

Valuing the Invaluable to Meet the Paris Agreement

Opinion Piece

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BROOKINGS

The BROOKINGS Institution’s Africa Growth Initiative believes that the time is right for Africa to sustainably and inclusively converge with the rest of the world in terms of standards of living, opportunity, and GDP per capita income. The BROOKINGS Institution supports this process by producing and disseminating high-quality, independent policy research, which helps establish long-term strategies for economic growth and enhances the programs of Africa’s key partners in Washington, D.C.



DevvStream

DevvStream is a technology-based ESG carbon streaming company that advances the development and monetization of environmental assets, with an initial focus on carbon markets. DevvStream implements curated green technology projects that generate renewable energy, improve energy efficiencies, eliminate or reduce emissions, and sequester carbon directly from the air.



Greenlines Technology is democratizing access to carbon markets with powerful digital MRV tools that generate carbon-based financial incentives from aggregated sustainable human activities in the urban mobility and e-commerce sectors.



The LSF was designed by the United Nations Economic Commission for Africa, in collaboration with Afreximbank, in response to several major challenges facing African countries, in particular the ongoing coronavirus pandemic, the historical high cost of borrowing for African Sovereigns and the urgent necessity to address climate change and its consequences.

SUOMI ADVISORY GROUP



Suomi Advisory Group is a leading consulting and intellectual property development firm specializing in environmental and social financial asset identification, development, and commercialization for businesses, organizations, and governments globally.

Keywords:

environmental markets, carbon trading, sustainability, capitalism

The world is facing a crisis of unprecedented scale as climate change continues to wreak havoc on the environment. The transition to a sustainable economy requires a complete rethink of energy generation and consumption paired with a circular economy. However, new financing instruments must be developed to complement more traditional ones that place value in sustainability-aligned activities. We must place a value on environmental and social assets to accelerate capital deployment in alignment with our climate goals.

The transition towards valuing environmental and social assets requires a complete rethink of our economic system. It is time to align environmental protection and social development with capitalism to accelerate capital deployment in alignment with our climate goals.

“If we don’t act now, this century may be one of humanity’s last. We can build a safer, fairer, more resilient world. But we need to move quickly.”

– UN Secretary-General, Antonio Guterres

PHASE I. — THE CURRENT SITUATION: OVERLOOKING THE VALUE OF ENVIRONMENT AND SOCIETY AS RESOURCES RATHER THAN LIABILITIES.

For far too long, we have failed to recognize the value of our environment and society as assets, instead treating them as liabilities that impede economic growth. As a result, our planet is on the brink of environmental catastrophe, with climate change posing an existential threat to humanity.

Capitalism, as it has been practiced in recent decades, has largely incentivized economic activities that are at odds

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with environmental protection and social development. The relentless pursuit of profit has resulted in widespread pollution, deforestation, and other unsustainable practices that are contributing to the degradation of our planet. Moreover, social inequality has grown, with marginalized communities disproportionately affected by the negative consequences of these activities.

One of the key challenges in achieving this goal is the lack of financial instruments that place value in sustainability-aligned activities. Traditional financial instruments, such as stocks and bonds, do not take into account the environmental and social impacts of the companies or projects they invest in. As a result, the market fails to accurately price the risks associated with these impacts, leading to underinvestment in sustainable activities.

To address this challenge, we must place a value on environmental and social assets. Carbon and methane emissions, particulate matter, HFCs (hydrofluorocarbons), SF₆ (sulfur hexafluoride), water, plastic waste, biodiversity, social devel-

opment, and the empowerment of minorities are just some examples of the assets that must be recognized as valuable. By valuing these assets, we can create a new class of sustainable investments that incentivize sustainable practices and social development.

In the realm of carbon markets, two approaches that are gaining attention are voluntary and compliance markets. While voluntary carbon markets have seen remarkable growth, with projections estimating their aggregated value to reach USD 40 billion by 2030, up from USD 2 billion in 2021,¹ driven by corporate demand to achieve voluntary net zero commitments, there is also potential demand from countries striving to meet their decarbonization targets via mitigation outcomes (ITMOS) under Article 6.2 of the Paris Agreement. On the other hand, compliance markets, which reached a total value of USD 909 billion in 2022,² up from USD 859 billion in 2021, despite a 20% decrease in global carbon permit trades, highlight the continued focus on pricing. However, the global weighted-average carbon price of USD 28/ton remains insufficient to incentivize meaningful decarbonization efforts. To meet net zero ambitions, carbon prices need to rise significantly to reach USD 140/ton by 2030 and USD 250/ton by 2050 in advanced economies, as identified by the International Energy Agency (IEA)³. This underscores the growing importance of carbon pricing in driving effective climate action as an effective financial incentive to drive widespread implementation of clean technologies and solutions.

