SDG

WHITE PAPER

2025

Empowering SDGs Through Blockchain Innovation
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TABLE OF CONTENTS

01 Executive Summary

The business community seems to realize that the charity factor has the capability of expanding marketing and networking opportunities. Thus, an ideal business should have the potential to enrich every stratum of society as well. SDG is determined to empower and support United Nations Sustainable Development Goals by harnessing the full potential of blockchain technology. "The sustainable development goals (SDGs) are a universal plan for all countries to end poverty, protect the planet, and ensure prosperity for all. They are a set of 17 goals which include 169 targets. They provide a focus for the international community's development efforts until 2030 and are the yardstick by which progress will be measured. They are intended to be tackled as a group rather than individually - the 17 goals are interlinked1."

The Global Impact Investing Network (GIIN) had surveyed in 2018 to identify the barriers in the way of impact investment. The emergence of blockchain technology has made it feasible to address the factors responsible for these barriers. It offers an "SDG token" as a solution, representing a group of tokens with a dedicated role in unlocking investments with social and environmental impact. The solid framework is based on an immutable ledger that enables the transfer of value, maintaining trustworthiness, and digital tokens that can be easily programmable through "smart -contracts."

02 SDG Strategy

Todays, new evidence emerges of humanity's negative impact on the environment - and of growing inequality. A third of the global population lacks access to clean water, global warming is creating deadlier weather patterns, hundreds of millions of children are being deprived of access to education, and income inequality is on the rise as some 3.4 billion people are forced to live on less than $5.50 a day. The United Nations' Sustainable Development Goals and the Paris Agreement provide an architecture for addressing these challenges, by fundamentally shifting the ways that societies produce, consume, and operate. Realizing related opportunities to pursue the Sustainable Development agenda, however, will require closer cooperation between the public and private sectors Especially all members of society.

While there are significant disparities in life expectancy in various parts of the world, no country currently has a life-expectancy rate lower than the highest rate as of 1800. Other signs of progress: the global population living in absolute poverty has declined from 82% to just 9% during the past century, while the number of functioning democracies has increased to 123 from 16, and the global literacy rate has jumped to 85% from 32%. Economic growth has fuelled these improvements, but lately there have been various troubling signs.

According to the Lancet Commission on pollution and health, an initiative started by the medical journal The Lancet, the Global Alliance on Health and Pollution, and the Icahn School of Medicine at Mount Sinai, environmental pollution has reduced annual global economic output by 6.2%, and caused 9 million premature deaths, roughly.

More than 80% of the global population lives in a country that is dedicated to achieving the United Nations Sustainable Development Goals, outlined in 2015 to help put the world on a more sustainable footing by 2030. However, 70% of these national SDG-integration plans fail to clearly identify a financing strategy that includes both private and public funds.

Greater public-private cooperation is key to reversing this trend and addressing an estimated $2.5 trillion annual gap between what is on hand and what will be needed to achieve the goals in developing countries. More capital needs to be mobilized through innovative methods like blended finance (combining funds from public and private investors in a way tailored to each party's risk appetite) and aggregation vehicles (which pool multiple development projects into a single investment vehicle) and it needs to be better allocated. Urgent action is necessary at the country level particularly, where key public and private stakeholders have an opportunity to work together and establish benchmarks for success. It is important to enable the people behind existing country-level efforts to exchange ideas, share best practices, and explore ways to cooperate in the future. The efforts of developing countries particularly will be crucial for the achievement of the SDGs - not least in terms of establishing the healthy regulatory environment, rule of law, and political stability necessary to create an attractive investment climate. United Nations Integrated National Financing Frameworks have now been introduced in dozens of developing countries, in a bid to help governments there better identify funding gaps and develop strategies for financing the SDGs.

According to a report published in 2019 by the Overseas Development Institute, the poorest of these countries may have to come up with an entirely new approach to tools like blended finance in order to bridge the nagging financing gap; while every $1 invested by multilateral development banks and development finance institutions in lower-middle-income countries mobilizes on average $1.06 in private financing, that figure falls to just $0.37 for low income countries, according to the report.

According to the World Economic Forum (2015) by 2027, 10% of global gross domestic product (GDP) will be stored on blockchain-based platforms. The technology of blockchain has dispensed the need for a middleman between the donors and beneficiaries because the data stored is immutable and interconnected. All the transactions are stored in blocks, which are further connected to previously created blocks. Consequently, it becomes extremely difficult to make any changes without altering subsequent records. The verification of transactions is accomplished only when participants commit changes to each other. 'SDG token' targets harnessing the potential of blockchain technology to address climate change and support UN Sustainable Development Goals.

2.1 The Mission

Our initiative supports the Sustainable Development Goals (SDGs), also known as the Global Goals which are a set of intergovernmental agreed goals related to international development that follow the Millennium Development Goals and create the Sustainable Development Agenda finalized by member states during the Rio+20 Summit. The goal of the SDGs is to "LEAVE NO ONE ALONE". Our mission is to support and conduct comprehensive technological, environmental, social, and economic measures that lead to the achievement of sustainable development goals.

We execute and discover our projects under the goals and principles of sustainable development, and we will try to institutionalize these goals at all levels of society. It is a mission statement for a public invitation to move towards sustainable development.

2.2 The Vision

The SDGs are ambitious but within human dignity, we are determined to work bravely to end economic, social, and environmental injustice and inequality by providing transparent, Innovative, dependable, and efficient solutions and using blockchain technology – together we can make them come true.

According to the sustainable development global goals, the word "WE" needs to be redefined. From our perspective, "WE" means all the earth's inhabitants including plants, animals, and humans. This creative team has organized a plan so that we might all experience happy, inspired, safe, and healthy lives by enticing public participation, and strengthening social and environmental values.

03 Problem

3.1 Economical

The traditional model based on the centralized financial ecosystem has always favored the wealthy and the financially sophisticated population, thus inviting criticism. The unbanked population has always struggled for financial inclusion. According to a McKinsey report, in 2017, two billion people lived outside the financial system and it cited two main causes behind this namely high costs and the location of physical branches.

In most of the underdeveloped regions of the world with authoritarian regimes, hyperinflation, and weak financial infrastructure, a majority of the population does not have access to elementary banking services such as cashing a check, transferring money, or even withdrawing cash.

In the Middle East and Africa, 50% of the population is financially excluded, South and Central America follow at 38%, Eastern Europe and the former Soviet republics at 33%, and Asia Pacific's share stands at 24%. But what makes the statistics more surprising is that even one of the most developed regions of the world, such as North America has a huge proportion of its population staying unbanked.

According to a 2019 report by the Federal Reserve, 22% of American adults (63 million) are either unbanked or under-banked. Both categories rely on very unreliable alternative financial products and services — such as payday loans, check cashing services, money orders, and pawnshop loans. One major reason for such numbers is the inherited barriers to entering the traditional financial system. This has seriously affected the economic capabilities of respective regions as the economic participation of the population has a direct relation with the overall economic development in that region.

