wbcsd

Stockholm Synthesis Report

SEI

IN ASSOCIATION WITH STOCKHOLM+50

Contents

① An Agenda for Change

1 An Agenda for Change

The world has seen huge advances in technology and interconnectivity over the past 50 years, yet the future of international cooperation feels as tentative as it was in 1972. At the same time, the pressures humans place on the Earth's system and across societies have grown inexorably.

In 1972, the Stockholm Declaration and Action Plan established a comprehensive set of principles and recommendations for managing the environment. This laid the foundation for today's global sustainable development governance by linking economic development, environmental degradation and human well-being in all parts of the world. Scenarios, like the Club of Rome's landmark report, 'The Limits to Growth' warned of the damage to the planet from exponential growth. In 1972, important new UN programs such as the United Nations Environmental Programme (UNEP) were born.

Twenty years later, in 1992, the Rio Declaration on Environment and Development – called Agenda 21 – was launched. It was a comprehensive plan of action to help governments and organizations, including UN bodies, address climate, nature and societal issues, with processes in place to monitor and report on implementation.

In 2002, the role of partnerships, particularly for business was first recognized, and in 2012 the Sustainable Development Goals (SDGs) were conceptualized. The SDGs recognized the need for large-scale multi-company and multi-stakeholder partnerships to support governments to deliver the goals, culminating in a specific SDG goal on partnership. In 2015, both the SDGs and the Paris Agreement were launched, welcoming the role of business and finance to help deliver the goals within new global co-operation frameworks. A slew of multi-industry initiatives grew between 2015 and 2021.

It's now 2022 and there is no time left to spare. The targets and goals for global environment protection and sustainable development have been designed over the past 50 years: we have no shortage of aspiration and policies – instead, we have an "action gap".[1]

There needs to be an agenda for action to create an enabling framework for sustainable transformation that inherently involves business and the financial system; an agenda that engages business and finance to scale transformation quickly across our global economic system within the next eight years. If it's not achieved, we risk failing to carry through the efforts that our predecessors undertook a generation ago, when they developed the Stockholm Declaration and Action Plan.

In June 2022, Stockholm+50 brought together public and private players to promote new thinking and innovation that links climate, nature and equity. It represented an opportunity to connect climate action to biodiversity restoration, to create value chains that are net zero, nature positive, and equitable for all.

The commitments and actions taken at Stockholm+50 can inform and influence the agenda at major meetings and events such as the United Nations General Assembly (UNGA), 7th Conference of the Parties of the UNFCCC (COP 27), and the United Nations Summit of the Future in 2023. It is now time for bold choices and urgent action that can change systems to create a better future on a healthy planet.

1.1 Fifty years since the first United Nations Conference on the Human Environment

- **1972:** heads of government gathered at the Stockholm Conference to discuss our planet's environmental health and developmental needs. This set a new pathway for sustainable development and helped instigate the creation of UNEP.
- ***1972:*** *the war in Vietnam, geopolitical and social instability, energy price rises and shortages, fear of food shortages and high inflation. In that year, there were 3.8 billion people in the world with only three cities with a population greater than 10 million. Global GDP was USD $4 trillion in today's prices according to the World Bank.*
- **1992:** after the collapse of communism, the Rio "Earth Summit" was convened. It was a landmark for the international architecture of sustainable development and created the United Nations Framework Convention on Climate Change (UNFCCC); the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD) as well as Agenda 21. The UNFCCC Climate Conference of the Parties (COP) and Biodiversity COP processes followed.
- **1992:** World Business Council for Sustainable Development (WBCSD) was proposed at the Earth Summit and launched in 1995.
- ***1992:*** *the world had started to globalize with 5.2 billion people and 10 cities which had a population greater than 10 million. Global GDP was US$25 trillion in today's prices.*
- **2000:** the UN Global Compact was launched by UN Secretary General, Kofi Annan, to help advance corporate business practices on human rights, workers' rights and the environment.
- The World Summit for Sustainable Development in Johannesburg was hosted by Nelson Mandela, encouraging the role of non-government actors to engage in partnership to help tackle environmental and other sustainable development issues.
- ***2002:*** *there were 6.2 billion people in the world. 19 cities had a population greater than 10 million people, and seven of those had more than 15 million.*
- **2012:** Rio+20 was hosted by Brazil, where the informal mobilization of the private sector was invited to demonstrate that its environmental and social action could be innovative and effective and complement official international processes. The initiative was called the Friends of Rio+20 and involved a group of progressive CEOs and NGOs, among others.
- ***2012:*** *there were 7.2 billion people in the world, nearly double that of 1972. There were 27 cities with a population greater than 10 million people, and six of those had more than 20 million.*
- **2013:** the idea for the Lima-Paris Action Agenda on climate change was formed, creating a channel for the mobilization of business, investors and their emerging coalitions of action to help tackle the rising climate challenge. The 'CEO Climate Leaders' at Paris provided a clear signal of confidence to government leaders to press ahead with the Paris Agreement in 2015.
- **2021:** COP26 in Glasgow saw the largest ever attendance of business and finance executives, launching commitments and alliances to tackle climate change, with far-reaching pledges on finance and ambitions.
- ***2022:*** *The war in Ukraine, a pandemic, high energy prices, food shortages due to drought, floods and war, and increasing inflation. The world has 7.9 billion people – more than double that of 1972. There are nine cities with a population greater than 20 million. Global GDP was US$85 trillion in 2020, a threefold growth from 1992 (noting also 2020 which was a year when the global economy was dampened by the COVID-19 pandemic).*

1.2 Creating the Stockholm Action Agenda

This report synthesizes the views of companies and international organizations across six value chains. WBCSD partnered with the Stockholm Environment Institute (SEI) and the Stockholm+50 Secretariat, to mobilize companies, their coalitions and partnerships, and other stakeholders, involved in six key global value chains. Ultimately, this process led to the creation of the 'Stockholm Action Agenda: Transforming Global Value Chains' released in June 2022 at Stockholm +50.

The aim was to find out what is needed to transform global value chains, in the midst of geopolitical and financial instability and societal shifts. The synthesis report and accompanying Stockholm Action Agenda seeks to build on the innovations that took place in Stockholm five decades ago, offering valuable insights and input from business today that identify value chain issues and potential ways forward.

Over a four-month period more than 70 stakeholders across 34 leading businesses and international organizations from across the value chains – in electronics; mobility; built environment; fashion and textiles; travel and tourism; and global food systems – were asked what the roadblocks to a sustainability transformation are, and how would they suggest overcoming them fast, and at scale.

The stakeholder engagement process took place through roundtables and a public survey. Sets of roundtable discussions including leading businesses and other sector organizations were organized for the following value chains: electronics; mobility; built environment; fashion and textiles. WBCSD's Private Sector Guiding Group ahead of the 2021 Food System Summit gathered 27 business associations representing the entire value chain through CEO consultations, results of which informed the food and agriculture section of the report. Information for the travel and tourism value chain stems from research and responses to the survey only.

Many of the existing commitments, coalitions and partnerships with which these companies are engaged, often in collaboration with international organizations and government programs were also mapped. The purpose was to find what structural innovations could be put in place to create a new kind of structured (inter) governmental engagement with leading business representatives and their multi-stakeholder coalitions.

The ultimate goal was to uncover mechanisms that focus on the practical removal of roadblocks that currently hold back an inclusive market-based sustainability transformation, based on the evidence gained from the wide array of initiatives, collaborations and partnerships that business, NGOs, and governments have been working on for over a decade.

The synthesis report presented here served as the evidence base for the 'Stockholm Action Agenda: Transforming Global Value Chains', which proposes three practical **Action Priorities** that provide the necessary structural unlock and impetus for wholesale business-driven value chain transformation. They are in turn underpinned by a proposal to transform a critical **enabling environment** – the global financial system itself.

In addition to the three Action Priorities, the business roundtables and stakeholder engagement process also identified a number of value chain specific initiatives that should be explored further in collaboration with the international community and multiple stakeholders across value chains. These are explored in detail in this report.

1.3 Summary of proposed value chain specific initiatives outlined in the Synthesis Report

For each value chain, we have focused on the priority action areas required for transformative change.

Mobility

A new public-private framework for action on mobility infrastructure investment and sustainable grid electrification is required, that brings together mobility, infrastructure, construction, finance and government players.

A new architecture would require a global/local model that encourages regional and jurisdictional-specific efforts – similar to the food industry's Consultative Group on International Agricultural Research (CGIAR) model – with a focus on issues such as scaling sustainable mobility infrastructure, green grid electrification and charging investments.

It could involve centers of public-private excellence around the world to co-develop structured national or regional partnerships in design and innovation for the electrification and public charging transformation required. The model could work within an international "consultative" umbrella that promotes knowledge sharing, replication and progress assessment. This model could provide a step change in scale and the acceleration of many of the existing collaborative initiatives.

Electronics

National authorities and business need to work together to make electronics consumption more sustainable. This could be achieved by governments, NGOs and business creating incentives to change consumer behavior, such as encouraging product-as-a-service and product sharing and developing repairability indexes. Governments can also provide legal frameworks for novel business models and regulation aimed at optimizing resource use and minimizing waste generation, while companies can make commitments to optimize resource use and minimize waste generation.

Built Environment

A broad energy efficiency initiative to be built, with businesses across the value chain working alongside international organizations to identify a range of key relevant product categories and encourage the introduction of the first set of global standards. Over time, inefficient heating, ventilation and air conditioning (HVAC) products would be systematically retired, and the most energy-efficient products would become the global policy standard. Initially, financial incentives could help spur lower-income customers to buy new highly efficient products.

Fashion and Textiles

A global skills initiative could help the business and financial community across multiple markets related to the fashion value chain build capacity within their own ecosystem to develop and expand circularity collaborations, innovation and partnerships. A particular focus could be to promote disruptive innovation by supporting micro businesses/SMEs at every stage of the fashion value chain.

At the same time, engage large companies, design consultancies, business and art schools, and other influential entities, to help stimulate and support entrepreneurial disruption to redefine the values and skillsets for the next generation who are entering into the global fashion value chain around the world.

Food and Agriculture

Establish a global Food Systems Resilience Board to help capture and mitigate social, economic and environmental risks to make agriculture a more attractive investment for private investors. Solutions to increasingly common global shocks that impact on the resilience of food systems – such as droughts, war and high fuel prices – require a global response involving all actors along the food value chain.

In addition, reform environmentally harmful subsidies, fiscal policies and incentives to, instead, reward net-zero, nature-positive actions and finance a just transition so that payments and financial incentives includes small, medium and large-scale farmers.

Travel and Tourism

The travel and tourism value chain must be futureproofed to safeguard jobs and protect it from the worst impacts of climate change. A comprehensive effort, involving the private sector, needs to be initiated to both raise awareness and begin exploring the sustainability footprint of the travel and tourism value chain.

This initiative should explore the opportunities for a sustainability transformation across the entire global value chain. It should raise awareness and understanding of the steps to implement this transformation, so that the tourism and travel value chain is considered by all stakeholders in the same vein as the more mainstream value chains, such as food and agriculture, or mobility.

② Six Value Chains – Detailed Overview

2 Six Value Chains – Detailed Overview

2.1 Mobility

Introduction

Transportation and mobility systems are essential to modern society. They connect people and places, are enablers of information exchange and provide essential societal services and economic activity. Transportation has contributed to the 20th century economic growth, but the fast expansion of fossil fuel-based energy in transport, along with rapid urbanization, has created environmental and social impacts that are no longer sustainable.

The mobility sector is currently enduring impacts from recent crises: including the COVID-19 pandemic, climate change and war. For example, the shortage of semiconductors – a key component in vehicles – has caused major disruptions to the supply chain (Taiwan provides around 50% of semiconductors for the sector and has been impacted by the pandemic and a drought). Yet, a successful transformation of the sector can create huge reductions in greenhouse gas (GHG) emissions and pollution, with positive impacts on nature and biodiversity, and improve social equity.

Some of the impacts of the value chain include:

- Road freight alone – one of the most important economic activities globally – is responsible for around 5% of global CO_2 emissions and impacts society with local air pollution and traffic accidents.[2]
- The majority of road freight transport's environmental footprint is from vehicle operation – around 90% of the total life cycle GHG emissions of a truck typically come from the use of fossil fuels for propulsion.[3]
- The remaining environmental aspects relate to production and materials: for example, iron and steel combined make up 60% of the GHG emissions associated with materials used in a distribution truck.[4]

Shifts occurring across the value chain towards the large-scale adoption of zero-emission vehicles include electrification, alternative fuels and automation, with behavior change and digitalization key influencers in the sector. The electrification of vehicles is needed if we are to cut road transport CO_2 emissions by 40% in 2030 but requires coordinated action across the value chain to accelerate the deployment of technologies and infrastructure:

- Electrification is becoming the dominant drivetrain for light duty vehicles, but it is not a silver bullet. Gains from electrification depend highly on the environmental footprint of the underlying electricity system, the charging infrastructure, and battery production and disposability. The move towards electrification of light duty vehicle depends on the deployment of charging infrastructure – which is often complex, slow, and requires careful financing.
- Low-carbon fuels, such as low-carbon hydrogen (for long haul and industry), biofuels, low-carbon gases (biomethane, synthetic methane and hydrogen) are emerging as viable alternatives.
- Sustainable behaviors, via digital disruption, such as new forms of mobility services like carsharing services, ride-hailing and peer-to-peer car rentals,[5] are reducing the need for actual car ownership. These developments have yet to disrupt road freight.
- Digitalization for route optimization, fleet coordination and the tracking of vehicle emissions are increasing efficiencies across the value chain. Digitalization can also support greater levels of transparency for consumers.
- Vehicle autonomy developments may also disrupt personal transport and road freight. Automation could also improve road safety as most traffic accidents are a result of human error.[6] Yet, any shift to automation will impact existing jobs and corresponding social equity – employee costs currently make up more than a third of total freight costs.[7]