As we approach 2030, it is likely that countries will increasingly utilize Article 6 of the Paris Agreement, which facilitates

voluntary cooperation on climate mitigation efforts, including market-based mechanisms like emissions trading, to support the implementation of their nationally determined contributions (NDCs) under the agreement. This is expected to drive up the demand for recognized high-quality carbon credits as countries look to leverage this mechanism to achieve their targets. Moreover, the rules set out in Article 6 require transparency and robust accounting to ensure the environmental integrity of the emissions financial assets being transferred, which would further support the creation of a new digital-first environmental financial asset backed by reliable and verifiable data.

PHASE II. — TRANSITIONING FROM ANALOG TO DIGITAL: ESTABLISHING THE FOUNDATIONS FOR A DIGITAL CREDIT MARKET.

To truly align environmental protection and social development with capitalism, we need to create a new breed of “digital environmental assets” (DEAs). These DEAs will allow a fast and efficient flow of capital to quantifiable environmental benefits. The creation of DEAs will transform environmental and social assets from a liability to an asset.

While many could be tempted to dismiss DEAs as simply another type of “carbon credit,” DEAs and offset credits (and other current environmental financial instruments) differ in several ways.

Firstly, DEAs use transparent and verifiable data collected through technology-enabled monitoring, reporting, and verification systems, while traditional offset credits and environmental credits are collected using labor-intensive manual

processes. Secondly, DEAs are often more specific and targeted in their focus, while offset credits are typically more general in nature. Thirdly, DEAs can be designed to align with specific environmental or social goals and can be customized to meet the needs of different stakeholders, while offset credits are typically limited to carbon offsetting and may not address specific social or environmental issues. Lastly, DEAs can be traded on digital platforms, enabling faster and more efficient transactions, while offset credits are typically traded through more traditional channels.

DEAs could be standardized across jurisdictions, enabling cross-national transactions to occur. Procurement processes could attach DEAs as another financing instrument to accelerate and attract investments into sustainable projects, such as renewable energy generation in developing economies.

DEAs have the potential to replace multiple financial instruments linked to environmental attributes, creating a more standardized and efficient market for investors. Currently, various instruments such as offset credits and Renewable Energy Certificates, among others, exist but lack standardization. DEAs could streamline the market and make it easier for investors to navigate by providing a

»By valuing the invaluable, we are leveraging capitalism to reach our climate goals.«

common framework for valuing and trading environmental and social attributes. Additionally, DEAs would be data-intensive and transparent, reducing the risk of double-counting and ensuring that investments are directed toward actual emissions reductions or other environmental and social benefits.

»Article 6 of the Paris Agreement sets the stage for a global market for digital environmental and social credits aligned to the NDCs.«

The World Economic Forum has released a briefing paper titled “Recommendations for the Digital Voluntary and Regulated Carbon Markets” in March 2023.⁴ The paper makes two main recommendations. Firstly, carbon markets should have a common baseline taxonomy and expand to include new financial products and “beyond-carbon” tradable assets. Secondly, the report recommends the use of digitally native credits and emerging technologies, such as advanced remote sensing and distributed ledger technology, to support automation in validation and verification, and to improve auditability.

The creation of DEAs requires transparent data collection frameworks and technology infrastructure for credibility. Blockchain technology enables secure

and transparent data sharing, which is essential for creating DEAs. Data standards must also be developed to harmonize data points and enable interoperability across different issuers of carbon credits. Regulatory frameworks must support the trading of DEAs as other commodities to bring liquidity to these activities and ensure that capital flows to the most efficient decarbonization activities.

By creating digital environmental assets, we can enable a faster transition to a net zero economy. DEAs will ensure that environmental protection and social development are no longer liabilities but assets, accelerating the transition to a sustainable society.

PHASE III. — FUTURE OUTLOOK: A GLOBAL MARKET WHERE ENVIRONMENTAL AND SOCIAL PERFORMANCE CAN BE TRADED AS COMMODITIES.

As environmental and social assets gain recognition, we can expect them to be tradable in financial markets globally. This will enable investors to take long or short positions on the environmental impact of companies or assets and provide a way for companies to finance their green projects through the issuance of tradable environmental and social assets. Here are a few examples:

- **Energy Efficiency:** Energy efficiency could deliver up to 40% of the carbon emissions reductions needed to achieve net zero emissions by 2050⁵. If 50% of the one million commercial buildings in the US adopt a DEA that helps them reduce energy consumption by 20%, the potential revenue could be in the billions of dollars.

