UNDP ALTERNATIVE FINANCE LAB

NEW TECH, NEW PARTNERS

Transforming development in the digital era

A snapshot of UNDP's blockchain practice

JANUARY 2026

Contents

Foreword

Development is changing fast. Global cooperation is being reshaped by geopolitical fragmentation, the rising influence of emerging powers, and new forms of financing that increasingly draw on private capital and market incentives. These currents are altering how countries pursue progress and the kind of support they need from development institutions. At the same time, rapid advances in digital technology are transforming economies and societies at an unprecedented pace. They are opening new pathways for inclusion while also creating risks that are already deepening inequality.

This new publication addresses a gap in knowledge in one crucial facet of this digital change: blockchain. Simply put, blockchain is a shared, tamper-resistant digital ledger that records transactions or actions across a distributed network, allowing parties that do not fully trust one another to exchange value or information transparently and securely without a single central intermediary. When designed responsibly, it can complement wider digital public infrastructure and digital transformation efforts by strengthening how data, value, and accountability move through systems. In practical terms, this means rules, payments, and records can be coordinated across public institutions, communities, and partners in ways that are verifiable, auditable, and harder to manipulate.

The United Nations Development Programme's (UNDP) 2026–2029 Strategic Plan calls for stronger, more trusted public systems, and this publication explores how blockchain is being used to support that goal in different development settings. It draws on real-world UNDP work with governments and partners to examine how blockchain – as a potential element of a broader digital transformation capability stack – can support more transparent, responsive, and inclusive systems. These efforts are helping countries test new approaches and accelerate progress in areas such as payments, climate and nature finance, social protection, and community-driven investment, improving transparency, efficiency, delivery, and trust across each. They also demonstrate the importance of building coalitions that bring together public institutions, innovators, and technology communities around shared goals.

For UNDP, this moment requires an ability to learn faster, adapt earlier, and understand how new tools and practices can strengthen public systems. Our role is not only to accompany countries through technological transitions, but to help them interpret what these changes mean for governance, for opportunity, and for the way essential functions must evolve in a digital era. Developing this capability is essential if we are to maintain our mission and ensure that development remains centred on people and public value.

In short, blockchain will not replace institutions – but it can help rebuild trust in them. Properly governed, it has the potential to act as a bridge: between public and private capital, between innovation and regulation, and between ambition and delivery. Across the solutions gathered here, this bridge is already moving us from isolated pilots to scalable public infrastructure. And in a fragmented world, that ability to connect may be its most powerful contribution of all.

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Administrator
United Nations Development Programme (UNDP)

Acknowledgements and credits

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UNDP Istanbul Regional Hub, Türkiye
Regional Bureau for Europe and the CIS (RBEC)

ABOUT UNDP
UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners across 170 countries and territories, we help nations build integrated, lasting solutions for people and the planet.

Learn more at undp.org or follow at @UNDP

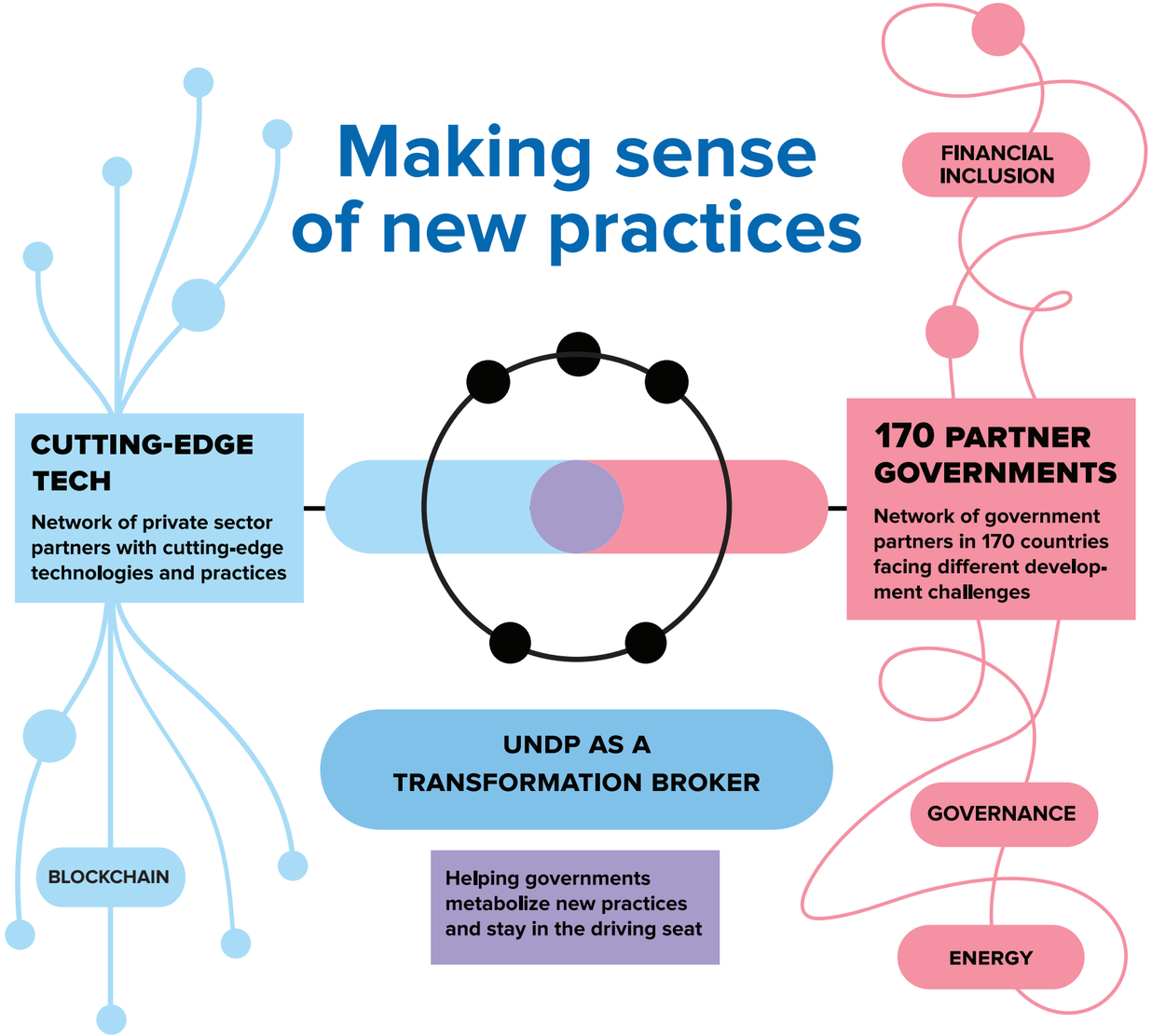
List of acronyms

AI – Artificial Intelligence
API – Application Programming Interface
CBAM – Carbon Border Adjustment Mechanism
CETP – Common Effluent Treatment Plant
CICO – Cash-In / Cash-Out
CSO(s) – Civil Society Organization(s)
dApp – Decentralized Application
DSA – Daily Subsistence Allowance
EPR – Extended Producer Responsibility
ERP – Enterprise Resource Planning
ESG – Environmental, Social and Governance
GBON – Global Basic Observing Network
IoT – Internet of Things
IRH – Istanbul Regional Hub
LDC – Least Developed Country
MFI(s) – Microfinance Institution(s)
MFS – Mobile Financial Services
MRV – Monitoring, Reporting & Verification
MSME(s) – Micro, small and medium-sized enterprise(s)
NFT – Non-fungible Token
NGO(s) – Non-governmental Organization(s)
PoS – Proof of Stake
POS – Point of Sale
USSD – Unstructured Supplementary Service Data
WMO – World Meteorological Organization
VR – Virtual Reality

Glossary

Application programming interface	A standard way for two or more digital systems to exchange data securely
Audit trail	Tamper-evident record of all system actions
Blockchain anchoring	Linking a data “fingerprint” to a blockchain for verification
Carbon credit	A tradable unit of verified emissions reduction or removal
Cash-in / Cash-out	Turning cash into digital value, or digital value back into cash via agents
Cryptographic fingerprint (hash)	A short code that changes if the underlying file or data changes, making tampering easier to detect.
Data fabric	Architecture connecting multiple datasets into a unified structure
Data provenance	Evidence of where data came from and how it was processed
Deduplication	Detecting and removing duplicate records across data bases
Digital public infrastructure	Foundational public systems like ID, payments, and data exchange
Digital wallet	An account/app to store and send digital assets
Distributed ledger (DLT)	A shared database replicated across multiple participants, reducing reliance on one central operator
Escrow	Funds held until agreed conditions are met
Geospatial AI	AI applied to maps and satellite imagery
Interoperability	The ability of different systems/organizations to work together and exchange data reliably, without being locked into one vendor
IDDEEA	Agency for Identification Documents, Registers, and Data Exchange of Bosnia and Herzegovina
Internet of Things	A network of physical objects embedded with sensors, software, and other technologies that enable them to connect and exchange data over the internet
Liquidity point / Agent network	Local locations where users can access cash-out and services
Non-transferable token	Token that cannot be sold; used as private eligibility pass
Off-chain	Data stored outside the blockchain, with verifiable references linked to it
On-chain	Data or actions recorded directly on a blockchain
Open-source	Technology with publicly accessible source code
Permissioned blockchain	A blockchain where only approved parties can validate/write records
Proof of Stake	A consensus mechanism where validators are selected based on staked value
Smart contract	Automated digital agreement that automatically executes predefined actions when specific conditions are met, without needing a third-party intermediary
Stablecoin	A token designed to stay close to a currency value
Tokenization	Representing an asset or financial instrument as a tracked digital token
USSD	Text-based phone menus that work without internet
Verifiable credential	A digitally signed certificate that can be checked instantly for authenticity

Making sense of new practices



Harnessing fast-moving change for public purpose

PUBLIC INSTITUTIONS ARE MOVING AT ANALOG TIME IN A DIGITAL WORLD.

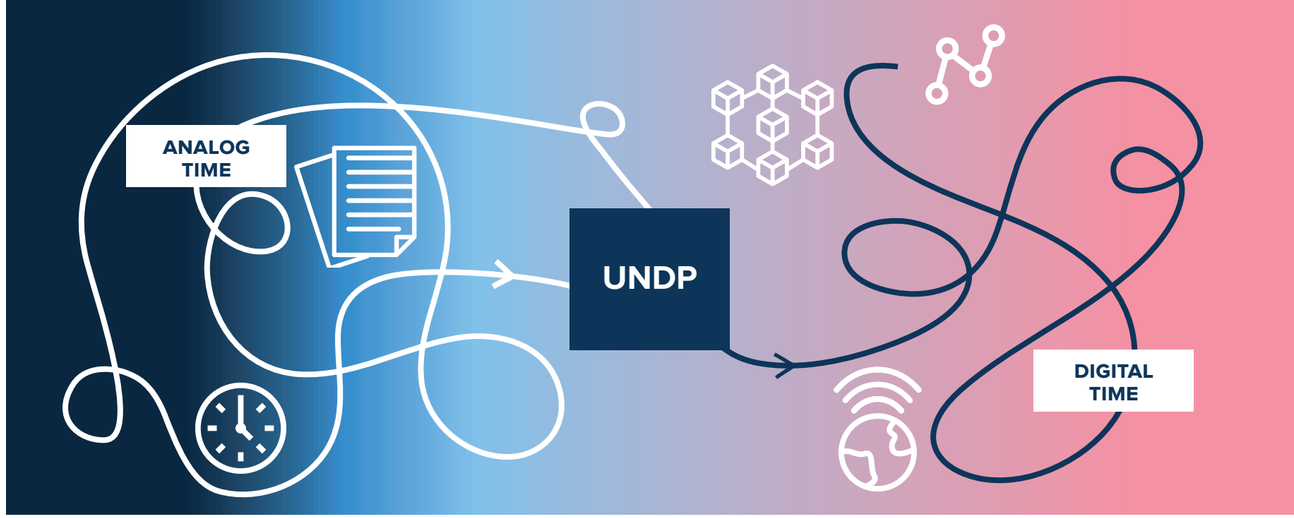
Governments are being asked to navigate overlapping digital, financial, and climate transitions at a pace and level of agility that is very different from how public institutions typically operate. This is especially evident in decisions about data, payments, and digital infrastructure – choices that will shape who has power and access for decades. Governments are now having to decide faster than they can usually learn and adapt.

WHO IS DECIDING HOW THE NEXT GENERATION OF DIGITAL INFRASTRUCTURE IS BUILT — AND IN WHOSE INTERESTS?

Choices made today about how identity, payments, social protection, land records, and climate finance are rebuilt on digital rails will shape how public, economic, and social systems function, who can participate, and who benefits. The first generation of digital services taught us that these choices can entrench exclusion, deliver only marginal gains, and lock countries into systems that are hard to reorient towards public purpose. But designed differently, they can also be used to rewire how resources and participation flow, tackle underlying drivers of complex problems, coordinate action across sectors, and build collective intent for transformation – e.g., turning remittances from private household transfers into community-governed local investment facilities. This is a window of opportunity to reshape systems.

UNDP IS STEPPING INTO THIS JUNCTION AS A TRANSFORMATION BROKER, HELPING GOVERNMENTS METABOLIZE NEW TECHNOLOGIES AND APPROACHES.

In the digital space, UNDP acts as a new kind of development partner, bringing public and private actors together on terms that are explicitly people-centred and focused on public purpose. Our deep understanding of emerging digital and AI technologies enables us to take a holistic, systems-level approach to integrating digital transformation as a key consideration in diagnosing and designing development strategies. This expertise is not merely technical – it encompasses understanding how digital technologies interact with social, economic, and political systems to create new possibilities. We help institutions understand and integrate new technologies, strengthen ecosystem conditions, and absorb emerging capabilities into public-purpose systems: redesigning how key functions work, connecting policy, finance and technology actors, and structuring collaboration with cutting-edge private ecosystems so that governments stay in the driving seat rather than becoming passive adopters of vendor roadmaps.



WITH PARTNERS, UNDP IS DEVELOPING A DIFFERENT MODEL FOR FAST-MOVING SPACES.

This model builds on our system and portfolio practice, embracing new approaches to accelerate change and ensuring existing inequalities and power imbalances are not retrenched. The portfolio practice provides the necessary institutional scaffolding for this work – allowing us to leverage dynamic capabilities, engage with shifting power dynamics and technologies, nurture collective learning, and reframe issues with a systems view. Experimentation is framed around reconfiguring how systems operate – who can act, how value and resources flow, how communities participate – with digital as one lever alongside policy, finance, institutional arrangements, and community governance. The aim is to keep surfacing new, actionable insights that help countries continually update their assumptions about fast-evolving technologies and sustain long-term development outcomes.

BLOCKCHAIN HAS EMERGED AS A POWERFUL SET OF DIGITAL TOOLS FOR THIS WORK.

Blockchain technologies have emerged as powerful potential tools to support this change. UNDP is already working with governments to use blockchain-based payment rails to change how remittances and community investment work, and how cash is disbursed, and is exploring how similar digital rails could support climate and nature finance, supply-chain transparency, and social protection. Because these systems can be built in open ways rather than closed, proprietary platforms, governments can build in transparency and shared control from the start. This also draws in new partners – from foundations to technology communities – who would not usually be involved in redesigning public systems.

Blockchain: A quick primer

Blockchain is a digital system for shared, tamper-evident records and automated rules that enables coordination between multiple actors without a single central owner. Once information is recorded, it becomes extremely difficult to alter without detection, making blockchain particularly suited to environments where trust, verification, and accountability are critical.

In development contexts, blockchain functions as a coordination and trust layer, supporting governments, communities, and partners to manage data, payments, and rules in ways that are more transparent, accountable, and efficient.

Several characteristics are especially relevant for public-purpose systems:

Tamper-evident records and auditability

Blockchain creates verifiable, time-stamped records of transactions or decisions, strengthening transparency, reducing disputes, and simplifying oversight in areas such as payments, benefit delivery, supply chains, or climate finance.

Automation through smart contracts

Rules can be encoded so that actions – such as releasing funds or confirming eligibility – are triggered automatically when agreed conditions are met. This can reduce delays and manual processing while maintaining human oversight where it matters.

Shared control and interoperability

Built as open, modular infrastructure rather than closed platforms, blockchain systems allow multiple actors – governments, communities, financial institutions, and technology providers – to operate within a common framework without a single party controlling all data or decision-making.

Privacy-preserving design

Modern applications can separate verification from identity, enabling people to prove eligibility or actions without exposing sensitive personal information – an essential consideration in social protection, health, and humanitarian contexts.

Efficiency in fragmented environments

In settings with limited connectivity, multiple intermediaries, or parallel systems, blockchain can serve as a lightweight coordination layer – linking data, payments, and reporting without requiring wholesale replacement of existing infrastructure. In some cross-border payment and remittance flows, it can also reduce reconciliation steps and shorten settlement time, which may help lower costs where efficiencies are passed on to users.

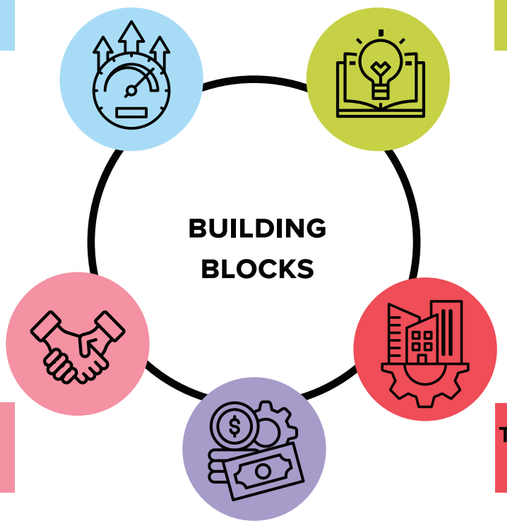
However, blockchain systems also introduce certain risks. Just as blockchain can create a decentralized framework for multiple actors in a complex system to operate more efficiently, it can also become harder to create accountability for failures since there is no central point of control. In essence, rather than creating a 'trustless' environment, blockchain shifts trust from traditional actors and institutions to the technology providers and technology itself. Therefore, it is essential that there is appropriate regulatory oversight to ensure transparency and accountability among the involved parties. The immutable nature of data on the blockchain also means that errors can be difficult to correct, and can hamper people's privacy – including compliance with existing laws and policies such as the right to be forgotten – if not designed with care. Many blockchain systems also facilitate cryptocurrency transactions, which have been misused to perpetuate terrorism financing, ransomware operations, and scams. Defects in the design of smart contracts, for example, can make them vulnerable to attacks by malicious actors. Therefore, cybersecurity controls and digital literacy must be key elements of ensuring that vulnerable populations are not exposed to these risks. In this regard, UNDP stresses the importance of responsible adoption of blockchain technologies with robust safeguards and policy protections.

Blockchain for public-purpose systems

UNDP's approach

Pipeline of use cases and new options

We help innovators, UN agencies and public institutions design, test, and scale blockchain pilots through structured accelerators and hands-on experimentation. To date: 50+ pilots supported through the SDG Blockchain Accelerator and country-level experimentation.



New dynamic capabilities

We build the skills and institutional readiness of governments, UN agencies, and others to understand, test, and responsibly deploy blockchain solutions. To date: 500+ UNDP staff trained through the Blockchain Academy; Government Blockchain Academy in prototyping.

New types of partnership

We convene and coordinate a global ecosystem of blockchain foundations, public institutions, and UN agencies that co-invest intellectual and social capital. Our network includes 25+ leading blockchain partners and 1,700+ members in the UN Blockchain Community of Practice.

Finance

We mobilize new forms of capital and test blockchain-enabled financial models to expand how development is funded.

Technological & institutional infrastructure

We develop foundational digital assets – such as the UNDP Digital Wallet and interoperable data systems – that enable safe, scalable, and public-value-driven blockchain adoption.

Blockchain for public-purpose systems

IN ITS WORK WITH BLOCKCHAIN, UNDP ORCHESTRATES COLLABORATION ACROSS BOTH PUBLIC AND PRIVATE SECTORS.

We don't just match the tech to the problem. We create networks of innovators who work together to test, share, and iterate on approaches that empower governments and communities to drive systemic change with the help of technology.

We use a pipeline model to rapidly onboard emerging approaches and technologies, evolving them into a consistent stream of implementation-ready solutions for governments and partners. We deploy a mix of financing, partnerships, dynamic capabilities, and technological and institutional infrastructures, and accelerate learning by identifying where these building blocks generate public-purpose value, which constellations of actors and institutional arrangements are needed, and where the pitfalls lie.

1 USE CASE AND SOLUTION PIPELINE

Through the SDG Blockchain Accelerator and other country-level blockchain initiatives, UNDP has supported the development of more than 50 blockchain-enabled solutions, advancing from early prototypes to pilot- and scale-ready stages across more than 50 countries. Many of these pilots are now ready to move into implementation and scaling with public institutions, in partnership with diverse national and local stakeholders, UN entities, and public institutions. These are framed around SDG-relevant challenges – such as remittances, climate and nature finance, supply-chain transparency, and social protection delivery – rather than around the technology itself. Together, they illustrate how blockchain can be applied across a range of public sector and development systems.

2 PUBLIC-PURPOSE PARTNERSHIPS

UNDP connects governments with partners whose capabilities and business models align with public-purpose goals, creating space for them to work together on concrete system shifts. These partnerships provide a structured entry point – shared principles, a common intake and due diligence process, and forums for addressing opportunities, constraints, and roles jointly.

