

Increasing demands for environmental monitoring data, reporting, and verification due to changes in corporate sustainability reporting and financial disclosure related to the climate and biodiversity crises

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Contents

Executive Summary.....	4
1. Changes in sustainability reporting and financial disclosures are likely to increase demand for environmental monitoring data in support of the green recovery	5
1.1. Purpose of this briefing.....	5
1.2 Increasing demand for environmental monitoring, reporting, and verification	6
1.3 Recent changes in corporate sustainability reporting and task forces on financial disclosures and scaling voluntary carbon markets.....	7
2. International and national level policy activities driving environmental monitoring.....	10
2.1 International and national climate policy driving demand for environmental monitoring data.....	11
2.2 International and national biodiversity policies driving demand for environmental monitoring data	12
2.3 EU sustainability-related disclosure regulations driving demand for environmental monitoring data	12
2.4 US Leaders Summit on Climate.....	13
3. Corporate level activities driving environmental monitoring and financial disclosures	14
3.1 UNEP’s Finance Initiative (UNEP FI)	14
3.2 World Business Council for Sustainable Development (WBCSD) Time to transform 2050 report	14
3.3 Examples of increases in corporate level activity in sustainability reporting and sustainability finance.....	15
3.4 Development Finance Institutions role in addressing climate and biodiversity crises.....	15
4. Challenges related to greater levels of sustainability reporting and financial disclosure	16
4.1 Green taxonomies need to reflect the sustainability risks and opportunities of an organisation’s activities	16
4.2 Sustainability reporting and financial disclosure standards and frameworks need to be science based and used by all organisations	16
4.3 Sustainability reporting and financial disclosure standards and frameworks need to include double-materiality reporting	17
4.4 Sustainability reporting and financial disclosure need to apply across supply chains	17
4.5 There is a lack of FAIR environmental monitoring data to meet changes in standards and frameworks for sustainability reporting and financial disclosure	17
4.6 Education is needed for those not familiar with sustainability reporting data and frameworks	17
4.7 Public finances will be limited post-COVID and governments need to invest in addressing climate and biodiversity crises.....	18
5. Conclusions	18
Acknowledgements.....	18

Executive Summary

The purpose of this briefing is to raise awareness of likely increases in the demands for environmental monitoring data, due to changes in corporate sustainability reporting and financial disclosure activities related to climate and biodiversity crises (and broader sustainability crisis) that is essential for supporting organisations and countries in their post-COVID green recovery strategies. Environmental monitoring is one activity in a chain of activities - spanning monitoring/measuring, reporting, and verification/assurance (often referred to as MRV). Environmental monitoring is the foundation of how we understand our impacts on rural, urban, and marine environments.

This year, 2021, has already seen a lot of activity spanning climate and biodiversity international agreements, national and organisational level initiatives related to the 2015 Paris Agreement including the proliferation of net-zero pledges and biodiversity target setting and mechanisms in the run up to the Convention on Biological Diversity Conference of the Parties (COP15). This briefing tries to provide an overview of corporate sustainability reporting and financial disclosure initiatives related to the climate and biodiversity crises.

Corporate sustainability reporting is a means by which stakeholders, including investors, can understand and evaluate companies' performance; internally companies use this information to inform their decision-making. Corporate sustainability reporting is closely related to increasing interest in corporate climate and biodiversity financial disclosures. Since 2015 this has been driven by the activity of the Task Force on Climate-related Financial Disclosures (TCFD). Where, disclosure is a financial term that refers to the action of making all relevant information about a business available to the public in a timely manner.

Until recently, corporate sustainability reporting was primarily voluntary through a range of environmental, social, and governance (ESG) reporting standards and frameworks created by several international organisations, over the past 20 years. Over the past year due to demands from investors and other stakeholders, as well as the range of existing sustainability reporting standards and frameworks, the financial reporting industry have been setting out their plans for expanding corporate (enterprise) reporting systems to cover sustainability concerns, with the proposed International Sustainability Standards Board (ISSB).

Following on from the success of the Task Force on Climate-related Financial Disclosures (TCFD) and increasing awareness of the biodiversity crisis, in part due to the 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) global assessment report on biodiversity and ecosystem services, a Task Force on Nature-Related Financial Disclosures (TNFD) was announced in July 2020 and launched in June 2021.

A range of corporate level activities are driving environmental monitoring and financial disclosures including the work of UNEP's Finance Initiative and the World Business Council for Sustainable Development.

Several challenges related to greater levels of sustainability reporting and financial disclosure include: the need for green taxonomies to reflect the sustainability risks and opportunities of an organisation's activities, sustainability reporting and financial disclosure standards and frameworks need to be science based and used by all organisations, and there are gaps in the availability of data to support greater levels of consistent and comprehensive sustainability reporting and financial disclosure.

1. Changes in sustainability reporting and financial disclosures are likely to increase demand for environmental monitoring data in support of the green recovery

1.1. Purpose of this briefing

The purpose of this briefing is to raise awareness of likely increases in the demands for environmental monitoring data, due to changes in corporate sustainability reporting and financial disclosure activities related to climate and biodiversity crises (and broader sustainability crisis) that is essential for supporting organisations and countries in their post-COVID green recovery strategies. This briefing focusses on recent advances in sustainability reporting and sustainability finance activities that are likely to increase demands for existing and new forms of environmental monitoring data. Environmental monitoring is one activity in a chain of activities - spanning monitoring/measuring, reporting, and verification/assurance (often referred to as MRV). For example, this 2016 WRI MRV101 guide¹ about mitigating greenhouse gas emissions covers MRV of emissions, mitigation actions, and support e.g. climate finance.