Digital Credit Type	Acronym	Underlying Asset	Measurement Unit
Digital Carbon Reduction Asset	DCRA	Reduction of 1 metric ton of GHG emissions	tCO2e
Digital Carbon Removal Asset	DCRoA	Removal of 1 metric ton of GHG emissions	tCO2e
Digital Water Quality Asset	DWQA	Improvement of water quality	1%
Digital Biodiversity Asset	DBA	Improvement of biodiversity	1 species
Digital Social Empowerment Asset	DSEA	Empowerment of disadvantaged communities	1 person
Digital Plastic Waste Reduction Asset	DPWRA	Reduction of plastic waste	1 ton
Digital Sound Pollution Asset	DSPA	Reduction of noise pollution	1 decibel
Digital Light Pollution Asset	DLPA	Reduction of light pollution in cities	1 lux
Digital Mental Health Asset	DMHA	Improvement of mental health	1 person
Digital Women Empowerment Asset	DWEA	Empowerment of women in society	1 person
Digital Social Development Asset	DSDA	Improvement of social development	1%
Digital Particulate Matter Reduction	DPMRA	Reduction of particulate matter (PM2.5)	1 microgram/m ³
Digital Nitrogen Oxide Reduction Asset	DN0xRA	Reduction of nitrogen oxide emissions	1 kg
Digital Sulfur Dioxide Reduction Asset	DSO2RA	Reduction of sulfur dioxide emissions	1 kg
Digital Hydrofluorocarbon Asset	DHFCA	Reduction of hydrofluorocarbon emissions	1 kg CO ₂ e
Digital Landfill Gas Reduction Asset	DLFGRA	Reduction of landfill gas emissions	1 metric ton
Digital Forest Preservation Asset	DFPA	Preservation of forests	1 hectare
Digital Ocean Conservation Asset	DOCA	Conservation of ocean ecosystems	1 km ²
Digital Sustainable Agriculture Asset	DSAA	Adoption of sustainable agriculture practices	1 hectare
Digital Renewable Energy Asset	DREA	Production of renewable energy	1 MWh

Figure 1: List of proposed Digital Environmental Assets (DEAs) and their units of measure.

- **Renewable Energy:** Renewable energy could provide up to 44% of US electricity by 2050⁶. If 50% of the 100 utilities in the US adopt a DEA that helps them integrate more renewable energy into their grid, the potential revenue could be in the billions of dollars.
- **Sustainable Agriculture:** Sustainable agriculture practices could help reduce greenhouse gas emissions from livestock by up to 30%.⁷ If 10% of the two million farms in the US adopt a DEA that helps them reduce the use of fertilizers and pesticides, the potential revenue could be in the billions of dollars.
- **Water Management:** Water scarcity affects more than 40% of the global population and is expected to increase.⁸ If 50% of the 100 cities in the US adopt a DEA that helps them reduce water consumption by 20%, the potential revenue could be in the billions of dollars.

Carbon and environmental markets are growing, and they will need to be regulated in the same way as other commodities to bring the necessary liquidity to these activities. The US Commodity Futures Trading Commission (CFTC) and Securities and Exchange Commission (SEC) have both shown interest in regulating these markets. The CFTC has established a Climate Risk Unit to focus on the role of derivatives in understanding, pricing, and addressing climate-related risks, and there is debate over whether the CFTC should establish a broader regulatory framework for voluntary carbon markets. The SEC has proposed climate risk-related disclosure and reporting rules, including mandatory disclosures regarding internal carbon pricing and the use of carbon off-

sets or renewable energy credits as part of a registrant's net emissions reduction strategy. A strong regulatory environment will involve the creation of international standards and protocols for data collection and verification.

As the market for environmental and social assets grows, we can expect to see a dramatic reduction in the "Green Premium," which refers to the additional cost of using green technologies compared to traditional technologies.

Ultimately, the emergence of a global market for environmental and social assets will help us transition to a sustainable society. By valuing the invaluable, we will be able to align environmental protection and social development with capitalism and accelerate the deployment of capital toward achieving our climate goals. As Mark Carney, former Governor of the Bank of England, once said, "The transition to net zero is the greatest commercial opportunity of our time." By embracing this opportunity, we can create a better future for ourselves and for generations to come.

- ¹ Reuters [2023]. Voluntary carbon markets set to become at least five times bigger by 2030 -Shell. January 19, 2023. <https://www.reuters.com/markets/carbon/voluntary-carbon-markets-set-become-least-five-times-bigger-by-2030-shell-2023-01-19/>
- ² Swati Verma and Nina Chestney. (2023). Global carbon markets value hit record \$909 bln last year. Reuters, February 7, 2023. <https://www.reuters.com/business/sustainable-business/global-carbon-markets-value-hit-record-909-bln-last-year-2023-02-07/>
- ³ IEA – Global Energy and Climate Model [December 2022]: <https://iea.blob.core.windows.net/assets/2db1f4ab-85c0-4dd0-9a57-32e542556a49/GlobalEnergyandClimateModelDocumentation2022.pdf>
- ⁴ World Economic Forum. (2023). Recommendations for the Digital Voluntary and Regulated Carbon Markets. World Economic Forum Briefing Paper. <https://www.weforum.org/whitepapers/recommendations-for-the-digital-voluntary-and-regulated-carbon-markets/>
- ⁵ International Energy Agency (IEA) – How Energy Efficiency Will Power Net Zero Climate Goals: <https://www.iea.org/commentaries/how-energy-efficiency-will-power-net-zero-climate-goals>
- ⁶ U.S. Energy Information Administration (EIA) – Annual Energy Outlook 2021: <https://www.eia.gov/todayinenergy/detail.php?id=46676>
- ⁷ Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/i3437e/i3437e.pdf>
- ⁸ Organisation for Economic Co-operation and Development (OECD). <https://www.oecd.org/about/impact/addressing-water-scarcity.htm>