Digital Transformation and Environmental Innovation in Jordan

A Pioneering Integrated Model for Organic Waste Management and Sustainable Fertilizer Production

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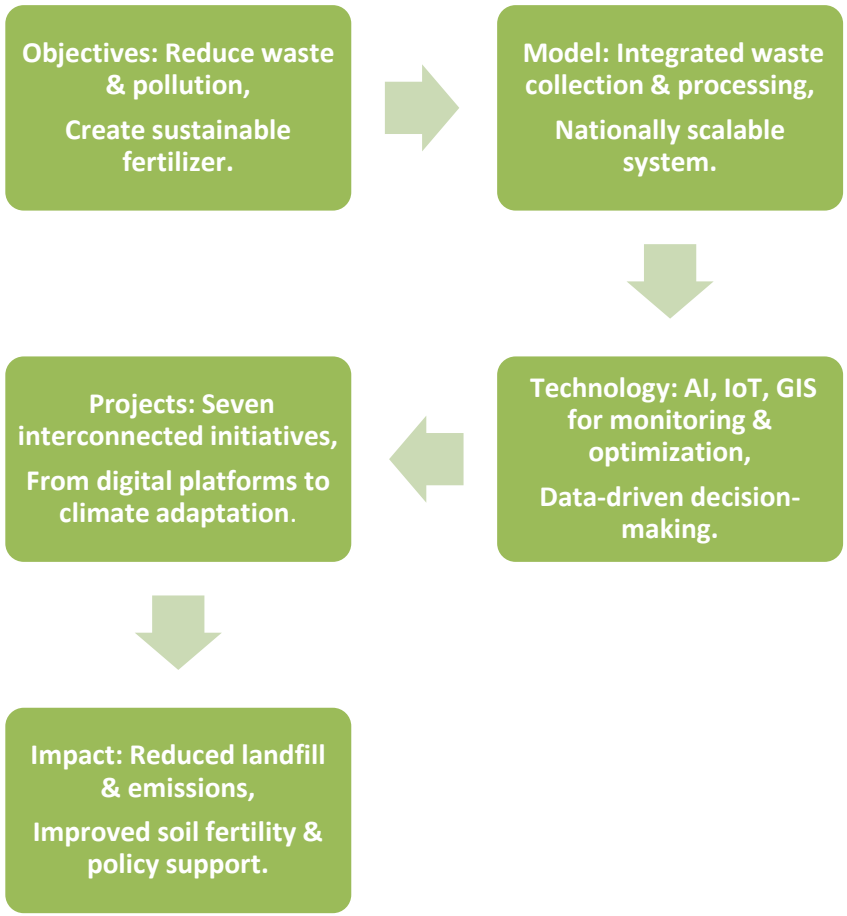
Objectives



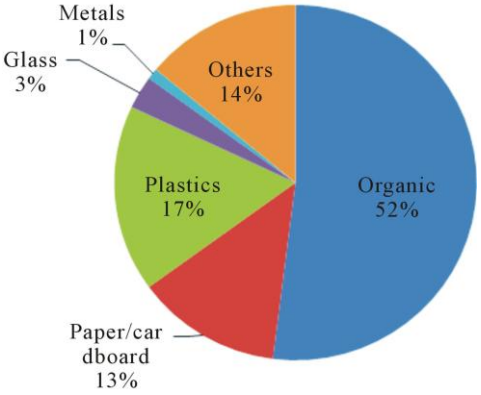
I. **Present Jordan's first integrated organic waste-to-fertilizer model**
II. **Highlight the role of AI, IoT, GIS in environmental management**
III. **Present seven interconnected national projects**
IV. **Emphasize environmental, economic, and policy impacts**

