

## Data-Driven EnviroLab

Input to the UNFCCC Non-Party Recognition and Accountability Framework (RAF)

November 2023

We appreciate the opportunity to provide inputs to the UNFCCC’s Non-Party Recognition and Accountability Framework. Overall we applaud the UNFCCC for this much-needed effort to improve accountability of corporate, financial institution, and subnational government climate actions. The first synthesis report of the Global Stocktake identifies the need for “credible, accountable and transparent actions by Non-Party stakeholders” to “strengthen efforts for systems transformation.”<sup>1</sup> Towards this goal, the synthesis report notes the need for “[r]igorous accounting and accountability” to “lend credence” to Non-Party “contributions, track progress with environmental integrity, and avoid double counting.”<sup>2</sup> These key findings are drawn from more than 1,600 direct submissions and 170,000 pages of inputs<sup>3</sup> through the consultative phase of the First Global Stocktake and three meetings of the technical dialogue.

Our attention is directed toward two primary aspects, derived from a research report scheduled for release before the COP-28 conference in Dubai at the close of November 2023: first, identifying current deficiencies in Non-Party accounting practices, and second, proposing suggestions for the design of a climate accountability system enhanced by digital capabilities. Our recommendations are informed by interviews with over 20 key experts representing diverse stakeholders in the field of Non-Party data and accountability, including Non-Party actors and cooperative climate initiatives, voluntary standard setters, data disclosure platforms, and regulators.

### Accountability Gaps

- **Greenwashing concerns due to a lack of standardization**

Greenwashing, or making false climate promises or claims, often derive from discrepancies in goals, ambiguous standards, communication gaps, and the credibility and potential conflicts of interest associated with standard-setting bodies. Despite some convergence in methodologies and standards, misalignments persist, raising concerns about trustworthiness and accountability. We identified three challenges at the root of greenwashing concerns: lack of methodological consistency, diverse approaches to key concepts (i.e., in terms of net-zero goals and pledges), and insufficient alignment with regulatory frameworks. Standardization and harmonization are needed to ensure transparency and accountability in sustainability reporting, as voluntary standards continue to proliferate.

- **Data, systems, and governance interoperability**

The climate data accountability landscape faces a challenge of interoperability, marked by fragmentation and inconsistency stemming from a proliferation of standards and tools. Interoperability entails data, systems, and governance. Data interoperability hinges on harmonized definitions and guidelines to facilitate seamless data exchange and integration.

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<sup>1</sup> UNFCCC. (2023). Technical dialogue of the first global stocktake: Synthesis report by the co-facilitators of the technical dialogue. Available: [https://unfccc.int/sites/default/files/resource/sb2023\\_09E.pdf](https://unfccc.int/sites/default/files/resource/sb2023_09E.pdf).

<sup>2</sup> *ibid.*

<sup>3</sup> GST1.org

Systems interoperability is crucial for ensuring diverse technologies can work together cohesively, enabling efficient data sharing and analysis. The proliferation of various technological systems and software solutions in the climate data accountability landscape, each with their unique structures and data handling methodologies, has introduced compatibility issues that hinder the seamless interaction and integration of data management and reporting processes across different platforms. Governance interoperability calls for collaboration among different entities to align operations while maintaining coherence and consistency in decision-making and governance practices but the lack of harmonization hinders these efforts. This situation extends to various actors, from regulatory bodies to industry associations and the broader global ecosystem, raising concerns about the ability to integrate and inform future climate actions coherently.

- **Capacity constraints and data quality**

Ensuring the accuracy and reliability of climate data is integral to establishing trust in the data reporting process and encouraging Non-Party actors' participation in transparency and accountability efforts. Many Non-Party actors, particularly small and medium-sized enterprises and those in developing countries, however, face resource and capacity constraints, presenting challenges for providing accurate and reliable data, with Scope 3 emissions accounting being a prominent example. The complex nature of Scope 3 reporting, coupled with the lack of clear standards and guidelines, underscores the need for a more pragmatic approach that selectively addresses specific aspects of these emissions. Verification is essential for data quality, but identifying impartial third-party verifiers and avoiding conflicts of interest are ongoing challenges. Technological advancements offer potential solutions but require upfront investments and expertise, making support from international coordinating bodies and funding organizations crucial to transition toward a more accessible and inclusive climate accountability system that can scale effectively in the future.