This year, 2021, has already seen a lot of activity spanning climate and biodiversity international agreements, national and organisational level initiatives related to the 2015 Paris Agreement² including the proliferation of net-zero pledges and biodiversity target setting and mechanisms in the run up to the Convention on Biological Diversity Conference of the Parties (COP15)³. A recent report⁴ 'Taking Stock: a global assessment of net zero targets' from Oxford University, found that a fifth of the world's largest companies have net zero targets. They surveyed over 4000 entities including nations, states, and regions in the 25 highest emitting countries, all cities with populations of 500,000 and all companies in the Forbes Global 2000 list, it found that 61% of countries, 9% of states and regions in the largest emitting countries and 13% of cities in the survey have committed to net-zero targets. Another recent report⁵ 'Building back better with business – an agenda for government' arose out of a meeting of business leaders with the UK Cabinet Secretary in May 2020. It identified practical action-based partnerships at the local and national level related to job-creating green investments, re-skilling, support for jobs, and more secure incomes. It suggested that government and business can collaborate to advance the green agenda; improve digital, physical, and social infrastructures; and invest in green businesses, technology innovation and infrastructure to deliver sustainable change across the whole of the UK to create inclusive places. The University of Cambridge Institute for Sustainability Leadership (CISL) published, March 2021, a Handbook for Nature-related Financial Risk⁶, that said more than half of global GDP is highly or moderately dependent on nature, for example Dutch financial institutions have about \$510 billion of exposure.

¹ [MRV 101: Understanding Measurement, Reporting, and Verification of Climate Change Mitigation | World Resources Institute \(wri.org\)](https://www.wri.org/resources/publications/mrv-101-understanding-measurement-reporting-and-verification-of-climate-change-mitigation) accessed 110621

² <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> accessed 110621

³ <https://www.cbd.int/cop/> accessed 110621

⁴ <https://www.bsg.ox.ac.uk/news/fifth-worlds-largest-companies-now-have-net-zero-target-new-report-finds> accessed 110521

⁵ <https://www.bsg.ox.ac.uk/building-back-better-business> accessed 110521

⁶ <https://www.cisl.cam.ac.uk/resources/sustainable-finance-publications/handbook-nature-related-financial-risks> accessed 130521

This briefing tries to provide an overview of corporate sustainability reporting and financial disclosure initiatives related to the climate and biodiversity crises. Due to, almost, daily announcements from a wide range of related initiatives e.g. from the G7⁷ and G20⁸ to various task forces on financial disclosures and scaling of voluntary carbon markets e.g. Task Force on Climate-related Financial Disclosures (TCFD)⁹, then please note new information will be available since this briefing was written in early June.

My earlier, 2021, SEFARI report on innovations in environmental monitoring¹⁰ explored current environmental challenges and recent Scottish, UK, European, and global policy responses that are increasingly framed as twin digital and green transitions to a more resilient, green, and digital Scotland and Europe. I presented how digital social innovations in environmental monitoring can address environmental challenges and support a green recovery; where digital social innovation (including CivTech¹¹ and GovTech¹² projects and a wide range of tech start-ups e.g. Pachama¹³ who are harnessing machine learning to protect forests and increase carbon capture) is about using data and technology to mobilise people to solve some of society's biggest challenges. For example, NatureScot recently launched a GovTech Catalyst Challenge project with Astrosat and Intelligent Reality to improve how digital technologies e.g. machine learning can improve understanding and management of Scotland's protected nature sites¹⁴.

1.2 Increasing demand for environmental monitoring, reporting, and verification
Environmental monitoring is the foundation of how we understand our impacts on our rural, urban, and marine environments. Environmental monitoring involves diverse data ecosystems including data pipelines, workflows, and social processes related to data collection and how and why it is re-used. Data ecosystems is a term used to describe systems made up of people, practices, values, and technologies designed to support specific communities of practice and their objectives. A data pipeline can be described as a set of processes that take raw data e.g. collected by *in-situ* or remote sensors or directly by people, and which is transformed in a way that is usable by a range of people and organisations; these processes involve a series of quality assurance and quality control steps, and may have differing levels of automation. Examples of these pipelines include biological species data flows, highlighted in the 2018 review¹⁵ of biological recording infrastructure in Scotland by the Scottish Biodiversity Information Forum, and the recent review of the species data landscape in England¹⁶. To provide the greatest value for society, it is generally agreed that data needs to be used, and to enable this environmental monitoring data ecosystems could benefit from follow the FAIR (findable, accessible, interoperable, and reusable)¹⁷ principles. This briefing focuses on changes in sustainability reporting and financial disclosure related the climate and biodiversity crises and likely

⁷ <https://www.g7uk.org/> accessed 110621

⁸ <https://www.g20.org/> accessed 110621

⁹ <https://www.fsb-tcf.org/> accessed 110621

¹⁰ <https://www.hutton.ac.uk/research/projects/sefari-fellowship-innovations-environmental-monitoring> accessed 280521

¹¹ <https://www.civtechalliance.org/civtech> accessed 100621

¹² <https://www.gov.uk/guidance/govtech-catalyst-overview> accessed 100621

¹³ <https://pachama.com/> accessed 100621

¹⁴ [Digital revolution for nature sites | NatureScot](#) accessed 070621

¹⁵ <https://nbn.org.uk/about-us/where-we-are/in-scotland/the-sbif-review/> accessed 110621

¹⁶ <https://www.gov.uk/government/publications/mapping-the-species-data-pathway-connecting-species-data-flows-in-england> accessed 110621

¹⁷ <https://www.go-fair.org/fair-principles/> accessed 200521

increase in demand for environmental monitoring data and does not review environmental data ecosystems and their practices and technologies.