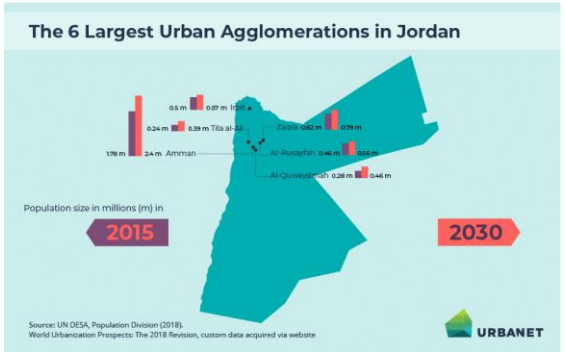
Jordan's Organic Waste Challenge

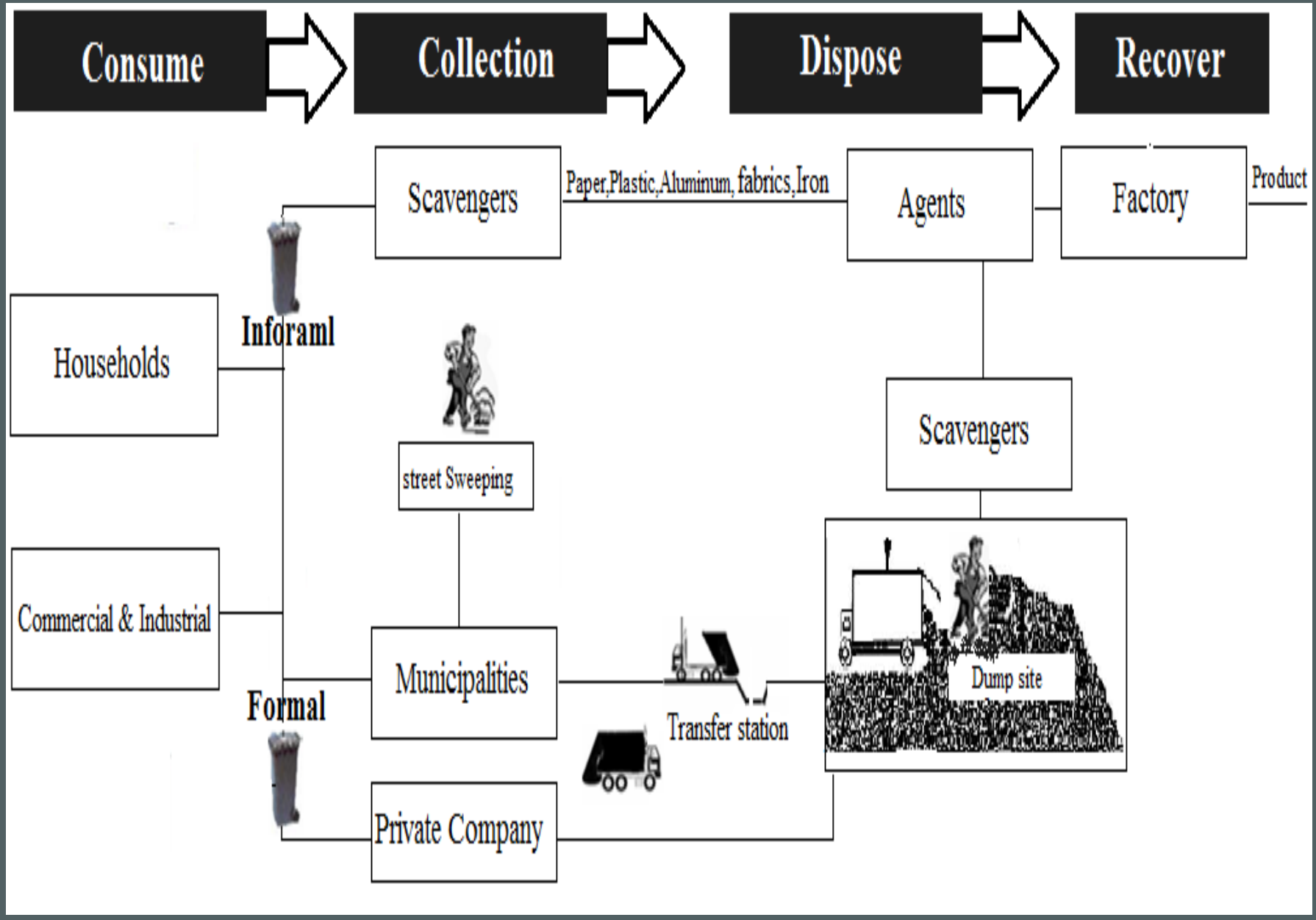
2.5 million tons municipal waste annually (>50% organic)

