POLICY AND INSTITUTIONAL SUPPORT FOR SMART AGRICULTURAL MACHINERY - MALAYSIA OVERVIEW

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Malaysia

ReCAMA Workshop on Smart and Sustainable Agricultural Mechanization
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PRESENTATION OUTLINE

- Introduction on smart agriculture machinery

- Policy and regulation for smart agriculture in Malaysia
  - National Fourth Industrial Revolution (4IR) policy
  - National Agro-Food Policy 2.0
  - National Food Security Action Plan
  - Unmanned Aircraft System (UAS) regulation

- Institutional support and involvement
  - MARDI Agriculture Modernization Cluster Projects
  - Start-up company in smart agriculture machinery

- Collaboration with private sector and foreign agencies

- Conclusion

SMART AGRICULTURE MACHINERY

- Advancement of farming technology have revolutionized the agricultural farming sector in past few years.

- Rapid changes trigger by new technologies such as the Internet of Things (IoT), Cloud Computing and Artificial Intelligent (AI) enhance the development of smart agricultural machinery

- Example of smart agriculture machinery:
  - Autonomous tractors extremely promising for agriculture. The innovative low-emission vehicles operate efficiently and independently, while also protecting the soil. Solve farming labor shortages
  - Agricultural drones

- Benefits of smart agriculture machinery
  - Improved sustainability
  - Increased work efficiency
  - Minimized agricultural input

