



**Asia-Pacific
Economic Cooperation**

APEC Workshop on Food Security: Innovative Approaches for the Implementation of APEC Food Security Action Plan

*Sunway Putra Hotel, Kuala Lumpur, Malaysia
June 18 – 21, 2012*

APEC Agricultural Technical Cooperation Working Group

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EXECUTIVE SUMMARY

The APEC Project ATC 05/2011A was successfully implemented with the organization of two activities, i.e. a series of pre-forum consultation visits and a 4-day Workshop. A pre-forum consultation activity was organized in three prospective participating APEC economies, i.e. Brunei Darussalam, Chinese Taipei and Indonesia to gather relevant information and establish innovative approaches applied and their Food Security Action Plan. As the final activity, a 4-day workshop was organized in Sunway Putra Hotel, Kuala Lumpur, Malaysia from 18-21 June 2012 which deliberated on the outputs of the pre-forum activity, explored and document appropriate actions, mechanisms and frameworks that can facilitate a shared approach to addressing the identified issues.

The key objective of the Workshop was to sustain and improve efficiency in the development of the current agricultural sector and safeguard agricultural trade in support of Food Security. The workshop was attended by 60 participants, resource persons, observers and Organizing Committee from 13 APEC member economies (Australia, Brunei Darussalam, China, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Thailand, Chinese Taipei, USA and Viet Nam). Nineteen presentations were given during the workshop with nine presentations from resource persons and ten presentations from member economies.

The Workshop was divided into 8 (eight) sessions, i.e.: a). Opening Session, b) Strategies & Policies, c) Innovation and Best Practices in Agricultural Production – Case Studies, d) Economy Reports, e) Commonalities, Differences & Innovation Strategies in Strengthening APEC Food Security Action Plan, f) Innovations and Best Practices in Post-Harvest Handling g) Linkages of Private and Public Sector Cooperation, h) Recommendations and Future Plans.

A major outcome of the Workshop was several recommendations made by participants:

- Economies should actively participate and contribute towards APIP*
- The best practices and experiences for crop production and productivity should be shared widely, through establishment of more formal forum for exchange, in support of The Kazan Declaration*
- Developing economies are encouraged to test innovations shared by participating economies at this Workshop*
- APEC urged to initiate and support capacity building in pre-harvest and in-field stages of food production*
- APEC should actively address food insecurity among disadvantaged and vulnerable groups within the population*
- Investment climate to harness support for food security development activities should be enhanced*
- Regional approaches to food emergency response, e.g. stockpiling, distribution, building on ASEAN initiatives should be encouraged.*

1. INTRODUCTION

The Niigata Declaration on APEC Food Security at the First APEC Ministerial Meeting on Food Security in Japan, October 2010 and the APEC Senior Officials Work Plan on Food Security, clearly address the growing challenges to global food security. To fulfill this important task and solve common concerns for food security issues, innovative approaches and comprehensive action plans should be developed for the Asia Pacific Region, especially for APEC developing economies. This workshop directly supports these goals by developing efforts to implement and safeguard a more effective food security action plan, particularly Food Availability (Food Production).

Addressing the issues of sustainability and improved efficiency in the development of the current agricultural sector and safeguarding agricultural trade to support food security objectives is highly important. This directly or indirectly falls within the following potential actions recommended for consideration:

- i. Develop strategies in increasing productivity and efficiency of food production to address the issues of food availability and to increase rural income and accessibility to food.
- ii. Develop and promote best practices for making agricultural production, food storage, transportation and distribution systems more efficient.
- iii. Enhance capacity building and sharing of innovation and best practices to increase productivity and efficiency in agriculture.
- iv. Encourage participation of private sectors to enhance their involvement in food availability through investment in post-harvest and transportation.

The objectives of the Agricultural Technical Cooperation Working Group (ATCWG) are to improve productivity in agriculture, facilitate trade in food products and strengthen biosecurity by containing trans-boundary movement of plant pests. In this respect, some economies are scientifically lagging behind whilst others may be at various levels of development. Nevertheless, these developmental disparities serve to emphasize the opportunities for the maximal use of complementarities through regional approaches to increase crop production and reduce crop losses. The adoption of innovative systems can create an enabling environment for individual member economies whilst facilitating appropriate approaches to regional sharing and learning. The alignment of different domestic policies and processes to the common objectives of the ATCWG can go a long way towards an effective joint action in enhancing regional food security.

The issue of low crop yields is a major food security challenge at the farm level, impacting upon food production in rural farming communities. Globally, it has been estimated that the yields obtained are only about half the potential yield that can be achieved. The problem is particularly

acute in many developing economies where smallholder farmers often do not know what is wrong with their crops. Consequently they are either unable to mitigate the problem or they control it with inappropriate actions. The solution lies with developing, integrating and applying innovative approaches that mitigate factors affecting yield - resulting in better, healthier and more sustainable plant production systems. This project has implemented several activities that directly build on the Food Security Action Plan endorsed in Niigata, Japan and APEC Senior Officers Work Plan on Food Security. The project also addressed issues related to sustainability and improved efficiency in the development of the current agricultural sector and safeguard agricultural trade in support of Food Security. A pre-forum consultation activity has been organized in three prospective participating APEC economies, i.e. Brunei Darussalam, Chinese Taipei and Indonesia to gather relevant information and establish existing innovative approaches and Food Security Action Plans. As a final activity, a 4-day workshop was organized in Sunway Putra Hotel, Kuala Lumpur, Malaysia from 18-21 June 2012 which deliberated on the outputs of the pre-forum activity, explore and proposed appropriate actions, mechanisms and frameworks that can facilitate a shared approach to addressing the identified issues.

2. OBJECTIVES OF THE WORKSHOP

The key objective of this Workshop was to sustain and improve efficiency in the development of the current agricultural sector and safeguard agricultural trade in support of Food Security. The Workshop sought to:

- review, identify and share experiences on innovation and best practices between developing member economies pertaining to gaps facing increase productivity and efficiency of food production for enhanced availability and capacity to access food by rural farmers,
- enhance participation of private sectors investing in post-harvest technologies and transportation to improve the availability of food,
- develop the rural community through sharing of innovative approaches and practices in increasing efficiency and productivity of crop production in ensuring food availability and fostering increase in the purchasing power of rural community.

3. PARTICIPANTS AND RESOURCE PERSONS

The workshop was attended by 60 participants, resource persons, observers and Organizing Committee from 13 APEC member economies (Australia, Brunei Darussalam, China, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Thailand, Chinese Taipei, USA and Viet Nam). A list of participants, observers, resource persons and Organizing Committee is given as **Attachment 1**.

4. WORKSHOP PROGRAMME

The Workshop was organized at Sunway Putra Hotel, Kuala Lumpur, Malaysia from 18-21 June 2012. A copy of the full program is given as **Attachment 2**. The Welcoming Speech was given by the Director General of Agriculture, Malaysia and the Opening Address was delivered by the Secretary General of Ministry of Agriculture and Agro-based Industry, Malaysia (The full text of the speeches are provided as **Attachment 3 & 4**).

5. WORKSHOP PRESENTATIONS SUMMARY

5.1. Opening Session

Key Note Address: Implementation of APEC Action Plan in Food Security - Current Status, Success Stories & Constraints in Japan (Attachment 5.1.1.)

Ms. Megumi Kakizaki from the Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan explained on Niigata Declaration on Food Security and Niigata Action Plan on Food Security. There are 62 activities under the action plan and these include the development of an information platform on food security (Asia Pacific Information Platform, APIP). The APIP official website was introduced to all participants as it is a platform for information sharing. Activities carried out by other economics such as Australia, Korea, New Zealand and Thailand that correspond to the APEC Action Plan on Food Security were presented and some expected activities by other economics such as Canada, China, Chinese Taipei, Indonesia, Korea, Malaysia, Peru, Philippines, Russia, Thailand and USA were highlighted. The key note address was concluded by a number of recommendations which included steady implementation of Action Plan, sharing of results through APIP and a call for further development of APIP.

Overview of Pre Forum Fact Finding Visits (Attachment 5.1.2.)

Dr. Loke Wai Hong, Regional Director of CABI-SEA presented a summary of the Pre Forum Fact Finding Visits to Brunei, Chinese Taipei and Indonesia. The objectives of the fact finding visits were to enable face-to-face discussions on the workshop, to discuss contents and the type of information on which the APEC Community could be able to share with each other. Apart from that, the visits also aimed to enhance the effectiveness of pre-forum discussions and to allow dissemination to the wider workshop (and APEC) audience by inviting resource persons/speakers from visited economies. The rationale behind the selection of the three economics for visit was explained. Information on the government agencies responsible for food security, current status on food security as well as issues and challenges faced by each economics were presented. He then ended by summarizing the commonalities, differences and innovative strategies in the economics selected. Some of the Innovative Strategies presented by the 3 (three) economies are:

- Diversification of food production and consumption
- Development of new varieties
- Introduction of 1 village 1 crop concept
- Improvement of distribution system, to enable constant supply and public access to food
- Optimizing available resources in sustainable manner

- Development of carbon reduction technologies
- Encouragement of private sector participation and wider stakeholder participation
- Arable land conservation, to be used in emergency

Purpose, Scope and Structure of the Four-Day Workshop (Attachment 5.1.3.)

Mr. Yusof Othman from the Department of Agriculture (DOA), Malaysia provided an introduction on the focus area of APEC ATCWG in the next five years to enhance APEC food security. A brief introduction on the Niigata Declaration that leads to the APEC Action Plan on Food Security which identifies specific activities to be implemented by APEC economies to strengthen regional food security was also presented. He then explained further on the project structures which include the fact-finding visits and this 4-day workshop. The workshop objectives, participation and programmes were highlighted. He also mentioned on the expected outcome of this workshop and that workshop outputs will be documented for broader dissemination to APEC community.

5.2. Session 1 : Strategies and Policies

Food Security and Its Implication to Developing Economies (Attachment 5.2.1.)

Prof. Dr. Mad Nasir Shamsudin, Dean of Faculty of Agriculture, Universiti Putra Malaysia started with an overview of the problem issue in food security, the food situation in developing economics and the call for strategies to address this problem. He then presented a compilation of information on the global landscape of food crisis and causes, supply situation, demand and prices. He stressed that the global population and income increase are driving demand for key agricultural produce and that global food crises are due to changes in the fundamentals and hence the food equation which includes the supply and demand sector. Food security situation in developing economics particularly Asia in terms of the four major dimensions of food security i.e. availability, accessibility, utilization and stability were also discussed with some information in the form of statistics from various sources. The final outline of his presentation highlighted on the implications of food security to developing economics and a policy diamond which focuses on four clusters (environmental services, sustainable production, sustainable consumption and safety nets for rural non-farm economy and skills development).

National Agro-Food Policy 2011-2020-NAP (Attachment 5.2.2.)

An overview on the Malaysian National Agro-Food Policy (NAP) was presented by Mr. Cheah Hock Kooi from Ministry of Agriculture & Agro-based Industry (MOA), Malaysia. He provided statistics on the production of main food commodities from 2000-2010 and the objectives of the NAP which are to ensure adequate food supply and food safety, to increase the income level of agricultural entrepreneurs and to develop the agro-food industry into a competitive and sustainable industry. The seven strategic directions of NAP were explained and it was concluded with eight main ideas of the NAP.

5.3. Session 2 : Innovation and Best Practices in Agricultural Production – Case Studies

Food Security in Brunei Darussalam (Attachment 5.3.1)

Insights on food security in Brunei Darussalam were presented by Mr. Jamaluddin Hj Mohd Yusoff, Department of Agriculture and Agrifood, MIPR, Brunei. He started his presentation with the definition of food security and the four pillars enabling the formulation of National Food Policy. He noted that the definition includes halal for Brunei. The audience was then led to the food availability situation in Brunei. Information on food production, self-sufficiency level for local rice production, availability of rice, measures taken to ensure self-sufficiency in rice, Brunei's focus on other commodities in agriculture and fishery sector were among the focus emphasized. Apart from that, a few challenges and strategic approaches in addressing food availability were identified. Issues and approaches in addressing food accessibility and safety were discussed. He also shared the list of agency/organization in the National Food Security Council and their term of reference. The presentation concluded with a summary of action agenda and desired activities coordinated by the council according to the four main pillars of food security.

Innovation and Best Practices in Agricultural Production - The Case of DouNan Farmers' Association in Chinese Taipei (Attachment 5.3.2)

Dr. Ching-Cheng Chang from National Taiwan University introduced the innovation and best practices in agricultural production by quoting a case study in DouNan town, Yunlin County, Chinese Taipei. She started the presentation with a general summary of food security issues in Chinese Taipei. Some of the innovations and policies practised were explained. One of the innovations in small-farm system is the Hub-Satellite Farming System. It is a system with the Farmers' Association as a hub responsible for marketing and planning. Supply management system is another innovation in this economic. It involves strategic planning to add product values, modernization in post-harvest processes and adopting Good Agriculture Practices. She then provided an explanation on the 'Small Landlord and Big Tenant' Program. The demographic and background of DouNan were also described and Hub Satellite System was adopted for carrot and potato farms. Under the system, field mechanization, standardization, post-harvest processing and market-oriented management were practised. Her concluding remark was that integrated supply chain is the key to success.

Indonesia's Best Practices and Constraints: Toward Sustainable Food Security (Attachment 5.3.3)

Prof. Dr. Kaman Nainggolan from the Food Security Agency, Ministry of Agriculture, Indonesia, first mentioned about the roles of agricultural sector leading to roles in food security. He then proceeded to explain on the state of food security and rural development in Indonesia. It was highlighted that the number of people that are food vulnerable has increased over the past years. A few weaknesses which include policy bias against agriculture and the rural sector between regions, limited access to land, lack of infrastructure, technology and marketing issues were identified. He also discussed on food security policies and actions i.e. a Twin Track Strategy with the aim to empower the poor with capacity to develop their food security at

household/community level. It was explained that the development of Village Self-Reliance Development (VSRD) was undertaken in order to achieve this objective. He concluded that the Indonesian model; VSRD is a sustainable approach and warrants more development and investment. Besides that, he also mentioned on The Second Green Revolution (Ever Green) which is more eco-friendly and offers a better opportunity in securing world food security.

5.4. Session 3: Economy Report

This session was chaired by Ms. Megumi Kakizaki from MAFF, Japan. Representatives from Malaysia, Chinese Taipei, Indonesia, PNG, Viet Nam, China, Thailand and Philippines presented their economic report. Here are some of the summaries of the presentations.

Malaysia (Attachment 5.4.1)

The staple food in Malaysia is rice for the Malaysia population of 28.25 million. The main challenge to production, distribution and consumption are natural disaster such as monsoon and flood. There are a few strategies, policies and management approaches in place from increasing production, productivity, marketing to distribution. Development of abandoned areas and the Green Earth Program is also being implemented. The Ministry of Agriculture and Agro-based Industry is responsible for food production and ensuring the availability of food in Malaysia with the assistance of three departments and supporting agencies as well as stakeholders such as Padiberas Nasional Berhad (BERNAS) and other NGOs. Research and Development, Land Policy Act, Plant Quarantine and Food Acts are also enforced to raise food security preparedness. Examples of innovative approaches were also explained:

- Permanent Food Park Program (TKPM)
- Paddy Field Leveling Project
- Development of Abandoned Land Project
- Green Earth Program (Bumi Hijau)
- Provision of Incentives to induce increments in food production
- Paddy subsidy assistance in the form of fertilizer, price, seed, production incentives.

Some of the current best practices that support national food security objectives are as follows:

- Malaysian Farm Certification Scheme for Good Agricultural Practices (SALM)
- Malaysian Organic Scheme Certification (SOM)
- Tagging System
- Plant Conservation for Food Security
- Downstream Processing (Agro Base Industry)
- Postharvest

Chinese Taipei (Attachment 5.4.2)

The self-sufficiency ratio in Chinese Taipei is low with the single stable crop, rice and dependency on imports of wheat and maize, problems such as decreasing arable land, water resources and global warming which lead to food insecurity. National Food Security Action Plan

in place aims to raise self-sufficiency level besides strengthening investment and increasing efficiency. Chinese Taipei has proposed to establish AFERM for safeguarding food security in times of disasters in the APEC region and Small Landlords, Large Tenants to offer assistance to enlarge farm scale and raise agricultural competitiveness.

Indonesia (Attachment 5.4.3)

It has been targeted that commodities such as paddy/rice would achieve surplus of 10 million tons in 2015, sugar and beef meat in 2014 and maize and soybean will be sustainable self-sufficient. The Five Efforts Principle (PANCA YASA) was implemented as a strategic step to revitalize agricultural development. Policies on food security in Indonesia includes Promoting Twin Track Strategy, applying “Promotion and Protection”, self-sufficiency on food, maintaining food supply, price stability and improving food diversification on the basis of local commodities. Cassava rice, sweet potato rice and breadfruit are some examples of food diversification. Apart from that, programs such as increasing preparedness of the community through EWS (Early Warning System) and promoting “community/village food resilience” through community empowerment programs at poor villages are being introduced to raise food security level. Next, innovative approaches implemented nationwide to overcome food security issues aims to optimize home yard planting, breeding livestock, to develop village food resilience (VFRD), develop micro finance for village communities and to enhance community food reserves.

Papua New Guinea (PNG) (Attachment 5.4.4)

PNG has a subsistence food base that supports 85% of the population. They are net importer of wheat and rice with much agricultural land remains underdeveloped. Land, drought and prolong rain are challenges for agriculture in PNG. Hence, the innovative measures being used to raise food security preparedness targeted on improvement of crop, livestock species through biotechnology, resource use efficiency (land), development of alternative food crops, information sharing through ICT and capacity development. It was mentioned that the main issues were weakness in national policies implementation and lack of comprehensiveness in National Food Security policies.

Viet Nam (Attachment 5.4.5)

Agriculture plays an important role in the socio-economic development of Viet Nam. Rice, corn and soybean are some major crops. A national food security action plan is in place with the goal to ensure sustainability, sufficiency, quality of food by overcoming challenges in post-harvest losses, processing and storage, harvesting, impact of climate change and yield gaps. The Government of Viet Nam, research institutions, universities, farmers, middlemen and NGOs participates in food security. They provide functional roles in planning, infrastructure development, science and technology, capacity development, encourage investment and support to rice producer and mitigation to climate change impacts.

China PRC (Attachment 5.4.6)

At present, China PRC has been successful at meeting the basic food needs of its population of more than 1.3 billion people. China has been making remarkable progress in increasing

agricultural production, with constantly achieving goals in poverty reduction. A long-term strategic and policy framework for economic development requires a sustainable food security. Therefore, technological development in addition to improved incentives, institutional reform, rural economic development, and other policies that increase food availability are important determinants of China's food production and availability through government's finance support, investment to enhance productivity and strengthening anti-poverty programs. Examples of innovative approaches implemented include:

- Policy for protecting cultivated land
- Governor Grain Responsibility system
- Mayor Vegetable Basket Responsibility system
- Basic self-sufficiency policy of food
- Development of commercial bases for food production
- Expansion of state reserve capacity

It was concluded that China PRC is willing to implement cooperation with other APEC economics in improving capabilities of ensuring food security.

Thailand (Attachment 5.4.7)

Food availability in Thailand would be an issue if the following problems persist; the issue of soil degradation and taking over of agricultural areas as households which has caused a reduction in farm size. This has been made worse by climate change of which further limits resources such as water. Among the innovation discussed were that Ministry of Agricultural to promote the awareness among farmers for sustainable food production, promote new agriculture theory and use local knowledge in food production, strong regional cooperation in tackling food security and to promote exporting agricultural products. The implementation of innovative approaches requires encouragement of private sector investment in agriculture to improve food production, government policy and upgrading irrigation system to secure food production area.

Philippines (Attachment 5.4.8)

It was disclosed that food imports increased from 2008 to 2010. This is due to natural calamities and typhoons. Therefore, action plans focuses on policies to secure food requirement, increase productivity and income of farmers, improve resilience to climate change, improve governance, and the buffer stocking system. Early planting/harvesting, technology dissemination (seed buffer etc.), adoption of organic agriculture and campaign for reduce wastage (brown rice etc.) were among the innovative approaches and current best practices in this economic.

5.5. Session 4: Commonalities, Differences & Innovation Strategies in Strengthening APEC Food Security Action Plan

Breakout Session 1 (Attachments 5.5.1 & 5.5.2)

Representatives from different economics were divided into three discussion groups to discuss on the commonalities, differences and innovation strategies in strengthening APEC Food Security Action Plan.

5.6. Session 5 : Innovations and Best Practices in Postharvest Handling

Postharvest Technologies for Horticultural Products (Attachment 5.6.1)

Ms. Latifah Mohd Nor from Horticulture Research Centre, Malaysian Agricultural Research & Development Institute (MARDI), Malaysia presented on the postharvest technologies and innovation for horticultural produce. She started off with the definition of postharvest as the movements of fresh produce right from harvesting until the consumers' table. She then presented on postharvest research areas and cited some achievements in this area. Postharvest treatments (wrapping materials, surface coating, temperature conditioning), storage condition, processing, packaging system, transportation method, mechanization were explained. It was suggested that quality improvement through genetic engineering would be the way forward.

Breakout Group Discussion 2 – Post Harvest Technologies and Innovations for Horticultural Products (Attachment 5.6.2, 5.6.3 & 5.6.4)

Three breakout groups were formed and led by moderators: Ms. Latifah Mohd Nor, Ms. Nazipah Jamaludin and Mr. Mokhtarud-din Husain for a discussion on:

- Key factors contributing on postharvest losses
- Common issues to efforts aimed at reducing postharvest losses
- Strategies to addressing postharvest losses in developing economies
- Success Stories
- Stakeholder awareness in the adoption of appropriate postharvest technologies to raise food security levels.
- Role of the private sector in addressing postharvest losses.

Some of the important points from the group presentations are as follows:

- Postharvest mishandling, improper harvest and packaging technique, limited knowledge on technology, postharvest infrastructure, lack of awareness or capacity building, investment on R&D were identified as the key factors contributing to postharvest losses.
- Common challenges includes; lack of resources (incentive), budget, facilities, support from private sector.

- Strategies undertaken: large retailer involvement, regulation on controlling quality, research and innovation, subsidies, access to facilities, farmers association co-operation.

5.7. Session 6 : Linkages of Private and Public Sector Cooperation

Role and Involvement of Federal Agriculture Marketing Authority (FAMA) In Agriculture Supply Chain Management (Attachment 5.7.1)

Ms. Nazipah Jamaludin from FAMA, Malaysia explained the involvement of FAMA in agricultural supply chain management. She cited a few definition of supply chain management and also discussed the definition of food security, innovation and FAMA perspective of innovative approaches. She then introduced on the background of FAMA, services provided by FAMA and the overview of FAMA's services along the supply chain. Marketing issues related to food security and best practices in the supply chain were highlighted. FAMA's innovative approaches in supply chain management involves contract farm, farm collection centre, distribution centre, logistics and distribution, wholesale and retail outlets (pasar tani, fresh fruit outlet).