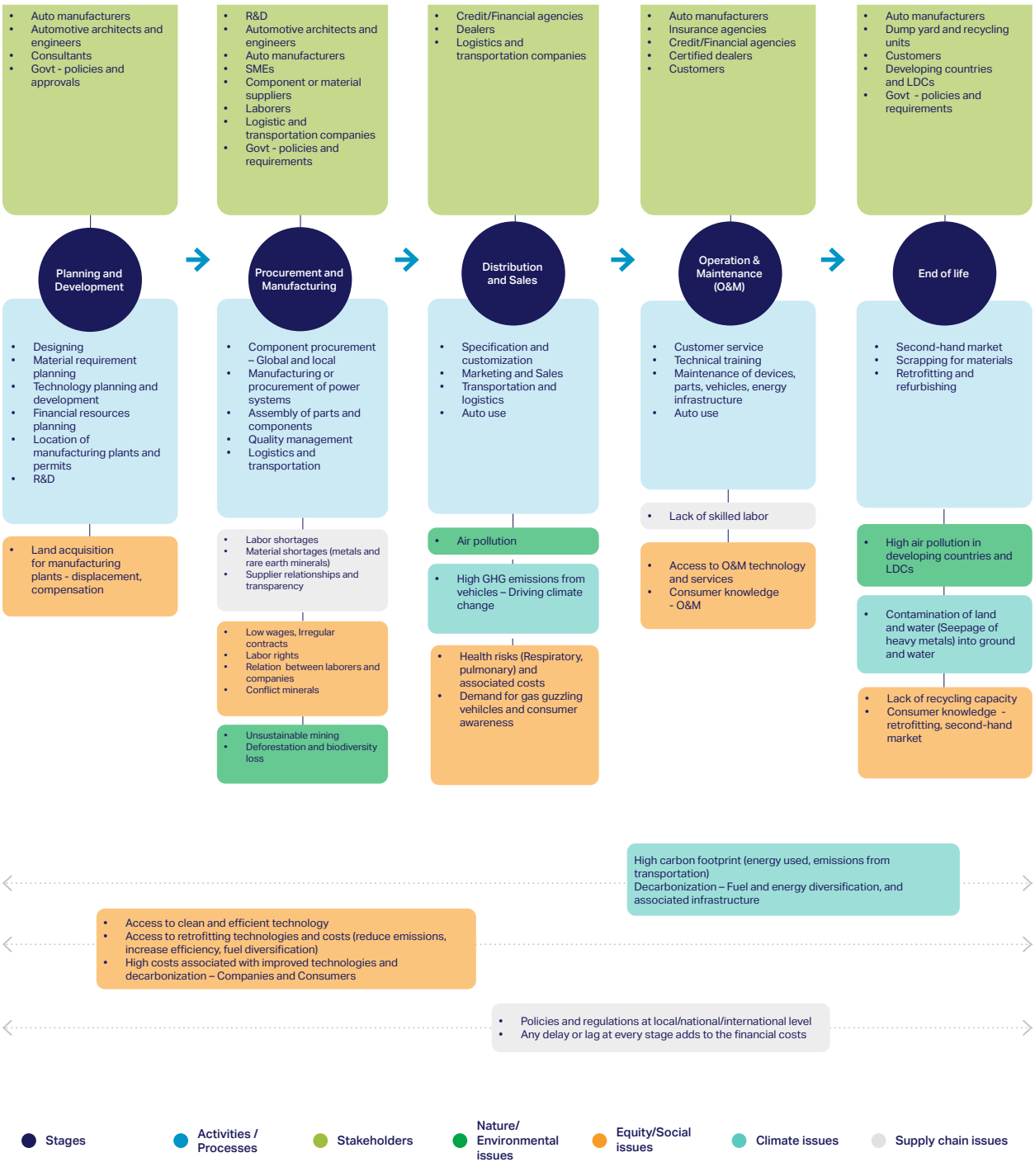
Overall, these technology changes represent a deep ecosystem transformation across vehicle modes and geographies. The transformation to sustainable and equitable mobility and transport systems requires collaboration not only across the value chain, but across sectors.

The Mobility Value Chain

The mobility value chain outlined below was developed in consultation with stakeholders who contributed to the Stockholm Action Agenda: Transforming Global Value Chains. In addition to the commonly associated negative impacts on the climate, participants highlighted the mobility value chain's impacts on social equity. Most notably, they highlighted the skilled labor shortages and poor labor rights, including low wages and irregular contracts, that commonly persist at the start of the value chain, such as at the point of extraction for raw materials.

Figure 1: Value chain schematic diagram

This map is the result of a multistakeholder consultative process with representatives from each of the value chain areas.



Discussion Areas from the Mobility Roundtables and Surveys

A sustainability transformation at every stage of the entire mobility value chain is required and circularity is seen clearly by business as a key lever across mobility value chains. This would minimize the demand for continued growth in virgin resource extraction and the dependence in particular areas of the world for sourcing and manufacturing. A circularity transformation would help address supply chain resilience and fragility.

The starting point is to reimagine how to sustainably source raw materials, such as rare earth metals, and include the social and environmental implications of extraction. The World Economic Forum's (WEF) Circular Cars Initiative envisions transformative end-to-end circularity; the Global Battery Alliance also promotes circularity to reduce pressure on the sourcing of rare earth minerals.

The roundtables also revealed some interesting corporate partnership innovations related to sustainable power involving "end-of-life" electric vehicle (EV) battery initiatives. These initiatives provide practical options for power storage, relieving the pressure on grids and supporting full-scale grid electrification, including for data centers or to power island states. These could be explored further with a view to radical scaling.

Companies show a willingness to engage, yet these corporate initiatives expose the need for strong, practical partnerships with governments – particularly to engage in common frameworks and taxonomies, and facilitate transboundary issues related to the trade of secondary materials and parts. Common initiatives to share data and embed transparency are also key.

Such initiatives could help ease trade flows, provide comparative information on corporate progress and help develop new methodologies, such as common evaluations of full life-cycle assessments (LCA).

The scale of the infrastructure and finance challenge is more than a mobility-wide sector coalition can deliver alone. The roundtables indicate that a new public-private framework for action on mobility infrastructure investment and sustainable grid electrification is required, that brings together mobility, infrastructure, construction, finance and government players. The sustainable mobility transformation requires greening grids, establishing public charging infrastructures and providing access to clean, reliable energy for the electrification revolution that is required.

There are significant pushes among each of these corporate and policy making communities to date, but not an integrated architecture that fuses all. A new architecture would require a global/local model that encourages regional and jurisdictional-specific efforts – similar to the food industry's CGIAR model – with a focus on issues such as scaling sustainable mobility infrastructure, green grid electrification and charging investments. It could involve centers of public-private excellence around the world to co-develop structured national or regional partnerships in design and innovation for the electrification and public charging transformation required. The model could work within an international "consultative" umbrella that promotes knowledge sharing, replication and progress assessment. This model could provide a step change in scale and the acceleration of many of the existing collaborative initiatives.

The sustainable mobility transformation also needs to be designed for – and affordable for – ordinary people. More support for disruptors and innovators should be encouraged to come up with new business models that can create value and jobs for the many. There are existing entrepreneurial and SME organizations, such as SEED (founded at the 2002 World Summit on Sustainable Development to promote entrepreneurship for sustainable development and the green economy), which could be valuable partners with business across the mobility value chain. Significant investment in skills, innovation and education could also pay dividends, including partnerships across business and engineering schools and research labs with avenues for early-stage finance.

Finally, there is a noticeable gap in business initiatives that focus on the distribution and sales component of the mobility value chain. Multi-company initiatives to help engage and change consumer and large purchaser behavior could be transformative but lack comprehensive investment. There may be an opportunity for establishing a Chief Marketing Officer community across the mobility sector to work with governments and partners to communicate and accelerate the sustainable mobility transformation.

Gamechanger Initiatives

PACE is a platform that brings together leaders from CEOs, government ministers, and heads of civil society organizations who are committed to creating a circular economy. PACE and its board members are calling for a global commitment to: "Double global circularity in the next 10 years, working towards climate-neutral and inclusive economies".

EV100: more than 120 of the world's leading companies have made commitments across over 98 markets to transition their fleets to EV and install EV charging for staff and customers by 2030.

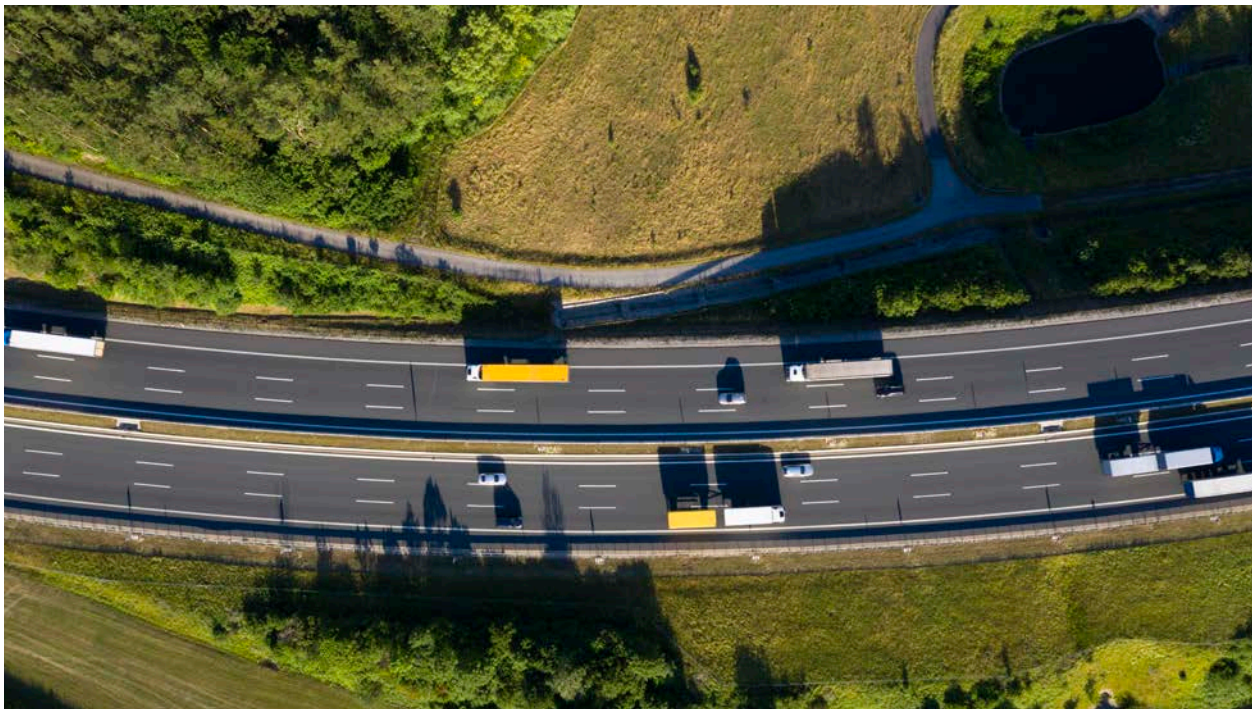
The Global Electric Mobility Programme (GEF) is a multistakeholder initiative that supports more than 50 low-and-middle-income countries with the shift from fossil fuel to electric vehicles. The initiative supports low- and middle-income countries to develop national electric mobility roadmaps and targets, policy frameworks, business models, and financing schemes to transition their transportation sectors to electric vehicles.

Global Battery Alliance (GBA) is an unprecedented business-led partnership of 100+ businesses, governments, academics, industry actors, international and non-governmental organizations representing all stages of the battery value chain. Its goal is that battery production for the net zero electrification revolution is not only scaled to support green energy, but also safeguards human rights and promotes health and environmental sustainability.

The Circular Cars Initiative (CCI) has been jointly formed with WBCSD and the World Economic Forum to help the automotive industry eliminate or minimize total life-cycle emissions through collaboration, policies and technologies that put circularity and sustainability at the core of future car use and manufacturing.

WBCSD's Automotive Pathfinder for Carbon Transparency (APACT) is a partnership with the Catena-X Automotive Network representing 62 automotive industry members as well as the Rocky Mountain Institute, to develop a shared approach to measuring and exchanging Scope 3 carbon emissions information in automotive supply chains. Stakeholders from across the automotive sector will develop a new methodology to enable collective action and increase transparency around Scope 3 emissions within the car industry. This collaborative effort will support business climate action with a comprehensive technical infrastructure for sharing granular, consistent and verified product-level data on primary emissions among manufacturers of automotive parts.

Groupe Renault, Veolia and Solvay have joined forces to recycle end-of-life EV battery metals in a closed loop. The consortium illustrates a new type of collaboration across the battery value chain to preserve resources, reduce carbon emissions and create value. The partners are engaged in an experimental phase, which involves setting up a pre-industrial demo plant in France with the capability to extract and purify end-of-life EV battery metals.



What Needs to Happen

Accountability and transparency

There is a need for an architecture to provide comparable assessments of the progress being made within the mobility value chain against commitments in such a way that governments, the financial community and other stakeholders can easily assess and compare progress.

Companies and regulators to create sensible frameworks for measurement and disclosure aimed at strengthening transparency on emissions, material intensity and equity. This will allow for product-level accountability so the consumer can see environmental credentials across the entire value chain.

Harmonize existing frameworks for sustainable products, both on emissions and material intensity, to help companies navigate requirements.

Companies to enable digital solutions and data-sharing, collaborating across ecosystems and with authorities, to regulate for the fair and equitable sharing of data for inclusive product and services.

Circularity

Introduce frameworks that help set national and regional regulation to address nature loss, workforce exploitation and the carbon footprint implied by the transition to battery electric vehicles.

Explore and invest in circularity for batteries and the recycling of components that can be achieved at scale.

Accelerate investment in technologies that reduces the GHG emissions of iron and steel processing in the vehicle production process and support the creation of high-quality secondary source materials, including regional recycling hubs.

Decent jobs, education and skills

Bring governments, companies and unions together to identify and take mitigating measures to address the new challenges in the jobs market as the sector transitions. This includes providing new skills training and a social safety net for those in diesel-based jobs to reduce the negative impact on their livelihoods. Companies can request support from the EU Green Deal to reskill the workforce for a low-carbon economy.

Governments also need to incentivize new services and capability-building across the original equipment manufacturer (OEM) value chain (which is adversely impacted) to improve business resilience in this transition e.g., OEMs to expand their role along the value chain with digital services and/or energy services.

Companies to strengthen workers' rights with governments and in employment agreements to promote fair working conditions, particularly in countries used to source raw materials where workers are potentially at risk.

Financing

Engage with businesses, investors and policy bodies to explore private public investment mechanisms that can help close the short-term financial gap.

Establish guidance for financial sector and investors to convert their portfolio towards more sustainable solutions.

Use public procurement to drive a demand shift and create early lead markets by applying sustainability conditions to public procurement.

Infrastructure

Ensure that policy actions accelerate the deployment of infrastructure for electrification, automation and digitalization together (rather than in silos) working towards improving efficiency and reducing the cost of road transport.

Establish coordinated infrastructure planning, including targets at the local and national level, that define market and technology requirements, bring clarity to investors and call for minimum public and private infrastructure deployment.

Implement incentives to use low-carbon electricity for vehicle charging, along with investment in microgrids. To achieve this, incentivize flexible energy market participation of EVs and energy storage to promote shared and accessible charging infrastructure.

Research the international public-private mechanisms needed to enable large-scale global movement in transforming EV battery "waste products" into reusable power sources. This involves R&D for large scale battery storage capacity as well as technology and finance required for wholesale green grid electrification investments.