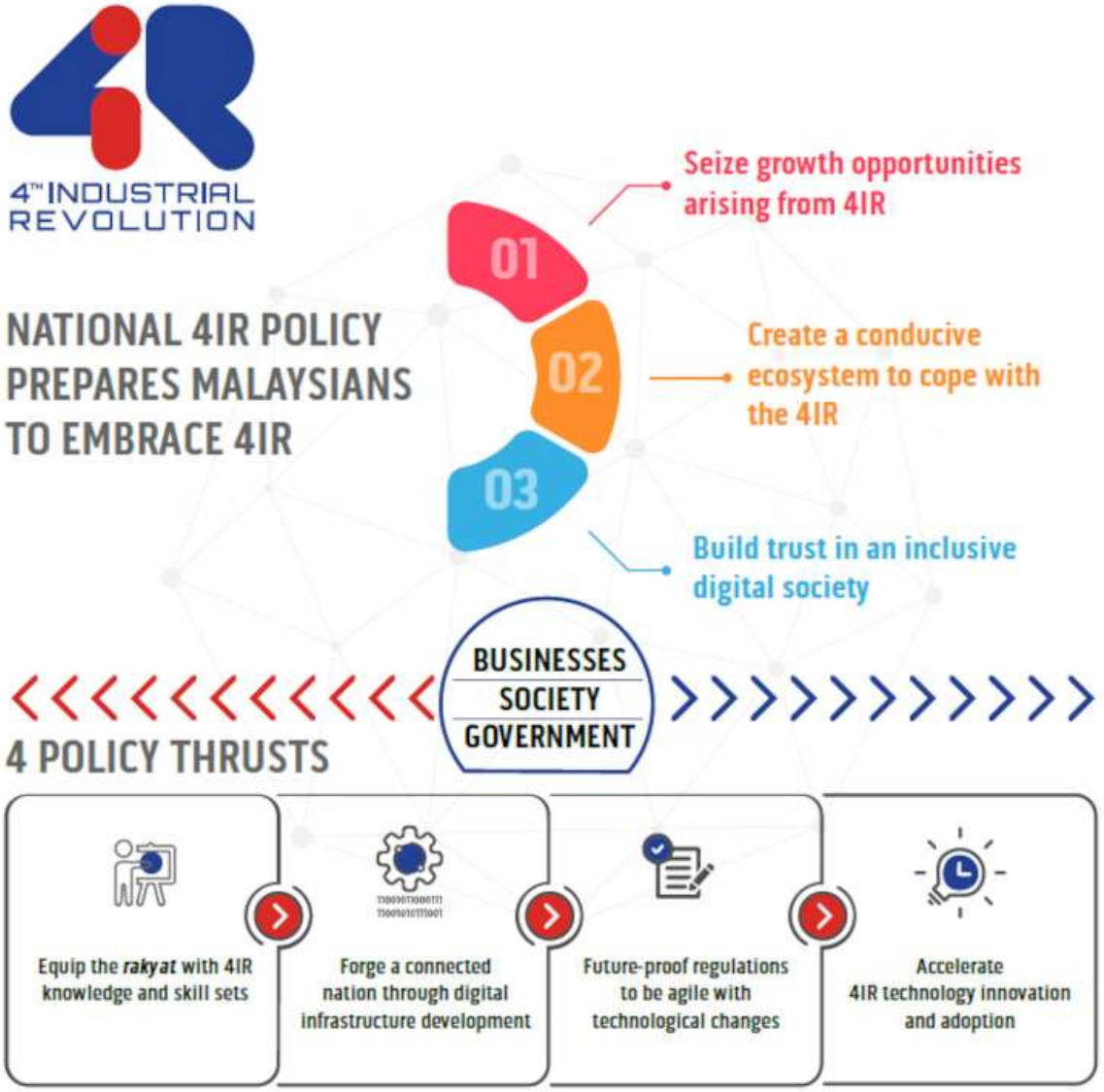
POLICY AND REGULATION FOR SMART AGRICULTURE IN MALAYSIA

- Agro-food sector contribute income to the Malaysia economy with Gross Domestic Product (GDP) growth increased 6.8% i.e., RM51.3bil in 2020 compared to RM28.3bil in 2011

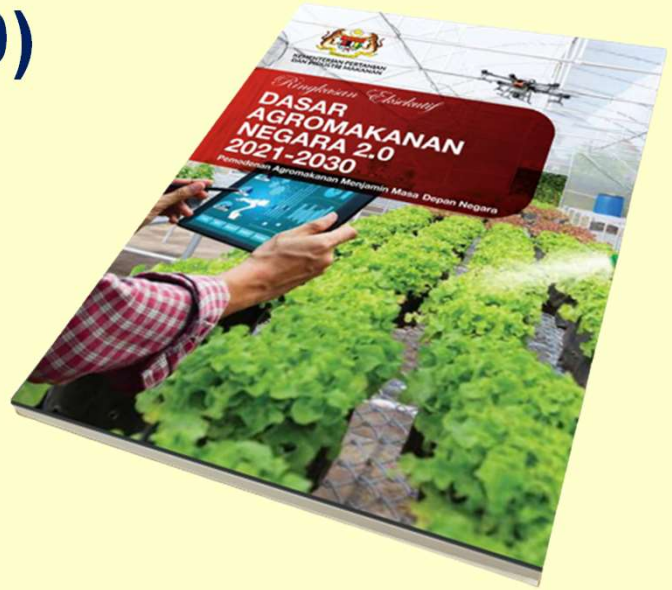
- Government implement policies to expedite smart agriculture transformation in Malaysia

- Among the policies are:-
  - **National Fourth Industrial Revolution (4IR) policy (2021-2030)**
  - **National Agro-Food Policy (2021-2030)**
  - **National Food Security Action Plan (2021-2025)**

NATIONAL FOURTH INDUSTRIAL REVOLUTION (4IR) POLICY (2021-2030)



NATIONAL AGRO-FOOD POLICY 2.0 (2021-2030)



THE 2021–2030 NATIONAL AGROFOOD POLICY (DAN2.0)

- Was launched on Oct 25, 2021
- Is a continuation of DAN 2011-2020 which helped increase growth in the agrofood sector
- Has an average annual growth target of 4.5% under the 12th Malaysia Plan (RMK12)

- Policy focus:
  - 1 National food security
  - 2 Improved productivity, revenue & quality of life of producers

STRATEGY

1 SHIFTING TO SMART AGRICULTURE

- Stressing modernisation
- To increase productivity in all subsectors
- Improving funding, investment incentives & the labour force
  - → To increase acceptance of 4th industrial revolution (IR4.0) technologies

