implications for business.



***External forces (of climate change) will lead poor performers to become unsustainable, i.e. financially, technically or geographically unable to continue and hence eliminated. In some cases, the world will not be able to afford some entire product ranges which will become unsustainable and out of business.***

**Tony Henshaw**

CSO, Aditya Birla



## ⑤ Call to action for policymakers



# 5 Call to action for policymakers



**Sectors don't self-regulate. Companies' ethical compasses are not strong enough to compete with business-as-usual short-term comfort and profits. External pressure is key to achieve a desired level of decarbonization and to force companies into having sustainable practices.**

**Thomas Yapo**  
Programme Coordinator, UNEP FI



Policymakers must proactively increase regulatory measures and incentives to de-risk and decarbonize economies in alignment with the needs of the Paris Agreement.

The urgency of the climate challenge requires governments to take the lead in supporting business and society in the transition to a net-zero emissions world.

Business and governments can increasingly work together to develop the right solutions to drive ambition and deliver the rapid and deep decarbonization of the global economy.

## **COLLABORATION BETWEEN GOVERNMENTS AND BUSINESS TO CREATE CLIMATE IMPACT AT SCALE**

Closer collaboration between governments and the private sector will enable necessary climate action to mitigate the physical risks of climate change

and to achieve a net-zero economy. It is important to align public and private efforts, for example by integrating the private sector in the development of regional and national adaptation plans. Moreover, governments should create integrative ambition loops to foster business leadership on climate action, including resilience.<sup>35</sup> Government agencies for environment, finance, development and health should also work together in addressing the inter-connected risks for climate, nature and resilient communities.

## **REGULATION**

Governments should develop adaptation and resilience plans, including regulatory instruments that support resilient economies, including in cities and in agriculture, water and energy systems. They should design such plans in a manner that allows businesses the flexibility to explore and scale innovative resilient approaches.

Policy frameworks across market design, integration, trading, renewable energy and energy efficiency, for example, must support coherent transition objectives aligned with net-zero emissions.

## **IMPLEMENTATION OF THE TCFD RECOMMENDATIONS**

Financial markets need better, more comparable and complete climate change information. The TCFD aims to address this issue through recommendations designed to help companies disclose climate-related financial risks and opportunities. Through appropriate policy measures supporting TCFD implementation, regulators can improve the assessing, pricing and management of climate-related risks; investors can make informed capital allocation decisions; and lenders, insurers and underwriters will be better able to evaluate their risks and exposure over the short, medium and long term.

## CLIMATE FINANCE AND PRIVATE SECTOR ACTION ON RESILIENCE

Policymakers can support the unlocking of private investment for climate action by implementing strong policies that provide clarity and confidence for businesses – to inform strategic planning, drive low-carbon innovations and build business climate resilience.

There is clear demand for governments to foster innovative financial mechanisms for climate action that include the private sector. Enabling investment flows into natural climate solutions will help to also accelerate the needed investments to transform agriculture, land use and forest management for halting the loss of nature and increasing resilience of rural communities. This will support businesses in creating innovative approaches that integrate both mitigation and adaptation efforts, such as nature-based solutions and climate-smart approaches, and climate action in cities.

## DATA TO SUPPORT BUSINESS DECISION-MAKING

Data and metrics are crucial to the adoption of a science-based approach to climate action. Despite large data sets and knowledge gathered through governments on a global scale, there is limited availability, accessibility and quality of information and data for long-term climate resilient planning.

Public authorities have a key role to play in gathering, sharing and analyzing data and information that can lead to meaningful action. Additionally, there is an increasing need for national governments to support business through knowledge sharing and technical assistance, for example in digital infrastructure.

## CAPACITY BUILDING

Capacity building strengthens collaboration, knowledge, expertise and impact. Data generation, analysis and management partnerships are areas with development opportunities.

## CARBON PRICING AS A KEY ENabler

Impactful market mechanisms will be a key climate action enabler.

Governments should implement robust and Paris Agreement-aligned carbon pricing policy mechanisms (such as carbon taxes, market-based mechanisms, standards or a combination of these and other appropriate mechanisms) to redirect investments to low-carbon solutions.

We also encourage governments to set carbon prices consistent with the Carbon Pricing Leadership Coalition's High-Level Commission on Carbon Prices<sup>36</sup> and other similar analyses.



**Business looks forward to working with governments to develop the solutions that build and enhance climate resilience in the private sector and contribute to the well-being of societies and the environment.**

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## ABOUT WBCSD

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD \$8.5 trillion and 19 million employees. Our Global Network of almost 70 national business councils gives our members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues. Together, we are the leading voice of business for sustainability: united by our vision of a world where more than nine billion people are all living well and within the boundaries of our planet, by 2050.

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