3 NEW INSTITUTIONAL CAPABILITIES

In our work with the government, UNDP links blockchain explorations to institutional innovation, enabling new roles, rules, and decision-making structures to be tested as interventions are rolled out. This allows institutions to dynamically learn and steer these changes on their own terms, and drive and govern the new systems they are creating. This is the work that turns promising experiments on digital rails into absorbable parts of the state – for example, clarifying how local authorities share control over a community fund, or how regulators oversee new payment circuits.

4 TECHNOLOGICAL AND INSTITUTIONAL INFRASTRUCTURE

In digital innovation, infrastructure can be both a constraint and a launchpad, often associated with prohibitive costs. In blockchain work, UNDP strives towards interoperable data systems that enable safe, scalable, and public-value-driven blockchain adoption, and help governments set up systems in sustainable ways. UNDP has also invested in its own foundational digital infrastructure, including the UNDP Digital Wallet, powering a new generation of digital partnerships.

5 INNOVATIVE FINANCING

UNDP's blockchain experimentation offers a powerful way to combine new funding sources, including private-sector capital. We test blockchain-enabled financial models for governments, communities, and UN entities, in line with the evolving nature of development financing. Insights from this work can inform policy discussions and help reshape the funding model for innovation.

Emerging areas of blockchain use

The bigger picture: system shifts we are catalyzing

Current initiatives represent early anchors toward broader system shifts emerging across the blockchain work. Each initiative is designed as part of a wider change in how the system operates, not as a stand-alone pilot.

Shift 1: Communities as investible actors, not only aid recipients

Locally led development is not only a funding modality but a long-term shift in relationships. Leveraging blockchain to support more coherent financing of locally defined needs reinforces community agency and shifts power to those with direct knowledge of the issues. In emerging models, parts of remittances and local funds are pooled under clear rules into shared pots that finance priorities agreed with municipalities and community organizations, positioning communities as organized and transparent counterparts capable of attracting and managing investment.

Shift 2: Basic financial "rails" as infrastructure for social protection and local economies

The design of last-mile digital payments aims to build a shared payment infrastructure that can carry social assistance, crisis response, and everyday payments for small businesses through a single system. This drives a shift from fragmented, programme-by-programme channels to common rails that move money faster, more predictably, and in ways that strengthen local markets.

Shift 3: Linking global climate and nature finance to local decisions and results

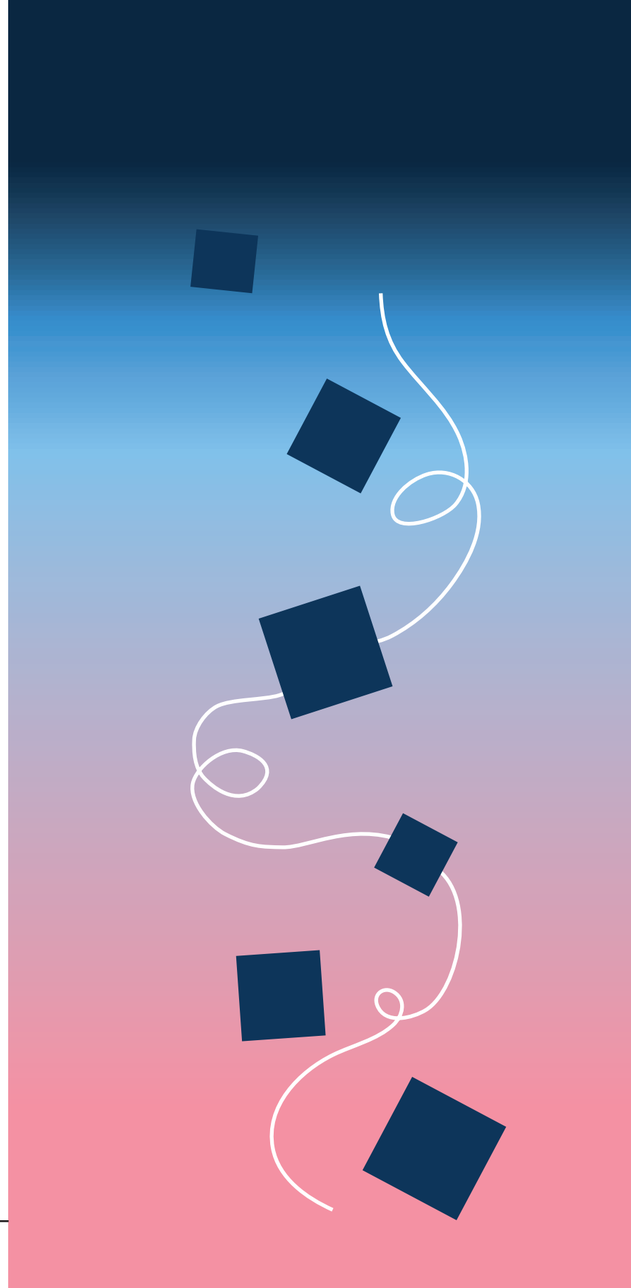
As global finance flows locally, practical results are often obscured by fragmentation and multiple layers of bureaucracy. Linking payments to verifiable actions recorded in shared systems makes this connection more transparent, enabling a simpler, ground-up understanding of the impact of finance flows on communities – for restoring forests, managing water, or protecting ecosystems. More importantly, it enables decentralized decision-making that matches the correct type of finance to the right place at the right time.

Shift 4: Citizen and community co-governance is built into how public money is used

Participation in public spending is often limited to consultations that sit outside the systems that move money. In emerging models, communities and citizens can propose, co-decide, and follow portions of public and pooled funds within the same systems that record allocations and payments. The shift is from one-off participation exercises to decision-making and oversight that are built into the financial architecture itself.

These shifts point to where the work is ultimately headed: using this infrastructure to reshape who can act, how money and authority move, and how governments remain in charge of systems that are rapidly being rebuilt on digital rails.

Across this work, clear clusters are emerging – they signal where blockchain is most likely to support system shifts with people at the centre and frame the areas explored.



Portfolio snapshots: Country and partner pilots

AN EMERGENT PRACTICE

The initiatives in this publication are at different stages, from early pilots to initial deployments. Results and scale figures are point-in-time and, in many use cases, impact evidence is still emerging. The use cases are shared to document learning and design patterns, and should not be read as endorsements of any single vendor or as prescriptive guidance on technology choices.

HOW WE SELECT PARTNERS

UNDP works with private-sector blockchain innovators through several channels, including the SDG Blockchain Accelerator – a global initiative that helps scale blockchain and AI solutions to advance the SDGs. Our immersion into the ecosystem helps the organization quickly sense emerging practices and partnerships of potential interest. Across the Accelerator and other engagement pathways, partners are selected based on their relevance to SDG-linked challenges, technical maturity and adaptability to public-sector contexts, commitment to responsible and privacy-aware design, and willingness to co-design and iterate with governments and communities. Accompanied by a rigorous due diligence process, this approach enables UNDP to act as a broker and steward – aligning private innovation with public purpose while ensuring government long-term institutional ownership, oversight, and learning.

Digital payments & financial inclusion

CASES: 10

REGIONS AND COUNTRIES: regional pilots in Africa, Colombia, Guatemala, Haiti, Liberia, Mexico, Nigeria, Syria, The Gambia, Papua New Guinea

SDGS SUPPORTED:

Across these pilots, teams are testing how digital wallets, stablecoins, purpose-bound tokens, community funds, and low-connectivity payment systems can improve the speed, transparency, and reliability of transfers for households, entrepreneurs, climate finance recipients, migrants, and rural communities.

The solutions show how simple interfaces, combined with shared ledgers and agent networks, help users access digital payments and basic financial services even without smartphones or continuous connectivity. The pilots mainly serve low-income households, women and youth entrepreneurs, informal workers, migrants' families, and remote communities. Because they rely on modular components, their scalability potential is high, enabling models that can be extended across social protection, remittances, climate finance, local commerce, humanitarian support, and rural infrastructure in similar contexts.

Africa

New grant rails for women and youth entrepreneurs

Challenge owner: UNDP Country Offices in Cameroon, South Sudan, and Zambia

Solution maker: MultiKnip – a fintech company that provides an intelligent wallet for purpose-bound digital tokens and grant management

System-level challenge

Across Cameroon, South Sudan, and Zambia, much of the economy runs through informal markets where women and young people drive local trade. Yet these entrepreneurs have limited access to formal finance and face unreliable digital infrastructure, so most transactions remain cash-based. UNDP Country Offices already support them through skills programmes and small grants, but disbursements are often split into multiple instalments, verified manually, and tracked on paper or spreadsheets. This slows down support and makes it harder for promising businesses to plan, invest, and report on results.

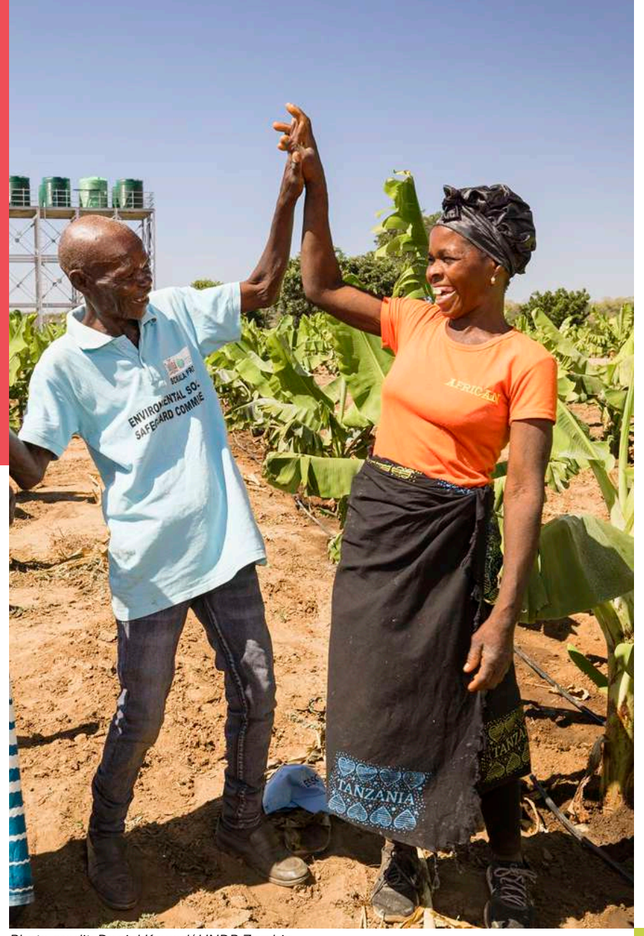


Photo credit: Daniel Kawed/ UNDP Zambia

What we are piloting

The initiative plans to integrate the MultiKnip intelligent wallet into the Global Environment Facility (GEF)'s Small Grants framework to deliver purpose-bound digital tokens instead of conventional cash instalments. UNDP Country Offices allocate the full grant value upfront as tokens that can be spent only with vetted local suppliers on eligible expenses, such as inputs, registration, equipment, or digital tools. The approach aims to reduce administrative workload and give women and youth entrepreneurs easier access to the resources they need to grow their businesses.

How it works

UNDP defines each grant scheme and issues purpose-bound tokens from its bank account, setting rules on who can receive them, what they can be used for, where they can be used, and for how long they are valid. Beneficiaries receive tokens in the form of QR codes or simple card-style vouchers that can be loaded into a basic mobile wallet. When they buy approved goods or services from participating suppliers, the supplier scans the QR code or wallet and accepts tokens as payment.

Each transaction is recorded on a distributed ledger, creating a clear audit trail. MultiKnip then prepares batch payment instructions, so the bank transfers the equivalent cash directly from UNDP to the suppliers. Programme and finance teams monitor usage, unspent balances, and supplier activity through a dashboard, with low-connectivity options for rural settings.

Photo credit: Karin Schermbrucker/UNDP Zambia

Snapshot

Key users:

Women and youth entrepreneurs, local suppliers, UNDP, and relevant government counterparts.

Tech stack:

The MultiKnip intelligent wallet and supplier application, QR-based token payments, and an issuer dashboard integrated with banking rails.

Scale:

The pilot will launch across three UNDP Country Offices, designed as a blueprint for replication in GEF Small Grants and other livelihood and financing programmes.

SDGs:

Colombia

Digital transfers for Bogota's minimum income guarantee

Challenge owner: UNDP Colombia × Mayor's Office of Bogotá

Solution maker: Decaf – a stablecoin wallet and card platform that lets users receive, hold, and spend digital dollars locally

System-level challenge

Bogotá's Minimum Income Guarantee (MIG) provides cash support to more than 481,000 low-income households, yet the city has almost no visibility into how this money is used. Transfers are primarily delivered as cash or simple digital payments that generate little valid data, so policymakers cannot easily see whether funds cover food, transport, care, or other essentials, or how different groups, such as women-headed households, are using support. This weakens programme learning, limits links to financial inclusion initiatives, and makes it harder to align social protection with broader digital transformation efforts, and also limits the evaluation of the direct impact on living standards in Colombia.

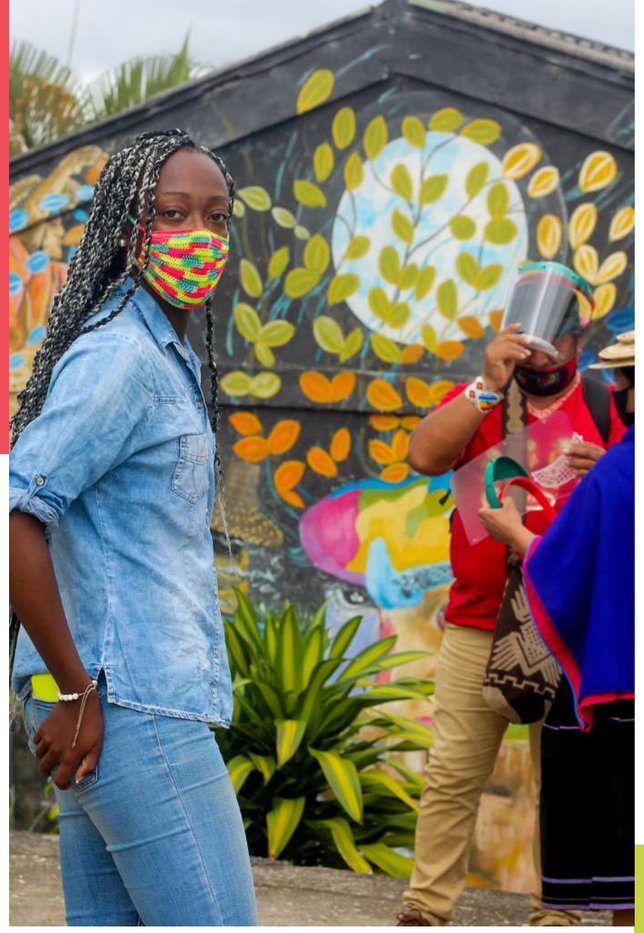


Photo credit: Oscar Bermeo/UNDP Colombia

What we are piloting

UNDP Colombia, in partnership with the Mayor's Office of Bogotá through the District Secretariat of Social Integration (SDIS), is testing an exploratory digital payment model to generate learning on the use of stablecoin-based transfers in a controlled pilot setting. The pilot is implemented with a small cohort of households in Bogotá, prioritizing youths and migrant families, and combines real-world spending scenarios with structured feedback sessions.

The exercise is designed to produce anonymized and aggregated insights on user interaction and spending patterns, which may inform future discussions with SDIS and other stakeholders. The pilot remains embedded within Bogotá's Financial Wellbeing Ecosystem and the SDG Fund's Inclusive Digital Transformation Facility.

How it works

As part of the pilot design, SDIS supports the identification and selection of participant households based on agreed eligibility criteria. The execution of the pilot, including the three transfer cycles, is carried out by Decaf for experimental purposes, in order to assess user behavior, adoption patterns, and changes in the use of digital payments. The pilot does not constitute an operational payment process led by SDIS and is implemented solely within a controlled, learning-oriented setting.

Photo credit: Freya Morales/UNDP Colombia

Snapshot

Key users:

MIG households in Bogotá, especially youth and migrant households who are often unbanked, plus SDIS and Mayor's Office teams and UNDP Colombia.

Tech stack:

Stellar Disbursement Platform and USDC stablecoin, Decaf Wallet (iOS, Android) and Visa card infrastructure, MoneyGram cash out, real-time dashboards with anonymized on-chain data.

Scale:

The pilot begins with a small initial cohort in Bogotá and is designed to generate learning and evidence that may inform future discussions on potential expansion. Any considerations regarding scale, including possible application to other beneficiary groups or contexts, are exploratory and subject to the results of the pilot.

SDGs:

Guatemala

From remittances to community investment funds

Challenge owner: UNDP Guatemala

Solution maker: Amero – a fintech building remittance and digital-wallet solutions for communities in Latin America

System-level challenge

In many Guatemalan municipalities, remittances sent by migrants are the primary source of household income, but almost all of this money is cashed out immediately through private providers. Families are left with little for savings or long-term investment, and communities have few ways to pool resources to support shared priorities and basic services. Financial exclusion remains common, especially for women and young people, and existing financial products poorly serve high-migration areas. National digital and financial inclusion strategies recognize the importance of remittances, but there are still no concrete models that channel these flows into community-governed investment.

Photo credit: UNDP Guatemala

What we are piloting

UNDP Guatemala and Amero are setting up a mechanism that allows families and diaspora to direct part of each remittance into a community fund governed by residents and local institutions. The pilot tests whether these flows can finance projects chosen by communities – from small infrastructure to livelihood support – while keeping a transparent record of contributions and payouts. The goal is to turn a portion of everyday transfers into capital for local development, without adding bureaucratic burdens.

How it works

The solution links existing remittance channels to a simple digital interface built with Amero on the Stellar blockchain. When a sender initiates a transfer, they and the recipient can choose how much stays with the household and how much goes into the community fund. Each contribution is recorded in a shared ledger so contributors, municipalities, and financial institutions can see who contributed, to which project, and when.

Smart contracts hold funds until agreed milestones are verified and then release payments to implementing partners. Community members receive fundamental governance rights – such as voting on project selection or viewing progress dashboards – so the fund becomes a visible, collectively managed asset rather than an opaque pool of money.

Photo credit: UNDP Guatemala

Snapshot

Key users:

Remittance-receiving households, diaspora associations, local communities, municipal authorities, and financial institutions supporting community funds.

Tech stack:

Amero wallets and platform integrate with existing remittance providers, using Stellar-based tokenized contributions and a public impact dashboard.

Scale:

Designed for replication across the Northern Triangle (Guatemala, Honduras, El Salvador) as proof-of-concept for community-governed remittance investment models.

SDGs:

Haiti

Digital payments for community prosperity

Challenge owner: UNDP Haiti

Solution maker: Kura × Bousol – digital payment and wallet partners offering low-cost cross-border and local payments solutions

System-level challenge

Most people in Haiti do not use formal banks, and over 80 percent of everyday transactions are paid in cash. The reliance on physical money limits transparency, increases security risks, and keeps many women, youth, and small entrepreneurs outside formal financial services. In rural areas, mobile money coverage is uneven, and trust in banks is low, so grants and wages often move through informal channels. The National Financial Inclusion Strategy calls for more digital payments and better traceability – especially for social transfers to vulnerable households – but few practical models connect digital payment systems with the realities of remote or underserved communities.

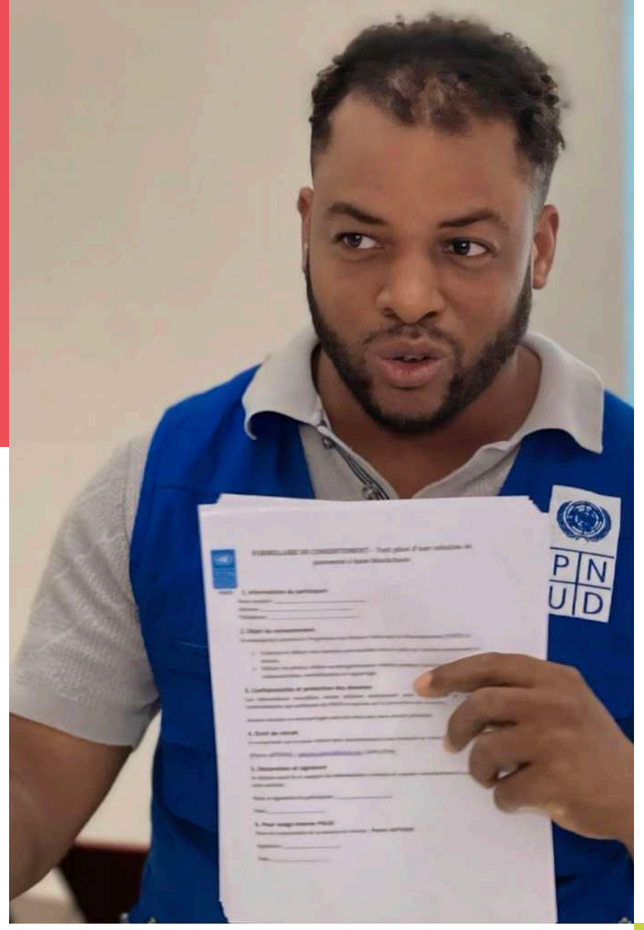


Photo credit: UNDP Haiti

What we are piloting

The Prosperity Loop pilot treats each transfer not as a one-off payout but as the start of a small economic circuit. Working with Kura and Bousol, UNDP Haiti is testing a shared digital payment system in which aid, salaries, and community funds move through digital wallets used by households, merchants, microfinance institutions (MFIs), and non-governmental organizations (NGOs). The aim is to keep money circulating longer in local markets, support small businesses and savings groups, and create a transaction record that communities and institutions can trust.