2 EMPHASISING RESEARCH & DEVELOPMENT, AS WELL AS COMMERCIALISATION & INNOVATION

- Working closely with research agencies & tertiary institutions in the public/private sector

SECTOR PERFORMANCE

SINCE DAN 2011-2020:

1 CONTRIBUTION TO THE COUNTRY'S GROSS DOMESTIC PRODUCT (GDP) GREW

- At an average annual rate of **6.8%** in 2020
- An almost 100% increase compared to 2010

2 TOTAL FOOD EXPORTS INCREASED

- At an average annual rate of **6.4%**
- **RM18.1 bln** → **RM33.7 bln** in 2020

Source: Malaysian Prime Minister, Datuk Seri Ismail Sabri Yaakob

Published: Oct 25, 2021
Bernama Infographics

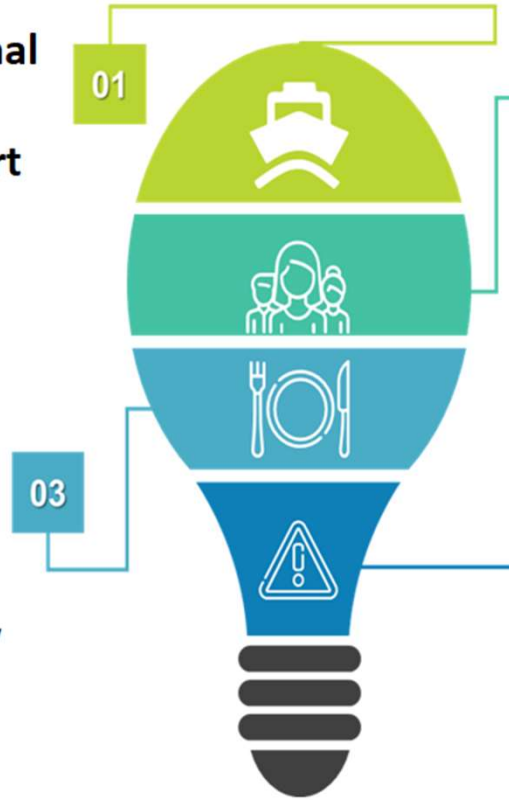
NATIONAL FOOD SECURITY ACTION PLAN (2021-2025)

5
CORE

15
STRATEGIES

96
INITIATIVES

OBJECTIVES



01 Increase internal resources and diversify import sources

02 Increase private and population involvement in the food system

03 Ensuring the availability of safe food at affordable prices and a healthy eating style

04 Ensuring the country's preparedness in facing the food security crisis

Unmanned Aircraft System (UAS) regulation in Malaysia

Definition of Agriculture Unmanned Aircraft System

Civil Aviation Authority Malaysia (CAAM) deems an Agricultural Unmanned Aircraft System (UAS) operations is the operations of a UAS for the purpose of :

- Dispensing any agricultural payload intended for plan nourishment, soil treatment, propagation of plant life, or pest control; or
- Engaging in dispensing '***agricultural payload***' and surveillance activities directly affecting agriculture, horticulture, or forest preservation, but not including the dispensing of live insects.
- "***Agricultural Payload***" means any dispensing materials such as pesticides and any other substances as permitted by Department of Agriculture (DOA).

Requirement for Agriculture UAS operation

- The Agriculture UAS must be satisfied by Standard Industrial Research Institute of Malaysia (SIRIM)
- The operator need to undergo Remote Pilot Training programme and hold a valid Remote Pilot Certificate of Competency issued by CAAM .
- Must apply for the Agriculture UAS operation from CAAM before performing the operation.

APPROVED TRAINING ORGANISATION

- **Approved Training Organization-Remote Pilot Training Organization (ATO-RPTO)** is an organization that has been formally approved by the CAAM to submit reports for theoretical knowledge instruction and flight instruction and assessment in relation to the competency of remote pilots.

