

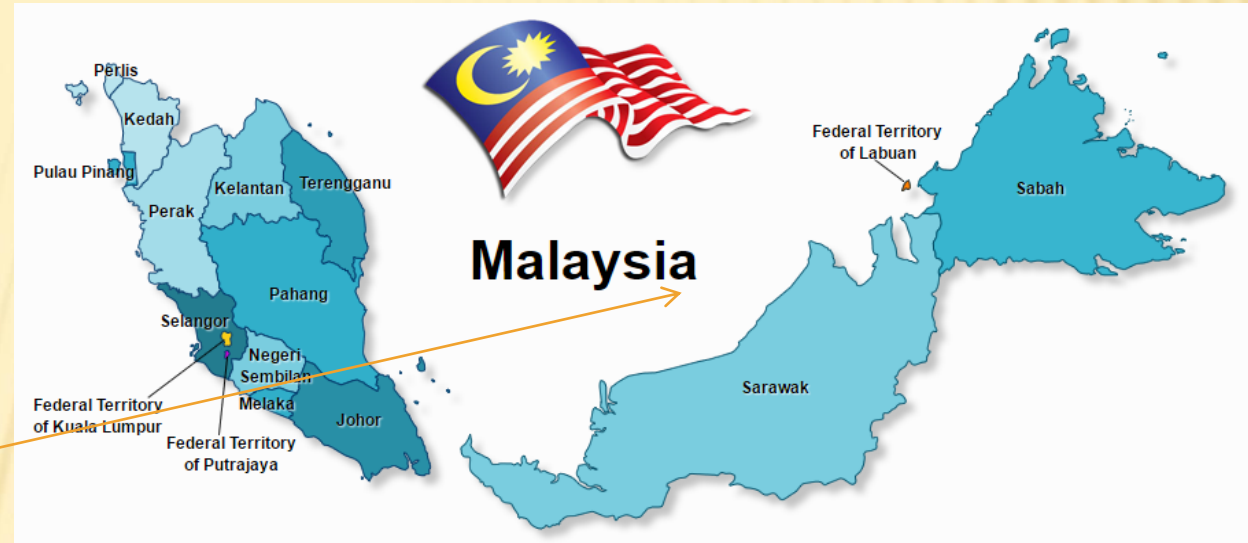
Malaysia Agriculture Research
Development Institute(MARDI)

DEVELOPMENT OF AGRICULTURE MECHANIZATION IN MALAYSIA

MUHAMMAD HANIFF BIN AHMAD
Farm Mechanization Program
Engineering Research Centre

Training Workshop on Sustainable Mechanization for Smallholder Farmers in Asia and Africa in Support of the Sustainable Development Goals

Background Information



Location: in the heart of Southeast Asian Region.

Capital: Kuala Lumpur

Population: 30.8 million (2016) with growth rate of 1.51%.