Companies and Constituents Involved in the Mobility Roundtable Discussions

- Ministry for Foreign Affairs, Sweden
- Einride
- SSAB
- Volvo Group
- Confederation of Swedish Enterprise
- UNEP
- Philips
- Toyota Motor Co.
- UNEP / One Planet Network
- World Benchmarking Alliance

2.2 Electronics

Introduction

The electronics industry impacts upon the billions of people who use its products globally and employs millions of people. Much of its resources are from global sites (predominantly in Africa and Asia).

As the pace of digitalization has soared – with a trajectory of upward growth since the 1990s – the electronics sector faces large environmental and social challenges. The trend, desire and pressure among affluent consumers to upgrade products at frequent intervals along with product obsolescence – where technology swiftly becomes outdated as new software or accessories are not compatible – is having a clear environmental and social impact on the sector.

Impacts on the environment include:

- high resource use, raw material extraction and processing.
- high levels of chemical materials and embedded carbon in products.
- low circularity of materials; transportation; high energy and water usage, and e-waste, including hazardous waste and pollution.
- e-waste currently represents 70% of hazardous waste that ends up in landfill (and 2% of solid waste streams[8]) and is currently the world's fastest growing waste stream.
- The growth of cloud computing and cryptocurrencies are also exposing the huge water and energy used for data centers and computer processing power.

UNEP states a need for a fundamental shift from the linear electronics value chain towards a circular value chain. This means that products are designed to extend their life cycle, chemicals of concern (CoC) are eliminated, and resources are recovered and indefinitely recycled for as long as possible.

The social and equity impacts in the value chain include:

- Human rights issues for worker's rights and health and safety.
- Digital safety including cyber security, data privacy and the need for guidelines on the deployment of artificial intelligence (AI).
- Lack of social equity and digital divide, as individuals do not have access to technology due to factors including social status, disability or age.

The industry has been hard-hit during the COVID-19 pandemic and limited supply of semiconductors for electronics exposed the fragility of the value chain. The war in Ukraine has also led to high volatility in prices of commodities that are key components in the production of electronics. This highlights the opportunity for scaling-up the recycling and re-use of electronic components.

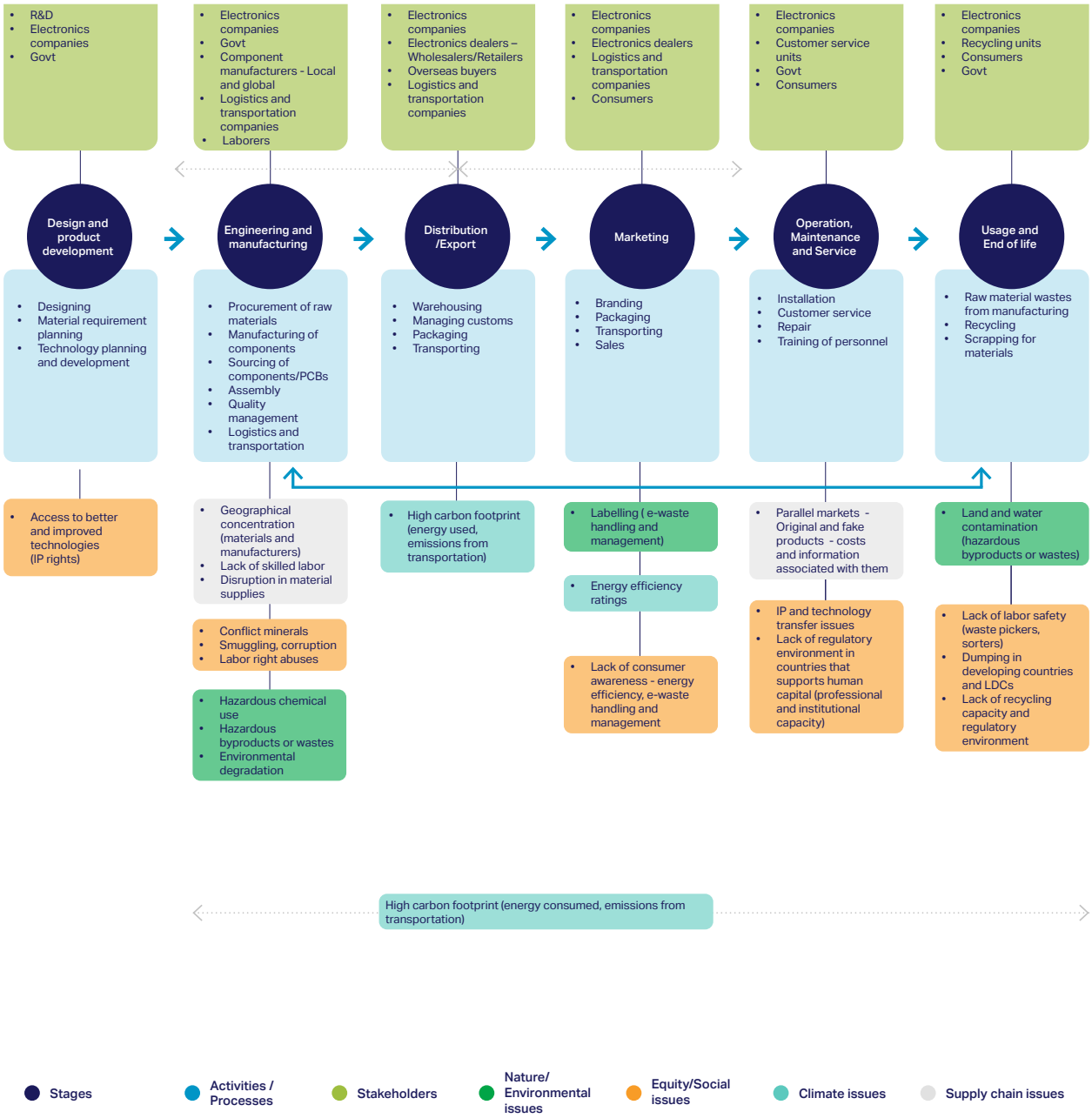
The Circular Electronics Partnership roadmap states that "the value of total raw materials in global e-waste is approximately USD $ 57 billion mainly coming from iron, copper and gold. High-quality recycling of valuable materials from information and communications technology (ICT) devices alone is estimated to present a USD$ 2.5-5 billion opportunity."[9]

The Electronics Value Chain

The electronics value chain outlined below was developed in consultation with stakeholders who contributed to the Stockholm Action Agenda: Transforming Global Value Chains. In particular, the participants highlighted the impact of hazardous chemical use, byproducts, and wastes during the engineering and manufacturing stage, but also the scope for land and water contamination at "end-of-life".

Figure 2: Value chain schematic diagram

This map is the result of a multistakeholder consultative process, involving workshops and interviews, and including representatives from each of the value chain areas.



Discussion Areas from the Electronics Roundtables and Surveys

The roundtables revealed a lot of company activity and effort already underway in sustainability coalitions and initiatives across the electronics value chain at a global scale – spanning design, development, end-of-life and policy issues, in Europe, LATAM, North America/ United States, ASEAN and China. Expert and civil society engagement is also very evident, particularly on promoting circularity.

The focus of a sustainability transformation among business actors in the electronics value chain is broader than climate change. The issues of e-waste and related environment pollution and health issues, resource use (including energy) efficiency, and scaling circularity are key drivers for sustainability discussions. There is a sense of a broad alignment on what a circular electronics industry could look like – with a vision and action plans and specific company and multi-company initiatives underway.

However, a key next step will be to engage business with governments and policy makers at a structural level to highlight, agree-upon and remove roadblocks to the transformation.

Some areas of focus could include:

- Create global definitions and standards for circular products and services from the electronics value chain
- Promote the procurement of these products and services to stimulate wider demand, mainstreaming and cost reductions through scaling
- Navigate the challenge of transforming the end-of-life dimension in the electronics value chain, by evolving existing policy frameworks and international conventions such as the Basel Convention to be fit for purpose to promote a circular economy transformation. This would include fiscal innovations to reward repairs, repurposing and reuse services supporting enterprises and initiatives to promote jobs and reskilling related to this circular transition
- Reimagine international protocols on hazardous waste to define what is hazardous waste versus what are secondary materials with a circularity value to encourage transboundary trade. This involves harmonizing related supporting export/import permits, shipping regulations, data, digital passports and issue reclassifications (from waste products or end-of-life materials to end-of-first-use products and materials)
- Redefine values for waste materials into end-of-first use and create recognized asset classes for circular investments.

The war in Ukraine and supply chain crunches in electronics value chains have accelerated the need for this policy unlocks to become an urgent issue. The promotion of global protocols and common policy standards and definitions to transform the electronics value chain into a circular economic model would be a practical and impactful move from governments and international organizations – with the support and insight from business, experts and related multi-stakeholder coalitions.

An area that also emerged from the roundtable discussions was on skills, reskilling, education and job creation opportunities across every stage of the electronics value chain transformation. There is a lack of activity, investment or collaboration across business, governments and training organizations.

A global skills initiative for large companies and SMEs could help the business and financial community build capacity within their own ecosystem. This includes developing circularity collaborations, innovation and partnerships, along with re- and upskilling people and promoting entrepreneurs working across the value chain. These additional efforts could help to substantially unlock and scale the sustainability transformations already underway.

Gamechanger Initiatives

The Circular Electronics Partnership (CEP) works to reimagine the value of electrical products and materials using a lifecycle approach, reducing waste from the design stage through to product use and recycling. It strives to maximize the value of products, components and materials throughout the full life cycle, using safe and fair labor that depends only on circular resources. The Partnership drives coordinated transition towards an economically viable circular industry. The CEP vision includes devices and equipment from six product categories: temperature exchange equipment, screens and monitors, lamps, large equipment, small equipment, and small IT. The six founding partners are GeSI, Global Electronics Council, Responsible Business Alliance, WBCSD and WEF, and 22 of the world's leading companies are members.

The International Electronics Manufacturing Initiative (iNEMI) is a not-for-profit consortium (86 leading electronics manufacturers, suppliers, associations, government agencies and universities) that aims to roadmap the future technology requirements of the global electronics industry, identify and prioritize technology and infrastructure gaps, and help eliminate those gaps through timely, high-impact deployment projects.

The African Circular Economy Alliance is a government-led coalition of African nations driving Africa's transformation to a circular economy to deliver economic growth, jobs, and positive environmental outcomes. It focuses on five areas for Africa's path to circularity, including electronics, food systems, packaging, fashion and textiles and the built environment value chains. It includes Rwanda, South Africa, Nigeria, Ghana, Cote d'Ivoire, Benin, Burkino Faso and Sudan.

The Global Electronics Council (GEC) works to create sustainable technology products and services to address the negative environmental and social impacts of the technology sector. It provides free access to many tools and resources including EPEAT, its environmental assessment tool and label.

Race to Zero UNFCCC Climate Champions has set emissions targets for the ICT sector, spurring many companies in the electronics value chain to create climate related GHG emission reduction commitments. Sector targets include: the 20% largest companies in the ICT sector (by total revenue) to set Science-based Net Zero targets by 2023; 80% of the sector's total electricity use to come from renewables by 2030 and 100% by 2050.

The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems – with over 400,000 members in over 160 countries, the Institute of Electrical and Electronics Engineers (IEEE) is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. This initiative aims to ensure every stakeholder involved in the design and development of autonomous and intelligent systems is educated, trained, and empowered to prioritize ethical considerations.

What Needs to Happen

Circularity

Design a practical, temporary, public-private architectural mechanism engaging governments that manage international protocols (such as the Basel Convention), international organizations (such as UNEP) and key business organizations and multi-stakeholder initiatives of relevance to transform the sustainability of the electronics value chain. It could be structured by those who have affiliations to the international community (such as WBCSD and others). This could create a series of specific breakthroughs in a time-bound manner (such as over three years) to transform the existing regulatory and enabling environment from managing a linear economy to enabling a circular economy.

National governments to build on the momentum of the European Green Deal and the Circular Economy Action plan (from the Circular Electronics Partnership) to develop and implement policy measures that incentivize the development and uptake of circular products and services. This includes value-added tax reductions, extended warranty periods, or modulated Extended Producer Responsibility (EPR) fees.

Decent jobs, education and skills

Collaborate with partners to roll out a global skills initiative for large companies and SMEs so that all stakeholders favor diverse value chains in the electronics space and reward greater circularity.

This ranges from promoting digital inclusion and access to upskilling people to understand their role in the circular transition – including product developers, retailers, consumers, public sector employees and businesses. It also means promoting entrepreneurs and innovators working across the electronics value chain, crucially including downstream as end-of-life products are reimagined into end-of-first-life resources.

Business and governments, including local government, to work together to provide clarity on what skills and incentives are required to drive the transition to a circular electronics sector, including investment in technical skills and labor for the manual dismantling processes of electronics.

Financing

Encourage national and local government to adopt green public procurement for electronics. Sustainable public procurement strategies can be put in place at national government level to nudge market demand and drive innovation.

Target financial products aimed at advancing the development and market uptake of circular solutions, including the better management and phasing out of chemicals in products. An idea supported by the European Commission, UN, OECD and IPCC is to shift fiscal models from taxing labor to taxing resources, to create cheaper circular economy jobs, more expensive virgin materials and drive the market towards more competitive pricing of secondary materials.

Facilitate access to circularity-focused financing for all stakeholders across the value chain, with particular attention to micro-, small and medium-sized enterprises.

Governance and radical collaboration

Develop institutional arrangements for inter-agency joint enforcement to successfully manage e-waste at the national level. National legislation to ensure a clear distinction between e-waste and used equipment.

Create global standards for digital safety, particularly relating to data privacy, online safety and AI. Both the EU and the UK are working on online content regulations. The EU Digital Services Act pushes for more obligations on platforms to detect, identify and remove illegal content, following the principle that what is illegal offline must also be illegal online.

Governments and policy makers to collaborate with business to create industry-wide standards and common definitions for the electronics sector, including to drive circular electronic products and services.

Governments to provide funding for e-waste collection, particularly for low- and middle-income countries that may lack appropriate treatment facilities and financing for recycling. National and local governments can innovate and improve current systems while supporting the development of regional solutions for e-waste management.

Actions include the need to improve the Basel Convention's prior informed consent (PIC) mechanism that controls the shipments of hazardous e-waste between States and is essential to eliminate illegal e-waste traffic and environmental dumping.

Infrastructure

National authorities and business to work together to make electronics consumption more sustainable. This could be achieved by governments, NGOs and business creating incentives to change consumer behavior, such as encouraging product-as-a-service and product sharing and developing repairability indexes. Governments can also provide legal frameworks for novel business models and regulation aimed at optimizing resource use and minimizing waste generation.

Governments and/or international organizations to work with product designers and manufacturers to create standards for products that are more long-lasting, durable and easier to repair.

This includes, for example, delaying the obsolescence of electronics by providing repair guidelines, spare parts and software support for a product's lifespan.

