

# Gamifying Sustainable Agriculture Value-Chains

A Koinos-based dApp incentivizes all stakeholders to reduce waste and improve agricultural logistics. By gamifying SLAs and SLOs and providing ReFi options, the dApp supports regenerative farming practices and eco-friendly logistics providers. Moreover, it rewards green initiatives, encouraging the adoption of sustainable technologies and practices, fostering a cleaner and more environmentally responsible supply chain.



by Edward Plata



**AgriLedger**  
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# Challenges for Sustainable Agriculture

1. **Lack of transparency in supply chains:** Opaque supply chains make it difficult to track the origin of products and verify adherence to sustainable practices. This obscurity can lead to unintentional support for unsustainable methods, as well as mistrust among consumers and stakeholders.
2. **Inefficient logistics:** Poor logistics management can result in delays, increased costs, and food waste, undermining the benefits of sustainable agriculture. Inefficient transportation and storage systems can also contribute to higher carbon emissions, negating the positive environmental impact of sustainable practices.
3. **Need for incentives for regenerative practices:** Transitioning to regenerative farming practices often requires significant investments in time, resources, and education. Without proper incentives, many farmers may be reluctant to adopt these methods, as the potential risks may outweigh the perceived benefits.
4. **Limited access to financing:** Sustainable agriculture projects may struggle to secure funding from traditional financial institutions due to perceived higher risks, longer payback periods, or lack of familiarity with regenerative practices.
5. **Regulatory and policy barriers:** In some cases, existing regulations and policies may not be conducive to the adoption of sustainable practices. Government support and incentives may be lacking, or policies may inadvertently favor conventional, less sustainable methods.

Addressing these challenges is crucial to fostering widespread adoption of sustainable agricultural practices and ensuring a more resilient, environmentally friendly, and equitable food system

# Improving Logistics and Promoting Sustainability

The gamification of service levels and outcomes incentivizes the entire supply chain to implement sustainable practices with green incentives provided for efficient and eco-friendly farming and logistics practices. Customizable dashboards provide real-time performance insights for all.

# The Power of Koinos Blockchain

## Decentralization

The Koinos Blockchain ensures a decentralized infrastructure that promotes transparency.

## Smart Contracts

The blockchain's smart contract technology enforces agreements, tracks logistics performance, and registers rewards.

## Secure Infrastructure

Koinos Blockchain technology ensures secure transactions and relevant blockchain security protocols.

# Regenerative Finance

• Polkastarter

## What is Regenerative Finance

And why should you care?



Regenerative Finance is an innovative approach to financing that focuses on supporting projects and businesses that provide environmental, social, and economic benefits.

- Directs investments towards sustainable initiatives
- Promotes community development and long-term value
- Focuses on people and planet, not just profit

# Opportunities for Waste Reduction

Technologies:

IoT, sensors and big data analytics

Applications:

- Predictive maintenance
- Crop optimization
- Tracking supply chain performance

Benefits:

- Reduced waste, increased efficiency
- Improved monitoring and performance metrics
- Increased automation and operational agility

# Green Practices Adoption

There are many incentives for the adoption of regenerative practices, including environmental stewardship, marketability, and financial rewards. The Koinos-based dApp incentivizes stakeholders using green incentives for regenerative practices like conservation tillage, cover cropping, crop rotation, and precision farming.

# Transparent Supply Chains

## Decentralized Proof of Origin

Track the entire life cycle of products, from agricultural production to processing, certification, and sales.

## Secure and Private Transactions

Reliable blockchain technology facilitates secure transactions for all.

## Traceable and Sustainable Supply Chains

Blockchain smart contract technology allows all participants to access relevant information regarding the production of their products and promotes sustainability.

# Technical Road-Map

## Phase 1: Design and Planning (1 month)

1. Define Smart Contract Templates
  - Gamify SLAs/SLOs, reward early completion
  - Create contracts for green initiatives
2. Design Access Control Smart Contracts
  - Develop contracts for secure access
  - Implement NDA-based access
3. Develop Incentive Structures
  - Define reward mechanisms for SLO/SLA targets
  - Incentivize sustainable farming and eco-friendly logistics

## Phase 2: Development and Implementation (2-4 months)

1. Implement Tokenomics
  - Design a token system for rewards
  - Integrate token distribution into contracts
2. Integrate Data Sources
  - Connect to external data providers
  - Incorporate data on sustainable practices
3. Develop Front-end and Back-end Components
  - Create user interfaces for stakeholders
  - Develop services for managing incentives

## Phase 3: Testing and Pilot Program (1-2 months)

1. Testing and Quality Assurance
  - Perform unit and integration tests
  - Assess security and compliance
2. Pilot Program and Iterative Improvements
  - Launch a pilot program with stakeholders
  - Gather feedback and improve features

This phased roadmap, with a proposed timeline of 4-7 months, outlines the development process for the Koinos-based application, from initial design and planning through to testing and a pilot program.