Demand, for environmental monitoring (including reporting and verification/assurance), related to the climate and biodiversity crises is increasing from activities at global, national, and corporate levels. At the global level, this demand is being driven by signing of the Paris Agreement at the Paris climate conference (COP21) in December 2015, to limit global warming to well below 2 deg C and pursuing efforts to limit it to 1.5 deg C, and more recently the first Global Assessment Report on Biodiversity and Ecosystem Services in 2019¹⁸ highlighted the urgent need for action (and monitoring) to halt decline in biodiversity. These international policies are driving environmental monitoring and reporting at the national level. For example, monitoring climate change emission reductions associated with Nationally Determined Contributions (NDCs)¹⁹, which are at the heart of the 2015 Paris Agreement. Increasingly, private and public companies are becoming aligned with these international and national environmental targets, through existing voluntary and new mandatory sustainability reporting and sustainable finance initiatives. Demand for environmental monitoring at these three levels is interconnected, with international and national public policies and corporate announcements and actions being associated with moving from a phase of target setting to accountability and governance of delivering sustainable responses to the climate and biodiversity crises. This was highlighted in a blog post, by Åsa Persson (Research Director and Deputy Director at SEI), about the 2021 Leaders Summit on Climate²⁰, and the various MRV initiatives mentioned in the briefing.

A lot has been written about hope and optimism in relation to the climate and biodiversity crises, for example Christiana Figueres²¹ and Jonathon Porritt's²² recent books. For this hope to be realised national public policies and sustainability reporting and sustainable finance related activities (standards and frameworks) need to be aligned with the science and practice of environmental monitoring to ensure we have robust and transparent schemes, that are supported by evidence. An analysis²³ of President Biden's 2021 global summit on climate change, suggested the greatest challenges for setting regulatory environments to guide companies and public organisations to achieving climate goals are often political. In Scotland, the recent establishment of Environmental Standards Scotland²⁴ will support this hope and optimism, with their mission: "we ensure that Scotland's environmental laws and standards are complied with, and their effectiveness improved – to achieve Scotland's ambitions for the environment and climate change."

1.3 Recent changes in corporate sustainability reporting and task forces on financial disclosures and scaling voluntary carbon markets

Corporate sustainability reporting is a means by which stakeholders, including investors, can understand and evaluate companies' performance; internally companies use this information to

¹⁸ <https://ipbes.net/global-assessment> accessed 280521

¹⁹ <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs> accessed 240521

²⁰ <https://www.sei.org/perspectives/climate-accountability-summit/> accessed 280521

²¹ <https://globaloptimism.com/the-future-we-choose/> accessed 200521

²² <https://www.simonandschuster.co.uk/books/Hope-in-Hell/Jonathon-Porritt/9781471193279> accessed 200521

²³ <https://www.brookings.edu/blog/planetpolicy/2021/05/10/barriers-to-achieving-us-climate-goals-are-more-political-than-technical/> accessed 200521

²⁴ <https://environmentalstandards.scot/> accessed 080621

inform their decision-making. Corporate sustainability reporting is closely related to increasing interest in corporate climate and biodiversity financial disclosures. Since 2015 this has been driven by the activity of the Task Force on Climate-related Financial Disclosures (TCFD)²⁵. Where, disclosure is a financial term that refers to the action of making all relevant information about a business available to the public in a timely manner²⁶. Corporate financial disclosure reporting is well established and overseen by international e.g. International Organization of Securities Commissions (IOSCO)²⁷ and the International Financial Reporting Standards (IFRS) Foundation²⁸, as well as national financial reporting bodies e.g. the Financial Reporting Council (FRC)²⁹ in the UK. Accountancy firms, including the ‘big four’³⁰, have highly developed financial audit and assurance networks and operations (and are increasing their sustainability reporting and financial disclosure operations).

Until recently, corporate sustainability reporting was primarily voluntary through a range of environmental, social, and governance (ESG) reporting standards and frameworks created by several international organisations, over the past 20 years, including Global Reporting Initiative (GRI)³¹, Sustainability Accounting Standards Board (SASB)³², CDP³³, Climate Disclosure Standards Board (CDSB)³⁴, and International Integrated Reporting Council (IIRC)³⁵. In September 2020, these five reporting organisations released a joint vision³⁶ for how their frameworks and standards could be integrated with existing financial accounting principles to meet the growing demand for a more coherent and comprehensive corporate reporting system. Then in December 2020, they released a prototype climate-related financial disclosure standard³⁷. They explained that enterprise value reporting – disclosure of how sustainability matters create or erode enterprise value – “is not therefore a replacement for sustainability reporting, which serves a broad range of stakeholders, can offer input to public policy design and reveals issues that may emerge as material for economic decision-making over time.” They went on to say, however, that consistent communication of how sustainability issues influence drivers of enterprise value can be a “complementary enabler of change, since it creates a financial incentive for companies and their investors to improve performance on some sustainability matters as much and as quickly as they can”.

In a recent paper, Adams and Abhayawansa (2021)³⁸ critically examined the call for ‘harmonisation’ of sustainability reporting frameworks and standards that occurred alongside an increase in environmental, social and governance (ESG) investing during the COVID-19 pandemic. Saying that harmonisation can overlook the needs of non-investor stakeholders. Previously³⁹, Carol Adams has been critical of the flawed nature of the prototype climate disclosure. Saying “It is not translatable to the range of sustainable development issues that companies, their investors and national

²⁵ <https://www.fsb-tcfd.org/> accessed 110621

²⁶ <https://corporatefinanceinstitute.com/resources/knowledge/finance/disclosure/> accessed 110621