Every financial service involves considerable costs including the operational cost of physical branches, the cost of maintenance of infrastructure (branches, ATMs, and call centers), and the cost incurred to support technology, product launches, and pilots. Simple operations like shipping and transporting

cash can be a costly affair. Bank of America spends roughly $1 billion a year just moving cash around within its branches.

All these operational costs must be transferred to the cost of the product and the services, and ultimately to the customer, making services and transactions costlier for certain sections of society and business models.

Generic barriers to entry, along with the excessive costs of traditional financial institutes, have criticized by a section of the population seeking inclusiveness, convenience, and less frictional financial products. The global economy requires solutions outside the periphery of traditional finance to bring the unbanked population into the banking umbrella.

3.2 Social
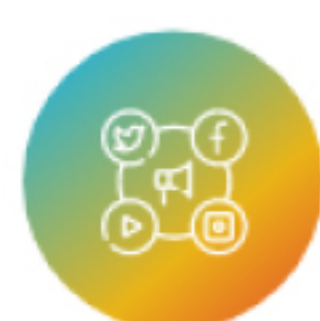
Rising inequality is affecting more than two-thirds of the population across the globe, widening the gap between the haves and have-nots worldwide.

The living conditions are vastly unequal in separate places in our world today. A considerable proportion of the population faces challenges, particularly around food security, malnutrition, medical care, shelter, lack of education, and employment opportunities. This scenario is affecting both the social and economic inclusion of their communities. Basic needs, such as food security, are a privilege in some regions. 9.2% of the world survives on less than $1.90 a day.

- Children and youth account for two-thirds of the world's poor, and women represent a majority in most regions.

- Extreme poverty is increasingly concentrated in sub-Saharan Africa. About 40% of the region's people live on less than $1.90 a day.

- Extreme poverty rates nearly doubled in the Middle East and North Africa between 2015 and 2018, from 3.8% to 7.2%.

- About 70% of people older than 15, who live in extreme poverty, have no schooling or only some basic education 2.

- The Global Multidimensional Poverty Index looks beyond income to measure a person's healthcare, education, and living standards to determine poverty levels.

- 1.3 billion people in 107 developing countries, which account for 22% of the world's population, live in
- multidimensional poverty. About 84.3% of multidimensional poor live in sub-Saharan Africa and South Asia.

  644 million children are experiencing multidimensional poverty [3].

Sub-Saharan Africa is among the poorest regions followed by Central, and Eastern Asia, and the Pacific. This directly has an enormous impact on their future employability and prosperity. In these economies, the unemployment numbers are record high which culminates in the vicious circle of poverty. This deprives them of tools of economic empowerment making them vulnerable. A financially healthy society must have a strong infrastructure and sufficient resources for education, skill development, and employment so that they can participate fully in economic, social, political, and cultural life.

3.3 Environmental

Stakeholders, including eco-conscious consumers, have been showing keen interest in the environmental performance of all the stakeholders in a supply chain. They seek responsible production and consumption activities. It has become vital important to measure the environmental impact of every product for understanding exactly where and how each product and its components made and their origins.

While business leaders are under continuous pressure to improve environmental performance throughout their supply chains, it is not easy for them to monitor and evaluate their environmental performance. More organizations need to commit to an environmentally conscious supply chain where it is easy to verify the sustainability credentials of the stakeholders involved in a particular supply chain.

3.3.1 Waste Management

The existing waste management programs have not been highly effective due to certain factors like the absence of tracking and monitoring systems, lack of incentivization, and a sense of accountability. Companies and individuals cannot hold accountable for the waste they have created. No platform places producers, consumers, and waste management operators into a network together.

The following factors make waste management difficult:

- Unavailability of structured data

- Siloed data stays

- Data's susceptibility to misrepresentation

All these factors pose a great hurdle in evaluating the effectiveness of the waste management system and hence, incentivization programs often fail to deliver.

The failure to run recycling programs is causing serious concerns as most of the recyclable waste is still making its way into landfills, releasing dangerous toxins that pose a greater threat to the environment than previously thought. In some cases, natural resources are being stretched in an exploitative manner even when they can be recycled. For example, many types of smartphones contain rare minerals like cobalt, which could be reused to make new products. Rather than mining more or sourcing it from areas, manufacturers can recycle this cobalt and help the environment.

3.3.2 Energy Trading

Traditional power grids are centralized, which can create inefficiencies in energy distribution - such as having surplus energy at one place and power outages at the other. The Ever-rising demand for power globally is causing power shortages. As increased blackouts affect society globally, there is a looming fear of failures on overworked grids and stressed energy systems. The current utility network is still running through intermediaries, and consumers and producers struggle to gain ownership over their energy system. As there is no automated system to assure traditional grid operators about the correct connectivity of devices and safe and authorized distribution of power, these utility networks remain highly dependent on human intervention. Energy delivery needs to evolve with more distributed choices so that electricity directs to where it is needed at the right time and with the right resource.

3.3.3 Environmental Treaties

Though many international agreements, like Paris Agreement 2015 to reduce carbon emissions, have been initiated so far, its efficacy has been limited primarily because of the absence of end-to-end carbon emissions traceability solutions and an efficient and trustless carbon credit ecosystem.

As efforts to decarbonize the global economy are picking up, the demand for reliable and decentralized platforms to assess, store, trade, and manage carbon emissions is on the rise. However, the following issues have emerged as major roadblocks:

⊘ Unavailability of real-time carbon emission data

⊘ Absence of carbon emission standards

⊘ Measuring carbon emissions in a standardized manner

⊘ Locating generation points of carbon emissions

⊘ Inefficient carbon offset market favoring larger corporations

3.3.4 Supporting Environment-driven NGOs

NGOs lack a transparent system where the internal operations, such as the inflow of donations, the management of funds, and the project progress remain closed to the donors. In many cases, donations to NGOs have been put to illegitimate use, which results in distrust amongst donors. They seek proof of whether their money spent on legitimate and genuinely helpful projects. The practice discourages the donors, and the efforts to support these NGOs affects greatly. NGOs cannot receive the right support from genuine donors in absence of a transparent system that informs about the flow of funds. This affects the sustainability of these NGOs.

3.3.5 Carbon Pricing

In the current system, the environmental impact of each product is difficult to determine, and its carbon footprint is not a factor into the price. This indicates that there is little incentive for consumers to buy products with a low carbon footprint and little incentive for companies to sell such products. Inventors and innovators do not feel motivated as there is no way to incentivize them for developing and introducing low-carbon products and processes. As there is no mechanism to set carbon pricing, the cost of products producing high carbon emissions could not raise. There is a need to raise the price of high-carbon products to raise awareness among consumers about carbon-intensive goods and services and that they should use more sparingly. This will also motivate the manufacturers to produce energy-efficient products.

