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KGID 2026 SEJONG

Smart Farming in Korea

Current Status and Policy Directions with case insights of K-smart farm from Shinhan A-tec Co.

1 What is Smart Farming?

Statutory Definition of Smart Farming

The Act on Fostering and Supporting Smart Farming

Article 2 (Definitions) The definitions in the Act are as follows:

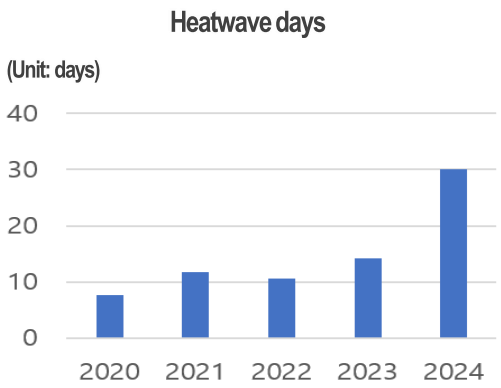
1. "Smart farming" means agriculture (referring to agriculture as defined in the Framework Act on Agriculture, Rural Community and Food Industry; the same shall apply hereinafter) that incorporates advanced technologies, such as information and communication technologies (ICT), into the agricultural sector in order to improve productivity and quality and to reduce management and labor costs.
2. "Smart farming data" means information on the growth environment and growth conditions that is produced or utilized in the course of operating smart farming, and that is expressed in forms such as numerical data, text, or images.

2 Necessity and Current Status of Smart Farming

Changes in Agricultural Production Conditions

Extreme Weather

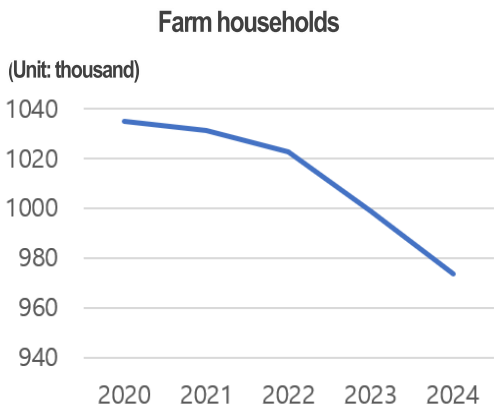
- Number of heatwave days: 7.7 (2020) → 30.1 (2024)



- Increasing occurrence of extreme weather (heavy rain, severe cold, etc.)

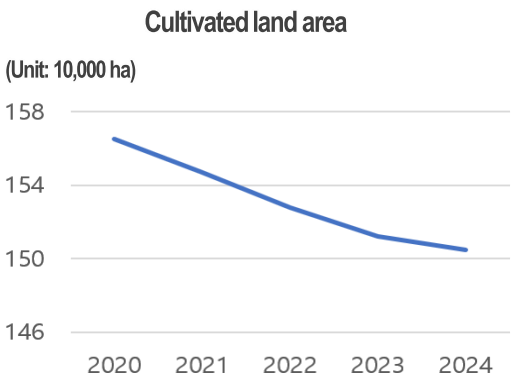
Decrease in Farm Households

- Farm Households: 1,035.2 thousand (2020) → 973.7 (2024)



Declining Cultivated Land Area

- Cultivated Land Area: 1.565 million ha (2020) → 1.505 (2024)