²⁷ <https://www.iosco.org/> accessed 280521

²⁸ <https://www.ifrs.org/> accessed 280521

²⁹ <https://www.frc.org.uk/about-the-frc> accessed 280521

³⁰ https://en.wikipedia.org/wiki/Big_Four_accounting_firms accessed 280521

³¹ <https://www.globalreporting.org/> accessed 280521

³² <https://www.sasb.org/> accessed 280521

³³ <https://www.cdp.net/en> accessed 280521

³⁴ <https://www.cdsb.net/> accessed 280521

³⁵ <https://integratedreporting.org/> accessed 280521

³⁶ <https://29kjwb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Statement-of-Intent-to-Work-Together-Towards-Comprehensive-Corporate-Reporting.pdf> accessed 280521

³⁷ <https://impactmanagementproject.com/structured-network/global-sustainability-and-integrated-reporting-organisations-launch-prototype-climate-related-financial-disclosure-standard/> accessed 280521

³⁸ <https://www.sciencedirect.com/science/article/pii/S1045235421000289> accessed 110621

³⁹ <https://drcaroladams.net/a-prototype-climate-disclosure-standard-with-a-flawed-conceptual-framework/> accessed 130521

governments are concerned about. In stitching together bits of existing frameworks and standards this prototype complicates, rather than simplifies”.

Over the past year due to demands from investors and other stakeholders, as well as the range of existing sustainability reporting standards and frameworks, the financial reporting industry have been setting out their plans for expanding corporate (enterprise) reporting systems to cover sustainability concerns, with the proposed International Sustainability Standards Board (ISSB) within the governance structure of the IFRS Foundation⁴⁰. In part this has been driven by the work of the Task Force on Climate-related Financial Disclosures (TCFD)⁴¹ and the European Commission’s work on Corporate sustainability reporting⁴². The recent release of the EU taxonomy⁴³ as a central component of the European Commission’s Sustainable Finance Package, is supposed to create a classification system for sustainable economic activities to underpin the European Green Deal⁴⁴. In June 2021, the UK appointed an expert group (Green Technical Advisory Group) to oversee the delivery of the UK’s green taxonomy⁴⁵. The ambition is that these green taxonomies will provide a common framework for assessing the environmental sustainability of activities and investments and help reduce the current level of greenwashing related to unsubstantiated and exaggerated claims. Client Earth⁴⁶, and other organisations, are increasing using legal processes to combat greenwashing and encourage improvements in corporate and national level sustainability reporting.

Closely related to corporate sustainability reporting, and companies and countries net-zero emission goals is the area of carbon offsetting and purchase of carbon credits to offset an individuals’ or organisations’ emissions. There are two main carbon offsetting markets, mandatory emission trading schemes like the EU Emissions Trading System (EU ETS)⁴⁷ and the UK Emissions Trading Scheme (UK ETS)⁴⁸ that replaced it, in the UK, on 1st January 2021. And voluntary carbon markets stimulated by demand from individuals, organisations, countries to purchase carbon credits to mitigate their greenhouse gas emissions. Recently, the Task Force on Scaling Voluntary Carbon Markets (TSVCM) created a blueprint for voluntary carbon markets that aims to: connect carbon credit supply to demand, instils confidence and ensures credibility, and is scalable as companies and countries increase efforts to reduce their greenhouse gas emissions⁴⁹. Just as there has been a proliferation of sustainability reporting standards and related organisations overseeing them, there is a wide range of carbon offsetting standards and their associated registries. A 2021 review⁵⁰ for England’s Environment Agency ‘Achieving Net Zero carbon emissions: a review of the evidence behind carbon offsetting’ identified 17 potential carbon offsetting approaches, including woodland creation, and that there were only two accredited carbon offsetting standards in the UK - these are the Woodland

⁴⁰ <https://www.ifrs.org/news-and-events/news/2021/04/ifrs-trustees-publish-institutional-arrangements-for-proposed-new-sustainability-standards-board/> accessed 280521

⁴¹ <https://www.fsb-tcdf.org/> accessed 280521

⁴² <https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/> accessed 280521

⁴³ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en accessed 280521

⁴⁴ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en accessed 280521

⁴⁵ <https://www.gov.uk/government/news/new-independent-group-to-help-tackle-greenwashing> accessed 110621

⁴⁶ <https://www.clientearth.org/> accessed 110621

⁴⁷ https://ec.europa.eu/clima/policies/ets_en accessed 110621

⁴⁸ <https://www.gov.uk/government/publications/participating-in-the-uk-ets> accessed 110621

⁴⁹ https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf accessed 110621

⁵⁰ <https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/achieving-net-zero-carbon-emissions-a-review-of-the-evidence-behind-carbon-offsetting> accessed 110621

Carbon Code and the Peatland Code. In 2020, the UK Land Carbon Registry⁵¹ was established; this is managed by IHS Markit⁵².

Following on from the success of the Task Force on Climate-related Financial Disclosures (TCFD) and increasing awareness of the biodiversity crisis, including raised awareness due to the 2019 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) global assessment report on biodiversity and ecosystem services⁵³, a Task Force on Nature-Related Financial Disclosures (TNFD)⁵⁴ was announced in July 2020 and launched in June 2021⁵⁵ and endorsed by a wide range of financial institutions, corporates, and governments⁵⁶. This task force is co-chaired by David Craig⁵⁷ (CEO of Refinitiv, recently acquired by the London Stock Exchange Group) and Elizabeth Maruma Mrema⁵⁸ (Executive Secretary of the Convention on Biological Diversity). In a letter⁵⁹ from the co-chairs to mark the launch of the Task Force on Nature-Related Financial Disclosures (TNFD), they said: “the new nature-focused Taskforce faces unique challenges: when it comes to data, metrics and methodologies, there are critical differences between climate and nature. Measuring and disclosing nature-related risks is an even more complex challenge than it is for climate-related risks. A key challenge is that, unlike for climate, it is not just what your activities are, but where they are, which matters, which means having more location-specific data from corporates will be part of the solution.”