Strategic Approaches and Roles of Padiberas Nasional Berhad (BERNAS) in Malaysian Rice Industry (Attachment 5.7.2)

Firstly, Mr. Zainudin Hashim from BERNAS provided an overview of Malaysian Rice Industry Structure with some facts and figures, background and roles of BERNAS as well as their benefits to farmers. The National Food Security Policy (2008-2010) was also explained as the primary focus was to increase rice production. The policy responded to the 2007/08 crisis from the increase in national stockpile level, industry transformation, market intervention, increase in self-sufficiency level, East Asia Emergency Rice Reserve (EAERR) and the Food & Agriculture Organization (FAO) initiative to establish Rice Market Future. Next, he continued to explain the National Agro-Food Policy (2011-2020) and the NKEA-EPP 10. The NKEA-EPP 10 aims to increase farmers' income, food security and to involve farmers throughout supply chain. He concluded with a suggestion of nation strategic approach which targets on food security in rice through self-reliable and self-sufficient.

Nuclear Estate Smallholder (NES) Financial Scheme for Sustainable Palm Oil Development in Indonesia (Attachment 5.7.3)

NES Financial Scheme for sustainable palm oil development in Indonesia was presented by Mr. Harjanto Hanawi from Ministry of Agriculture, Indonesia. The oil palm industry offers 43,000,000 jobs in agriculture sector and the industry employs 43 million people in Indonesia. Most of the Indonesia palm oil plantations are owned by private sector and about 40% of the plantations are owned by smallholders. He shared the statistics of palm oil growth for the past 40 years and provided a projection of the production scenario, 3.6 t/ha/year of yield in the next 30 years under current practice and the production under sustainable scenario which would reach up to 5t/ha/year. This could be translated into an output of 21 million tons. Therefore, the NES plays an imperative role in the industry. Apart from that, he also emphasizes on the challenges and

the solutions in achieving the targets. He concluded with the three ideas on a new vision for sustainable agriculture; food security, environmental sustainability and economic opportunity.

6. WORKSHOP RECOMMENDATIONS & FUTURE PLANS

Presentation of Workshop Findings, Discussion, Future Plans and Activities

In this final session, Dr. Lum Keng Yeang from CABI-SEA reviewed all the preceding presentations and breakout discussions. Points deliberated upon included:

- Food security issues in developing economies
- Commonalities in food security actions in developing economies
- Innovations/ interventions shared by developing economies

The workshop recommended that:

- Economies actively participate and contribute towards APIP
- Sharing of best practices and experiences for crop production and productivity, through establishment of more formal forum for exchange, in support of Kazan declaration
- Encourage developing economies to test innovations shared by participating economies at this Workshop
- APEC initiate and support capacity building in pre-harvest and in-field stages of food production
- Actively address food insecurity among disadvantaged and vulnerable groups within the population
- Enhance investment climate to harness support for food security development activities
- Support regional approach to food emergency response, e.g. stockpiling, distribution, building on ASEAN initiatives

7. ACKNOWLEDGMENTS

We would like to acknowledge the funding support provided by APEC Secretariat in Singapore that allowed the conduct and completion of the project. We would also like to express our gratitude to the Secretary General and Director General of Agriculture, Ministry of Agriculture & Agro-based Industry, Malaysia for officiating the Workshop. Contribution from BERNAS, FAMA, MARDI and UPM were greatly appreciated. The cooperation and support given by all members of the Organizing Committee is also greatly acknowledged.

Attachment 1. List of Participants

**APEC Workshop on
Food Security: Innovative Approaches for the Implementation of
APEC Food Security Action Plan
Sunway Putra Hotel, Kuala Lumpur, Malaysia
June 18 – 21, 2012**

LIST OF PARTICIPANTS, RESOURCE PERSONS, OBSERVERS AND SECRETARIAT

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Attachment 2. Workshop Programme

APEC Workshop

Innovative Approaches for the Implementation of APEC Food Security Action Plan in Developing Economies

Date : *18th - 21st June 2012*

Venue : *Sunway Putra Hotel*
Kuala Lumpur, Malaysia



Asia-Pacific
Economic Cooperation Government of Malaysia



INTRODUCTION

The Niigata Declaration on APEC Food Security at the First APEC Ministerial Meeting on Food Security in Japan, October 2010 and APEC Senior Officials Work Plan on Food Security, clearly address the growing challenges to tackle global food security. To fulfill this important task and solve common concerns for food security issues, innovative approaches and comprehensive action plans should be developed for the Asia Pacific Region, especially for APEC developing economies. This workshop directly supports these goals by developing efforts to implement and safeguard a more effective food security action plan, particularly Food Availability (Food Production). Addressing the issues of sustainability and improved efficiency in the development of the current agricultural sector and safeguarding agricultural trade to support food security objectives is highly important. This directly or indirectly falls within the following potential actions recommended for consideration:

- i. Develop strategies in increasing productivity and efficiency of food production to address the issues of food availability and to increase rural income and accessibility to food.
- ii. Develop and promote best practices for making agricultural production, food storage, transportation and distribution systems more efficient.
- iii. Enhance capacity building and sharing of innovation and best practices to increase productivity and efficiency in agriculture.
- iv. Encourage participation of private sectors to enhance their involvement in food availability through investment in post-harvest and transportation.

The Issue of low crop yields is a major food security challenge at the farm level, impacting upon food production in rural farming communities. Globally, it has been estimated that the yields obtained are only about half the potential yield that can be achieved. The problem is particularly acute in many developing economies whereby smallholder farmers often do not know what is wrong with their crops, consequently either they are unable to mitigate the problem or they control it with inappropriate actions. The solution lies with developing, integrating and applying innovative approaches that mitigate factors affecting

APEC Workshop on Food Security: Innovative Approaches for the Implementation of APEC Food
yield - resulting in better, healthier and more sustainable plant production
systems.

OBJECTIVES

- To review, identify and share experiences on innovation and best practices between developing member economies pertaining to gaps facing increase productivity and efficiency of food production for enhanced availability and capacity to access food by rural farmers,
- To enhance participation of private sectors investing in post-harvest technologies and transportation to improve the availability of food,
- To develop the rural community through sharing of innovative approaches and practices in increasing efficiency and productivity of crop production in ensuring food availability and fostering increase in the purchasing power of rural community.

PROGRAMME

Day 1 – 18th June 2012 (Monday)	
Opening Ceremony	
0800 - 0830	Registration
0830 - 0900	Arrival of Invited Guests
0900 - 0930	Prayer Recitation
	Welcome Remarks by Mr. Mustafa Kamal bin Baharuddin, Director General Agriculture, Malaysia
	Opening Speech by Dato' Mohd Hashim bin Abdullah, Secretary General, Ministry of Agriculture & Agro-based Industry, Malaysia
0930 - 1030	Key Note Address : Implementation of APEC Action Plan in Food Security - Current Status, Success Stories &

	Constraints in Japan by Ms. Megumi Kakizaki, Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan
1030 - 1100	Photography Session
	Refreshments
1100 - 1120	Purpose, Scope and Structure of Four-Day Workshop by Mr. Yusof Othman, Department of Agriculture (DOA), Malaysia
Session 1 : Strategies and Policies – Chair : Mr Yusof Othman, DOA	
1120 - 1200	Food Security and Its Implication to Developing Economies by Prof. Dr. Mad Nasir Shamsudin, Dean of Faculty of Agriculture, Universiti Putra Malaysia
1200 - 1240	Malaysian Policy Initiatives in Support of Innovation in Crop Productivity and Efficiency by Ministry of Agriculture & Agro-based Industry (MOA), Malaysia
1240 - 1300	Overview of Pre Forum Fact Finding Visits by Dr. W.H. Loke CAB International South East Asia (CABI-SEA)
1300 - 1400	Lunch

Day 2 – 19th June 2012 (Tuesday)**Session 2 : Innovation and Best Practices in Agricultural Production – Case Studies – Chair : Dr. W.H. Loke, CABI-SEA**

1400 - 1445	Toward Self Sufficiency in Rice Production in Brunei Darussalam - Mr. Jamaluddin Hj Mohd Yusoff, Department of Agriculture and Agrifood, MIPR, Brunei
1445 - 1530	Innovation and Best Practices in Agricultural Production - The Case of DouNan Farmers' Association in Chinese Taipei - Dr. Ching-Cheng Chang, National Taiwan University
1530 - 1615	Indonesia's Best Practices and Constraints: Toward Sustainable Food Security - Prof. Dr. Kaman Nainggolan, Food Security Agency, Ministry of Agriculture, Indonesia
1615 - 1645	General Discussion
1645 - 1800	High Tea

Session 3: Economy Report – Chair : Ms. Megumi Kakizaki, MAFF, Japan

0900 - 1020	Economies – Brunei, China PRC, Chinese Taipei, Indonesia
1020 - 1040	Refreshments
1040 - 1230	Economies – Malaysia, Papua New Guinea, Philippines, Thailand, Viet Nam
1230 - 1300	General Discussion
1300 - 1400	Lunch

Session 4: Commonalities, Differences & Innovation Strategies in Strengthening APEC Food Security Action Plan (Moderators : Mr. Jamaluddin Hj. Mohd Yusoff, Prof. Dr. Ching-Cheng Chang and Prof. Dr. Kaman Nainggolan)

1400 - 1530	Breakout Group Discussion 1
1530 - 1600	Refreshments
1600 - 1700	Breakout Group Presentations

Day 3 – 20th June 2012 (Wednesday)	
Session 5 : Innovations and Best Practices in Post Harvest Handling – Chair : Dr. Lum Keng Yeang, CABI-SEA	
0900 - 0945	Post Harvest Technologies for Horticultural Products by Ms. Latifah Mohd Nor, Horticulture Research Centre, Malaysia Agriculture Research & Development Institute (MARDI), Malaysia
0945 - 1015	Refreshments
1015 - 1200	Breakout Group Discussion 2 – Post Harvest Technologies and Innovations for Horticultural Products - Moderators : Ms. Latifah Mohd Nor, MARDI ; Ms. Nazipah Jamaludin, FAMA and Mr. Zainudin Hashim, BERNAS
1200 - 1300	Breakout Group Presentations
1300 - 1400	Lunch
Session 6 : Linkages of Private and Public Sector Cooperation	
1400 - 1445	Role and Involvement of Federal Agriculture Marketing Authority (FAMA) In Agriculture Supply Chain Management by Ms. Nazipah Jamaludin, FAMA Malaysia
1445 - 1545	Strategic Approaches and Roles of Padiberas Nasional Berhad (BERNAS) in Malaysian Rice Industry by Mr. Zainudin Hashim, BERNAS
1545 - 1600	Refreshments
1600 - 1700	NES Financial Scheme for Sustainable Palm Oil Development in Indonesia by Mr. Harjanto Hanawi, Ministry of Agriculture, Indonesia

Day 4 – 21st June 2012 (Thursday)	
0800 - 1230	Field visit to Sepang District (Ms. Wong Wan Cheng, DOA Malaysia)
1230 - 1500	Lunch
Session 7: Recommendations and Future Plans – Chair : Mr. Yusof Othman, DOA Malaysia	
1500 - 1530	Presentation of Workshop Findings and Discussion (Dr. W.H. Loke, CABI-SEA)
1530 - 1600	Future Plans and Activities (Dr. K.Y. Lum, CABI-SEA)
1600 - 1630	Workshop Evaluation (Dr. S.S. Soetikno, CABI-SEA)
1630 - 1700	Presentation of Certificates and Official Closing by Mr. Yusof Othman, DOA Malaysia
1700 - 1730	Refreshments
1730	End of APEC Workshop

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**Attachment 3. Welcoming Speech by the Director General of
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Welcoming Speech by
The Director of Crop Protection and Plant Quarantine Division
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IN CONJUNCTION WITH
**The Opening of the APEC Workshop on “*Innovative Approaches for the*
Implementation of APEC Food Security Action Plan in Developing Economies”**
18-21 June 2012, at Sunway Putra Hotel, Kuala Lumpur, Malaysia

Assalamualaikum wbt

Selamat pagi and Good morning

Honorable Dato’ Mohd. Hashim B. Abdullah, Secretary General of Ministry of Agriculture and Agro-based Industry

Mr. Yusof Othman, Project Overseer and Deputy Director of Crop Protection & Plant Quarantine Division,

Directors,

Excellencies,

Distinguished speakers, resource persons, participants and guests,

Ladies and gentlemen,

At the outset, let me begin by expressing a warm welcome *Selamat datang* to all of you to the **workshop on *Innovative Approaches for the Implementation of APEC Food Security Action Plan in Developing Economies***. The encouraging response for participation to this workshop by the government and private sectors from overseas especially APEC Economies as well as within the Malaysia shows

the relevance of the subject matter which will be deliberated within the next 4 days.

We are very fortunate that the Secretary General of Ministry of Agriculture and Agro-based Industry is here with us to officially open this workshop and I wish to express my sincere gratitude to YBhg. Dato' Mohd. Hashim B. Abdullah for taking the time off from his busy schedule to be with us this morning. I would also like to thank the Directors and Head of Divisions from other agencies and private sectors that had come to this occasion to give their support.

Ladies and gentlemen,

The organization of this workshop is the result of successful project proposal tendered to APEC Secretariat for funding. The DOA Malaysia had put together the proposal for this project which was approved for funding in 2011 and this workshop is schedule to be implemented in the year 2012 under APEC Project ATC 05/2011A. DOA Malaysia had engaged CAB International South East Asia to be the consultant in implementing the project and also for the six previous APEC workshops. I would like to take this opportunity to thank CABI SEA for their continuous cooperation with DOA in charting capacity building activities on food security, biosecurity as well as sanitary and phytosanitary matters for Malaysia and for other APEC economies for the last seven years.

This APEC funded project comprise of 2 core activities; that are a 4 days interactive workshop targeted especially for participants from developing APEC Economies to deliberate on food security issues and to tease out commonalities amenable to a regional approach, and a pre-forum activity consisting of brief visits

to selected participating economies to gather information to support preparation of workshop materials. The earlier activity, which is the pre-forum activity, was carried out in the months of January, February and March involving officers from CABI Malaysia. The activities of the visit include meeting with government and private sector individuals involved in food production, market access and export to discuss on their role and possible responses in the food security related issues.

As for this workshop, the purpose is to outline building of current national systems and capacity within the developed and developing APEC Economies to develop a complementary framework that will strengthen region-wide cooperation to facilitate efficient food production. The specific objectives are:

- i) To review, identify and share experiences on innovation and best practices between developing member economies pertaining to gaps in increasing productivity and efficiency of food production for enhanced availability and capacity to access food by rural farmers,
- ii) To enhance participation of private sectors investing in post-harvest technologies and transportation to improve the availability of food and thirdly,
- iii) To develop the rural community through sharing of innovative approaches and practices in increasing efficiency and productivity of crop production in ensuring food availability and fostering increase in the purchasing power of rural community.

Ladies and gentlemen,

The workshop today is attended by representatives from twelve APEC Economies comprising of Australia, Brunei Darussalam, People's Republic of China, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Chinese Taipei Thailand, United State of America (USA) and Viet Nam. Besides officials from the government agencies, our local participants include representatives from the research institutions, universities, importers and exporters.

We have also engaged a list of experienced speakers and facilitators from local and overseas who are experts in their own areas, whose contribution is very crucial in steering the workshop to a successful conclusion. I hope all participants will actively engage in the discussions during the workshop by offering your opinions and share your knowledge on how to improve and manage plant productivity and post harvest in achieving food security for developing APEC economies.

Before I end my speech, I would like to convey my appreciation to APEC for co-funding this workshop together with Malaysia especially in making it possible for representatives from APEC Economies to travel to Malaysia. Again, my heartfelt thanks to the Honorable Dato' Mohd. Hashim B. Abdullah, Secretary General of Ministry of Agriculture and Agro-based Industry for your support to make this workshop happen and for gracing this occasion. To the organizing committee, thank you very much for your hard work since the last couple of months. Last but not least, I wish all participants a successful workshop and hope the recommendations from this workshop will benefit governments as well as the industry players in the Developing APEC Economies as well as the region.

Thank you.

**Attachment 4. Opening Address by the Secretary General,
Ministry of Agriculture and Agro-based
Industry, Malaysia**

Official Speech By
The Secretary General, Ministry Of Agriculture and Agro-Based
Industry Malaysia
Ybhg. Dato' Mohd Hashim bin Abdullah
In Conjunction With the Opening Of The Apec Workshop On
“Innovative Approaches For The Implementation Of Apec Food
Security Action Plan In Developing Economies”

18 - 21 June 2012 , at Sunway Putra Hotel, Kuala Lumpur, Malaysia

Bismillahirrahmanirrahim.

Mr. Mustafa Kamal b. Baharuddin, Director General, Department of
Agriculture Malaysia,

Mr. Yusof Othman, Project Overseer and Deputy Director of Crop
Protection & Plant Quarantine Division,
Distinguished Guests and Delegates, Ladies and Gentlemen,
Assalamualaikum w.b.t and good morning,

On behalf of the Government of Malaysia, I wish to express my heartfelt appreciation to APEC and the organizing committee for inviting me to officiate the opening of the APEC Workshop on ***“INNOVATIVE APPROACHES FOR THE IMPLEMENTATION OF APEC FOOD SECURITY ACTION PLAN IN DEVELOPING ECONOMIES”*** which I envisage to be very significant contribution in strengthening food security for this region and its people. I am pleased to welcome all of you especially to those participants from overseas who will share with us the invaluable knowledge earmark for this historical gathering at the heart of Kuala Lumpur, the city that symbolize Malaysia's unhesitating leap into the future.

At the same time, I wish to express our gratitude to APEC for selecting Malaysia to be the organizer of this highly important programme for seven (7) consecutive years. In this regards, I would like to congratulate the organizing committee for the successfully organizing this APEC workshop. I am impressed by the sizeable turnout of **sixty** participants, resource persons and secretariat from **twelve (12)** APEC economies and also local representatives from the government and private sectors. Your presence here is a clear indication that this workshop is an important programme that justifies our support in order to enhance food security in this region.

Ladies and gentlemen,

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern.

FAO's most recent estimates on undernourishment indicated that world hunger increased to more than a billion people in 2009 due to high food prices and global economic crisis. However, the number and proportion of hungry people have declined in 2010 as the global economy recovers and food prices remain below their peak levels to 925 million people or 16 percent of the developing country population. Nevertheless, this is yet very far from the Millenium Development Goal (MDG) No.1 goal of 10 percent to be achieved by 2015.

Indeed, 62 percent or nearly two thirds of them still remain in Asia and the Pacific region. Thus, poses a serious challenges to the international community in its effor to meet the internationally agreed goals.

The fundamental problem underlining the increase in world chronic hunger is that the poor have no means to buy or produce the food they need for a healthy and active life. The last two crises, were a significant example when drastic shortfalls in global production and supply but still access to food by the poor, disadvantaged groups in society including children, pregnant women and lactating mothers has been the fundamental problem.

Increasing agricultural production and productivity in developing countries, especially by small holder farmers and poor agricultural households, is an important way of enhancing incomes of the poor who depended on agriculture and activities linked to agriculture. At the same time, it is also important to keep an affordable prices in local markets. Therefore, agriculture and food production will remain the key issues to food security.

Ladies and Gentlemen,

FAO projections show that it is possible to meet the future food and feed demand of the projected world population in 2050 within realistic yields developments and rates of expansion of land and water use. However, achieving the projected increase in production is expected to encounter several significant challenges such as climate changes, water scarcity and also substantial increased in agriculture investments and income for the rural communities. The amount of capital required in developing

countries to achieve the production levels indicated in the FAO outlook to 2050 calls for a net average annual investment of USD 83 billion (2009 prices). This figure includes both expected public and private investment. The food consumption in this region is increasing substantially following the population growth. According to FAO, it is expected to increase substantially towards 2030 and further to 2050. Urbanization and the expected income growth indicate that dietary patterns are undergoing significant change towards higher animal protein content. Rice consumption is expected to grow by 11 percent between 2010 and 2050, reaching a volume of 613 million tons in this region and the rice production is projected to increase in the Asia-Pacific Region at an average annual rate of 0.62 percent between 2010/2030 and 0.34 percent between 2010/2050, reaching 662 million tons in 2050. This corresponds to an increase in net exports, which would reach to nearly 50 million tons in 2050.

Having to focus on rice production, we should not underestimate the importance of other crops and agricultural diversification which should be promoted in parallel with cereal crop intensification programme to supply and access of protein, vitamins and micro nutrients which are the key to tackle fundamental problems of malnutrition.

Ladies and Gentlemen,

There are at least two major uncertainties which can significantly affect the productivity and availability of food: one is climate change and the other is biofuel development. Projected impacts of climate change on agricultural production tend to agree that the Southern Hemisphere may suffer the greatest share of the damage in terms of declining yields and frequency of extreme droughts and floods. This will and has resulted to the Asia Pacific Region facing the challenge of erratic supply pattern and price stability. On biofuel, projections are wide-ranging and sensitive to technology assumptions, as well as to policy assumptions. The potential exists for competition on land and water use between food and fuel production.

In summary, I would like to express that this Region has the potential to meet the challenge of increasing food production to meet the shifting demand of its population and to reduce hunger. Robust economic growth will certainly contribute to poverty reduction and better food security. Finally, I wish to stress the need of a strategic approach by combining agricultural growth with poverty reduction, food and nutrition security, trade and market facilitation, other support services and sustainable natural resource management which will combine investments and

incentives and will involve all stakeholders in its design and implementation.

Ladies and gentlemen,

I wish you all once again a most stimulating and successful workshop, and for those from overseas, have a pleasant stay in Malaysia. I am confident that the workshop will provide opportunities in exchanging of ideas and information and also to establish contacts and networking. Do spare some time to go around Kuala Lumpur. I would like to encourage you to sample some of our local fruits and foods, to experience more of what our beautiful and peaceful country has to offer, enjoy our hospitality and take home with you the wonderful memories and mementos to remind you of your stay here.

On that note, and with the recitation of 'Bismillahir Rahmanir Rahim', it is my pleasure to declare open APEC Workshop on *"INNOVATIVE APPROACHES FOR THE IMPLEMENTATION OF APEC FOOD SECURITY ACTION PLAN IN DEVELOPING ECONOMIES"*.

Thank you.