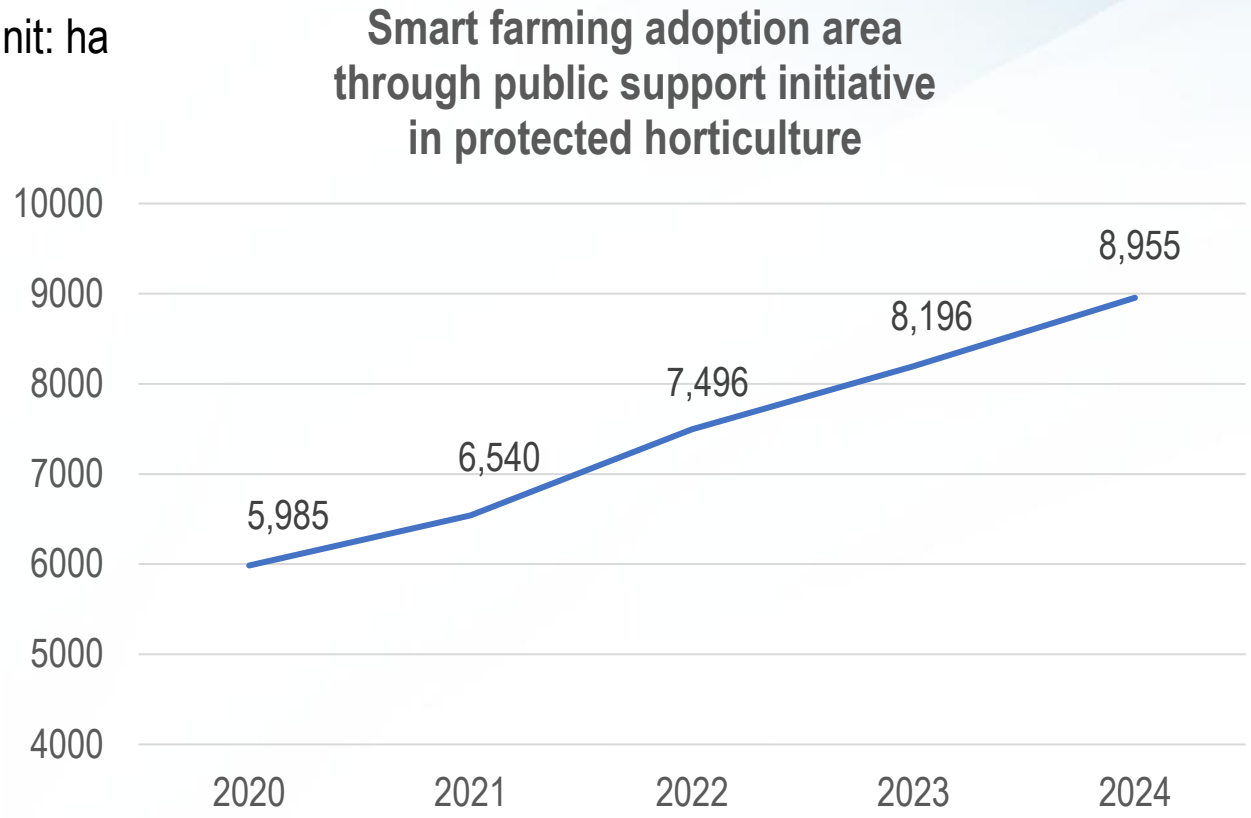


2-2 Efforts to Date

- Enactment (Jul. 2023) and enforcement (Jul. 2024) of the Act on Fostering and Supporting Smart Farming
- Strengthening R&D for core K-Smart Farming technologies
- Support for the adoption of ICT equipment and modernization of agricultural facilities
- Establishment of Smart Farm Innovation Valleys and rental smart farms
- Policy financing support, including the smart farm fund, and fostering of venture businesses

2-3 Status of Adoption in Korea

Unit: ha



2-4 Future Challenges

- **Fragmented, small-scale agricultural production structure → constraints on economies of scale**
  - Average greenhouse area per farm: Korea 0.56 ha (2023, EPIS) / Netherlands 3.02 ha (2023, KOTRA)

- **Limited capacity of farmers to utilize advanced technologies**
  - 2nd most difficulty when adopting smart farming: low level of technical understanding (19.3%)
    * 2024 Smart Farming Survey, Korea Agriculture Technology Promotion Agency

- **Urgent need for technological development to overcome uncertain profitability and high-cost burdens**
  - 1st most difficulty when adopting smart farming: securing installation costs (29.5%)
    * 2024 Smart Farming Survey, Korea Agriculture Technology Promotion Agency

