WORLD BANK GROUP | KOREA GREEN GROWTH TRUST FUND | Ministry of Finance and Economy | SEJONG CITY

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Digitalization and K-Smart Agriculture towards Targeted International Cooperation

International Agriculture Division

Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries (EPIS)

EPIS

CONTENTS

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I. Introduction of EPIS

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Mission

Realizing robust agriculture and vibrant rural areas by leading future agriculture and spreading rural values.

Core Value

Vision

A partner for innovative growth in agriculture and rural area with the people.

E ven-Handed

P ersonal-Respect

I nnovative Creativity

S ustainable Win-win

EPIS, established in May 2012,
is a public agency under the MAFRA.
- Leading digital agriculture
- Promoting agricultural and rural values

Strengthening K-Agriculture Competitive-ness through ODA

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II. International Cooperation Cases

II-1. Areas of EPIS International Cooperation

Official Development Assistance (ODA)

Support for food security in partner countries

Digitalization of agriculture

Improvement the income of farm household

01 Areas

- Smart-Farm
- Digital Public Administration
- Food Security Partnership with ASEAN (AFSIS)

02 Main Tasks

A. Establishing Policy Foundations
B. Establishing Facilities and Systems
C. Dispatching Experts
D. Reinforcing Human Competencies
E. Building International Food Security Partnership

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II-2. Projects for Digital and Smart Agriculture

1) Establishing Smart Farm, Training & Extension on High Value Crops

2) Digital Public Administration for Integrated Agricultural Administrative Management

Category	Country	Duration	Targets
Digital	Philippines	’23~’26	Integrated agricultural administrative mgmt. (Farmer data, agricultural subsidies, price, analytic data, etc.)
Smart Agriculture		’20~’23	Horticulture (tomato, mushroom, melon etc.)
	Vietnam	’21~’24	Horticulture (cherry tomato, paprika, strawberry)
		’22~’24	Livestock (pig)
	Cambodia	’21~’24	Horticulture (melon, cherry tomato, etc.)
	Indonesia	’21~’25	Horticulture (paprika, cherry tomato, orange, etc.)
	Uzbekistan	’22~’26	Horticulture (strawberry, nursery)

Smart farm (Philippines)

Pig Smart Farm (Vietnam)

Crop Production (Indonesia)

Farmers’ Training (Vietnam)

Product Sales (Cambodia)

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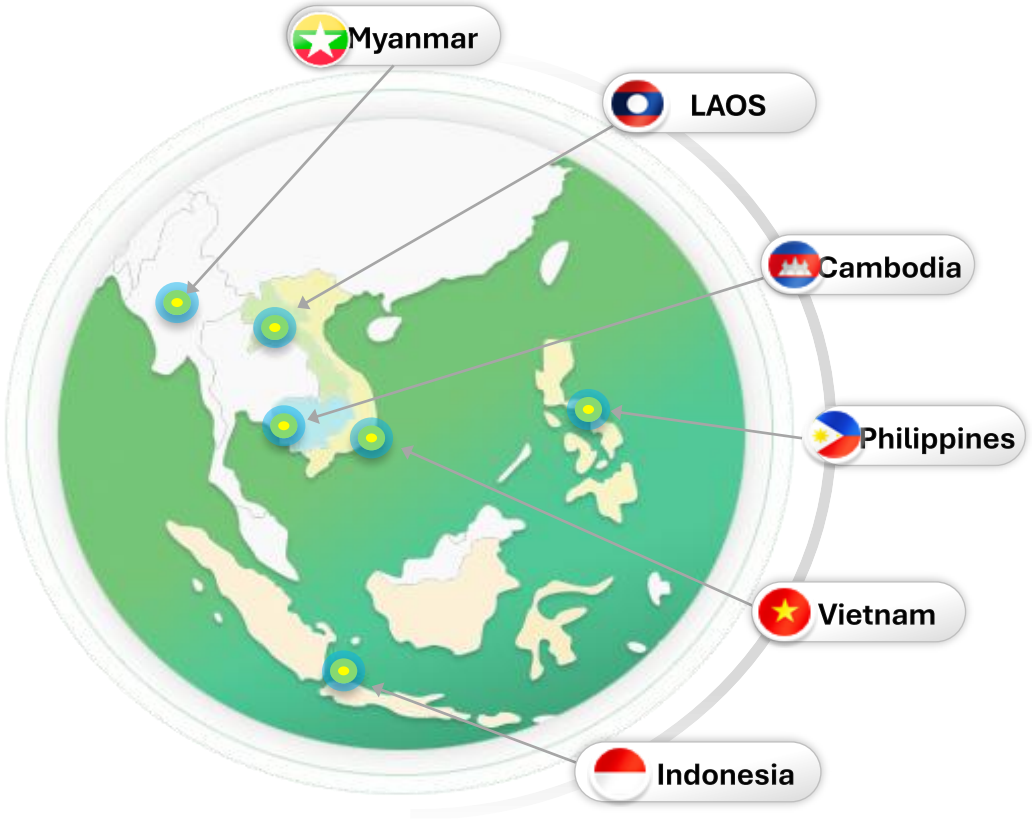
II-4. Project for ASEAN Food Security Network