Attachment 5. 1. 1. Keynote Address on Food Security

* APEC Action Plan on Food Security

* Ministry of Agriculture, Forestry and Fisheries

* JAPAN

1

June 18, 2012

* NIIGATA Declaration on Food Security

APEC Ministerial Meeting
October 2010

shared goals

Sustainable development of the agricultural sector ➢ Expanding food supply capacity ➢ Enhancing disaster preparedness in agriculture ➢ Developing rural communities ➢ Confronting challenges in climate change & natural resource management	facilitation of investment, trade and markets ➢ Promoting investment in agriculture ➢ Facilitating trade in food & agricultural products ➢ Strengthening confidence in agricultural markets ➢ Improving agribusiness environment ➢ Improving food safety practices
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Niigata Action Plan on Food Security (62 activities)

2010 2014

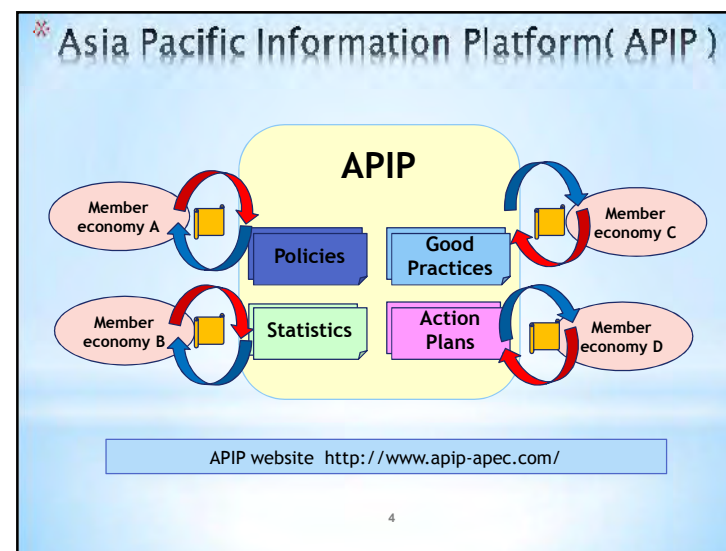
Development of Information platform on food security (APIP)

Holding Workshops & Symposia, and Providing training course :

Use & Management of Water, Agricultural Research, Green Tourism & Rural Culture, Climate Change, Food Security Mapping System, and Paddy Rice Cultivation System

Sharing Information :

Agricultural Assistance, Sustainable Use of Fisheries Resources, Disaster Prevention & Mitigation, Biomass Energy, Asia Forest Partnership, Cartagena Protocol on Biosafety, AFSIS, Quality Management, and Food Cultures



Activities:	First Quarter	Second Quarter	Third Quarter	Fourth Quarter			
1) Develop a plan for an information sharing	Workshop 17 Nov. 2010	Workshop 21 Dec. 2010 Develop the Information Platform (AIP)					
2) Hold symposium to share information on the use of water resource and farmland/pastureland, agricultural infrastructure with the International Network for Water and Ecosystem in Pacific Islands	Workshop 17 Nov. 2010	Upload our information to the AIP					
3) Provide knowledge on developing ecosystem with training on agricultural research	Launch the online application of the AIP (Since August 2011)						
4) Reinforce international collaboration research on global warming and food security	Collaboration with 1) read my information to the AIP						
5) Demonstrate best practices on agricultural knowledge in developing countries mainly in Africa via IP	Update my information on the AIP						
6) Share information on sustainable use of submarine resources via IP	Upload our information to the AIP						
7) Exchange best practices on disaster prevention and mitigation on agricultural and support measures for farming and rural areas in terms of disaster, involving international and local level via IP	Upload my information to the AIP						

(23)Share best practices on rural extension and institutions including the strengthening and widening of agricultural programs, on agro-forestry and on sustainable programs of rural culture		Up road the result of Workshop
(24)Local workshop to discuss adaptation and mitigation measures adopted by rice growing and to share the applicability in other economies.	Workshop 17-18 Jan 2009	Harvest the result of Workshop
(25)Local workshop to discuss a feasible adaptation and mitigation measure identified by the food security support system programming climate change vulnerable data	Workshop 19-20 Jan 2009	Collect and analyze related information
(26)Conduct study and share information on sustainable energy for irrigation system adaptive to climate change via IP	Field trip 21-22 Jan 2009	Harvest the system of better rice cultivation sustainable to climate change via IP
(27)Share results of a forum on sustainable business strategy production and use and expansion of biomass from program launched in East Asia via IP		Up road the result of the Forum on AUPP
(28)Share information on the impact of AUPP on the natural environment and the sustainability of agricultural production in farmland converted from forest via IP following the East Asia Partnership as a sustainable forest		Harvest Economic Project
(29)Share information on the impact of AUPP on the natural environment and the sustainability of agricultural production in farmland converted from forest via IP following the East Asia Partnership as a sustainable forest		Up road the information on AUPP
(30)Share results of a symposium on the effectiveness of the Parties served as the Medium of the Parties in the Asia Pacific Region	Symposium 24-25 Jan 2009	Up road the result of symposium on AUPP