Landfills → methane emissions, soil degradation, pollution

Opportunity: organic waste as resource for fertilizer






Consume
Collection
Dispose
Recover
Scavengers
Paper,Plastic,Aluminum, fabrics,Iron
Agents
Factory
Product
Households
Inforaml
street Sweeping
Scavengers
Commercial & Industrial
Municipalities
Transfer station
Dump site
Formal
Private Company

The Integrated Model

🚛 **Organic Waste Collection: Collect organic waste from municipalities**

⬇

🏭 **Processing Hubs: Centralized hubs convert waste into compost**

⬇

🤖 **Digital Monitoring: AI & IoT track quality & environmental impact**

⬇

🌱 **Fertilizer Production: Produce high-quality organic fertilizer**

⬇

🌾 **Agricultural Use: Distribute to farms to improve soil fertility**

Digital Technologies: Leveraging AI, IoT, and GIS

🤖 AI	🌐 IoT	🗺️ GIS
Predicts waste	Tracks sensors	Maps
waste trends	& monitors	& impact
zones		
	compost	

Seven Interconnected Projects: National Innovation Ecosystem

Digital Policy Simulation Lab

National Green Innovation Network

Integrated Organic Fertilizer System

Smart Legislative Platform

Digital Environmental Impact Platform

National Climate Adaptation Framework

Innovation Hub for Resource Management

Projects work together to implement the integrated model nationwide

Addresses waste, policy, climate adaptation, innovation, and governance

Digital Environmental Impact Platform

Objective: Monitor and evaluate environmental impacts using advanced digital tools.

Key Features:

- Real-time data collection on air, water, and soil quality
- AI-driven analysis for predictive insights
- Interactive dashboards for stakeholders

Expected Impact:

- Enhanced environmental decision-making
- Reduced ecological footprint
- Support for sustainable development policies

Digital Policy Simulation Lab

Objective: Simulate policy outcomes to guide evidence-based decisions.

Key Features:

- Virtual modeling of policy scenarios
- AI-driven outcome predictions
- Stakeholder collaboration platform

Expected Impact:

- Improved policymaking accuracy
- Faster evaluation of environmental regulations
- Reduced trial-and-error in policy implementation

National Green Innovation Network

Objective: Foster collaboration and innovation in green technologies.

Key Features:

- Knowledge-sharing platform for green tech startups
- Research partnerships with universities
- Innovation challenges and grants

Expected Impact:

- Accelerated development of sustainable solutions
- Strengthened green tech ecosystem
- Job creation in eco-innovation sectors

Integrated Organic Fertilizer System

Objective: Promote sustainable agriculture through organic waste management.

Key Features:

- Conversion of agricultural waste into organic fertilizer
- Smart distribution system for farmers
- Soil quality monitoring integration

Expected Impact:

- Increased soil fertility and crop yields
- Reduced chemical fertilizer use
- Lower environmental pollution

Smart Legislative Platform

Objective: Digitize and streamline legislative processes for transparency.

Key Features:

- AI-assisted drafting of environmental laws
- Tracking and analysis of legislation progress
- Public engagement and feedback tools

Expected Impact:

- Faster, more transparent legislative processes
- Improved law enforcement effectiveness
- Greater citizen participation

National Climate Adaptation Framework

Objective: Strengthen resilience to climate change across sectors.

Key Features:

- Climate risk assessment tools
- Sector-specific adaptation strategies
- Monitoring and reporting system

Expected Impact:

- Reduced vulnerability to climate risks
- Coordinated national adaptation efforts
- Enhanced disaster preparedness

Innovation Hub for Resource Management

Objective: Develop smart solutions for efficient resource use.

Key Features:

- IoT and GIS-enabled resource monitoring
- AI-driven optimization for water, energy, and materials
- Pilot projects and case studies

Expected Impact:

- Improved resource efficiency
- Cost savings and sustainability
- Support for circular economy initiatives

