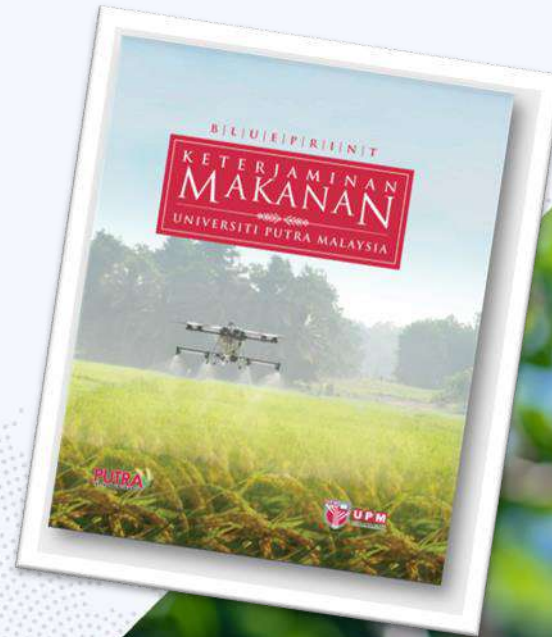# UPM's Blueprint for Food Security: Providing Impact from Universities

Agriculture and Development Seminar Series, SEAMEO SEARCA

24 September 2024

Dato' Prof. Dr. Ahmad Farhan Mohd Sadullah

Vice Chancellor

Universiti Putra Malaysia

With Knowledge We Serve Agriculture • Innovation • Life

UPM SERDANG & BINTULU
Universiti Putra Malaysia
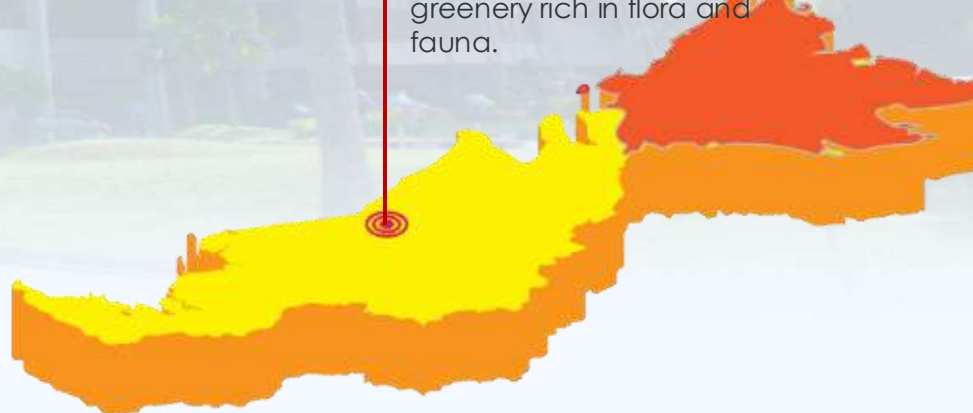
SERDANG

BINTULU

3000 Hectares
Located within 30 mins to Kuala Lumpur, Putrajaya & KLIA.

714.178 Hectares
UPMKB is located 13 km from Bintulu Town, surrounded by greenery rich in flora and fauna.

QUICK FACTS ABOUT

01. Universiti Putra Malaysia (UPM) is one of Malaysia's premier public Universities with an array of disciplines

02. Founded in 1931 and known internationally as one of the distinguished universities in the region

03. Accorded the status of "Research University" in 2006

04. Awarded Self-Accreditation status (Academic Programmes Quality) in 2010

05. Awarded Autonomy University status in 2012

3000 Hectares
Located within 30 mins to Kuala Lumpur, Putrajaya & KLIA

100+
Student Organisations

29,000+
Approximately 27,400 student population comprises both local and international students from more than 74 countries around the world

18,200+
Undergraduate students

12,200+
Postgraduate students

MALAYSIA

7,100+ Staff
1,700+ Academic Staff
5,300+ Non-academic Staff

84 Responsibility Centres
15 Faculties
23 Centres
11 Institutes
10 Residential Colleges
11 Offices
6 Divisions
5 Services
1 Academy
2 Schools

Student Mobility Programmes
2861 Inbound Students
1967 Outbound Students

UPM

FACULTIES, INSTITUTE & SCHOOLS
Universiti Putra Malaysia

Institutes

- Institute of Nanoscience and Nanotechnology (ION2)
- Malaysian Research Institute on Ageing (MyAgeing™)
- Institute for Mathematical Research (INSPEM)
- Halal Products Research Institute (IPPH)
- Institute for Social Science Studies (IPSAS)
- Institute of Plantation Studies (IKP)
- International Institute of Aquaculture and Aquatic (I-AQUAS)
- Institute of Bioscience (IBS)
- Institute of Tropical Forestry & Forest Products (INTROP)
- Institute of Tropical Agriculture & Food Security (ITAFoS)
- Institute of Ecosystem Science Borneo (UPMKB)

Faculties

- Faculty of Agriculture
- Faculty Science
- Faculty of Engineering
- Faculty of Educational Studies
- Faculty of Food Science & Technology
- Faculty of Forestry & Environment
- Faculty of Veterinary Medicine
- Faculty of Human Ecology
- Faculty of Modern Languages & Communication
- Faculty of Design & Architecture
- Faculty of Medicine & Health Sciences
- Faculty of Computer Science & Information Technology
- Faculty of Biotechnology & Biomolecular Sciences
- Faculty of Agricultural and Forestry Science (UPMKB)
- Faculty of Humanities, Management & Science (UPMKB)

11

15

2

3

Schools

- School of Graduate Studies
- School of Business and Economics

Higher Education Centre of Excellence (HICoE)

- Institute of Bioscience (IBS)
- Institute of Tropical Forestry & Forest Products (INTROP)
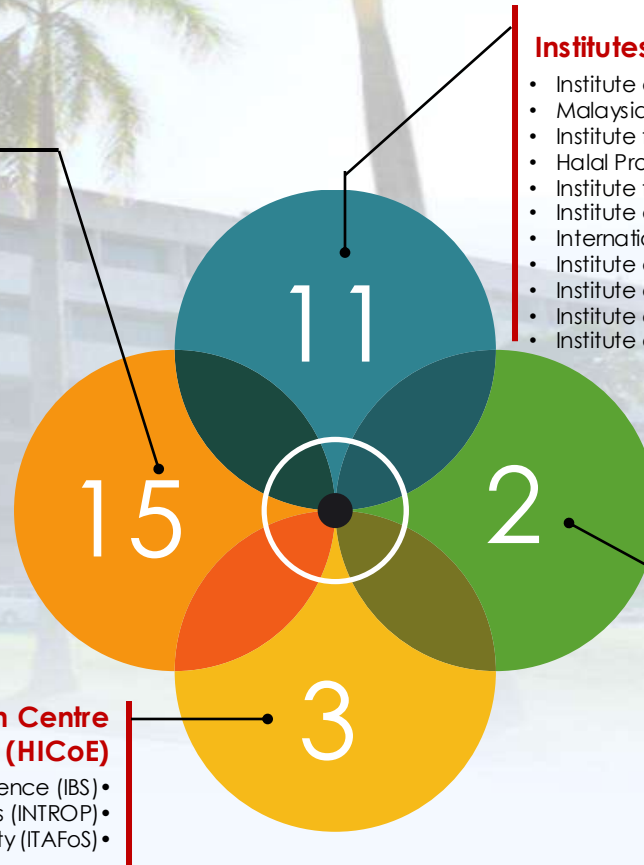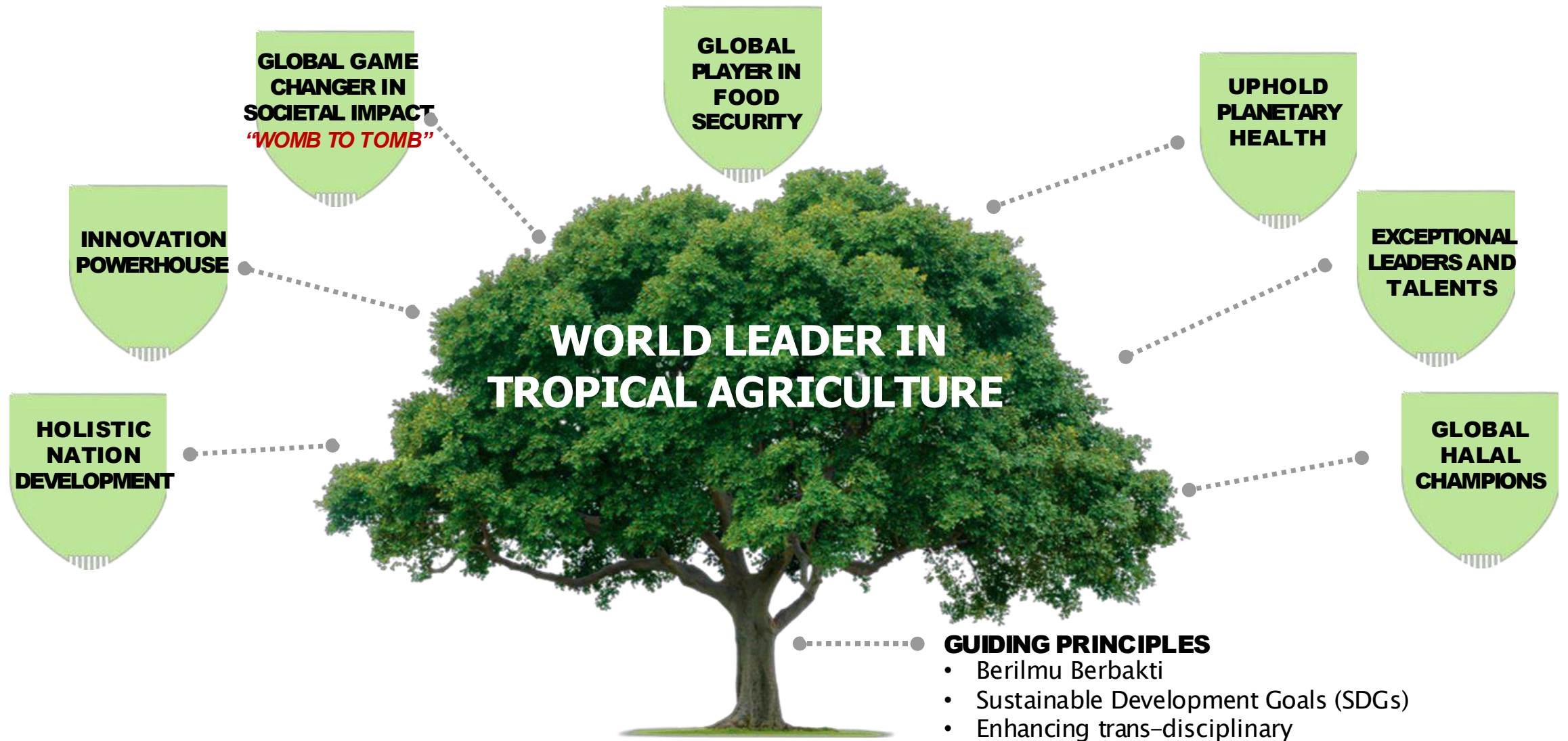- Institute of Tropical Agriculture & Food Security (ITAFoS)