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graph TD
    A[ASFP stakeholders: working to push forward the responsible investment/ethical initiative in the ASFP region] --> B[Round-table CONFERENCE  
Last 3 Weeks, pre-ASFP]
    B --> C[Up-load the information to the ASFP]
    C --> D[Up-load the information to the ASFP]
    D --> E[Investment  
Last 3 Weeks, pre-ASFP]
    E --> F[Report to CEO]
  
```

(Uploaded any information to the IPAs of Jan 2012)

Country	Activities	Year to be achieved	Name of institution/agency	Link to the related row
Australia	1140 Develop a framework for historic agricultural landscape outlining sustainable history, and the priority areas to secure final outcome in bushland.	2011-2012	Multimedia and Regional Development Agency, Regional Development, Lower Goulburn Australia	http://www.rda.gov.au/development/development/index.cfm
	1200 Monitor on building capability for plant pest surveillance and diagnostics skills.	2011-2012	Ministère, United States Bureau of Land Management and Department of Agriculture	http://www.usda.gov/landmanagement/landmanagement/
	1230 Promote quarantine regulation with foreign visits relating to enhance their technical facilitation expertise	2010-2012	A United States Agency for Marine, Coastal, and Waters Management in South East Asia	http://www.usda.gov/landmanagement/landmanagement/
			Forestry Study for Model Forestry Expansion in South East Asia, Forest and Wildlife Management	http://www.usda.gov/landmanagement/landmanagement/
	1240 Model workshop to improve understanding of current and emerging plant/pests and management practices.	2011-2012	USDA, Forest Service	http://www.usda.gov/landmanagement/landmanagement/
Tanzania	1170 Conduct agricultural cooperation program for traditional agriculture and joint resource development with developing countries in Africa, Asia and Latin America	2010-2011	Onion Development for Food Security	http://www.usda.gov/landmanagement/landmanagement/

Economy	Activities	Year to be achieved	Source of information	Link to the related site
New Zealand	(45) Complete a report on the effects of open markets for enhancing food security on the New Zealand region based on the results of one-on-one and workshop.	2010-2012	Food Security Group (FSG) 2010	http://www.fsg.govt.nz/2010/
			Food and Beverage	http://www.fsg.govt.nz/2010-2012/
			New Zealand Trade and Enterprise (NZTE) Food and Beverage Taskforce	http://www.nzte.govt.nz/2010-2012/
			A report from the Food and Beverage Ministry of Economic Development (MDE) - Food and Beverage Information Project	http://www.mde.govt.nz/2010-2012/
Thailand	(46) Hold bilateral government annual symposium and intergovernmental technical workshop	2011	APEC-AACWG Annual Symposium and Joint Technical Working Workshop 2011	http://www.apec.org/2011/

Expected Activities by other economies (Not uploaded in the IP as of Jan. 2010)		
Economy	Activities	Expected Year to be achieved
Canada	(40) Conduct a study on the international framework of rules, standards and guidance for agricultural biotechnology and hold a workshop to identify gaps and potential future work to minimize impediments to trade. (41) Develop a scheme for sharing information on agricultural technology. (42) Hold workshop on building an efficient agricultural technical transfer platform to promote technology cooperation.	2011-2012 2010-2012 2010-2011
China	(43) Hold conference to discuss practical actions for creating conditions for the environment for agricultural technology development and transfer. (44) Analyze risk of cross-border spread of animal influenza and strengthen mutual understanding among inspection and quarantine agencies.	2010 2011
Chile	(45) Review the current state of electronic certification use in food trade, and hold workshop to promote its regional application. (46) Hold workshop to share information on current traceability system on food chain. (47) Identify main chemical contaminants in food traded internationally, and provide official inspectors with technical training.	2011-2014 2011-2012 2011-2014
	(48) Organize workshop, training and a joint research project to share approaches and tools for post-harvest handling.	2012-2015
	(49) Organize workshop, training and an information platform to share technologies in unique dog-related diseases.	2011-2015

Economy	Activities	Expected Year to be achieved
Chinese Taipei	(50) Organize workshop, exchange programs, a joint research project and training to expand the market of indigenous vegetables.	2011-2014
	(51) Organize workshop, training and an information platform to share irrigation technologies/management adaptable to climate change.	2011-2012
	(52) Organize exchange programs, workshop, training, and joint research projects to sharing genome, enabling sustainable food production under climate change.	2011-2012
	(53) Conduct a study to explore potential regional food reserve mechanisms.	2011-2012
Indonesia	(54) Hold workshop on the priority of food food security, and establish a network among agriculture research centers on food diversification.	2011-2014
Japan	(55) Hold workshop on progress agricultural technology chosen, evolution of the rural poor, and strategic thrusts.	2010
MALAYSIA	(56) Develop a contingency plan against the inclusion of invasive alien species pest, and hold workshop to explore regional joint actions.	2011-2014
	(57) Review regional approaches for addressing plant biosecurity, and hold workshop to explore regional joint actions with stakeholders.	2010-2012
Peru	(58) Conduct a study on the potential supply and use of small organic fish products for human consumption.	2010-2011
Philippines	(59) Hold symposium to share information on possible contributions of the agricultural sector to the reduction of greenhouse gas emissions.	2011
	(60) Hold symposium to understand the role of food safety in food security and to create a food safety network.	2011

Economy	Activities	Expected Year to be achieved
Russia	(40) Develop concept of unified informational and scientific agricultural portal based on the best practices of the advanced countries. (41) Conduct a survey on current feeding system.	2010-2011 2010
	(42) Organize workshop on the raising of APEC capability on food crops production to serve consumption needs in 2015.	2010-2015
Thailand	(43) Hold conference to exchange views on the areas of challenges for developing economies on food security and to identify capacity building needs.	2011-2012
	(44) Hold workshop to exchange information on conservation and utilization of indigenous vegetables.	2011-2012
	(45) Provide training and hold workshop to improve farmers' adaptive capacity to climate variability and change.	2011-2012
	(46) Conduct joint research, organize training course and workshop, exchange program of research and study visit to enable sustainable livestock production for food security under climate change.	2011-2012
USA	(47) Hold workshop on HACCP health risks to improve food safety of poultry production.	2011
	(48) Hold opening building workshop to implement existing regulatory systems that support investments in agricultural biotechnology.	2010-2012
	(49) Develop a training module on safety of the aquaculture supply chain.	2010
	(50) Hold workshop on Carcinogen Removal in Poultry.	2011
	(51) Implement pilot projects for diagnosing the main causes and inefficiencies of an underperforming agricultural sector.	2011

Economy	Action Plan	Expected Year to be achieved
USA	(54) Work on improving laboratory and technical capacity to carry out appropriate testing, sampling and analysis of food products.	2011
	(55) Hold training on developing food safety plans (strengthen the supply chain with outputs to be incorporated into online training).	2010-2011
	(61) Hold workshop to disseminate lessons learned from food defense pilot project to build capacity to prevent deliberate tampering and contamination of the food supply.	2010-2011

Note: There are several economies that have an Action Plan on Food Security, such as Brunei Darussalam, Chile, Hong Kong China, Mexico, Singapore, and Vietnam.

* Recommendation

- * Steady implementation of Action Plans
- * Share the result through APIP
- * Further development of APIP

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* Third Work Shop on Food Security

* Detail

- Target date: 25-27 September 2012
- 2 day workshop and 1 day excursion
- Held at IINO Hall & Conference Center, Tokyo

* Discuss about

- Follow up for Second Food Security Ministerial and related meetings in Kazan
- How we can improve Information Platform
- Other implementation of Niigata Action Plan

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Thank you for your attention !!

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Attachment 5. 1.2. Overview of fact-finding visits to member economies



Asia-Pacific
Economic Cooperation



Government of Malaysia



INCORPORATED
KEMENTERIAN PERTANIAN
DAN INDUSTRI ASAS TANI

Pre-forum Fact Finding Visits Overview

By
Dr LOKE Wai Hong
CABI South East Asia

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Fact finding visits - Purpose

- To enable holding face-to-face discussions on the workshop, its contents and what the APEC Community can share
- To enhance the effectiveness of pre-forum discussions and allow dissemination to the wider workshop (and APEC) audience by inviting resource persons/speakers from visited economies

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Economies selected - Rationale

- An economy with low population, high purchasing power, affordability to obtain quality food
Brunei Darussalam
- A technologically advanced economy with self sufficient food production and least people vulnerable to food security
Chinese Taipei
- A high population economy with large numbers of people vulnerable to food security, low purchasing power
Indonesia

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Brunei Darussalam

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Government Agencies Responsible for Food Security

- Department of Agriculture and Agrifood
- Department of Information Technology and State Store
- Department of Economic Planning and Development
- Department of Health Services
- Royal Customs and Excise Department
- Syariah Affairs Department

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Current Status on Food Security

Rice

- Self Sufficiency: 2.8 %
- Target to achieve 60% Self Sufficiency in 2015

Vegetables

- Self Sufficiency: 62.64 %
- To achieve Self Sufficiency in 2014, export in 2015

Fruits

- Self Sufficiency: 63.6 %
- Target to achieve 70% Self Sufficiency in 2015

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Issues & Challenges

- Research and development
 - expertise, suitability of imported varieties
- Labour issues
 - Foreign worker-triggered social problems
- Human resource
 - Integration of government agencies and universities
- Infrastructure
 - New infrastructure for new areas
- Small profit margin
 - Without government's subsidy and incentives
- Investment risks
 - High production cost without incentives
- Land issues
 - Sites for commercial production are located in 'unexplored' areas

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Chinese Taipei

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Government Agencies Responsible for Food Security

- Council of Agriculture, Executive Yuan (COA)
- Economic Department
- Foreign Affairs
- Internal Affairs

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Current Status on Food Security

- Rice, fruits and vegetables – >84% self-sufficiency
- National average food self-sufficiency is 32%, due to <2% self-sufficiency on major grains
- Stockpiles for emergency
 - Rice – 3 months
 - Wheat – 1 – 1.5 months
 - Soy bean – 4 months
 - Corn – 1.5 months
 - Sugar – 2 months

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Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Issues & Challenges

National Food Security Meeting in 2011 has set the following challenges

- To achieve 40% food self-sufficiency by 2020 via increased national food productivity and consumption
- Securing sources of imported food and strengthening agricultural investment and collaboration internationally
- Building classification management system for food security
- Improve water management for agricultural use and arable land use efficiency

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APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Indonesia

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Government Agencies Responsible for Food Security

- Agency for Food Security
- BULOG (Badan Urusan Logistik/Bureau of Logistic)
- Centre for Agricultural Data & Information System

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Current Status on Food Security

- Achieved self-sufficiency for rice and maize in 2007 and 2008 respectively
- Rice and maize production continued to increase, 5% and 8% respectively per year
- About 10% consistent increase in horticultural production over the years of 2005-2011

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APEC Food Security Action Plan in Developing Economies
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Issues & Challenges

- High population growth (1.49%/year), total 244m in 2011
- About 13% of the total population are poor and vulnerable
- High frequency of food insecurity due to natural disasters
- High consumption of rice (139.15 kg/capita/yr)
- Uncontrolled agricultural land conversion (1000 ha/yr)
- High competition in the use of water
- Inadequate agricultural infrastructure and irrigation
- Low efficiency and high cost economy in food marketing/distribution (inadequate transportation and infrastructure)
- Imbalance in distribution of food production (Java vs Papua)

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Summary/Findings

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Commonalities

- Food security – a priority issue for all
- Strategic plan and approaches for food security issues are worked out in all economies
- Level of food security plans implementation is different

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Differences

- Chinese Taipei – well prepared in food security issues. Dealing with excessive staple food to stabilise market price.
- Indonesia – Continuous and strong growth of population is challenging the food security preparedness of the country.
- Brunei – food security preparedness is in early stage due to high purchasing power.

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Innovative Strategies

- Diversified food production and consumption
- Developing new varieties
- 1 village 1 crop concept
- Improve distribution system, enabled constant supply and public access to food
- Optimizing available resources in sustainable manner
- Carbon reduction technologies
- Encourage private sector participation, wider stakeholder participation
- Arable land conservation, to be used in emergency

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012



THANK YOU

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Attachment 5. 1.3. Purpose, Scope & Structure of the Workshop



Asia-Pacific
Economic Cooperation



Government of Malaysia



INCORPORATED
KEMENTERIAN PERTANIAN
DAN INDUSTRI ASAS TANI

APEC Project ATC 05/2011A

Purpose, Scope and Structure of the workshop

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

INTRODUCTION

The APEC ATCWG would like to focus on these priority areas in next five years to enhance APEC Food Security will be:

1. Improving agricultural production and distribution through increased **innovation**, nutritional value, and food safety
2. Improving human and institutional resource capacities in agriculture through education and training
3. Improving aspects of environmental and natural resource management, infrastructure development related to food security
4. Improving agricultural information systems and analysis
5. Improving the preparations for natural disasters and cross border threats

APEC Workshop on Innovative Approaches for the Implementation of
APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur, Malaysia, 18 – 21 June 2012

Niigata Declaration - *APEC Food Security*

- Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This commonly accepted definition of food security comprises four elements: availability, accessibility, utilization and stability.
- Approaches taken by economies on food security will vary depending on each economy's level of development and its position in food trade. Food security is, however, a common concern for all APEC economies as food is an absolute necessity for human survival.

APEC Workshop on Innovative Approaches for the Implementation of
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Niigata Declaration (contd.....)

- Ministers agreed that APEC economies would collectively pursue the shared goals of :
 - 1) sustainable development of the agricultural sector, and
 - 2) facilitation of investment, trade and markets.
- Ministers also endorsed an APEC Action Plan on Food Security, which identifies specific activities to be implemented by APEC economies to strengthen regional food security.

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Niigata Declaration – key elements

- Expanding food supply capacity
- Enhancing disaster preparedness in agriculture
- Developing rural communities
- Promoting investment in agriculture
- Facilitating trade in food and agricultural products
- Strengthening confidence in agricultural markets
- Improving agribusiness environment
- Improving food safety practices

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Workshop Objectives

- Develop strategies in **increasing productivity and efficiency** of food production to address the issues of **food availability** and to increase rural income and **accessibility** to food,
- Develop and promote **best practices** for making agricultural production, food storage, transportation and distribution systems more efficient,
- Enhance **capacity building** and **sharing** of best practices to support productivity and efficiency in agriculture
- Encourage participation of the **private sector** to raise their involvement in food availability, particularly through investment in post-harvest and transportation.

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Project Structure

- Fact-finding visits
 - *to gather background information, identify commonalities and differences in issues and approaches for workshop program development*
- 4-days Workshop with
 - Lead Presentations *to highlight innovation, policy and science to address economy-specific food security objectives*
 - Interactive sessions & economy situation reports *to exchange ideas on commonalities, share best practices, experiences and lessons learnt*
- Workshop outputs will be *documented for broader dissemination to APEC community*

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What to share in this Workshop (1)

- Background information on food security situation and the approaches adopted to address economy needs
- Salient current policies, best practices and technologies in place towards improved food security. How these support and contribute towards the objectives of the APEC Food Security Action Plan and the Niigata Declaration

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What to share (2)

- Broad stakeholder participation in food security, particularly the private sector and NGOs, policies and mechanisms that define institutional responsibilities and encourage private sector & NGO involvement
- How has innovation, policy and science & technology played a role in enhancing food security? Examples of how this has shaped the actions adopted by Economy.
- What are some of the lessons learnt from the application of innovation, policy and science in food security preparedness?

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Participation & Programme of this Workshop

1. 12 Economies participated
2. 60 Participants
3. 18 Presentations
4. 1 Key Note Address (Japan), 3 Overseas Resource Persons (Brunei, Chinese Taipei & Indonesia), 3 Invited papers (MOA, UPM & MARDI), 2 Private Sector (Indonesia and BERNAS), 9 Economy Reports