04   The Solution

SDG Token, based on crowdsourcing approval, offers an incredibly suitable alternative to investment and cost, and by defining and implementing projects with positive social and environmental effects, it plays significant role in redefining "Business". SDG token proves that an investment, however small, has had a positive impact, and with the traceability it provides across the blockchain supply chain ecosystem, investors can track their investments and progress.

Blockchain-Based
SDG Impact Platform

A unified, on-chain ecosystem where impact projects are tokenized, funded, governed and gamified—bringing transparent, fractional access to SDG financing.

Key Features & Innovations:

⊘ **Micro-Investment Accessibility:** Issue ERC-20 "impact tokens" representing small equity stakes (e.g. 0.001 % ownership) in renewable energy farms, reforestation efforts or water-purification plants.

⊘ **Automated Governance:** Smart contracts codify multi-sig milestone checks (e.g. sensor-verified tree counts). Once 50 % of trees survive 6 months (via IoT or satellite data), the next funding tranche auto-releases.

⊘ **Gamified Engagement:** NFTs badge users for on-platform actions (e.g. funding a solar panel, planting 10 trees). Badges unlock loyalty rewards or discounted token

Technical Stack & Architecture:

- ⊘ **Blockchain:** Polygon PoS (sub-$0.01 tx fees; 7-second finality).
- ⊘ **Smart Contracts:**
    ImpactVault.sol – holds project tokens and releases funds upon verifyMilestone() calls.
    BadgeNFT.sol – mints ERC-721 badges when users stake tokens for impact.
- ⊘ **Oracles:** Chainlink adapters ingest IoT feeds (LoRaWAN sensors for environmental metrics) and external audits.
- ⊘ **Front-end:** React DApp with Web3.js; mobile "ImpactWallet" for micro-payments via Stripe integration and local mobile money rails (e.g. M-Pesa).

Implementation Roadmap:

- ⊘ **Q1 2025** – Deploy core contracts on Polygon testnet; onboard 3 pilot projects (solar microgrid, agro-forestry, clean cookstoves).

- ⊘ **Q3 2025** – Integrate micro-payment (Stripe, Flutterwave) and mobile wallet support; begin public alpha.

- ⊘ **Q1 2026** – List first impact tokens on SDGx and KlimaDAO; launch gamification layer with 5 badge tiers.

- ⊘ **Mid 2026** – Expand to 20 projects; onboard local NGOs in Sub-Saharan Africa; publish first Impact Transparency Report.

SDG Alignment & KPIs:

- ⊘ **SDG 10 (Reduced Inequalities):** # of unique retail investors, average ticket size.

- ⊘ **SDG 13 (Climate Action):** Tonnes CO_2 offset tokenized.

- ⊘ **SDG 17 (Partnerships):** # of NGOs/governments integrated; cross-sector capital mobilized.

Community-Led DAO for Grassroots Projects

Overview:

A fully decentralized governance layer empowering communities to propose, vote and fund hyper-local sustainable projects.

Key Features & Innovations:

- **Decentralized Governance:** On-chain proposals (Aragon DAO) and quadratic voting to ensure small stakeholders carry weight.
- **Transparent Treasury:** All incoming donation pools and outgoing grants viewable via a blockchain explorer.
- **Impact Verification:** Leverage satellite data (e.g. Sentinel-2) and edge IoT sensors to confirm project execution before fund release.

Technical Stack & Architecture:

- **DAO Framework:** Aragon OS + Snapshot for off-chain discussion, on-chain final voting.
- **Treasury Contract:** Multi-token vault with scheduled disbursement functions.
- **Verification Oracles:** Chainlink + custom subgraph to index real-world proofs (geo-tagged photos, sensor logs).

SDG

Implementation Roadmap:

⊘ **Q2 2025 –** Launch community DAO MVP in two pilot villages; hold first hackathon to train local leaders.

⊘ **Q4 2025 –** Distribute "participation tokens" for workshop attendance; activate governance portal in three languages

⊘ **2026 –** Partner with UNDP for capacity building; audit first 10 community projects.

SDG Alignment & KPIs:

⊘ **SDG 9 (Industry, Innovation):** # of grassroots innovations funded.

⊘ **SDG 16 (Peace & Justice):** # of transparency incidents reduced; voter turnout % in proposals.

⊘ **SDG 17 (Partnerships):** # of cross-sector votes and joint proposals

Green Energy Tokenization & Marketplace

Overview:

Fractionalize renewable energy assets into tradeable tokens, delivering both dividends (project revenue) and tradable carbon credits.

Key Features & Innovations:

- **Fractional Ownership:** 1 token = 1 kWh stake in a solar farm.
- **Dual Returns:** Monthly dividends from power sales + tokenized REC credits.
- **NFT Ecosystem:** Limited-edition "Ecosystem Guardian" NFTs fund biodiverse habitat restoration tied to each energy site.

Technical Stack & Architecture:

- **Blockchain:** Solana for sub-1ms tx speeds and minimal environmental overhead.
- **Token Standards:** SPL (Solana Program Library) tokens for kWh stakes; Metaplex NFTs for guardian collectibles.
- **Oracles:** Pyth Network for real-time energy pricing; Twilio IoT integration for panel output.

Implementation Roadmap:

⊘ **Q1 2025 –** Tokenize 2 MW pilot solar array; deploy marketplace UI on Solana Devnet.

⊘ **Q3 2025 –** List on AirCarbon Exchange; launch first NFT auction for coastal mangrove replanting.

⊘ **2026 –** Onboard wind turbines; integrate zero-margin peer-to-peer trading.

SDG Alignment & KPIs:

⊘ **SDG 7 (Clean Energy):** MW tokenized; real-time MWh delivered.

⊘ **SDG 13 (Climate Action):** tCO_2 avoided, credits issued.

⊘ **SDG 8 (Economic Growth):** # of green jobs created on project sites.

AI-Powered Sustainability Analytics Dashboard

Overview:

A subscription-based SaaS dashboard that ingests multi-source data to surface predictive insights and real-time KPIs.

Key Features & Innovations:

⊘ **Predictive Insights:** Ensemble models predict deforestation risks, drought events, or social stress.

⊘ **Real-Time Data Fusion:** Combine Planet Labs imagery, LoRaWAN sensor feeds, and social media sentiment.

⊘ **Customizable KPIs:** Users define SMART indicators and set alert thresholds.

Technical Stack & Architecture:

- ⊘ **Data Lake:** AWS S3 + Lake Formation for secure, governed storage.
- ⊘ **ML Framework:** Python/TensorFlow pipelines for time-series forecasting; PyTorch for NLP on policy documents.
- ⊘ **Visualization:** React dashboard with D3.js charts; WebSocket streams for live alerts.

Implementation Roadmap:

- ⊘ **Q2 2025** – Build ingestion pipelines for two datasets (emissions sensors, public climate stats).
- ⊘ **Q4 2025** – Release Beta with 10 corporate pilot customers; host training webinars.
- ⊘ **2026** – Add mobile app and offline analysis; tiered pricing by data sources.