How it works

Households, merchants, and local partners receive straightforward digital wallets connected to a low-cost payment network developed by Kura and Bousol. Transfers from NGOs or MFIs are deposited directly into the wallet, and users can pay in shops or save within the same system, without cashing out immediately. Savings groups can run rotating schemes with rules encoded in the platform, so contributions and payouts are tracked automatically.

A network of point-of-sale (POS) devices, designed for low connectivity areas, handles cash-in and cash-out when needed. Each transaction is recorded in a shared ledger on the Stellar blockchain, making it harder to lose or alter records. Over time, this pattern of repeated local spending creates “prosperity loops” and gives programme partners near-real-time insight into how funds move through neighbourhood economies.

Photo credit: UNDP Haiti

Snapshot

Key users:

Low-income households, women entrepreneurs, small merchants, MFIs, NGOs, and community organizations.

Tech stack:

Kura and Bousol digital wallets, a low-connectivity POS network, and Stellar-based settlement and smart contract- powered savings and disbursement workflows.

Scale:

The pilot has been tested in Cap-Haïtien with MFIs and NGOs, and is positioned for national rollout as partners and regulatory conditions allow.

SDGs:

Liberia

Fast, transparent Daily Subsistence Allowance payments

Challenge owner: UNDP Liberia

Solution maker: Korea University / Anam145 – a blockchain and cybersecurity company developing the Anam-Wallet infrastructure

System-level challenge

Liberia's DSA payment process has made significant strides, evolving from traditional cash disbursements to a digital mobile money system. However, the current approach, due to internet connectivity, still relies on paper attendance sheets, manual data entry, and multiple approval layers, which can slow down disbursements and create challenges for real-time verification. In the context of limited banking access, uneven connectivity, and high reliance on cash alternatives, these factors make auditing more complex and leave room for inefficiencies. While the system works, advancing to a more automated, transparent, and technology-driven solution will help ensure faster payments, stronger accountability, and a better experience for youth and rural participants.

Photo credit: UNDP Liberia

What we are piloting

Building on UNDP Liberia's progress in digitizing DSA payments, this pilot introduces a next-generation system designed for speed, transparency, and inclusivity. Developed in partnership with Korea University and the Anam145 team, the solution leverages blockchain technology and smart contracts to automate disbursements and strengthen accountability. Participants can access funds through multiple channels, ensuring no one is excluded due to device or connectivity limitations. Real-time attendance verification and instant digital payments reduce delays, eliminate duplicate claims, and create an audit-ready record of every transaction. This approach not only enhances efficiency but also sets the stage for a scalable, future-proof system that aligns with UNDP's commitment to innovation and equitable service delivery.

How it works

Field teams register participants in advance and, on the day of the activity, confirm attendance digitally instead of relying on handwritten sheets. This on-site validation is followed by a second approval from authorized UNDP staff through a web dashboard. Once both steps are complete, a smart contract releases the correct DSA amount to each participant's wallet and records the transaction on a tamper-evident ledger.

Smartphone users receive funds in the AnamWallet app, people with basic phones use a USSD interface, and those without phones can redeem paper vouchers that carry a secure, QR-based key. Programme teams see consolidated data on registrations, approvals, and payments, making it easier to spot anomalies and respond to issues quickly while demonstrating compliance during audits.

Snapshot

Key users:

UNDP Liberia programme teams, DSA participants in training and workshops, and rural beneficiaries.

Tech stack:

AnamWallet mobile app, USSD and paper-voucher access, web-based admin dashboard, and a blockchain ledger that automates approvals and records payments.

Scale:

Starting as a pilot in Liberia within selected UNDP programmes, with potential to scale further and be adapted for other UN agencies and West African contexts.

SDGs:

Mexico

Fair climate finance distribution for forest stewards

Challenge owner: UNDP Better Than Cash Alliance

Solution maker: ClimaFI – a climate-fintech technology provider building digital rails for carbon and nature-based finance

System-level challenge

San Miguel Chimalapa is one of Mexico's most extensive community-managed forest territories, generating significant income from carbon-credit sales. These revenues are meant to benefit more than 6,700 landowners, yet payouts would depend on manual cash distribution without digital records or transparent tracking. Long distances, limited access to financial services, and the lack of verifiable documentation create delays, inconsistencies, and a risk of underpayment, especially for women and unbanked households. Buyers increasingly require proof that revenues are shared fairly, and communities need a trusted, transparent mechanism that strengthens confidence in climate finance and supports long-term forest stewardship.

Photo credit: UNDP Mexico

What we are piloting

UNDP's Better Than Cash Alliance and ClimaFi will be testing a transparent digital payout system that respects community decision-making. Instead of carrying large amounts of cash to remote villages, climate revenues move through a system that applies community-approved rules and credits each person's share to an individual account. People can choose to keep funds digitally or cash out through nearby agents. The pilot aims to show that climate finance can reach Indigenous landowners more fairly, safely, and transparently.

How it works

Eligible landowners are registered in a simple digital registry that links each person to their land rights and agreed revenue share. When climate payments are received from the project operator, the system calculates how much each person should receive under the community's rules and credits that amount to their account. Landowners can view their balance and transaction history via a basic phone interface or with support from trained local facilitators.

To withdraw cash, people visit authorized local agents or shops, where payments are confirmed with a personal PIN and recorded in the system. Each distribution leaves a digital trace, so community assemblies and partners can see how much has been paid overall and identify gaps, without exposing sensitive personal information. A smaller group of landowners will test the prototype first to improve usability and ensure safeguards for women and unbanked members.

Photo credit: UNDP Mexico

Snapshot

Key users:

Indigenous landowners and their households, community assemblies and authorities, climate project operator, and local payout agents and shops.

Tech stack:

ClimaFi digital payout platform using a secure ledger and rules-based disbursement, with simple mobile access and agent-based cash-out.

Scale:

Designed for replication across other indigenous climate and conservation projects in Mexico and adaptable to rural benefit-sharing schemes across Latin America.

SDGs:

Nigeria

Digital operations & carbon credits for rural solar mini-grids

Challenge owner: UNDP Nigeria

Solution maker: Cubid Protocol – a decentralized identity and payments platform

System-level challenge

Many rural communities in Nigeria are unlikely to connect to the national grid soon and still rely on expensive, unreliable generators. Solar mini-grids are a viable alternative, especially in farming areas where energy can power irrigation, milling, and cooling. Still, their long-term sustainability depends on predictable tariff collection and clear financial records. In villages where most people use cash and lack formal banking, payments are hard to track, loan repayments are uncertain, and operators struggle to convince investors and public partners that projects are financially viable.

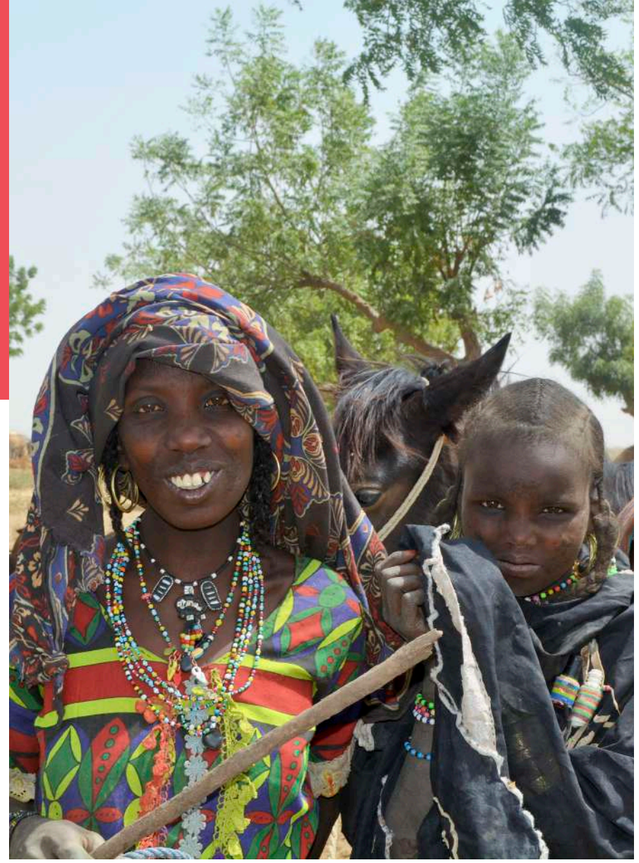


Photo credit: Bridget Jangfa/UNDP Nigeria

What we are piloting

The initiative introduces Solar Village, a digital operating platform and payment and settlement system that allows rural households to buy electricity in the same way they purchase mobile airtime. Users top up prepaid energy balances through local banks or mobile money, and payments are settled in Nigeria's digital currency (eNaira), recorded on a blockchain ledger. This creates verifiable payment histories for households and operators, strengthens the business case for mini-grids, and opens the way for future microfinance for equipment that increases agricultural productivity as well as potential mechanisms to generate and monetize carbon credits from displaced diesel use.

How it works

Households in selected villages purchase prepaid electricity through local payment channels and confirm top-ups via a lightweight web application or through a simple text-based menu for basic phones. Once payment is confirmed, Solar Village activates the household meter via an online interface or time-limited codes, allowing any user to participate regardless of device type.

Behind the scenes, each solar installation is registered in a digital inventory with a blockchain reference, allowing payments and usage data to be linked to specific equipment and creating a tamper-evident audit trail for energy flows. Verified energy-use data can then support the issuance and sale of carbon credits linked to diesel displacement, adding a supplemental revenue stream for operators. Operators and UNDP teams use a shared dashboard to view revenue, repayment patterns, and technical performance. Over time, the same system can also support credit for farming equipment and other income-generating activities that depend on reliable power.

Photo credit: Bridget Jangfa/UNDP Nigeria

Snapshot

Key users:

Rural households, solar mini-grid operators, community cooperatives, local agricultural producers, and micro-entrepreneurs.

Tech stack:

The Solar Village platform combines mobile web and USSD access, local bank and mobile money integrations, and blockchain-based settlement in Nigeria.

Scale:

Designed for replication across northern Nigeria and adaptable to rural electrification initiatives in other parts of Sub-Saharan Africa.

SDGs:

Syria

Faster cash-for-work payments at scale

Challenge owner: UNDP Syria

Solution maker: Digibank – a digital wallet and payments provider offering a crypto-to-cash network for humanitarian and remittance flows

System-level challenge

Fourteen years of conflict have fragmented Syria's economy and payment infrastructure. Cash-for-Work (CfW) programmes rely on manual cash deliveries, intermediaries, and region-specific arrangements that can delay stipends of US$50 to US$200 for weeks. Many workers have no access to bank accounts, while connectivity and regulations vary across territories. This raises operational costs for UNDP, consumes staff time that could be spent on programme quality, and leaves vulnerable households waiting for the income they depend on. Without a shared digital payment system, it is challenging to scale support efficiently or build longer-term financial inclusion.

Photo credit: UNDP Syria

What we are piloting

UNDP Syria and Digibank are piloting a digital payment system for CfW stipends using the Stellar Disbursement Platform and a stablecoin wallet. Stipends are sent in stablecoins to beneficiaries' Digibank wallets and cashed out in local currency through a vast network of liquidity points across Syrian regions. The set-up is designed to work even where banking infrastructure is weak, using simple identity checks and printed receipts when smartphones are unavailable. The pilot aims to cut payment times from weeks to days, reduce administrative overhead, and create a reusable model for future cash-based assistance.

How it works

UNDP onboards CfW participants and helps them open basic Digibank accounts. When a payment cycle is approved, UNDP uses the Stellar Disbursement Platform to send each stipend in stablecoin to the corresponding wallet. Beneficiaries see the transfer as a balance in their account and can cash out at authorized liquidity points, presenting either the app or a printed receipt linked to their ID. Each transfer and cash-out is recorded on the Stellar blockchain and in Digibank's logs, providing UNDP with real-time visibility into delivery times, success rates, and any failed attempts. Field teams monitor payments through a dashboard rather than reconciling paper records, and worker feedback on speed and ease of use informs future design and possible expansion beyond CfW.

Photo credit: Adeeb Alsayed/UNDP Syria

Snapshot

Key users:

CfW beneficiaries, UNDP Syria, and local authorities and humanitarian partners.

Tech stack:

The Stellar network and Disbursement Platform, Digibank wallet for receiving funds and generating receipts, cash-out with offline-friendly processes, and monitoring dashboards.

Scale:

The initial pilot is with a small CfW group, designed for expansion across UNDP Syria's cash programmes and replicable in similar fragile settings such as Yemen, Sudan, or South Sudan.

SDGs:

The Gambia

Digital inclusion for informal businesses

Challenge owner: UNDP The Gambia

Solution maker: Freedom Pay Wallet – a blockchain fintech, building a Stellar-based wallet for more affordable, accessible payments

System-level challenge

In The Gambia, many women and youth run microenterprises in markets, farms, and neighbourhood shops, but largely outside the formal financial system. Most lack bank accounts, collateral, or credit histories, and keep records in notebooks, which weakens their ability to access loans or withstand shocks. Financial institutions, in turn, have little reliable data to design products for this segment. Existing training and grant programmes help only at the margins because there are no simple tools that turn day-to-day business activity into usable financial histories. Without a bridge between informal commerce and formal finance, micro-entrepreneurs remain stuck in low-growth, high-risk livelihoods.

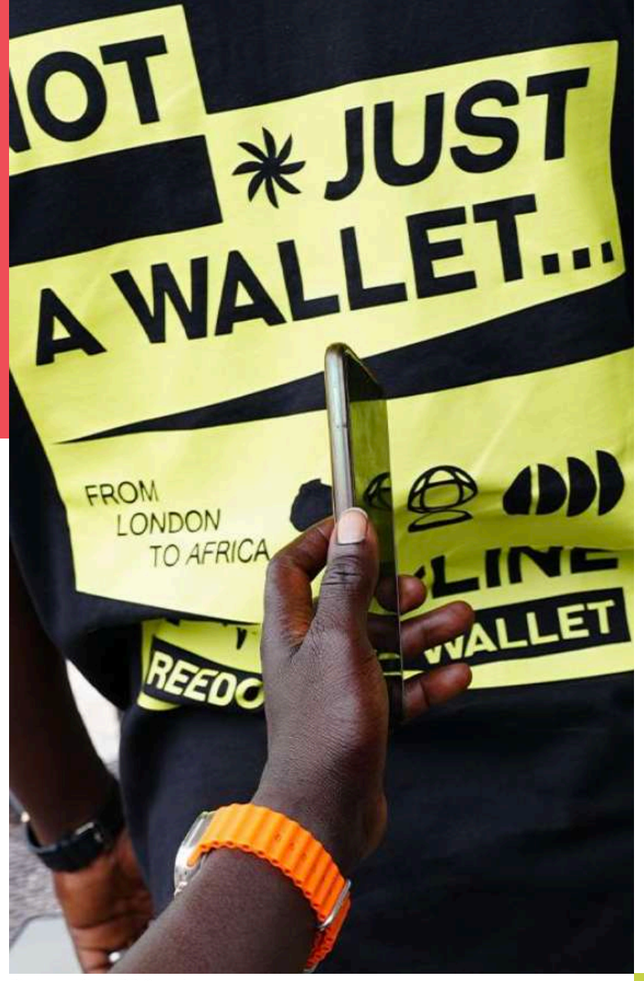


Photo credit: UNDP Gambia

What we are piloting

UNDP The Gambia and Freedom Pay Wallet are shaping a digital empowerment and financing platform that helps women and youth entrepreneurs, running informal businesses, create profiles, learn core financial skills, and access fair microfinance. The pilot tests a mobile-first wallet and bookkeeping app that turns everyday sales and expenses into simple reports and credit scores, linked to learning modules in local languages. The goal is to show how better data and skills can unlock finance for businesses currently invisible to the formal system.

How it works

Users sign up as women entrepreneurs or youth job seekers through a mobile app or web portal, with simple identity verification and optional links to mobile money accounts. They record sales and expenses in a simple wallet interface, while the system automatically generates profit and cash-flow snapshots and gradually builds a credit profile using alternative data. A learning hub offers short audio and video lessons in local languages on budgeting, bookkeeping, and digital marketing.

Freedom Pay Wallet also enables bulk stablecoin disbursements directly into users' mobile wallets, leveraging on-chain transparency and near-instant settlement. Hence, funds reach rural communities efficiently and can be tracked in real time.

Once users demonstrate consistent recordkeeping and training completion, the platform displays offers from partner MFIs, credit unions, and cooperatives, tracking disbursements and repayments using smart contracts and on-chain records. Anonymized data feeds dashboards allows UNDP and policymakers to monitor informal sector trends and design more targeted support.

Photo credit: UNDP Gambia

Snapshot

Key users:

Women and youth running informal businesses (market traders, artisans, tailors, food sellers), partner MFIs and credit unions, market associations, and UNDP and government teams.

Tech stack:

Mobile-first wallet and bookkeeping app, integrated with mobile money and card payment APIs, and a blockchain back-end that secures digital identities.

Scale:

Pilot deployment in selected urban markets and peri-urban hubs in The Gambia, with a roadmap for national rollout and future adaptation in other low-income and lower-middle-income countries.

SDGs:

Papua New Guinea

Automating blue economy loan guarantees

Challenge owner: United Nations Capital Development Fund and the Global Fund for Coral Reefs (GFCR)

Solution maker: Coala Pay – a blockchain-based automation platform for digital verification and financial flows

System-level challenge

Papua New Guinea's emerging blue-economy MSMEs, many of them women-led, struggle to access capital because banks see them as high-risk and collateral-poor. To help derisk lending, UNCDF and GFCR introduced a 70 percent portfolio guarantee with Women's Micro Bank Limited (Mama Bank), expanding credit to underserved entrepreneurs, coastal tourism operators, and other coral-positive enterprises. Guarantee claims, however, are compiled in large Excel files and submitted every six months. UNCDF then reviews and reconciles them before paying out, even when amounts are small. This slows liquidity for Mama Bank, creates extra work for both teams, and makes it harder to extend the guarantee to more MSMEs and future blue-economy portfolios.

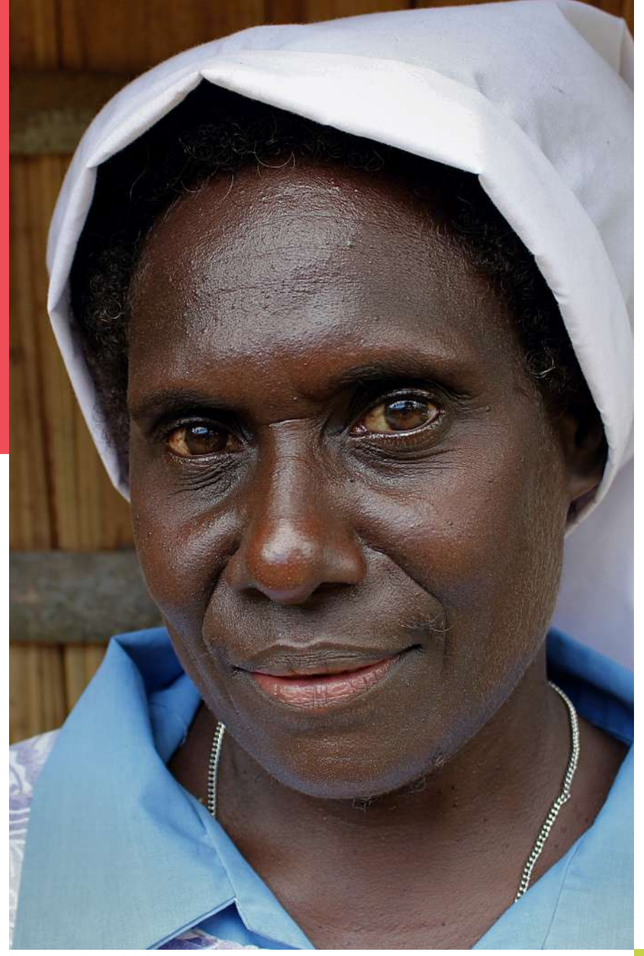


Photo credit: UNDP Papua New Guinea

What we are piloting

UNCDF and Coala Pay are testing a digitized guarantee rail that turns today's batch reconciliations into a near-real-time, rules-based workflow. Using secure data feeds from Mama Bank's reporting system, the platform checks loan records against the guarantee agreement, calculates the covered share, and triggers small, frequent reimbursements to Mama Bank in digital currency. The pilot explores whether this approach can strengthen lender liquidity, cut administrative effort, and give UNCDF an always-on view of portfolio performance.

How it works

Mama Bank continues to use its existing loan-reporting files, which are uploaded through a secure interface. A data-processing service extracts and anonymizes the relevant fields, checks each defaulted loan against the agreed guarantee rules, and flags any exceptions for manual review. For all verified records, a smart contract calculates the reimbursable amount. It initiates a payment from UNCDF's digital wallet to Mama Bank in stablecoins, which are later converted into local currency under the terms of the guarantee agreement.