Collaborative Project for Establishing ASEAN+3 Food Security Information ('14~)

NAIS is a system for contributing food security to the ASEAN region.

It is an agricultural statistics information system that collects agricultural statistics and food security data.



Phase	Phase 1 Production				Phase 2 Distribution			Phase 3 Forecasting				
Year	'14	'15	'16	'17	'18	'19	'20	'22	'23	'24	'25	'27(p)~
Target												
Contents	▪ Developing National Agri-food Information System (NAIS) for production data (yield, quantity, etc.) collection ▪ Capacity building				▪ System Upgrade (NAIS) for distribution data (whole-sale/retail price, public/ private stocks) collection on mobile device ▪ Capacity building			▪ Pilot project for Production Forecasting and Monitoring System - Strategic crops : rice, sugarcane, etc. ▪ Capacity building program				

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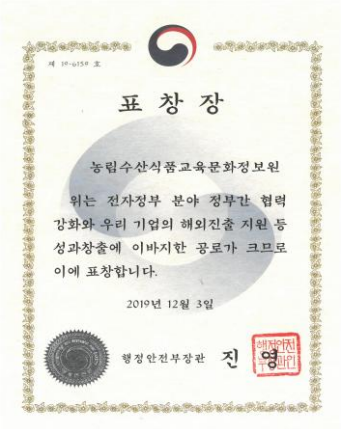
II-5. Accomplishments

In Contribution of ASEAN+3 Food Security Network (AFSIS)



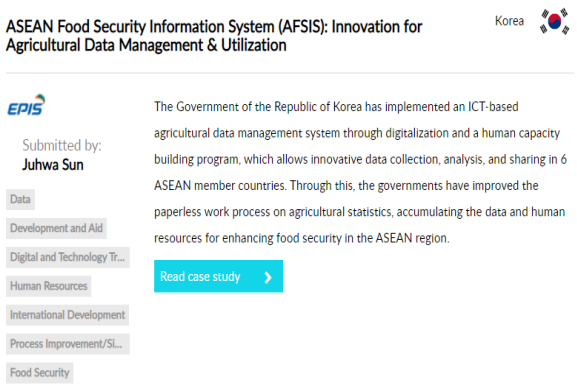
❖ **Awarded a Commendation by the Ministry of the Interior and Safety** in recognition of contributions to enhancing collaboration in e-Government and facilitating the global outreach of Korean enterprises in 2019

In Contribution of Philippine Smart Agriculture

❖ **Selected as a Best Practice Case in ODA by the Office for Government Policy Coordination,** Republic of Korea in 2024

2019 **2021** **2024**

OECD
BETTER POLICIES FOR BETTER LIVES
OPSI
Observatory of Public Sector Innovation



❖ **OECD Observatory of Public Sector Innovation (OECD, 2021)**

❖ **Best ODA Practice (Office for Government Policy Coordination, Korea, 2021)**

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II-6. Best ODA Practice Case (Philippine Smart Farm, 2024)

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III. Vision & Future Plan

III-1. Project Customization via Competency Diagnosis

In many developing countries..