- **Overcoming corporate voluntarism through regulatory cohesion**

Driving the net-zero transition requires voluntary corporate leadership to inspire policymakers as they develop standards and regulations for widespread economic adoption. While voluntary initiatives play a crucial role, an overreliance on them can lead to fragmentation and increased greenwashing due to the lack of unified standards, as previously discussed. To tackle this challenge, regulators across governance levels and jurisdictions must collaborate. This collaboration includes establishing mandatory standards and consistent data requirements for corporate reporting, which alongside economic incentives, clear and transparent rankings, and a higher demand for data providers can create momentum to move forward and eventually foster self-sustaining transparency and accountability. Nonetheless, a noticeable commitment gap exists, underscoring the urgency for governments and regulators to level the playing field. The HLEG recommendation of forming an international Task Force on Net Zero Regulation is welcomed, aiming to unite regulators from diverse jurisdictions and establish consistent regulations for major corporate emitters, aligning with the Paris Agreement's objectives. Although such initiatives are underway, challenges related to data ownership, sharing, and accessibility remain, highlighting the importance of collaborative efforts among regulators, Non-Party actors, and the wider climate community involved with standard setting and reporting to ensure robust climate data accountability.

## Designing a Future Digitally-Enabled Accountability System

The HLEG (2022)<sup>4</sup> emphasizes the critical need for a global central digital repository of climate disclosures that encompasses all reporting data points, like the proposed net zero Data Public Utility (NZDPU). This repository, in alignment with open-source principles, should offer inclusive accommodations, universal accessibility, data quality metrics, and oversight by a credible body, such as the UNFCCC. This vision points to a future climate accountability system that is digitally-enabled, collaborative, open, and consistent, reflecting the values of open exchange, transparency, and community-oriented development. Existing Non-Party actors' climate data platforms, despite their digital nature, often fall short of these ideals. Vital components of a future digitally-enabled data accountability system should encompass factors such as openness, traceability, machine readability, governance, and the softer infrastructure elements of community co-creation and coordination. Digital innovations, such as Internet of Things (IoT) sensors, earth observation data from satellite remote sensing, machine learning, and distributed ledger technology, further have potential to improve existing data collection to improve future accountability systems.

- **Openness, traceability, and machine readability**

The expanding diversity of climate data providers creates both challenges and opportunities in climate accountability. While it may lead to fragmentation, a decentralized system could enhance inclusivity, redundancy, and data quality. Ensuring interoperability through consistent metadata standards and an open data model is vital. Openness and traceability are essential, with the adoption of machine-readable data formats like XBRL reflecting a growing consensus on transparency. Balancing open data with privacy is challenging but can be addressed through technologies like Zero-Knowledge Proofs and decentralized data governance models. Additionally, data ownership considerations are important, as companies and countries often hesitate to relinquish data sovereignty despite potential collective benefits.

- **Data governance**

Data governance involves policies and practices for maintaining data quality, security, and compliance. This framework ensures that data is treated as a valuable asset, and its lifecycle includes both data and algorithms. As organizations increasingly embrace data governance, they aim to uphold data quality, adhere to legal and ethical standards, and enhance the reliability of their decision-making processes. Six key dimensions define data governance: cross-functional collaboration, serving as a framework for structured data management, focusing on data as a strategic enterprise asset, specifying decision rights and accountabilities, developing data policies, standards, and procedures, and monitoring compliance. In the context of climate accountability, data governance influences data collection and sharing rules, known as “rules in use,” which vary between non-state actors and governments, affecting the scope of climate actions.