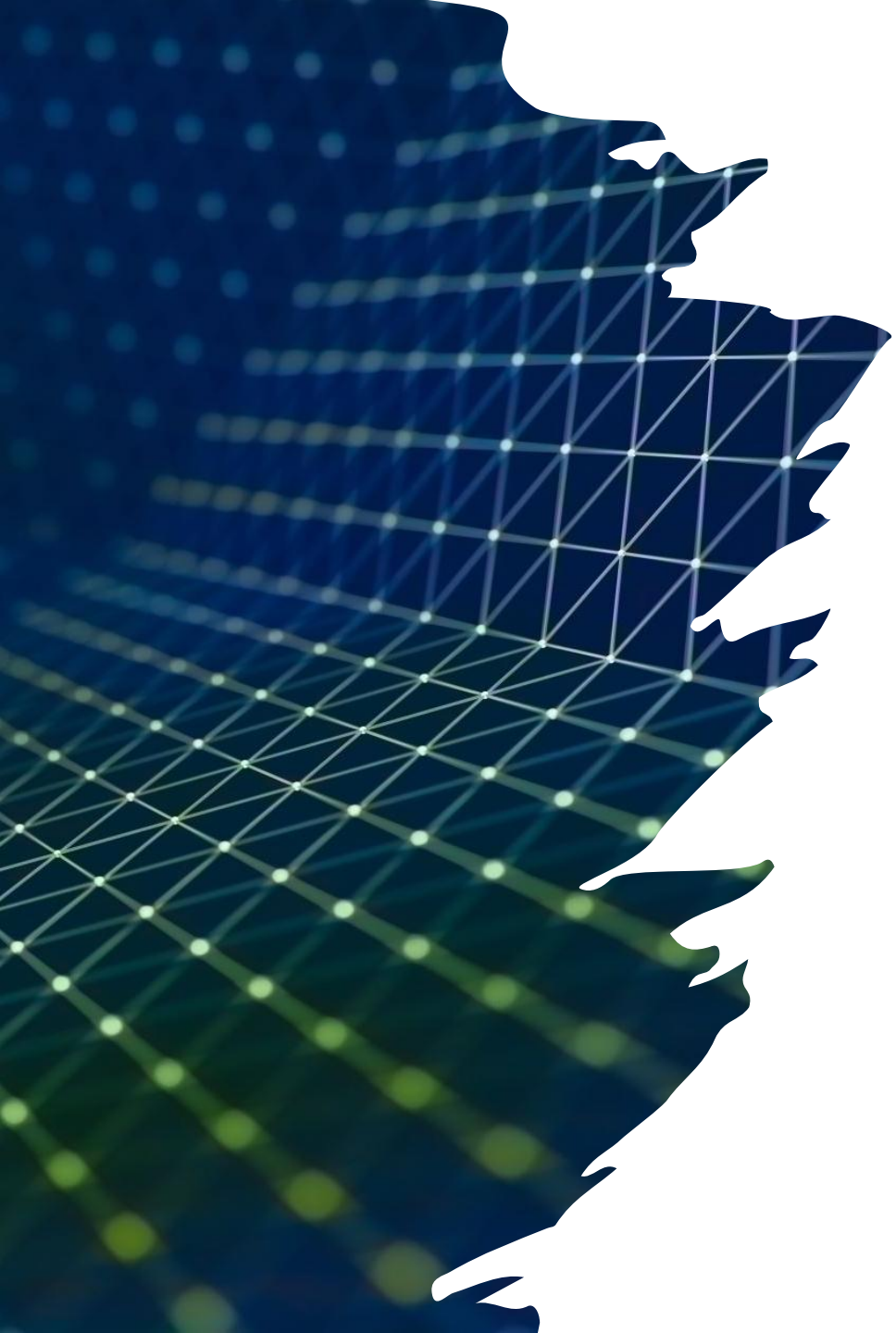
Methodology

sensor | map | policy | farm

1. Continuous digital monitoring (AI & IoT)
2. Geographic analysis (GIS)
3. Policy modeling & simulation
4. Field implementation & scalability testing

Benefits for Environment & Economy

- **Reduced landfill waste and methane emissions**
- **Improved soil fertility and agricultural productivity**
- **Sustainable fertilizer → reduces import dependency**
- **Job creation in waste management, technology, and agriculture**



Supporting Evidence-Based Policy

- **Improved Environmental Governance**
- **Tools for Monitoring Compliance**
- **Guides Future Legislation**

Transforming Waste into National Sustainability

First integrated, scalable model in Jordan

Technology-driven and evidence-based

Regional benchmark for sustainable waste management

Q&A

THANK YOU FOR YOUR ATTENTION.

QUESTIONS ARE WELCOME