In the following sections, I briefly cover international and national level policy activities and corporate level sustainability reporting and disclosure activities driving environmental monitoring, and highlight some of the associated challenges.

2. International and national level policy activities driving environmental monitoring

International and national level public policy has been a driver of environmental monitoring for over a hundred years. This has been primarily due to a need to understand the state of our urban, rural, and marine environments and how they are responding to changing environmental pressures. A 2020 UN Economist Network report⁶⁰ examined five megatrends: climate change; demographic shifts, particularly population ageing; urbanization; the emergence of digital technologies; and inequalities –that are affecting economic, social and environmental outcomes. They said, “efforts to reverse or redirect these trends must be reinforced to ensure that we achieve the full measure of the 2030 Agenda, and set the stage for an inclusive, sustainable, and equitable future during the

⁵¹ <https://woodlandcarboncode.org.uk/uk-land-carbon-registry> accessed 110621

⁵² <https://ihsmarkit.com/index.html> accessed 110621

⁵³ <https://ipbes.net/global-assessment> accessed 100621

⁵⁴ <https://tnfd.info/> accessed 100621

⁵⁵ <https://tnfd.info/event/join-us-for-the-official-tnfd-launch-event/> accessed 110621

⁵⁶ <https://tnfd.info/news/the-taskforce-on-nature-related-financial-disclosures-tnfd-officially-launches/> accessed 100621

⁵⁷ <https://uk.linkedin.com/in/davidwicraig> accessed 110621

⁵⁸ <https://www.cbd.int/secretariat/executive-secretary/> accessed 10621

⁵⁹ <https://tnfd.info/news/letter-from-the-tnfd-co-chairs/> accessed 110621

⁶⁰ <https://www.un.org/development/desa/publications/report-of-the-un-economist-network-for-the-un-75th-anniversary-shaping-the-trends-of-our-time.html> accessed 200521

next 75 years". This briefing provides examples of recent changes in international and national public policies related to climate and biodiversity crises.

2.1 International and national climate policy driving demand for environmental monitoring data

A key element of the Paris Agreement⁶¹ is for countries to engage in a global stocktake every five years to assess their collective progress towards the Agreement's long-term goals, as set out in Article 14: "1. The Conference of the Parties serving as the meeting of the Parties to this Agreement shall periodically take stock of the implementation of this Agreement to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals (referred to as the "global stocktake"). It shall do so in a comprehensive and facilitative manner, considering mitigation, adaptation and the means of implementation and support, and in the light of equity and the best available science."

This process is designed to inform the next round of Nationally Determined Contributions (NDCs). The first global stocktake is due in 2023 and has three phases, the first is the collection of information e.g. in 2022, the second phase is the technical assessment, and the final phase is the presentation of these findings at the end of 2023. In parallel to the formal UNFCCC Global Stocktake process, several organisations are working together (Independent Global Stock Take, IGST⁶²) to help improve its accuracy, transparency, and accountability.

At COP24, in Poland in December 2018, countries adopted the majority of the Paris Rulebook. This sets out how countries should work together to achieve a low-carbon, climate resilient future. The rules cover how national governments should develop and communicate their climate action plans (NDCs). To aid transparency and accountability, so all can understand if countries deliver their targets, the rulebook contained guidelines. These included an enhanced transparency framework describing how countries will track progress and report on this, a global stocktake process to assess collective progress, and an expert committee overseeing countries' compliance with the Rulebook and their implementation. What was outstanding was to standardise the time periods covered by the Nationally Determined Contributions (NDCs), as some extend to 2025 and others to 2030. The Paris Agreement allowed countries to transfer emission reductions amongst themselves, and rules governing this need to be set - so to ensure reductions are not double counted.

In a letter⁶³, dated 12th April 2021, to all parties COP26 president Alok Sharma set out what he would like to achieve at COP26, including fully implement the Paris Rulebook setting common time frames and required transparency.

⁶¹ https://unfccc.int/sites/default/files/english_paris_agreement.pdf accessed 200521

⁶² <https://www.climateworks.org/independent-global-stocktake/> accessed 130521

⁶³ <https://unfccc.int/sites/default/files/resource/CPD%20letter%20to%20all%20Parties.pdf> accessed 130521

2.2 International and national biodiversity policies driving demand for environmental monitoring data

In the run up to the Convention on Biological Diversity's COP15⁶⁴ in 2021, an independent report⁶⁵ was published in March 2021: 'Report on the Edinburgh process for subnational and local Governments on the development of the post-2020 Global Biodiversity Framework Global online engagements 2020'. The Edinburgh Process had four main aims, including to gather the views of the Subnational and Local Government constituency on the Zero Draft and Monitoring Framework of the post-2020 global biodiversity framework (GBF) and its suitability for the "whole of government".

The EU Biodiversity Strategy for 2030⁶⁶ (and associated Action Plan) is a comprehensive, ambitious, long-term plan for protecting nature and reversing the degradation of ecosystems. It was adopted by the European Commission on 20 May 2020. The aim is to put Europe's biodiversity on a path to recovery by 2030 with benefits for people, the climate and the planet. The strategy will build a European Business for Biodiversity movement, inspired in part by the EU Business@Biodiversity Platform⁶⁷, and mobilise the private and public financing necessary to meet the investment needed in nature.

In Scotland, the Scottish Wildlife Trust (SWT), RSPB Scotland and WWF Scotland, recently, launched a Nature Recovery Plan⁶⁸. It highlights 11 commitments that Scotland's politicians can make immediately to help protect wildlife, and to provide nature-based solutions to the most pressing issues facing our society. Earlier in 2020, SWT and SEPA published a route map towards £1 billion for nature conservation⁶⁹. The route map included models to stimulate investment in Scotland's natural capital by delivering a financial return to investors.