3 Policy Directions of Smart Farming

3-1 First Smart Farming Promotion Plan

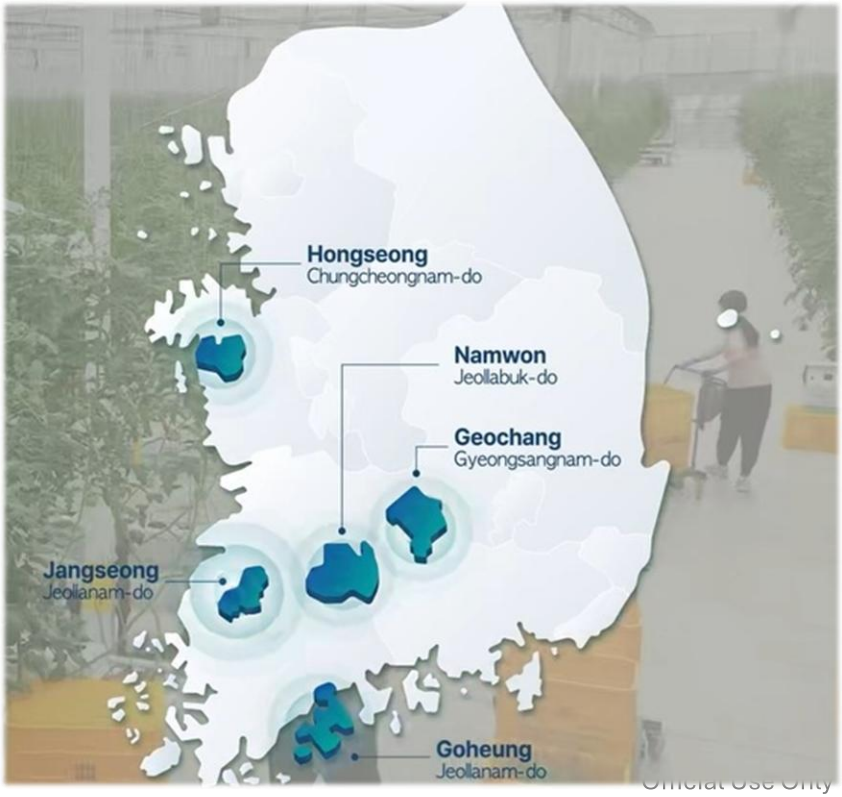
- **Vision: “Globally Competitive Smart Agro-Industry "**
  - Smart farming (protected horticulture) 16% (2024) → 35% (2030)

- **Key Tasks**
  - Creating a smart farming cluster
  - Training smart farming personnel with professional management capabilities
  - Strengthening R&D for the development of K-smart farming technology and models
  - Building a foundation for the advancement of smart farming-related industries

3-2 Cluster Development

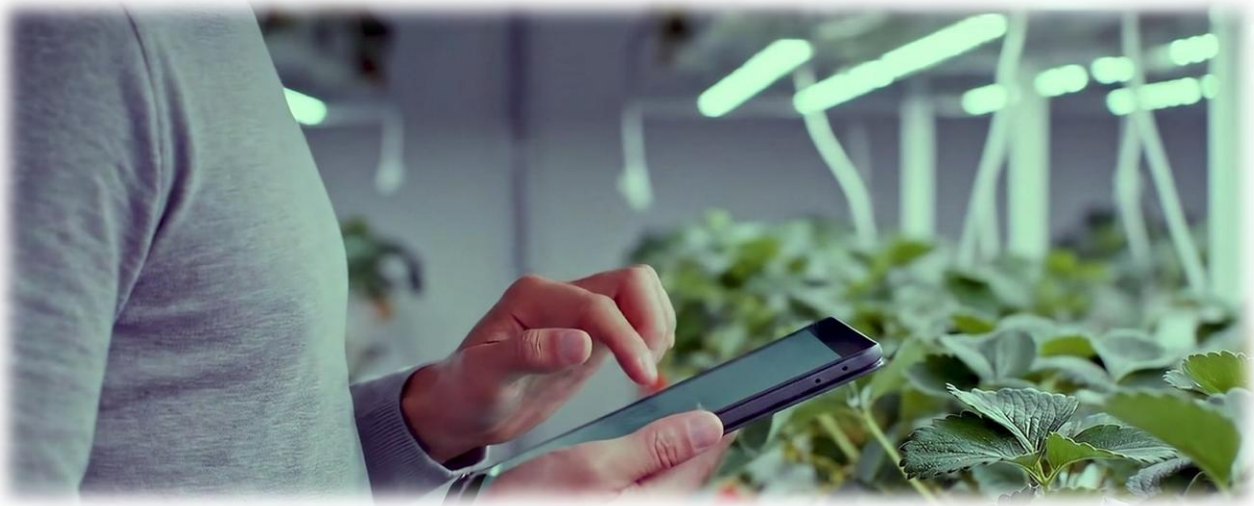
- Development of smart farming promotion zones
  (5 sites in 2025 → 15 sites (projected) cumulatively by 2026)
  - Clustering of smart farms and related industries, including processing and distribution facilities
  - Provision of long-term rental smart farms for young farmers