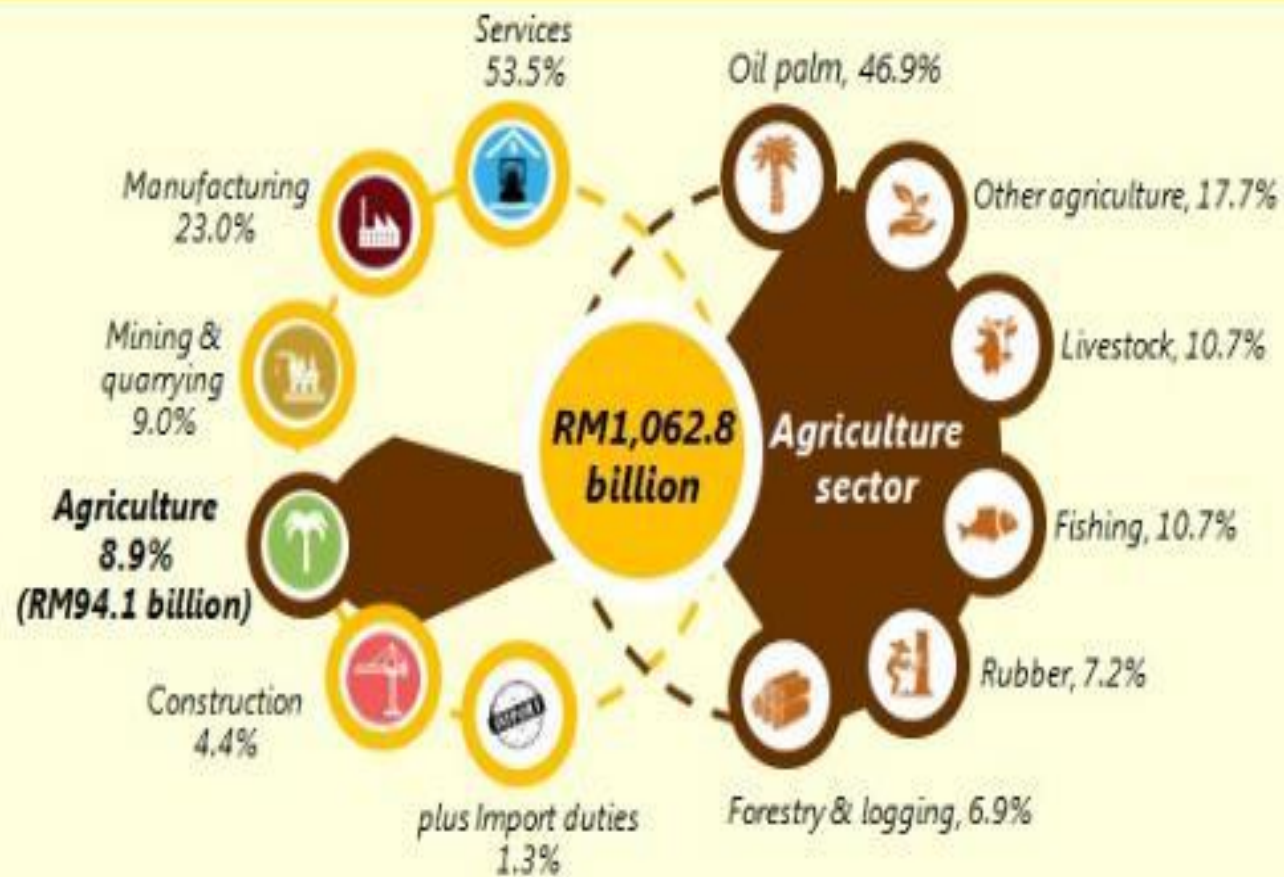
Four main ethnicities: Malay (50.1%), Chinese (22.6%), Indigenous (11.8%) & Indian (6.7%).

Climate: Tropical, annual southwest (Apr – Oct) and northeast (Oct – Feb) monsoons.

Economy (2015): GDP is \$296.3 billion, GDP growth is 5% & inflation is 2.1%.

**PERCENTAGE SHARE TO GDP BY KIND OF ECONOMIC ACTIVITY, 2015
(CONSTANT 2010 PRICES)**

Agriculture sector contributed **8.9 per cent** to the Gross Domestic Product (GDP) in 2015



MALAYSIA AGRICULTURE DIRECTION

- ✘ Practical Modernization Agriculture through Improvement Technology Adoption(**Precision farming**)
- ✘ Improvement Internal production **Rice** Subsector
- ✘ Improvement Internal production Ruminan sub-sector
- ✘ Increase in Expenditure in the Fisheries Subsector
- ✘ Reduction of Dependencies on Imports of Agricultural Inputs(**Grain corn production**)

WATER MANAGEMENT FOR RICE PRODUCTION

Water recycling system



Excess water flow into storage pond



During drought water from storage pond is pumped to field again

Aerobic Rice Production Related Research



Using Less Water More Rice

MECHANIZATION IN RICE PRODUCTION

Aero seeder



Accord-seeder

MECHANIZATION – CROP ESTABLISHMENT & CROP CARE



Row seeder



Transplanter



'High clearance machine' for chemical spraying



Transplanting Machine

SEED DRILLING MOUNTED DRUM SEEDER



Variable Rate Fertilizer Application for Rice Precision Farming Technology

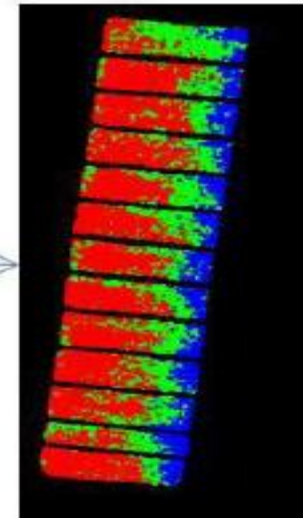
Unmanned aerial vehicle (UAV) – capture image