- The CAAM approves RPTO to assess the competence of remote pilots against a specific set of requirements and to supply reports to CAAM for the issuance of the certificate.

- All organizations who seek to perform Unmanned Aircraft System (UAS) remote pilot training and be approved as a Remote Pilot Training Organization (RPTO) by CAAM must follow Civil Aviation Directive 6011 Part (I) Remote Pilot Training Organization.

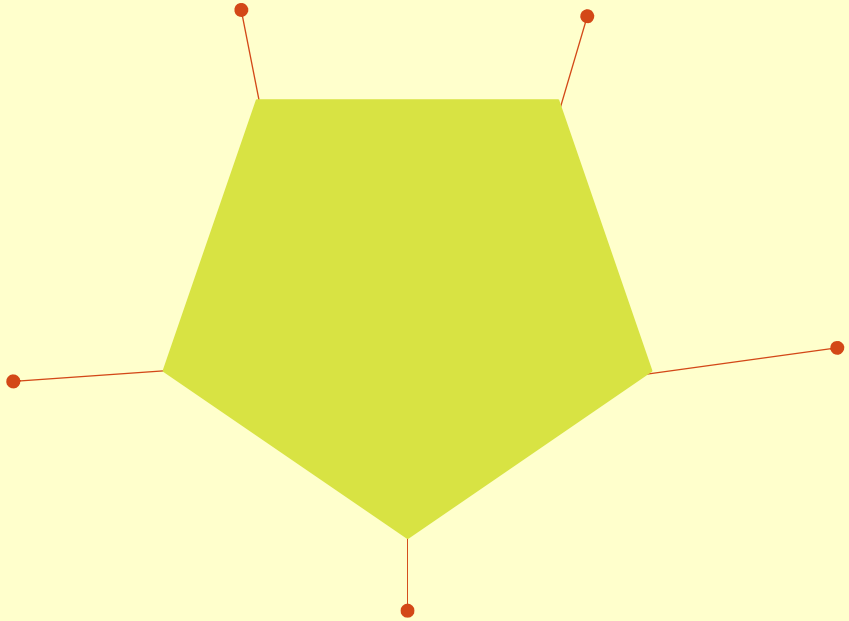
OPERATIONAL REQUIREMENT

- All operation must be conducted below 400 feet above ground level and a distance of not closer than 50 meter to person, vessels, vehicles and structures uninvolved to the operation.
- All operation must be conducted beyond 9.26 km from an aerodrome and only in class G airspace.
- All operation shall be conducted in Visual Line of Sight (VLOS) or Extended Visual Line of Sight (EVLOS).

Institutional support and involvement

Ministry of Agriculture and Food Industries (MAFI)
→Agriculture Modernization Division

Agriculture Division of Economic Planning Unit (EPU), Prime Minister's Department



Malaysia Digital Economy Corporation (MDEC)
- An agency under the Ministry of Communications & Multimedia

Ministry of Science, Technology and Innovation (MOSTI)

Universities
&
Research Institute

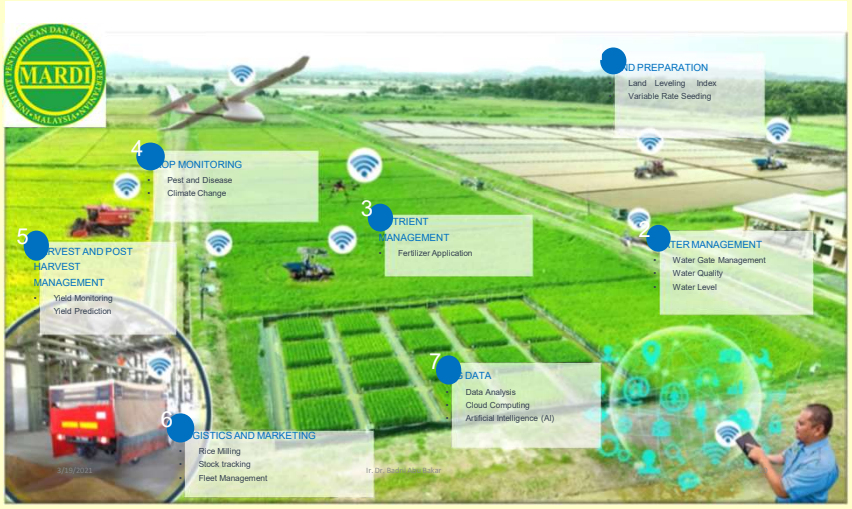
MARDI Agriculture Modernization Cluster Projects