SDG Alignment & KPIs:

- ⊘ **SDG 9 (Innovation):** # of organizations using predictive modules.
- ⊘ **SDG 13 (Climate Action):** Avg % reduction in forecasted risks.
- ⊘ **SDG 17 (Partnerships):** Data-sharing agreements signed.
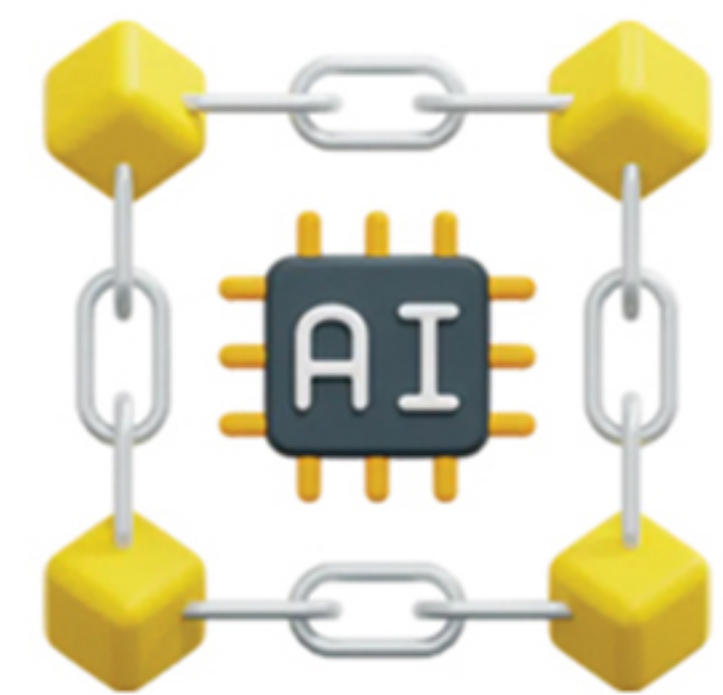
Global Cultural Exchange & Education Network

Overview:

A digital platform leveraging AR/VR and gamified learning to spread sustainable cultural practices globally.

Key Features & Innovations:

- **Immersive AR/VR Tours:** Users explore rice-terrace farming in Bali or wind-powered desalination in Kenya.
- **Tokenized Learning Rewards:** Earn "SDG Scholar" tokens to unlock advanced modules.
- **Virtual Festivals:** Annual global events with live performances, hackathons and impact showcases.

Technical Stack & Architecture:

- **XR Engine:** Unity + AR Foundation for cross-platform content.
- **Web3 Integration:** WalletConnect for token rewards; IPFS to store media assets.
- **CDN:** AWS CloudFront for low-latency streaming.

Implementation Roadmap:

- ⊘ **2025 –** Produce 5 AR modules; pilot in 10 schools via UNESCO partnership.
- ⊘ **2026 –** Launch "SDG Festival 2026" with key influencers and virtual expos.
- ⊘ **2027+ –** Expand to 50 cultural practices; integrate user-generated content.

SDG Alignment & KPIs:

- ⊘ **SDG 4 (Quality Education):** # learners certified, token redemption rates.
- ⊘ **SDG 11 (Sustainable Cities):** # cultural heritage sites digitized.
- ⊘ **SDG 17 (Partnerships):** Intl bodies and influencer collaborations.

Circular Economy Marketplace

Overview:
A B2B2C platform where goods carry digital "product passports" ensuring full lifecycle traceability, incentivizing repair, reuse and recycling.

Key Features & Innovations:

⊘ **Lifecycle Traceability:** Hyperledger Fabric network records origin - manufacturing - resale - recycling.

⊘ **Behavioral Incentives:** Consumers earn "ReCYCLE tokens" for returning used goods; brands pay token rebates.

⊘ **Supply Chain Ethics:** On-chain audits flag greenwashing; only certified suppliers can mint new product IDs.

Technical Stack & Architecture:

⊘ **Network:** Permissioned Fabric chain with endorsing peers from brands (e.g. Patagonia), recyclers and certifiers.

⊘ **Front-end:** Progressive Web App for scanning NFC tags and earning tokens.

⊘ **Smart Contracts:** Chaincode for token issuance, transfers, and certificate validation.

Implementation Roadmap:

⊘ **Q1 2025** – Pilot plastic bottle loop with local municipality and waste startups.

⊘ **Q3 2025** – Onboard 3 fashion brands; launch user-facing PWA.

⊘ **2026** – Expand to electronics, metals; integrate e-commerce partners.

SDG Alignment & KPIs:

⊘ **SDG 12 (Responsible Consumption):** Tonnes of material diverted.

⊘ **SDG 9 (Innovation):** # of blockchain participants.

⊘ **SDG 17 (Partnerships):** B2B2C collaborations.

Nature–Based Carbon Credits Marketplace

Overview:

High-integrity carbon offsets, tokenized for global trade, with optional "Ecosystem NFT" add-ons funding biodiversity projects.

Key Features & Innovations:

- ⊘ **Verified Offsets:** All credits audited to Verra or Gold Standard; on-chain proof anchored via Hedera Hashgraph.
- ⊘ **Tokenized Credits:** 1 vCredit = 1 tCO_2 removal; fully traceable.
- ⊘ **Ecosystem NFTs:** A portion of each sale funds mangrove or rainforest restoration; buyers receive unique art NFTs.

Technical Stack & Architecture:

- ⊘ **Ledger:** Hedera for low fees (<$0.0001) and high TPS.
- ⊘ **Bridge:** Wormhole to move credits onto Ethereum-based DEXs.
- ⊘ **Verification:** Third-party oracles plus AI image analysis for real-time forest canopy monitoring.

Implementation Roadmap:

- ⊘ **2025** – Tokenize 100,000 tCO_2 of mangrove projects; list on AirCarbon.
- ⊘ **2026** – Launch NFT auctions for Great Green Wall restoration.
- ⊘ **2027+** – Expand to grassland and peatland credits.

SDG Alignment & KPIs:

- ⊘ **SDG 13:** tCO_2 offset.
- ⊘ **SDG 14/15:** Hectares of habitat restored.
- ⊘ **SDG 17:** Corporate and retail offset purchases.

Green Job Creation & Vocational Training

Overview:

A skills-to-employment pipeline enabling underserved communities to access training and seed capital in green sectors.

Key Features & Innovations:

- **Industry-Aligned Curriculum:** NABCEP solar installer, regenerative ag, circular waste management.
- **Inclusive Incubators:** Seed grants and mentoring for women-led micro-enterprises.
- **Outcome Tracking:** On-chain ledger of job placements and wage growth.

Technical Stack & Architecture:

- **LMS:** Moodle with on-chain credentials (Blockcerts).
- **Grant Contracts:** Smart contracts disbursing stipends upon course completion and job placement.
- **Data Dashboard:** Track cohort performance via on-chain analytics.