Governments and businesses to enable tracking and traceability to mitigate pollution through the environmentally sound management of e-waste.

Companies and Constituents Involved in the Electronics Roundtable Discussions

- Circular Electronics Partnership Secretariat
- Cisco
- Global Electronics Council
- Hitachi
- International Copper Association
- ITRenew
- KPMG
- The B Team
- TES
- UNEP
- World Economic Forum Trade Expert

2.3 Built Environment

Introduction

The transformation of the built environment system – i.e., buildings and construction – is critical to reach the climate mitigation targets set out in the Paris Agreement and to meeting the relevant UN Sustainable Development Goals (SDGs 6, 7 and 11).

The built environment contributes heavily to global GDP and jobs:

- It employs around 10% of the workforce in many countries and construction-related spending
- It accounts for 13% of global GDP and is growing, particularly in emerging and developing economies[10]

Impacts on GHG emissions are significant:

- It accounted for 36% of final energy use, and 38% of energy and process-related carbon dioxide (CO_2) emissions globally in 2018[11]
- It is the most material intensive sector in the world – accounting for 50% of global resource extraction, leading to biodiversity loss, water scarcity and deforestation[12]
- The majority of waste from demolished buildings end up in landfill.

Impacts on social equity and human rights are inherent to the sector:

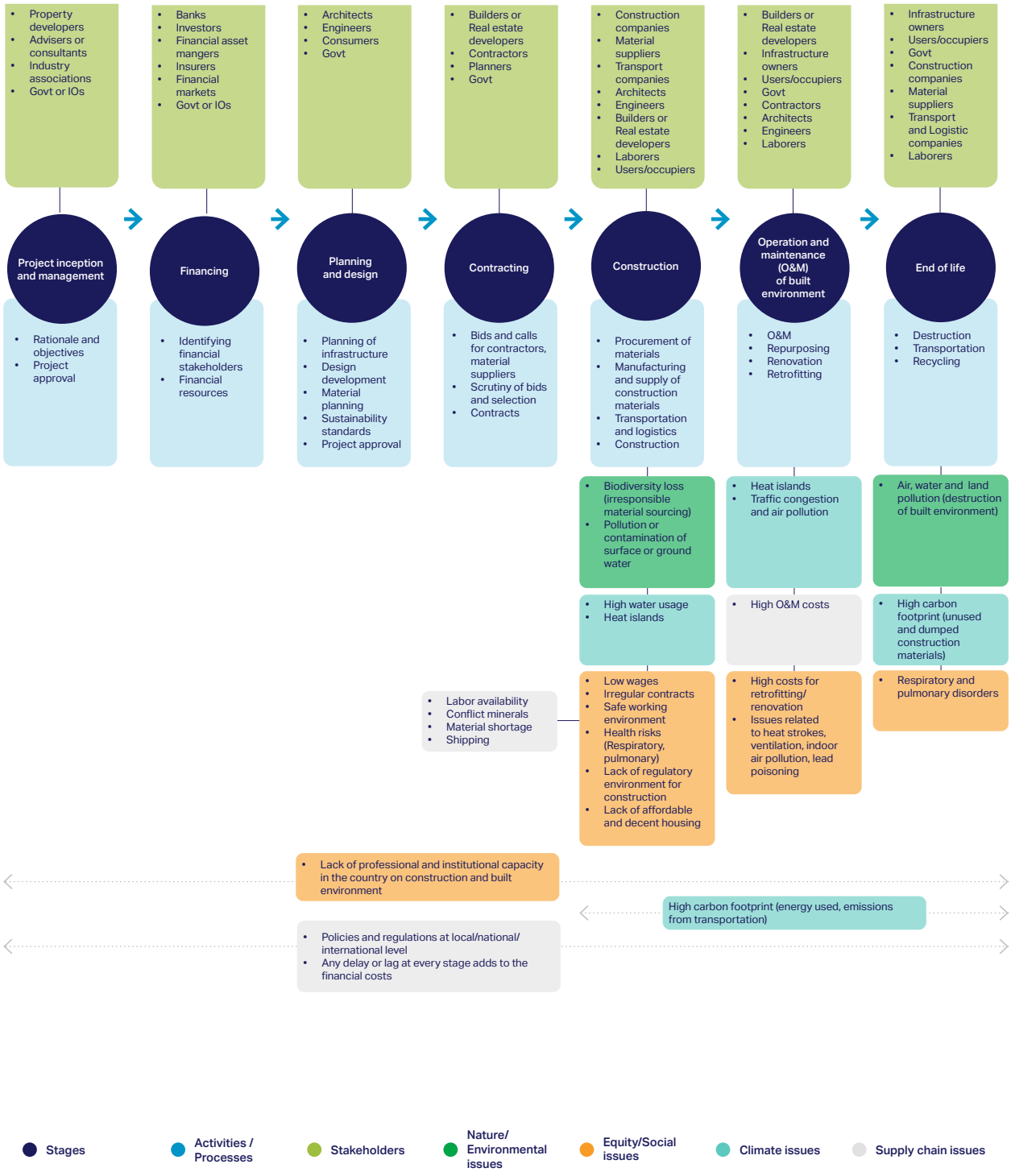
- Many construction workers are exposed to health and safety risks
- There is a high degree of informal jobs where standards may be lacking
- There is the potential lack of clarity around land ownership rights
- Dust and noise from construction pollute local communities.

The rise in the global population and increased urbanization creates a need for vital infrastructure, new buildings and retrofitting of existing building stock. The impact of climate change and biodiversity loss heightens the critical need to build-in resilience to adapt to the increasing number of severe weather events, rising sea levels and rising temperatures. The system must be able to anticipate, embrace and adapt to changes and disruptions to future-proof its value chain.

The Built Environment Value Chain

The built environment value chain outlined below was developed in consultation with stakeholders who contributed to the Stockholm Action Agenda: Transforming Global Value Chains. The participants acknowledged that the majority of impacts occurred in latter stages of the value chain, in particular, during the "construction", "operation and maintenance", and "end of life" stages. In addition to the high carbon footprint from energy use and emissions from transportation, participants also highlighted the lack of professional and institutional capacity, and policies and regulations, at both the local and institutional level, present across the entire value chain.

Figure 3: Value chain schematic diagram
This map is the result of a multistakeholder consultative process with representatives from each of the value chain areas.



Discussion Areas from the Built Environment Roundtables and Surveys

A common theme that immediately emerged from the discussions on transforming sustainability in the built environment value chain, particularly in the current economic context, was energy efficiency. It was noted that 40% of GHG emissions from the sector could be addressed through the deployment of energy-efficient technologies, products and smart design.

Some international initiatives on energy efficiency such as the International Partnership for Energy Efficiency Collaboration (IPEEC) launched in 2009 have waxed and waned. Meanwhile, other more recent multi-country and multi-company global initiatives, such as the Global Alliance for the Built Environment (Global ABC), could provide a platform for pushing transformative energy efficiency programs across the value chain – particularly with the potential impact from new technologies and the proliferation of high performance, high agility, advanced technology products in heating, ventilation and air conditioning (HVAC) sectors. An aggressive push on energy efficiency across the built environment value chain would help customers and citizens with the cost of business and the cost-of-living challenges, as well as substantially reduce emissions.

A broad initiative could be built, applying learnings from Japan's historic and innovative Top Runner Programme, introduced in 1998 by its Ministry of Economy, Trade and Industry (METI). This policy initiative sets the most energy-efficient product, across different categories, as the market standard for other products to meet, and then regularly revisited standards as the market created new products that set higher energy efficiency levels. Top Runner resulted in rates of energy efficiency improvement increase from 16% to 80% across different product categories.

Similarly, businesses across the value chain could work with international organizations to identify a range of key relevant product categories and encourage the introduction of the first set of global standards. Over time, inefficient HVAC products would be systematically retired, and the most energy-efficient products would become the global policy standard. Initially, financial incentives could help spur lower-income customers to buy new highly efficient products.

During the roundtables, companies flagged up the need for higher levels of accountability and transparency across the value chain. There are already excellent civil society and business-driven initiatives for accountability and transparency on contractual and financial decision-making aimed at reducing corruption and malpractice; there are also radical collaborations involving multiple companies committed to accelerating the transition to net zero emissions. Yet, there are few accountability and transparency initiatives that exist to help external stakeholders gauge how corporate and investor net-zero and nature positive commitments across the value chain are actually being delivered. This could be a focus of global effort from the international business community and the public sector. This kind of accountability and transparency mechanism would also shed light on the role of the public sector within the value chain. For example, by regularly publicizing the range of public sector subsidies and incentives on offer that may reward non-sustainable as well as sustainable decision-making across the value chain.

End-to-end circularity in the built environment value chain was identified several times to help accelerate and scale the sustainability transformation, including the need for radical collaboration, policy support for incentives, and tackling policy roadblocks in cross-border material and waste transportation. The value of materials, covering their full life cycle, needs to be redefined, as well as cross border trade issues with sector waste. Other key focus areas were supporting public-private innovation and policy across the value chain to promote materials tracking, circularity and new business models for constant life cycle "zero waste" materials. This includes the potential for natural materials construction, zero emission steel and net zero concrete and cement.

Infrastructure and investment packages for the built environment also need to be scaled. The potential of multi-country initiatives – like the Global ABC, LeadIT and the G20 Infrastructure Hub – were cited as potential platforms that could be better linked up with major multi-company or city network activities across the value chain. For example, WBCSD's City Business Collaboration Initiative could help develop city investment plans and rapidly scale outcomes across each part of the value chain by accelerating net zero cement and steel through demand driven public procurement in infrastructure projects. Links to the major financial players for infrastructure projects could then be structured. This could be done through the lens of related commitments for the Glasgow Financial Alliance for Net Zero or the Coalition for Climate Resilient Investment.

In a similar vein to the mobility value chain, infrastructure and finance for the built environment requires large scale, system-wide public-private collaboration to enable scalability.

The scale of the built environment infrastructure and finance challenge is more than the sector can deliver alone. While there are significant pushes among various city networks, businesses and policymakers, an integrated architecture is lacking. The roundtables indicate that a new global public-private framework for action on sustainable built environment infrastructure planning and investment is required. This needs to include actions to scale and mobilize the transformation effort. It needs to involve businesses across the value chain in multiple urban locations and bring together mobility, infrastructure, construction, finance and government players.

A public-private model for scaling could consist of an international built environment sustainable action network centered upon a city network and its related value chains (similar to the food industry's CGIAR network). It could link together and scale-up the Global Alliance for Buildings and Construction,[13] UNEP's Sustainable Buildings and Climate Initiative, C40 Climate Business Climate Alliance Initiative and WBCSD's City Business Climate Initiative and have a clear set of "sprint" infrastructure and finance outcomes that the value chain must deliver for those cities by 2030.

The scaling device of the network would enable wider policy and finance hubs, such as the G20 Global Infrastructure Hub, along with sustainable investment initiatives to engage. The focus must be on delivery, with leading business and private sector finance players involved in its formation. The infrastructure and finance initiative needs to be suitable for a global/local action architecture, similar to the idea put forward by the sustainable mobility roundtable.

Gamechanger Initiatives

The Danish government has committed to reduce construction emissions and help achieve the country's 70 per cent reduction target by 2030.[14] Its National Strategy for Sustainable Construction representing the government's action plan for the construction sector has designed a policy with a staged phasing in and tightening of targets related to embodied CO_2 emissions and operational CO_2 emissions for buildings (with initial separate requirements for larger and smaller buildings.)

The French government plans to regulate for low-carbon building, by promoting the diversity of construction methods and the mix of materials, based on information from environmental and health data. The mandate states that new public buildings must be made at least 50% from wood or other sustainable materials from 2022. The city of Paris had already pledged a greater use of natural materials such as wood, straw and hemp, and any buildings higher than eight stories built for the 2024 Paris Olympics must be made entirely of timber.

The CityLoops Project, supported by Local Governments for Sustainability, ICLEI Europe, involves seven secondary European cities piloting a series of demonstration actions to close the loop of two of the most important waste streams in Europe - construction and demolition waste, and bio-waste – with the ultimate aim to become circular cities driving the transition to the circular economy.

The Ellen MacArthur Foundation (EMF) and UK professional services firm, Arup, launched the Circular Buildings Toolkit aimed at bringing a circular economy for buildings into the mainstream. This moves away from the "take, make, waste" linear consumption model, from the start of the design process. It aims to minimize waste by keeping products and materials in use for longer. Arup has also committed to whole lifecycle carbon assessments for all buildings work – new and retrofit.

The Global Concrete and Cement Association (GCCA) established a 2050 Cement and Concrete Industry Roadmap for Net Zero Concrete. This is the collective commitment of the world's leading cement and concrete companies.

The Global Alliance for Buildings and Construction (GlobalABC) is a major voluntary partnership of national and local governments, inter-governmental organizations, businesses, associations, networks and think thanks committed to a zero-emission, efficient and resilient buildings and construction sector.

The Mission Possible Partnership - a global alliance of leading business, think tanks and UN agencies to decarbonize industry - has a project aimed at scaling-up the decarbonization of the cement and concrete industry by 2050. The project goals are to ensure the supply and manufacturing of cement and concrete are in line with global climate goals; increase appropriate demand for low-carbon cement and concrete and maximize the potential benefits of cement and concrete while minimizing climate and environmental impacts through a circularity approach.

What Needs to Happen

Accountability and transparency

Develop policy measures to impose a 'whole life carbon' approach to buildings by introducing regulation to ensure new build construction projects net zero in operations and that significantly reduces embodied carbon. Policy should align with the UNFCCC Climate Action Pathways objective to "have 40% lower embodied carbon and net zero in operation by 2030".

Policymakers to support the development of methodological standards and create incentives for the calculation, exchange and display of environmental data that considers all stakeholders across the value chain. This includes regulation on the accounting and disclosure for overall carbon emissions and enabling more accurate accounting to determine Scope 3 impacts within the value chain. A starting point is the Race to Zero Built Environment System Map introduced at COP26 in Glasgow, UK.

Circularity

Build strong, practical partnerships with governments to facilitate the scale up of circularity – via pragmatic national policies including issues such as permit, planning and taxonomy frameworks. For example, natural materials suppliers and users across the value chain could be incentivized to promote and scale measurably "regenerative" business models.

Enable transboundary trade in secondary and "used" materials and construction "waste." A practical collaboration could be created between key corporate initiatives on scaling circularity that engage many companies across the value chain with key international initiatives (such as the Global Alliance on Building and Construction, LeadIT and the UNEP-hosted 10 FYP and Sustainable Building and Construction Initiative). These initiatives already have multiple governments engaged in sustainable policy framework creation, but governments have less collaboration at scale with multi-company initiatives and finance players.