Smart Farming Promotion Zones



3-3 Training Smart Farming Personnel

- Establishment of a workforce capacity-building system for digital and generational transition
  - Expanding smart farming training institutions
  - Field-oriented training programs
  - Introduction of the Smart Farming Manager certification system



3-4 R&D and Standardization

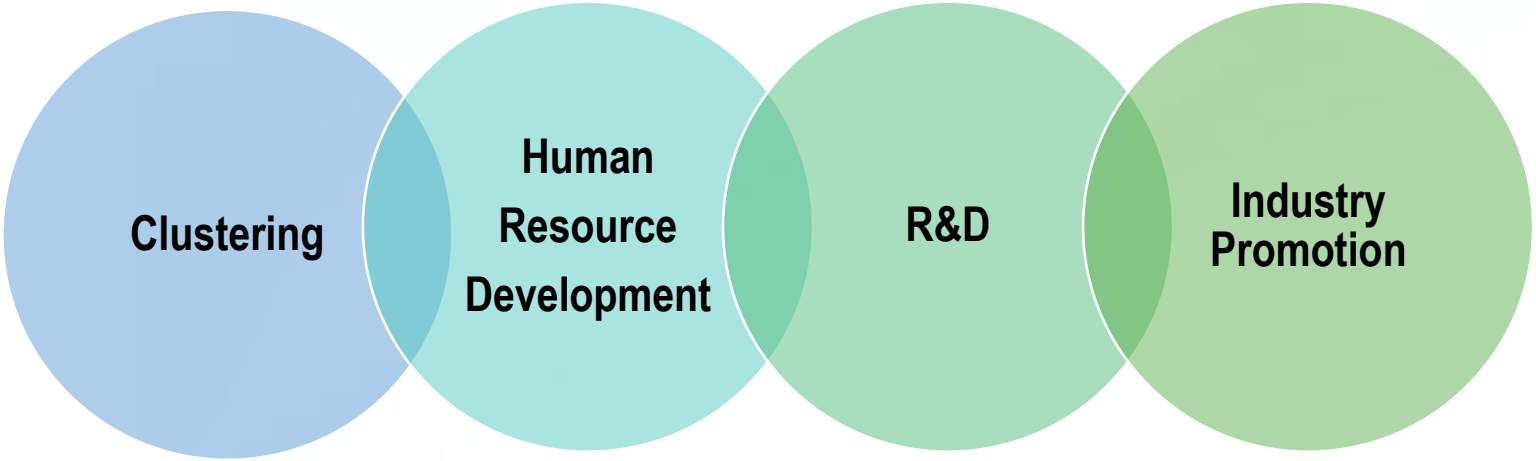
- Strengthening R&D for emerging technologies such as robots, drones, and autonomous farm machinery
- Development of standardized Korean smart farm and vertical farm Models
- Investment in technologies to reduce costs, including energy efficiency in smart farms