AGRICULTURE · INNOVATION · LIFE
BERILMU BERBAKTI
WITH KNOWLEDGE WE SERVE

*as of January 2024

The TRUE NORTH of UPM

1

DNA UPM
- Food Security
- Agriculture
- Other Strategic Differentiators

2

- 5 Main Focus of MOHE by Year 2024
- Higher Education Goals
- 11 Aspirations of Minister

TRUE NORTH

UPM's Vision and Mission

3

MALAYSIA MADANI

National Goals
Malaysia Madani

4

SUSTAINABLE DEVELOPMENT GOALS

Universal Goals
SDGs

Outcome Driven, Value-Infused and Inclusive

Services Exceeding the Expectation Services and Testing)	Relevant and Impactful Research (Research and Innovation)	Comunity Engagement (Apreciated by Community)	Best Learning and Living Experience (Academic)	Thriving the Industry	Global Prominence

Excellent and Facilitating Talent Pool

Sustainable Resources

Effective and Facilitating Governance

Evidence and Intelligence Based (Strategic)

Positioning of UPM throught Effective Branding and Marketing

RDICE VISION 2050

GLOBAL GAME CHANGER IN SOCIETAL IMPACT
"WOMB TO TOMB"

GLOBAL PLAYER IN FOOD SECURITY

UPHOLD PLANETARY HEALTH

INNOVATION POWERHOUSE

EXCEPTIONAL LEADERS AND TALENTS

HOLISTIC NATION DEVELOPMENT

WORLD LEADER IN TROPICAL AGRICULTURE

GLOBAL HALAL CHAMPIONS

GUIDING PRINCIPLES
- Berilmu Berbakti
- Sustainable Development Goals (SDGs)
- Enhancing trans–disciplinary

ENABLERS
- Cutting Edge Technology
- Robust Funding Mechanism
- Efficient Innovation And Entrepreneur Ecosystem
- Strategic Global Collaboration
- Ethical Research Culture
- Strategic & Dynamic Talent Development

UniPutraMalaysia

- PUTRA : has been coined as an acronym to represent

  "**P**ertanian **U**ntuk **RA**kyat", which means
  "Agriculture for the People"

- This suits the DNA of Universiti Putra Malaysia (UPM) which started her roots from AGRICULTURE
- With the PUTRA slogan, it is hoped that UPM will strengthen and sustain her position as the champion for agriculture in addition to other niche and strength

FOOD SECURITY

BLUEPRINT
KETERJAMINAN MAKANAN
UNIVERSITI PUTRA MALAYSIA

A reference and guide for UPM to increase their contribution to national and global food security.

This blueprint has been officiated by The Minister of Higher Education and The Minister of Agriculture and Food Security on **7th June 2024** at Sultan Salahuddin Abdul Aziz Shah Arts and Cultural Centre, UPM

Food security is defined as "a situation where everyone, at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for an active and healthy life" (FAO, 1996, 2003).

The goals of food security are achieved through four main dimensions:

4

i **Availability:** The amount of food in a country or region, encompassing production, imports, stocks, and food aid.

ii **Accessibility:** Access to food in terms of physical, economic, and social aspects.

iii **Usability:** Safe and nutritious food that meets dietary needs.

iv **Stability:** Sustainable and continuous availability, accessibility, and usability without disruption.

TABLE OF CONTENTS:

FOOD SECURITY

B | L | U | E | P | R | I | N | T

UNIVERSITI PUTRA MALAYSIA

VISION

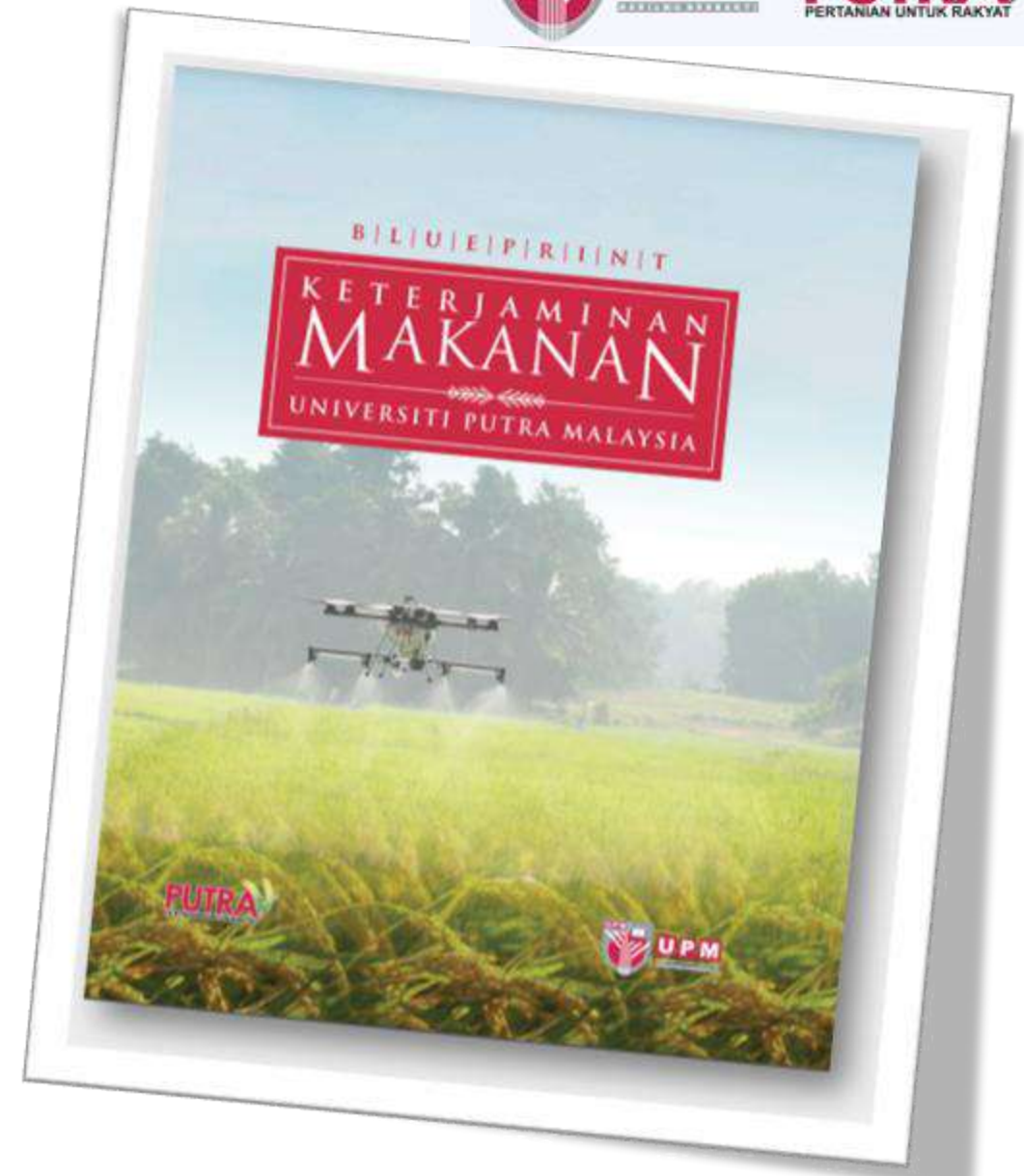UPM as an internationally recognized leading university in Food Security

MISSION

Making meaningful contributions to food security through academic excellence, impactful research and innovation, and community and industry engagement for the well-being of all humanity