Every step – upload, validation, payout – is recorded in a tamper-evident log on the blockchain, so UNCDF can see up-to-date information on claims and portfolio trends without waiting for six-monthly reconciliations. The same workflow could later be reused for other guarantee schemes, parametric insurance, or MSME portfolios in UNCDF's wider programmes.

Photo credit: UNDP Papua New Guinea

Snapshot

Key users:

Mama Bank, MSMEs, UNCDF and GFCR programme teams, and other financial institutions exploring digitized guarantees.

Tech stack:

Secure data connectors for loan files, smart contracts for rules-based validation and payout, stablecoin settlement with local cash-out, and blockchain audit log for real-time oversight.

Scale:

Pilot targets the Blue Economy Guarantee portfolio in the country, with potential expansion across UNCDF's MSME guarantee schemes and related instruments (e.g., parametric insurance, frontline worker payments).

SDGs:

Digital identity & data

Governance of public goods

CASES: 7

REGIONS AND COUNTRIES: Bosnia and Herzegovina, Georgia, Ghana, Kazakhstan Malawi, Mauritius and Seychelles

SDGS SUPPORTED:

The pilots in this area explore how trusted digital records, verifiable credentials, and privacy-aware data systems can improve public services that depend on accurate identification and coordination. They test practical ways to strengthen e-waste incentives, harmonize aid distribution, speed up diploma and skills verification, enable anonymous access to disease-prevention information, improve patient control over health data, and issue trusted education and labour credentials.

Together, they illustrate how user-friendly verification layers, shared ledgers, and structured consent models can reduce duplication, shorten processing times, and build confidence among users and institutions. The modular design of these tools creates a pathway for scaling across national digital identity systems and emerging governance frameworks.

Bosnia and Herzegovina

Verifiable digital diplomas for education mobility

Challenge owner: UNDP Bosnia and Herzegovina and University of Sarajevo Tele-Informatics Centre

Solution maker: SALA – a digital-identity venture developing verifiable credential tools for public institutions

System-level challenge

Bosnia and Herzegovina's higher education system still relies on slow, paper-based diploma verification, with procedures differing across cantons and institutions. Universities, employers, and public bodies often wait days or weeks to confirm that a credential is genuine, which increases administrative workload and puts graduates at a disadvantage in regional labour and study markets. As the country moves toward an EU-aligned digital identity, including IDDEEA's future national digital wallet, it lacks a secure way to issue and verify digital diplomas without centralizing sensitive student data. Without trusted, interoperable credentials, Bosnia and Herzegovina risks falling behind emerging European frameworks for education mobility and digital identity.

Photo credit: Marcela

What we are piloting

UNDP is supporting the University of Sarajevo Tele-Informatics Centre (UTIC) and SALA to pilot verifiable digital diplomas at two University of Sarajevo faculties – Electrical Engineering and Economics. The system issues tamper-proof digital credentials based on an open international standard and stores only a cryptographic "fingerprint" on a blockchain network. Graduates receive their diploma in a secure wallet they control and can share it with employers or universities, who can verify its authenticity in seconds via a public portal. The pilot complements paper diplomas and helps inform future legal and procedural changes.

How it works

University registrar's offices export confirmed diploma data from existing student records into the SALA platform, which generates a digital credential for each graduate. Only a short digital code (a kind of secure fingerprint of the diploma) is anchored on the Cardano blockchain. In contrast, the full diploma file stays with the university and the student. Graduates receive the credential in a demo wallet compatible with future EU digital identity standards and can share it through a QR code or secure link.

When an employer or institution scans the code, a verification portal checks the credential's proof against its on-chain fingerprint. It confirms within seconds whether the diploma is valid, revoked, expired, or altered. No personal data is written to the blockchain. Registrars retain complete lifecycle control, so any corrections or revocations they make are immediately reflected in verification results, providing a practical, privacy-aware model for future integration with IDDEEA's national digital wallet.

Snapshot

Key users:

Graduates, university registrars, employers, universities, accreditation bodies, and national digital identity authorities.

Tech stack:

The SALA platform issues verifiable digital diplomas with a blockchain-anchored audit trail and simple web and wallet interfaces.

Scale:

Pilot at two University of Sarajevo faculties, with a pathway for national rollout and integration into IDDEEA's future digital wallet.

SDGs:

Georgia

Rewarding e-waste recycling in Zugdidi

Challenge owner: UNDP Georgia

Solution maker: Creative Operations – a venture studio that uses utility tokens to incentivize social behaviours and address systemic community challenges

System-level challenge

Globally, more than 62 million tonnes of e-waste are generated each year, and only about one-fifth is formally collected and recycled. Georgia reflects this pattern, especially in underserved urban areas such as Zugdidi, where broken phones, laptops, and appliances are often stored at home or discarded with household waste. This exposes families to toxic substances and waste materials that could otherwise be recovered. A previous UNDP Accelerator Lab pilot with PRO Wasteless showed that residents are willing to dispose of e-waste responsibly. Still, they lack convenient collection points, meaningful incentives, and clear information. Municipal data and capacity remain limited, and technology retailers have few reasons to support take-back schemes.

Photo credit: UNDP Georgia

What we are piloting

Building on the previous pilot, the initiative is designing a digital platform that turns responsible e-waste disposal in Zugdidi into a rewarded and traceable practice. Residents who bring unwanted electronics to certified PRO Wasteless collection points receive eco-credit tokens they can spend at participating local shops. The pilot tests whether transparent tracking of collections and rewards can close the intention–action gap and build trust among residents, retailers, and municipal actors, while laying the groundwork for a community-governed model of e-waste management beyond Zugdidi.

How it works

The platform lists certified e-waste drop-off points (e.g., libraries, tech parks, schools, and partner retailers), making it easy for residents to find the nearest location. When someone brings an old device, staff or youth volunteers scan a QR code and record the drop-off, which is then reviewed and confirmed. Verified contributions trigger the issuing of eco-credit tokens to the resident's account, which can be redeemed for goods, discounts, or services at partner shops.

Each confirmed collection is logged on a shared digital ledger, creating a transparent record of devices received, rewards issued, and estimated environmental benefits. Over time, the same infrastructure can support a more decentralized governance model in which residents, PRO Wasteless, retailers, and municipal stakeholders jointly decide reward rules, fund allocation, and new recycling initiatives.

Photo credit: UNDP Georgia

Snapshot

Key users:

Zugdidi residents, technology retailers, PRO Wasteless, municipal authorities, and environmental NGOs.

Tech stack:

The digital platform records verified e-waste drop-offs on a shared ledger, with QR-based collection and eco-credit token balances.

Scale:

The initiative starts as a proof-of-concept in Zugdidi, with a vision to expand to other Georgian municipalities facing similar e-waste challenges.

SDGs:

Ghana

Trusted digital credentials for work and study

Challenge owner: UNDP Ghana

Solution maker: Masverse – a company that builds a public-permissioned blockchain and credentialing tools

System-level challenge

Manual checks and case-by-case email exchanges still dominate credential verification in Ghana. Graduates travel or wait weeks for institutions to stamp or resend certificates, while job seekers depend on fragile paper copies that can be lost or forged. Universities and training centres handle verification one request at a time, with no shared digital system. Meanwhile, employers have limited tools to quickly verify authenticity, which slows recruitment, increases fraud risk, and consumes scarce administrative capacity.

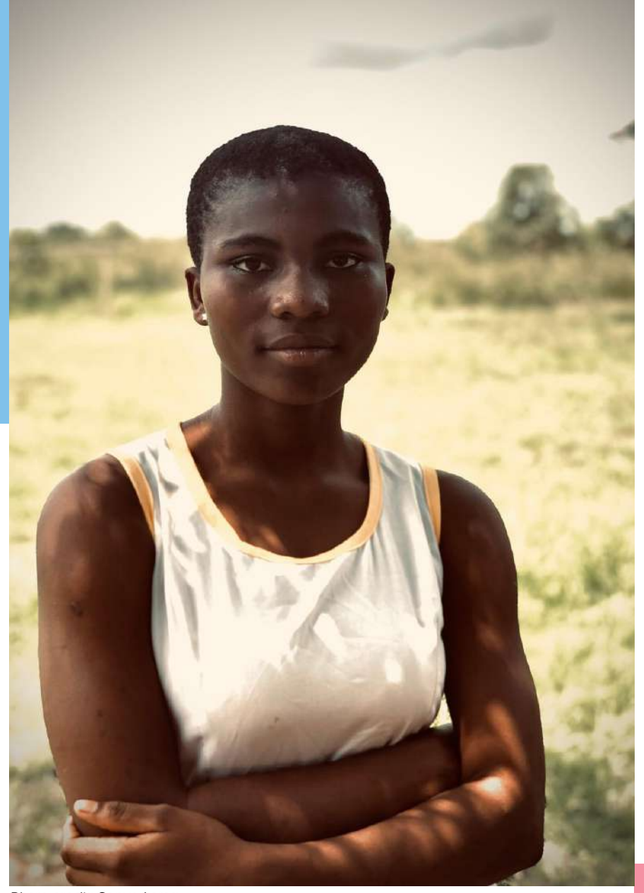


Photo credit: Senyo Letsa

What we are piloting

UNDP Ghana and Masverse are setting up a digital system that allows trusted institutions to issue and verify certificates on MasChain – a public-permissioned chain that offers a secure, scalable, and user-friendly environment. The pilot starts with the University of Ghana, which will issue digital diplomas and transcripts that graduates can share through links or QR codes. Employers and other universities can verify authenticity in seconds, while UNDP gathers evidence on usability, fraud reduction, and policy considerations to inform future national scale-up.

How it works

Authorized staff at the University of Ghana design certificate templates in BlockchainCert – a solution for issuing and verifying digital certificates. They then upload graduate data in bulk and generate official digital credentials on MasChain. Each recipient receives a notification and can download a digital certificate with a QR code and on-chain reference.

Recruiters or admissions officers scan the code or paste the reference into a public verification portal to see if the document is genuine and still valid. An admin dashboard allows issuers to revoke, reissue, or update certificates, and review simple analytics on usage and verification requests.

Photo credit: Akshaya Patra Foundation

Snapshot

Key users:

Students and job seekers, employers and recruiters, universities and institutions, professional bodies and public agencies.

Tech stack:

MasChain public-permissioned blockchain, BlockchainCert issuer and verifier portals, and cloud-hosted admin dashboard.

Scale:

The pilot begins with the University of Ghana and is designed for expansion across the country's national education and employment systems.

SDGs:

Kazakhstan

Anonymous access to life-saving health services

Challenge owner: UNDP IRH and UNDP Kazakhstan

Solution maker: Mysten Labs / Sui Foundation – core contributors to the Sui blockchain, working with partners on privacy-first digital public goods

System-level challenge

Across Eastern Europe and Central Asia, HIV prevention services do not always reach people who need them most. LGBTQ+ people, sex workers, migrants, and young people often avoid public clinics for fear of being identified or recorded in official systems. In Kazakhstan and neighbouring countries, health authorities are expanding digital health and universal coverage. Yet no channel allows safe and anonymous access to pre-exposure prophylaxis (PrEP) for HIV while preserving confidence that medicines are reaching priority groups among governments, NGOs, and donors. Procurement systems struggle to link stock, eligibility, and actual pickups in a verifiable way.

Photo credit: Marion Burn

What we are piloting

In collaboration with the Eurasian Coalition on Health, Rights, Gender and Sexual Diversity (ECOM), UNDP, Mysten Labs, and the Sui Foundation, a privacy-first PrEP access model is being tested that separates identity from service delivery. The proof of concept builds on the ECOM-led PrEP Resource Center in Almaty, Kazakhstan, and UNDP's regional procurement work. It simulates an end-to-end flow: anonymous onboarding after an HIV-negative test, issuing digital proof of eligibility, and confirming PrEP pickup, without exposing personal data.

How it works

People eligible for PrEP are onboarded through trusted NGOs that confirm that an HIV-negative test has been completed using a simple interface. Instead of collecting names or phone numbers, the person creates a pseudonymous digital wallet that holds a privacy-preserving eligibility pass. Test results are encrypted and stored off-chain, and only authorized clinical staff can view them when needed.

Once eligibility is confirmed, a non-transferable token (a private digital pass) is issued on the Sui blockchain that proves the person can receive PrEP for a defined period without revealing their identity. With this pass, the person can request medicine at participating NGOs or pharmacies, where staff scan a QR code to verify eligibility and record proof of pickup. Dashboards show only aggregated counts of eligible users and completed deliveries, so UNDP, health authorities, and donors can align procurement with real demand while keeping individuals fully anonymous.

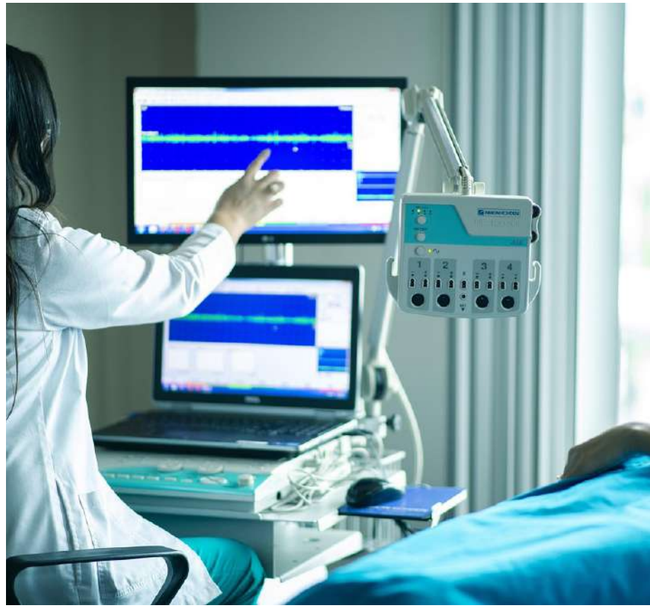


Photo credit: Fernando Zhiminaicela

Snapshot

Key users:

At-risk individuals, community NGOs, clinic and pharmacy staff, UNDP, and national HIV programme teams.

Tech stack:

Sui blockchain for digital passes, privacy-preserving wallets, encrypted off-chain storage, and simple monitoring dashboards.

Scale:

A sandbox in Kazakhstan, with potential pilots in Tajikistan, Armenia, and across Eastern Europe and Central Asia, as well as globally.

SDGs:

Malawi

Data integrity for inclusive aid distribution

Challenge owner: UNDP Malawi

Solution maker: Genius Tags – a digital verification platform strengthening transparency and coordination in humanitarian aid delivery

System-level challenge

Malawi's humanitarian aid system is fragmented, with multiple beneficiary lists running in parallel across national systems, NGOs, and community structures. Verification is largely manual, creating duplication, exclusion, and delays before vulnerable households receive support – especially during climate shocks, when speed and fairness are critical. National systems such as the Disaster Risk Management Information System (DRMIS) and the Malawi Social Registry (MSR) were set up to harmonize data. Yet, many actors still rely on separate databases and parallel lists. As a result, some communities receive overlapping assistance. In contrast, others are left out entirely, weakening trust in aid systems and making it harder to use data for more inclusive social protection.

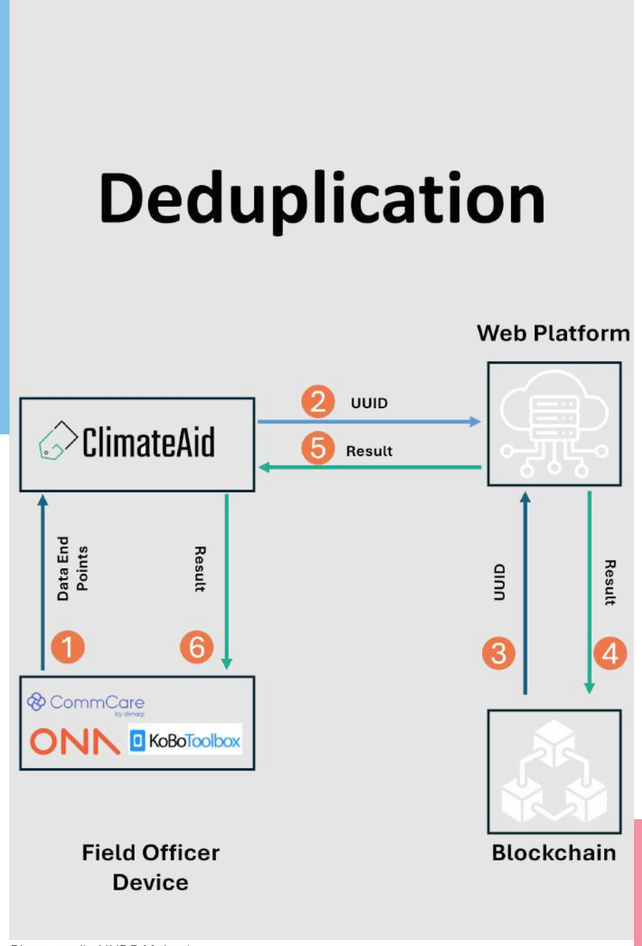


Photo credit: UNDP Malawi

What we are piloting

The initiative introduces a shared, blockchain-supported digital system for registering, verifying, and supporting crisis-affected households. Using privacy-preserving deduplication and digital aid distribution, partners can check whether a household is already receiving support and coordinate assistance accordingly. The pilot aims to show how a tamper-evident verification layer can help district councils and national actors reduce duplication, close coverage gaps, and deliver more timely and equitable support – while also providing trusted proof-of-delivery data and creating a bridge to national systems and to broader social protection programmes.

How it works

Field teams register households using forms agreed with government and NGO partners. Records are converted into secure digital codes and processed through Genius Tags' deduplication engine, which compares entries across participating agencies without exposing personal data. Verified households receive a QR code they can present at distribution points to collect cash, food, or other in-kind support.

Each transaction is logged in real time in a shared digital record, giving partners a consolidated view of who has been reached, where, and with what assistance. Dashboards show deduplicated lists, distribution flows, and vendor activity so overlaps or blind spots can be identified quickly. The system is built for rural conditions: data can be captured offline and synchronized once connectivity is available, and it can operate as a standalone tool or connect to national registries when agreements are in place.

Snapshot

Key users:

Department of Disaster Management Affairs (DoDMA), district councils, NGOs/CSOs, other humanitarian actors, and local communities.

Tech stack:

The Genius Tags platform provides privacy-preserving deduplication, QR code-based beneficiary IDs, and a shared transaction log.

Scale:

Pilots launched in selected districts – Phalombe, Chikwawa, and Mzuzu City – with a vision to scale across Malawi and adapt the model to other southern African countries.

SDGs:

Mauritius and Seychelles

Patient consent over health data

Challenge owner: UNDP Mauritius and Seychelles
Solution maker: Lingnan University – research partner helping design a secure consent governance layer and blockchain-based audit tools

System-level challenge

Mauritius is moving toward a national digital health system, but the way sensitive health information is shared has not kept pace. Today, institutions such as the Ministry of Social Security request access to patient records through a manual, committee-based process at the Ministry of Health, and patients are not routinely notified when their data is used. Most systems still lack tools to manage consent or show patients when their data is used. This creates legal risks under the Data Protection Act, extra work for health providers and medical record teams, and growing mistrust among patients who feel they have little control over their health data.

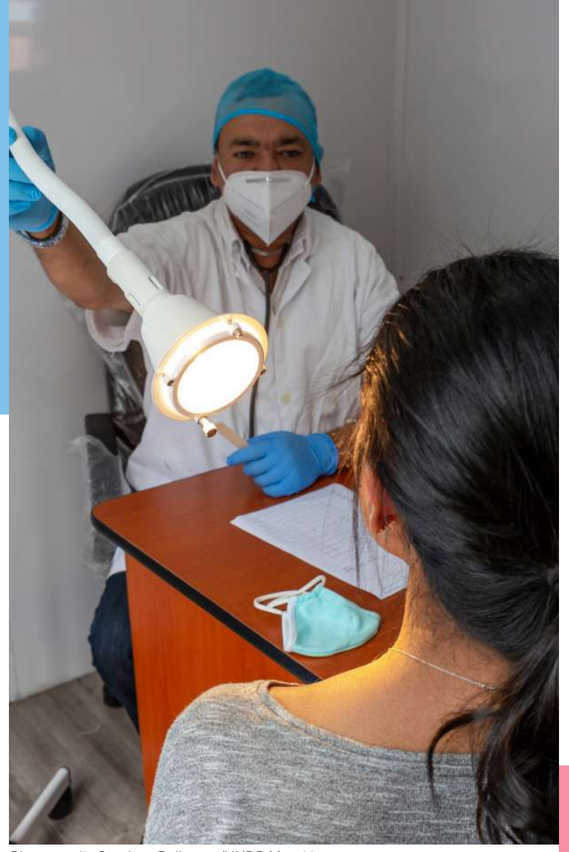


Photo credit: Stephae Bellarose/UNDP Mauritius

What we are piloting

The Patient Consent Management Pilot introduces a consent and audit mechanism – mediated by regulators – that makes data sharing between health facilities and the Ministry of Social Security more transparent and accountable. It digitizes the current committee-based approval process at the Ministry of Health, enabling requests to be submitted electronically, reviewed in a structured manner, and securely logged. Patients receive notifications and can see who accessed their data through the National eHealth Portal, laying the groundwork for broader patient-controlled consent in the future.