3-5 Building Smart Farming-Related Industries

- Selection of leading smart farming companies
  - Focused support through financing and regulatory improvements
- Building a growth foundation for smart farming ventures
- Promoting smart farming solutions to address agricultural challenges (extreme weather, labor shortages, etc.)
- Strengthening global competitiveness through end-to-end support for smart farm exports (from demonstration to marketing)

Significance of Expanding Smart Farming

- Smart Farming = A New Growth Engine for Agriculture



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Case Insight : SHINHAN A-TEC

The Evolution of K-Smart Farm: Bridging the Present to the Future

Doyun Kim
Global project manager

SHINHAN A-TEC

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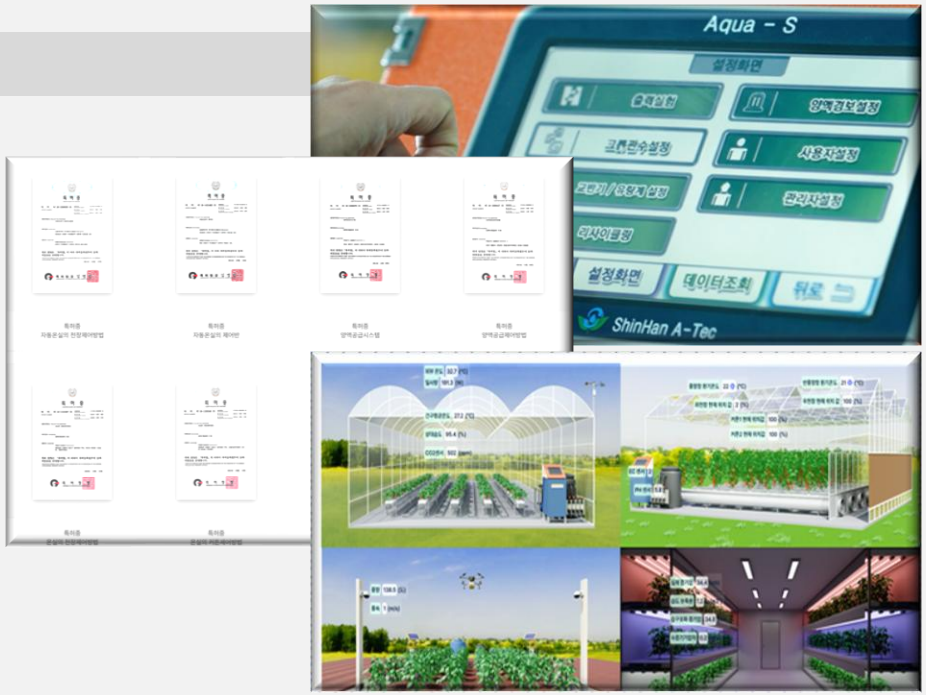
SHINHAN A-TEC

SHINHAN A-TEC ?

Shinhan A-Tech advances toward the future of agriculture

Business Areas & Products

- *Greenhouse Construction*
- *AI-based Climate Control System*
- *Diverse Sensors*
- *Recycling Hydroponics*
- *Software & R&D*
- *Cultivation Solutions*
- *Site-specific Design*