2.3 EU sustainability-related disclosure regulations driving demand for environmental monitoring data

The EU regulation 2019/2088⁷⁰ on sustainability-related disclosures in the financial services sector laid down harmonised rules for financial market participants and financial advisers on transparency with regard to the integration of sustainability risks and the consideration of adverse sustainability impacts in their processes and the provision of sustainability-related information with respect to financial products. These regulations are being adopted by European member states.

France has led the drive for investors to consider the environmental impacts of their investments and the risks to their businesses of failing to do so. In 2015, the French finance minister announced⁷¹ that France would be the first country in the world to introduce carbon reporting obligations on

⁶⁴ <https://www.cbd.int/meetings/COP-15> accessed 20521

⁶⁵ <https://www.gov.scot/publications/report-edinburgh-process-subnational-local-governments-development-post-2020-global-biodiversity-framework/> accessed 130521

⁶⁶ https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en accessed 080621

⁶⁷ https://ec.europa.eu/environment/biodiversity/business/index_en.htm accessed 080621

⁶⁸ <https://scottishwildlifetrust.org.uk/news/natures-recovery-heart-of-decision-making/> accessed 130521

⁶⁹ <https://scottishwildlifetrust.org.uk/news/route-map-to-1-billion-for-nature-conservation-published/> accessed 130521

⁷⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019R2088> accessed 110521

⁷¹ <https://www.trucost.com/trucost-blog/france-first-introduce-mandatory-carbon-reporting-investors/> accessed 130521

financial institutions. In 2019, WWF France and AXA launched a ground-breaking report⁷² 'Into the Wild: integrating nature into investment strategies', that recommended formation of a "Task Force on Nature Impacts Disclosure". More recently, France's Article 29⁷³ on biodiversity disclosure illustrates the urgent need for standardising nature-related data, metrics, and methodologies. French financial institutions are now required to disclose both biodiversity- and climate-related risks and impacts, as a new decree from the French financial regulator is being published in 2021. The new decree will adopt the concept of double-materiality, aligning itself with the new European Commission Sustainable Finance Disclosure Regulation⁷⁴. Under Article 29, French financial institutions will also have to disclose their strategy for reducing biodiversity impacts. They must include specific targets and a measure of alignment with international biodiversity goals. Double-materiality is central to the European Commission's Corporate Sustainability Reporting Directive⁷⁵.

These requirements will be challenging for companies to implement, for example a recent post⁷⁶ said that "even if financial institutions knew what they wanted to measure and how, lack of biodiversity data would make it challenging to do in practice. The absence of standardised corporate disclosures, in addition to other data gaps, makes it difficult for financial institutions to identify, measure and disclose their own biodiversity risks." The current lack of guidance for financial institutions around disclosure of biodiversity-related risks illustrates the urgent need for the Taskforce on Nature-related Financial Disclosures (TNFD)⁷⁷.

On March 10th 2021 the EU Sustainable Finance Disclosure Regulations (SFDR) came into effect. Requiring EU financial institutions to disclose sustainability-related information at both entity and product level, and information of sustainability risks. From 2022, the EU Taxonomy Regulation will require financial institutions to disclose to what extent their products invest in 'green' activities.

2.4 US Leaders Summit on Climate

The, April 2021, virtual Leaders Summit on Climate⁷⁸ convened by the United States, encouraged a range of countries to increase their commitments to reduce greenhouse gases and to increase their funding for climate finance. With President Biden recommitting to increase funding for overseas climate finance by \$5.7 billion a year by 2024⁷⁹. The US International Finance Plan⁸⁰ sets out to mobilize financial resources to assist low-income countries to reduce and/or avoid greenhouse gas emissions and build resilience and adapt to the impacts of climate change. The Plan covers five areas: (1) scaling up climate finance and enhancing its impact; (2) mobilizing private sector finance; (3) taking steps to end international official financing for carbon-intensive fossil fuel-based energy;

⁷² https://wwf.panda.org/wwf_news/?346755/Into-the-Wild-integrating-nature-into-investment-strategies accessed 110621

⁷³ <https://tnfd.info/news/frances-article-29-biodiversity-disclosure-requirements-sign-of-whats-to-come/> accessed 200521

⁷⁴ https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1804 accessed 080621

⁷⁵ https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en accessed 080621

⁷⁶ <https://tnfd.info/news/frances-article-29-biodiversity-disclosure-requirements-sign-of-whats-to-come/> accessed 130521

⁷⁷ <https://tnfd.info/> accessed 200521

⁷⁸ <https://www.state.gov/leaders-summit-on-climate/> accessed 080621

⁷⁹ <https://www.wri.org/insights/leaders-summit-climate-offers-jolt-momentum-global-action> accessed 130521

⁸⁰ <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/executive-summary-u-s-international-climate-finance-plan/> accessed 130521

(4) making capital flows consistent with low-emissions, climate-resilient pathways; and (5) defining, measuring, and reporting U.S. public climate finance. At the summit a new partnership between Norway, the United Kingdom and the United States and several global corporations including Amazon and Unilever was announced to ramp up finance to reduce emissions from deforestation and forest degradation in tropical and subtropical countries, with the Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition⁸¹ aiming to mobilise \$1 billion this year.

3. Corporate level activities driving environmental monitoring and financial disclosures

3.1 UNEP's Finance Initiative (UNEP FI)

Organisational sustainability reporting and international sustainable finance activity has been increasing for over 20 years. With UNEP's Finance Initiative (UNEP FI)⁸² driving partnerships with the wider finance industry. UNEP FI was created following the Earth Summit in 1992 and has been progressing sustainable finance since then. UNEP FI is a partnership with over 350 members (that includes banks, insurers, and investors). They have co-created industry-based principles: Principles for Responsible Banking⁸³, Principles for Sustainable Insurance⁸⁴, and Principles for Responsible Investing⁸⁵. In 1997, the Global Reporting Initiative (GRI) was established to create the first accountability mechanism to ensure companies adhere to responsible environmental principles⁸⁶. In 2000, they released the first version of the GRI Guidelines.