UPM's Role: As a university rooted in the disciplines of agriculture and food since 1971, UPM possesses trained experts and diverse resources to contribute to food security through academic programs, research and innovation, and development services.
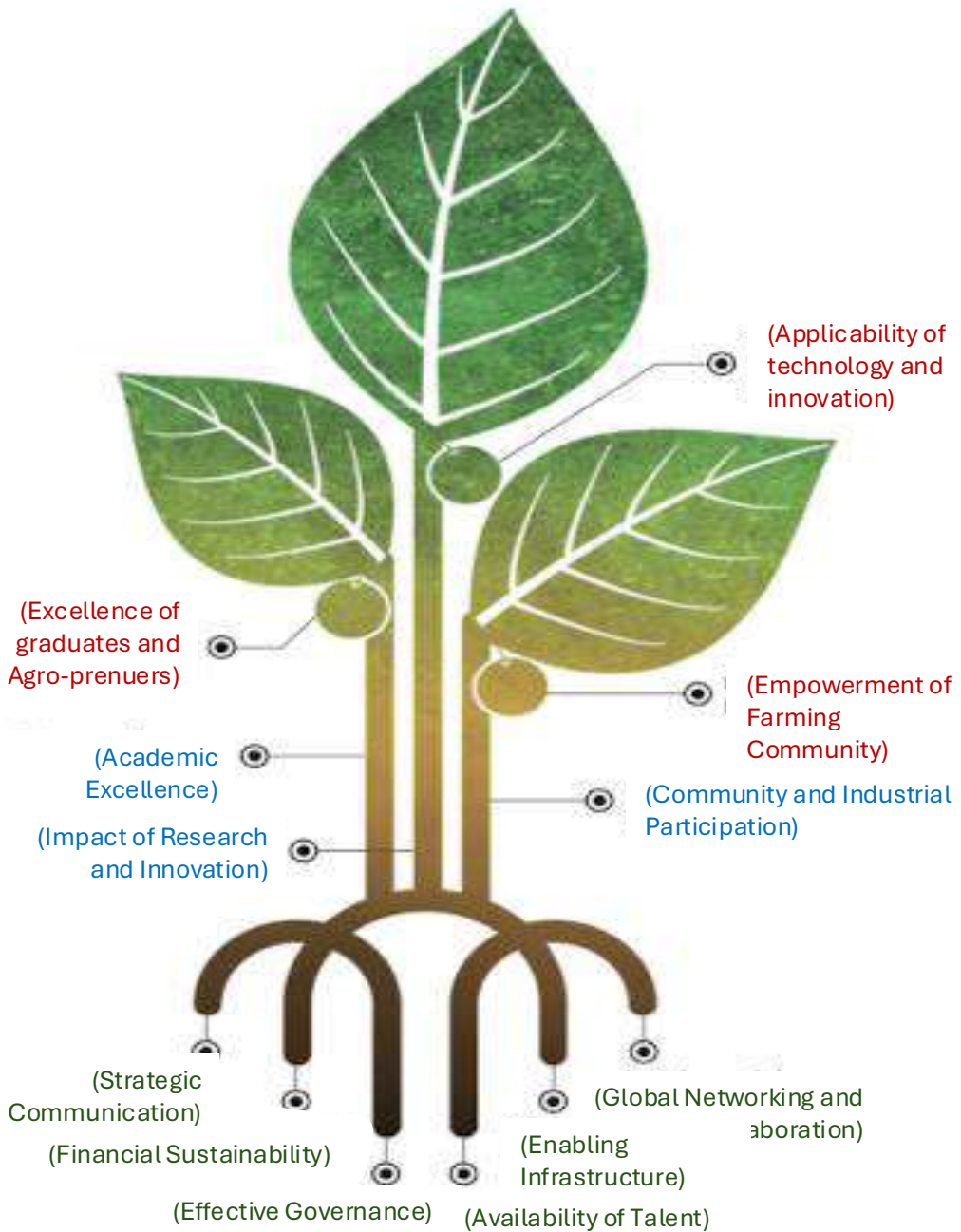
Rationale: UPM needs to optimize its contribution to food security through well-trained human capital, innovation to enhance productivity, and advanced technology transfer to farming communities.

Objective: To serve as a reference and guide for UPM members towards enhancing contributions to national and global food security.

RINGKASAN EKSEKUTIF

B|L|U|E|P|R|I|N|T

KETERJAMINAN MAKANAN
UNIVERSITI PUTRA MALAYSIA

PUTRA
PERTANIAN UNTUK RAKYAT

UPM

UPM'S effort for food security

UPM Blue-print for Food Security

launched – 7th June 2024

(Applicability of technology and innovation)

(Excellence of graduates and Agro-prenuers)

(Empowerment of Farming Community)

(Academic Excellence)

(Community and Industrial Participation)

(Impact of Research and Innovation)

(Strategic Communication)

(Financial Sustainability)

(Global Networking and Collaboration)

(Enabling Infrastructure)

(Effective Governance)

(Availability of Talent)

OUTCOMES/SUCCESS
1. Applicability of technology and innovation
2. Empowerment of farming community
3. Excellence of Graduates and agro-prenuers

CORE-ELEMENTS
1. Academic excellence
2. Impact of Research and Innovation
3. Community and Industrial participation

ENABLERS
1. Strategic Communication
2. Financial Sustainability
3. Effective Governance
4. Availability of Talents
5. Enabling Infrastructure
6. Global Networking and Collaboration
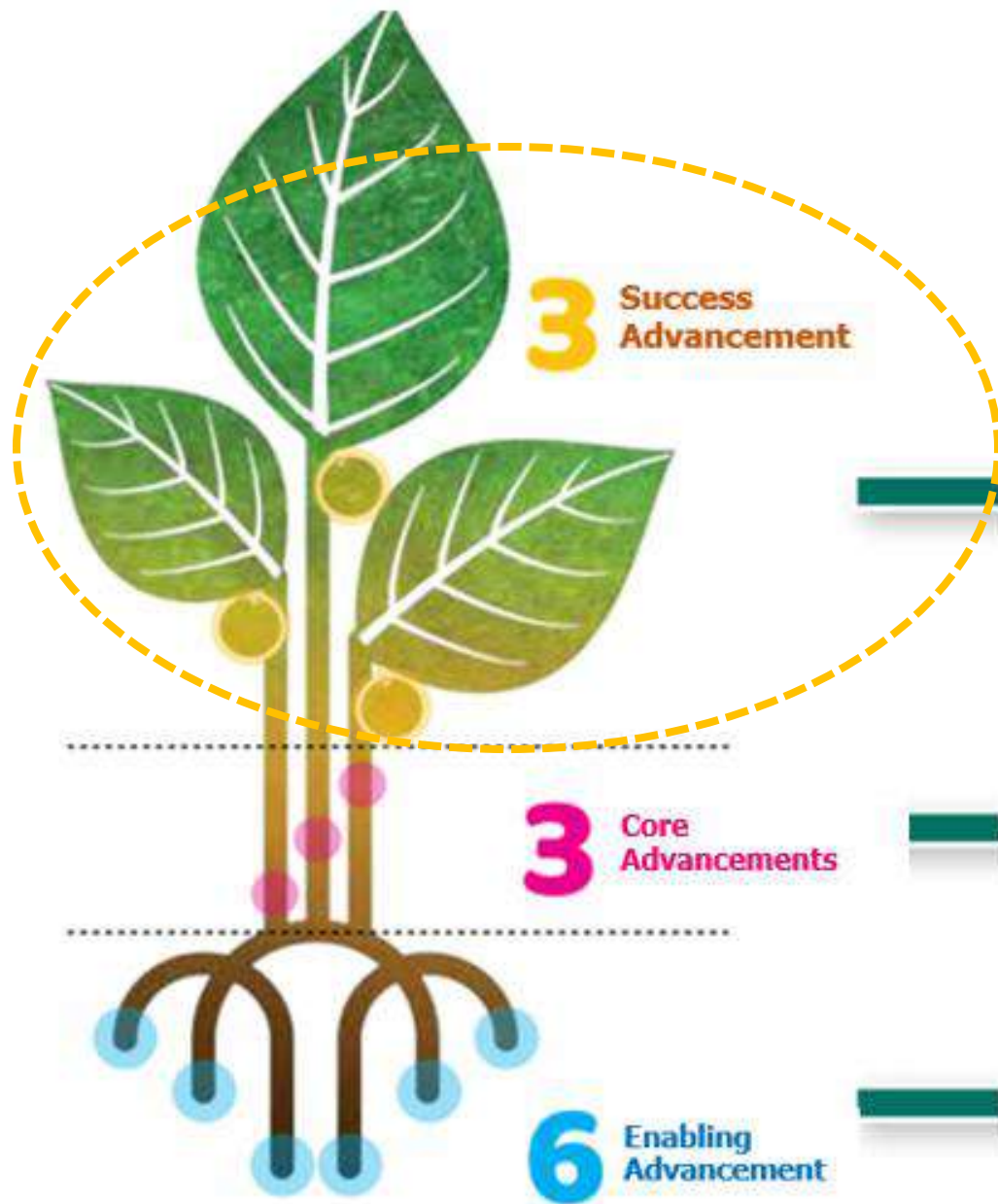
OUTCOMES/SUCCESS ADVANCEMENTS

1. Excellence of Graduates and Agro-preneurs
2. Applicability of Technology and Innovation
3. Empowerment of Farming Communities

# OUTCOMES/Success Advancement 1: Excellence of Graduates and Agro-preneurs

Expected Results	Impact
Agricultural graduates and agro-preneurs have knowledge and skills in fields related to agriculture and food security.	An independent, dynamic, creative and sustainable farming community.
Agricultural graduates and agro-preneurs have creative minds to solve problems in the production of food crops, livestock and fisheries by creating innovations in the food supply chain.	Agricultural graduates and entrepreneurs can contribute towards increased food production by practicing their knowledge and skills in agronomic practices, adopting technology and agribusiness.
Excellent agricultural graduates and agro-preneurs possess the quality of discipline and an excellent attitude as a prerequisite to become a successful agricultural entrepreneur.	Agricultural entrepreneurs who can plan, practice good technical and agribusiness practices, and adopt technology will increase the productivity of food production. They can also provide job opportunities.
Agricultural graduates and agro-preneurs are wise to take the opportunity to form professional networks with industry players, especially in the field of food.	Professional networks can form cooperation in knowledge, skills and technology between food industry players and further increase the productivity of food production.