Lack of Systematic Tool for Smart Agriculture and Informatization
Lack of Experience & Human Competency
Implementing Project with Less Consideration of Beneficiaries' Competency

“ Development of an Agricultural Human and Informatization Competency Diagnostic Tool (Dec, 2025) ”

Customized projects for Country through Verification of Competency Stages

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III-1. Development of Agri-Human Competency Diagnostic Tool

"Package for Smart Agriculture"
(Defined Technology + Training + Manuals per Crop)

Agricultural Human Competency Diagnostic Tool

Key Diagnosis Indicator	**Smart Agriculture Technology Level** **Agri-business Status** (e.g. Business scale, Experiences, etc.) **Competency Level by Retained Knowledge, Technology** **Agri-business Performance by Farm Income**	
How to Apply	**Level 1**	1) Smart agriculture technology diagnostic standards 2) Integrated smart agriculture training curriculum standards
	Level 2	Smart agriculture training curriculum design through trainees' competency diagnosis by level, contents, duration and learning methods, etc.
	Level 3	Seeking mid- and long-term oriented strategic crops from smart agriculture technology diffusion perspective in each country

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III-1. Development of Agri-Digital Competency Diagnostic Tool

" Global Agriculture Digital Standards "

- OECD — Methodology for the OECD Digital Government Index
- WORLD BANK GROUP — GovTech Maturity Index (GTMI)
- United Nations — E-Government Development Index (EGDI)
- ITU GSR RIYADH2025 — ICT Development Index (IDI)

Agri-Informatization Diagnostic Tool		
Key Diagnosis Indicator	**Digital Infrastructure** (e.g. ICT services, systems, etc.) **Agricultural Technique Level** (e.g. Agri-automation, Data utilization, etc.) **IT Human Competency** (e.g. Technology, Training facilities, etc.) **Institutional Foundations** (e.g. Policies, Strategies, Restraints, etc.)	
How to Apply	**Level 1**	1) Establishing policy foundation 2) Implementing pilot project for digitalization (Paper-less)
	Level 2	1) Scale-up of pilot project 2) Establishing agricultural administration system (Farmers and farmland information)
	Level 3	Establishing data-ecosystem

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III-2. Masterplan for Capacity Building

Capacity Building for Climate Smart Agriculture Applicable to Global on Different Country Environments

Phase 1	Phase 2	Phase 3	Phase 4
Technology Classification & Capacity Level Analysis	Competency Diagnosis Tool and Training Map Development	Application Plan Development for Capacity Building	Pilot Implementation, Monitoring & Evaluation
❖ Status analysis on agricultural technology and capacity building methodology ❖ Beneficiary country analysis ❖ Standard technology classification and level definition	❖ Climate smart agricultural technology diagnosis tool development ❖ Training map development for agricultural technology by crops ❖ Qualification examination and revision by experts group	❖ Application package development by crops ❖ Training map application process design for agricultural technology ❖ Qualification examination and revision by experts group	❖ Mid- and long-term implementation plan development for capacity building in beneficiary countries ❖ Pilot model implementation (Philippines) ❖ Outcome review and evaluation, feedback

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Level Diagnostic Tool for Capacity on Smart Agriculture

Category		Diagnosis	Level 1	Level 2	Level 3	Level 4
Farm Status	Scale	Production (m²)	< 3,960m²		3,960~6,600m²	> 6,600m²
	Facility	Agricultural Techniques	Smart farm for remote control and environment monitoring		Smart farm for comprehensive environment control, nutrient solution system	AI smart farm, agri-robot, green energy
	Cultivation	Cultivation Method	Soil production in single-unit greenhouse		Nutrient solution in single-unit greenhouse	Nutrient solution in inter-locked greenhouse, automated production
Sales Outcome	Productivity	Productivity (kg/10a)	< 3,000kg	3,000~4,000kg	4,000~5,000kg	> 5,000kg
	Quality	Brix	< 8 brix	8~10 brix	10~12 brix	> 12 brix
		Quality Product Rate (%)	< 65%	65~70%	70~90%	> 90%
	Farm Income	Sales Price Compared to Average Quality Product Price (%)	< 70%	70~80%	80~90%	> 90%