Incentivize innovation that promotes holistic design solutions coupled with space, energy and material efficiency strategies and circularity, to address the environmental impacts of existing processes. An example of this is outlined in the WBCSD Business for Circular Buildings report.

Adopt policies that encourage integrated infrastructure solutions drawing on nature-based and circularity solutions and include the benefits in valuation and decision-making, building on the emerging Global Goals for Nature and common understanding of "nature-positive" in the built environment (as developed by WBCSD).

Decent jobs, education and skills training

Build a comprehensive lifelong learning and reskilling component into each global intervention along the value chain – energy efficiency, in particular, offers a range of decent jobs and reskilling potential. Multiple programs exist and could be tapped into, including from participating and interested companies across the built environment value chain.

Governments to work with the private sector to identify the skills and incentives required to drive low-carbon building, including investment in technical skills training for construction workers, installers, architects and engineers to improve local capacity.

Create policy aimed at ensuring human rights, labor standards and working practices are adhered to, particularly for vulnerable workers. Ensure that these standards apply to small and medium-sized businesses in the built environment value chain.

Prioritize issues including the rights to health for workers and land rights for communities, including women. Adhere to the ILO revised construction code of practice and the IHRB guidance on Dignity for the Built Environment.

Disruption and innovation

Build a scalable, public-private action platform to enable worldwide progress on energy efficiency involving governments and business across the built environment value chain, and especially in the built urban environment. For example, there could be a focused energy efficiency action chapter within the Global Alliance for Building and Construction. The platform could create globally accepted energy efficiency performance standards on a critical set of HVAC products, combined with globally coordinated early retirement programs for less efficient products.

Introduce funding and incentives for public and private research and development, support for demonstration projects and business incubators and funding for breakthrough technologies and SMEs. The introduction of standards, regulation and incentives that encourage the uptake of innovative technology and incentivize material efficiency are key.

Financing

Create policies and incentives to stipulate public procurement of infrastructure aligned with sustainability commitments such as the Buy Clean Act in California, US, which increased the development and uptake of low-carbon materials. It is important that such policies and incentives are using a performance-based and full life-cycle approach.

Investors and lenders to translate net zero commitments into requirements for emissions reductions of buildings and infrastructure projects,[16] as they exert a significant influence through the financing of projects and real asset investments.

Governance and radical collaboration

Embed sustainability into the retrofit of existing buildings, particularly in mature markets, to extend their lifespan, and improve living conditions for residents. This can be achieved by redirecting state subsidies to encourage energy-efficient systems and drive behavorial change among consumers.

Increase the role of urban planning principles by developing and implementing appropriate roadmaps to consider whether new buildings and infrastructure needs to be constructed; reduce the need for land conversion by reusing existing assets and optimizing density; develop sustainable building standards, and include communities' development needs. City representatives and decision makers need to be involved in national and international processes.

Create a new global public-private framework for action on sustainable built environment infrastructure planning and investment. This will help scale and mobilize the transformation effort across multiple urban locations, bringing together mobility, infrastructure, construction, finance and governments.

Create strong, practical partnerships between business and governments to facilitate scale up, by instigating pragmatic national policies including issues such as permit, planning and taxonomy frameworks. For example, imagine if every country facing water stress created enabling policies and incentives to encourage building design and retrofits to limit water consumption to 50 liters per day. WBCSD hosts the 50L Home Coalition, a global action-oriented platform that addresses water security and climate change.

Companies and Constituents Involved in the Built Environment Roundtable Discussions

- ABB
- The B Team
- Global Alliances for Buildings and Construction Secretariat (Global ABC)
- IBM
- City of Stockholm
- UNEP

2.4 Fashion and Textiles

Introduction

The fashion and textiles industry is of global importance, providing high levels of employment, foreign exchange revenue and products essential to human welfare. The UNEP states that 300 million people are employed in the industry, many of them women.[17] The fashion value chain is truly global. Brands often outsource production to the Global South, in countries that include Sri Lanka, Bangladesh, Vietnam and China. For more than a decade, the fashion sector has been working with NGOs and other international organizations to improve its human rights record and impact on the environment.

Fashion's environmental impacts range from the raw materials used (for example, cotton production requires high levels of water); to the chemicals applied (polyester is a petroleum by-product); the transportation and logistics required to make the products and reach the retailer; to 'end of life' waste issues for clothing (e.g. landfills in Ghana and Chile) and destroying unsold clothes.[18] A Bloomberg report in 2022 states that 87% of the total fiber input used for clothing is ultimately incinerated or sent to landfill.[19]

The UNEP reports that fashion accounts for up to 10% of global carbon dioxide output – more than international flights and shipping combined. Its social impacts include human rights issues, ranging from a lack of health and safety standards in factories to weak (or absent) worker rights. The organization states the need for a movement towards a "sustainable and circular textile value chain" that "accelerates a just transition" and that the potential environmental and socio-economic impacts of circular interventions in the textile value chain will also need to be understood. Collaboration among brands, retailers, governments and consumers is essential to creating a sustainable and circular textile value chain.

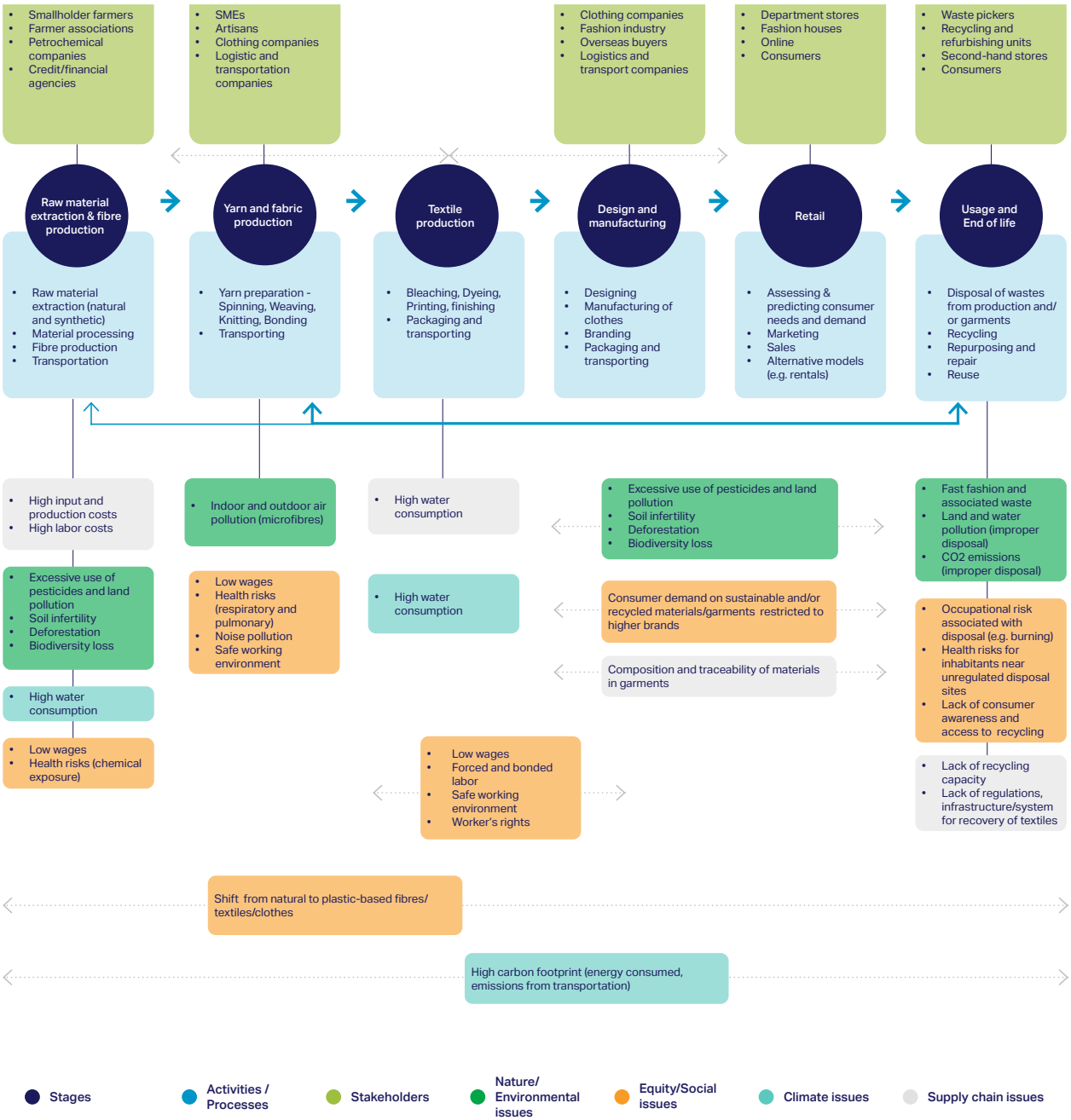
Among consumers, there is a visible shift towards sustainable consumption – whether in the materials used for the clothing or shoes; recycling, reusing or renting clothing, or buying the brands that position themselves as sustainable. This is evident in the growth of 'sustainable' brands or larger well-known brands adopting circular models for particular products – for example, using ocean plastic waste to create sneakers. However, there is not yet an agreed-upon definition or regulation that defines what is 'sustainable' in fashion, or a need to disclose the social and environment impacts, resulting in a lack of transparency for the consumer.

The Fashion and Textiles Value Chain

The fashion and textiles value chain outlined below was developed in consultation with stakeholders who contributed to the Stockholm Action Agenda: Transforming Global Value Chains. In addition to the value chain's high carbon footprint, which was recognized by all stakeholders, the negative impacts on nature and land use were highlighted. Participants emphasized the excessive use of pesticides and land pollution, increased deforestation and resultant biodiversity loss at the "design and manufacturing" and "retail" stages of the value chain.

Figure 4: Value chain schematic diagram

This map is the result of a multistakeholder consultative process (involving workshops and interviews) with representatives from each of the value chain areas



Discussion Areas from the Fashion and Textiles roundtables and surveys

The roundtable discussion highlighted the central role played by the consumer that influences companies to act on the sustainable transformation of the fashion value chain. The need to educate, inform and empower the global consumer about fashion and textiles sustainability was evident among participants.

Another key issue raised by participants was the need for government and inter-governmental agencies to engage with industry actors across the fashion value chain to promote the shift to sustainability – by creating common standards, level playing fields, and harmonize policy and fiscal signals.

The sustainability transformation of the fashion value chain was principally seen through the lens of an end-to-end circularity transformation, requiring government support for common definitions of key inputs, elements and activities across the value chain, the harmonization of international policies and standards, the facilitation of cross-border trade related to secondary materials transportation and a suite of potential policy and fiscal incentives at key junctures across the value chain, including for the consumer. It was well noted that specific national or jurisdictional issues need to be addressed within such a program of government interaction.

For example, some poorer countries rely on the labor from fashion manufacturing, and fear leakage of jobs to other jurisdictions if wages and/or labor rights are not harmoniously and simultaneously addressed among all potential competitor countries. There also needs to be a universal approach to environmental issues so that some businesses do not simply move to less regulated places to avoid reducing their net environmental impact.

The perception of value in the wider capital markets and economic decision-making will need to be redefined if impacts on biodiversity and water pollution, as well as fair and living wages are taken more comprehensively into account. Value structures that involve more than discounted cash flow as measures of success need to be created, such that lower cost of capital is prioritized for companies in the fashion value chain that make a first move toward transformation. This avoids sustainability coming with a price premium for the consumer. The sector is ready for structured engagement with governments, regulators and capital providers on how to make this shift.

There is already a high degree of innovation taking place at all stages of the value chain, including among entrepreneurs in emerging and less developed countries – from the creation of new, sustainable materials from by-products or from end-of-life materials; the trialing of more resource efficient manufacturing processes, and a fast-growing disruption in fashion retail with increasing digital "pre-loved" fashion buy-and-sell platforms among Millennial and Generation Z consumers.

The feeling is that the fashion value chain is on the cusp of a sustainability mainstreaming transformation, but there remains a high degree of uncertainty as to who should move first – it is unclear to most businesses in the value chain exactly "how" to start triggering the change so that there is no first mover disadvantage.

A structured (inter)governmental engagement with leading businesses, SMEs and key business-related initiatives active in promoting circularity across the global fashion value chain could provide a transformative unlock. This could involve the co-design of a Circularity Protocol (find out more about the Circularity Protocol in the Stockholm Action Agenda) or some related form of internationally agreed mechanism for harmonization and cooperation.

The Protocol could focus on shifting the global fashion value chain to a truly circular model within a certain timeframe (e.g., by 2030). To achieve this, a range of specific roadblocks and practical interventions would be identified and discussed, with solutions created and time-to-goal actions established. At its heart, the Protocol would promote a set of harmonized policies and regulations that unlock a wave of end-to-end market-based collaboration and innovation in the fashion value chain.

Areas of action could include:

- Common definitions of key inputs, elements and activities across the value chain
- Harmonization of international policies and standards and creation of common fiscal signals and level playing fields to promote the shift to inclusive circularity, addressing both environmental and social / labor issues
- Actions to facilitate cross-border trade related to secondary materials transportation and a suite of potential policy and fiscal incentives at key junctures across the value chain to promote re-use, including for the consumer and retail innovators.

The challenge of climate change on raw material extraction and fiber production might lend itself to a practical value chain resilience dimension being baked into the Circularity Protocol. Supply chain crunches of raw

materials in fashion and textiles value chains are combining with rising inflation and energy prices, putting pressure on jobs, manufacturers and consumers. A concerted, time-bound effort for the promotion of a global Protocol could help to provide certainty by locking in existing targets and illustrating a practical desire to double down on global cooperation to reimagine the fashion sector. It would also likely resonate well with consumers and citizens around the world who fear for growing sustainability challenges and rising price pressures.

Gamechanger Initiatives

Transparency in Action is a free, industry-first online platform designed to help fashion brands understand the role of transparency in enhancing performance, improve their own disclosures and adapt to emerging legislation. It also helps people navigate the currently fragmented landscape of transparency initiatives. WikiRate, the Open Apparel Registry, and the Fashion Revolution are behind the platform.

Textiles 2030 is an initiative providing brands with updated environmental targets – to halve emissions by 2030, reach net-zero by 2050 and reduce the aggregate water footprint of new products sold by 30%. Signatories will also have to become more fully circular and are encouraged to collaborate to change product design, material specifications and business models. They will need to improve durability, recyclability and use of recycled content across their products and minimize upstream waste.

The Circular Fashion Partnership (CFP) is a cross-sectional partnership to achieve a long-term, scalable transition to a circular fashion system. The project aims to build the capacities among suppliers in Bangladesh to integrate post-industrial and post-consumer recycled content.

This broad development effort will provide a scalable example of how circular solutions upstream in global value chains can provide an inclusive and resource-efficient development pathway.