5. 7 Sessions
6. 2 Breakout Group Discussions (Day 2 & 3)
7. Field trip (Day 4 AM)

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Breakout Discussion Group

- BDG-1: Commonality, Differences & Innovation Strategy in Strengthening APEC Food Security Action Plan
- BDG-2: Strategic Approaches on Post Harvest Technology in Improving Regional Food Security Action Plan

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BDG-1: Commonality, Differences & Innovation Strategy in Strengthening APEC Food Security Action Plan

- ☐ Specific food security issues of importance to the economy and the strategies to address these (commonalities and differences of participated economies)
- ☐ What are the specific actions in innovation, policy and science being used to raise food security preparedness (elements of innovation used)
- ☐ Specific case studies and success stories
- ☐ Lessons learnt from implementation of food security strategies so far
- ☐ Participation/Roles of private sectors in strengthening food security action plan

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BDG-2: Strategic Approaches on Post Harvest Technology in Improving Regional Food Security Action Plan

- ☐ Significance and factors of post-harvest losses to food security technologies /approaches for reducing post-harvest losses to improve food security
- ☐ Issues and challenges on current post-harvest technologies
- ☐ What are the innovative elements being incorporated into post-harvest technologies?
- ☐ Adoption of these technologies by farmer and private sector
- ☐ Roles of private sectors in reducing post-harvest losses/ adoption of technologies
- ☐ Specific case studies and success stories

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Field Trips

- **Locations: Mushroom Farm and Tapioca Snack Factory**
- **Objectives of the trips: to overview the implementing of innovative approaches in production and down stream technology**
- **When: 21 June 2012**
- **What time: 7.30 am**
- **Where to assembly: Hotel Lobby**

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Recommendations and Future Plans

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Thank you

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Attachment 5. 2.1. Food Security and its Implication to Developing Economies



Food Security and Its Implications to Developing Economies

Mad Nasir Shamsudin
Faculty of Agriculture
Universiti Putra Malaysia

*Talking points at the APEC Food Security Workshop
18 – 21 June 2012*

The Case

- Agriculture sector has not progress as fast as the non-agriculture sector.
- Food consumption has been growing at a faster rate than production.
- Food security situation, especially in developing economies, is vulnerable (the food crisis, as it has become known) to changes in supply and demand factors.



2

Questions

- What are the issues in the supply and demand sectors?
- How is the food situation in the developing economies, especially Asia?
- What are strategies to address the food security?



3

Presentation Outline

- Global food crises and causes - supply, demand & prices
- Food security situation in developing economies
- Implications to developing economies



4

Global landscape of food crisis and causes – Supply, Demand & Prices



5

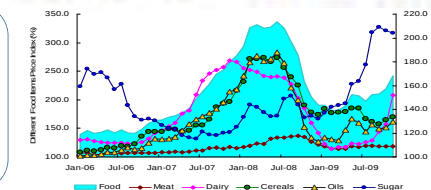
Global Landscape

Global population and income increase are driving demand for key agricultural produce.

Historical trends and estimates indicate that despite the increase in global demand for agriculture, production growth rate has been declining, higher energy prices, increasing demand from emerging economies, underinvestment in agriculture and policy favoring export crop rather than food.



- With decreasing production growth, developing countries will be more dependant on food imports.
- Inelasticity of supply and demand causes large fluctuation in prices.



Source: World Agriculture: Towards 2015/2030
Report: Food and Agriculture
Organisation, United Nations

World Price Index Movements for Different Food Sub-groups (Jan 2006-Nov 2009)
Source: FAO (2009a), World Food Situation: @ <http://www.fao.org/worldifoodsituation/FoodPrices.htm>

6

Global Food Crises - due to changes in the fundamentals and hence food equation

■ Supply sector constraints are imminent

- Underinvestment in agricultural productivity & technology - limited investment in agricultural R&D - % of Agri. GDP: Malaysia (1.58%), Australia (3.38%), Japan (3.62%), Korea (1.73%), USA (2.65%)
- Small scale farms with low level of technology
- Declining stock level
- Climate change and environmental concern and the contribution of agriculture to the problem
- Stronger linkages with oil – input (transportation, machinery & fertilizer) and output (biofuels – food vs energy)
- Depleting resources – particularly arable land and water

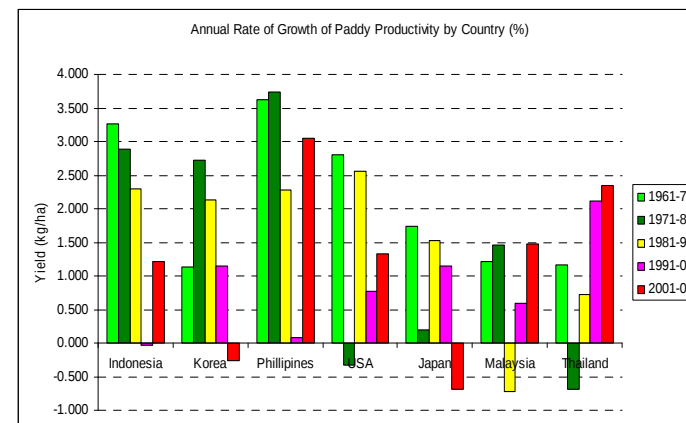
■ Demand sector is booming

- Income increase that led to changing lifestyle and diet
- Population growth
- Growing concern on food safety



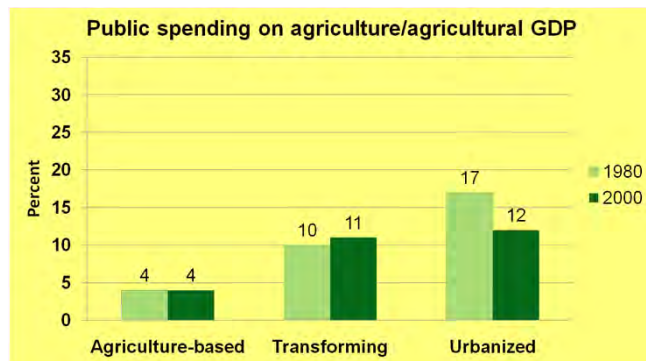
7

Supply Situation - After Green Revolution in the 1960s, even the advanced economies have not shown improvement in rice productivity....



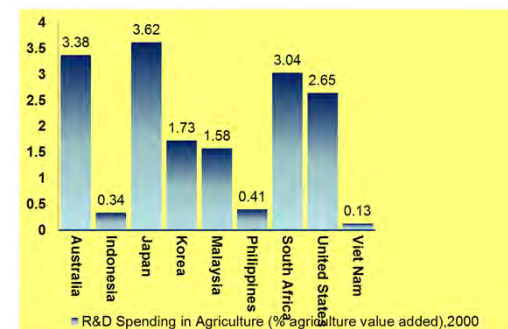
8

Supply Situation - Public spending on agriculture in agri-based & transforming economies is less compared to urbanised economies....



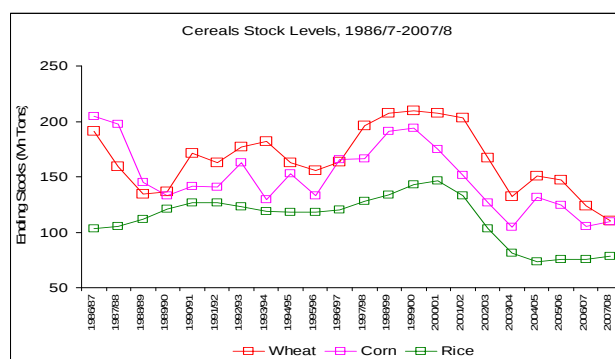
9

Supply Situation - R&D expenditure in developing economies is relatively low compared to developed economies... has undermined its key role for economic growth. As a result, agricultural productivity growth was marginal and is too low to meet the present challenges.



10

Supply Situation – stock is a significant factor to price volatility....Record low level of stocks....

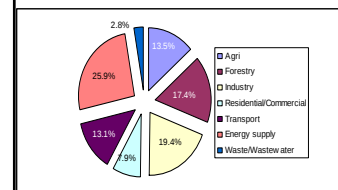


Source: www.usda.gov

11

Supply situation - though agriculture is a significant contributor to GHG emissions, it is most affected by climate change....

Of all economic sectors, climate change has its most significant impacts on agriculture because of its broad geographic dispersion and obvious close dependence on climate and environmental factors.



Agriculture is a significant contributor to global GHG emissions.

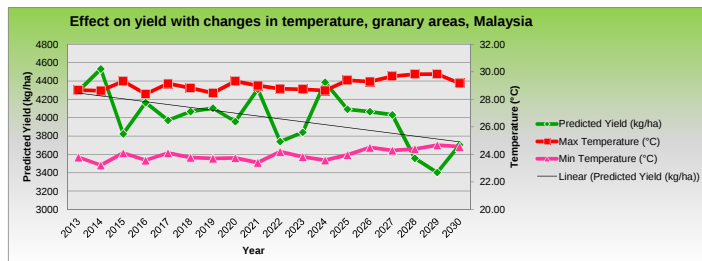
Temp rise	Possible CC impacts on food production
1 C	Modest increase in cereal yields in temperate regions
2 C	Sharp declines in crop yield in tropical regions (5 – 10% in Africa)
3 C	150 – 550 additional millions at risk of hunger (if carbon fertilization is weak). Agricultural yields in higher latitude likely to peak.
4 C	Agricultural yields decline by 15 – 35% in Africa, and entire regions out of production
5 C	Continued increase in ocean acidity seriously disrupting marine ecosystems and possibility fish stocks.

Source: IPCC (2007)



12

Supply situation – possible impact of Climate change on the Malaysian rice production

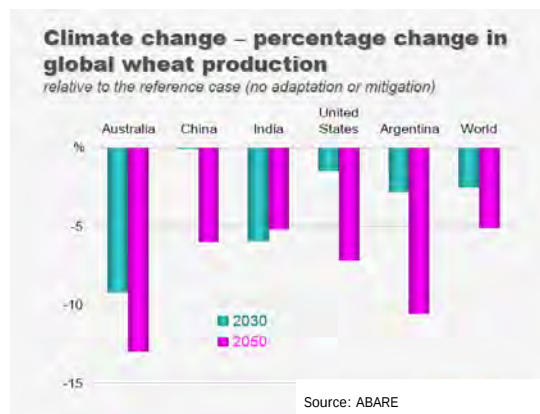


Fluctuation in yield, but the trend is declining, with no adaptation and mitigation scenario.



13

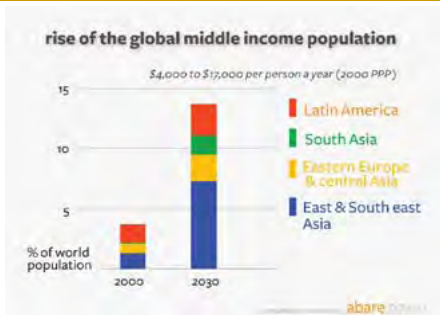
Supply situation – possible impacts of Climate change on food production



Source: ABARE

14

Demand Situation – Economic and hence income growth



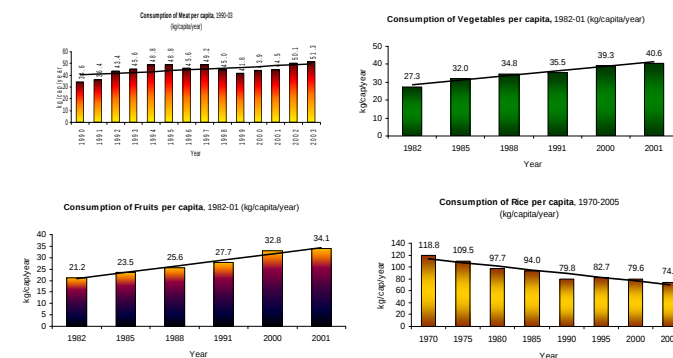
Economic growth, a dominant force, has...

- pushed up middle-class consumers' purchasing power
- generated rising demand for food
- shifted food demand away from traditional staples and towards higher-value foods.
- changes in the demand for food attributes & its willingness to pay



15

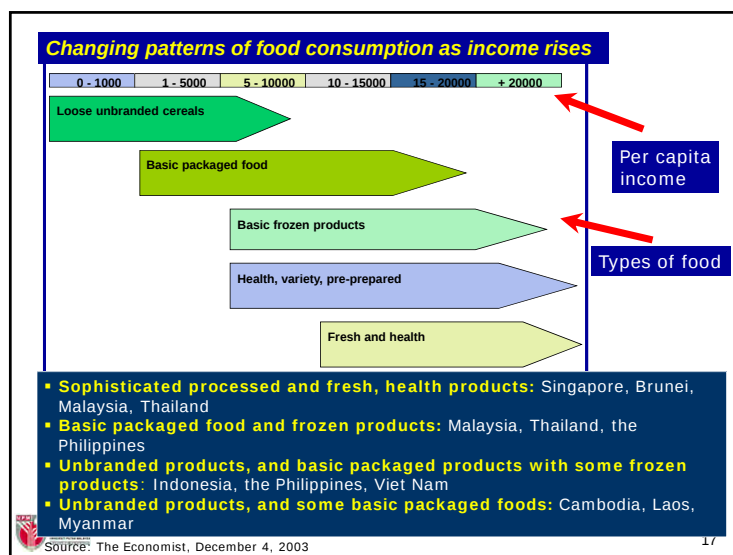
Demand Situation – Increase in per capita leads to increase in the consumption of meat, vegetables, and fruits, but not rice.



Source: www.agrolink.moa.my/ghidv5

Sumber: FAOSTAT

16



Demand Situation - there have been changes in the demand for food attributes, e.g. Leafy Vegetables

Attributes	Level of Attributes	Coefficients	t-value	Utility	Relative Importance (%)
	(Constant)	5.0946***	51.0947		
Freshness	Not more than 3 days of harvesting	-	-	-0.7364	
	Not more than 2 days of harvesting	0.5236***	4.8150	0.2422	36.7407
	Not more than 1 day of harvesting	1.0684***	11.1041	0.4942	
Food Safety	Conventional	-	-	-0.9466	
	Controlled Environment	0.8282***	7.8769	0.3831	47.2285
	Organic	1.2182***	11.5873	0.5635	
Texture	Slightly Crisp	-	-	-0.1621	
	Crisp	0.3505***	3.8631	0.1621	8.0890
Appearance	Slightly Damage	-	-	-0.1592	
	Wholesome	0.3441***	4.2065	0.1592	7.9418
Price	Actual Price	-0.0778***	12.0184	-	-

Std. error = 2.1618, F = 49.7208

Note: Significance levels are denoted by *** for 1%, ** for 5%, and * for 10%.



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Demand Situation - Consumers are willing to pay higher prices for food attributes, e.g. Leafy Vegetables

Attributes	Level of Attributes	Coefficients + β_0	β_0/β price	WTP* (RM)	Overall WTP* (RM)
Freshness	Not more than 3 days of harvesting	5.0946***	0.6548	8.27	
	Not more than 2 days of harvesting	5.6182***	0.7221	8.61	8.62
	Not more than 1 day of harvesting	6.1630***	0.7922	8.96	
Food Safety	Conventional	5.0946***	0.6548	8.27	
	Controlled Environment	5.9228***	0.7613	8.81	8.71
	Organic	6.3128***	0.8114	9.06	
Texture	Slightly Crisp	5.0946***	0.6548	8.27	
	Crisp	5.4451***	0.6999	8.50	8.39
Appearance	Slightly Damage	5.0946***	0.6548	8.27	
	Wholesome	5.4387***	0.6991	8.50	8.38

Std. error = 2.1618, F = 49.7208, $\beta_0 = 5.0946$, Coefficients of price = -0.0778

Note: Significance levels are denoted by *** for 1%, ** for 5%, and * for 10%.

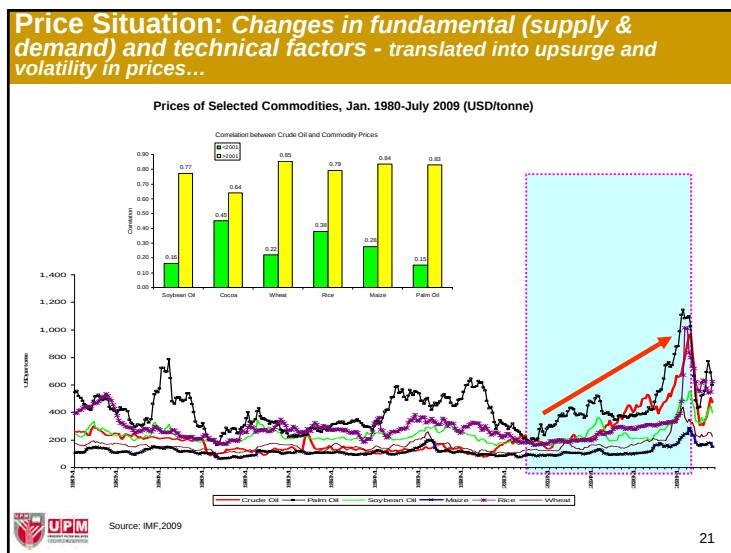
WTP* calculated based on the current average price of leafy vegetables; RM5/kg



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Demand Situation – to summarise on what consumers want... in food. Income growth has caused changes in food consumption patterns & trend.





Price Situation: Changes in fundamental factors - After the spike, prices are levelling, but projected to remain high...

Index of projected real food crop prices

	2007	2008	2009	2010	2015
Maize	138	182	197	194	148
Wheat	144	201	179	156	131
Rice	128	231	208	155	160
Soybeans	119	156	149	142	115
Soybean oil	136	187	173	160	110
Sugar	133	157	167	176	182

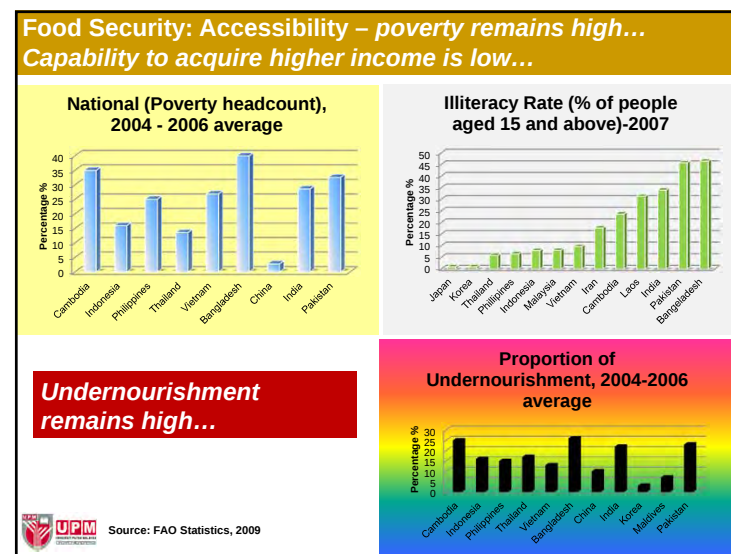
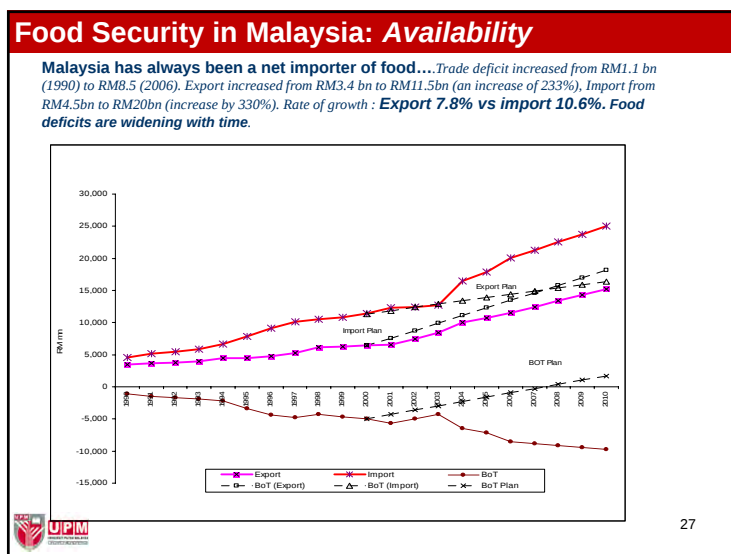
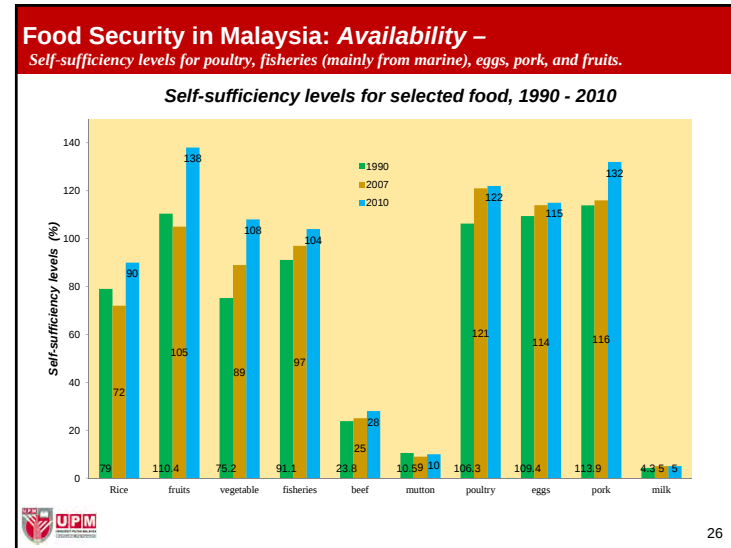
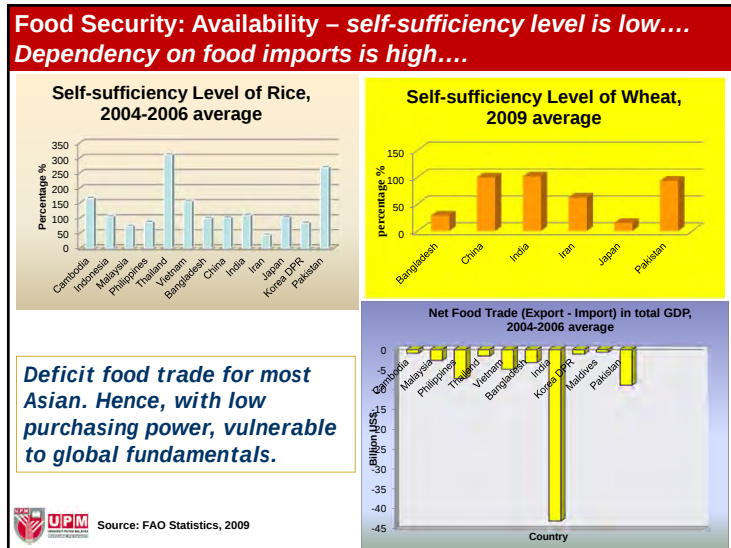
Source: World Bank, Development Prospects Group, July 2008

22

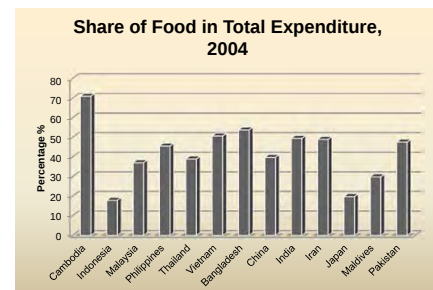
Food security situation in developing economies, particularly, Asia...

Food Security - very much like "love" means different things to different people and under different circumstances.

- Maxwell (1996) encountered 32 different definitions!
- Nevertheless, it has four major dimensions:
 - **AVAILABILITY** of sufficient quantities of food of appropriate quality, supplied through domestic production or imports;
 - **ACCESS** by households and individuals to adequate resources to acquire appropriate foods for a nutritious diet;
 - **UTILIZATION** of food through adequate diet, water, sanitation, and health care; and
 - **STABILITY** (Availability + Access)



Food Security: Accessibility – low income level is translated into high proportion on food expenditure....



Hence, little margin for adjustment should food prices increase.

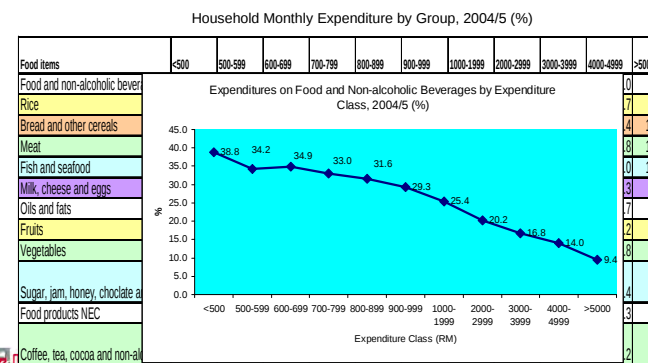


Source: FAO Statistics, 2009

29

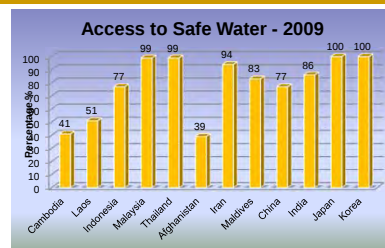
Food Security in Malaysia: Accessibility

Poor household (<RM500) spends about 1/3 of their total expenditure on food vs 9% for high income consumers (>RM5,000). A total 17% of food expenditure is on staple (rice). That means, price changes will affect the poor most. Zailia and Khor (2004), the poor spends 97% on necessities. Hence, little margin for adjustment should food prices increase..



Source: DoS (2006)

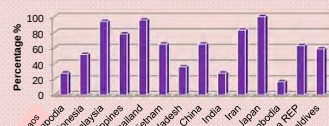
Food Security: Utilisation - access to food utilisation for some economies needs to be improved.....



Source: The World's Water, 2009



Access to Adequate Sanitation, 2006



Source: FAO Statistics, 2009

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Food Security: Utilisation...Dietary consumption in the developing countries are lower than the developed countries.

Food Consumption in developing and developed economies (2003 – 2005 average)			
Country	Dietary Energy Consumption (kcal/capita/day)	Dietary Protein Consumption (g/capita/day)	Dietary Fat Consumption (g/capita/day)
Malaysia	2860	77	87
Brunei	3210	93	92
Cambodia	2160	54	34
Indonesia	2440	53	46
Thailand	2490	57	56
Philippines	2470	58	48
Germany	3510	124	164
Japan	2750	91	85
USA	3830	116	164



Source: FAO (2008)

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Implications to developing economies



33

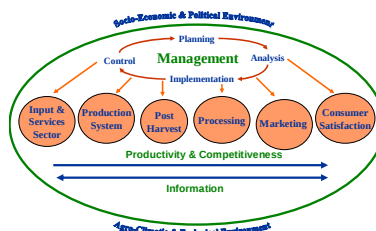
Implications to developing economies: A policy framework

Twin Track Approach	Availability	Access and Utilization	Stability
Rural Development/ productivity enhancement	Enhancing food supply to the most vulnerable Improving rural food production especially by small-scale farmers Investing in rural infrastructure Investing in rural markets Revitalization of livestock sector Resource rehabilitation and conservation Enhancing income and other entitlements to food	Re-establishing rural institutions Enhancing access to assets Ensuring access to land Reviving rural financial systems Strengthening the labour market Mechanisms to ensure safe food Social rehabilitation programmes	Diversifying agriculture and employment Monitoring food security and vulnerability Dealing with the structural causes of food insecurity Reintegrating refugees and displaced people Developing risk analysis and management Reviving access to credit system and savings mechanisms
Direct and Immediate Access to Food	Food Aid Seed/input relief Restocking livestock capital Enabling Market Revival	Transfers: Food/Cash based Asset redistribution Social rehabilitation programmes Nutrition intervention programmes	Re-establishing social safety nets Monitoring immediate vulnerability and intervention impact Peace-building efforts

¹ See P. Pingali, L. Alimov and Jacky Sutton (2005): Food Security in Complex Emergencies: Building Food Systems Resilience

34

The new paradigm of agriculture: Most policy frameworks only deal with production. But...food security is not only a production issue. Must also include consumption, processing and marketing issues...therefore, requires both sustainable production and consumption.



The scope of agriculture has changed from production oriented to supply-value chain oriented. The performance depends on the socio-economic and political environment as well as agro-climatic and ecological environment.

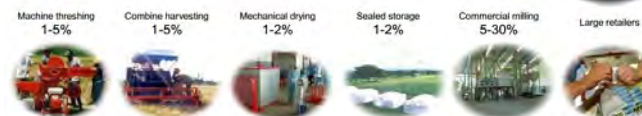
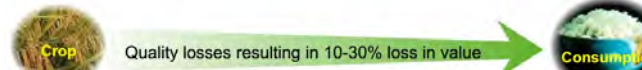
How much food is wasted during post-harvest, processing and consumption?



35

Average post-harvest losses for rice in Southeast Asia...

Physical losses in traditional postharvest chain

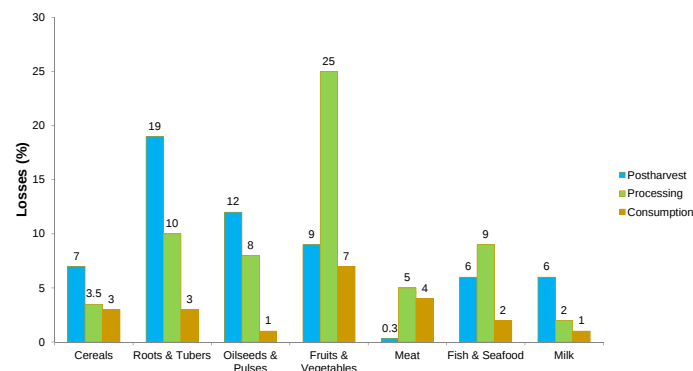


Physical losses in mechanized postharvest chain



36

Estimated post-harvest losses in South & Southeast Asia...as high as 25% for fruits & vegetables.



Source: Gustavsson et al., (2011) Global Food Losses and Food Waste.

37

The new paradigm of agriculture: Its multifunctional roles and multidimensionality

Traditional roles are commodity oriented
Production of food and fibre

Prices of agricultural goods do not reflect the positive externalities of agriculture, competitive vs efficiency equilibrium. Higher prices would increase production.

Multifunctional agriculture covers commodity and space

Commodity

- Production of food and fibre

Non-commodity/space

- Environmental preservation
- Rural employment
- Biodiversity
- Biofuel
- Soil and water health
- Ecotourism & recreational
- Preservation of rural landscape
- Rural community
- Food quality/safety

38

Implications to developing economies food security: a policy diamond for a transforming economy

Recognise the multi-functionality of agriculture - payments for environmental services to promote production and conservation incentives (e.g. green technology).

Environmental Services

Provide safety nets by promoting rural non-farm economy to confront rural employment problem; enhance skills to give access to jobs offered by the growth of rural non-farm economy.

Sustainable Production

Safety nets - rural non-farm economy & skills development

Sustainable Consumption

- **Innovation** - More investment in R&D & intensify TOT to improve productivity
- **Entrepreneurship** - commercial farming practices

Promote efficient post-harvest, processing, marketing & consumption activities



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INTERNATIONAL Agriculture Congress 2012

4-6 September 2012
Marriott Putrajaya, Malaysia

Organized by:
Faculty of Agriculture
Universiti Putra Malaysia

In Collaboration with:

Registration Fee

The fee covers registration, congress materials, processing, lunch, refreshments and congress dinner.

International participants	USD 350.00
Local participants	RM 950.00
Local student participants	RM 450.00
Post-congress tour	USD 35.00 / RM 100.00

Mode of Payment

Payment can be made via cheque, bank draft, local order, electronic transfer (EFT) or interbank transfer (with UPM). Below are the details for payment:

Payment to: KIRA-KIRA AM UPM
Bank Name: CIMB Bank Berhad
Swift Code: CIMBMYKL (for EFT)
Account Number: 1215-005004-05-0
Vote Number: 64320 (for interbank transfer journal - within UPM only)

Please enclose cheque/bank draft/local order made payable to KIRA-KIRA AM UPM and fax the slip or proof of payment to Assoc. Prof. Dr. Uma Rani Srinivas at +603-8940 8319 or scan and send via email: congress@upm.edu.my together with the registration form.

Post-Congress Tour

The post-congress tour will be on the 6th of September 2012 to the locations listed below:

- IADA, Integrated Agricultural Development Area Northwest Selangor in Kuala Selangor (high yielding paddy field area)
- ex-Raudhah Elektrik Farm in Sungai Buloh (modern livestock centre)
- Homestay Sungai Sirih in Tanjung Karang, Selangor (traditional cultural experience of village life-style)

Hotel Accommodation

Reservation must be made directly to the hotels. Recommended accommodation sites:

- Palm Garden Hotel (<http://www.palmgarden.com.my>)
- Putrajaya Marriott Hotel (<http://www.marriott.com/hotels/tourist/putrajaya-marriott-hotel>)
- Residence Hotel, United (<http://www.residence.com.my/br/>)
- Equatorial Hotel, Bangi (<http://www.equatorial.com/bangi/>)



Attachment 5. 2.2. National Agro-food Policy in Malaysia

NATIONAL AGRO-FOOD POLICY 2011 – 2020 (NAP)

Ministry of Agriculture and Agro-Based Industry, Malaysia



INTRODUCTION

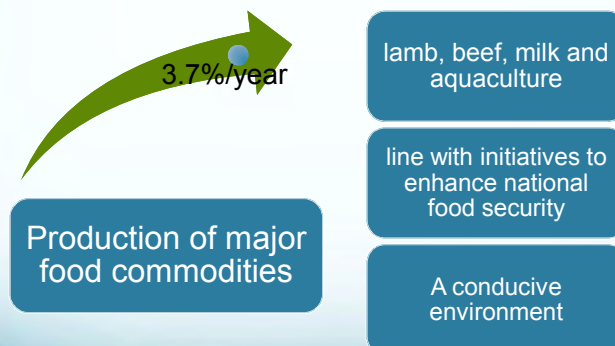


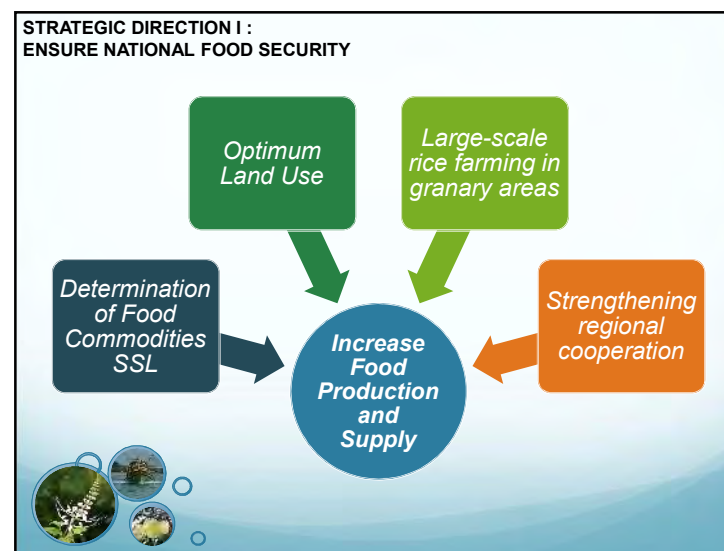
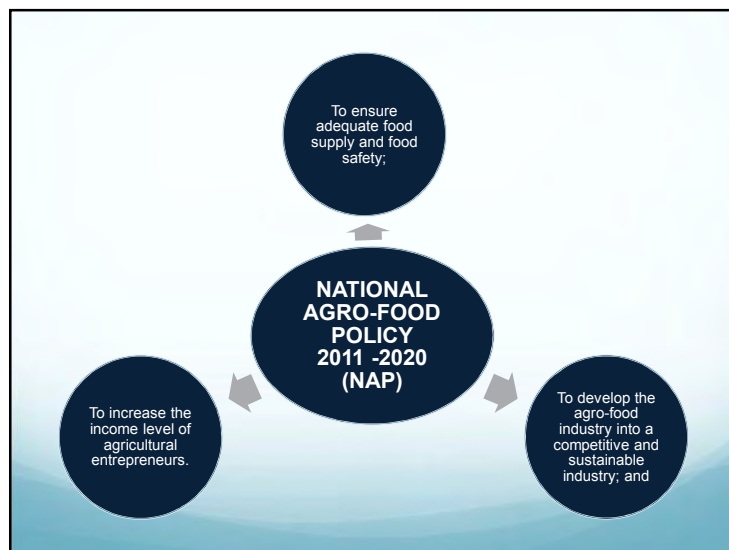
Table 1 – Production of Major Food Commodity, 2000 – 2010
('000 Metric Tonnes)

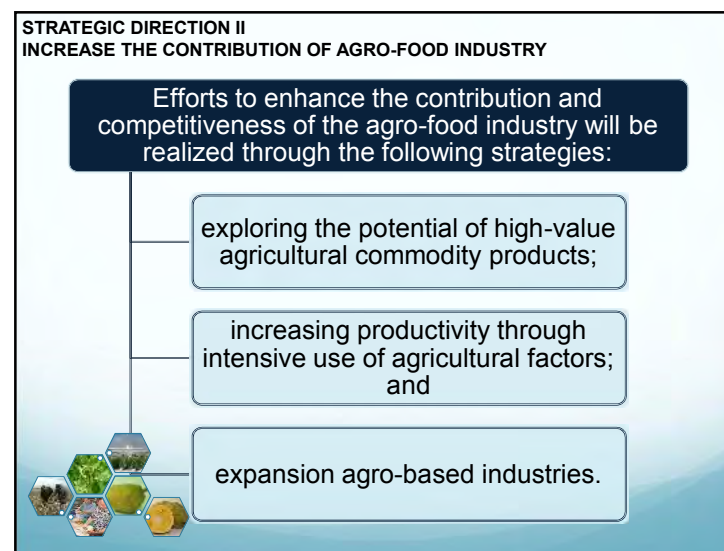
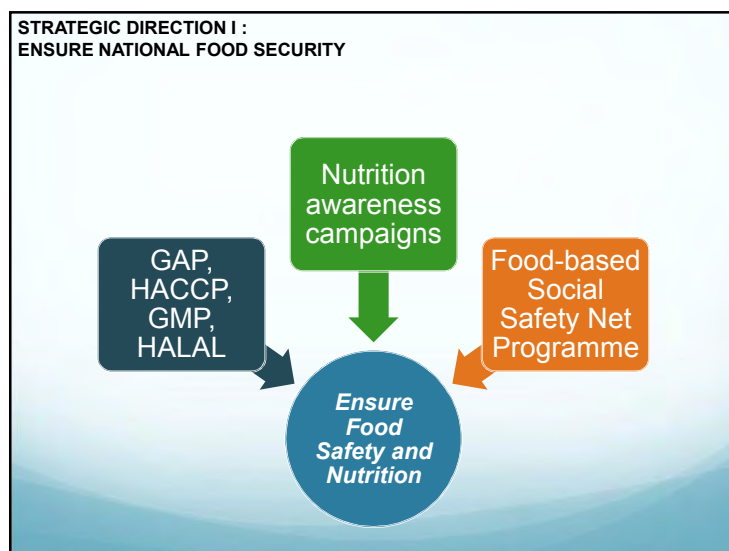
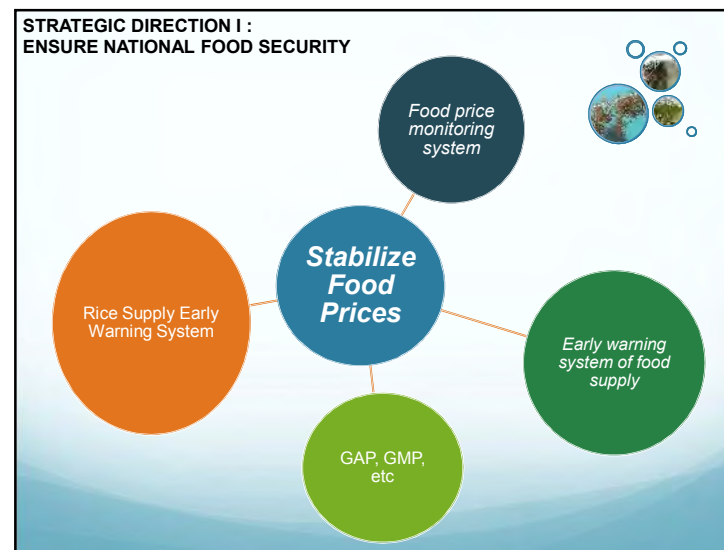
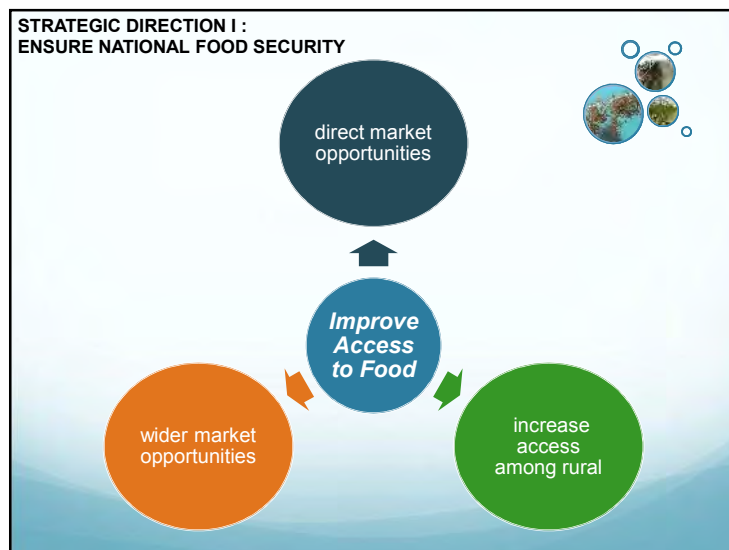
Commodity	2000	2005	2010*	Average Annual Growth Rate (%)		
				2000 - 2005	2006 - 2010	2000 - 2010
Crop	2,914	3,774	4,061	5.3	1.5	3.4
Rice	1,382	1,490	1,642	1.5	2.0	1.7
Fruits	1,027	1,612	1,768	9.4	1.9	5.6
Vegetables	505	672	651	5.9	-0.6	2.6
Livestock	1,287	1,676	2,186	5.4	5.5	5.4
Beef / Buffalo	18	29	47	10.0	10.1	10.1
Mutton / Sheep	1	2	2	10.8	9.9	10.3
Poultry	714	980	1,296	6.5	5.7	6.1
Pork	160	218	234	6.4	1.4	3.9

Table 1 – Production of Main Food Commodity, 2000 – 2010
('000 MT) – cont.

Commodity	2000	2005	2010*	Average of Yearly Growth (%)		
				2000 - 2005	2006 - 2010	2000 - 2010
Eggs	365	406	540	2.2	5.9	4.0
Milk	29	41	67	7.2	10.3	8.7
Fish	1,089	1,084	1,338	-0.1	4.3	2.1
Deep Sea Fishing	937	908	989	-0.6	1.7	0.5
Aquaculture	152	176	349	3.0	14.7	8.7
TOTAL	5,290	6,534	7,585	4.3	3.0	3.7

Source : MOA
* : Estimates





**STRATEGIC DIRECTION III
COMPLETING THE VALUE CHAIN**


Among the strategies identified to complement the agro-food industry value chain are:

- development of integrated and sustainable dynamic clusters;