EXAMPLE

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III-2. Masterplan for Capacity Building : Standard Training Map

Standard Training Map for Crop

Philippine Standard Training Map for Mango														
Category	**Crop and Environment Mgmt.**									**Facility and Materials Mgmt.**				
	Production Planning	ICT based growth/fruitage	ICT based soil mgmt.	ICT based fertilizer mgmt.	Smart harvesting/distribution	Pest and disease control	ICT based environment control	Disaster risk mgmt.	Mango data utilization	Smart facility installation	Smart facility maintenance	Agri-machines mgmt.	Agri-materials mgmt.	Safety mgmt.
Level 1	Variety's characteristic	Basic physiology	Basic irrigation	Fertilizer types	Basic harvest and storage	Major pest & disease	Proper growth environment	Typhoon, flood, abnormal temp. mgmt.	Crop data collection	Base facility infrastructure	Consumables	Machine purchase and safety	Material purchase	Worker safety and prevention
Level 2	Production environment preparation	Balanced growth mgmt.	Soil characteristic	Leaf and soil analysis	Harvest decision making	Pest & disease control	Environment by growth season	Pro-active measures and recovery	Basic Data analysis and utilization	Facility framework, plastic covering	Framework structure	Machinery emergency mgmt.	Material safety mgmt.	Environmental harmful factor diagnosis
Level 3	Trends of Variety	Harvest season mgmt.	Soil moisture mgmt.	Fertilizer for nutrition	Post-harvest mgmt.	Pest & disease prevention	Environment by crop shape	-	Advanced data analysis and utilization	Facility control system	-	Repair and inspection	Circumstantial material selection	Harmful factor evaluation