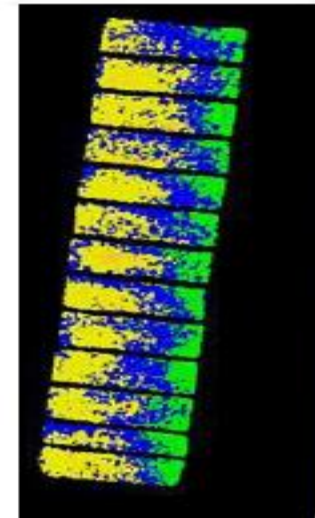
Image Captured



Mosaic



SPAD Map



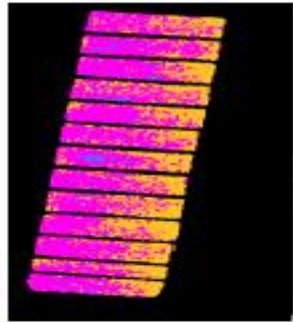
GAI Map

Processing



Image capturing and processing

Variable Rate Applicator



Treatment Map

Farmwork &
GPS system

High Clearance
Tractor &
VA- Bogballe



Fertilizer Application

GRAIN CORN PRODUCTION



Published on *theSunday* (<http://www.thesundaily.my>)

Malaysia expanding maize cultivation, with first commercial planting to start in Kemaman

Posted on 22 June 2016 - 03:17pm

Last updated on 22 June 2016 - 04:44pm

[Print](#) (1)



9/17/2017

Jagung bijian kekayaan baru - Pertanian - Utusan Online



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Jagung bijian kekayaan baru



Land Preparation

1. Disc Plough



Liming (Optional)



Liming after first plough

2. Disc Harrow



Land Preparation

3. Rotorvation



MINOR LAND LEVELING (OPTIONAL)



SOWING



Pre-emergence application



Top Dressing (One month after sowing)



Foliar application (Optional)



✘ Installation of irrigation system



Harvesting



GROUNDWATER EXPLORATION TECHNIQUE



Kabel -kabel ditarik selari sepanjang 200 m atau 400 m



Pastikan alat berada ditengah-tengah antara 2 kabel



Setting dan operate Alat keberintangan elektrik untuk mengambil bacaan

RESISTIVITY COMPONENT

Cables

electrod



Electrod cables

ABEM Terrameter LS2

Policies And Practices Of Government, Enterprises And Farmers' Group In Promoting Smallholder Mechanization.

- ✘ Introduced the incubation programme to create a group of young skilled and motivated entrepreneurs.
- ✘ Systematic and integrated approach for food crops(R & D)
- ✘ Smallholders are encouraged to practice group farming
- ✘ To achieved a positive balanced of trade and reduced food import and increased export

CONSTRAINTS AND CHALLENGES

- ✘ Dependent on foreign workers
- ✘ Lack of investors(high capital of investment)
- ✘ Attitude problem(farmers neglect their farm and do not manage properly)
- ✘ High cost(land acquisition, Wages(high compares to Thailand and Vietnam), and cost of production(higher cost of machinery from service provider, solar power for tube well and etc)

GOOD PRACTICES AND EXPERIENCES

- ✘ Groundwater for irrigation- development of tube well for water source in food production at Community farm. Water sources is sharing among farmers

CONCLUSION

- Collaborations and contributions from multi-national, multi-institute and multi-disciplinary expertise should probably be adhered for the successful development and utilization of precision farming technology and practices.
- Coordinated efforts by various R&D agencies are needed for the success.