Implementation Roadmap:

- **2025** – Launch pilot training center in rural Kenya.
- **2026** – Scale to 5 regions; partner with vocational colleges and microfinance.
- **2027+** – Publish audited impact reports; replicate in Latin America and South Asia.

SDG Alignment & KPIs:

- **SDG 8:** # jobs created, % wage uplift.
- **SDG 5:** % women participants.
- **SDG 17:** Industry and academia partnerships.
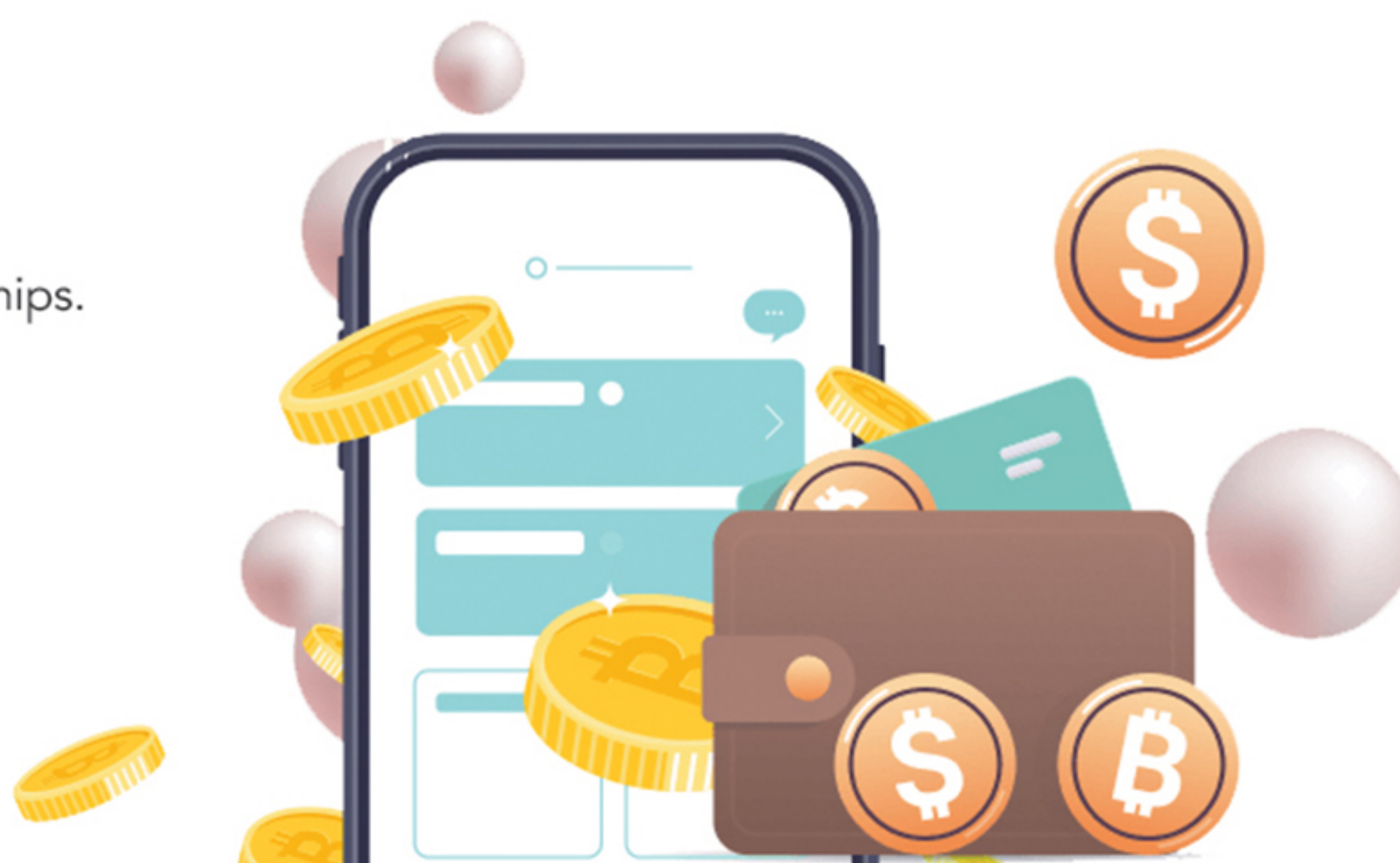
SDG-Focused Media & Influencer Campaign

Overview:

A multimedia storytelling engine that galvanizes global audiences around SDG successes and challenges.

Key Features & Innovations:

- **Emotional Storytelling:** Short documentaries optimized for digital channels.
- **Influencer Amplification:** Scientists, activists and celebrities co-create content.
- **Virtual Summits:** Interactive workshops (e.g. urban gardening, carbon tracking) live-streamed with viewer participation tokens.

Technical Stack & Architecture:

- **CMS & CDN:** Headless CMS (Strapi) + Cloudflare for global distribution.
- **Analytics:** Sentiment analysis via Hugging Face Transformers to refine messaging.
- **Token Rewards:** Viewers earn "Impact Points" redeemable for NFT art.

Implementation Roadmap:

- **2025 –** Produce 3 flagship mini-docs; launch on YouTube and Instagram Reels.
- **2026 –** Host first "SDG Live" summit with 50 K virtual attendees.
- **2027+ –** Build an open content library for educators.

SDG Alignment & KPIs:

- **SDG 4:** # educational views and shares.
- **SDG 13:** Engagement spikes on climate content.
- **SDG 17:** Co-productions with international bodies.

Open-Source Innovation Hub

Overview:

A global, GitHub-style portal for co-developing SDG tech, backed by quarterly XPRIZE-style grants.

Key Features & Innovations:

⊘ **Collaborative Dev:** Repositories for each SDG challenge, continuous integration and testing.

⊘ **Global Challenges:** Quarterly hackathons with up to $100 K grants.

⊘ **Knowledge Repository:** Curated best practices, blueprints and case studies.

Technical Stack & Architecture:

⊘ **Platform:** GitLab Ultimate for built-in CI/CD and permissioning.

⊘ **Cloud Credits:** AWS/Google Cloud grants for winning teams.

⊘ **Grant Contracts:** On-chain grant issuance and milestone monitoring.

Implementation Roadmap:

⊘ **2025 –** Launch hub with 10 challenge repos; award first round of grants.

⊘ **2026 –** Integrate with UN Innovation Network; publish first open-source SDG reference architecture.

⊘ **2027+ –** Scale to 1,000+ contributors; launch regional hackathons.

SDG Alignment & KPIs:

⊘ **SDG 9:** # of open-source contributions.

⊘ **SDG 17:** Cross-institutional collaborations formed.
   Funding Leverage: $ invested vs. in-kind contributions.

⊘

Decentralized Network for SDG Standards & Certifications

Overview:

A consortium blockchain where global stakeholders co-define SDG benchmarks and mint tradable certification tokens.

Key Features & Innovations:

� **DAO Governance:** On-chain votes set and update SDG metrics (e.g. water-usage standards).