- strengthen the local and global market networks; and
- integration of sustainable practices and product tracking systems as part of the value chain.

**STRATEGIC DIRECTION VI
STRENGTHENING THE HUMAN CAPITAL**

In this regard, human capital development based on knowledge, skills and technology and entrepreneurship will be focussed through the following strategies:

provide knowledgeable and trained agricultural workers; and

creating a generation of agricultural entrepreneurs with progressive mentality.


**STRATEGIC DIRECTION V
STRENGTHEN R&D ACTIVITIES, INNOVATION & USAGE OF TECHNOLOGIES**

In this regard, several initiatives have been identified to strengthen the R & D and innovation and increase the use of modern technology in agriculture as follows:

creating a conducive environment for stimulating creativity and innovation;

intensify commercialization of R & D and develop innovative products; and

expand mechanization and automation and effective technology transfer.


**STRATEGIC DIRECTION VI
CREATING THE ENVIRONMENT FOR PRIVATE SECTOR-LED BUSINESSES**
PRIVATE SECTOR-LED BUSINESSES

provide an integrated and complete

infrastructure and info-structure;

simplify business procedures related to food production activities;

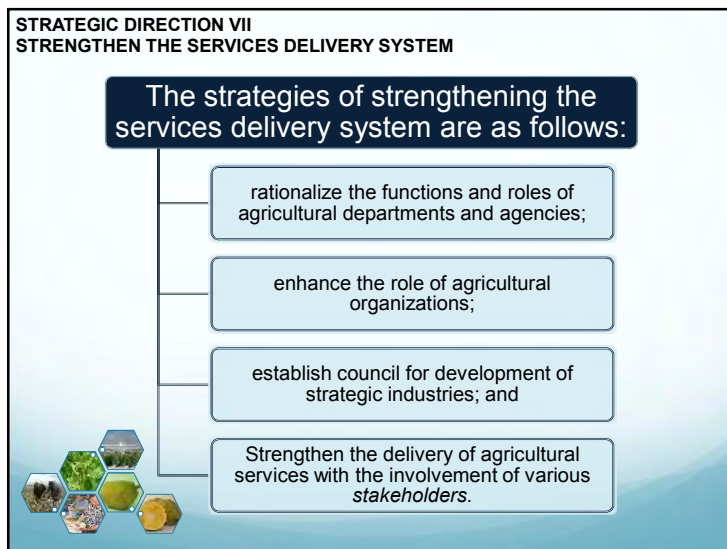
provide more competitive investment incentives to attract local and foreign investment;

enhance access to financing and risk sharing;

strengthen the role of Small and Medium Enterprises (SMEs) in agriculture; and

rationalize subsidies and minimize market distortions.





CONCLUSION



8 MAIN IDEAS OF NATIONAL AGRO-FOOD POLICY

- Food security
- High value
- Sustainable
- Dynamic Agricultural cluster
- Private investment
- Informative and intelligent human capital in agriculture
- Modernization, R&D, technology and innovation
- Agricultural support services

THANK YOU

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Attachment 5.3.1. Food Security in Brunei Darussalam



**Food Security
in Brunei Darussalam**

Towards Self-Sufficiency in
Food Production in Brunei Darussalam

Jamalludin Hj. Yusoff
Department of Agriculture and Agrifood,
Brunei Darussalam

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Contents

- 1 Definition
- 2 Status of Food Security in NBD
- 3 National Food Security Council
- 4 Pillars for development of policy

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Definition

Food Security

Defined by Food and Agriculture Organization (FAO), as

“When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for active and healthy life ”

Note: For Brunei Darussalam, the definition includes Halal

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Four Pillars enabling the formulation of National Food Policy

1. Increasing **AVAILABILITY** of food
2. Improving **ACCESS** to food
3. Improving food utilization and **NUTRITIONAL ADEQUACY** of food intake
4. Ensuring **STABILITY** in providing food at all times including times of emergencies

FOOD SECURITY

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Addressing FOOD AVAILABILITY

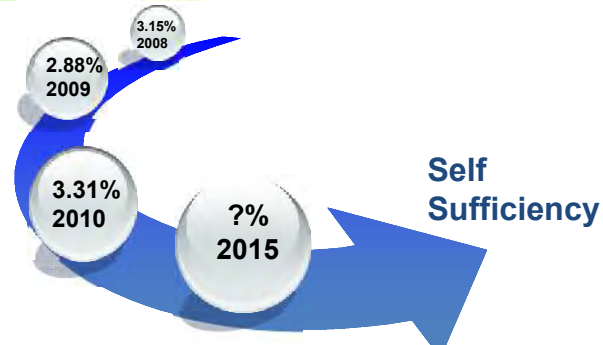
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Food Production In Brunei Darussalam 2010



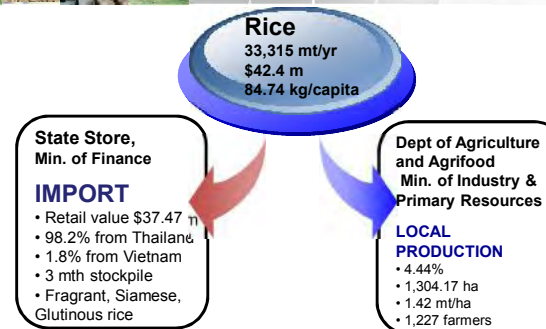
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Target Local Rice Production



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Availability of Rice



Ref: Agriculture Statistic, Brunei Darussalam 2009

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Significant Events Towards Self-Sufficiency in Rice

Timeline of Significant Events:

- 15 July 2008:** TITAH HIS MAJESTY (Image of a royal figure)
- 27 April 2009:** LAUNCHING OF LARGE SCALE RICE PLANTING (Image of a rice field)
- 3 August 2009:** 1ST ROYAL HARVESTING (Image of a royal figure)
- August 2010:** 20% HARVEST (Image of a rice field)

Feb 2010, August 2010, December 2010

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Launching of Large Scale Rice Planting

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Efforts to increase Productivity, Efficiency and Quality

Automated Seeding preparation for mechanise transplanting

Introduction of High Tech Rice Processing Plant

Long Term Storage of Padi

Introduction of High Yielding Varieties

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Other Commodities in Agriculture

60% of poultry production Using the close house system
52.1 kg per/capita per yr

All eggs production using close house System
309 eggs/capita/yr

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Other Commodities in Agriculture



- 80% Self-sufficient in the production of tropical leafy vegetables
- Needs to import temperate vegetables
- Consumption : 50.6 kg/capita/yr



- Program to plant indigenous local fruits for conservation and potential commercial development
- Needs to import temperate fruits
- Consumption: 46.0 kg /capita/yr




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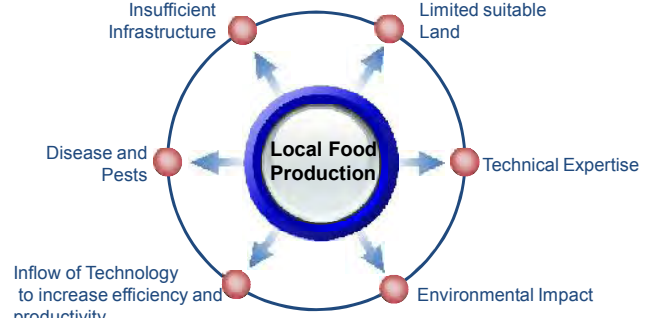
Fishery Sector



- Off shore Fishing
- Traditional Fishermen
- Inland Prawn Production
- Marine Tourism
- Cage Culture
- Seafood Processing

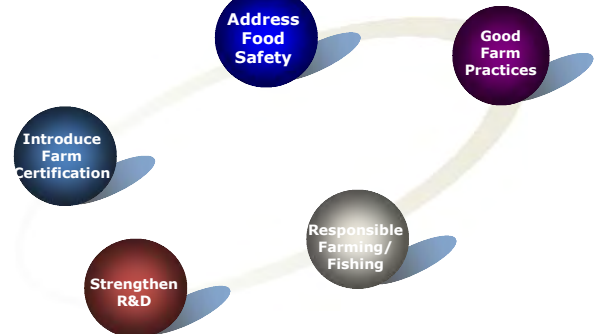
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Challenges

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Strategic Approach Food Production in Brunei Darussalam

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Addressing ACCESSIBILITY

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ACCESSIBILITY

❖ Affordable

- The rice in Brunei Darussalam is subsidised for both imported or locally produced

❖ Halal

- Halal Meat Act
- Halal Certificate and Halal label order

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NUTRITIONAL ADEQUACY

❖ Balance diet

- Carbohydrate
- Protein
- Fibre



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STABILITY

❖ Peaceful and Safe

❖ Stable Government

❖ Continuous supply

❖ Climate Change

❖ Weather

❖ Biofuel

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Addressing FOOD SAFETY

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Food Safety in Crops

• Pesticide Residue

❖ Groups of Pesticides:

- Dithiocarbamates
- Organophosphorous
- Organochlorine
- Carbamates

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Food Safety

in Livestock

Quality Control and Food Safety Laboratory

Diagnostic Laboratory

Avian Flu

❖ Microbiology

- Plate count, mould count

❖ Drug residues

- Antibiotics, sulpha drugs, nitrofurans, growth promoters

❖ Physical quality

- Test for freshness of eggs

❖ Pathology

❖ Vet microbiology

❖ Parasitology

❖ Serology

❖ Biochemistry

- Monitoring and disease detection

❖ Disease detectors

❖ Molecular biology

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Food Safety

Fishery Products

Food Safety

❖ Microbiology

- Salmonella, e coli

❖ Heavy metals

❖ Antibiotics

❖ Formaldehyde

❖ Red Tide

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**National Food Security Council
and National Food Security Policy**

Brunei Darussalam



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Members of Council

Position	Agency/Organization
Chairperson	Minister of Industry and Primary Resources
Vice Chairperson	Permanent Secretary, MIPR
Secretary	Deputy Permanent Secretary, MIPR
Assistant Secretary	Director of Agriculture and Agri-food
Members	Permanent Secretary from the following ministries; -Prime Minister' Office (JPKE) -Ministry of Finance -Ministry of Home Affairs -Ministry of Foreign Affairs and Trade -Ministry of Education -Ministry of Development -Ministry of Culture, Youth and Sports -Ministry of Health -Ministry of Religious Affairs (Hall Issues) -Ministry of Communication -Attorney General Chamber
Secretariat	Senior Officials : -Department of Agriculture and Agrifood -Department of Fisheries

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Term of Reference

- ❖ Develop, coordinate, implement and monitor a food system policy that links economic development, environmental protection and preservation, bio-diversity conservation with farming and urban issues.
- ❖ Review and comment on any proposed state legislation and regulations and regulations that impact on food policy and food security.
- ❖ Make recommendations to His Majesty's government.
- ❖ Meet at least once a year to discuss issues and progress of food security activities
- ❖ Prepare and submit an annual report to His Majesty's Government.

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1. Increasing availability of food

Pillar of Food Security	Action Agenda	Desired Activities
Food Availability	Enabling environment for food supply	• Promoting sustainable environmental management • Improving sustainable utilization of land and water resources • Enhancing research and extension services • Improving farm operations and mechanization • Improving agricultural marketing and infrastructure • Facilitating access to agricultural, inputs and credits • Promoting the role of youth in food production • Reducing food losses • Exploring bilateral, regional and international cooperation • Promoting investments in agriculture and fisheries
	Improving domestic food production	• Improving and diversifying arable crop production • Supporting rice production • Developing an integrated water resources management approach • Enhancing livestock production • Promoting sustainable fisheries and aquaculture • Increasing food supply from indigenous food crops • Monitoring food production activities and food security status
	Food Imports and Aids	• Facilitating trade in food and agricultural products • Regulating food commercial transactions • Improving the management effectiveness of the food aid.

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2. Improving access to food

Pillar of Food Security	Action Agenda	Desired Activities
Food Accessibility	Access to common resources	- Improving Access to Land and Water Resources - Ensuring Access, Rights and participation in management of forest resources.
	Access To Appropriate Food.	- Promote consumption of local agricultural products - Enhancing the role of livestock in access to food - Promoting agro-processing and value-adding - Promoting alternative rural livelihoods

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3. Improving food utilization and Nutritional adequacy of food intake

Pillar of Food Security	Action Agenda	Desired Activities
Food utilization, nutritional Requirements and Food Safety	Food Utilisation	- Adopting appropriate Healthy lifestyles - Promoting food and dietary diversification
	Nutritional Requirements	- Promoting Awareness of Nutritional Energy requirements - Development national food and nutrition standards - Combating malnutrition in the poor and vulnerable - Promoting the management of micronutrient deficiency disorders
	Health Care And Sanitation	- Promoting nutrition in managing communicable and other diseases - Improving environmental health and access to clean water and sanitation
	Access to safe, edible and halal food	- Developing appropriate food safety regulation - Use of science and risk-based food safety system - Develop, design and test food safety training modules and methods of delivery

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4. Ensuring stability in providing food at all times including times of emergencies

Pillar of Food Security	Action Agenda	Desired Activities
Stability in equitable food provision	Food distribution and provision	Facilitating reliable food distribution system
	Annual and strategic food storage	- Establishing annual grain and food storage at household level - Establishing strategic food storage at regional level
	Disaster management	- Improving disaster preparedness and response - Mitigating the effects of extreme weather (floods or droughts) - Mitigating the effects of epidemics
	Long-Term Environmental Modifications	- Adapting to climate change - Managing Agro- and biological diversity - Adopting biotechnological innovations to cope with climate change - Development bi-energy which is compatible with food supply - Conduction outreach on the Cartagena Protocol on Bio-safety

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Thank You



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Attachment 5.3.2. Innovation and Best Practices in Agricultural Production



Asia-Pacific
Economic Cooperation



Government of Malaysia



moa
KEMENTERIAN PERTANIAN
DAN INDUSTRI ASAS TANI

Innovation and Best Practices in Agricultural Production- The Case of DouNan Farmers' Association in Chinese Taipei

By
Ching-Cheng Chang
Institute of Economics, Academia Sinica;
Dept of Agricultural Economics, National Taiwan University;
Socio-Econ Dept, APEC Research Center for Typhoon and Society

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Outline

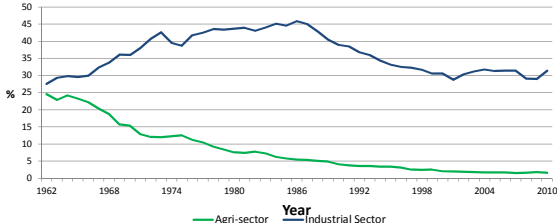
1. Food Security Issues in Chinese Taipei
2. Innovations and Policies
3. Case Study of DouNan Farmers' Association
 - Investing in farm machinery
 - New landlord-tenant system
 - Modernizing post-harvest practices
 - Adopting Good Agriculture Practice (GAP)
4. Key to Success

2

Food Security Issues (1/3)

- **Low Income**
 - GDP share from agriculture is below **2.0%**
 - Food self-sufficient ratio dropped to **32%**

Proportion of GDP from Agricultural and Industrial Sector



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Food Security Issues (2/3)

- **Small Scale farming → Low Farm Income**
 - Cannot achieve economies of scale on small and fragmented farms.
 - Per capita farm income is only **70%** of non-farm.

	< 1.0 ha	1.0-2.0 ha	2.0-3.0 ha	3.0-5.0 ha	5-10 ha	10 ha >
No of farms	562,415	117,884	32,849	18,511	6,885	1,672
% in total	76.0%	15.9%	4.4%	2.5%	0.9%	0.2%

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Food Security Issues (3/3)

• Aging Farm Population:

- Average age of farmers is **61**.
- **46%** of farm population is above 55 yr old

	Total	15-24	25-34	35-44	45-54	55-64	65 ~
Farm Population (1000 person)	533	9	43	91	142	158	89
% in total	100%	1.69%	8.07%	17.07%	26.64%	29.64%	16.70%
55 and above						46.34%	

- **Challenge** : Lack of incentive for young farmers to join farming
- **Opportunity**: Innovation in farming system to attract young farmers.

5

Innovations and Policies

1. Innovations in small-farm system

- **Hub-Satellite Farming System**
- **Supply Chain Management**
 - Strategic planning to add product values
 - Modernization in Post-harvest Processes
 - Adopting Good Agricultural Practices (GAP)

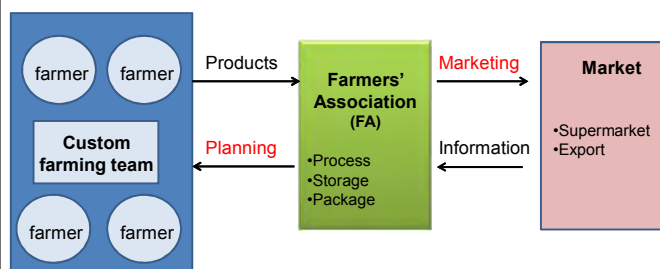
2. Policies

- “Small Landlord & Big tenant” Program
- Encourage old farmers to retire early

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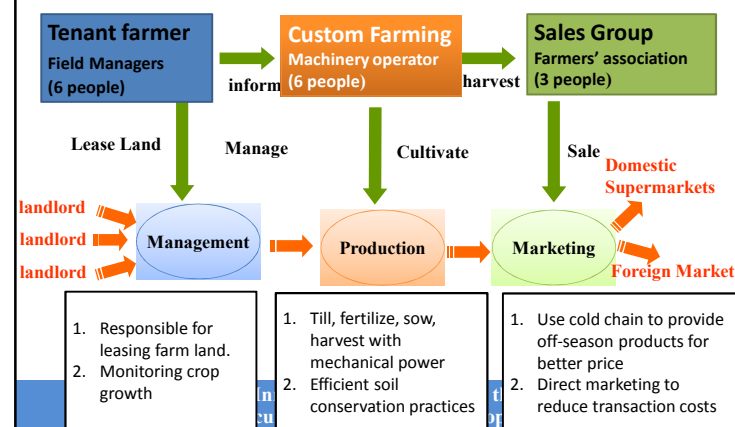
Hub-Satellite Farming System (1/2)

- **Concept**: A system of satellite farming system with a FA as a hub responsible for marketing and planning.



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Hub-Satellite Farming System (2/2)



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Case Study - DouNan Farmers' Association (FA)

- Total Population: 47,000
- FA members: 9,107
- safety labeling system demo in 2003.



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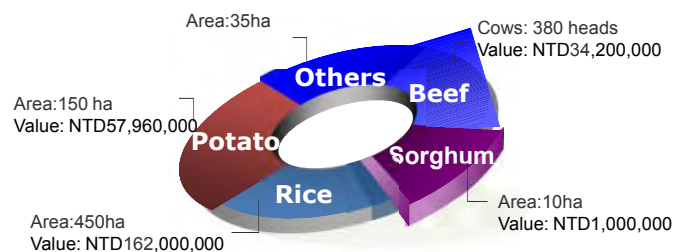
Business Weekly Cover's Story

- 15 young farmers constitutes the farming team
- Each can earn 3 million NTD (100,000 USD) per year



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Local Background



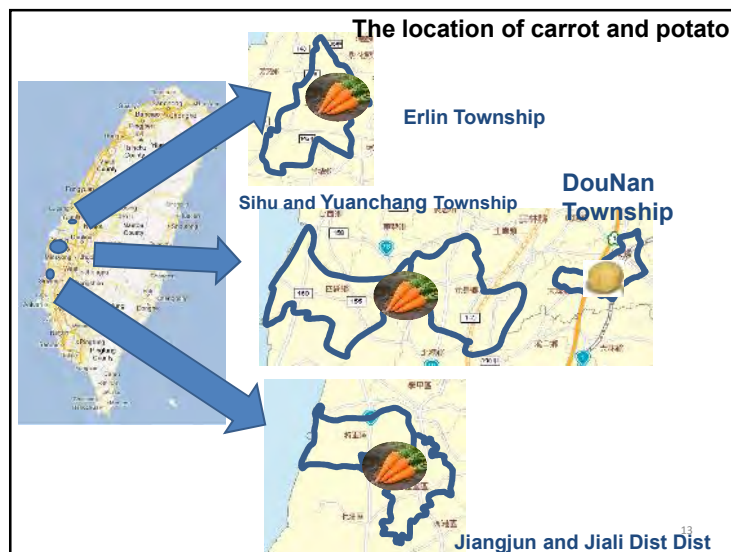
Ist Crop	2nd. Crop	Winter Crop
March-Jun Rice, Sorghum	July-Oct. Rice, Sorghum	Nov.-Feb. Potato

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Hub-Satellite System in DouNan

- **Carrot:**
 - Contracts with farmers in 4-5 nearby townships with DouNan FA served as the hub.
- **Potato:**
 - DouNan FA is both the hub and satellite farms by renting land from nearby farms.
 - Why renting land or contracting **nearby** farms?
 - ➔ Machine cannot travel far (Cost too much)

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Why Potato and Carrot?

- **Supply Side:**
 - Dounan is the major potato producing township (60% potato is produced in Dounan)
 - Government and public research institution provide technical and financial support to establish a root-vegetable cropping hub-satellite system in Dounan
 - Import Substitution (Potato)
 - Export Potential (Carrot)
- **Demand Side**
 - Dietary change:
 - Toward western and fast food styles
 - French fries fever (Potato)
 - Health food (Carrot)

14

DouNan FA's Strategic Planning

Innovation need Investment in

- **Hardware**
 1. Large Agricultural Machineries Team
 2. Processing plant for post-harvest handling (washing, classifying, and storage) of tuber and root vegetables .
- **Software**
 1. GAP and Produce Safety Labeling System
 2. GIS Monitoring System

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15

How to make it works? (1/3)

Field operation

- **Mechanical Operation**
 - Labor-saving and increase efficiency
 - acreage can be expanded
- **Scale Efficiency**
 - Calculate operating capacity of machineries
 - Calculate minimum scales (manpower, misc cost) for each crop
- **Standardization**
 - Hub: application of fertilizer and pesticides.
 - Mechanical team: monitor planting (spacing)-to-harvest

16

How to make it works? (2/3)

Post-Harvest Processing

● Invest in new modern technology

- Purchase cleaning, screening, and packaging facilities
- Identify market demand for quality and grades
- Avoid over-production and **reduce production risk**

● Invest in cold chain (large storage)

- Adjust supply according to market demand
- Stabilize prices and **reduce price risk**

17

How to make it works? (3/3)

Market-Oriented Management

● Standardization

- Uniformed appearance and quality
- Attractive to large and foreign buyers

● Small packaging

- Reduce touching loss
- Product differentiation

● Labeling

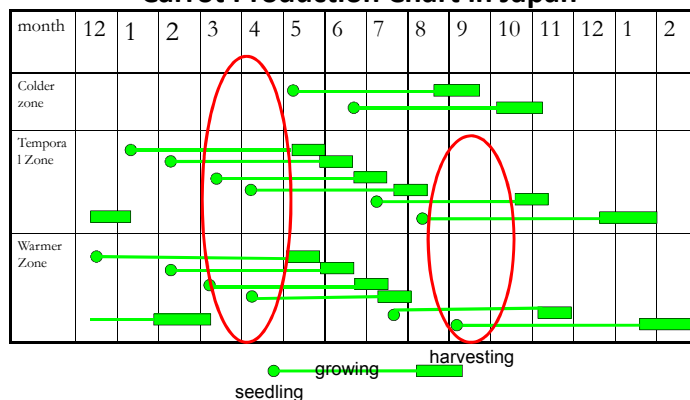
- Identify product origin
- Promote local products



18

Why target at Japanese market?

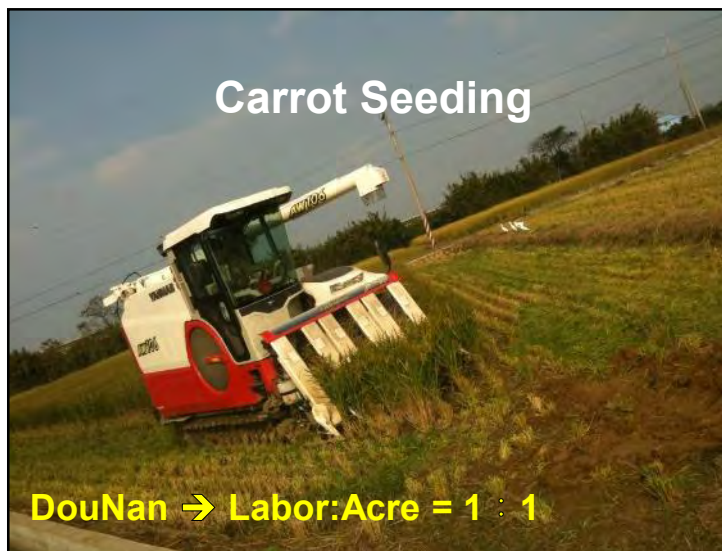
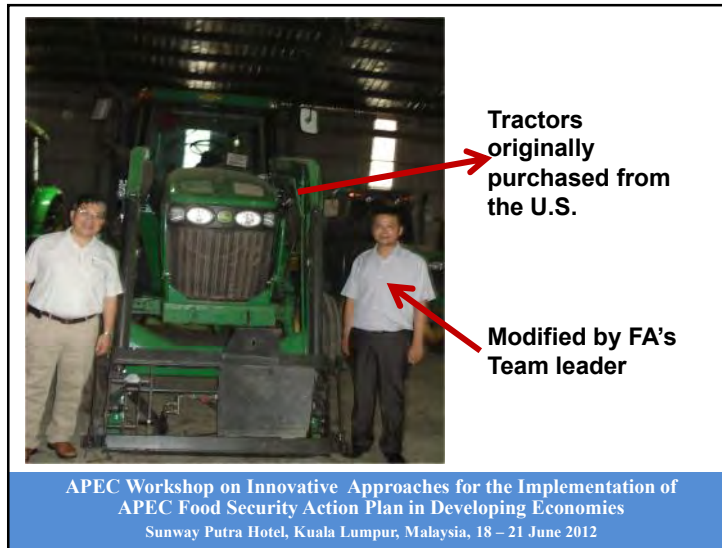
Carrot Production Chart in Japan



Custom Farming Team in DouNan



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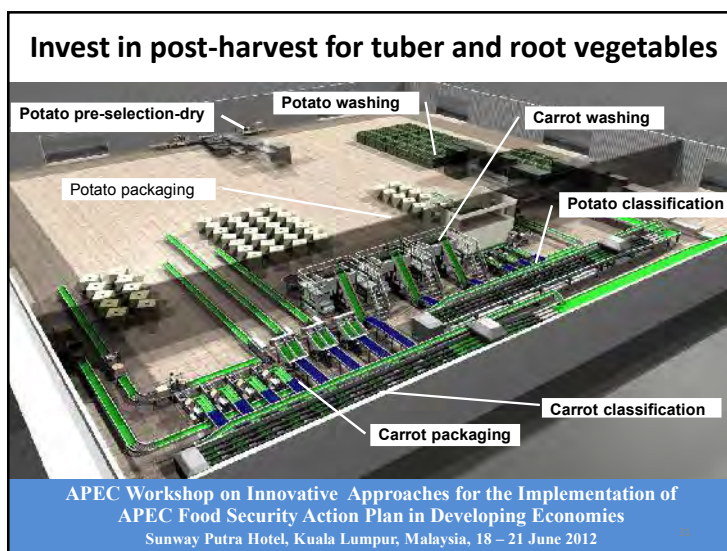




Comparison of Efficiency

	Average (labors : acres)	DouNan (labors : acres)
Carrot seeding	1 : 1	1 : 4.5
Potato seeding	20~25:2	5:3
Pesticide spraying	5:5	2:8
Cultivation	1:0.7	1:3

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Post-Harvest Processing for potato



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Post-Harvest Packaging for Carrot



Cold Chain Management

- 50% of potato harvested are stored in freezer waiting for better prices
- Manager control the cold chain by smart phone and computer
- Capacity: 3500 tons

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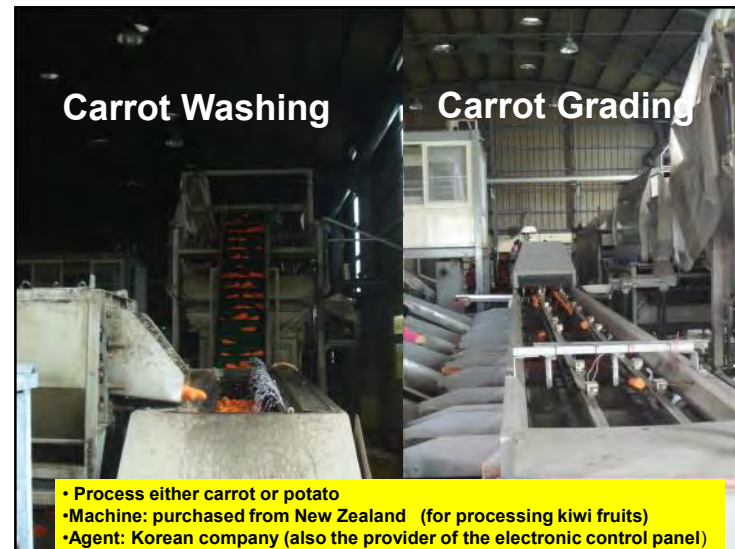
RFID system

- All relevant data of potato are saved in a small chip (for each bag of potatoes)
- It helps the manager control inventory better

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Carrot Washing

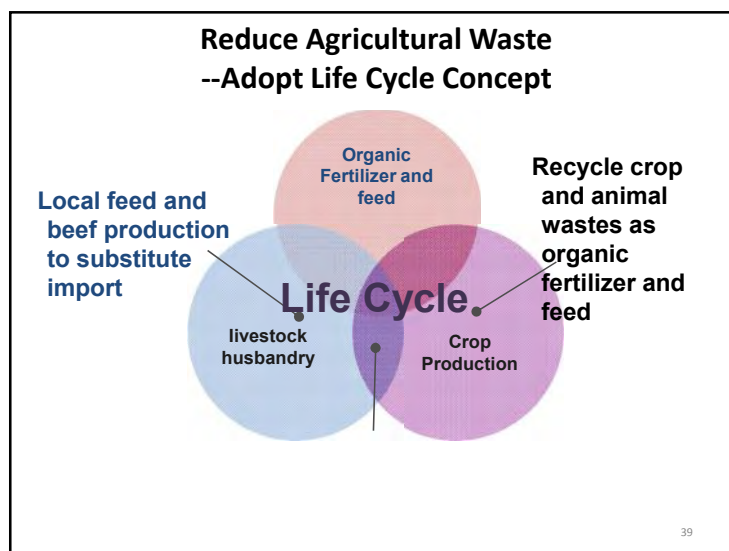
Carrot Grading



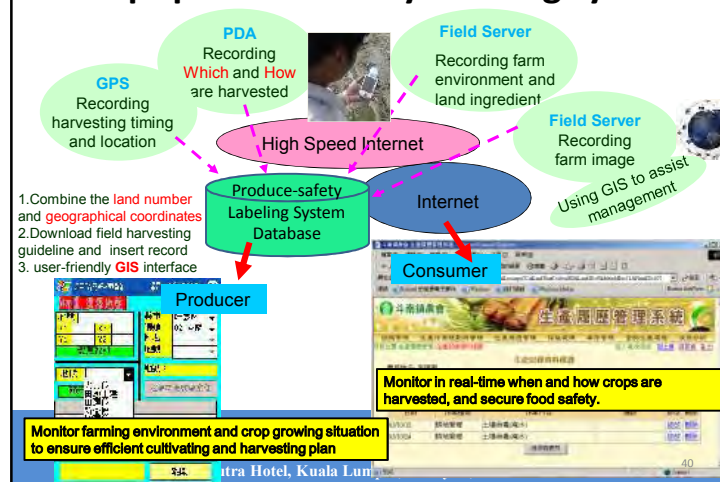
- Process either carrot or potato
- Machine: purchased from New Zealand (for processing kiwi fruits)
- Agent: Korean company (also the provider of the electronic control panel)



Direct Marketing and Contract with Large Retailers

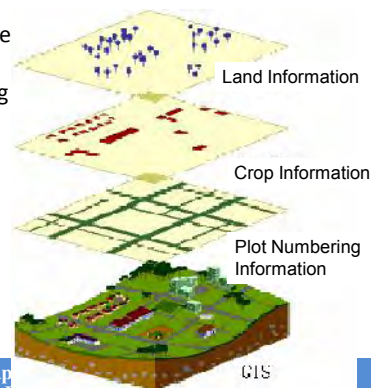


Adopt produce safety labeling system



GIS (Geographic Information System)

- Displaying and integrating the data at different levels.
- Directly perceived, easy using
- Combing with GPS locational coordinates



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GAP produce-safety labeling system

Divide types of crops by colors.



Food Safety Labeling and Traceability



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Question – What are the Keys to Success?

Integrated Supply Chain for Potato



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 Asia-Pacific Economic Cooperation  Government of Malaysia  moa INCORPORATED KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI	THANK YOU COMMENT WELCOME Correspondence: Dr. Ching-Cheng (Emily) Chang EMAIL: emily@econ.sinica.edu.tw