OUTCOMES/Success Advancement 2: Applicability of Technology and Innovation

Expected Results	Impact
Use of Precision Agriculture Technology: Improvement crop yields and dependency reduction to resource input	Increased agricultural productivity and reduced production costs
Application of Data Analytics in Agriculture: Increased efficiency of agricultural operations and more stable yields	Risk reduction and better risk management, adaptation to market trends
Use of biotechnology and nanotechnology: Preparation of better quality and nutritious food	Improved food quality and safety, increased plant resistance to disease and pest attacks
Development of Digital Education Applications, artificial intelligence and Improvement of farm management efficiency and better food safety	Empowering farmers and agricultural workers with the latest knowledge and skills
Application of Internet of Things (IoT) Technology: More efficient use of natural resources and better environmental protection	Real-time inventory monitoring and management, supporting the well-being of the planet
Application of Blockchain Technology in Halal Certification: Increasing the competitiveness of UPM's halal food products in the global market	Increasing the reliability and fairness of the halal certification process, increasing consumer trust in halal food products
Development of an Integrated Land Use System: Increased crop yields and better environmental preservation	Optimise the use of land for agriculture, reduce waste and support the well-being of the planet

# OUTCOMES/Success Advancement 3: Empowering Farming Communities

Expected Results	Impact
Capacity building of productive, dynamic and independent communities.	An independent, dynamic, creative and sustainable farming community.
A harmonious and synergistic relationship between universities, industry and the community to jointly overcome the challenges of food security.	Sustainable development of macro and micro, small and medium enterprises based on agriculture, food and related services.
Increased productivity, agricultural production towards food security.	Increased income and well-being of the farming community including the industry.
A sustainable and smart agricultural ecosystem includes the use of land, water, agricultural inputs, geophysical conservation, biodiversity and the environment.	Increased innovation in production, marketing in each chain of the food security ecosystem, and development of sustainable downstream products.
The application of advanced technologies includes biosensors, crop spraying drones, crop monitoring, soil and farm analysis, irrigation technology, precision agriculture, nano fertilisation, nano technology, the Internet of Things, various GIS applications such as irrigation system monitoring, flood erosion, and artificial intelligence technology (AI, ML, RFID).	
The use of big data to build IoT, farm record management, early warning systems, blockchain, demand and supply mapping, e-business and other applications that enable a transition to a more efficient and sustainable agricultural methodology.	
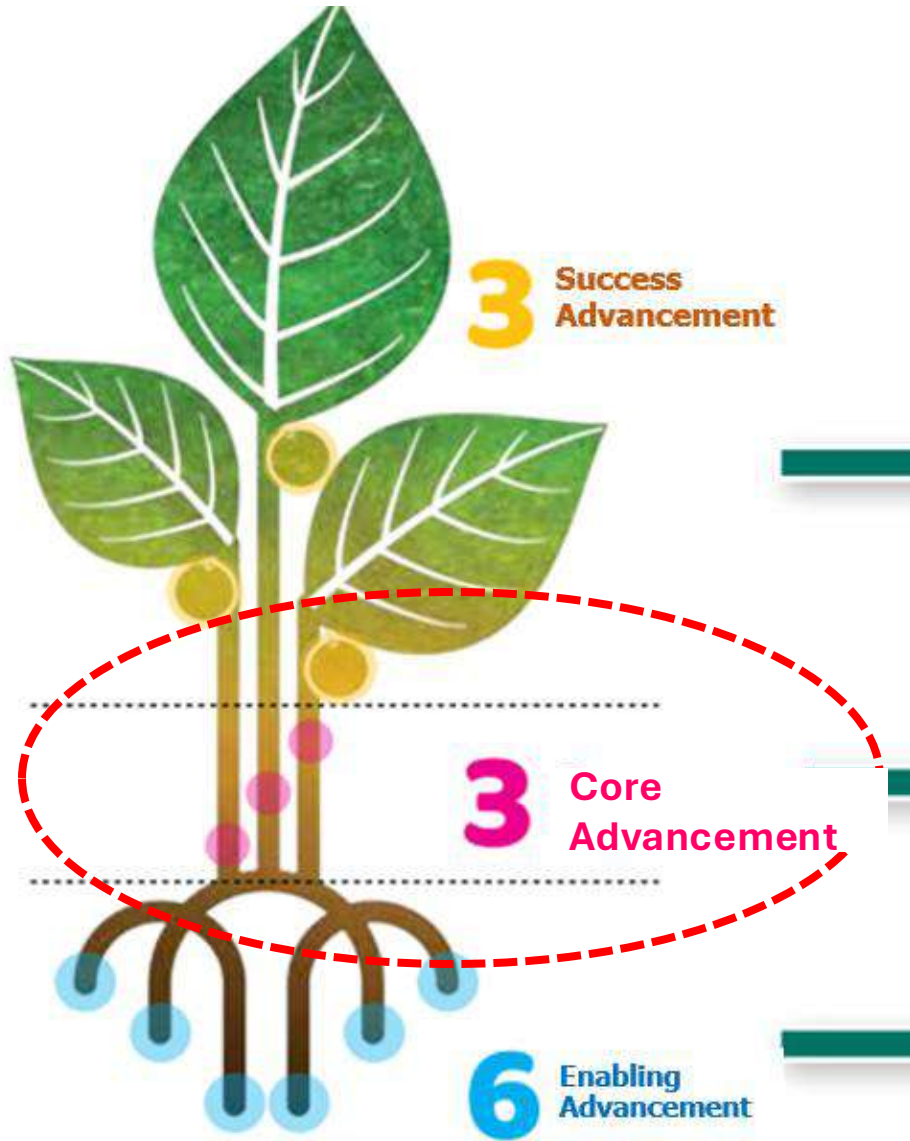
Core Advancement

Core Advancement	Production Enhancement	Improve Food Quality	Quality Environment	Quality of Life
1. Academic Excellence	5 initiatives	5 initiatives	3 initiatives	7 initiatives
2. Impactful Research and Innovation	5 initiatives	5 initiatives	3 initiatives	7 initiatives
3. Community and Industry Engagement	5 initiatives	3 initiatives	5 initiatives	7 initiatives

Academic excellence advancement framework (refer BpKM pg74)
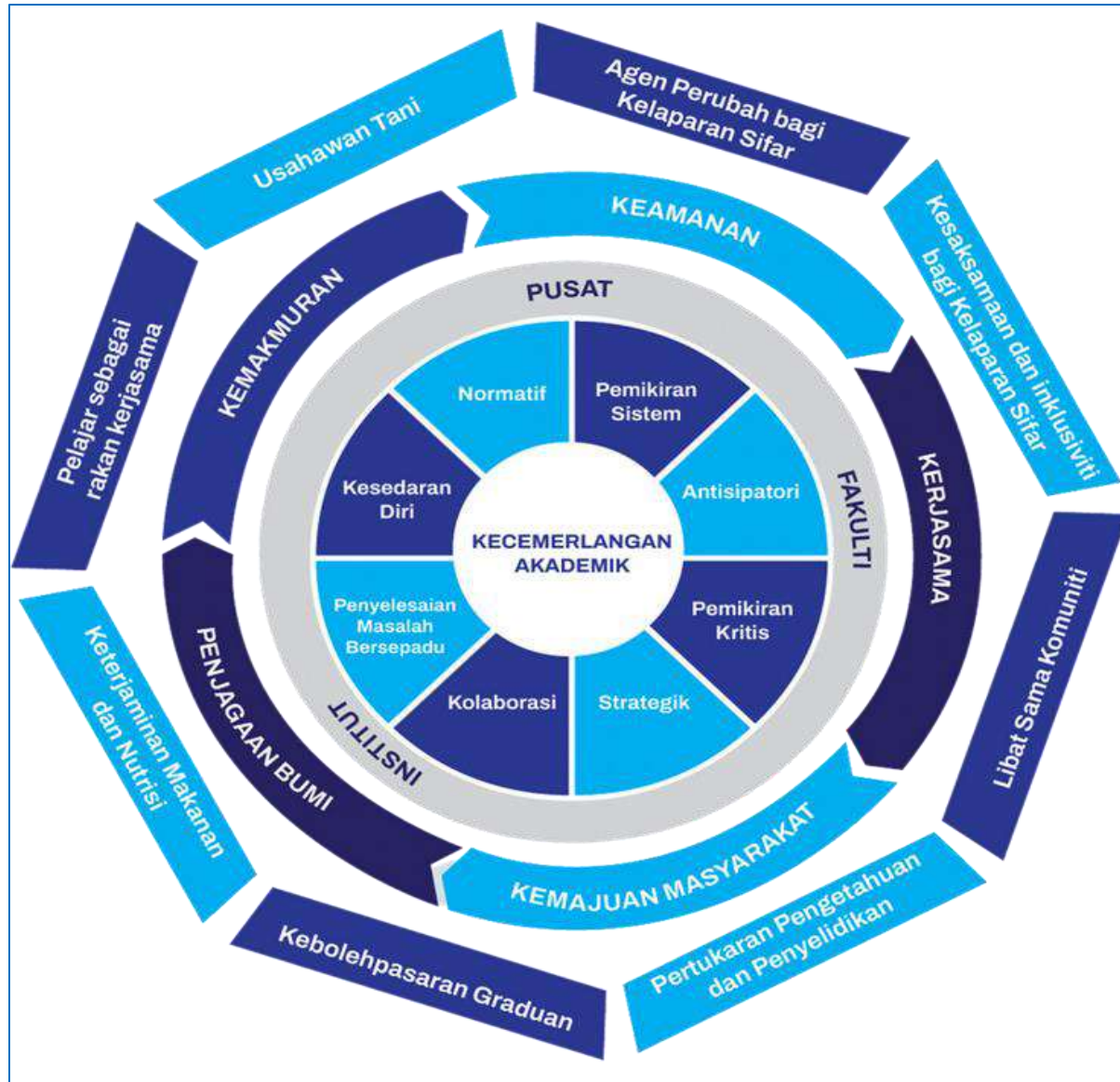
Refer to executive summary: pg.12

20 priority areas

(Information on Key Areas and Statement of Results & Initiative Proposals, please refer to the table on pages 76 - 80, UPM Food Security Blueprint)

Production Enhancement

1. Innovation for sustainable agricultural production

Generating highly productive, resilient, innovative and competitive crop and livestock production systems. Nurturing farming entrepreneurs among smallholder farmers and young entrepreneurs through the application of advanced digital technologies and collective efforts.