☑ **Immutable Certifications:** ERC-1155 credentials vouch for compliance.

☑ **Tradable Credentials:** Allow organizations to trade unused certifications on secondary markets.

Technical Stack & Architecture:

☑ **Chain:** Permissioned Cosmos SDK chain with TENDERMINT BFT.

☑ **Governance Module:** Cosmos Gov for proposal lifecycles and voting power tied to stake.

☑ **Certification Module:** Custom module to mint/burn cert tokens when audits pass.

Implementation Roadmap:

☑ **2025 –** Establish consortium (UNDP, ISO, NGO members); deploy testnet.

☑ **2026 –** Issue first 100 k cert tokens; integrate third-party auditors.

☑ **2027 –** Launch secondary marketplace; expand to biodiversity and waste standards.

SDG Alignment & KPIs:

☑ **SDG 9:** # of standards ratified on-chain.

☑ **SDG 12:** Certifications issued for circular practices.

☑ **SDG 17:** Stakeholders voting weight and participation.

Sustainable Development Fund

Overview:

A tokenized, blended-finance vehicle combining public grants, concessional loans and private capital to fund large-scale SDG projects.

Key Features & Innovations:

- **Blended Finance:** Uses guarantees (MDB backstops) to de-risk private co-investment.
- **Impact-Linked Returns:** Bond coupons tied to meeting social/environmental KPIs.
- **Blockchain Transparency:** All disbursements and impact data are visible on-chain in real time.

Technical Stack & Architecture:

- **Legal Structure:** Luxembourg SICAV RAIF for cross-border compliance.
- **Smart Contracts:** Issue tokenized bonds (ERC-1400) with on-chain coupon schedules.
- **Data Feeds:** Oracles verify KPI achievement (e.g. % electrification rate).

Implementation Roadmap:

- **2025 —** Launch seed fund ($100 M); onboard MDB guarantors and philanthropic anchor investors.
- **2026–2027 —** Issue first tokenized green bonds; disburse to solar and clean-water projects.
- **2028+ —** Scale to $1 B AUM; launch retail bond tranche on global exchanges.

SDG Alignment & KPIs:

- **SDG 1:** # of households lifted above poverty line.
- **SDG 7:** MW of clean energy financed.
- **SDG 17:** Total capital mobilized and risk sharing.

05 SDG Business Model

5.1 Business projects

SDG Value Proposition

Convenience

The SDG business model presents a framework to proceed towards an effortless way of life for achieving efficient, transparent, and reliable environmental solutions by leveraging blockchain technology.

Performance

The business model directs the execution of an array of functions to support sustainable development with technological intervention while supporting human welfare efforts globally.

Customization

The model observes a scope for modifications and upgrades. That will help target a vast goal of harnessing the potential of blockchain technology to address climate change and support UN Sustainable Development Goals in the future.

5.2 Key Stakeholders

Software Developer

SDG has joined hands with one of the world's pioneering blockchain development companies having real-world experience in delivering blockchain products across domains like NFT, metaverse, Defi, DAO, crypto exchange, and wallet, and more.

Platform Manufacturer

Manufacturing Standardization plays a significant role in maintaining the quality, performance, and condition of a manufactured product (tokens in this case). Platform Manufacturer ensures that the platform is standardized with the following features:

- Supports fiat currency and digital currency
- Makes money from exchange rates to keep your investment or trade going
- Embraces digital methods of transactions over outdated methods
- The platform is a well-designed and easy-to-use desktop with an interface compatible with mobile apps

Platform Vendors

The platform vendor plays a significant role in controlling the operating system and hardware on which the applications run.

5.3 SDG Customer Segments

General Customer

Any State agency or other entity mentioned in a contract as the party and willing to receive commodities (cryptocurrencies) or contractual services (exchange services) will be a general customer.

Vertical Market

A vertical market will represent a group of companies and customers (dealing in cryptocurrencies) that are all interconnected and have a prominent level of spending power. Customers of the vertical market typically rely on a single service provider.

Global Market

The global market includes stakeholders, customers, and other participants from different regions across the globe.

5.4 SDG's Major Revenue Streams

Profit sharing

Revenue generation in the cryptocurrency business is mainly from the sale of tokens or exchange services along with profit sharing with business partners.

Subscription fee

Subscription fees or transaction fees or gas charges are likely to be paid by the beneficiary party to the organization for availing the rights or privileges of the services rendered.

Product sales

It involves the revenue generated from the sale of SDG Tokens and other products available within the ecosystem.

06 SDG Token & Its Utility

6.1 Introduction

The SDG Token is a blockchain-based solution for impact investing. It represents the positive social and environmental impacts of specific activities, thus playing a significant role in diminishing the SDG's financial gap. The SDG Token provides a 'perfect blended financial solution' by understanding the liquidity risk of impact investments and highlighting the industry's requirement for more robust, dependable, and standardized ways to measure non-financial returns. The SDG Token, being a digital representation of an asset or utility based on blockchain technology, can move society toward more decentralized economies by eliminating intermediaries and integrating smart contracts. These contracts are self-executing, programmable computer codes that define the rules between two or more transacting parties and automatically execute when certain conditions are met without the need for a third party. The exchangeable valuables such as time, the energy produced, ownership, contracts, certificates, vouchers, expertise, commodities, goods, services, loyalty points, memberships, financial instruments, and governmental bonds can be digitally represented by SDG tokens. An algorithm that automatically releases money over time, to control budget and expenses, can also be used to develop flexible pricing mechanisms by fragmenting the tokens into smaller bits. The SDG Token is a medium to incentivize the positive behaviors of sustainability by providing a trustworthy blockchain-based platform, through improved data collection techniques supporting monitoring, reporting, and verification [25].

6.2 Harnessing the potential of blockchain technology to achieve UN SDGs' 17 goals

SDGs	Potential of Blockchain Technology
Goal 1. End poverty in all its forms everywhere	Cryptocurrencies and other blockchain-based tokens enable easier and more secure trading and transactions. (Gear, 2017)
Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	The World Food Program (WFP) already implemented a pilot project in 2017, called Building Blocks. It enabled the transfer of WFP Food and cash through a public Ethereum blockchain with the help of a smartphone app to vulnerable families in Pakistan. The WFP expanded the project to a Syrian refugee camp in Azraq, Jordan to successfully facilitate cash transfers for over 10,000 Syrian refugees through its blockchain payments platform. The implementation of blockchain technology later enabled Syrian refugees to buy food from local retailers using a biometric scan of their eyes, where each transaction was recorded on a blockchain.
Goal 3. Ensure healthy lives and promote well-being for all at all ages	Sharing patient healthcare records through blockchain is more secure and efficient as well. (Gear, 2017)