SWITCH programme – funded by the European Union – aims to support micro-businesses and SMEs in developing countries in the value chains of large EU manufacturers and buyers to jointly identify, adopt, and excel in circular economy practices. SWITCH supports and facilitates pilot projects across different value chains – textiles and garments; electronics; plastics and packaging – to replicate and scale these. It contributes to the achievement of multiple Sustainable Development Goals, SDG 8, 9,12 and 13.

Moreloop, supported by SEED, is an online platform in Thailand that curates surplus fabrics from quality garment factories and create a market to allow SMEs to access quality fabrics at reasonable price, with a vision to make an inclusive circular economy a reality in the textiles industry. Its focus on SMEs includes promotion of women-led companies.

The Sustainable Apparel Coalition is a global, multi-stakeholder non-profit alliance with over 250 leading apparel, footwear and textile brands, retailers, suppliers, service providers, trade associations, non-profits, NGOs, and academic institutions working to reduce environmental impact and promote social justice throughout the global value chain. The Coalition offers the Higg Index, a suite of tools that standardizes value chain sustainability measurements and measures the environmental and labor impacts across the value chain. This Index helps to identify hotspots, continuously improve sustainability performance, and achieve the environmental and social transparency consumers are demanding.

In 2022, 171 brands had, so far, signed the International Accord to 'uphold worker safety', on the ninth Rana Plaza anniversary to uphold worker safety in the Bangladeshi textile and garment industry and fulfil their supply chain responsibilities in Bangladesh and beyond. Representatives of the Accord, implemented by Bangladesh's Ready-Made-Garment Sustainability Council (RSC) will expand its scope to include labor rights and the environmental impact of production, and they are seeking to expand the agreement to Pakistan and Sri Lanka.

What Needs to Happen

Accountability and transparency

Establish an international mechanism that enables accountability and transparency on net zero progress by the companies who responded to the UNFCCC Champions Race to Zero challenge (as well as for other key industry sectors and value chains). This could help to accelerate others to engage and create positive momentum on climate action toward the 2030 target.

Harmonize social and environmental standards and reporting across different countries, to avoid shifting production to less-stringent jurisdictions.

Introduce regulation that sets perimeters on what can be defined (in clothing) as 'sustainable', based on the social and environment impacts of the product. The European Commission is proposing to update EU consumer rules so that producers are obligated to provide information on products' durability and reparability; it also proposes to ban 'greenwashing' practices.

Decent jobs, education and skills training

A global skills initiative could help the business and financial community across multiple markets related to the fashion value chain build capacity within their own ecosystem to develop and expand circularity collaborations, innovation and partnerships. A particular focus could be to promote disruptive innovation by supporting micro businesses/SMEs at every stage of the fashion value chain.

Engage large companies, design consultancies, business and art schools, and other influential entities, to help stimulate and support entrepreneurial disruption to redefine the values and skillsets for the next generation who are entering into the global fashion value chain around the world.

Ensure that protections are in place for women, as they make up much of the workforce in the fashion sector. Regulators and brands can enable greater equality in the workplace via trade agreements and contracts.

Standards for workplace practices, particularly in the Global South, need to be enforced by brands pushing local governments to drive progress on codes of conduct, leadership standards, partnership standards with manufacturers, and in other areas.

Financing

This shift to be supported by changes in taxation to drive behavior and innovation. For example, for recycled materials (or secondary materials) to be cheaper, or for brands to use waste materials, such as pineapple skin, to create textiles.

Governance

Brands to use their influence with suppliers to move away from fossil fuels within their production operations to renewable energy. The World Economic Forum reports that green energy sources and energy efficiency of machines in fashion's production value chain can significantly reduce emissions – switching production from fossil-derived energy to renewable power sources could abate around 45% of emissions.[20]

Infrastructure

Put a policy framework in place to tackle the roadblocks that large business and SMEs across the fashion value chain face in transforming their value chain into an inclusive, circular model. Fashion can be a key sector to help redefine value for the capital markets involving significant and material nature, pollution, circularity and labor/social related issues.

Build the scalable infrastructure and technology needed to source and recycle textiles. It is currently cheaper for brands to use virgin raw materials than recycle textiles due to lack of recycling technology for textiles and limited scale of existing solutions.

Companies and Constituents Involved in the Built Environment Roundtable Discussions

- Asia Pacific Resources International Limited (APRIL)
- Baker McKenzie
- Business Sweden
- Inter IKEA Group
- H&M Group
- Renewcell
- Trench Rossi Watanabe
- UK Fashion & Textile Association
- UNEP

2.5 Food and Agriculture

Introduction

The way food is produced is outstripping the planet's resources, creating a global health crisis and increasing food insecurity. The world produces enough to feed 10 billion people, yet 800 million live in hunger. The One Planet Network states that the Paris Agreement and the UN SDGs – particularly No Poverty (1), Zero Hunger (2), Climate Change (13) and Life on Land (15) – cannot be achieved without an urgent transformation to regenerative and equitable food systems that produce healthy, safe and nutritious food for all.[21]

This requires a food-systems approach that recognizes socio-economic, geopolitical and environmental drivers at different stages of the food value chain. The UNEP and International Fund for Agricultural Development both point out how food value chains have a crucial role to play in driving this transformation,[22] being the link between production and consumption. Public procurement also has the power to drive sustainable agriculture. It represents 12% of GDP in the OECD and up to 30% in developing countries.

The World Benchmarking Alliance has identified "worrying" gaps in the agri-food sector's preparedness for climate change, progress on human rights and contribution to nutritious diets.[23] Its impacts include:

- Being responsible for approximately 30% of all GHG emissions from direct agricultural production and when land is deforested to grow crops or graze livestock (according to SEI research). If no action is taken, it could be the primary source of GHG emissions by 2050[24]
- Land conversion and the overuse of pesticides and fertilizers are major drivers of biodiversity loss, soil degradation and water pollution. However, agriculture could capture carbon and be beneficial for nature if it was practiced more sustainably
- One billion people globally are farmers, of which 85% are small-holders with less than two hectares. They are vulnerable to unfair procurement and poor labor practices
- Global food security along the food value chain has deteriorated due to the COVID-19 pandemic, droughts and floods caused by climate change, and higher fuel prices. The war in Ukraine – in a region which provides around 30% of the world's wheat and barley, a fifth of maize and more than half of all sunflower oil – demonstrates how sensitive the system is to supply distortions and the vulnerability of many net importing countries[25]

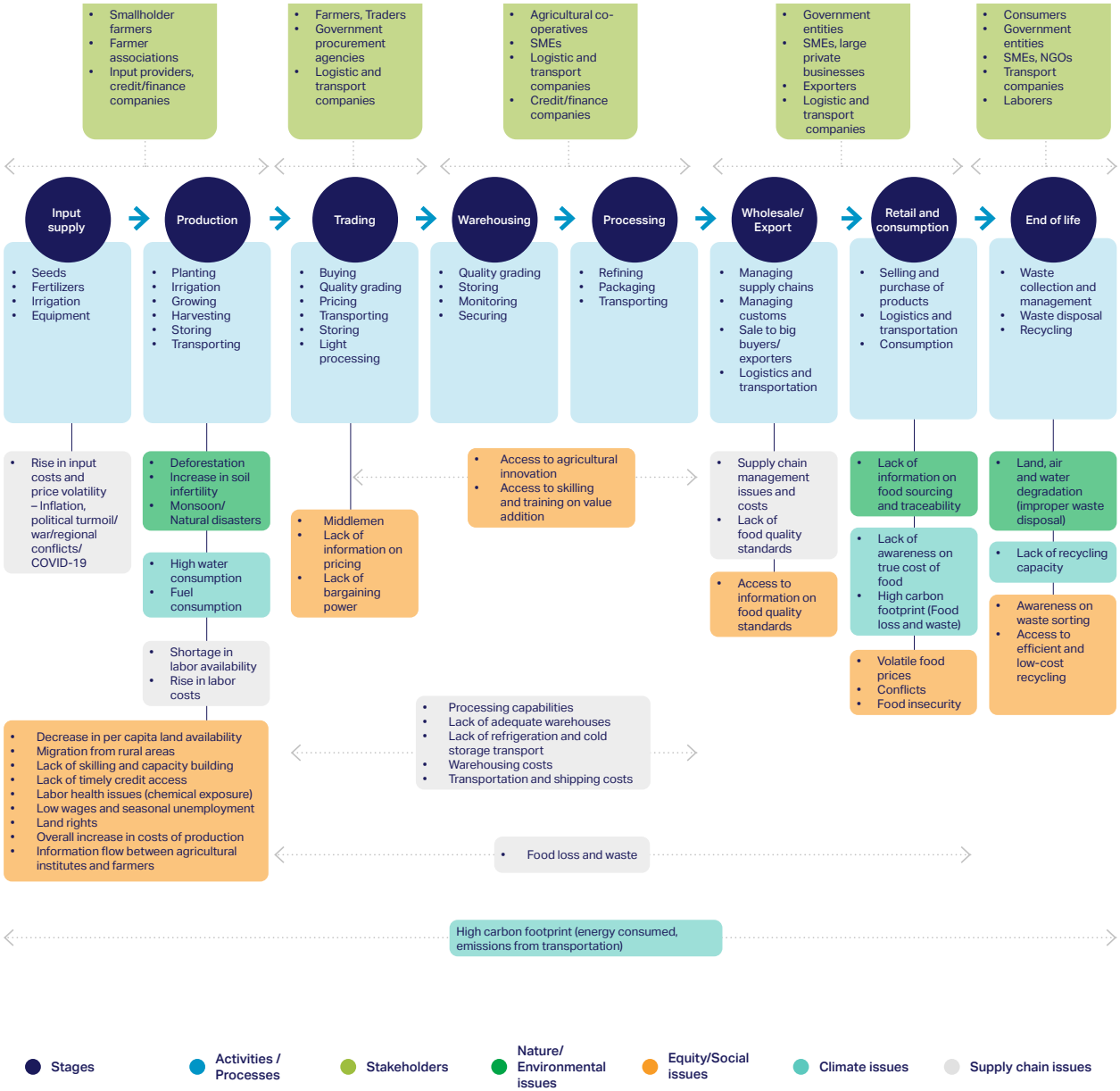
At the UN Food Systems Summit in 2021, CEOs declared their companies' support for a new way of doing business to create a regenerative and equitable food system. Collaboration along the value chain offers opportunities to produce nature-positive, net-zero and nutritious food.

Food and Agriculture Value Chain

The food and agriculture value chain outlined below was developed in consultation with stakeholders who contributed to the Stockholm Action Agenda: Transforming Global Value Chains. Participants emphasized the social equity issues across the entire food and agriculture value chain. For example, the low wages and seasonal unemployment, or the lack of skilling, reskilling, and capacity building that persist at the "input supply" and "production" stages of the value chain.

Figure 5: Value chain schematic diagram

This map is the result of a multistakeholder consultative process based on research and feedback from WBCSD.



Gamechanger Initiatives

The Business Commission to Tackle Inequality (BCTI) and Global Living Wage Coalition help the sector to develop inclusive and equitable procurement and fair labor practices. This is done by paying a living wage in farms, factories and to workers throughout the value chain and protecting labor rights. This aims to fulfill obligations on labor rights and empower smallholders' bargaining position across the value chain.

The Ethiopian Agricultural Accelerator Platform is a public-private partnership that has mobilized over USD$25 million and reached more than 6,000 farmers, increasing income by two-and-a-half times, worked with seven agri-processors, three of which are women-owned, and on average increased these businesses' revenues by more than 150%. The platform assists local intermediaries to source from smallholder farmers in an inclusive way, encouraging foreign and domestic investment that enables Ethiopia to become globally competitive in commodities and related packaged products. It was piloted in the honey value chain and is being rolled out to increase 'farmer-allied intermediaries' operating across the country's food system.

Food Innovation Hubs aim to strengthen local innovation ecosystems to address local needs and opportunities and to effectively scale and accelerate food systems transformation. A diverse group of partners are collaborating to catalyze these Hubs, with the first being developed in Columbia, India, and Europe. The hubs function as a coordinating entity that connects across various ecosystem players to foster partnerships and networks; focusing on local, country and regional opportunities and challenges; and promoting collaborations that are multistakeholder, non-competitive and market based.

The Agri3 Fund is an initiative that resulted from a partnership between Rabobank Group and the UNEP. The fund provides guarantees to commercial banks and other financial institutions – and loans to customers of these institutions – to mobilize financing that actively prevent deforestation, stimulates reforestation, contribute to efficient sustainable agricultural production and improve rural livelihoods.

Since 2018, French schools have offered a vegetarian menu at least once a week and removed plastic packaging. An NGO study estimated this could lead to a 14-19% reduction in GHG emissions from food services in canteens.

The Good Food Finance Network is a multi-stakeholder collaborative innovation platform, working to develop critical innovations that will allow sustainable food system finance to become the mainstream standard. The Network is convened by EAT, FAIRR, Food Systems for the Future, UNEP, and WBCSD, in close collaboration with the World Bank, S2G Ventures, the UNEP-FI, the GEF, PRI, Just Rural Transition, and other supporting partners.

What Needs to Happen

Accountability and transparency

Business leaders, governments, academia, farmers and civil society to agree on a global sustainable food systems goal and framework, similar to the 1.5°C target for climate change. For example, applying the UN Food Systems Summit (FSS) scientific committee's evidence on soil erosion.

Policymakers to develop a set of data-driven global guidelines and certifications regarding a healthy and sustainable diet, to build consumer trust, by using existing voluntary guidelines created by the UN Committee for Food Security (CFS). This includes alignment on indicators – such as salt, sugar and fat content – on food labelling or a traffic-light rating assessment system.

Decent jobs, education and skills

Governments, NGOs, and capacity-building organizations to provide training and education on sustainable agriculture to small-scale farmers to increase their knowledge, skills and agency, and improve livelihoods by strengthening their bargaining power.

Organizations and industry need to acknowledge that farmers have first-hand experience of what works on the ground. This includes buyers to reset the terms of business with farmers to make contract farming more inclusive and equitable, improve farmer's income by negotiating better prices and ensure that women's interests and voices are integrated into the contract.

Women hold the key to food security in developing countries by selecting seeds, managing small livestock and the sustainable use of plant and animal diversity. Opportunities for women – particularly indigenous women – should be expanded to offer access to carbon/ecosystem markets and shared decision-making activities with businesses/governments on future land-use and transition outcomes.

Governments to engage with producers and retailers to develop policies and educational campaigns which encourage consumers to make more healthy and sustainable food choices. This includes encouraging transparent marketing and labelling of food of low nutritional quality to protect vulnerable audiences, particularly children.