How it works

The solution functions as a modular consent and governance layer inside the national eHealth environment. Standard interfaces connect it to existing systems – such as the Patient Administration, Electronic Health Records, and the Patient Portal – so clinicians continue using familiar workflows. At the same time, sensitive access requests follow a formal approval process.

When the Ministry of Social Security needs information, it submits a digital request that the Ministry of Health Committee reviews. Approved access is recorded on a secure ledger (using permissioned blockchain) along with key metadata. Through the eHealth Portal, patients can receive notifications, log in to see which institution accessed their data, and for what purpose. They can manage or withdraw consent in line with their rights under the Data Protection Act. The resulting audit record gives regulators and patients clear evidence of how sensitive health information is used across the system.

Snapshot

Key users:

Elderly patients and caregivers, the Ministry of Social Security, the Ministry of Health and Wellness committee, the Data Protection Office, and national digital health teams.

Tech stack:

A permissioned blockchain ledger for consent and access logs, and integration with the national eHealth Portal and core health information systems.

Scale:

Designed for initial implementation with a defined pilot population and participating government institutions, with a path to national rollout.

SDGs:

Climate finance & environmental integrity

CASES: 10

REGIONS AND COUNTRIES: Africa, Bangladesh, Bosnia and Herzegovina, Burkina Faso, India, Latin America and the Caribbean, Rwanda, Sierra Leone, Tanzania, Uruguay

SDGS SUPPORTED:

Across these pilots, governments, communities, and technical partners are testing digital systems that make climate finance more transparent, reliable, and accessible for vulnerable groups, local projects, and national institutions. The initiatives range from traceable adaptation disbursements, outcome-linked forest finance, and national carbon registries to renewable energy certification, performance-based funding for weather data, community carbon programmes for farmers, tokenized nature assets, and climate risk safety nets for rural women. Despite operating in diverse contexts, they address shared barriers, including slow manual processes, unclear reporting, limited verification, high transaction costs, and weak links between local action and global markets.

Africa

Results-based climate finance for weather data sharing

Challenge owner: UNDP Office of Procurement and the Systematic Observations Financing Facility

Solution maker: Vaka Consulting and ClimaFi – Vaka Consulting designs and implements decentralized technology solutions, and ClimaFi provides the data infrastructure and digital rails

System-level challenge

Many African Least Developed Countries (LDCs) and Small Island Developing States struggle to maintain weather stations and share consistent data with the Global Basic Observing Network (GBON). National meteorological services often rely on aging infrastructure and face high operating costs and unpredictable funding. Funders such as the Systematic Observations Financing Facility (SOFF) need reliable performance evidence before committing larger investments, yet current verification is slow and expensive. This creates a loop in which services cannot sustain stations, donors cannot see clear evidence of results, and communities remain exposed to climate hazards because early warning systems lack high-quality observational data.

Photo credit: Joyous Begisen/UNDP Kenya

What we are piloting

UNDP's Office of Procurement and Vaka Consulting/ClimaFi are creating a "data for finance" mechanism that links verified GBON-compliant observations to predictable climate finance. In one African pilot country, meteorological services will be paid for producing and sharing usable data, rather than solely applying for project grants. An automated engine checks data quality and quantity, and each batch that passes generates a digital receipt that can trigger payments from facilities such as SOFF or other donors under agreed rules.

How it works

Observations from national stations are routed through a verification engine aligned with GBON and the World Meteorological Organization's System (WIS2). The engine checks completeness, timeliness, and basic data-quality thresholds, with optional human review when anomalies appear. Only data that meets agreed standards continues through the process.

For each verified batch, the system issues a "Data Receipt Token" that contains a secure digital stamp and key metadata. Climate finance providers deposit funds into a smart contract escrow. When new "Data Receipt Tokens" arrive, the contract releases payments to the national meteorological service according to pre-set rules, so donors pay only for validated, usable observations and services gain a predictable revenue stream.

Snapshot

Key users:

National meteorological and hydrological services, SOFF, WMO, donor agencies, ministries of finance and environment, and climate-vulnerable communities.

Tech stack:

Vaka Consulting/ClimaFi platform with GBON and WIS2-based data-quality checks, a smart-contract escrow, and a Cardano-based blockchain ledger.

Scale:

Designed for replication across African Least Developed Countries, Small Island Developing States, and other GBON-priority countries.

SDGs:

Bangladesh

Transparent climate adaptation disbursements

Challenge owner: UNDP Bangladesh

Solution maker: Cladfy – a tech company that builds digital rails for traceable public and development finance

Photo credit: UNDP Bangladesh

System-level challenge

Bangladesh is one of the world's most climate-vulnerable countries, with millions of rural households exposed to natural disasters. While programmes such as the Local Government Initiative on Climate Change (LoGIC) channel loans and grants through local cooperatives and Union Parishads to support community-level adaptation, processes still rely heavily on manual procedures and long approval chains. Funds often pass through several intermediaries before reaching households, leading to common delays and uneven transparency. Local authorities also lack simple tools to confirm eligibility, track disbursements, or link payments to climate resilience outcomes, which complicates reporting and reduces accountability.

What we are piloting

UNDP Bangladesh and Cladfy are testing a digital model to help climate-vulnerable households access support from the LoGIC Community Resilience Fund (CRF) and related adaptation grants. The solution introduces verifiable digital identities and automated checks against LoGIC eligibility criteria. The objective is to reduce delays and leakage, make it easier for local authorities to target and follow payments, and create a scalable structure for community-level climate finance that can expand across districts without disrupting existing systems or financial service providers.

How it works

Households are first enrolled with a digital identity that brings together their national ID, cooperative membership, phone number, mobile wallet details, and LoGIC eligibility status. Local committees and Union Parishads then review applications through Cladfy's platform and approve support, which is sent directly to recipients through mobile financial services such as bKash. Beneficiaries access funds on their phones without travelling or relying on cash intermediaries.

Behind the scenes, the platform creates a tamper-evident audit trail for each payment, recording approvals, amounts, and timing. Dashboards give UNDP and government partners an up-to-date view of who has been reached and how disbursements are progressing, helping climate finance providers adjust programmes faster to the needs of vulnerable households.

Photo credit: Fahad Kaizer/UNDP Bangladesh

Snapshot

Key users:

Climate-vulnerable households, cooperative committees, Union Parishads, and LoGIC field teams.

Tech stack:

The Cladfy platform provides a blockchain-based audit layer connected to existing financial services and programme dashboards.

Scale:

Positioned for rollout across nine LoGIC districts, and adaptable to other climate finance and social protection schemes in Bangladesh.

SDGs:

Bosnia and Herzegovina

Renewable energy certificates for CBAM compliance

Challenge owner: UNDP Bosnia and Herzegovina

Solution maker: Fuel Switch – a clean energy technology company providing digital registries and markets for renewable energy certificates

Photo credit: UNDP Bosnia and Herzegovina

System-level challenge

Bosnia and Herzegovina is a major electricity exporter to neighbouring countries, including European Union (EU) member states. From 2026, the EU's Carbon Border Adjustment Mechanism (CBAM) will tax imported electricity whose low-carbon origin cannot be reliably demonstrated. Although the country generates substantial hydropower and a growing share of solar generation, all electricity is fed into the same mixed grid, and there is currently no internationally recognized way to show whether exported power is renewable. Without reliable certification, exports could be treated as carbon-intensive by default, exposing utilities and private producers to new costs and threatening jobs, public revenue, and progress on the green transition.

What we are piloting

UNDP and Fuel Switch are piloting a digital registry and marketplace for International Renewable Energy Certificates (I-REC(E)s). The system provides verifiable proof of renewable generation even when electricity runs through a mixed grid, giving exporters CBAM-ready evidence of origin. The pilot tests whether a blockchain-secured registry can help companies maintain access to EU markets, support national green transition goals, and offer regulators a practical model for a future national certification system.

How it works

Accredited renewable generators connect to the Fuel Switch platform via a secure API that receives measured electricity output from grid operators. For every verified megawatt-hour of green electricity, the system issues a unique I-REC(E) under the global standard. It records it in a blockchain-based, secure ledger so it cannot be altered or double-counted. Producers, traders, and large buyers can list, transfer, and retire certificates through an online interface.

When certificates are bundled with an export contract and retired, the platform generates documentation that links the shipment to its renewable origin. All key lifecycle events form an immutable audit trail that exporters and regulators can use for CBAM-aligned compliance reports for EU partners and the energy community.

Photo credit: UNDP Bosnia and Herzegovina

Snapshot

Key users:

State-owned utilities, private renewable energy producers, electricity traders, energy regulators.

Tech stack:

Fuel Switch digital registry and marketplace with API integration to grid metering systems and a blockchain-based ledger (Energy Web / Polygon).

Scale:

Designed for nationwide rollout across all renewable producers in Bosnia and Herzegovina, and as a regional blueprint for Western Balkan countries.

SDGs:

Burkina Faso

Climate finance for community forests

Challenge owner: UNDP Burkina Faso

Solution maker: Atlas Ledger – a platform that manages impact-linked climate donations using smart contracts and transparent tracking

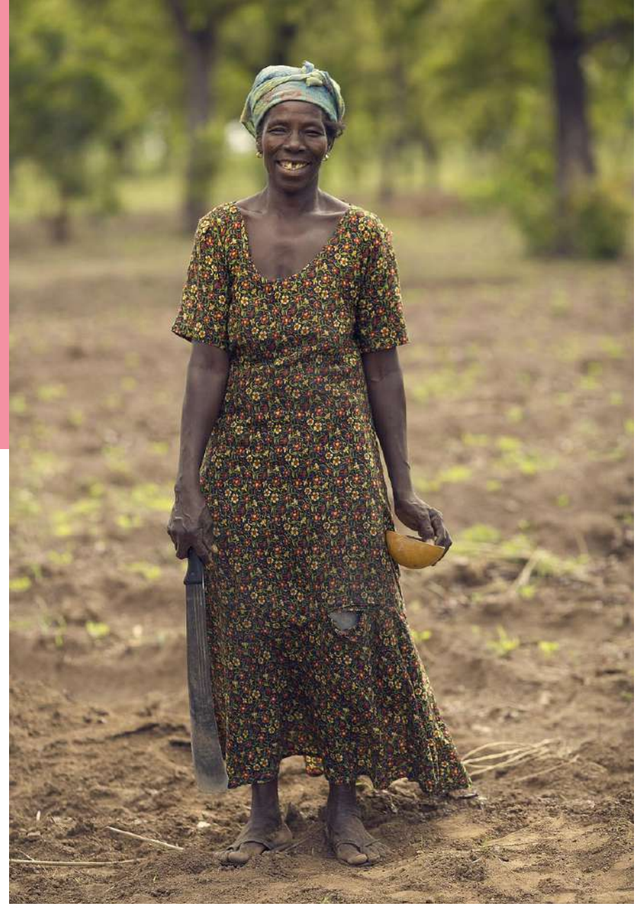


Photo credit: Pochogh

System-level challenge

Communities across Burkina Faso are seeing once-productive land turn into dry, degraded terrain, with farmers, women's cooperatives, and youth groups losing their primary source of income as soil fertility and vegetation decline. Past reforestation and soil conservation projects have helped in specific locations, but they are often short-term, underfunded, and hard to monitor. Traditional crowdfunding for tree planting rarely provides donors with verifiable proof of what was planted, where, or whether the trees survived, making it harder to attract larger-scale climate finance and slowing restoration efforts.

What we are piloting

UNDP Burkina Faso and Atlas Ledger are testing a climate finance platform that helps small, community-led forestry projects access funding and generate credible environmental proof. The pilot focuses on planting 10,000 trees across ten regions, working with youth groups, women's cooperatives, and local NGOs that restore degraded land. The aim is to move beyond one-off tree planting initiatives and establish a model in which each project can demonstrate to donors and buyers the amount of carbon it is expected to absorb, the survival rate of the trees over time, and the additional benefits delivered to communities.

How it works

Local project leads use Atlas Ledger to describe their forestry project, including planting locations, species selection, and the number of trees planned. A guided assessment helps them estimate future carbon sequestration and co-benefits such as soil restoration or income generation for community groups. Once information is reviewed, a digital certificate is created that summarizes the expected impact and can be offered to donors and companies as a clear record of what their contribution supports. The project is then published on the platform so individual donors and companies can contribute funds to support it, with a clear description of what their contributions help achieve.

Funds raised are not paid out all at once; instead, they are held and released in stages when key milestones are verified – for example, the number of trees planted or survival rates confirmed through field checks or imagery. All major milestones and certificates are recorded in a shared digital record, providing donors, UNDP, and national authorities with a transparent overview of project progress.

Photo credit: Ajigah Harrison

Snapshot

Key users:

Youth and women groups running forestry projects, local NGOs, the Ministry of Environment, individual donors, and companies seeking credible climate contributions.

Tech stack:

The Atlas Ledger digital platform issues blockchain-based impact certificates with milestone-linked disbursements and progress dashboards.

Scale:

The pilot covers 10,000 trees across ten regions and is designed to inform a larger reforestation programme targeting over 100,000 trees in expanded areas.

SDGs:

India

Carbon income for smallholder rice farmers

Challenge owner: UNDP India

Solution maker: NovaChat (DUCKY Solutions Ltd.) – a technology partner that develops digital infrastructure and software tools for climate action

System-level challenge

Indigenous communities primarily inhabit the Mandla district of Madhya Pradesh and rely on rain-fed agriculture, with smallholder rice farmers highly exposed to erratic monsoons and drought. Water-intensive cultivation methods keep yields and incomes fragile and generate a significant methane footprint. Yet farmers have almost no way to measure, verify, or monetize any emission reductions. Complex monitoring and verification requirements, along with high transaction costs, effectively shut them out of carbon markets. NGOs are promoting climate-resilient practices, but without a trusted, low-cost way to aggregate results, these improvements do not translate into predictable carbon revenue for rural households.

Photo credit: UNDP India

What we are piloting

This initiative creates a community-driven carbon programme for small rice farmers in Mandla. The pilot groups many small plots into a single programme, uses digital tools to document climate-smart practices, and converts verified emission reductions into tradable credits. Revenue is shared back with farmers through local institutions, creating a repeatable template for farmer-friendly carbon finance in similar districts.

How it works

Local committees, NGOs, and project partners register participating farmers and fields through a simple web and mobile interface. Field workers capture basic plot data and evidence of practices using low-literacy forms, photos, or sensor readings, checked by community validators.

Once the data passes quality checks, the platform aggregates results and issues digital carbon credits on a blockchain. Each credit includes a traceable ID and proof of retirement that buyers can verify. When credits are sold, the system calculates each farmer's share and routes payments through local payout channels, with options for cash-out or savings products.

Photo credit: UNDP India

Snapshot

Key users:

Smallholder rice farmers, local NGOs and community committees, carbon credit buyers, and public sector partners.

Tech stack:

Custom Avalanche Subnet blockchain, smart contracts for credit tracking and revenue sharing, and simple web/mobile apps for farmer onboarding, validation, and registry integration.

Scale:

Designed to expand beyond pilot villages across Mandla and into other climate-vulnerable rice-growing regions in India.

SDGs:

Latin America and the Caribbean

Climate safety nets for rural women

Challenge owner: UNDP Latin America and the Caribbean Regional Bureau and UNDP Dominican Republic

Solution maker: Dr. Saite Lu, University of Cambridge – Academic economist providing applied macro-fiscal forecasting and public financial management

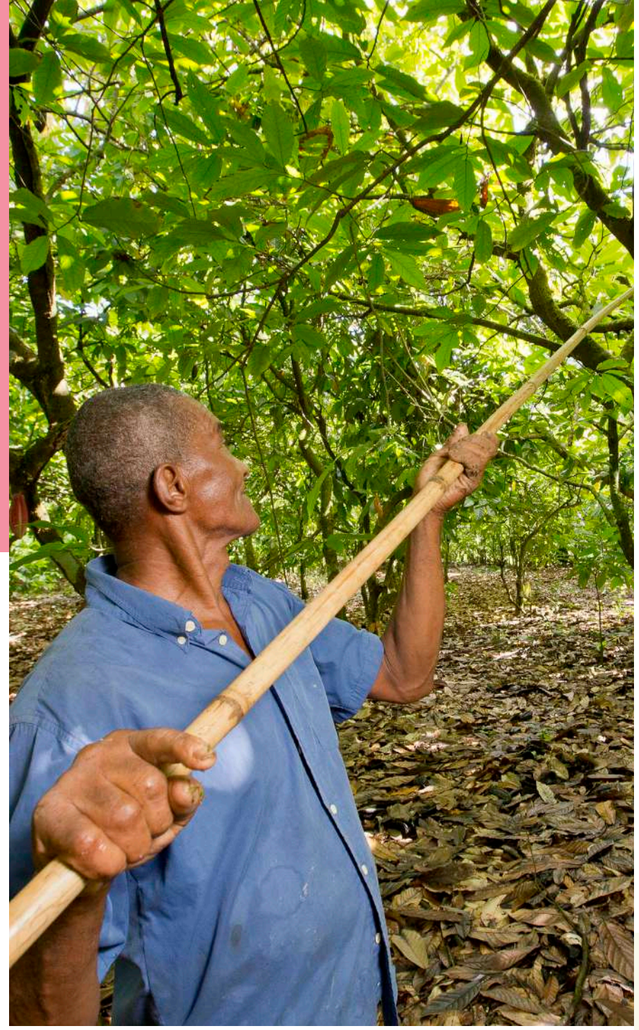


Photo credit: UNDP Dominican Republic

System-level challenge

Women-led micro, small, and medium-sized enterprises (MSMEs) and smallholder farmers in the Dominican Republic have few ways to protect their livelihoods against climate shocks. Many women lack land titles or collateral, often work in lower-margin roles such as processing and retail, and have limited access to digital tools, making their incomes vulnerable to floods, storms, droughts, and other climate shocks. Existing agricultural insurance covers only a narrow part of the sector and rarely reaches women. Microfinance institutions offer credit but almost no climate-related protection, leaving households and lenders exposed when production drops, and recovery is slow.

What we are piloting

The initiative is piloting a climate-risk finance model that bundles three tools for rural women and smallholders: parametric microinsurance, recovery loans, and simple savings products, delivered through a simple mobile app supported by blockchain technology. Working through microfinance partners and producer cooperatives, the pilot links rapid, data-triggered payouts with follow-on credit and savings. The aim is to help households prepare for shocks and access funds quickly, allowing them to rebuild without sliding deeper into debt or poverty.

How it works

The pilot uses parametric insurance that pays out when weather or climate indicators (e.g., rainfall or wind speed in a specific area) exceed agreed thresholds. These triggers are monitored through satellite and climate data. When a shock is confirmed, smart contract rules calculate the payout and release funds to client accounts with minimal manual processing.

Linked microcredit products provide additional working capital for recovery, while savings accounts help households build small buffers in regular seasons. A blockchain ledger records key fund movements between donors, microfinance institutions, and client accounts, creating an auditable trail that can be shared with regulators and partners. Local institutions design and distribute the products through existing rural branches and cooperatives, so users interact with familiar channels while the automation runs in the background.

During implementation, the initiative follows a strategic partnership approach that engages national institutions, rural cooperatives, and private-sector financial and insurance actors to strengthen learning, local ownership, and the conditions for future scalability.

Snapshot

Key users:

Women-led MSMEs, smallholder farmers, MFIs, cooperatives, and regulators.

Tech stack:

A parametric insurance engine using satellite and climate data, smart contracts on a shared ledger to automate payouts and trace flows, and straightforward digital wallets or accounts for clients.

Scale:

Designed as a blueprint that can be expanded to other provinces, crops, and vulnerable groups in the Dominican Republic.

SDGs:

Rwanda

Resilient funding tools for gorilla conservation

Challenge owner: UNDP Rwanda

Solution maker: Dr. Saite Lu, University of Cambridge – Academic economist providing applied macro-fiscal forecasting and public financial management expertise

Photo credit: UNDP Rwanda

System-level challenge

Communities across the Volcanoes National Park are at the centre of protecting Rwanda's mountain gorillas, and their livelihoods depend heavily on tourism. When visitor numbers collapse – as during the COVID-19 pandemic – household incomes and community funds drop sharply, exposing how fragile a single revenue source can be. Across Africa, conservation funding struggles to keep up with threats such as habitat loss and climate change, while governments face competing priorities. Without more diverse and reliable income streams, both community wellbeing and hard-won gorilla conservation gains remain vulnerable to external shocks.

What we are piloting

This initiative is designing a three-part digital ecosystem that introduces new forms of support beyond physical tourism. It combines a blockchain-based collection of gorilla-linked digital assets, a mobile learning platform on conservation, and an offline virtual reality (VR) experience of the Volcanoes National Park. Together, these tools aim to connect global supporters and learners with local communities, creating steady, transparent support for gorilla conservation and community projects.

How it works

Each digital asset is linked to an individually identified gorilla and its associated conservation story, recorded on a public blockchain, so ownership and revenue-sharing are transparent. Proceeds are directed to Rwanda's Tourism Revenue Share Programme and selected community projects in accordance with predetermined rules, creating a traceable link between global contributions and local benefits.

A mobile learning app offers game-like lessons on gorillas, rewarding players for progress and, over time, connecting in-app achievements to real-world campaigns. In parallel, an offline VR experience lets users explore Volcanoes National Park. The VR content can be used in schools, community centres, and partner institutions, with local guides and creators contributing stories and footage, which adds income and ensures that community voices shape how conservation is presented.