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Attachment 5.3.3. Indonesia's Best Practices & Constraints


 Asia-Pacific
Economic Cooperation


 Government of Malaysia


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INDONESIA'S BEST PRACTICES
AND CONSTRAINTS:
TOWARD SUSTAINABLE FOOD SECURITY

By:
Prof. Dr. Kaman Nainggolan, Professor STMIK
Nusa Mandiri, Jakarta

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I. Introduction

Roles of Agriculture Sector:

- Development of Gross Domestic Product (GDP),
- Devisa generating,
- Provider for food and raw material for industry,
- Poverty reduction,
- Provider for job opportunity,
- Improvement of people income,
- Establishment of national food security.

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Important roles of food security:

- ✓ “We are what we eat” → Dignity of an economy
- ✓ Fulfillment of very basic human right
- ✓ Existence of an economy
- ✓ Better generation in the future

President Bush, 2001: *It's important for our nation to build to grow foodstuffs, to feed our people. Can you imagine a country that was unable to grow enough food to feed the people? It would be a nation subject to international pressure. **IT WOULD BE A NATION AT RISK***

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II. STATE OF THE FOOD SECURITY AND RURAL DEVELOPMENT IN INDONESIA

- a. Food availability*
- b. Food distribution and access*
- c. Food consumption*
- d. Food insecurity*

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A. Food Production (2007-2011)

Production (000 tons)	Year					Growth Average (%)
	2007	2008	2009	2010	2011*)	
Paddy	57,157.4	60,325.9	64,398.9	66,469.4	65,721.6	3.60
Corn	13,288.5	16,317.1	17,630.7	18,328.6	17,629.0	7.75
Soybean	593.5	775.7	974.5	907.0	843.8	10.66
Cassava	19,988.1	21,757.0	22,039.1	23,918.1	24,009.6	4.76
Sugar	2,448	2,704	2,624.1	2,515.8	NA	1.12
Beef	339.5	392.5	409.3	436.5	465.8	8.32
Chicken	1,237.7	1,292.3	1,349.5	1,482.0	1,553.6	5.87
Milk	567.7	647.0	827.2	909.5	925.8	13.39

Source: Central Bureau of Statistics various year, and Ministry of Agriculture

*) Preliminary figure for paddy, corn, soybean and cassava

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B. Food Distribution and Price Stability

- ✓ 70-90% paddy and maize are produced in Java and Sumatra → having seasonal production period → distribution is important
- ✓ So are other food products, productions are concentrated in some areas (fish in Eastern Indonesia, estate-crops in Java and Sumatra)
- ✓ But, distribution and market infrastructure (i.e. road, harbor) are still limited → some areas, especially for remote areas, are exposed to access to food difficulty in certain period of time → Transport cost is high

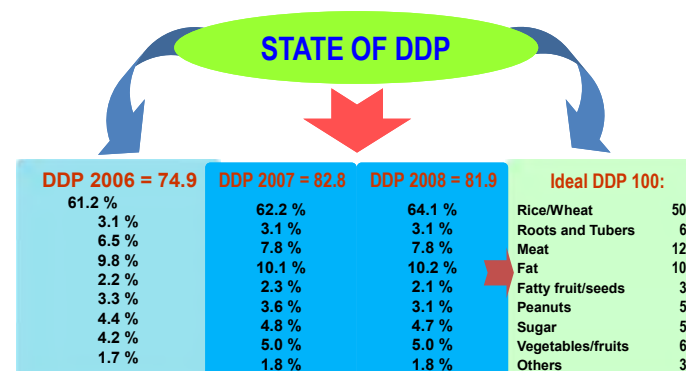
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C. Food Consumption and Access to Food

Problems and challenges that need to be anticipated and overcome are:

- ✓ poverty level and unemployment with low access to food;
- ✓ insufficient knowledge and awareness regarding diet diversification and nutrition;
- ✓ the dominance of rice as a source of calorie;
- ✓ awareness of the importance of sanitation and hygienic of households; and
- ✓ knowledge regarding food safety.

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DIET DIVERSIFICATION

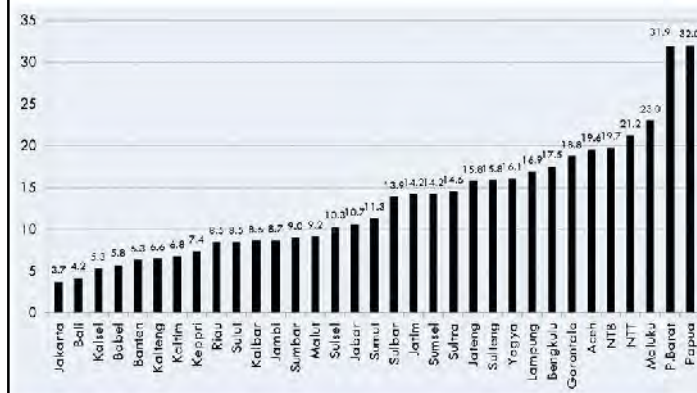
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D. Food Security and Poverty

Food insufficiency condition to meet fisiology need standard that is experiencing by a certain area, community or household, in a certain period time.

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Poverty prevalence among provinces, March 2011 (CBS)



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POVERTY AND FOOD VULNERABILITY IN INDONESIA

Number of poor people (CBS):

- Year 2007 : 37.17 millions (16.58%)
- Year 2008 : 34.96 millions (15.42%)
- Year 2009 : 32.53 millions (14.15%)
- Year 2010 : 31.02 millions (13.33%)
- Year 2011 : 30.02 millions (12.49%)



Number of People that are food vulnerable:

- Year 2007: 29.21 millions (13.03%)
- Year 2008: 25.11 millions (11.07%)
- Year 2009: 33.29 millions (14.47%)
- Year 2010: 35.71 millions (15.34%)

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Main Weaknesses:

- Policy still bias against agriculture and rural sector, gap among regions
- Limited access to land and capital for farmers and rural people
- Lack of infrastructure in rural areas: irrigation problem (52% damaged)
- Lack of postharvest, processing and market infrastructure in rural areas
- Market structure problem: oligopsony in primary product and oligopoly in processed products

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Main Opportunities:

- **Market potency for high value products,**
- **Improving access to technology: bio-technology and nano-technology,**
- **Improving human resources quality,**

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III. FOOD SECURITY POLICIES AND ACTIONS

Twin Track Strategy:

- Promote sustainable rural and agricultural development to create job opportunity and generate income.
- Distribute food aid (rice) for the poor and at the same time support them and empower their capacity to develop their food security at household/community level.

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Policies and Actions

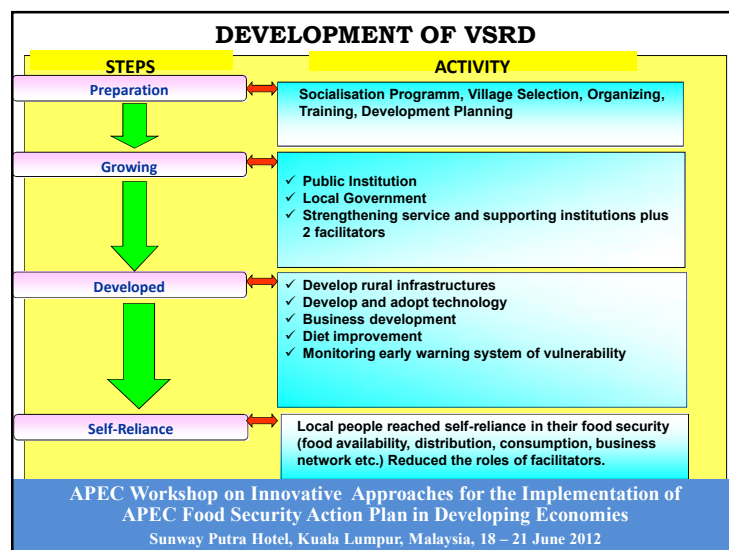
- Set timetable for achieving food self sufficiency on five most important food commodities:
 - Rice and Corn: sustainable self sufficient
 - Soybean (2014)
 - Sugar (2014)
 - Beef (2014)
- Apply “promotion and protection” approach:
 - Promote investment and growth in food production through efficiency and competitiveness.
 - Protect agriculture/farmers through tariff and subsidy (import of staple foods is the last resort).

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Continued ...

- Mitigate the adverse impact of climate change:
 - Develop and implement agricultural practices adaptable to the impact climate change.
 - Refocus agricultural research on productivity and efficiency.
- Undertake National Program on Community Empowerment
 - **Village Self-Reliance Development (VSRD)** from 250 villages in 2006, now reached 1,774 food insecure villages in 33 provinces.
 - VSRD has been recognized by FAO

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Institutional Development

- Established National Food Security Council:
 - Chaired by The President
 - Members:
 - Ministers
 - Academician
 - Private Sectors
- Regional Food Security Councils
 - Province
 - Districts/Town
- National Alliance Against Hunger

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International and Regional Networking in Food Security

- Indonesia has actively participate in the world wide collaboration in achieving global food security facilitated by FAO, IFAD and WFP.
- Indonesia is one of the initiators of The ASEAN Integrated Food Security Framework and Strategic Plan of Actions that aimed at securing stable food supply to be adopted by the ASEAN Leaders (February 2009)

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Policy in response to food crisis (2008)

Enacted “Food Price Stabilization Policy” on February, 1st 2008:

Short Term:

- Reduce price shock in the domestic market by easing trade and tax regulation consist of fiscal and trade policies implemented in cooperation with the private sector: reduce or remove import tax for basic food

Medium term:

- Increase food production
- Improve distribution system
- Financial Intermediaries
- Increase rice subsidy to the poor households
- Food Diversification
- Strengthen regional food reserve (government and community)

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IV. THE SECOND GREEN (EVER GREEN) REVOLUTION FOR SUSTAINABLE FOOD SECURITY

- In 1984, the First Green Revolution has brought Indonesia to be self sufficient in rice.
- However, the rice productivity has been leveling-off due to, among others, the negative impact of the first green revolution.
- To keep the success, Government of Indonesia has reiterated calls on **"The Second Green Revolution"** which is more eco-friendly

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Food for Peace

"If you desire peace, cultivate justice, but at the same time cultivate the fields to produce more bread; otherwise there will be no peace."

Dr. Norman E. Borlaug

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V. CONCLUDING REMARKS

- Partnership among rich countries with vulnerable countries in Asia Pacific region to help them develop and implement their own food security strategies → focus on hotspot, through technical and financial support
- Strong commitment for sustainable agriculture, rural development and people empower:
 - More investment in agriculture and rural sector especially in infrastructure, improving accessibility of farmer to resources: land, technology, and credit → Indonesian model: VSRD ?
 - Develop market for agriculture products , research-extension, processing and capacity building
- Ever Green Revolution is our best opportunity in securing world food security.
- We have to commit and to be serious on our work. Finally, we have to be courageous to take any risk for what have done.
- Use VSRD to fight against hunger and poverty ????

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Attachment 5.4.1. Presentation from Malaysia



Asia-Pacific
Economic Cooperation



Government of Malaysia



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FOOD SECURITY IN MALAYSIA

By,
MOHD. ANIM BIN HOSNAN
NORDIYANA YUSOFF
SITI NUR AHMAD

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1. Background information on food security preparedness in your economy.

Introduction:

Malaysia Population – 28.25 million
Staple food – Rice (3 meal/day)



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MALAYSIA

STAPLE FOOD RICE

OTHER FOOD BASE :

- > MEAT
- > POULTRY
- > EGG
- > VEGETABLES
- > FRUITS
- > FISH
- > PROCESSED PRODUCE
- > FLOUR




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Challenges for the successful food production, distribution and consumption in Malaysia :

1. Climate variation – *Humid tropic*
2. Natural disaster – *Flood during monsoon*
3. Population pressure – *Not critical*
4. Political instability – *Stable*
5. Food insecurity – *Secure*
6. Farming system – *Modern/Traditional*
7. Food price – *According to demand and supply*
8. Food Distribution – *Evenly distributed*
9. Food SSL & Consumption – *As Table 1 and Table 2*
10. Suitable land – *Adequate (Table 3 & Table 4)*

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**Table 1 : SELF SUFFICIENT LEVEL (SSL) OF
OF MAJOR FOODS IN MALAYSIA**

ITEMS	2005 (%)	2010(%)
1. RICE	80.6	71.4
2. VEGETABLES	46.2	41.2
3. FRUITS	74.1	65.8
4. MEAT	21.2	28.6
5. POULTRY	124.7	127.9
6. EGG	108.7	115.4
7. MILK	4.6	4.9
8. FISH	90.5	101.7

Source:
Ministry of Agriculture
Agrofood Statistic 2011

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**Table 2 : PERCAPITA CONSUMPTION OF
OF MAJOR FOODS IN MALAYSIA**

ITEMS	2010
1. RICE	79.5 kg/year
2. VEGETABLES	54.7 kg/year
3. FRUITS	93.0 kg/year
4. MEAT	5.6 kg/year
5. POULTRY	35.0 kg/year
6. EGG	295 egg/year
7. MILK	47.5 liter/year
8. FISH	45.5 kg/year

Source:
Ministry of Agriculture
Agrofood Statistic 2011

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**Table 3 : LANDUSE FOR OF MAJOR
COMMODITIES IN MALAYSIA**

TYPE OF LANDUSE	2010 (HECTARE)
1. MIXED CROP/VEGETABLES	363,361
2. PARRENNIAL CROPS	4,470,919
3. CASHCROPS/PADDY	410,216
4. AQUACULTURE/POULTRY AND PASTURES	363,531 40,288
TOTAL AREA	5,284,954

Source:
Ministry of Agriculture
Agrofood Statistic 2011

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Table 4 : INDUSTRY FOR PADDY AND RICE PRODUCTION IN MALAYSIA 2010

<u>ITEMS</u>	<u>2010</u>
1. PADDY PARCEL (HA)	428,780
2. PLANTED AREA (HA)	673,745
3. PADDY PRODUCTION (MT)	2,548,000
4. VALUE (RM)	1,911,000,000
5. AVG PRODUCTION (MT/HA)	3,782
6. RICE PRODUCTION (MT)	1,642,000
7. TOTAL IMPORTED RICE (MT)	570,000
8. TOTAL RICE CONSUMPTION (MT)	2,212,000

Source:
Ministry of Agriculture
Agrofood Statistic 2011

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2. National food security action plan in Malaysia *(strategies, policies & management).*

Strategies, policies & management

1. Assurance of food supply (Rice)
2. Increase food production
3. Increase to the food access
4. Stabilize the food price
5. Food Safety
6. Explore high value product
7. Agriculture Intensification Productivity
8. Expand agro-based Industry activity
9. Strengthening food networking
10. Integrated dynamic food cluster

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Strategy No 1 :

Increasing rice production

- Maintenance of drainage & irrigation infrastructure
- Land leveling
- Farm mechanizations
- Supplementing inputs
- Research and development



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Strategy No 2:

Increasing production and productivity

- Permanent food production areas (63 TKPM)
- Aquaculture industrial zones and hatcheries
- Livestock breeding



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Strategy No 3 :**Reinforcing marketing and distributing network**

- Assisting farmers to market their produce efficiently
- > New Farmers' Market
- New and upgrading cold rooms
- Upgrading distribution centres
- Enhancing FAMA's trading fund



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Strategy No 4:**Development of abandoned areas**

- Rehabilitation of abandoned lands for vegetable, cash crops cultivation & cooperation with land owners, DOA, District office, JKKK (village community committee)
- Rehabilitation of abandoned fishponds



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Strategies No 5 :**Green Earth Program (Crops, aquaculture and livestock)**

- Growing vegetable, breeding fish and rearing poultry within home or community boundaries to supplement consumption
- Kitchen garden and edible landscape concept
- Distribution of selected seeds, fertilizers, feed, cat fish fries and free-range chicks



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3. Institutional arrangements and responsibilities.

MINISTRY OF AGRICULTURE AND AGRO-BASED INDUSTRY RESPONSIBLE FOR FOOD PRODUCTION AND ENSURING THE AVAILABILITY OF FOOD IN MALAYSIA THROUGH 3 DEPARTMENTS :-

- DEPARTMENT OF AGRICULTURE
- DEPARTMENT OF VETERINARY SERVICES
- DEPARTMENT OF FISHERIES

SUPPORTING AGENCIES

MARDI	FAMA	LPP	MPIB
AGROBANK	TEKUN	AGROBANK	IADA
LKIM	MADA	KADA	MAQIS

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RESPONSIBILITIES

1. Increase the production and productivity of the food sector
2. Ensure fair returns to producers
3. Ensure sufficient supply of quality and safe food



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Institutional	Responsibilities
Ministry of Agriculture and Agro-Base Industry	National Planning and Coordinating the Food Security in Malaysia
Department of Agriculture (DOA), DVS and DOF	Project Implementer, Transfer of Technologies, Extension Services,
Malaysian Agriculture Research Institute (MARDI)	Research & Development
Lembaga Pertubuhan Peladang (LPP), MPiB, LKIM	Farmers Organization and Project Implementer
Federal Agricultural Marketing Authority (FAMA)	Marketing & Sales

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Institutional	Responsibilities
AgroBank, TEKUN, SME Banks	Financial Support Services
Federal Land Development Authority (FELDA), Federal Land Consolidation and Rehabilitation Authority (FELCRA), Rubber Industry Smallholders Development Authority (RISDA), State Authority	Project Implementation and Agriculture Extension at Specific Area with Settlers (Industrial Crop – Oil Palm, Rubber, etc)

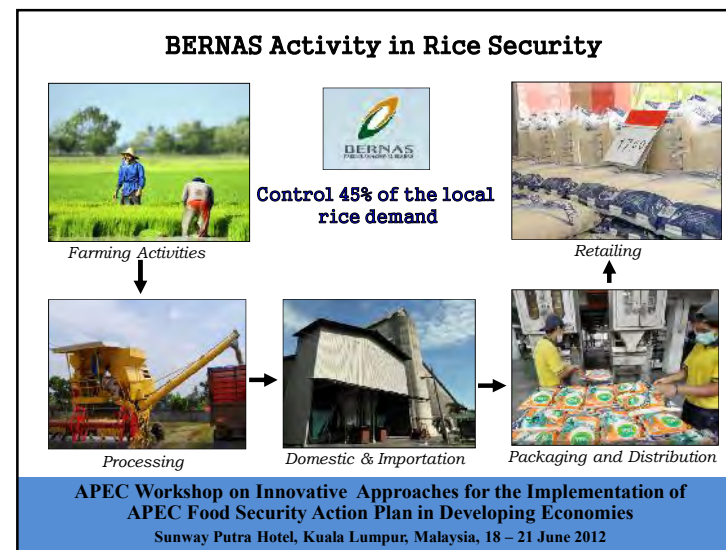
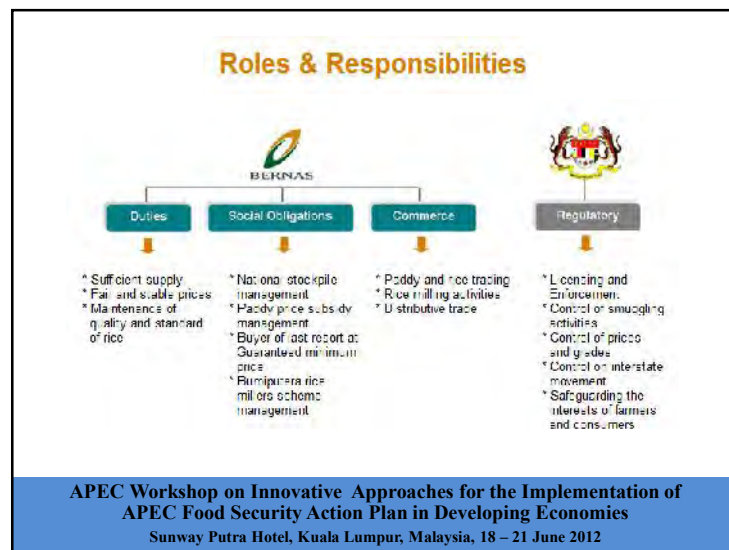
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4. Stakeholder participation in food security (*private sectors, NGOs, etc.*)

FOR RICE - BERNAS

- **Padiberas Nasional Berhad (BERNAS)** is a company listed on the Main Market of Bursa Malaysia. As the nation's partner in the domestic paddy and rice industry, BERNAS involved in the procurement and processing of paddy; as well as the importation, warehousing, distribution and marketing of rice in Malaysia.
- **BERNAS** currently controls about 24% of the paddy market and 45% of the local rice demand in Malaysia.
- **BERNAS** Group of companies is now involved in seed and farming activities, international rice joint venture, as well as rice complementary businesses.

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Federation of Malaysian Vegetable Growers Association

Association to facilitate the production of vegetable production in Malaysia. Members are vegetable farmers. More than 20 association.

Federation of Malaysian Fruits Growers Association

Association to facilitate the production of fruits in Malaysia

Federation of Malaysian Fruits Exporters Association

Association of fruit exporter in Malaysia

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5. What are the specific actions in innovation, policy and science being used to raise food security preparedness?

5.1 Research & Development

- Produce new paddy varieties and crops that are able to produce high yields, resistance to pest and disease and adapted to changing climate
- Introduction of new and exotic crop (more than 60 varieties) to find alternative for other crop discrepancy
- Introduction of high land vegetables and fruits
- Introduction of biological pest control to reduce the usage of pesticide
- Introduction of planting under protective structure to reduce the usage of pesticides
- Introduction of fertigation to reduce the usage of water and man power

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5.2 Land Policy & Act

- **Gazette land** that has been defined and recognized as countryside zone and or paddy conservation zone (agriculture land) cannot be used for housing, commercial and industrial development; sub-divide land title; transfer ownership unless with the permission of the minister who may impose additional premium or rent to add or substitute such terms and conditions.
- **Permanent Agriculture Park Program (TKPM)** - Food Production
This area permanently allocated for food production in Malaysia with complete basic farm infrastructures

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5.3 Plant Quarantine Act& Regulations



- To impose quarantine rules and regulations
- Pre Border, Border and Post Control, to prevent pest and diseases from coming into the country/ state.

5.4 Food Act 1983 & Codex Alimentarius

- To ensure available food is safe for consumption

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6. **Examples of innovative approaches implemented economy-wide to overcome food security issues.**

6.1 **Permanent Food Park Program (TKPM)**

<u>Year</u>	<u>No.</u>	<u>Ha</u>	<u>Farmers</u>	<u>Production (MT)</u>	<u>Value (RM Million)</u>
2011	57	4,928	927	55,650	67.293
2012 (May)	63	8,158	930	7,807	10.770



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6. **Examples of innovative approaches implemented economy-wide to overcome food security issues.**



6.2 **Paddy Field Leveling Project –**

- Granary area and Non-granary area
- To level the land for water efficiency
- To increase field production
- Area covered 121,000 hectare

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6.3 Development of Abandoned Land Project



- Total abandoned land - 3,500 hectare
- Total developed - 1,250 hectare
- Incentives of Infrastructure, Farm Inputs
- Increase food production

6.4 Green Earth Program (Bumi Hijau)

- To grow own vegetable
- Rear Chicken and Fish
- Allocated 2010 - RM 4.0 mil
- Each Family save RM 121/mth



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6.5 Provision of Incentives to induce increment of Food Production

- Price Incentives in 2008 - 2010
- RM 82/mt of vegetables
- RM 78/mt of fruits



6.6 Paddy Subsidy assistance in the form of



- fertilizer subsidy,
- paddy price subsidy,
- paddy seed subsidy,