SDGs	Potential of Blockchain Technology
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Smart contracts, GPS, RFID, and IoT empower the Blockchain to offer transparency, and auditability because tracking people who make donations becomes very easy.
Goal 5. Achieve gender equality and empower all women and girls	Storing documents related to the identification of women or girls who have been trafficked or who have gone missing helps authorities to locate the same.
Goal 6. Ensuring availability and sustainable management of water and sanitation for all	Monitoring, recording, and verifying data collected for water samples would ensure non-tempering and thus discourage malpractices.
Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all	Blockchain gives the opportunity to invest or produce or sell energy. Solar panels, turbines, CHP, home, or car batteries may help consumers to trade directly in decentralized, transparent, and secure environments through robust distributed ledger technology. (Grosjean, 2017)
Goal 8. Promote sustained, inclusive, and sustainable economic growth, full, and productive employment, and decent work for all	Blockchain technology is a more effective, faster, and cheaper way for international payments. Smart contracts, virtual currency, and distributed ledgers enable new cross-border payment models, thus providing a secure and transparent digital infrastructure for verifying identity and securing property rights. (Pisa, Juden, 2017)
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	"Small businesses can get ahead, innovate, and build an edge with blockchain transformation by using blockchain-based services as well as creating their apps on top of blockchain – decentralized apps, or DApps. Finally, businesses can already use smart contracts to regulate and govern relationships and agreements with other entities." (Tamar, 2018)
Goal 10. Reduce inequality within and among countries	Secure remote authentication of voters' identity and secure record keeping for vote tracking on the blockchain audit trail helps in maintaining equality (Schlegel, 2017)

SDGs	Potential of Blockchain Technology
Goal 11. Make cities and human settlements inclusive, safe, resilient, and sustainable	Blockchain technology can do wonders by tapping the power of Smart contracts, GPS, RFID, and IoT in maintaining any integrated smart city with the least time, effort, and resources (Epsom, 2017)
Goal 12. Ensure sustainable consumption and production patterns	Distributed ledger and smart contracts provide transparency and traceability throughout the supply chain. It will ensure that the products are sourced in line with their sustainability claims (Epsom, 2017)
Goal 13. Take urgent action to combat climate change and its impacts	Developing virtual 'Metaverse' platforms with supportive features for immersive interaction could help in providing an environmental conversational platform, beyond the geographical barrier.
Goal 14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	The power of Smart contracts, GPS, RFID, and IoT on Blockchain labels a unique ID to any product. The relevant audit information can even demonstrate that the fish is caught legally and sustainably (Epsom, 2017)
Goal 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Monitoring, verifying, and recording the detailed record at the rural level can help to identify responsible hectares of certified forests and thus can be an alternative solution for tracing provenance (Epsom, 2017)
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels	Maintaining the digital identities of refugees on blockchain promotes the concept of an inclusive society. ID2020 teamed up with Accenture and is looking at rolling out an interoperable, user-owned, and controlled digital identity to its hundreds of thousands of staff. They hope that this initiative will evolve into a standard background check which can be distributed to potential clients using a biometrics system that can manage data on fingerprints and irises. (Cullell, 2018)
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	The integration of different technologies like Smart contracts, GPS, RFID, and IoT with blockchain empowers automatic authenticated transparency and trust, which enables partnerships to thrive, hence breeding a situation where true collaborative solutions can be born. This has the potential to be a perfect model for establishing productive partnerships. (Woolf, 2017)

07 SDG Tokenomics

An ICO (Initial Coin Offering) is a low-cost fundraising option and tokenomics is the fundamental part of the ICO. The tokenomics of any token decides the economic design of the token and is significant. That is why the tokenomics of the SDG Token is based on the extensive qualitative and quantitative research of a data sample collected from white papers and resources at ICObench.com.

- 1% Bounties and airdrops
- 6% Others
- 5% ICO-Private Sale
- 35% ICO-Public Sale
- 5% Reserves
- 32% Founders
- 6% Executive Team
- 8% Business development and Marketing
- 2% Advisors

Tokenomics parameter	Sample findings	Research findings
Token type	68.7% utility, 31.3% payment	68% utility
Technical standard	94.9% ERC20	56.5–84% ERC20
Standard issue price	Median: 0.10 USD	Median: 0.20–0.30 USD
Standard currency	76.54% USD, 19.75% ETH, 3.7% EUR	–
Currency acceptance	34.44% ETH only, 20% ETH, BTC and other cryptos, 16.67% ETH and BTC, 28.29% fiat and crypto	66% ETH, 10% USD
Private sale	8.16% of ICOs	36–45% of ICOs
Public sales duration	Median: 31.5 days	Median: 31 days, mean: 37 days (41 days in 2018)

Tokenomics parameter	Sample findings	Research findings
Total supply	Median: 775 million	–
Soft and hard cap	66.3% soft cap, 84.7% hard cap, soft cap is 17.3% of the hard cap	–
Sale quota	Mean: 53.3%	54–60%
Token allocation	55.5% ICO, 11.6% reserves, 8.2% team, 8.1% business development and marketing, 3% advisors, 2.9% bounties and airdrops, 11.7% other	–
Use of sale proceeds	38% development, 27% marketing, 14% operations, 6% legal, 15% other (tech., reserves)	–
Capital collected	Mean: 5.97 million USD	Mean 11.5–15.8 million USD Median: 3.8 million USD

08 Technology Stack

The SDG Token is based on a decentralized network and is free from unauthorized access to personal data. So, the data gets distributed over the whole network maintaining transparency, security, and traceability.

8.1 Technology Used

SDG plans to tap the full potential of Cryptocurrency and blockchain technology to raise an ecosystem for attaining SDG's 17 goals. Any digital currency is decentralized and revolves around a set of algorithms and protocols. It supports cryptographically based payment mechanisms, maintaining a medium of exchange, and storing values. Since cryptocurrencies are not regulated or controlled by any government or central authority, they promise new economic, business, and social models. In addition, digital currencies empower distributed ledger technology with efficient transaction processing eliminating the need for any intermediary or third party.

8.2 Ethereum Blockchain

Ethereum is a blockchain-based, decentralized software platform. Being open source, it can easily be customized and used for creating a crypto token. It enables the deployment of smart contracts and decentralized applications (DApps) in insignificant time and without any interference from any intermediary or third party. Inheriting the benefits of the Ethereum blockchain, the SDG token enables transactions with greater security, transparency, speed, and reliability.

8.3 Overview – Ethereum's Architecture

Ethereum is a decentralized mining network and software development platform packed to facilitate the creation of new cryptocurrencies and platforms that share a single blockchain.