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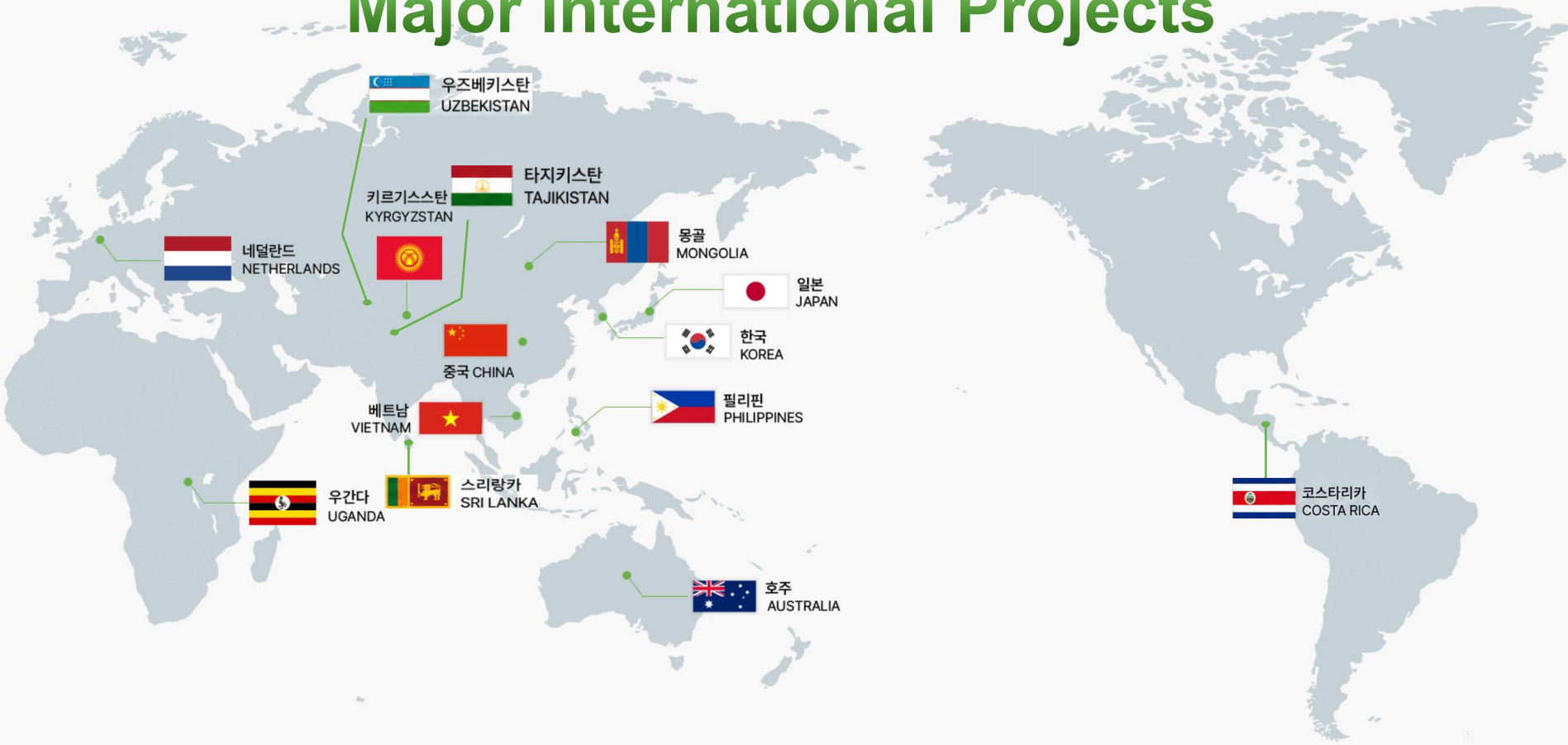
Major International Projects



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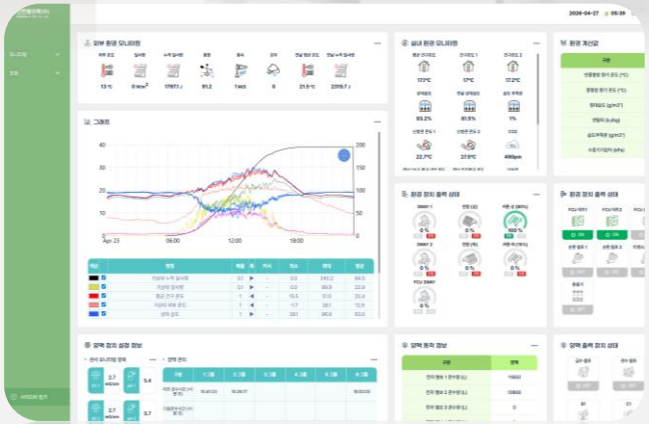
Project Details