3.2 World Business Council for Sustainable Development (WBCSD) Time to transform 2050 report

Earlier in 2021, the World Business Council for Sustainable Development (WBCSD) refreshed their 2010 'Time to transform' 2050⁸⁷ report. They worked with 40 WBCSD member companies, drawing on guidance from an external review committee of leading global thinkers, plus engagements with a wide range of stakeholders from across WBCSD's global network bring the original vision up to date and to reset the baseline for business leadership for the decade to come. In their report, WBCSD say our world is facing three pressing global challenges: the climate emergency, the loss of nature, and growing inequality. "Each of them, on its own, could endanger the safe operating space for humanity and the planet, as well as the license to operate for business. Business can lead this change, but it cannot – and should not – do it alone."

⁸¹ <https://leafcoalition.org/> accessed 130521

⁸² <https://www.unepfi.org/> accessed 100521

⁸³ <https://www.unepfi.org/banking/bankingprinciples/> accessed 080621

⁸⁴ <https://www.unepfi.org/psi/> accessed 080621

⁸⁵ <https://www.unpri.org/> accessed 080621

⁸⁶ <https://www.globalreporting.org/about-gri/mission-history/> accessed 140521

⁸⁷ https://timetotransform.biz/wp-content/uploads/2021/03/WBCSD_Vision_2050_Time-To-Transform.pdf accessed 130521

3.3 Examples of increases in corporate level activity in sustainability reporting and sustainability finance

The international accountancy firm KPMG⁸⁸ has surveyed sustainability reporting since 1993. In their 2020 survey⁸⁹ based on a review of reporting from 5,200 companies in 52 different countries and jurisdictions. Key global trends in sustainability reporting including increased levels of reporting around the world especially in how leading companies were reporting on risks they face from biodiversity loss.

The desire of many organisations and governments is to upscale solutions to the climate and biodiversity crises. In terms of biodiversity, then a new study by Entreprises pour l'Environnement⁹⁰ explored upscaling corporate solutions for biodiversity' and described the actual levers and modes of action that are successfully being used by business and identified conditions for their scale-up.

An example of investing in the UK's natural capital is the work by Palladium with the National Parks. They recently announced⁹¹ the Net Zero with Nature programme with the aim to fund over £200 million of nature restoration in the National Parks by 2030. Palladium's strapline⁹² is that it works with governments, businesses, and investors to solve the world's most pressing challenges. They work in over 90 countries and describe themselves as a mission-driven business, where impact of their work is as important as commercial returns and that all projects contribute positive social and economic impact (they call this positive impact).

In a corporate setting then a recent report⁹³ from Cambridge Institute for Sustainability Leadership, on insights on how four leading multinational companies developed, aligned and integrated a purpose and strategy to transition to a sustainable economy included ten principles. These covered engaging employees, external stakeholders, and the board. As well as integrating the purpose into core business practices, as well as integration into metrics and external disclosure.

3.4 Development Finance Institutions role in addressing climate and biodiversity crises

Development finance institutions have a long history in helping poor countries grow. The UK's development finance institution the Commonwealth Development Corporation (CDC)⁹⁴ was founded in 1948 following the second world war to assist British colonies in the development of agriculture. In 2019 they committed over £1.66 billion of capital to businesses in Africa and Asia, investing in over 1000 businesses which employ over 875,000 people. CDC is wholly owned by the UK Government and in 2010 CDC was reconfigured to increase its focus on serving the needs of development and demonstrating impact⁹⁵.

⁸⁸ <https://home.kpmg/xx/en/home.html> accessed 110621

⁸⁹ https://event.webcasts.com/starthere.jsp?ei=1404003&tp_key=be1bdc5465 accessed 110621

⁹⁰ <https://www.wbcd.org/Overview/Global-Network/News/France-New-study-focuses-on-upscaling-corporate-solutions-for-biodiversity> accessed 130521

⁹¹ <https://www.nationalparks.uk/net-zero-with-nature/> accessed 130521

⁹² <https://www.thepalladiumgroup.com/> accessed 130521

⁹³ <https://www.cisl.cam.ac.uk/resources/sustainability-leadership/leading-with-a-sustainable-purpose> accessed 130521

⁹⁴ <https://www.cdcgroup.com/en/> accessed 130521

⁹⁵ <https://publications.parliament.uk/pa/cm201012/cmselect/cmintdev/1045/104504.htm> accessed 1304521

There are several key European Development Finance Institutions including Swedfund⁹⁶ and Norfund⁹⁷. A European Development Finance Institutions report⁹⁸ ‘Unlocking private climate finance in emerging markets: private sector considerations for policy maker’ covered the role of enabling environments in low-carbon transition and provide six considerations for policy makers that are cross-cutting and sector specific factors e.g. sustainable land use.

The US International Development Finance Corporation (DFC) is committed to net zero investment portfolio by 2040⁹⁹. The DFC partners with the private sector to finance solutions to the most important challenges facing the developing world¹⁰⁰.

A recent report¹⁰¹ by the Overseas Development Institute (ODI) “Development Finance Institutions (DFIs): need for bold action to invest better” investigated what has and hasn’t worked in mobilising private finance for development to support global efforts to ‘build back better’. This highlighted that the new expectation is that development finance institutions are expected to move beyond a narrow focus on job creation, to help address climate and biodiversity crises.