2. Blue transformation

Establishing a sustainable, resilient and equal "blue food system" (fish and shellfish, and animals, plants, and algae in rivers and oceans) through policies and programmes that promote efficient management based on integrated science, technological innovation and private sector involvement.

3. One Health

Establishing a superior Integrated National Health System for the health of the people, animals, plants and the environment through prevention of pests and diseases, early warnings, and management of national and global health risks, including AMR.

4. Fair access to resources for small-scale producers

Improving equitable access within the community of smallholder farmers to natural and economic resources, markets, services, education, and relevant technology through policies and effective programmes.

5. Digital agriculture

Implementing advanced digital applications that can be accessed by small farmers to improve market access, productivity and resilience through policies and programmes that enhance the application of digital technology and broad practices.

20 priority areas

(Information on Key Areas and Statement of Results & Initiative Proposals, please refer to the table on pages 76 - 80, UPM Food Security Blueprint)

Improvement of Food Quality

6. Healthy diet for all

Ensuring the right to adequate and healthy food through laws and regulations that provide incentives to users and the private sector.

7. Nutrition for the most vulnerable groups

Identifying and addressing food insecurity and nutrient deficiencies among the most vulnerable communities through specific policies and strategies for these groups.

8. Safe food for all

Providing safety policies and regulations for different food sectors in the country that are accepted and fully implemented by government and value chain participants as well as public users.

9. Reducing Food Loss and Waste

A roadmap that is clear, specific and contextual implemented by government to ensure that all parties along the food supply chain, food environment, including consumers, reduce food loss and waste.

10. Transparent Markets and Trade

Increasing transparency and fair participation in markets, global value chains and international trade through regulatory policies; building capacity at the individual, community, and institutional levels to make decisions based on evidence.

20 priority areas

(Information on Key Areas and Statement of Results & Initiative Proposals, please refer to the table on pages 76 - 80, UPM Food Security Blueprint)

Improving Environmental Quality

11. Mitigation and adaptation of the agrofood system to climate change

Transforming the agricultural system to be more resilient and sustainable, aligned with the goals of the Paris Agreement through the establishment and implementation of climate-smart practices, policies and programmes.

12. Bioeconomy for agricultural food sustainability

Building the bioeconomy sector to balance economic value and social welfare through sustainable planning and implementation based on safe and nutritious food systems, including micro and macro investments, using technological, organizational, and social innovation.

13. Biodiversity and ecosystem services for food and agriculture

Protecting biodiversity in the food and agriculture sector, sustainable use of natural resources, and maintaining marine, land and freshwater ecosystems through sustainable policies and practices.

20 priority areas

(Information on Key Areas and Statement of Results & Initiative Proposals, please refer to the table on pages 76 - 80, UPM Food Security Blueprint)

Improving Quality of Life

14. Gender equality and empowerment of women in rural areas (focus on rural areas)

Women's rights, access to and control on sources, services technology, institutions, economic and decision-making opportunities, and law and discrimination are eliminated via policies, strategies, programmes and legal frameworks that are gender-friendly.

15. Inclusive rural transformation

Transforming rural areas inclusively and recovering rural areas to ensure equitable participation opportunities, and benefits to the poor and neglected; accelerated from implementation of targeted policies, strategies and programmes.

16. Achieving sustainable urban food systems

Transforming urban and semi-urban agricultural food systems that are more efficient, inclusive, resilient and sustainable to address urban poverty, food insecurity and malnutrition, allowing healthy food and stimulating rural transformation that is inclusive and sustainable, encouraged by policy and support programme implementation as well as investment from stakeholders.

17. Agricultural and food emergencies

Countries facing, or at risk of serious food shortages are given immediate assistance and, adopt the Humanitarian-Development Nexus and its contribution to the peace approach. Its population is equipped with the appropriate capacity to better withstand and manage future shocks and risks.

18. Resilient agricultural food systems

Strengthening the resilience of food agriculture systems when faced with shocks, socio-economic and environmental pressures through a broad understanding of various risks and effective governance mechanisms to overcome vulnerabilities.

20 priority areas

(Information on Key Areas and Statement of Results & Initiative Proposals, please refer to the table on pages 76 - 80, UPM Food Security Blueprint)

Improving Quality of Life

19. Hand-in-Hand Initiative (HIH)

Agricultural transformation and sustainable rural development are accelerated by focusing on the most impoverished and hungry areas, delineating regions and strategies, and collaborating across all dimensions of the agricultural food system through analysis and sharing

20. Increasing investment

Transformation towards a sustainable food agriculture system that has a major impact in reducing inequality, eradicating poverty and hunger that is accelerated through increased public and private investment, and enhanced capacity to leverage future investments.

Refer to Executive Summary: pg.13

Research and Innovation Impact Advancement Framework (Refer BpKM ms 82)

20 priority areas

(Information on Key Areas and Statement of Results & **Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Production **Enhancement**

1. Innovation for sustainable agricultural production

A sustainable crop, livestock, fishery and forestry production system based on market-driven research innovation. Encouraging the use of smart technology and precision farming practices to help implement innovation on the ground.

2. Blue transformation

Blue food systems that are more efficient, inclusive, resilient and sustainable are promoted through better policies and programs for integrated science-based management, technological innovation and private sector involvement.

3. One Health

Research using the One Health (OH) approach is multidisciplinary which includes human, animal and environmental health. The One Health approach will involve researchers from various faculties and institutes.

4. Fair access to resources for small-scale producers

Enable equitable access to resources for small-scale producers for agricultural and aquaculture operations. Empowering small-scale producers with knowledge and skills through simple and low-cost technologies such as Recirculating Aquaculture Systems (RAS).

5. Digital agriculture

The use of digital tools technology through research in the field of big data, cloud computing, IoT, artificial intelligence and robotics, digital twin technology, blockchain and smart farming systems will increase the efficiency of farm management and resource use. Agricultural data is analysed for strategic purposes. Digital literacy through ICT technology can help reduce the technology gap among farming communities.

20 priority areas

(Information on Key Areas and Statement of Results & **Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Improvement of Food Quality

6. Healthy diet for all

Provision of sufficient food with an approach towards a healthier diet for the people. As a higher education institution, UPM plays a role in helping the country shape a healthy diet through the development of research and innovative products in the field of nutrition, access to nutritious food, consumer social behaviour, development of functional foods and nutraceuticals.

7. Nutrition for the most vulnerable groups

Food insecurity and malnutrition for community groups such as the elderly and children need to be given attention. Areas of research that focus on lifelong nutritional needs, development of food products that meet individual health needs, and understanding consumer preferences to promote healthy eating habits will support efforts to address food insecurity and malnutrition.

8. Safe food for all

Efforts to develop policies to help the agricultural sector and ensure safe food for the people will be carried out through research areas that focus on approaches to eradicating food pollution, producing safe and nutritious food while minimising environmental impact, and addressing the specific needs of Halal consumers.

20 priority areas

(Information on Key Areas and Statement of Results & **Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Improvement of Food Quality

9. Reducing Food Loss and Waste

A clear roadmap is developed to help the country reduce food loss and waste. Research areas involving studies on social and cultural factors that influence people's food choices and habits are given focus. Aspects of food science in extending the shelf life of food and new alternatives for using waste will also be given focus.

10. Transparent Markets and Trade

Helping countries increase transparency and fair participation in markets, global value chains and international trade through research in the economics and finance of food systems, the potential of halal food chains, fairtrade and ethical sourcing.

20 priority areas

(Information on Key Areas and Statement of Results & **Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Improvement of Environmental Quality

11. Mitigation and adaptation of the agrofood system to climate change

Agricultural research and innovation that supports the well-being of the planet. Implementation focuses on reducing the overall environmental impact of food production, maintaining healthy ecosystems, and adapting food systems to climate change.

12. Bioeconomy for food and agricultural sustainability

A bioeconomy that balances economic value and social welfare with environmental sustainability. Areas of focus involve the use and valorisation of bioresources to maximise the value of agricultural resources and minimise waste, and the use of biotechnology and energy resources that support a circular economy.

13. Biodiversity and ecosystem services for food and agriculture

Improving Ecosystem Services and Biodiversity in supporting agricultural activities. Focusing on the development and implementation of agricultural methods that minimise environmental impact and increase productivity.