Disruption and Innovation

Governments to introduce fiscal policies that encourage nature-positive technological innovation, similar to the enabling conditions introduced for the renewable energy industry over the past two decades. For example, by regulators setting up agreed standards and guidelines for regenerative agriculture technology and innovation. This would promote resource efficiency and climate-smart production, such as farm approaches to optimize carbon capture, water conservation and energy-efficient refrigeration and transportation.

Private investors can influence innovation by redirecting venture capital finance, investing in digitalization and precision farming as well as funding diverse and circular value chains on underutilized nutritious agriproducts – such as insects, algal, fungal protein – that could tackle malnutrition.

Financing

Reform environmentally harmful subsidies, fiscal policies and incentives to, instead, reward net-zero, nature-positive actions and finance a just transition so that payments and financial incentives includes small, medium and large-scale farmers.

Encourage private investments in regenerative farming and community projects that use agricultural land more efficiently to store and capture carbon, promote agroforestry, soil health, and work towards net-zero GHG emissions. At the UN Food Systems Summit, it was stated that less than 10% of global climate finance is used for land use, creating a USD $700 billion nature financing gap.

Tailor financial markets and instruments to meet the needs of smallholder farmers, particularly women farmers, in developing countries by providing access to credit that allows them to invest in innovation and regenerative farming.

Governance and radical collaboration

International organizations and think tanks to create evidence-based agricultural policies and fiscal instruments, by encouraging greater disclosures around standards, certifications and labels. This allows consumers to make more sustainable food choices.

Governance mechanisms to minimize farmers' risk and reduce their vulnerability to price volatility.

Private sector, NGOs, academics and governments to identify and agree on the metrics for measuring the performance of the food system, farm sustainability and resource efficiency to enable healthy diets in a sustainable and resilient way. Food system metrics could be integrated into Nationally Determined Contributions and National Action Plans.

Policymakers to create regulation to reduce food waste and loss in the value chain which, SEI states, currently costs USD $1 trillion each year.

Policy makers and business to explore diverse solutions and circular models by creating forums for indigenous people, small-scale farmers, fishermen and consumers, building on the Civil Society and Indigenous People's Mechanism to eradicate food insecurity and malnutrition.

Public procurement to ensure schools and other public institutions promote healthier diets, that are locally produced and sourced from local markets. This includes providing nutritious meals for every school child.

Resilience

Link small-scale growers and value chain actors of climate smart, local diversified crops – such as cassava, millet and sorghum –to processing opportunities and access to markets. This will promote food security as well as preserving biodiversity of landscapes and increasing profitability and livelihood opportunities for these farmers.

Establish a global Food Systems Resilience Board to help capture and mitigate social, economic and environmental risks to make agriculture a more attractive investment for private investors. Solutions to increasingly common global shocks that impact on the resilience of food systems – such as droughts, war and high fuel prices – require a global response involving all actors along the food value chain.

2.6 Travel and Tourism

Introduction

Tourism contributes heavily to global GDP and jobs, for example, international tourism generates USD $1.5 trillion a year in exports,[26] making it the world's third largest export earning sector after fuels and chemicals.

The sector is key to sustaining livelihoods, local communities, and millions of small businesses. It provides 33 million jobs worldwide, equivalent to one in 10 jobs. The World Travel and Tourism Council estimates that global tourism will represent 10.8% of world GDP by 2026. SMEs make up 80% of the industry, while in Small Island Developing States (SIDS) and Least Developed Countries (LDCs), tourism can account for 30% of export revenues.[27]

These livelihoods are vulnerable to climate change impacts and shocks, as experienced as a result of the COVID-19 pandemic, which can push communities into poverty. Within the first five months of 2020, the industry suffered a USD $320 billion loss in revenue and the pandemic also reduced domestic tourism expenditure, which in 2016 amounted to USD $3.6 trillion.[28]

Over decades, travel and tourism has had an impact on GHG emissions and biodiversity:

- In 2008, international and domestic tourism contributed around 5% of all GHG emissions, despite initiatives after the 2007 Davos Declaration that committed the tourism sector at to cut emissions. GHG emissions substantially increased to around 8% prior to the COVID-19 pandemic.[29]
- In 2016, transport-related emissions alone from tourism represented 5% of GHG emissions according to the UN World Tourism Organization (UNWTO).
- Aviation and shipping will have to combine energy efficiency with a much more rapid transition away from fossil fuels. UNEP states that hotels will also need to reduce GHG emissions by 66% by 2030.
- Tourism can contribute to biodiversity loss by draining coastal wetlands, or eroding sand dunes, and destroying wildlife habitat when accommodation, roads and airports are constructed. Its use of water, food production and procurement, and waste management all play a part.
- Reef-based tourism developments have destroyed fragile marine ecosystems from trampling by divers, pollution from sewage and overfishing. Cruise ship anchors, ocean dumping of waste and fuel use also contribute to the destruction of marine ecosystems.

UNEP and UNWTO define sustainable tourism as "tourism that takes full account of current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities".

The trend towards sustainable consumption is reflected among some consumers: Booking.com research from Booking.com in 2021 shows that 73% of global travelers say they would be more likely to choose an accommodation if it has implemented sustainability practices and 72% believe that travel companies should offer more sustainable choices.[30]

The sector's extraordinary reach means its transformation to net zero, nature positive and equitable has the potential to contribute to all UN SDGs. The reduction of GHG emissions at each stage of the value chain is fundamental to meet the Paris Agreement targets and UN SDG 13 on climate action.

Gamechanger Initiatives

In the Philippines, the Department of Tourism worked with UNEP, the Tourism Congress of the Philippines, and members of the tourism industry to develop a roadmap for low-carbon, resource-efficient tourism. It has a target of a 30% reduction in GHG emissions from fuel use, electricity and purchased goods and services by 2030. This is supported by targets to reduce non-renewable energy, food waste by half and to eliminate untreated wastewater or sewage from tourism reaching rivers, lakes and seas. This is a good example of public and private sector collaboration to make a country's tourism more sustainable.

The Mission Possible Partnership (MPP) together with the Clean Skies for Tomorrow Coalition, an initiative to help the aviation sector move towards net-zero emissions, has developed a toolkit aimed at accelerating the use of sustainable aviation fuels (SAF). It includes a range of cross-cutting policy options and influential mechanism to support the scaled production and use of SAF in all regions.

The First Movers Coalition encourages airlines, airfare and air freight purchasers to set ambitious commitments to use cutting-edge SAFs and propulsion technologies for air travel by 2030, including using SAFs that reduce life-cycle greenhouse gas emissions by

85% or more when compared with conventional jet fuel and/or zero carbon emitting propulsion technologies.

Mexico's Riviera Maya follows an innovative, low-density model, seeking to have the lowest possible impact on local mangrove and dune ecosystems. As a result, the coastal development of Mayakoba has increased biodiversity by persevering and strengthening terrestrial ecosystems and creating aquatic habitats.

In Kerala, south India, the state government's Responsible Tourism project encouraged hotels to procure sustainable goods and services locally. This created micro-enterprises and improved the livelihoods of 2,500 local people who supply the state's hotels. It has also protected local culture and the environment.

Eleven destinations in the Caribbean and Central America are collaborating under the Sustainable Destinations Alliance for the Americas (SDAA) to protect the environment, build resilience and tackle climate vulnerability by equipping resorts and businesses with a list of action points to become sustainable. SDAA partners include public and private institutions, such as the Organization of American States, Caribbean Tourism Organization, Central American Tourism Integration Secretariat, global NGO Sustainable Travel International, leading cruise vacation company Royal Caribbean Cruises Ltd. and the United States Government through the United States Permanent Mission to the Organization of American States.[1]

The online neZEH e-tool kit supports energy consumption self assessment, while helping hotels find solutions so that they can become 'nearly zero energy' buildings. This stems from an EU-funded project that reduced energy consumption by 70% in hotels across seven European countries.

What Needs to Happen

Accountability and transparency

Global data and setting of evidence-based targets to understand travel and tourism's impact on environmental and social issues based on existing work led by UNEP.

Tourism sector to publicly recognize businesses that perform well on energy efficiency and resource consumption. For example, by awarding hotels that reduce laundry service and procure local, fresh food, because this will reduce GHG emissions by using less energy to heat water, refrigerate frozen food and transport food from other countries.[31]

Decent jobs, education and skills

Nationwide campaigns funded by tourist taxes to deliver skills programs provided by employers, public bodies, schools, colleges and other training providers to ensure local people – including minority communities, women and those with a disability – have the opportunity to work within the tourism sector, with decent wages and working conditions.

Globally, 10-15% of the tourism workforce is under 18 years old (13-19 million people). This must be addressed by companies by providing schooling for children and paying their parents a living wage.

The provision of jobs to local indigenous people could reduce community dependence on forest resources. Providing communities with alternative sources of income, other than from the forest, could conserve natural resources and ecosystems.

Collaboration between business to improve wages, diversity and inclusion and human rights within travel and tourism as exemplified by WBCSD's Business Commission to Tackle Inequality.

Disruption and innovation

Governments need to incentivize the growth of the sustainable aviation fuel (SAF) industry to transition from fossil fuels to renewable energy across all stages in the value chain, particularly aviation and shipping. SAF could reduce emissions by up to 100% by 2050. This includes providing subsidies and loan guarantees to expand SAF capacity and lower the pricing gap with fossil fuel.

The use of battery systems, fuel cell technologies and hydrogen-powered engines have the potential to reduce fuel use for cruise liners. Specifically, green hydrogen produced from renewable sources such as offshore wind is seen as an alternative fuel to lower the emissions in the shipping sector, according to the World Travel & Tourism Council.[32]

Design accommodation with 'zero energy buildings' to reduce the demand for heating and cooling.

Financing

Private and public funds need to promote sustainable tourism by subsidizing businesses mitigation costs – such as replacing old appliances with new energy-efficient ones and investing in renewable energy – with grants, loans or risk cover.

Government bailouts to enable the tourism industry to recover from the COVID-19 pandemic should be conditional on the adoption of energy efficiency measures and the use of technologies that reduce environmental impacts.

Financial incentives including public subsidies and carbon taxes, to boost sustainable transport options, such as rail instead of car and aviation. Rail transport accounted for just one percent of the travel industry's GHG emissions before the COVID-19 pandemic.

Governance and radical collaboration

Sustainable tourism initiatives are usually small-scale and fragmented with limited impact on environmental protection. However, alliances between countries and regions can scale-up actions to protect larger areas from environmental degradation.

Local and national planning regulations for resorts and related infrastructure to have minimum impact on biodiversity loss.

Recommendation

Travel and tourism are often overlooked as a global value chain. Yet, it is a large value creator for developing and emerging economies, for example, it is a source of employment for local communities. The private sector – encompassing both multinationals and local SMEs – is deeply involved in shaping the travel and tourism value chain. The COVID-19 global pandemic brought international travel and large swathes of the tourism sector to a complete standstill for many months, while the value chain remains susceptible to the worst impacts of climate change, including drought and flooding.

The travel and tourism value chain must be futureproofed to safeguard jobs and protect it from the worst impacts of climate change. Therefore, as previous initiatives have investigated the sustainability footprint of heavy industry sectors, or food and agriculture systems, the Stockholm Synthesis Report recommends that a comprehensive effort, involving the private sector, is initiated to both raise awareness and begin exploring the sustainability footprint of the travel and tourism value chain.

This initiative should explore the opportunities for a sustainability transformation across the entire global value chain. It should raise awareness and understanding of the steps to implement this transformation, so that the tourism and travel value chain is considered by all stakeholders in the same vein as the more mainstream value chains, such as food and agriculture, or mobility.

3 The Stockholm Action Agenda: Transforming Global Value Chains

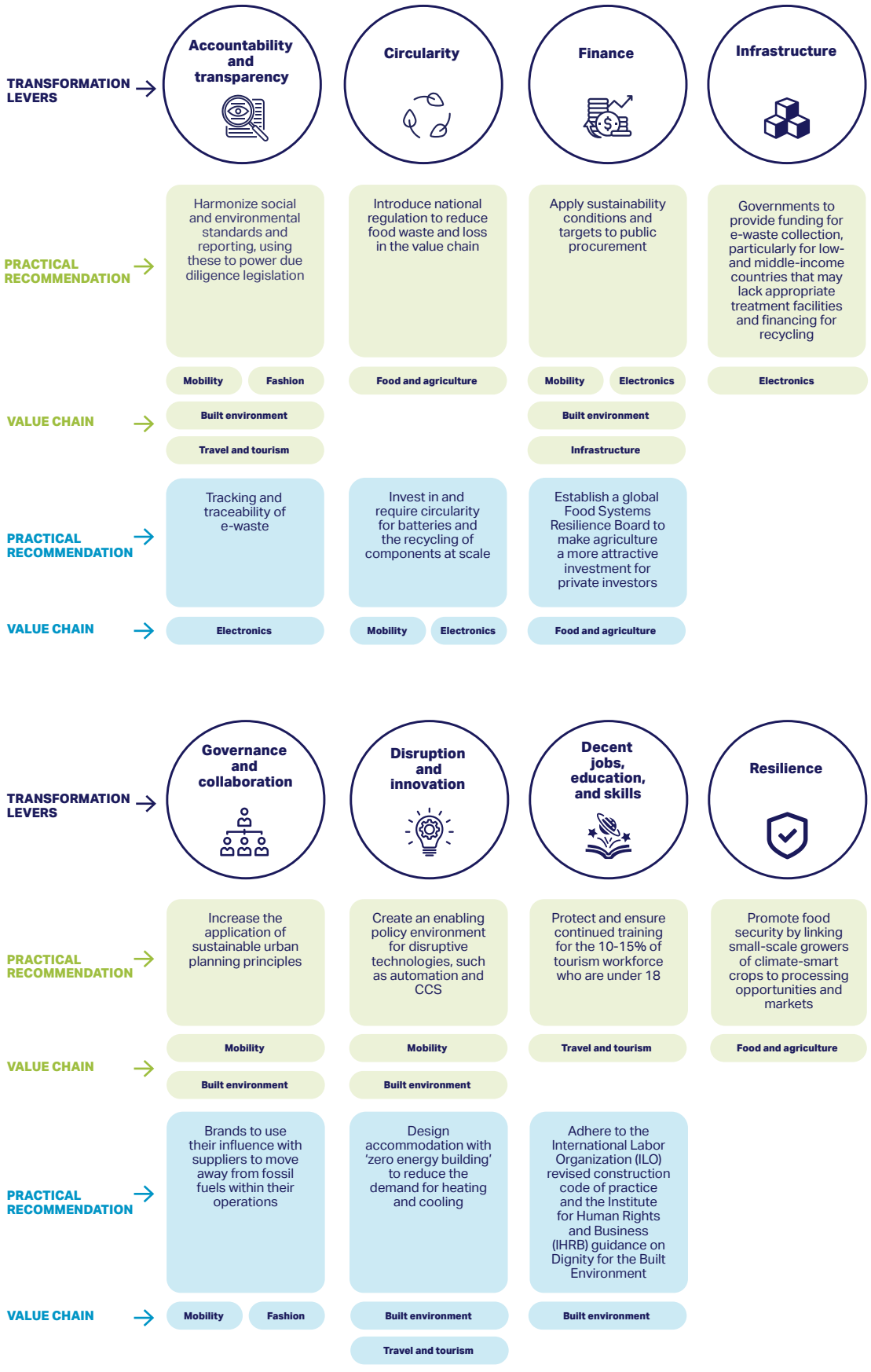
3 The Stockholm Action Agenda: Transforming Global Value Chains

Following the conclusion of the business roundtables and stakeholder engagement process, and informed by the work outlined in the Stockholm Synthesis Report, WBCSD and SEI developed the Stockholm Action Agenda: Transforming Global Value Chains, which was launched in June 2022 at Stockholm +50. The document aims to stimulate the conversation to help drive concrete outcomes as we work towards UN General Assembly (UNGA), COP27 and the 2023 UN Summit of the Future. It is now time for bold choices, for urgent action that changes systems to create a better future on a healthy planet.