Photo credit: UNDP Rwanda

Snapshot

Key users:

Local communities, conservation supporters, learners and schools, and education partners.

Tech stack:

Gorilla-linked digital assets on a public blockchain, a mobile learning app, and offline VR experiences supported by simple tools to track engagement and funding flows.

Scale:

Initial focus on Kinigi and Volcanoes National Park, with potential expansion to other protected areas in Rwanda and similar conservation sites in Africa.

SDGs:

Sierra Leone

A public registry for carbon markets

Challenge owner: UNDP Sierra Leone

Solution maker: NovaChat (DUCKY Solutions Ltd.) – a technology partner that develops digital infrastructure and software tools designed for climate action

System-level challenge

Sierra Leone has become a destination for voluntary carbon projects. Still, information about who operates where, what is being claimed, and how benefits are shared is scattered across contracts and overseas registries. Foreign developers lead many projects and are not consistently reported to national authorities, making it challenging to align activities with climate priorities or ensure communities receive an appropriate share of funding. Without a central registry and apparent oversight, the government cannot easily prevent double-counting or misreporting, and communities risk deriving little value from projects on their land.

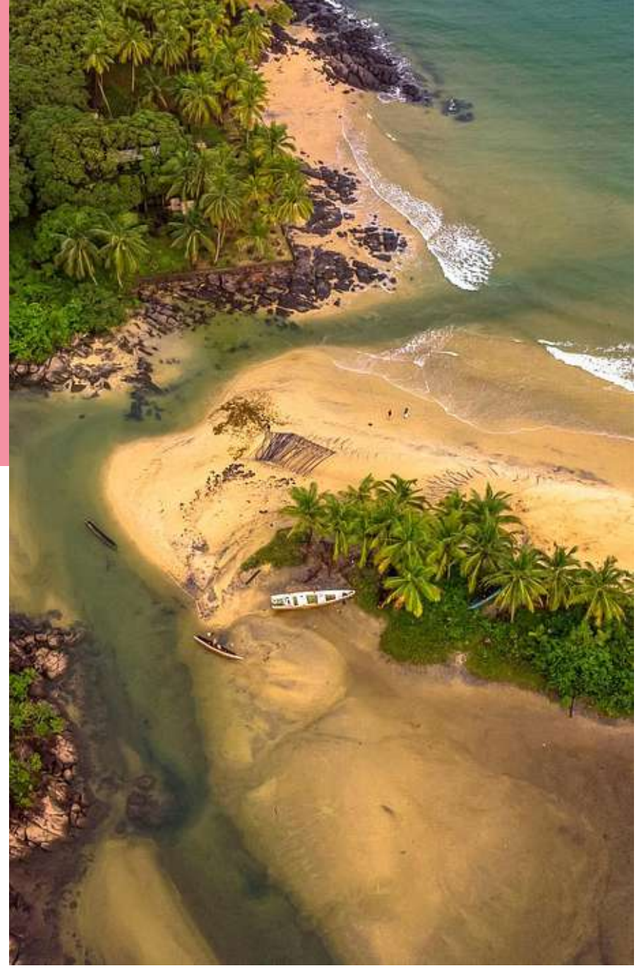


Photo credit: Muhammad Shah Jaman

What we are piloting

UNDP Sierra Leone and NovaChat are introducing a national carbon registry that records all projects in a single, publicly accessible system. Instead of credits existing only on external platforms, key information is stored on a national ledger that supports inventories, taxation, and benefit-sharing rules. From this base, the registry can include both internationally certified credits and nationally issued units, providing authorities with a consolidated view of market activity and offering developers and buyers a trusted reference point.

How it works

The platform requires carbon projects to register basic information, including geographic location, mitigation activity type, name of the carbon developer, expected volume of ITMOs (internationally transferable mitigation outcomes), and community partners. For projects certified under existing international standards, the registry records their status and identifiers, so national authorities can see what has been issued, where activities take place, and how they relate to national plans.

For nationally verified projects, a multi-agency committee reviews monitoring and reporting data and then authorizes the issuance of digital credits on a blockchain-based ledger. Each issuance, transfer, and retirement is logged, and when a credit is used, it is marked as retired with a permanent receipt. This helps prevent double-counting, supports national reporting on climate targets, and gives communities and buyers a transparent view of how credits are generated and used over time.

Photo credit: Muhammad Shah Jaman

Snapshot

Key users:

Ministry of Environment and Climate Change, Forestry Commission, Environmental Protection Agency, and private sector project developers.

Tech stack:

A national carbon registry platform with role-based web dashboards and a blockchain ledger that records project data, credit issuance, transfers, and retirement.

Scale:

Designed for nationwide adoption as the official registry for all carbon projects in Sierra Leone, with potential replication across West African markets.

SDGs:

Tanzania

National carbon credit registry and marketplace

Challenge owner: UNDP Tanzania

Solution maker: Thallo – a climate finance platform building digital infrastructure for trusted carbon markets

System-level challenge

Tanzania has ambitious climate goals and a new legal framework for carbon markets through the 2022 Environmental Management (Control and Management of Carbon Trading) Regulations and their 2023 amendments. These created a National Carbon Registry under the Vice President's Office, coordinated by the National Carbon Monitoring Centre (NCMC). While a significant milestone, the registry is still not fully operationalized and lacks advanced features for full traceability and market confidence. Gaps in data systems and oversight create risks of double-counting and misreporting, and investors and communities struggle to see whether climate finance truly reaches local projects. At the same time, Tanzania continues to experience significant forest loss, driving high CO_2 emissions.

Photo credit: UNDP Tanzania

What we are piloting

UNDP Tanzania and Thallo are designing the country's blockchain-enabled national carbon credit registry and marketplace as part of its digital public infrastructure. The platform will consolidate the issuance, trading, and retirement of credits in a transparent, auditable system that supports the implementation of Tanzania's Nationally Determined Contributions. It will enable government agencies to issue and retire credits securely, allow project developers to bring verified credits to market, and give buyers and communities clearer insight into how climate benefits and revenues are shared.

How it works

The solution combines a web-based dashboard, Thallo's platform services, and a proof-of-stake (PoS) blockchain layer. A central, government-led registry built on existing systems allows authorized administrators to issue, list, and retire credits in one place, with each action recorded in a tamper-evident ledger. Project developers register eligible activities, and once approved, credits are created and listed in an integrated marketplace where buyers can search by project type or SDG alignment.

Monitoring tools feed registry activity into dashboards and downloadable reports, allowing the government and UNDP to track market volumes and fundamental benefit-sharing indicators in near real time. Over time, this infrastructure is intended to demonstrate readiness for international cooperation under the Paris Agreement and to channel more reliable climate finance to local projects and communities.

Photo credit: UNDP Tanzania

Snapshot

Key users:

Government, project developers, buyers and investors, and local communities, especially women and youth in project regions.

Tech stack:

The Thallo platform and APIs connect to a proof-of-stake blockchain registry with an integrated marketplace.

Scale:

The pilot aims to issue around 50,000 credits and retire 10,000 in year one, as a basis for national-scale up and replication in other African countries.

SDGs:

Uruguay

Nature assets for biodiversity finance

Challenge owner: UNDP Uruguay

Solution maker: Origen Latam – a Uruguay-based nature-finance startup that creates tokenized nature assets to channel private capital into ecosystem conservation and restoration

System-level challenge

Uruguay's productive ecosystems are closely linked to agriculture and rural livelihoods. With around 95 percent of land privately owned and most used for production, conservation largely depends on how landowners manage their fields and forests. Yet biodiversity projects struggle to attract private finance: outcomes are hard to measure, risks appear high, and few finance-ready mechanisms translate restored ecosystems into investable assets. As a result, the country faces a biodiversity finance gap and lacks practical tools to connect its National Biodiversity Strategy to everyday investment decisions on private land.

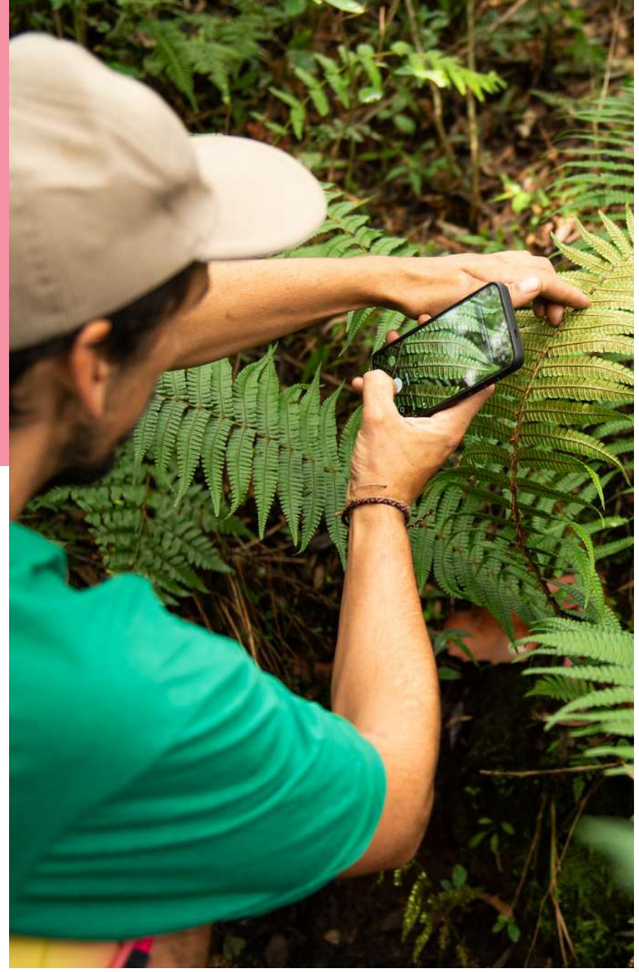


Photo credit: Origen Latam

What we are piloting

UNDP Uruguay and Origen Latam are testing Equilibrium®, a tokenized nature-asset model that turns verified ecosystem regeneration into investable digital units. Working with the Municipality of Canelones, landowners, and scientific partners, the pilot designates specific project areas and issues nature assets linked to indicators concerning fauna, flora, soil health, and water regulation. The goal is to show how companies can finance conservation in productive landscapes through transparent, standardized contracts, while giving public institutions better visibility over where nature finance is flowing and what it delivers.

How it works

Landowners and project developers register a site on the Origen platform with agreed ecological baselines, plans, and monitoring indicators. Using a technical protocol co-designed with researchers and verification partners, regeneration activities and field data are reviewed and converted into digital nature units and fungible Equilibrium® tokens that aggregate ecological performance.

Companies purchase Equilibrium® tokens to support defined projects and receive auditable environmental claims for their sustainability and ESG reporting. A blockchain ledger records commitments, monitoring updates, and financial flows so all parties can see which areas have been funded and which outcomes have been verified. Community representatives can provide social validation, and accredited institutions can issue digital certificates as verifiable credentials to enhance trust and accountability.

Photo credit: Origen Latam

Snapshot

Key users:

Landowners and producers, conservation and restoration project developers, corporate nature-finance investors, community representatives, and municipal authorities.

Scale:

Pilot in Canelones with a view to national adoption and replication across Latin America and the Caribbean.

Tech stack:

Polygon-based nature-asset platform, web dashboard, and verifiable digital certificates.

SDGs:

Transparent & responsible production

CASES: 10

REGIONS AND COUNTRIES: Angola, Armenia, Bangladesh, El Salvador, Europe & Central Asia, India, Malaysia, Morocco, North Macedonia, Sudan

SDGS SUPPORTED:

The pilots in this section reveal early progress in building supply chains that communities, regulators, and buyers can trust. Although each pilot focuses on a different sector – from agriculture and crafts to minerals, plastics, and fuels – they all test digital tools that make it easier to track the origin of products, how they are handled, and which actors are involved. The solutions include shared traceability services for farmers and exporters, automated payout systems for cooperatives, tokenized financing for critical minerals, virtual warehouses for crops, verifiable plastic recovery credits, and authenticity certificates for artisans.

Taken together, the pilots demonstrate how transparent records, trusted identities, and tamper-evident data can strengthen local economies while helping meet global expectations for responsible production. Because the tools are designed to be plugged into existing platforms and function in low-connectivity environments, they have strong potential to be scaled across countries and value chains, offering replicable pathways to fairer markets and more accountable supply systems.

Angola

Building trusted market pathways for smallholder farmers

Challenge owner: UNDP Angola

Solution maker: Green Giraffe Zambia – an agritech startup using AI and blockchain-enabled traceability to support smallholder farmers

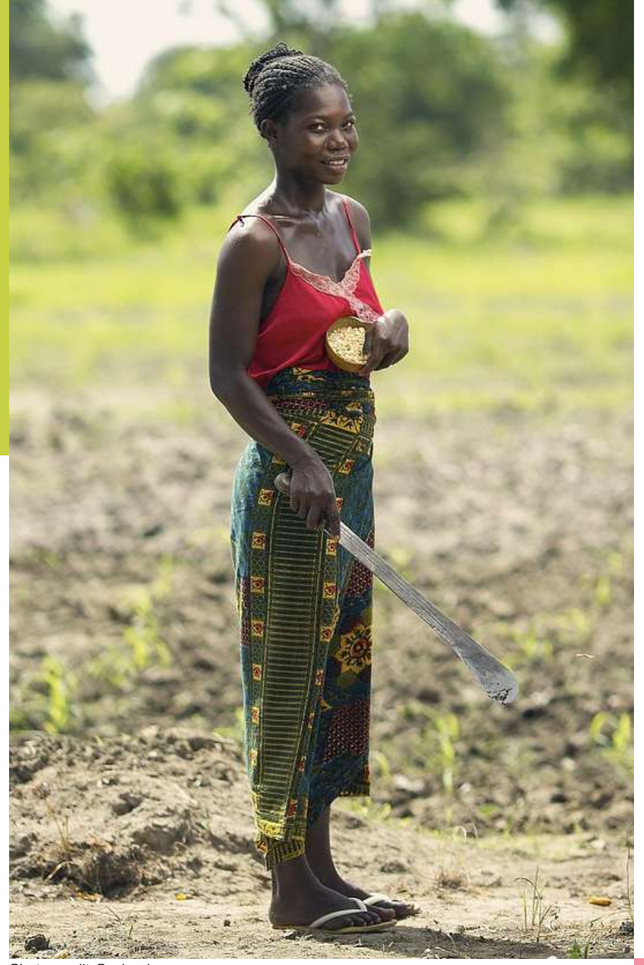


Photo credit: Pochogh

System-level challenge

Angola aims to move from isolated farmers selling into opaque markets to rural cooperatives that act as trusted, market-linked economic actors. Smallholder farmers in provinces such as Huíla, Benguela, and Uíge often produce good crops yet remain trapped in low incomes because they cannot access fair and reliable markets. Poor roads make transport costly; limited storage and processing push post-harvest losses above 30 percent; and most farmers have no digital connectivity or price information. Even women-led cooperatives supported by the Kurima programme struggle to prove the quality and origin of their produce to formal buyers, slowing diversification and food security gains.

What we are piloting

UNDP Angola and Green Giraffe Zambia are piloting a traceability management system that acts as a virtual warehouse for smallholder produce. By creating verifiable records of how crops are handled and stored, the pilot builds on Kurima's investments in irrigation, processing, and training while addressing the missing link on trusted market data. It tests whether cooperatives equipped with reliable information can reduce losses, negotiate better prices, and connect directly with formal buyers.

How it works

Farmers are onboarded with simple digital IDs linked to their cooperative and location. Using an offline-capable mobile app, they record planting, harvest, and delivery details as crops move from fields to aggregation and storage centers. Each step creates a traceability record that captures origin, handling, and quality data. Sensors in storage facilities can log temperature and humidity to spot conditions that might cause spoilage.

A web dashboard and marketplace enable cooperatives to present verified lots to wholesalers and processors, with volume, location, and quality information. When a buyer confirms a purchase, funds are channeled via digital payments in accordance with agreed payout rules, ensuring farmers and cooperatives are paid promptly. Programme managers and public institutions can view anonymized data to inform Angola's agricultural and diversification strategies.

Photo credit: Inno Joseph

Snapshot

Key users:

Smallholder farmers and cooperatives, agricultural buyers and processors, government ministries, and rural development partners.

Tech stack:

Green Giraffe digital traceability and marketplace platform with offline-first farmer app, simple digital IDs, basic storage-sensor integration, and blockchain-anchored records.

Scale:

Designed to move from Kurima pilot provinces to national coverage, with replication potential across Southern Africa.

SDGs:

Armenia

Circular economy credits for plastic recovery

Challenge owner: UNDP Armenia

Solution maker: Plastiks (Nozama Tech Ltd.) – a social impact tech company that turns verified plastic recovery into digital environmental credits

System-level challenge

Armenia's waste management system has low recycling rates and limited visibility into what happens to plastic once it leaves households and public spaces. Most recovered plastic is never recorded in a digital system. As a result, municipalities lack reliable data, and waste pickers and recyclers are rarely recognized or rewarded for the environmental services they provide. This weakens incentives to collect and sort waste, making it harder to attract private investment in circular-economy initiatives. With digital transformation and Extended Producer Responsibility regulations on the horizon, the country needs practical ways to trace plastic recovery and demonstrate the value it generates.

Photo credit: UNDP Armenia

What we are piloting

UNDP Armenia and Plastiks are piloting a mechanism that turns verified plastic recovery into digital environmental credits. Each time an accredited actor collects and recycles plastic that meets agreed standards, the effort earns a credit that can be purchased to support local recycling. The pilot aims to test whether this model can improve data for municipalities, create direct rewards for local collectors, and provide a building block for how Armenia might monitor future Extended Producer Responsibility schemes.

How it works

Plastiks' system captures each plastic-recovery event and verifies it against agreed criteria. Accredited waste actors follow a simple three-step process – documentation, on-site validation, and digital approval – ensuring that only verified operators can issue credits. Once approved, the activity is converted into a digital Plastic Credit on the Plastiks platform and logged on a blockchain ledger with key metadata, enabling full traceability to the underlying recovery action.

Companies and individual sponsors can purchase these credits to support local recycling or contribute to their sustainability commitments, with a portion of the value flowing back to waste pickers, NGOs, and recycling partners. Dashboards give UNDP and municipalities a near real-time view of recovered volumes and participating actors, creating an evidence base that can inform SDG reporting and, over time, Extended Producer Responsibility monitoring.

Photo credit: UNDP Armenia

Snapshot

Key users:

Waste pickers, local recyclers, municipalities, NGOs, and private-sector sponsors.

Tech stack:

The Plastiks digital platform issues Cardano-based Plastic Credits and includes built-in verification and reporting dashboards.

Scale:

The initial pilot is in Sevan and Hrazdan, designed for integration into national waste management workflows and adaptation to other regions or waste streams.

SDGs:

Bangladesh

Trusted traceability for farmers and exporters

Challenge owner: UNDP Bangladesh

Solution maker: ZenGate Global – building blockchain-based traceability and tokenization tools for real-world assets

System-level challenge

Bangladesh's agriculture and manufacturing sectors rely heavily on smallholder farmers and MSMEs, yet most operate in opaque, paper-based, and largely informal supply chains. While existing digital tools can capture data, they are not designed to generate tamper-evident records that multiple parties trust. This makes it harder to prove compliance with export standards, address practices such as trade misinvoicing, or offer improved financing to producers. As Bangladesh prepares to graduate from Least Developed Country (LDC) status in 2026, it will need more transparent and verifiable traceability systems to remain competitive in global markets and to strengthen regulator and buyer confidence in product data.

Photo credit: UNDP Bangladesh

What we are piloting

This initiative introduces a "traceability as a service" model that enables existing cloud-based traceability platforms to record supply chain events on a secure ledger. Instead of each actor building its own solution, UNDP Bangladesh and ZenGate Global provide a shared service that traceability providers can connect through simple integrations. The initial focus is on agriculture and leather value chains, where trusted data trails can improve export compliance, enhance regulatory oversight, and support fairer market access for small producers.

How it works

Traceability platforms send selected supply chain events from their existing systems to a web interface or application programming interface (API) managed by the service. The platform validates the data and creates a unique 'fingerprint' for each event on a distributed ledger, along with a reference to where the underlying records are stored off-chain.

Technical components are managed centrally, so farmers, cooperatives, and exporters continue using the tools they already know. When data changes, new fingerprints are added rather than overwriting previous entries, preserving a full audit history over time. Buyers, regulators, and financial institutions can verify the authenticity of records through a simple interface, gaining confidence that the information has not been altered along the way.

Photo credit: Fahad Kaizer/UNDP Bangladesh

Snapshot

Key users:

Cloud traceability platforms (such as SERA), smallholder farmers and cooperatives, processors and exporters, regulators, and UNDP staff.

Tech stack:

A shared traceability service that anchors events from existing cloud platforms onto a blockchain ledger, with verification APIs and dashboards.

Scale:

Initial pilots in Bangladesh, with potential for replication across other value chains and UNDP projects in Africa and Asia.

SDGs:

El Salvador

Boosting circular economy with blockchain technology and plastic credits

Challenge owner: UNDP El Salvador

Solution maker: Plastiks (Nozama Tech Ltd.) – a social impact tech company that turns verified plastic recovery into digital environmental credits

Photo credit: Silke

System-level challenge

El Salvador generates more than 4,200 tonnes of municipal solid waste each day, yet only a small share is recycled. Plastics make up over a fourth of municipal waste, most of which is not managed correctly. Recovery depends mainly on informal waste pickers, who work without protection or a stable income, and many are women. There is no operational Extended Producer Responsibility (EPR) system, nor is there traceability of waste, requiring inter-institutional and sectoral coordination among authorities and companies.