20 priority areas

(Information on Key Areas and Statement of Results **& Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Improving Quality of Life

14. Gender equality and empowerment of rural women

The research area focuses on exploring the well-being of women and families as well as improving community life and addressing social inequalities in aspects of food security.

15. Inclusive rural transformation

Inclusive rural transformation and revitalisation of rural areas to ensure equitable participation, and benefit poor, and marginalised groups; accelerated through the implementation of policies, strategies and targeted programmes.

16. Achieving sustainable urban food systems

Transformation of sustainable urban and sub-urban agricultural systems through the development of efficient research methods. This effort increases access to affordable and healthy food.

17. Agricultural and food emergencies

Agriculture and food emergencies could be faced by Malaysia if risk management is not given attention. The use of technology, such as blockchain and IoT can promote transparency and traceability in the food supply chain which has the potential to improve food safety and security.

20 priority areas

(Information on Key Areas and Statement of Results & **Research Theme Proposals**, please refer to the table on pages 83 - 99, UPM Food Security Blueprint)

Improving Quality of Life

18. Resilient agricultural food systems

The resilience of agrofood systems involves research focus on understanding perceptions and behaviors and methods to strengthen the resilience of the food supply chain.
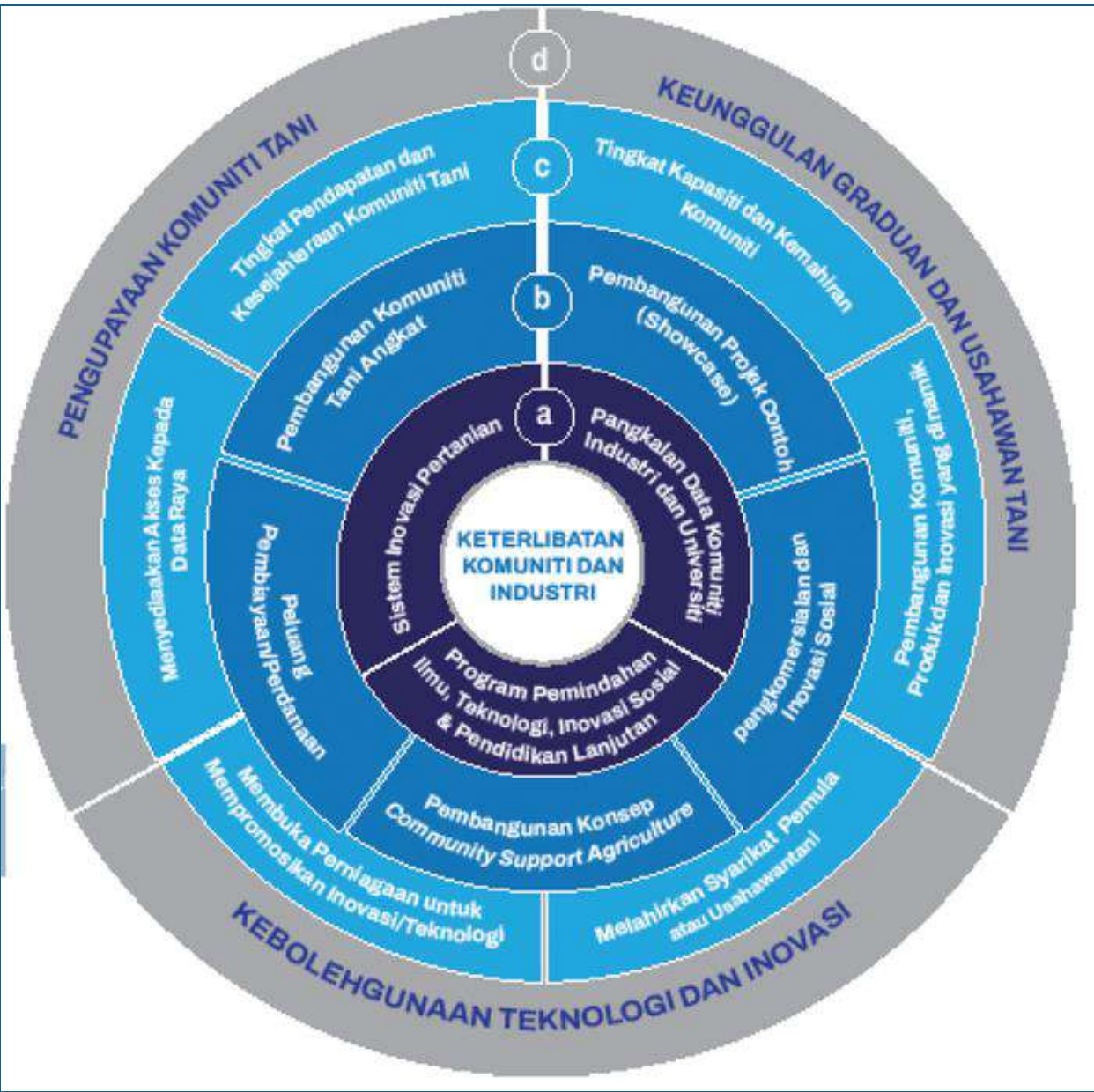
19. Hand-in-Hand Initiative (HIH)

The Hand-in-Hand (HIH) initiative focuses on the impact on the poorest and hungriest people through a strategic approach to empowering the groups concerned. A holistic approach using data information that is analysed and shared will help accelerate agricultural transformation and sustainable rural development.

20. Increasing investment

Focusing on the development of methods for measuring the impact of investments to help accelerate the transformation towards a sustainable food agriculture system.

Refer to executive summary: pg.14

Framework for Community & Industry Engagement Advancement (Refer BpKM pg 101)

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improving Quality of Life

1. Innovation for sustainable agricultural production

A food security production system that can create the empowerment of productive, resilient, innovative and competitive agricultural entrepreneurs, as well as create integrated entrepreneurial and business opportunities supported through comprehensive technology and policy.

2. Blue transformation

A comprehensive food system for an efficient, effective, inclusive, resilient and sustainable food security system is promoted through better policies and programs for integrated science-based management, technological innovation and the involvement of government and private agencies.

3. One Health

An integrated national and international One Health system developed for humans, animals, plants and environmental health is achieved through pest and disease prevention interventions, early warning and health risk management at the local community, state, Malaysian and global levels.

4. Fair access to resources for small-scale producers

A better and continuous increase in the production of crops from smallholders to become a sustainable economic resource with markets, services, information, education and technology through better policies, strategies and programme implementation.

5. Digital agriculture

Accessible digital ICT technologies to increase market opportunities, productivity and resilience integrated into agricultural food system policies and programmes, with a particular focus on technological innovation to ensure affordable and equitable access for smallholders.

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improvement of Food Quality

6. Healthy diet for all

The right to provide adequate food and the transition towards a healthy diet is a priority for the Malaysian community. This involves transformation related to the structure of the institutional environment, integrated policies and laws that incentivise the involvement of the community and the private sector.

7. Nutrition for the most fragile / vulnerable groups

Specific development through the identification of factors to improve the nutrition of vulnerable groups with policies for the most vulnerable nutrition with strategies and programmes developed and implemented by the country through the collaboration of agencies and universities.

8. Safe food for all

Integrated multi-sector food safety policy and legislation across the country's food agriculture system adopted and implemented by the government, as well as the capacity and awareness of all chain operators involved with value and community food security are enhanced.

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improvement of Environmental Quality

9. Reduction of food loss and waste

A clear, specific and operational roadmap prepared and implemented by the government. The development of a common direction involving all stakeholders enables all parties in the food supply chain, the food environment and at the community level to reduce food loss and waste.

10. Transparent markets and trade

Increase transparency and equitable participation in markets, value chains and domestic trade; which is achieved through policy coordination; and capacity of agribusiness, industry and government agencies in evidence-based decision making.

11. Food farming systems that mitigate and adapt to climate change

The transformation and resilience of food agriculture to achieve sustainability and climate-friendly nutrition goals through the establishment and implementation of climate-smart agriculture practices, policies and programmes.

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improvement of Environmental Quality

12. Bioeconomy for food and agriculture sustainability

A bioeconomy that balances economic value and social welfare with environmental sustainability is promoted through the formulation and implementation of integrated evidence-based policies and practices in the micro and macroenvironment, using technological, organisational and social innovation.

13. Biodiversity and ecosystem services for food and agriculture

Maintaining biodiversity for food and agriculture; and sustainable use of biodiversity, ecosystem conservation by promoting marine, terrestrial and freshwater ecosystem restoration services through the implementation of sustainable policies and practices.

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improving Quality of Life

14. Gender equality and empowerment of rural women

Increase the socioeconomic empowerment of women in the agricultural ecosystem through access to, and control over resources, services, technology, institutions, economic opportunities through equitable policies, strategies, programmes and legal frameworks.

15. Inclusive rural transformation

Agricultural ecosystem transformation for inclusive rural communities including revitalisation of rural areas to ensure equitable participation and benefit to the poor and the marginalised groups. Transformation is developed through the implementation of targeted policies, strategies and programmes.

20 priority areas

(Information on Key Areas and Statement of Results **& Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improving Quality of Life

16. Achieving sustainable urban food systems

Transformation of more efficient, inclusive, resilient and sustainable urban and suburban food agriculture systems that address urban poverty, food insecurity and malnutrition, enable healthy diets and be a catalyst of inclusive and sustainable rural transformation; encouraged through the use of policy and support programmes, and investment from stakeholders.

17. Agricultural and food emergencies

Local communities, when the country faces or is at risk of serious food shortages, are provided (aid) by developing programmes that can prevent agricultural and food emergencies; where the population is equipped with the appropriate capacity to better withstand and manage future shocks and risks.