Eight practical transformation levers were identified that, when pulled with sufficient coordinated force, can propel companies and the critical value chains within which they operate onto a net zero, nature positive and zero pollution pathway. These levers provide guidance for companies and policy makers to co-develop a set of practical, workable recommendations that could transform six global value chains chosen as areas of focus for Stockholm +50 (Figure 1).

IN ASSOCIATION WITH STOCKHOLM +50

Figure 1: Recommendations to transform global value chains



These common dimensions were then reflected across each of the eight transformation levers under three overarching Action Priorities – 'A Global Corporate Accountability and Transparency Framework', 'A Global Circularity Protocol' and 'A Global Sustainability Skills for Action Initiative' – to represent a new kind of business-informed global delivery architecture for sustainability. They are in turn underpinned by a proposal to transform a critical enabling environment – the global financial system itself (Figure 2).

The three **Action Priorities** and the **enabling environment** are presented in a separate paper for policymakers at the Stockholm Action Agenda: Transforming Global Value Chains. During Stockholm +50, and in the weeks and months that follow, discussions will undoubtedly evolve the Action Agenda suggestions. WBCSD, with its member companies and wider partners, together with SEI look forward to further engagement with the hosts of the conference, other governments, the United Nations family, foundations, the wider business community, and other critical stakeholders, to explore how these practical innovations arising from the Stockholm Action Agenda could be taken forward, with key international milestones such as COP27, UNGA 2023, COP28 and UNEA 24 in mind for delivery.

Figure 2: Action priorities and the enabling environment by transformation lever

TRANSFORMATION LEVERS	STOCKHOLM ACTION AGENDA PRIORITIES			ENABLING ENVIRONMENT
	A Global Corporate Accountability and Transparency Mechanism	A Global Circularity Protocol	A Global Sustainability Skills for Action Initiative	A Global Programme on Redefining Value
Accountability and transparency	●	●		●
Circularity	●	●	●	●
Finance	●	●	●	●
Infrastructure	●	●	●	●
Governance	●	●	●	●
Disruption and innovation	●	●	●	●
Decent jobs, education and skills		●	●	●
Resilience	●	●	●	●

4 Appendix

Public Survey

A public survey was conducted by WBCSD with contributions from more than 60 representatives from business, NGOs, civil society, academia, the public sector and other institutions across the six value chains. The survey revealed the urgent priorities for companies to transform their own value chains; highlighted gamechanger initiatives and best practices that are driving value chain transformation.

The survey results reveal that decarbonization and circularity were viewed as the most important and urgent challenges facing companies across global value chains. The Stockholm Action Agenda address these challenges by proposing the creation of a new "Global Accountability and Transparency Framework" to hold business to account for the decarbonization progress it is making against net zero targets, and a "Global Skills for Sustainability Action Initiative" to reskill and upskill employees within the global workforce to tackle the decarbonization challenge facing companies across all sectors. In addition, the design of a "Global Circularity Protocol" is proposed to promote a set of harmonized circularity policies and regulations to remove roadblocks to circularity and disincentivize linear ways of working across the global value chain.

Diagram 1: Survey Results

We asked respondents to prioritize the urgent actions needed to transform their value chain versus the importance. The actions were ranked from a selection of 14 choices, ranging from disclosure and transparency, to decarbonization and labor rights, COVID-19 recovery and geopolitical instability.

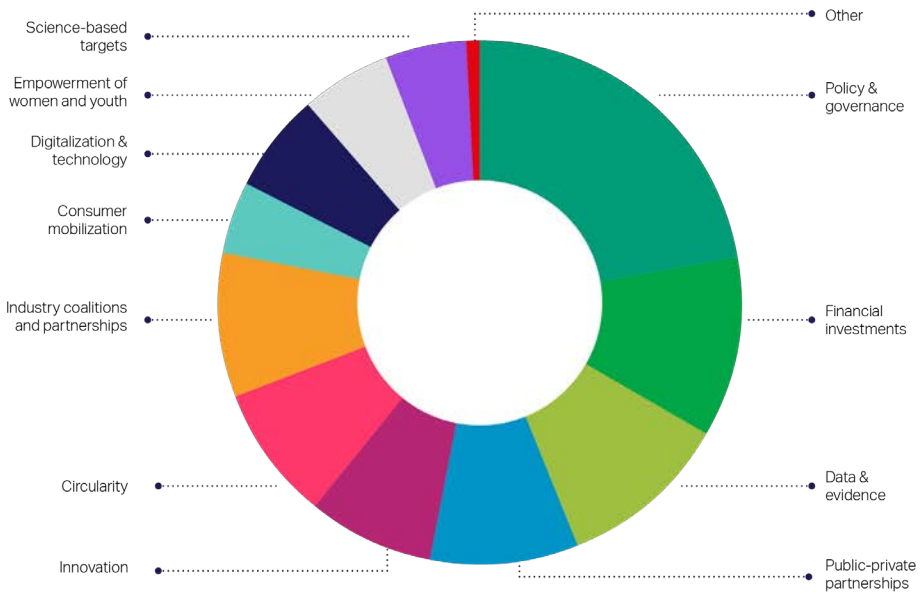
The graph represents how respondents prioritized the levers for change needed to transform global value chains. Decarbonization was the most prominent action, followed by circularity and materials. Actions that are fundamental to social equity (labor rights) were also included within the top five priorities.

Survey results

Diagram 2: Top levers to unlock progress

The graph represents how the businesses prioritized the levers for change needed to transform global value chains.

The need for new policies and governance to drive the transformation is the most critical, followed by finance to underpin the transformation, and a need for more transparent data and evidence.



Endnotes

[1] Retrieved from: https:/www.stockholm50.report/unlocking-a-better-future.pdf

[2] Coulombel et al., 2018 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[3] Scania, 2021 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[4] Scania, 2021 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[5] Utriainen and Pöllänen, 2018 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[6] Clements and Kockelman, 2017 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[7] Van der Meulen et al., 2020 as cited in Olsson O, Gong J, Nykvist B, Xylia M, (2022) Road freight value chain sustainability in a time of transition, SEI Discussion Brief (https://www.sei.org/publications/road-freight-value-chain-sustainability-transition)

[8] 'Circular Electronics Roadmap: An Industry Strategy Towards Circularity'. Retrieved from: https://pacecircular.org/sites/default/files/2021-04/cep-roadmap.pdf

[9] Lacy, P., Long, J., Spindler, W.: 'The Circular Economy Handbook. Realizing the Circular Advantage', 2020. Retrieved from https://pacecircular.org/sites/default/files/2021-04/cep-roadmap.pdf and UN Global E-waste monitor https://ewastemonitor.info/wp-content/uploads/2020/11/Global-E-waste-Monitor-2017-electronic-spreads.pdf

[10] McKinsey and Company, 'The next normal in construction', June 2020. Retrieved from: https://www.mckinsey.com/~/media/mckinsey/industries/capital%20projects%20and%20infrastructure/our%20insights/the%20next%20normal%20in%20construction/executive-summary_the-next-normal-in-construction.pdf

[11] UNEP, 2021 'Global status report for buildings and construction', Retrieved from: https://www.unep.org/resources/report/2021-global-status-report-buildings-and-construction

[12] One Planet, International Resource Panel, UNEP, 'Catalysing science-based policy action on sustainable consumption and production: The value-chain approach & its application to food, construction and textiles', Retrieved from: https://www.unep.org/resources/publication/catalysing-science-based-policy-action-sustainable-consumption-and-production

[13] https://globalabc.org/

[14] Passive House + Sustainable Building, 'Denmark sets out phased embodied carbon targets for buildings', March 29, 2021

[15] WBCSD, 'The business case for circular buildings: Exploring the economic, environmental and social value', 2021. Retrieved from: https://www.wbcsd.org/Programs/Cities-and-Mobility/Sustainable-Cities/Transforming-the-Built-Environment/Resources/The-business-case-for-circular-buildings-Exploring-the-economic-environmental-and-social-value

[16] Retrieved from: https://www.wbcsd.org/Overview/News-Insights/WBCSD-insights/Decarbonizing-the-40-How-the-finance-sector-can-drive-the-transformation-to-a-net-zero-built-environment

[17] UNEP 'Building Sustainability And Circularity In The Textile Value Chain'. Retrieved from: https://www.unep.org/explore-topics/resource-efficiency/what-we-do/sustainable-and-circular-textiles

[18] Vogue Business, 'Why destroying products is still an "Everest of a problem" for fashion', 2021. Retrieved from: https://www.voguebusiness.com/sustainability/why-destroying-products-is-still-an-everest-of-a-problem-for-fashion

[19] Dottle, R and Gu, J, 'The Global Glut of Clothing Is an Environmental Crisis', 2022. Retrieved from: https://www.bloomberg.com/graphics/2022-fashion-industry-environmental-impact/

[20] World Economic Forum, 'Net-Zero Challenge: The supply chain opportunity', 2021. Retrieved from: https://www.weforum.org/reports/net-zero-challenge-the-supply-chain-opportunity

[20] UNEP, One Planet Network, 'Catalysing Science-Based Policy Action on Sustainable Consumption and Production: The Value-Chain Approach and its Application to Food, Construction and Textiles' 2021. Retrieved from: https://www.oneplanetnetwork.org/knowledge-centre/resources/catalysing-science-based-policy-action-sustainable-consumption-and

[22] FIDA, 'Transforming food systems for rural prosperity, Rural Development Report', 2021. Retrieved from: https://www.ifad.org/en/rural-development-report/

[23] Referenced in WBCSD's report, 'An enhanced assessment of risks impacting the food and agriculture sector', 2020. Retrieved from: https://docs.wbcsd.org/2020/01/WBCSD_An_enhanced_assessment_of_risks_impacting_the_Food_and_agriculture_sector.pdf

UNEP, 'Catalyzing Science-based Policy action on Sustainable Consumption and Production – The value-chain approach & its application to food, construction and textiles. Nairobi', 2021

[24] SEI 'Climate change, trade, and global food security: A global assessment of transboundary climate risks in agricultural commodity flows', 2021. Retrieved from: https://www.sei.org/about-sei/press-room/new-assessment-reveals-major-climate-risks-to-global-food-trade-calls-for-urgent-multilateral-action/

[25] United Nations, 'Brief No 1: Global Impact of war in Ukraine on food, energy and finance systems', 2022

[26] UNWTO, Tourism for Development, Volume I: Key Areas for Action

[27] UNEP, One Planet Network, Making the Business Case for Climate Smart Investments: Guidelines for the Tourism Sector, November 15, 2021. Retrieved from: https://www.oneplanetnetwork.org/knowledge-centre/resources/making-business-case-climate-smart-investments-guidelines-tourism-sector

[28] UNWTO World Tourism Barometer and Statistical Annex, 2022

[29] UNEP, One Planet Network, Making the Business Case for Climate Smart Investments: Guidelines for the Tourism Sector, November 15, 2021. Retrieved from: https://www.oneplanetnetwork.org/knowledge-centre/resources/making-business-case-climate-smart-investments-guidelines-tourism-sector

[30] Booking.com 2021 Sustainable Travel Report. Retrieved from: https://www.gstcouncil.org/booking-com-2021-sustainable-travel-report

[31] UNEP, 'Making the Business Case for Climate Smart Investments.' 2021

[32] UNEP, 'A net zero roadmap for travel & tourism: Proposing a new Target Framework for the Travel & Tourism Sector, 2021

DISCLAIMER

The 'Stockholm Action Agenda: Transforming Global Value Chains' and accompanying 'Stockholm Synthesis Report' are released in the name of WBCSD and SEI. It is the result of collaborative efforts by WBCSD and SEI staff and experts from leading businesses and international organizations. It does not necessarily reflect the viewpoints or constitute an endorsement of each organization and company that participated in the roundtables or engaged in the process. Please note that the data published in the report are as of June 2022.

About the "Stockholm Synthesis Report"

The "Stockholm Synthesis Report" aims to provide concrete recommendations for improving global value chains, based on analysis of six value chains and input from over 70 stakeholders across 34 businesses and organizations involved in business roundtables. While the report solicited opinions and ideas from multiple organizations, it does not necessarily reflect the viewpoints or constitute an endorsement from either individual contributors or their organizations.

ACKNOWLEDGEMENTS

Contact:

To learn more about the Stockholm Synthesis Report or Stockholm Action Agenda: Transforming Global Value Chains, contact:

Clea Kaske-Kuck, Director, Policy, Advocacy & Member Moblization, WBCSD.

About the Stockholm Environment Institute

The Stockholm Environment Institute (SEI) is an international non-profit research and policy organization that tackles environment and development challenges. SEI was founded in 1989 and is named after the Stockholm Declaration of 1972. We look to the Declaration as the origin of our mandate, and we fulfil that mandate through research and engagement.

ABOUT WBCSD

WBCSD is the premier global, CEO-led community of over 200 of the world's leading sustainable businesses working collectively to accelerate the system transformations needed for a net zero, nature positive, and more equitable future.

We do this by engaging executives and sustainability leaders from business and elsewhere to share practical insights on the obstacles and opportunities we currently face in tackling the integrated climate, nature and inequality sustainability challenge; by co-developing "how-to" CEO-guides from these insights; by providing science-based target guidance including standards and protocols; and by developing tools and platforms to help leading businesses in sustainability drive integrated actions to tackle climate, nature and inequality challenges across sectors and geographical regions.

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. Since 1995, WBCSD has been 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 in which 9+ billion people are living well, within planetary boundaries, by mid-century.

www.wbcsd.org

Follow us on Twitter and LinkedIn

World Business Council
for Sustainable Development

Geneva, Amsterdam, Beijing, New Delhi, London, New York City, Singapore

www.wbcsd.org