EXAMPLE

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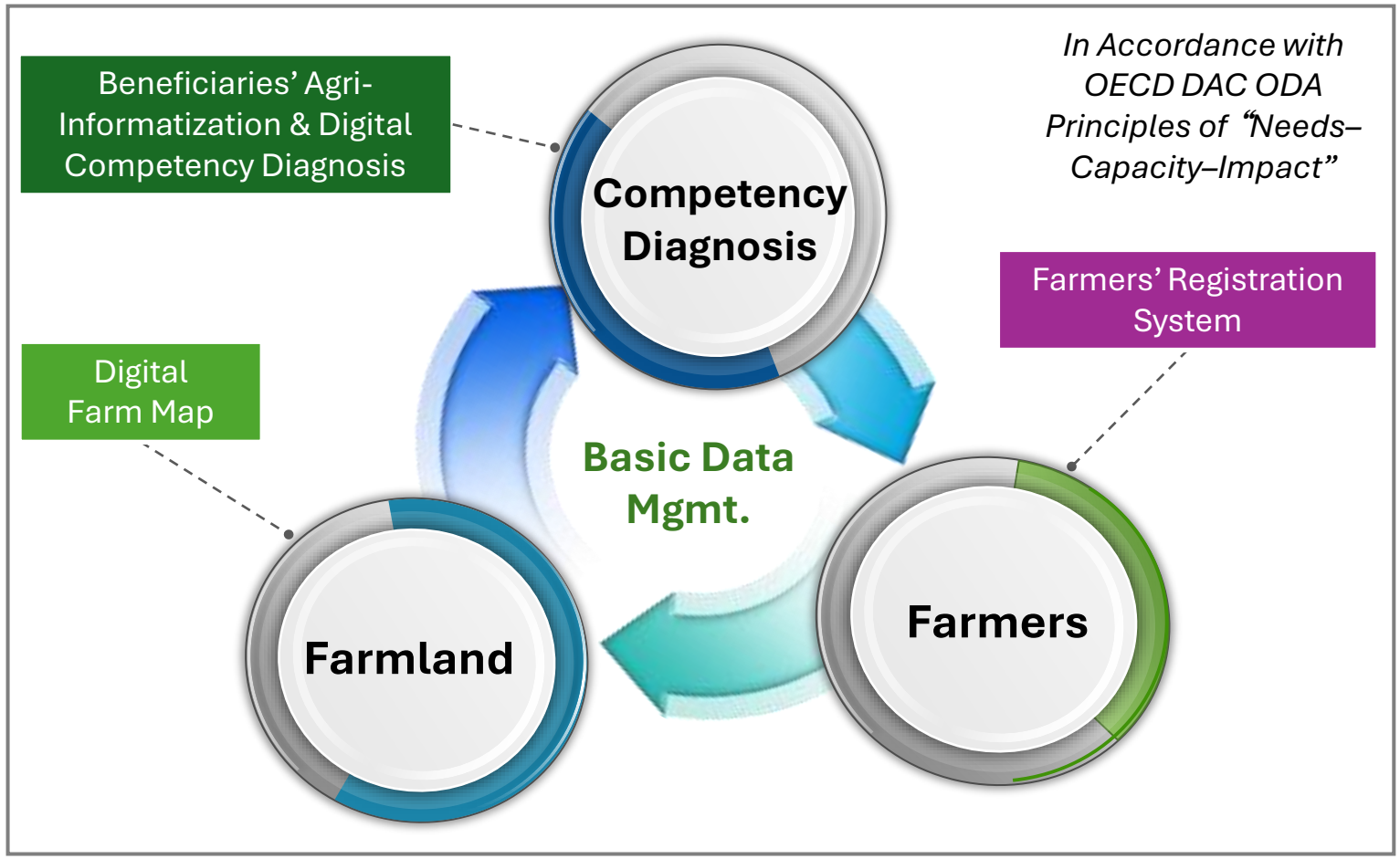
III-3. Masterplan for Digital Agriculture

Needs & Performance-Oriented Approach for Agri-Informatization based on Beneficiaries' Digital Competency



Phase 1 Competency Diagnosis

Phase 2 Establishing Base System for Integrated Agricultural Administration
(Farmers' Registration, Farmland Data Mgmt.)

Phase 3 Sustainable Digital Agriculture Ecosystem for Food Security & Climate Action

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III-3. Masterplan for Digital Agriculture : Farmer Data

Farmers' Registration System

Enhancing Agricultural Transparency & Efficiency through Farmers' Qualification Check of Farm Support Programs on On-line Platform

Efficient Agricultural Subsidies Mgmt. & Scientific Agri-Administration

Farmers

- Farmer's Registration Service
- Support Program Application
- Access to Application Progress
- Transparency via Traceability

Local Government

- Program Implementation (On-line)
- Real-time Process Monitoring
- Enhancing Work Efficiency

Central Government

- Program Monitoring
- Policy-making
- Performance Diffusion

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III-3. Masterplan for Digital Agriculture : Farmer Data (Philippine Case)

Establishing Integrated Agricultural Administrative Management System in Philippines ('23~'26)

One-stop Agricultural Administrative Mgmt. in Integrated Platform

AbCDE Platform 1.0

@ Department of Agriculture 2026

Major Systems

RSBSA Profiling

A digital platform integrating basic profiles of farmers, fishers and agri-youth.

Intervention

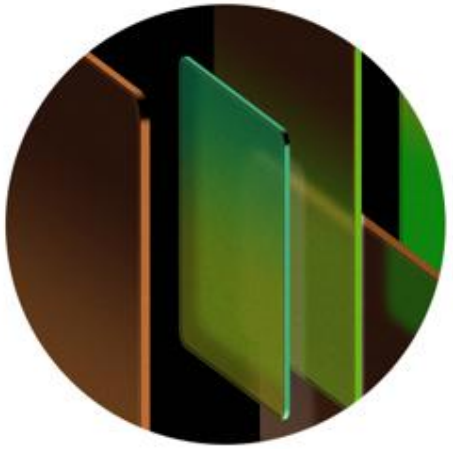
An integrated platform for managing agri-support programs, payments, and distribution.