4. Challenges related to greater levels of sustainability reporting and financial disclosure

Though there has been impressive progress over the past 20 years in terms of organisational sustainability reporting, in particular since the 2015 Paris Agreement; there are challenges to increasing uptake of sustainability reporting and financial disclosure to address climate and biodiversity crises. I briefly summarise key challenges that have been identified in material referenced in earlier sections.

4.1 Green taxonomies need to reflect the sustainability risks and opportunities of an organisation’s activities

The design and implementation of green taxonomies needs to ensure that the sustainability of activities is assessed based on scientific understanding of their risks and opportunities for climate and biodiversity outcomes.

4.2 Sustainability reporting and financial disclosure standards and frameworks need to be science based and used by all organisations

The three taskforces have all identified the need to ensure that their approaches are science-based and gain agreement from all stakeholders including financial and corporate actors.

⁹⁶ <https://www.swedfund.se/en> accessed 130521

⁹⁷ <https://www.norfund.no/> accessed 130521

⁹⁸ https://www.edfi.eu/wp/wp-content/uploads/2021/04/CFLI_Private-Sector-Considerations-for-Policymakers-April-2021.pdf accessed 130521

⁹⁹ <https://www.dfc.gov/media/press-releases/dfc-commits-net-zero-2040-increases-climate-focused-investments> accessed 130521

¹⁰⁰ <https://www.dfc.gov/who-we-are> accessed 130521

¹⁰¹ <https://odi.org/en/publications/development-finance-institutions-the-need-for-bold-action-to-invest-better/> accessed 130521

4.3 Sustainability reporting and financial disclosure standards and frameworks need to include double-materiality reporting

Standards and frameworks need to include what is called double-materiality reporting, requiring organisations not only to report on the impacts e.g. of climate change in their financial disclosures, but also how the organisation impacts climate change. This blog post sets out the inward and outward nature of double-materiality¹⁰². This EC guideline¹⁰³ sets out double-materiality and summarises it in this figure. A recent Q&A on the European Commission's Corporate Sustainability Reporting Directive proposal, explains why double-materiality is important¹⁰⁴. This GRI blog post introduces a recent paper written by Carol Adams and colleagues on the importance of double-materiality¹⁰⁵.

4.4 Sustainability reporting and financial disclosure need to apply across supply chains
Requirements for sustainability reporting and financial disclosure need to be mandatory at all levels of companies involved in supply chains, as discussed in this Harvard Business Review article¹⁰⁶. In relation to greenhouse gas emissions, then this is essential for understanding and reducing Scope 3 emissions¹⁰⁷.

4.5 There is a lack of FAIR environmental monitoring data to meet changes in standards and frameworks for sustainability reporting and financial disclosure
There are gaps in the data that is available for organisations to support their sustainability reporting and financial disclosures. For example, this will be a key focus of the Task force on Nature-related Financial Disclosures.

4.6 Education is needed for those not familiar with sustainability reporting data and frameworks
These rapid changes in the expectations of how organisations report on sustainability is creating a demand for education resources for professionals undertaking their initial and continual professional development training and qualifications. One example being the Green Finance Education Charter¹⁰⁸ championed by the Green Finance Institute. The Green Finance Education Charter enable professional bodies commit to integrate green and sustainable finance principles into the education

¹⁰² <https://www.bsr.org/en/our-insights/blog-view/why-companies-should-assess-double-materiality> accessed 080621

¹⁰³ https://ec.europa.eu/finance/docs/policy/190618-climate-related-information-reporting-guidelines_en.pdf accessed 080621

¹⁰⁴ https://ec.europa.eu/commission/presscorner/detail/en/QANDA_21_1806 accessed 080621

¹⁰⁵ <https://www.globalreporting.org/about-gri/news-center/why-double-materiality-is-crucial-for-reporting-organizational-impacts/> accessed 080621

¹⁰⁶ <https://hbr.org/2020/03/a-more-sustainable-supply-chain> accessed 080621

¹⁰⁷ <https://www.carbontrust.com/resources/briefing-what-are-scope-3-emissions> accessed 110621

¹⁰⁸ [Green Finance Education Charter \(greenfinanceinstitute.co.uk\)](https://www.greenfinanceinstitute.co.uk) accessed 100621

and training programmes of finance professionals worldwide. Another example is the AXA climate school¹⁰⁹.

4.7 Public finances will be limited post-COVID and governments need to invest in addressing climate and biodiversity crises

At the 2021 launch of the PwC 24th CEO Survey Ngaire Woods (Founding Dean of Blavatnik School of Gov, Oxford Uni)¹¹⁰ highlighted the challenge facing governments post-COVID: “And so there's a mindset change that has to be made where instead of picking up your austerity playbook, they have to pick up an investment playbook. And that means investing in a way that they haven't done really since the second world war. Now last point would be that they're going to need new kinds of partnerships with the private sector to do this, not the lobbying partnerships that are evolved, not the outsourcing partnerships, some of which have done disastrously during the crisis, but the kind of intelligent mixing of private sector expertise...”.

5. Conclusions

To “build back better” post-COVID and to address climate and biodiversity crises international, national responses will depend on corporate level sustainability reporting and financial disclosure activities. Governments need businesses to help deliver ambitious net-zero and biodiversity targets and businesses need governments to create level playing fields, so they are not disadvantaged by taking action to address their climate and biodiversity risks and opportunities. Scientists, along with NGOs, corporate and other stakeholders are needing to collaborate in the three tasks forces to ensure robust approaches are devised and they are adopted by all parties. The design and implementation of frameworks that come out of the current task force activities will face a number of challenges including demand for greater levels of environmental monitoring data relevant to individual and groups of businesses.

Acknowledgements

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¹⁰⁹ <https://www.climate.axa/climate-school-2/school> accessed 110621

¹¹⁰ <https://www.bsg.ox.ac.uk/people/ngaire-woods> accessed 110621