What we are piloting

UNDP El Salvador and Plastiks are piloting a blockchain-based system for traceability and certification of environmental impact. The goal is to build a transparent digital infrastructure that lays the foundation for EPR compliance and enhances waste management. The pilot will accredit local actors (operators, collectors, recyclers), anchor verified data, and develop real-time dashboards and monetizable certificates, with private sponsors covering costs. The pilot will also design roadmaps to support their waste management. In addition, the platform plans to connect with companies through verifiable Plastic Credits that sponsors can purchase to support circular economy projects. The pilot tests whether a trusted measurement and reporting system can formalize workers' roles and give authorities the data they need for future EPR.

How it works

The pilot deploys Plastiks' accreditation module to onboard recyclers and collectors, in coordination with governmental institutions, industry, and/or civil society organizations. They achieve operational validation with georeferenced material and blockchain authorization to issue digital impact tokens. Once accredited, the system issues Digital Recovery Certificates linked to verified recycling activities, which can be monetized as Plastic Credits.

Plastiks' methodology provides transparent, auditable data and digital certification mechanisms that align with the national environmental framework and position the country as a regional pioneer. By integrating blockchain-based traceability and certification into the recycling chain, the pilot establishes the foundation for scalable, inclusive, and sustainable waste management.

Photo credit: Karuvadgraphy

Snapshot

Key users:

Informal waste pickers, accredited recyclers and aggregators, municipal waste operators, and national environmental authorities.

Tech stack:

The Plastiks platform provides accreditation and Plastic Credit issuance with a blockchain-anchored audit trail.

Scale:

Designed for national expansion across El Salvador, linked to future EPR systems and regional circular economy markets.

SDGs:

Europe & Central Asia

Transparent financing for critical minerals

Challenge owner: UNDP Istanbul Regional Hub (IRH)

Solution maker: BlackFrog (IotaOrigin UG) – an impact finance company creating regulated on-chain investment products for real-world assets

System-level challenge

Critical minerals such as cobalt, rare earths, and battery metals are essential for clean energy technologies and electric mobility. Demand for some of these materials could multiply several times by 2040. Yet supply chains remain fragile and often opaque, with extraction taking place in areas that face environmental, governance, and conflict risks. Countries like Kazakhstan, Türkiye, Serbia, and Ukraine hold significant reserves that could strengthen energy security, but mid-cap operators and cooperatives often depend on informal or costly finance. Institutional investors are seeking mineral projects aligned with environmental, social, and governance (ESG) standards, yet struggle to find opportunities with transparent financial structures and verifiable ecological and social performance.

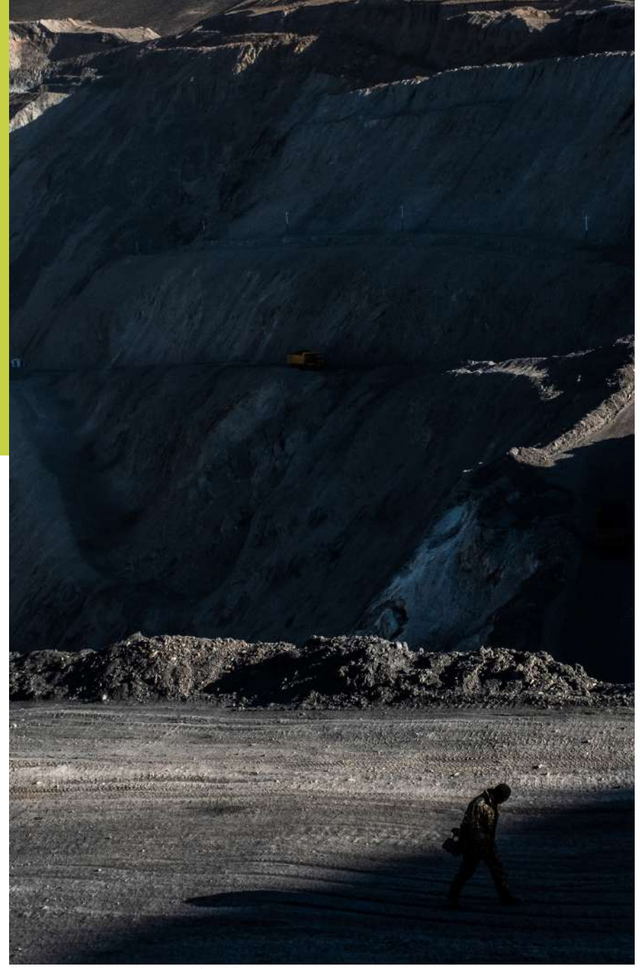


Photo credit: Danil Usmanov/UNDP Eurasia

What we are piloting

UNDP IRH and BlackFrog are creating a regulated tokenization framework for financing critical minerals in Central Asia. The pilot turns a conventional financing package into a digital instrument recorded on a public ledger, allowing capital flows and key ESG indicators to be tracked more transparently. By connecting mining operators to institutional investors and development banks through this model, the work explores how critical-mineral projects in the region can access cleaner capital and help inform emerging policy and regulatory frameworks.

How it works

BlackFrog structures mining and refining projects into bonds that comply with existing securities and custody regulations. Once approved, the bond is digitized and issued as a tokenized instrument on a blockchain-based platform, while the legal rights remain anchored in standard contracts. Investors subscribe using fiat currency or, where permitted, stablecoins, and smart contracts automate interest payments and principal repayments in accordance with the agreed schedule.

Project-level environmental and social data – such as alignment with ESG standards and selected SDG indicators – is collected through audits and attached to the digital instrument as verifiable information. A web dashboard gives regulators, investors, and UNDP a clear view of projects in the pipeline, outstanding volumes, payment performance, and key ESG metrics, helping them assess risk and impact more consistently across future deals.

Photo credit: Danil Usmanov/UNDP Eurasia

Snapshot

Key users:

Mid-cap mining operators and cooperatives, institutional investors and development banks, regulators and policymakers, and communities near mines.

Tech stack:

The BlackFrog platform issues regulated, tokenized bonds on a public blockchain, with intelligent contract–driven cash flow automation and investor/regulator dashboards.

Scale:

The pilot will start with one tokenized bond in Kazakhstan, expanding to 10–15 projects across Central Asia and the Balkans within 12 months.

SDGs:

India

Mainstreaming waste pickers in the plastic waste recycling value chain

Challenge owner: UNDP India

Solution maker: Plastiks (Nozama Tech Ltd.) – a social impact tech company that turns verified plastic recovery into digital environmental credits

System-level challenge

India's EPR framework for plastic packaging is designed to make recovery more transparent and accountable. However, day-to-day operations still depend on informal networks that handle a significant share of plastic recovery, use uneven digital tools, and lack a shared accreditation or verification system. This creates traceability gaps, leakage risks, and inconsistencies in reporting for producers. Millions of informal waste pickers, many of whom are women, are central to plastic recovery but are not formally recognized or protected within EPR systems. The National Action for Mechanized Sanitation Ecosystem (NAMASTE) scheme is issuing occupational IDs and welfare benefits. Yet these identities are not consistently linked to EPR processes, so most workers see only a slight improvement in income, safety, or long-term security. Strengthening these linkages would improve social outcomes for workers and the overall effectiveness of the EPR framework.

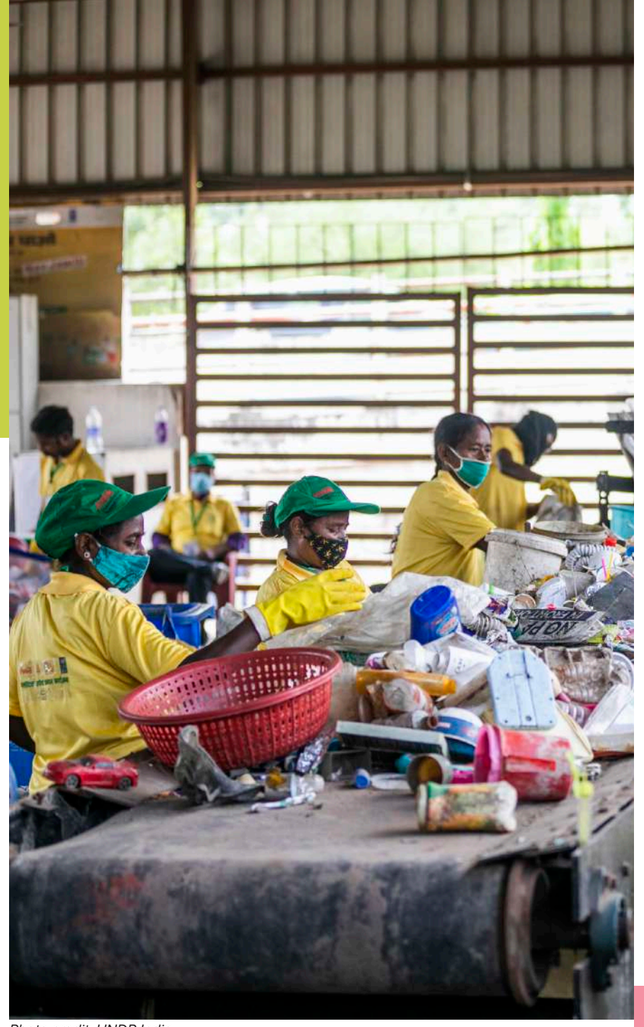


Photo credit: UNDP India

What we are piloting

The initiative introduces a shared compliance and recognition system that links authenticated worker identities, accredited facilities, and verified plastic flows. Informal waste pickers are onboarded through consent-based, multilingual workflows and connected to a blockchain-anchored digital profile. Collectors receive standardized digital accreditation, and verified recovery becomes the basis for Plastic Credits that producers and brand owners can use to demonstrate additional EPR compliance needed for future EPR.

How it works

Accreditation criteria for collectors, aggregators, and recyclers are agreed with public partners, and eligible actors are issued non-transferable digital credentials in a tamper-evident registry. Informal waste pickers are registered via QR codes supported by local organizations, with their NAMASTE IDs linked to a simple digital profile that can receive tokens or benefits.

E-weighment entries with QR or GPS tags show where the material comes from, who handles it, and which facility receives it. Plastiks' verification engine checks these records against authorized facilities and existing logs to prevent double-counting or fictitious volumes. Verified quantities are then converted into Plastic Credits on a blockchain-based ledger. Producers and brand owners purchase credits through a transparent interface, with payout rules designed to ensure that waste pickers and partner organizations receive a fair share of the value.

Photo credit: UNDP India

Snapshot

Key users:

Informal waste pickers, waste aggregators and recyclers, urban local bodies, producers and brand owners with EPR obligations.

Tech stack:

The Plastiks platform combines digital worker profiling, facility accreditation, tagged weighment records, and a blockchain-anchored Plastic Credit registry and marketplace.

Scale:

Intended for replication across multiple Indian states, with a pathway to connect nationally with the NAMASTE scheme, pollution control boards, and plastic EPR systems.

SDGs:

Malaysia

Fair and transparent markets for hill paddy farmers

Challenge owner: UNDP Malaysia

Solution maker: Afrikabal (AXK Ledger) – a social enterprise building traceability and payout tools for agricultural supply chains

System-level challenge

Hill paddy farming in Malaysia has long supported food security and cultural heritage for Indigenous communities in rural Sabah. This resilient crop can sell for many times the price of ordinary rice, yet most of that value does not reach farmers. Climate change has made harvest unpredictable. While rice hill paddies can be climate-resilient, ensuring this requires careful management drawing on traditional and sustainable practices, and ongoing research into suitable seed varieties. Women play a significant role in production but often lack land titles and access to finance. Farmers rely on intermediaries for slow or opaque payments and have little visibility into where their paddy goes or how it is priced. Cooperatives manage records on paper or basic spreadsheets, making it challenging to prove origin, quality, or sustainable practices to premium buyers who increasingly require traceability.

Photo credit: UNDP Malaysia

What we are piloting

UNDP Malaysia and Afrikabal will soon launch a digital platform to help farmers, cooperatives, and buyers coordinate their activities through transparent, verifiable processes. Aiming to leverage additional private sector investment, this initiative will seek to ensure that each lot of hill paddy can be traced from the field to the buyer, that payments adhere to clear rules and are processed promptly, and that cooperatives have access to the data they need to negotiate.

How it works

Farmers use a simple code-based menu on basic phones to register each harvest, creating a digital entry linked to their farmer ID and location. Cooperative staff review these entries via a web dashboard, add any missing details, and approve the lots. When paddy is collected, an agent uses a mobile app to confirm weight, time, and location, building a digital record of who handled a product, when, and where, from its origin to its final destination.

Buyers submit orders and deposit funds into a digital escrow managed under cooperative rules. Once delivery is confirmed, the system automatically releases payments according to pre-agreed shares for farmers, cooperatives, and logistics partners. Only the non-personal information required for traceability is stored on the shared ledger, while sensitive data remains in cooperative systems. The mobile tools work offline and synchronize when connectivity is available, allowing remote communities to participate fully.

Photo credit: UNDP Malaysia

Snapshot

Key users:

Hill paddy farmers and Indigenous communities in rural Sabah, cooperatives, buyers, and local authorities.

Tech stack:

The Afrikabal platform provides mobile tools for farmer registration and collection, with a shared ledger to record events and escrow-based payouts.

Scale:

The initial pilots will take place in selected hill paddy communities in Sabah, with the potential to expand to other high-value crops and regions in Malaysia.

SDGs:

Morocco

Fair global markets for craft heritage

Challenge owner: UNDP Morocco

Solution maker: MeSu AI – a Web3 and AI studio that works with fan-fiction communities and brands, now adapting its tools to support artisans

System-level challenge

Moroccan craftsmanship is a major cultural and economic asset, yet many artisans – especially women, rural youth, and small cooperatives – earn little from their work. Intermediaries dominate domestic value chains, international buyers are hard to reach, and most products lack clear proof of origin or quality. This makes it challenging to command fair prices or stand out in global markets that increasingly demand authenticity and traceability. The result is underpaid artisans and the risk that ancestral skills will gradually erode rather than be recognized as a strategic part of Morocco's digital and inclusive growth agenda.

Photo credit: UNDP Morocco

What we are piloting

UNDP Morocco and MeSu AI are setting up an integrated digital service that helps artisans prove authenticity, improve online visibility, and sell securely to international buyers. The platform combines blockchain-based authenticity certificates, AI-generated marketing content, and secure digital payment channels powered by stablecoins. Each item can carry a scannable digital record, while AI tools support pricing and positioning on global marketplaces. The aim is to increase incomes, reduce dependence on intermediaries, and turn craft heritage into a fairer, more resilient source of livelihoods.

How it works

Artisans or cooperatives register on the platform and upload basic materials and product information. For every item, the system issues a non-fungible token (NFT) – a unique digital certificate – containing key metadata such as time of creation, production location, and a simple quality check. A QR code or tag linked to this certificate can be attached to the product, allowing buyers to verify authenticity and origin with a quick scan.

AI assistants help artisans prepare product descriptions and suggested prices, and link their catalogues to existing marketplaces such as Etsy, so they can reach international customers without building their own shops from scratch. Lightweight logistics and stock-tracking tools help track goods from the workshop to the customer, while cultural designs and patterns can be archived digitally for future use and recognition.

Photo credit: UNDP Morocco

Snapshot

Key users:

Ministry of Tourism, Handicrafts, Air Transport, and Social & Solidarity Economy (MTATAES), artisans and cooperatives, rural communities, and private-sector distribution partners.

Tech stack:

Blockchain-based authenticity certificates and payment contracts, AI assistants for marketing and pricing, integrations with major e-commerce platforms, and simple tools for tracking materials.

Scale:

Pilot phase with a view to national adoption across key craft regions and potential replication in other countries with similar artisanal sectors.

SDGs:

North Macedonia

Verifiable energy traceability for cleaner air

Challenge owner: UNDP North Macedonia

Solution maker: Wholechain – a supply chain traceability company that uses blockchain to create verifiable product histories for regulators, buyers, and suppliers

Photo credit: Josef Kotarba

System-level challenge

North Macedonia faces some of the highest air pollution levels in Europe, driven by the extensive use of solid and liquid fossil fuels and biomass. Yet there is no unified system to track how these fuels move through the energy supply chain once they enter the country. Data is scattered across institutions, reporting is slow and manual, and enforcement bodies struggle to link emissions to specific actors or practices. Without timely and reliable information, it is difficult to respond to pollution spikes or protect communities that are most exposed to harmful air.

What we are piloting

UNDP North Macedonia and Wholechain are piloting a traceability system that follows fuel batches from import to final sale and consumption, and links these movements to air-quality data. The solution combines supply-chain tracking with sensor readings and satellite observations to show how different fuels and practices affect local pollution. By giving regulators and municipalities a clearer view of flows and hotspots, the pilot aims to inform cleaner energy policies and provide a model that can be scaled internationally.

How it works

Wholechain records key supply-chain events and stores them as tamper-evident records on the Algorand blockchain. Each fuel batch is tagged with a QR code or standardized barcode so that every handover can be scanned and logged. Air-quality sensors installed in priority locations feed real-time pollution data into the system, while satellite imagery provides geographic context to link fuel activity with emission patterns.

The platform can also connect to existing business systems so that fuel distributors can upload compliance documents, certificate of quality (CoQ), and volume data directly. Government agencies use web-based dashboards that display maps of fuel flows, suspected noncompliance, and correlations with pollution, supporting inspections, procurement decisions, and new regulations.

Photo credit: Martina Janochová

Snapshot

Key users:

Ministry of Energy, Mining and Mineral Resources, national environmental authorities and regulators, fuel distributors and importers, and municipalities affected by air pollution.

Tech stack:

Wholechain traceability platform, Algorand-based distributed ledger for tamper-evident records, integrated air-quality sensors, and satellite data.

Scale:

The pilot provides a framework for a national traceability system with potential for replication in other countries seeking transparent and accountable energy-supply chains.

SDGs:

Sudan

Verifiable traceability for inclusive and competitive agricultural trade

Challenge owner: UNDP Sudan

Solution maker: Wholechain – a supply chain traceability company that uses blockchain to create verifiable product histories for regulators, buyers, and suppliers

Photo credit: UNDP Sudan

System-level challenge

Sudan's agricultural sector underpins rural livelihoods and export earnings, but value chains are fragmented and rely on paper-based records. Without reliable data on origin, handling, and sustainability practices, cooperatives and SMEs cannot demonstrate compliance with emerging due diligence rules or the expectations of premium buyers. Exporters face greater scrutiny and a higher risk of rejection, while weak digitalization leaves room for fraud and disputes. These gaps limit access to higher-value markets and slow progress toward climate-resilient, inclusive trade.

What we are piloting

UNDP Sudan and Wholechain are introducing a traceability system for selected export crops. The pilot captures each significant step from farm to port in a shared data layer, using global standards so batches can be followed across producers, processors, and traders. The goal is to help Sudanese suppliers demonstrate origin and responsible practices, comply with international due diligence requirements, and give buyers a trusted view of each shipment – while building a reusable digital backbone for future certification and finance tools.

How it works

Producers, cooperatives, and processors record critical tracking events through mobile or web tools, capturing harvest batches, processing steps, aggregation points, and export documentation. Each batch receives a barcode or QR label that links the physical goods to a digital profile on Wholechain, with core data stored on the Algorand blockchain.

Producer identifiers allow provenance to be traced back to farmer groups. Integrations with enterprise resource planning systems (ERP) and APIs synchronize logistics and inventory data. Exporters and public agencies use dashboards to track batch movements and view compliance evidence, thereby strengthening oversight and providing buyers with a clear, verifiable history for each shipment.

Photo credit: UNDP Sudan

Snapshot

Key users:

Smallholder producers, cooperatives and processors, exporters and traders, agriculture and standards authorities, and regional and international buyers.

Tech stack:

The Wholechain traceability platform uses GS1 standards, mobile and web capture tools, an Algorand-based ledger, and compliance dashboards.

Scale:

Initially focused on priority commodities, with potential to extend across Sudanese agricultural exports and align with African Continental Free Trade Area (AfCFTA) trade requirements.

SDGs:

Innovative finance for social goods

CASES: 2

REGIONS AND COUNTRIES: Jordan and Mauritius

SDGS SUPPORTED:

The pilots in this workstream explore new financing models that help communities fund essential social services and diversify income sources during periods of instability. Although the countries face very different challenges, each pilot tests practical digital tools that can mobilize capital quickly and transparently. These include community crowdfunding for school solar systems, crowdinvesting mechanisms to keep critical health and education facilities powered, and new digital income streams for artisans whose livelihoods depend on tourism. Designed to work with existing platforms and low connectivity environments, these models also offer strong potential for expansion across public facilities and vulnerable communities worldwide.