Analytic Data

A system for viewing and downloading statistical reports.

BPMS

A system for monitoring market and retail prices.



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III-3. Masterplan for Digital Agriculture : Farmer Data (Philippine Case)

Establishing Integrated Agricultural Administrative Management System in Philippines ('23~'26)

PILOT OPERATION(2026.4.~)

Analytic Data(4.17.)

- ☑ Integrated 2 years of manually prepared reports into a big data system
- ☑ Enabled real-time data access to support decision-making

↓

Provided Automated Analytic Data

Intervention(4.24.)

- ☑ Standardized Programs(14→3)
  * Procurement, Voucher, Digital Wallet
- ☑ Full-process Digitalization

↓

Reducing Time to Provide Subsidies

26 Days → 5 days(p)

RSBSA Profiling(4.30.)

- ☑ On-site Digital Registration
- ☑ AI-based Farmer Identification & Duplicate Detection

↓

Improved Data Accuracy

93.8% → 95.3% → 97%(p)

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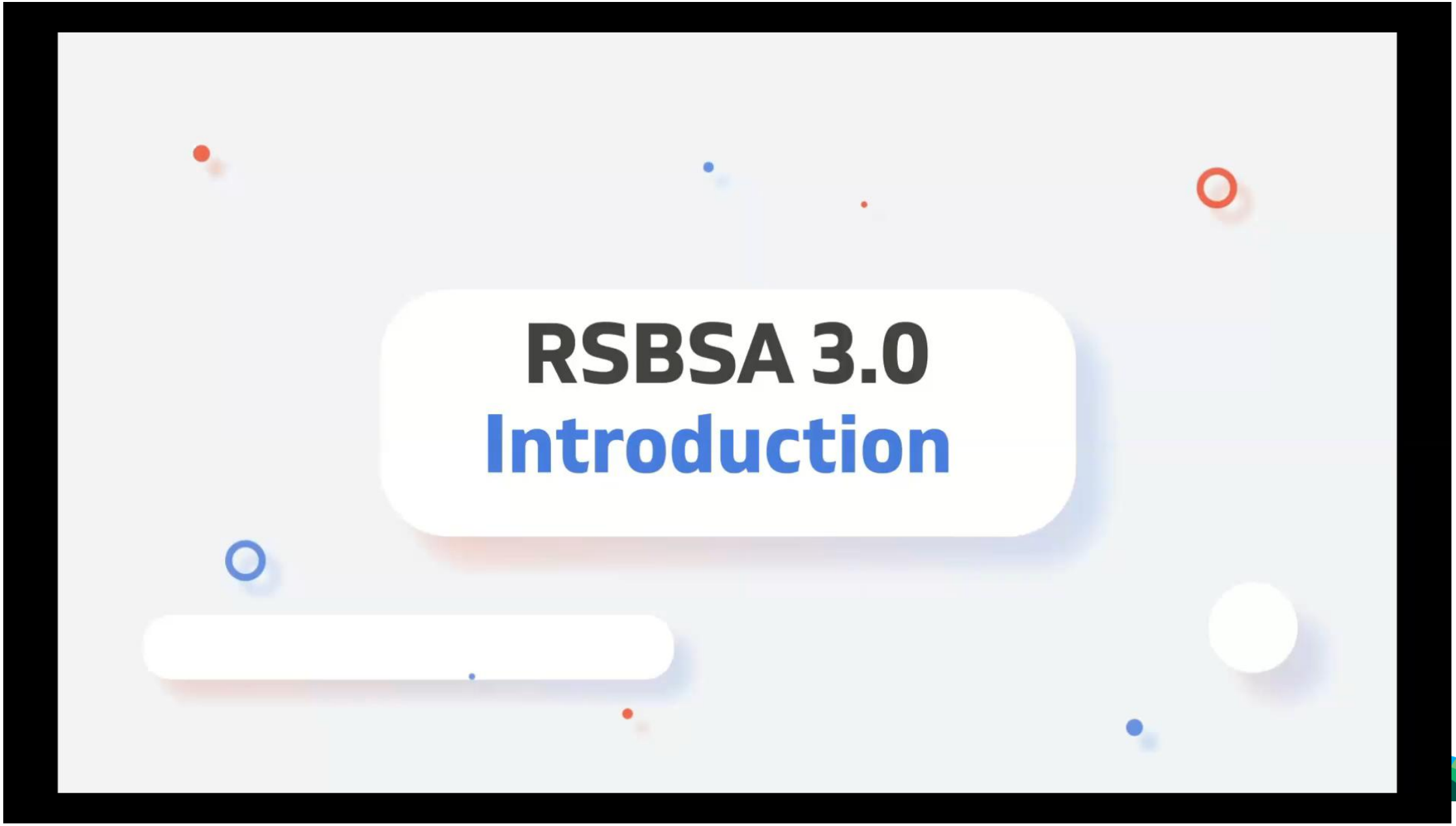
III-3. Masterplan for Digital Agriculture : Farmer Data (Philippine Case)