18. Resilient agricultural food systems

The resilience of a comprehensive agri-food system to communities and agricultural and industrial entrepreneurs in the generation of economic resources against socioeconomic and environmental shocks and pressures is strengthened through a better understanding of various risks and effective governance mechanisms for the implementation of vulnerability reduction measures.

20 priority areas

(Information on Key Areas and Statement of Results & **Initiative Proposals**, please refer to the table on pages 102 - 106, UPM Food Security Blueprint)

Improving Quality of Life

19. Hand-in-Hand Initiative (HIH)

The transformation of agriculture and sustainable rural development is accelerated by focusing on the poor community category, distinguishing regions and types of strategies, and cooperation of all dimensions related to the agricultural food system through the analysis and sharing of sustainable initiatives.

20. Increase investment

Transformation towards a sustainable food agriculture system with a large-scale impact towards reducing inequality and eradicating poverty and improving the accelerated socioeconomics through increased public and private investment as well as increasing various capacities to leverage future investments for sustainable agricultural systems.

(Please refer pg. 107 – 129)

3 Success Advancement

3 Core Advancements

6 Enabling Advancement
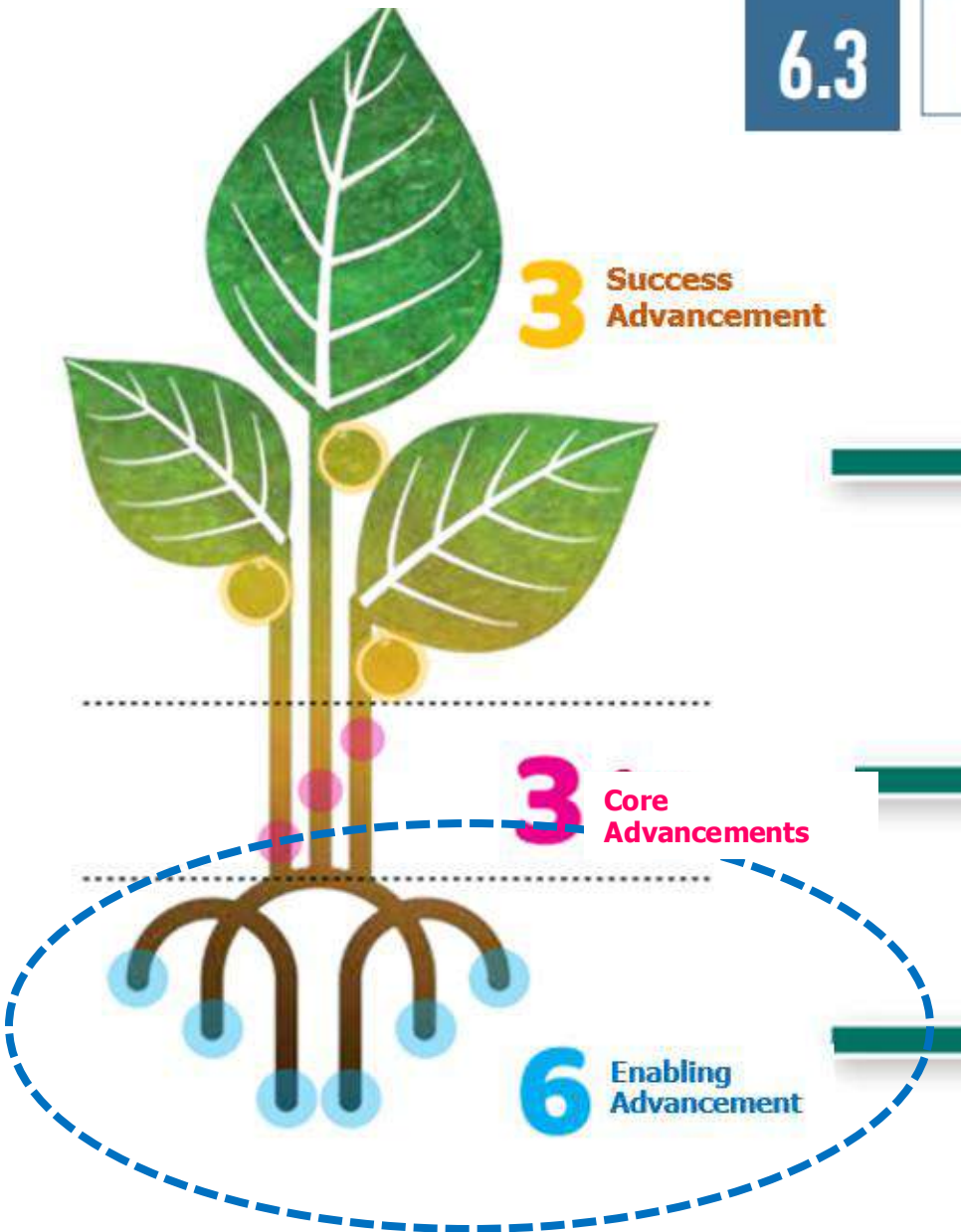
6 ENABLERS
1. Governance Efficiency
2. Financial Sustainability
3. Talent Availability
4. Advanced Infrastructure
5. Collaboration and Global Network
6. Strategic Communication
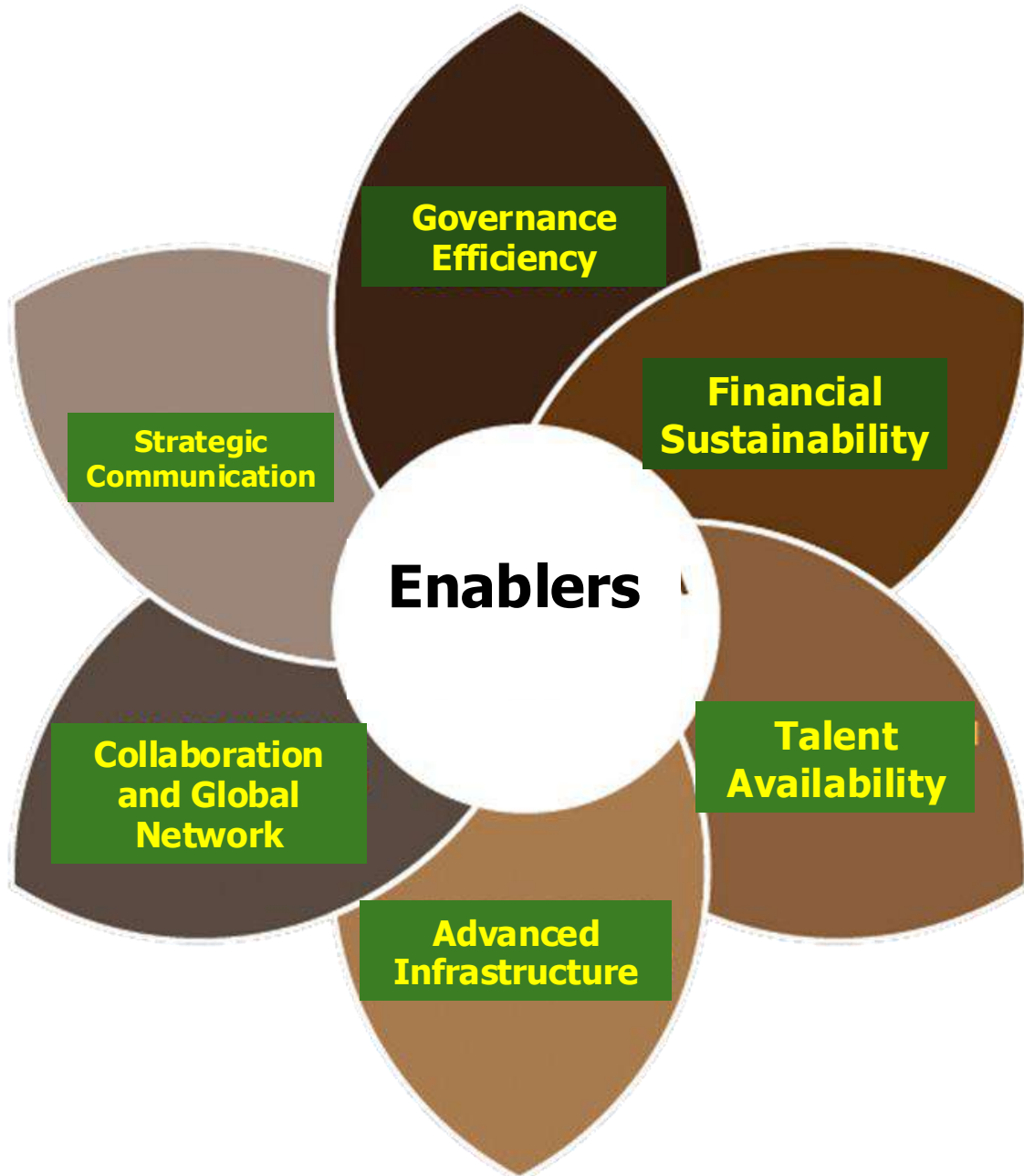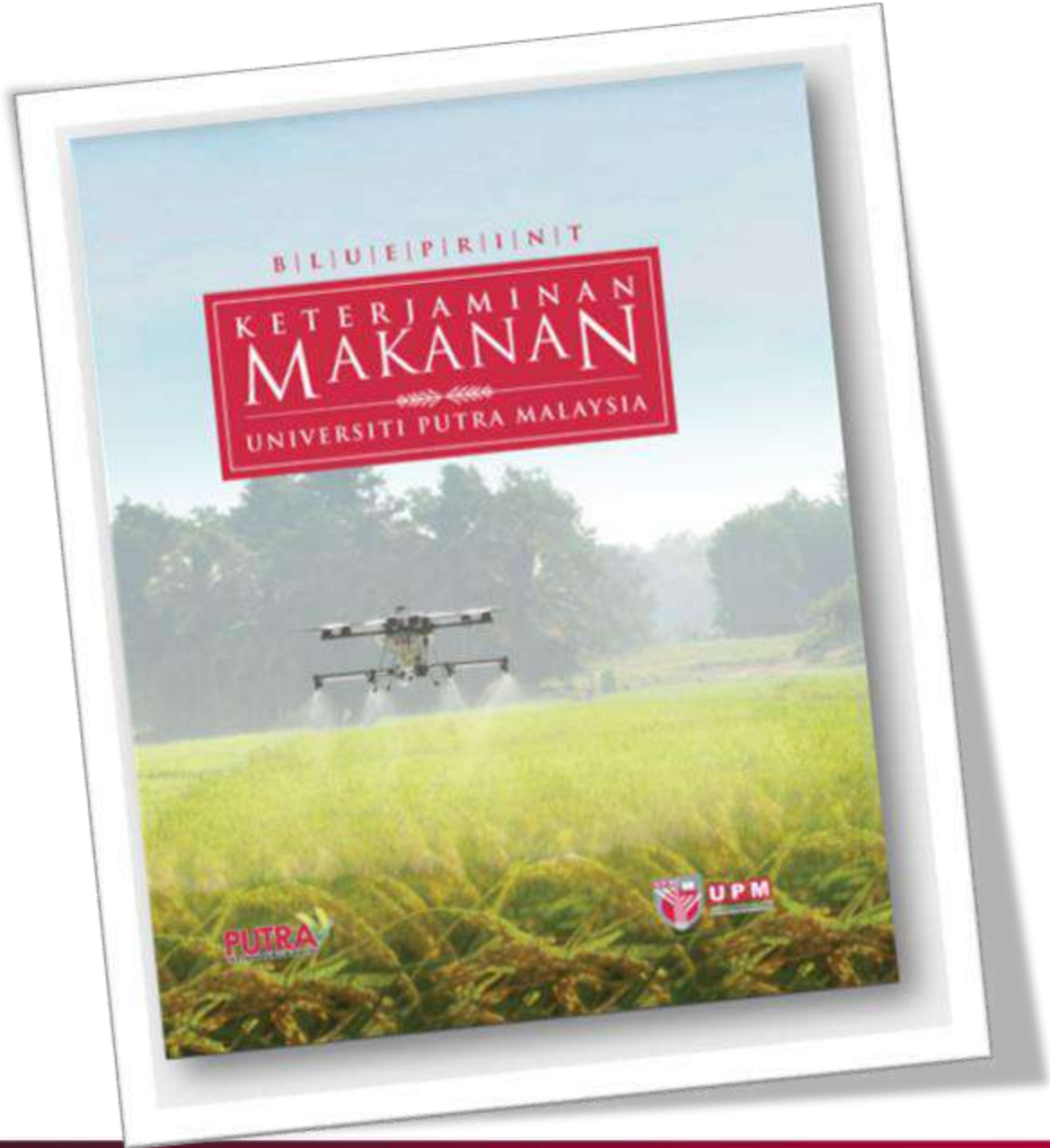
Enabling Advancement