Fertigation System

AI-driven Control System

Filtering System



AI-based Decision-Making

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Project Details

Diverse Sensor Types

Advanced Greenhouse Construction

Training Program

Consulting Solution

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Major International Projects

Uganda project

Philippines project

Costa Rica project

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Training Process

Theory of Cultivation

Practice of Cultivation

Equipment Operation

Automatic System

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Process of After Construction

Sawing

Planting

String

Managing

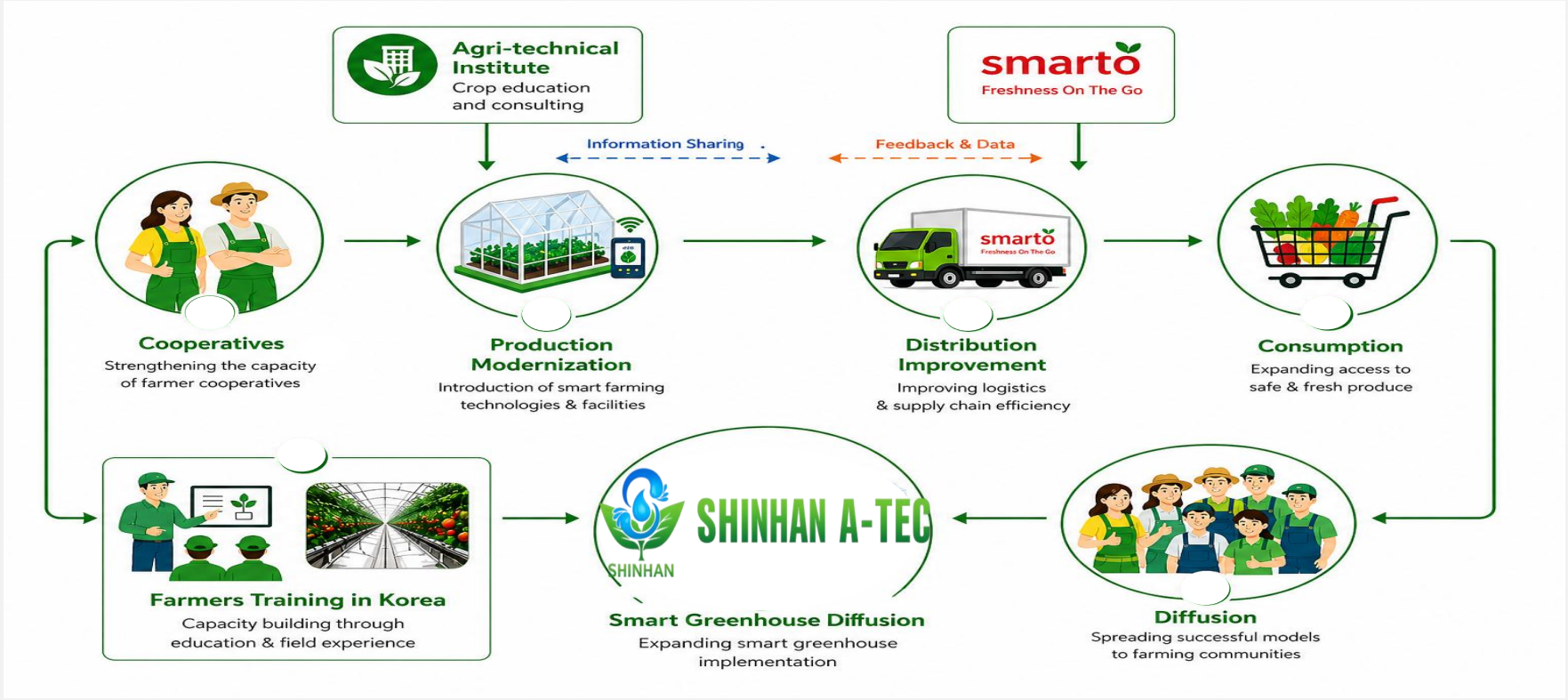
Producing

Grading

Packing

Branding

SHINHAN A-TEC ?