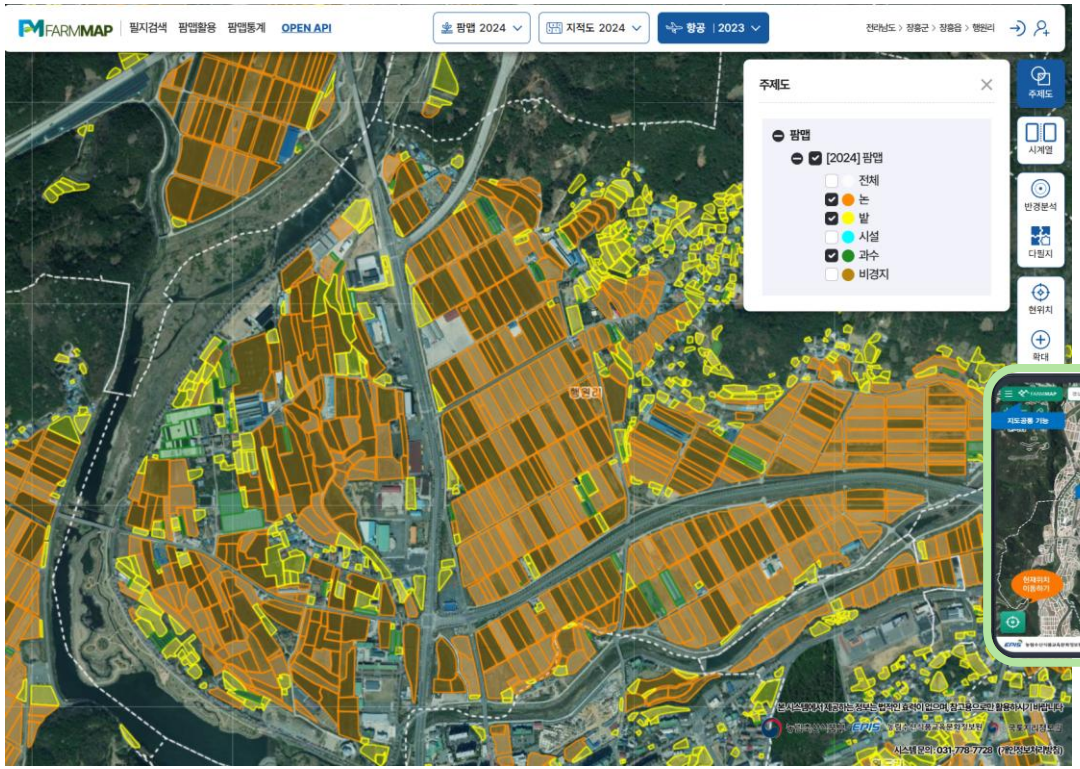


III-3. Masterplan for Digital Agriculture : Farm Land Data

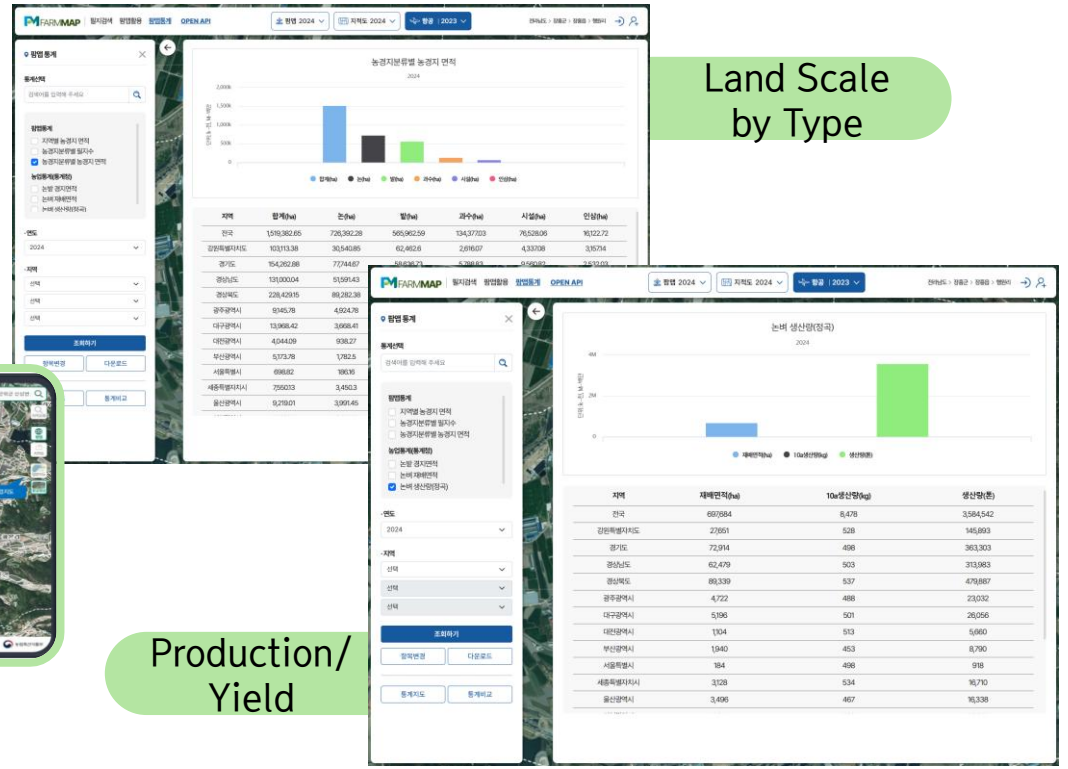
Digital Farm Map

Providing Spatial Data-based Farmland Information for
Precise Policy Making & Customized Farm Support Program

Farmland Usage



Farmland Statistics



Land Scale by Type

Production/ Yield

Land Type: Paddy, Field, Facility, Orchard, Non-cultivated

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III-4. Vision : Establishment of Digital Agriculture Ecosystem

Establishment of Digital Agriculture Ecosystem

Agriculture Administration

Establishment of Digital Platform/System

A-1	Production statistics (AFSIS phase1)	B	Farmer Information
A-2	Distribution statistics (AFSIS phase2)	C	Farmland Management

Establishment Integrated Smart Agriculture Administration System

Agriculture Management

Capacity Building

1	Establishment of Smart Agriculture Model Complex
2	Capacity Building * Utilization of Existing Facilities
3	Spread Localized Smart Farm

Spread of Sustainable Localized Smart Agriculture

Digitalization → **Resolving agricultural challenges**

Strengthening food security and climate action

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Thank you for your attention !

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