Architectural Components of Ethereum

Node/Client	A node, also known as a client, is a device/program that communicates with the Ethereum network.
Block	A block is a package of data that comprises zero or more transactions, the hash of the previous block, and optionally other data.
Miners	Add the block to the Blockchain. Miners are simply nodes in the Ethereum network who find a new block, confirm transactions, and commit new transactions in a block.
Proof of Work (PoW)	Proof of work is an activity that miners perform to write transactions to a new block. It is a mathematical value that serves as proof of having solved a resource and time-consuming computational problem.
Ethereum Virtual Machine	Ethereum Virtual Machine is the decentralized computing platform that forms the core of the Ethereum platform.
Smart Contract	Set of executable functions directing a line of code that executes automatically when the predetermined terms and conditions are fulfilled, eliminating the need for an intermediary or third- party.
Gas	Gas refers to the pricing value needed to successfully perform a transaction or execute a smart contract on the Ethereum Blockchain platform.
Gas Limit	The gas limit represents the maximum amount of gas you are willing to pay for a smart contract transaction execution.
Mining Pool	A mining pool is simply a group of miners that work together to mine blocks for the Ethereum network.
Main-net	A main net is the Ethereum Blockchain network.

09 Roadmaps

2025: Foundation & Pilot Testing

Focus: Infrastructure setup, key partnerships, and first-wave pilots.

Solution	Q1	Q2	Q3	Q4
1. Blockchain-Based SDG Platform	Develop blockchain infra (Ethereum/Polygon)	Finalize smart contracts	Pilot micro-investment gateway (Stripe/PayPal)	Tokenize 3 pilot projects (energy, water, agro)
2. DAO for Community Projects	Deploy Aragon/MolochDAO frameworks		Host 5 country workshops; onboard 10 NGOs	Launch treasury with $5 M seed
12. Sustainable Development Fund	Incorporate as Luxembourg SICAV	Secure $50 M anchor (IFC, EIB)		Curate 20-project pipeline

Milestones:

- ⊘ **Q2 2025:** Core blockchain & DAO protocols finalized.
- ⊘ **Q4 2025:** First three impact-token pilots live; $5 M seed treasury active.

2026: Scaling & Ecosystem Integration

Focus: Expand successful pilots, integrate adjacent solutions, and onboard early users.

Solution	Q1	Q2	Q3	Q4
3. Green Energy Tokenization	Tokenize 50 renewable assets	Mint asset tokens & staking pools	List tokens on AirCarbon Exchange	Issue 1 M carbon credits on-chain
4. AI Sustainability Dashboard	Train AI models on historical data	Extend to real-time IoT & satellite feeds	Beta freemium tier (1,000 users)	Feedback-driven feature freeze
6. Circular Economy Marketplace	Deploy Hyperledger Fabric	Onboard 50+ brands (e.g. Patagonia)	Launch consumer recycling incentives	Divert 100,000 tons waste

Milestones:

- ⊘ **Q3 2026:** 1 million users on SDG Platform.
- ⊘ **Q4 2026:** Carbon marketplace hits $100 million traded volume.

2027–2028: Global Expansion

Focus: Mass adaptation, policy integration, and systemic impact across regions.

Solution	Q1	Q2	Q3	Q4
5. Global Cultural Exchange	Launch AR/VR modules with UNESCO	Expand to 10 cultural sites	Host first global sustainability festival	Certify 50,000 learners
7. Nature-Based Carbon Credits	Tokenize 200+ ecosystem projects	NFT auction for rainforest projects	Offset 1 M tCO_2	Report 10,000 ha restored
8. Green Job Training	Roll out programs in 10 countries	Place 10,000 graduates	Publish audited impact reports	Secure follow-on seed funding

Milestones:

- ⊘ **Q2 2027:** 10 million platform users globally.
- ⊘ **Q4 2028:** 50,000 ha of habitat restored via NFT-funded projects.
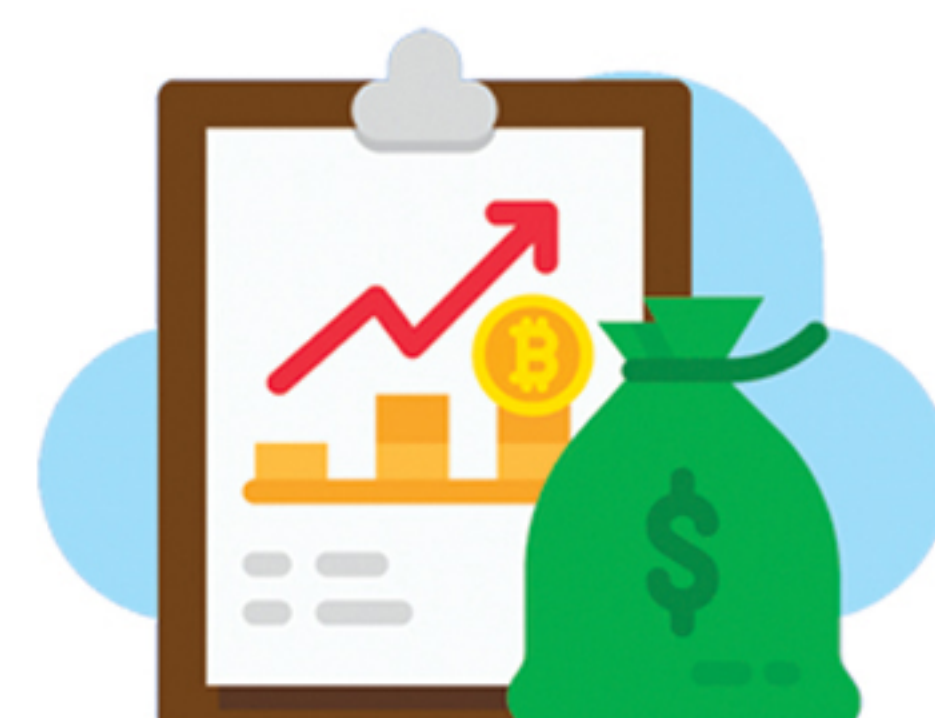
2029–2030: Sustainability & Legacy

Focus: Institutionalize solutions, integrate with policy frameworks, and deliver final legacy outcomes.

Solution	Q1	Q2	Q3	Q4
9. SDG Media Campaign	Produce 50+ docs & interactive apps	Launch viral social-media push	Host global virtual summit (500 k+)	Partner with major broadcasters
10. Open-Source Innovation Hub	Launch 10 XPRIZE-style challenges	Distribute $50 M in grants	Publish the annual open SDG reference arch.	Onboard 1,000+ dev contributors
11. SDG Standards Network	Certify 1,000 projects	Mint tradable cert tokens	Align 50+ nations policies	Achieve 80% supply-chain coverage

Milestones:

- ⊘ **Q3 2029:** 80% of critical supply chains tracked on-chain.
- ⊘ **Q4 2030:** 80% of SDG targets on-track for 2030 — official progress handover to the UN.

Cross-Cutting Activities (2025–2030)

SDG

- ⊘ **Quarterly:** Publish on-chain impact reports; perform smart-contract audits; hold stakeholder roundtables.
- ⊘ **Annually:** Convene SDG Summit; update tokenomics; recommend policy integrations.
- ⊘ **Resources:**
    Funding: $5 B total (40% grants, 30% private equity, 20% concessional loans, 10% crowdfunding).
    Team: 500+ experts across blockchain development, AI, sustainability science, and policy advocacy.

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