- **Soft infrastructure: coordination, capacity, and community engagement**

Soft infrastructure is vital for transitioning from voluntary reporting to regulatory cohesion in climate accountability. Informational capacity, which includes the ability to collect, process, and utilize data effectively, plays a crucial role in ensuring the success of data-driven governance

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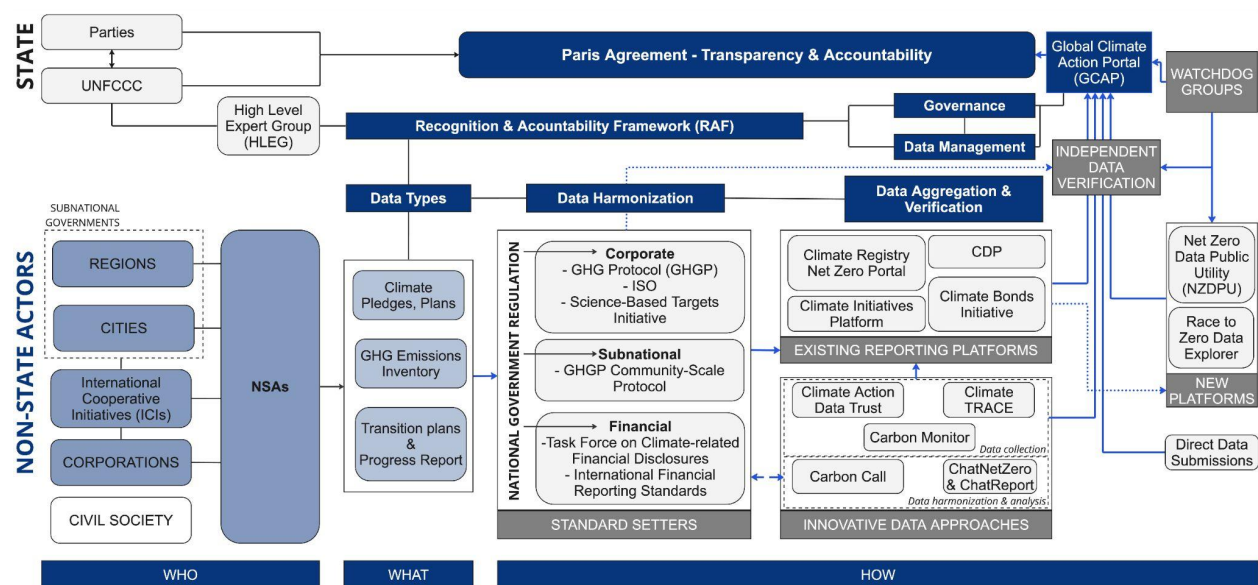
<sup>4</sup> HLEG. (2022). Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions. United Nations' High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities. [https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf).

approaches. Community input and co-creation, facilitated by entities like the UNFCCC, are essential for achieving shared policy objectives. This collaborative approach fosters ongoing interactions between technology communities, governments, and end-users in the climate data sphere. Initiatives like the Climate Action Data 2.0 (CAD2.0) community demonstrate the benefits of co-creation, bringing together various organizations to focus on data harmonization, digital infrastructure, and policy applications, thus advancing knowledge, technology, and advocacy for open data and interoperability in the pursuit of Non-Party actor accountability.

- **Role of digital innovation**

The integration of advanced digital technologies, including earth observation, machine learning, and distributed ledger technology, holds potential to enhance climate data accountability. These technologies can be interconnected to automate global-scale Digital Monitoring, Reporting, and Verification (D-MRV). Earth observation, utilizing tools like satellite remote sensing and the IoT, provides real-time data on emissions sources, filling temporal and spatial gaps associated with self-reported information, which are frequently inconsistent and costly to produce. Machine learning and natural language processing aid in data discoverability, search, and analysis, enhancing data interoperability and reporting. Generative artificial intelligence models relying on large language models (e.g., ChatGPT and Bard) are particularly promising for analyzing textual data like net-zero transition plans, corporate social responsibility reports, and laws and policies. Distributed ledger technology, often referred to as blockchain, can provide decentralized data storage and immutable ledgers that provide traceability and transparency currently lacking in existing data platforms.

## Recommendations and Next Steps



**Figure 1.** Summary of a future climate accountability system that integrates actors, components, institutions, and initiatives discussed throughout this paper. Initiatives and organizations listed are meant

to be illustrative and definitive. Source: authors, adapted from OpenEarth Foundation and the CAD2.0 Community.