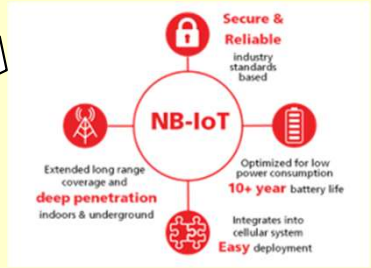
No	Funding source	Project Title	Allocation
1	12th Malaysian Plan Development Project	Development of Integrated Modern, Smart and Precision Agriculture System based on IR 4.0 Technology and Biotechnology	RM20 million (5 years)
2		Development of High Impact and Cost-Effective Integrated Agriculture Engineering Package for Production Technology, Post-harvest Handling and Processing of Selected Agriculture Products (Paddy, fruits and vegetables)	RM15 million (5 years)
3		Development of Innovative Crop Production System for Food Security and Sustainability Development of Innovative Crop Production System for Food Security, Sustainability and Community Welfare.	RM10 million (5 years)
4	MAFI Special Project	Development of Smart Expert System based on Artificial intelligence (AI) for Vegetable Crop at Selected Area.	RM1.2 million
5	MPPN Pioneer Project (Technology Cluster) MARDI	Application of IR4.0 Technology in Fertigation Cultivation to Increase the Productivity of Ginger Crops in Alor Setar Pilot Farm	RM60,500
6		Application of IR4.0 Technology for Paddy Production at FELCRA Seberang Perak	RM166,000

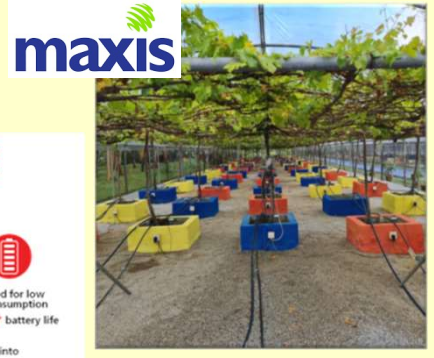
START-UP COMPANY IN SMART AGRICULTURE MACHINERY

Company	Solution
Aerodyne	• Agrimor Super Application - utilises cutting edge technologies such as autonomous drones and IoT for agriculture seedling, spraying, plant analysis mapping to grow more with less input and without human intervention • Drones gather huge data and shorten the time to process and value with the use of AI
Braintree Technologies	• Robotic devices and proprietary software for agriculture total solutions and process satellite remote sensing data • Drone services and AI powered computer vision algorithm for more precise and automated planting management

Collaboration With Private Sector And Foreign Agencies







Collaboration With Private Sector And Foreign Agencies

Capacity Building Program in Smart Farming and Agricultural Machinery Technology – Jeollabuk-Do, South Korea

Rural Development Administration

- Objective: To further R&D capabilities through programs in smart farming and agricultural machinery technology.
- Activities:
  - Relevant intensive researches and practical experiments,
  - Acquire knowledge and an understanding of the technologies and methods.

CONCLUSION

- ✓ Smart Agriculture is a critical technology for sustaining agriculture's function as a food supply, creating jobs, and generating revenue from export products.
- ✓ Agriculture policies have enabled Malaysia's agriculture sector to thrive sustainably and contribute to the country's economic development.
- ✓ The agricultural sector has been transformed from a traditional and passive sector focused on a particular commodity to a dynamic, diverse, and contemporary sector as a result of supportive agriculture policy from government and collaboration among key players locally and globally.

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