Jordan

New digital income streams for Petra's tourism community

Challenge owner: UNDP Jordan

Solution maker: FundRaisin – a fundraising platform that helps artists and community organizations raise support through blockchain-secured digital collectibles

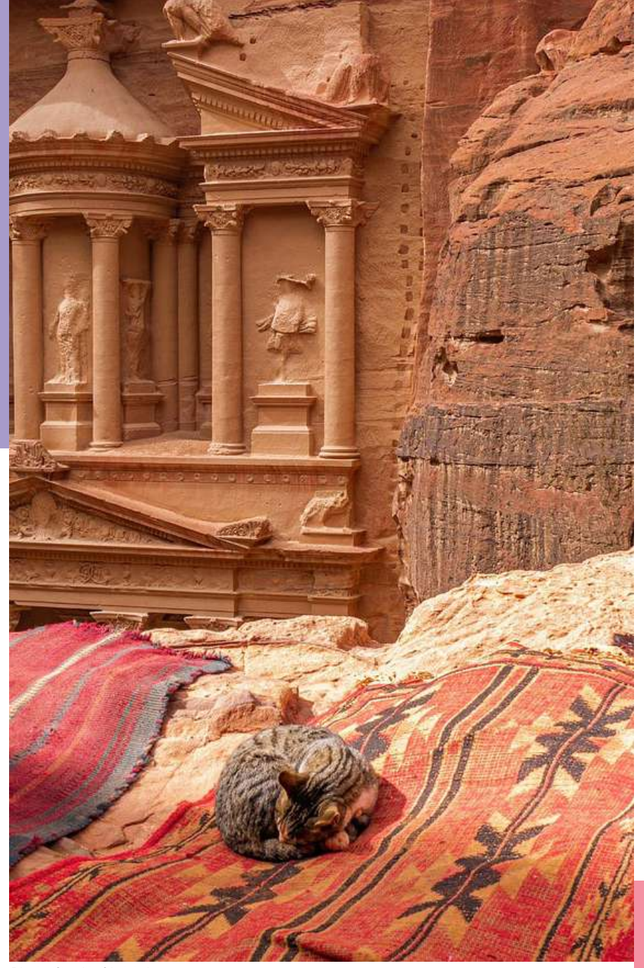


Photo Credit: Christel

System-level challenge

Petra is one of Jordan's most important – and most vulnerable – tourism destinations. Many local households depend directly or indirectly on visitors, so shocks such as pandemics, climate impacts, or regional instability quickly translate into lost jobs and unstable incomes when international travel drops, hotels and small businesses close, and families have few alternatives to replace lost earnings.

At the same time, many artists and artisans have limited access to digital markets or face language and connectivity barriers, and are cautious of unfamiliar financial tools. In short, tourism remains central to the local economy, which makes communities highly exposed to a collapse in visitor numbers.

What we are piloting

UNDP Jordan is testing a digital fundraising system that allows Petra artists and community groups to earn income from international supporters without relying on in-person tourism. Through FundRaisin, creators turn their work into digital items and co-design campaigns with sponsors such as the Petra Development and Tourism Region Authority (PDTRA). Contributions flow transparently to artists and community beneficiaries, which creates a proof of concept for tourism-linked livelihoods that can continue even when travel is disrupted.

How it works

FundRaisin helps artisan groups in Petra turn their work into curated digital "Art Packs" that sit at the core of each campaign. Together with PDTRA, they set campaign goals, choose beneficiaries, and develop the campaign narrative. On the platform, artwork is issued as a blockchain-based digital item that supporters can purchase using either crypto or regular card payments.

When a supporter purchases a collectible, the contribution is automatically split between the artist and the selected community beneficiary according to agreed rules. Each transaction is recorded, giving sponsors and donors a clear view of how funds are used. Campaign pages highlight Petra's cultural heritage and community impact, creating an income stream that is not tied to physical visitor numbers.

Photo credit: David

Snapshot

Key users:

Petra-based artists and artisans, community-based organizations, PDTRA as institutional sponsors, and diaspora and international supporters.

Tech stack:

The FundRaisin platform with a campaign builder interface, blockchain-based digital collectibles, payment splitting, and support for both crypto and card payments.

Scale:

The pilot begins with a small group of Petra creators and is designed to inform wider rollout across Petra and, over time, other heritage sites in Jordan.

SDGs:

Mauritius

Crowdfunding solar energy for public schools

Challenge owner: UNDP Mauritius & Seychelles

Solution maker: Socious Fund – an impact-tech crowdfunding platform that helps communities and supporters co-finance social and climate projects

Photo credit: Alisa Dyson

System-level challenge

Like many Small Island Developing States, Mauritius relies heavily on imported fossil fuels for electricity. When global prices rise, public services feel the impact quickly, especially schools, which spend a significant share of their budgets on electricity for lighting, computers and essential infrastructure. This reduces resources available for teaching materials, digital tools, and student support. Although the country has pledged to expand renewable energy and cut emissions, most schools cannot access affordable upfront capital for solar systems, and communities lack a simple, trusted way to fund specific installations.

What we are piloting

UNDP Mauritius & Seychelles and the Socious Fund are setting up an online channel for parents, citizens, diaspora, and impact investors to co-finance solar systems in public schools. Each school can create a basic project profile showing system size, required funding, expected bill savings, and climate impact. The model uses a blockchain-backed registry to ensure that every contribution is securely recorded and transparently linked to a specific school project. Contributors choose which schools to back and receive clear updates on progress, while the pilot tests whether community-backed solar can reduce energy costs and free up resources for learning.

How it works

School administrators collaborate with UNDP and energy authorities to prepare solar project profiles, including cost estimates and expected energy generation. Any excess electricity generated is exported to the national grid under the national gross metering scheme, allowing schools to earn revenue from the power they contribute. These profiles are reviewed and uploaded to the platform as funding campaigns that users can browse by school or location.

Contributions are made via standard online payments or compatible digital wallets, with each payment securely linked to its chosen project and recorded in a tamper-evident, immutable ledger. Dashboards show how much funding has been raised, which projects are ready for installation, solar energy production, carbon savings, and the financial gains for schools. Once a campaign is fully funded, certified installers implement solar systems. Schools can then track solar output and cost savings, while supporters see the longer-term environmental and educational impacts.

Photo credit: Jannik

Snapshot

Key users:

National schools, students and parents, the Mauritian diaspora, local and global impact investors, regulators, and certified solar installers.

Tech stack:

The Socious Fund crowdfunding platform provides project pages, integrated payment options, and a secure registry of contributions and project status.

Scale:

The pilot starts with 3–5 schools, with the potential for nationwide expansion and replication in other public facilities.

SDGs:

SDG monitoring, impact reporting & evidence systems

CASES: 4

REGIONS AND COUNTRIES: Colombia, Ethiopia, India, Tanzania

SDGS SUPPORTED:

The pilots in this section show how simple digital systems can improve transparency, strengthen evidence, and inform real-time decision-making in waste management, water treatment, energy oversight, carbon markets, and SDG reporting. They span plastic recovery credits, IoT-based wastewater monitoring, electricity use dashboards, geospatial MRV for carbon programmes, and satellite-supported SDG monitoring. Serving government agencies, utilities, municipalities, statistical offices, and private actors, they demonstrate how traceable digital tools can create new incentives for sustainability that can be replicated across sectors and regions.

Colombia

Making geospatial evidence count for SDG reporting

Challenge owner: United Nations Office for Project Services (UNOPS)

Solution maker: Demia – a tech company providing data fabric for cryptographically verifiable datasets and reporting workflows

System-level challenge

Data quality gaps and trust issues hold back global reporting on the SDGs. National Statistical Offices, especially in fragile and conflict-affected settings, struggle to generate reliable indicators across complex, data-poor environments. At the same time, vast archives of satellite-based Earth observation data remain underused because there are few standard, auditable workflows to convert them into official statistics. This leaves patterns of urban growth and post-conflict land use largely invisible in reporting, even where they are central to recovery and stabilization.

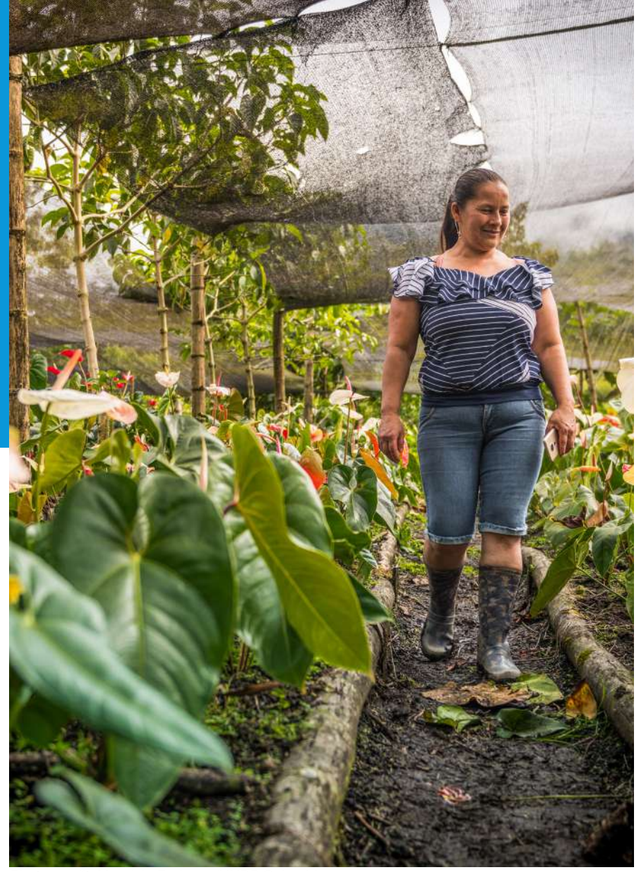


Photo credit: Mauricio Enriquez/UNDP Colombia

What we are piloting

In Colombia, UNOPS, the UN Statistics Division, and Demia are testing a geospatial reporting rail that combines Earth observation, geospatial artificial intelligence, and blockchain-anchored verification to generate SDG indicators with minimal manual burden. The pilot initially focuses on indicators such as SDG 11.3.1, 15.3.1, and 16.1, translating mapped patterns of urban expansion and conflict impacts into standard outputs. Municipal planners, National Statistics Offices, and SDG Custodian Agencies access dashboards and receive auditable indicator packages designed for replication in fragile states.

How it works

The system ingests satellite imagery and other geospatial datasets into an analysis pipeline that maps urban expansion, land degradation, and land-release zones over time. Geospatial AI models generate statistics aligned with custodian definitions for selected SDG indicators. These derived layers and calculations then pass through Demia's zero-trust data fabric, where each dataset is cryptographically signed, versioned, and linked to a tamper-evident audit trail on blockchain.

Municipal planners use web-based dashboards to explore trends and inform zoning, land-use, and stabilization decisions. The National Statistical Office receives indicator-ready outputs, complete with provenance records. At the same time, independent auditors can review the entire data and approval chain before results are submitted to regional or global reporting platforms.

Photo credit: Mauricio Enriquez/UNDP Colombia

Snapshot

Key users:

Municipal planners and local authorities, National Statistical Offices, relevant UN custodian agencies, and communities.

Tech stack:

Earth observation data pipelines combined with geospatial AI models, blockchain anchoring for audit trails, and web-based dashboards and portals.

Scale:

Proof of concept in Colombia with a view to replication in fragile and conflict-affected contexts such as Afghanistan, Somalia, and South Sudan.

SDGs:

Ethiopia

Digital evidence for high-integrity carbon markets

Challenge owner: UNDP Ethiopia

Solution maker: Kitovu Technology Company – a climate-tech venture building digital tools for trusted carbon and climate reporting

System-level challenge

Ethiopia has committed to cutting greenhouse gas emissions to 70.3 percent by 2035, but faces an estimated US$316 billion climate finance gap. The country is making progress by finalizing a Carbon Market law and using the United Nations Framework Convention on Climate Change (UNFCCC) registry as a transitional measure. However, processes for issuing, transferring, and retiring carbon credits remain a challenge as they are manual and dispersed. Reporting often relies on spreadsheets and paper, with limited visibility for international buyers and a high risk of duplication or double-counting. There is no single, trusted carbon-credit registry and no national framework yet for participation under Article 6 of the Paris Agreement. As global climate finance grows, Ethiopia needs reliable digital Measurement, Reporting, and Verification (MRV) to enable clean cooking, forestry, and land-restoration projects to access carbon markets with confidence.

Photo credit: UNDP Ethiopia

What we are piloting

UNDP Ethiopia, working with Kitovu Technology, is piloting Kijani – a digital monitoring, reporting, and verification prototype for priority sectors such as clean cookstoves and forestry. Using real data from Ethiopia's eQUB clean-cooking programme and UNDP-supported landscape projects, the pilot aims to show how automated checks and geospatial evidence can make reporting more reliable and less burdensome. It is designed as a low-risk prototype to inform a future government-led national carbon registry.

How it works

Field and project data from clean cooking, forestry, and land-restoration projects are collected through mobile tools and existing monitoring systems. This information is combined with satellite imagery and geospatial analysis to confirm where activities are taking place and whether project boundaries match what has been reported. Automated checks flag gaps or inconsistencies so project teams can correct them quickly.

Once key data is validated, the system generates secure digital proofs and records them on a blockchain ledger, creating tamper-evident evidence without storing personal or raw data. It then produces summaries that bring together emissions-reduction estimates, geospatial layers, and fundamental performance indicators, along with a record of the sources of the information. The modular, open-source design is intended to plug into Ethiopia's future national carbon registry and any later Article 6 arrangements.

Photo credit: UNDP Ethiopia

Snapshot

Key users:

Government authorities, UNDP Ethiopia teams, eQUB partners and operators.

Tech stack:

The Kijani digital prototype combines existing project data, mobile inputs, satellite and geospatial analysis, with blockchain-anchored proofs of key records.

Scale:

Designed for national use across clean-cooking, forestry, and landrestoration programmes, with replication potential in broader East African carbon-market ecosystems.

SDGs:

India

Advancing circularity through real-time monitoring of plastic recycling

Challenge owner: UNDP India

Solution maker: Karbon Ledger (Konma) – a climate-tech company building digital tools for emissions and compliance tracking

Photo credit: UNDP India

System-level challenge

Many plastic recycling units in India discharge their wastewater into Common Effluent Treatment Plants (CETPs), which were initially established so industrial clusters could share treatment infrastructure rather than releasing untreated effluents into local waterways. In practice, many CETPs struggle with high operating costs, limited staff, and weak monitoring. Sampling is often manual and paper-based, records are fragmented, and regulators receive delayed or incomplete information. This makes it difficult to enforce standards, identify underperforming plants, and account for pollution and methane emissions that harm water quality, public health, and the climate.

What we are piloting

UNDP India and Karbon Ledger are piloting a digital rail that supports compliance monitoring and provides CETP operators and regulators with real-time visibility into plant performance. By linking live sensor data to verifiable records, the pilot will test whether transparent monitoring can improve compliance, cut operational risk, and ultimately make reductions in pollution and methane emissions visible as climate benefits. Initial deployment will focus on plastic recycling and the textile cluster, where wastewater loads and regulatory pressure are highest.

How it works

The solution, called Streamline, connects IoT sensors, AI models, and blockchain infrastructure into a single compliance and reporting system. The sensors track key parameters – such as flow and selected water-quality indicators – in real time, replacing the need for many manual logbooks and delayed lab reports. An analytics layer verifies incoming data, detects anomalies, and estimates reductions in pollution and greenhouse gas emissions when plants operate properly.

For each reporting period, the system creates a tamper-evident log of compliance events on a blockchain-based ledger, ensuring records cannot be altered later. Role-based dashboards give CETP managers, regulators, and auditors a shared view of trends and alerts, while communities can access simplified summaries of plant performance.

Photo credit: UNDP India

Snapshot

Key users:

Plastic recyclers, CETP operators and plant managers, regulators, Plastic Recycling Hub, textile clusters and industrial cluster associations, and local communities.

Tech stack:

The streamline platform connecting IoT sensors, analytics, and a blockchain-based compliance log integrated with existing CETP monitoring workflows.

Scale:

The pilot is designed for replication across major industrial clusters that rely on CETPs – starting with textiles, but extendable to other sectors.

SDGs:

Tanzania

Transparent electricity use in Zanzibar

Challenge owner: UNDP Tanzania

Solution maker: Grinplus – an energy and data company building tools for trusted metering, loss analysis, and billing oversight

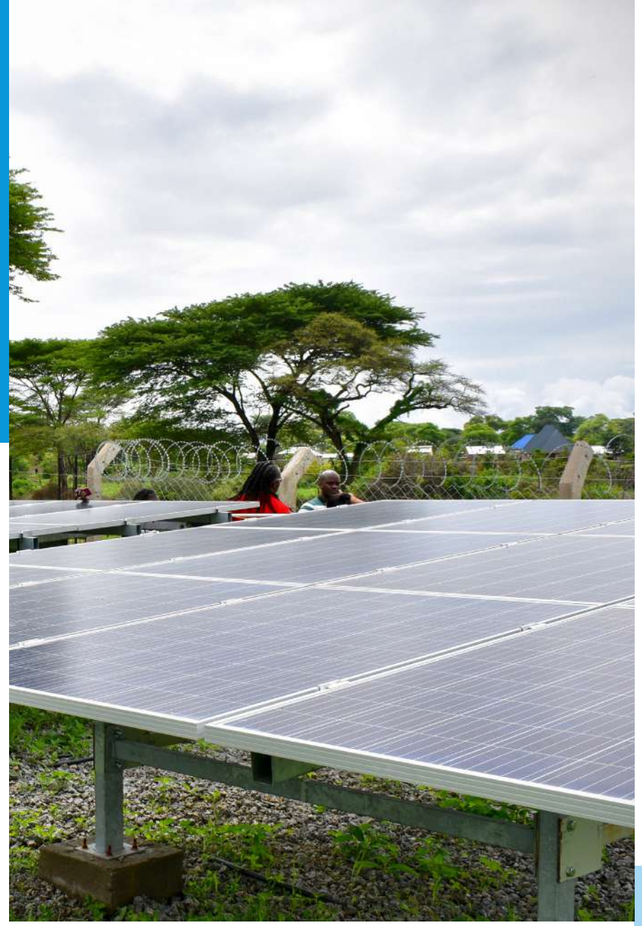


Photo credit: UNDP Tanzania

System-level challenge

The Zanzibar Electricity Corporation (ZECO) serves around 2 million people and has already reduced electricity losses from about 30 percent to 21 percent, yet the remaining gap still represents over US$16 million in lost revenue each year. ZECO struggles to pinpoint where losses occur and to distinguish technical issues, such as equipment inefficiencies, from commercial problems, such as meter tampering or billing fraud. Data sits across several systems and is not always available in real time, making it difficult to resolve disputes, detect unusual consumption, or plan investments. Regulators and customers need more reliable information to assess whether billing is fair and policies are effective.

What we are piloting

UNDP Tanzania and Grinplus are trialing AegisGrid, a transparency platform that consolidates ZECO's metering data into a single, verifiable dashboard. Starting with large power users, the pilot explores whether ZECO can more easily see where and when losses arise, distinguish technical from commercial issues, and reduce revenue leakage. At the same time, the platform is designed to provide regulators and major customers with more unmistakable evidence of how electricity is measured and billed, strengthening trust and supporting future reforms.

How it works

AegisGrid connects to ZECO's existing metering and data systems via secure interfaces, without replacing the meters. It gathers regular readings from generators, substations, and large customers, then compares electricity produced, injected, and billed to identify where gaps are concentrated. Each reading is saved securely as a digital event on the blockchain.

An analytics tool scans for unusual consumption or loss patterns that may indicate faults or fraud, issuing alerts for ZECO teams to investigate. Dashboards provide operators, regulators, and – over time – participating large users with tailored views of trends, loss analysis, and billing checks. This shared factual base is intended to support better operational decisions, more accurate billing, and stronger regulatory oversight.

Photo credit: UNDP Tanzania

Snapshot

Key users:

ZECO operations teams and managers, large power users, regulators, customer service teams, and energy planners.

Tech stack:

The AegisGrid platform links existing metering and data systems to a secure, blockchain-based log, with analytics and role-based dashboards.

Scale:

The pilot aims to cover at least 50 large power users and then expand to more customer segments and, eventually, to other utilities in Tanzania and the wider region.

SDGs:

Why blockchain is a strategic anchor for UNDP

BLOCKCHAIN SITS AT THE INTERSECTION OF MULTIPLE DYNAMICS THAT CONVERGE ON QUESTIONS OF PUBLIC VALUE AND THE SDG AGENDA: how money, information, and rules move through systems such as remittances, climate finance, and social protection. New blockchain-based payment systems are being explored in these areas not only to move funds more efficiently, but to strengthen the agency of communities and local authorities to connect financial flows to results that matter locally.

THIS MAKES BLOCKCHAIN A STRATEGIC ARENA FOR APPLYING THE NEW DEVELOPMENT MODEL.
Because blockchain systems can be designed so that key rules and data are shared between public institutions, communities and private actors, this work is being used to explore how underlying payment and information systems might be re-designed in more people-centred ways that address power imbalances – for example, allowing remittance flows to contribute to local development under clear rules, or enabling climate and nature finance to reach local actors with greater transparency and confidence.

UNDP HAS CREATED A SPACE WHERE VARIOUS CONFIGURATIONS OF PARTNERS CAN COLLABORATE FOR A PUBLIC PURPOSE.
From blockchain companies and foundations to ground-up tech communities – they contribute their own infrastructure, expertise, and funding to work with communities and authorities to generate public purpose. They complement the role of traditional donors and governments, focusing on defining public-purpose use cases, safeguards, and the institutional changes needed for governments to run and govern successful models.

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