Figure 1 illustrates a future Non-Party actors' climate accountability framework that highlights collaboration of critical stakeholders to generate needed data streams, reporting platforms, and mechanisms for accountability. The framework provides specific information about *who* is involved, *what* their roles and activities entail, and *how* data is created, harmonized and managed. Key elements for Non-Party actors, such as cities and regions, financial institutions, and businesses, include creating climate pledges, inventories of greenhouse gas (GHG) emissions, and reporting on transition plans and progress. These activities are then integrated into a larger system of recognition and accountability, which emphasizes the importance of diverse data types and harmonization. For data harmonization, standard setters, including national government regulation, play a critical role in ensuring data consistency and comparability. Data collection and management is facilitated through existing legacy reporting platforms, as well as innovative approaches incorporating machine learning, earth observation and IoT sensors. Finally, independent watchdog groups and new platforms contribute to the verification and scrutiny of the reported data to enhance transparency and accountability.

- **Enhance coordination and linkages:** Improved coordination and linkages between emerging regulatory disclosure frameworks and voluntary standard setters for climate accountability are imperative. The UNFCCC should take on an enhanced role as an orchestrator and facilitator between national governments and Non-Party actors, addressing current communication gaps and linkages by clarifying the role and integration of initiatives like the RAF into future Global Stocktakes and NDCs. Moreover, there is an opportunity to explore innovative strategies for alignment between UNFCCC processes and Environmental, Social, and Governance (ESG) rating/reporting mechanisms to effectively merge political and economic incentives. Coherent regulation that streamlines data standards and reporting channels within the accountability ecosystem is essential.
- **Develop a data accountability model:** A clear and comprehensive data accountability model that draws from existing data protocols, platforms, and disclosure standards is needed to clearly communicate global requirements and expectations. This model should outline key elements and expectations for data, particularly in the context of net-zero and transition plans. It should offer guidance to Non-Party actors regarding data quality, accuracy, and sector-specific requirements, outlining their responsibilities in detail. Creating a unified model and its associated schema, which provides a clear structure describing how data elements relate within the data model, will prevent redundant and duplicated efforts in data reporting.
- **Promote clear and transparent data governance rules:** Encourage the development and dissemination of a set of clear, transparent data governance rules. These rules should emphasize cross-functional collaboration, the framework for structured data management, the strategic importance of data, decision rights and accountabilities, data policies, standards, and procedures, as well as compliance monitoring. Ensuring that data governance principles are well-defined and widely understood is critical for creating a cohesive and accountable data ecosystem. By adhering to these principles, organizations, regulators, and Non-Party actors can harmonize their efforts in data management, fostering greater consistency, reliability, and trust within a climate accountability framework. The UNFCCC could encourage the adoption of standardized

governance principles across the entire climate data landscape, promoting a shared understanding of data management responsibilities and accountabilities.

- **Establish clear data format and metadata standards**: Standardized data formats that are machine readable, including metadata and templates are needed to ensure interoperability between data and systems. AI can automate tasks, uncover insights, and enhance data quality control, offering improved accuracy and efficiency in climate accountability, but its potential can only be fully realized if data inputs are machine readable, high quality, and consistent. Encouraging a data governance framework that takes into consideration AI and the algorithmic data lifecycle is crucial for modernizing and streamlining climate accountability systems.
- **Embrace digital approaches and innovation**: A future climate accountability system must embrace digital innovation and emerging technologies, such as large-language models and generative AI, for expediting the understanding of best practices in climate accountability. Tools like ChatNetZero, ChatReport and Climate Policy Radar can allow for benchmarking climate action and net-zero transition plans. They can help decisionmakers, regulators and the public more easily access and efficiently analyze climate action plans. AI-driven solutions for rapid trend analysis and pattern recognition in diverse documents can facilitate credible evaluation.
- **Explore decentralized data governance models**: The feasibility of decentralized data governance models that harness machine learning and AI interoperability to leverage diverse data streams should be explored. These models should be designed to adapt and grow as emerging needs and data sources evolve. By embracing flexible and decentralized governance, the climate accountability ecosystem can benefit from the agility of AI technologies to integrate a wide range of data inputs while ensuring the system remains responsive to emerging challenges, without reinventing wheels or relying on lengthy consensus-building processes required for standardization.