UPM utilizes enablers to directly support enhancing processes and empowering strategies to establish competitive advantages, strengthen roles, and enhance contributions to food security.

FOOD SECURITY

Arguments for Inclusivity

- The value-chain for food security involves many agencies, and ministries

- We need a whole-nation approach to address issues and solve problems associate with food security

- Community empowerment and enhancement of farmers will be critical

- Supporting industry for food security is also imperative

- Effort by institution of higher learning will also be critical for
  - Innovative and impactful research and innovation
  - Capacity building for the nation and players critical to agriculture and food security

ATTAINING THE OUTCOMES OF THE FOOD SECURITY BLUEPRINT

True North UPM

↓

UPM'S Blueprint for Food Security

↓

Identifying Opportunities

↓

Execution and Initiatives

↓

IMPACT through Results and Outcomes

THE BLUEPRINT FOR FOOD SECURITY IMPLEMENTATION FRAMEWORK

PELANCARAN PUTRA (Pertanian untuk Rakyat) pada 16 Mei 2024

BLUEPRINT LAUNCHED 7 Jun 2024

1. Cascading to PTJ/Staff
- Each PTJ Playbook for Plans, Actions, Targets Deliverables & Outcome
- Impact Assessment
- Promotion & Branding

[Reporting/ Archiving & Documentation]

2. Networking

2.1 Nexus for Food Security in Malaysia
- Positioning UPM as a leader

2.2 IHL Food Security Nexus (20 UA & 7 IPTS)- First Meeting 4 July 2024

AUN Special Theme
- 1.AUN (ASEAN)
- 2.SEARCA (FP)
- 3.UNTA (TNCJINM/ SGS)
- 4. ASAHL (TNCAA)
- 5. CIRAD (TNCJINM)

Other International Opportunities
- Qatar
- Japan
- UK

Global Prominence

3. Infra & Facilities

4. Data Analytics & Technology Adoption

5. Governance
- Steering Comm
- Main Secretariat
- Project Management Office (PMO)

Funding- Endowment

6. Solving Real Problems for Food Security

7. Capacity Building Program
- -Students
- -Community
- -industry

- Formal Curriculum
- PhD/MSc Research
- Professional Programs & Certification
- Community Coaching

8. Continuous Branding & Marketing (at all levels)

To build communication plan

9. Special UPM Level Initiatives with Community & Industry
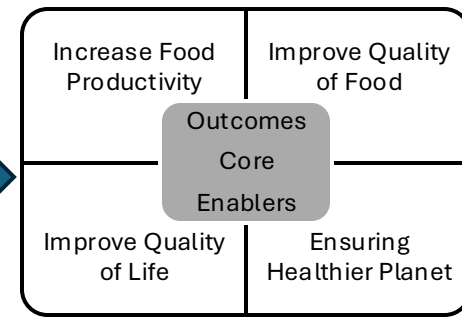- •UPMH
- •Other Investors

True North UPM

UPM'S Blueprint for Food Security

Identifying Opportunities

Implementation Plan
- Individual
- PTJ
- Special Projects

- Go through the blueprint
- Understand the entire Value-Chain

Outcomes
Core
Enablers

Increase Food Productivity

Improve Quality of Food

Improve Quality of Life

Ensuring Healthier Planet

Community empowerment

Industrial Enrichment

Matching Issue(s) and Problem(s) with your area(s) of Expertise and Interest

Capacity Building opportunities

- Formal (academic)
- Informal (others)

Defining the Research Problem Statement

Establishing Fundamentals

Challenging the Status Quo

Identifying and exploring to further the present knowledge

Solving known Critical Issues

Agricultural Direct Technologies

Other technologies supporting Food Security

Food Security eco-system research

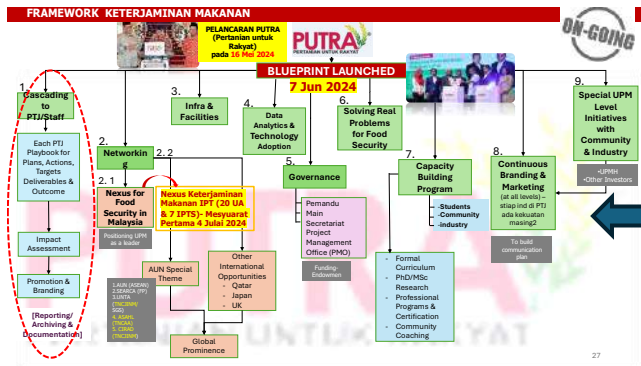Preparing for future uncertainties

Addressing the talent issues

Down-stream products and services
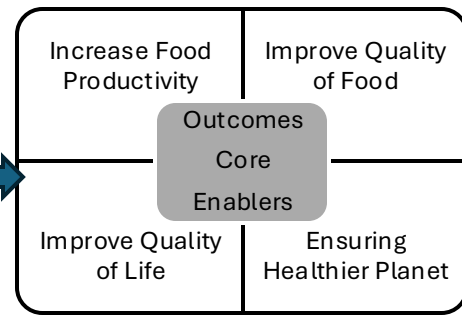
New Policies

New Working Models

Other opportunities

True North UPM

UPM'S Blueprint for Food Security

Identifying Opportunities

Implementation Plan
- Individual
- PTJ
- Special Projects

Increase Food Productivity	Improve Quality of Food
Improve Quality of Life	Ensuring Healthier Planet

Outcomes
Core
Enablers

- Go through the blueprint
- Understand the entire Value-Chain

Matching Issue(s) and Problem(s) with your area(s) of Expertise and Interest

Community empowerment

Industrial Enrichment

Capacity Building opportunities
- Formal (academic)
- Informal (others)

EXECUTION OF INITIATIVES + RESULTS/OUTCOMES

IMPACTS

Enabling Policies

Enabling and Competent talent

Improve Agricultural Productivity

Higher Quality Agricultural Products/ Produce

Working Enablers

Improved Industrial Eco-system for food security

Elevated Agricultural Status on Society

Solutions to Prevailing Problems

More Resilient Agriculture and Food Industry

Improved Food Security Status

Let us extend this network to other regions

20 Public universities
7 Private universities

Malaysian IHL's NEXUS FOR FOOD SECURITY

(launched 4th July 2024)

Let us work better with all

Thank you