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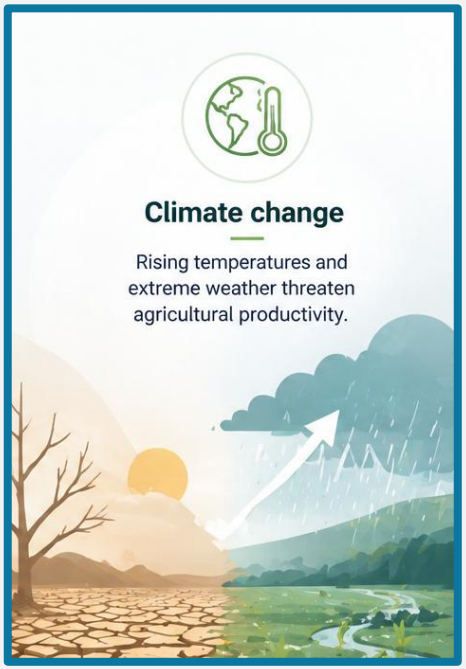
Why Smart Farming?



➡ **Traditional farming is no longer enough**

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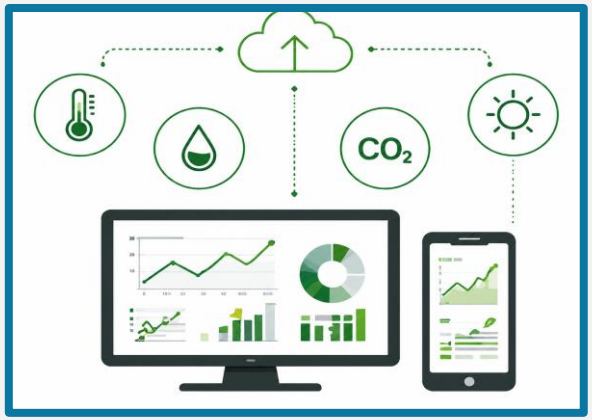
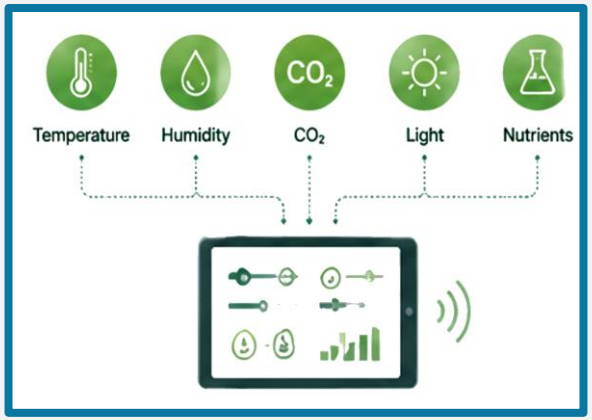
What is K-Smart Farm?



ICT + Agriculture



Automated control systems

Data-driven production

Evolution of Smart Farm Systems

Past
Focus on productivity

Present
Energy efficiency & optimization

Future
Sustainable & eco-friendly systems

Future of Smart Farming

AI-based automation

Carbon-neutral farming

Water recycling systems

Global smart farm expansion

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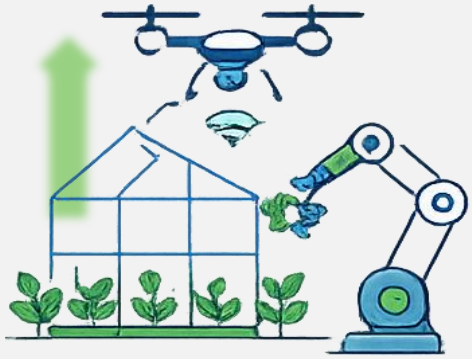
Now K-Smart Farm

Progress in AI-Driven systems



Automation
& intelligence

Beyond limits

Global expansion

A Key of high quality and production

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