- paddy production incentive,
- paddy yield subsidy and
- rice price subsidy.

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Additionally, the DOA will continue to implement major programs in the 10MP which include:

a) Programme to promote use of technology and to stimulate creativity and innovation in Agro-food subsector

- Fruit Crop Technology Practice Package Project
- Vegetables/Cash Crops Technology Practice Package Project
- Floriculture Technology Practice Package Project



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Additionally, the DOA will continue to implement major programs in the 10MP which include:

b) Programme to increase food production and processing

- Coconut Area Development Project
- Agricultural Pest Control Project



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c) Programme to expand commodities & products

- Projects on Equipment Acquisition and Upgrading of Crop Quarantine Treatment Centre To Meet Phytosanitary Requirements
- Eastern Region Integrated Diagnostic Laboratory Construction Project in Besut, Terengganu



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7. Current best practices that support national food security objectives.

To ensure high quality, safe and high marketable food production, DOA has organized the programs below:

7.1 Malaysian Farm Certification Scheme for Good Agricultural Practices (SALM)



A certification scheme that has been developed by DOA to provide certification to farms that adopted GAP based on the concept of environmentally friendly, caring of employees welfare and safety
SALM – SIJIL AMALAN LADANG BAIK MALAYSIA.

Up till 31 Dec 2011, **356 farms** (fruits, vegetables and tea) have received SALM accreditation with area of **1,349 hectare**.

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7.2 Malaysian Organic Scheme Certification (SOM)

- A certification program developed by DOA to certify farms that are operated in an organic method according to the criteria and guideline;
- Up till 31 Oct 2011, **75 farms** (vegetables and mushrooms) have received SOM accreditation in Malaysia.



7.3 Tagging System

- Implemented by DOA to fulfill the requirement of the importing country (i.e. Singapore). To ensure the pesticide residue in fruits and vegetables are below the Maximum Residue Limit (MRL).



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7.4 Plant Conservation for Food Security

Conserving and making available genetic Diversity for the use in the new crop varieties. The importance of advances in plant breeding will be greater in the future in order to produce crop varieties that produce high yield, adapted to changing climate, resistance to pest and disease and make less demand in environment, nutrient and energy.



7.5 Downstream Processing (Agro Base Industry)

- To develop the alternative use of the available crop and value adding to increase marketable and nutritive value.
- Proper processing able to extend shelf life of food products and ensure food safety & quality (GMP)



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7.6 Postharvest

- Ensure capability to meet food requirement of the growing population.
- Important to prevent avoidable losses by proper handling, storage, grading, packaging, transporting and marketing.
- Has potential to create rural industries



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THANKYOU



Department of Agriculture
Malaysia

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Attachment 5.4.2. Presentation from Chinese Taipei



Asia-Pacific
Economic Cooperation



Government of Malaysia



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Food security preparedness in Chinese Taipei

Tsu-Kang WEN
Department of International Affairs
Council of Agriculture, Chinese Taipei

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Overview of Agriculture in Chinese Taipei (1/2)

- Size of Chinese Taipei: **36,000 km²**
- Less than **25%** is used for agricultural production.
- Mountains and rugged hills cover **two-thirds** of the island.
- Population is **23 million**, only **540,000** persons are employed in agriculture

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Overview of Agriculture in Chinese Taipei (2/2)

- Annual agricultural output is about **US\$12 billion**, or **1.5%** of GDP
- The average farm covers **1.1** hectares, thus the agricultural sector is largely composed of **small** family farms
- The major agricultural imports are **corn**, **soybeans**, and **wheat**; the principal exports are **flowers** and **tuna**

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Background information on food security (1/4)

- **Low** food self-sufficient ratio
- Single stable crop - **rice**
- **Wheat** and **maize** consumed are almost completely from **importation**.
- Arable lands are rapidly **decreasing**
- Water resources are **decreasing**
- **Global warming** and the increasing occurrence of **extreme weather** events

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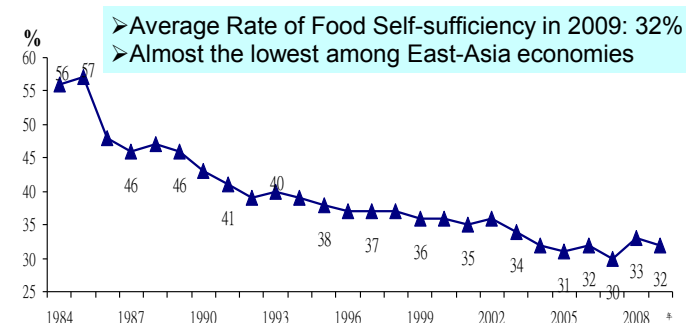
Background information on food security (2/4)

- The average production of rice is **1,200,000** metric tons per year.
- The security level of public rice stock is about **300,000** metric tons, which is an amount enough for **3-month** consumption.
- The security level of **wheat, maize, and soybean** are **2-month** consumption.
- Average food self-sufficiency rate is **32%**

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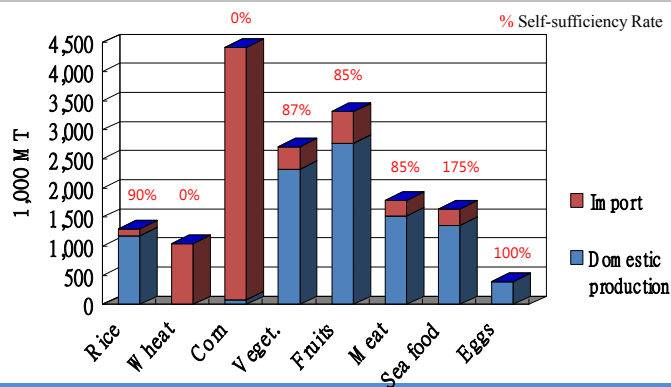
Background information on food security (3/4)

Average Food Self-sufficiency Rate (Weighted by Calorie)



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Background information on food security (4/4)



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Institutional arrangements and responsibilities

Council of Agriculture
- food security policy

Council of Agriculture, Agricultural and Food Agency
- food production and storage

Ministry of Economy, Bureau of Foreign Trade
- the importation of wheat, maize, and soybean

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Chinese Taipei food security action plan (1/3)

“National Food Security Conference” in May 2011.

● four goals:

- (1) to raise food self-sufficient rate from **32%** to **40%** before 2020;
- (2) to make food supply stable and strengthen international agricultural investment and cooperation;
- (3) to construct food storage mechanism;
- (4) to increase the efficiency of agricultural irrigation and land utilization.

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Chinese Taipei food security action plan (2/3)

◎ APEC Food Emergency Response Mechanism (AFERM)

- Chinese Taipei has proposed to establish **AFERM** for safeguarding food security in times of disasters in the APEC region.
- **short-term, emergency** food relief
- **ear-marked** reserves
- **pledged** by member economies
- **cooperate** and complement with the existing regional food aid/reserve programs

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Chinese Taipei food security action plan (3/3)

◎ Small Landlords, Large Tenants

- encourage **unwilling** and **aged** farmers to lease their farmland and assist **younger** farmers to rent farmland to **enlarge** their farms
- offer assistances and soft loans to large tenants to enlarge their **farm scales** and raise the agricultural **competitiveness**

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The specific actions in innovation, policy and science being used to raise food security preparedness

Climate change may cause food insecurity

- (1) Development and application of **irrigation technologies** for adaptation to climate change
- (2) Enhanced utilization of **indigenous vegetables** to meet the challenge of climate change
- (3) Technology development of **food production system** for mitigation of and adaptation to climate change
- (4) Using agricultural technologies to reduce **post-harvest losses**

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Examples of innovative approaches implemented economy-wide to overcome food security issues (1/6)

➤ Constructing a food reserve mechanism

APEC Food Emergency Response Mechanism

➤ Expansion of the “Small Landlords, Large Tenants” program

➤ Encouraging use of fallow land

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Examples of innovative approaches implemented economy-wide to overcome food security issues (2/6)

Small Landlords, Large Tenants

◎ Background

- Small farming scale, with each farm household holding an average of 1.1 hectares
- Aging agricultural workforce, with full-time farmers at the average age of 62 years
- Low food self-sufficiency (32%), large acreage of set-aside (fallow) farmland (220,000 ha / 810,000 ha)

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Examples of innovative approaches implemented economy-wide to overcome food security issues(3/6)

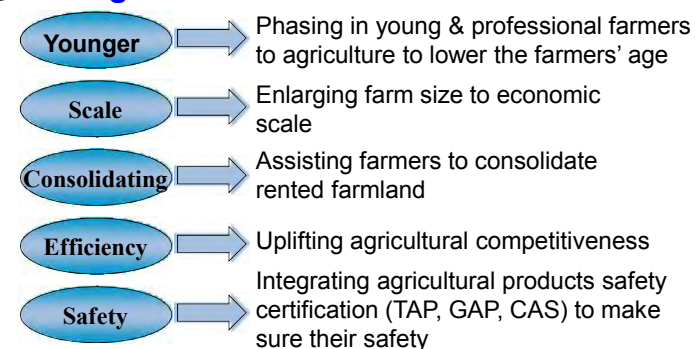
◎ Objectives

- bring fallow land back into use
- enlarge farming scale – raising agricultural production and management efficiency
- adjust workforce structure – improving agricultural workforce’s quality

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Examples of innovative approaches implemented economy-wide to overcome food security issues(4/6)

◎ Strategies



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Examples of innovative approaches implemented economy-wide to overcome food security issues (5/6)

In order to help the tenants with large amounts of land to upgrade operational efficiency,

- (a)guiding them towards enterprise-style management,
- (b)assisting them in improving the basic environment in the lands they rent, and
- (c)assisting them in improving their facilities, equipment, and capabilities to do production and marketing

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Examples of innovative approaches implemented economy-wide to overcome food security issues (6/6)

☉ Achievements

1. More than **6,000** small landlords lease their lands, with more than **3,000** ha farmlands been leased.
2. The cases of consultation services extended to big tenants is more than **500**, with an average increase of **6** ha per farm household.
3. Consultation services provided to retired farmers to improve their living quality.

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Current best practices that support Chinese Taipei food security objectives

Small Landlords, Large Tenants

- ☆raise food self-sufficient
- ☆raise agro-product ion quantity and quality

Constructing a food reserve mechanism

- ☆maintain security public rice stock at a proper level
- ☆put forward the APEC Food Emergency Response Mechanism

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Conclusions (1/2)

- Ensure **food security** is one of the long-term goals of agriculture policy of Chinese Taipei.
- (1)to promote **R&D**
- (2)to enhance agricultural **infrastructure and investment**
- (3)to boost agricultural **productivity**
- (4)constructing a food reserve mechanism

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Conclusions (2/2)

● Next step in the near future

A multiple year APEC project and scheduled to hold an APEC conference on the subject of the reduction of food losses and costs in the food supply chain in the second half of 2013. public and private sectors.

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**Thank you for
your attention**

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Attachment 5. 4.3. Presentation from Indonesia



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STRATEGY AND POLICY FOOD SECURITY IN INDONESIA

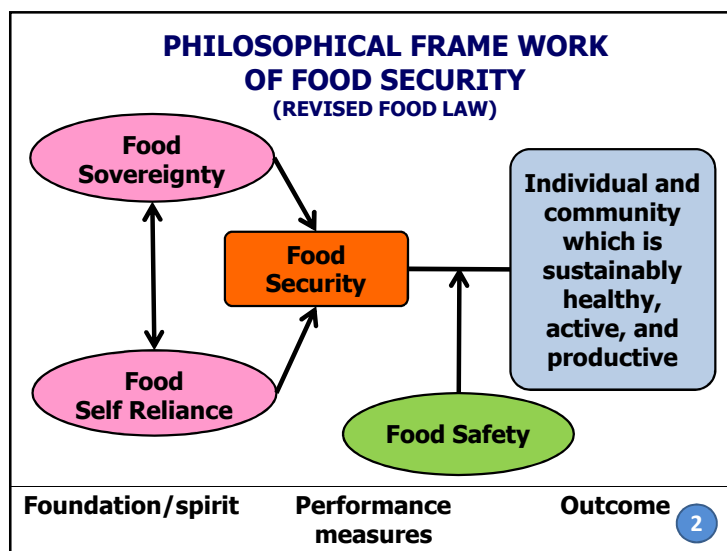
RATNA KUSUMA DEWI
The Agency for Food Security

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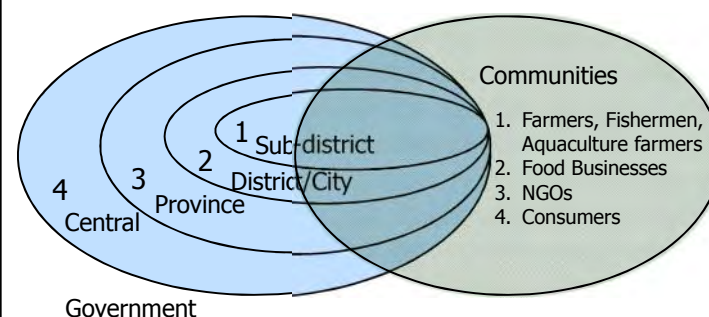
1. Background information on food security preparedness

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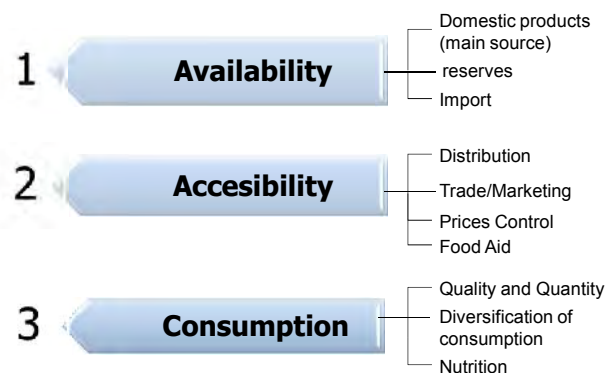


COMPONENTS OF FOOD DEVELOPMENT



3

DETAILS OF FOOD SECURITY SUB-SYSTEMS



4

Sub-System: Food Availability

- Food Availability is mainly sourcing from domestic production and food reserves
- With regards to unsufficiency of food availability in the national level, food import is allowed as the last resort
- The government establish Food Reserve in national, provincial, district, and community.

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- Import of staple food is able to be carried out with the condition:
 - insufficiency of domestic production and national food reserves.
- Import of food commodities is able to be carried out with the conditions:
 - Unsufficiency of domestic production
 - Domestically not produced
- Export of staple food is able to be carried out with the conditions:
 - Sufficient needs of domestic consumption
 - Sufficient needs of national food reserves

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THE TARGETS OF COMMODITIES PRODUCTION

- Paddy/Rice → surplus 10 million tons of rice in 2015
- Maize → sustainable self sufficient
- Soybean
- Sugar → self sufficient in 2014
- Beef meat

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FOOD SECURITY SITUATION IN INDONESIA

Food Production, 2007-2011

No	Commodity	Food Production (2003-2008)				
		2007	2008	2009	2010	2011
1	Paddy	57,157	60,327	64,399	66,469	65,385
2	Corn	13,288	16,317	17,630	18,328	17,230
3	Cassava	19,988	21,757	22,039	23,918	23,464
4	Soybean	593	776	974	907	870
5	Sugar	2,450	2,597	2,334	2,278	pm
6	CPO	14,152	17,110	17,018	17,530	pm
7.	meat	2.067	2,136	2,205	2,366	2,469

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Food Availability and Consumption, 2008

	Energy (Kcal/caput)	Protein (Gram/caput)
▪ Availability	3,145	83.33
▪ Recommended	2,200	57.00
▪ Consumption	2,038	57.43
▪ Recommended	2,000	52.00

- At National level food availability is sufficient
- At micro level $\pm 20\%$ households consumed less than recommended dietary.
- Problem : distribution and affordability (physical and economic)

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Number of Poor People , 2004-2008

Year*)	Poor People	
	Number (million)	% of total population
2004	36.1	16.66
2005	35.1	15.97
2006	39.1	17.75
2007	37.2	16.58
2008	35.0	15.42
2009	32.5	14.15

*) Survey was conducted in March each year

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Sub-System: Food Accesibility

- Economy and Regional Government ensure food accesibility for communities, households and individuals
- Government policies on food accesibility:
 - Distribution
 - Marketing
 - Trade
 - Stabilisation of staple food prices and supplies
 - Food Aids

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- Government sets the mechanism, procedures, and maximum quantity of staple food storage by food businesses, as regulated by law and regulation
- Government has an obligation to establish stabilization of food prices and supplies in producer and consumer level

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- Staple food price stabilization is carried out through:
 - Price determination in producer and consumer level.
 - Management of national food reserves.
 - Arrangement and management of food supplies.
 - Tax incentives.
 - Determination of tax/tariff policies which is pro-national interests.
 - Continuity arrangement of intra-area distribution.
 - Managing food import and export.

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Sub-System: Consumption of Food and Nutrition

- Food consumption and diversification should be directed to increase community awareness and to establish food consumption pattern which is diversified, balanced, nutritious, safe, base on local wisdom and resource.
- Food consumption and diversification should support sustainability, healthy, active and productive, based on Desirable Food Dietary Pattern.
- The consumption increase of ruminant product, fisheries, vegetables, and local tubers which is directed the community nutrition status.

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SOME CONSTRAINTS IN ACHIEVING THE TARGETS

1. Increase in environmental damage and global climate change
2. Inadequacy of infrastructure, facility and public utility, land, and water supply
3. Small land ownership and farming scale (9,55 million HH < 0.5 Ha)
4. Weakness of seed availability and breeding system
5. Inadequacy of farmers' access to source of finance and the high rate of interest in agricultural
6. Incompatibility of inter-sector support on the development of agriculture

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2. Indonesian food security action plan (strategies, policies & management).

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STRATEGY ON FOOD SECURITY

❖ **Implementing Five Efforts Principle (PANCA YASA)**, as strategic step to revitalize agriculture development:

- i. Development & rehabilitation of agricultural infrastructure (i.e. rural irrigation, farm roads)
- ii. Empowering farmers' groups/organizations, especially in their ability to access and adopt recommend technology

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Continued.....

- iii. Revitalization of agricultural extension; especially in delivering technology and information related to agribusiness development
- iv. Improving availability of agricultural finance and farmers accessibility to rural capital sources/institution
- v. Improving market access for farmers, for both inputs and outputs

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Continued.....

❖ Strategy on food security is improving of food diversification → by diversifying food varieties overtime will enhance the household access on food security dimensions.

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POLICIES ON FOOD SECURITY

✓ Promoting Twin Track Strategy :

- Implement sustainable rural and agricultural development to create job opportunity and generate income.
- Distribute food aid for the poor and at the same time support them and empower their capacity to develop their food security at household/community level.

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Continued.....

✓ Applying “Promotion and Protection”

- Promote investment and growth in food production through efficiency and competitiveness.
- Protect agriculture/farmers from hostile international markets through tariff and subsidy (import of staple foods is the last resource)

✓ Self Sufficiency on Food :

- Food consumption should be utmost fulfilled from domestic production, import is the last resort

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Continued.....

✓ Maintaining Food Supply and Price Stability :

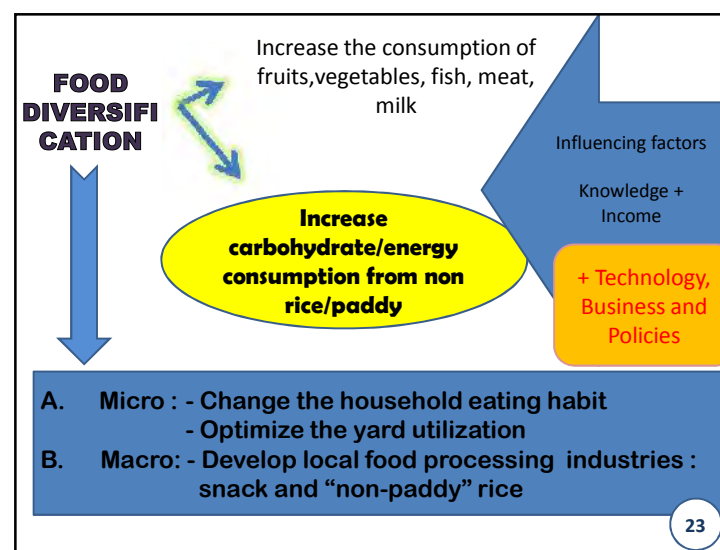
- By time (market operation, export-import policy)
- By location (food distribution and food reserve)
- By community groups (food aids)

✓ Developing and improving food diversification on the basis of local commodities

- developing and improving of food industrialization
- promotion of a wide variety on food consumption habits

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3. Institutional arrangements and responsibilities.

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INSTITUTIONAL ARRANGEMENT

- Established National Food Security Council:
 - Chaired by The President
 - Members:
 - Ministers
 - Academician
 - Private Sectors
 - NGO's
- Regional Food Security Councils
 - Province , Chaired by The Governor
 - Districts/Town, chaired by Regent/Mayor
- National Alliance Againsts Hunger

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4. Stakeholder participation in food security (private sectors, NGOs, etc.)

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Food Insecurity	Existing example programmes	Reasons	Actions by Community and Household	Action by Government with NGOs and Private Sector
Acute	• MOA/Agency for Food Security • Mins of Public Work • Mins of Forest	Emergencies • natural disasters • drought • flood	• Community action plans • Food storage in villages • Natural resource protection and rehabilitation (forestation of water sheds, managed tree harvests)	• Emergency preparedness mechanisms • Response mechanisms in place (triggers, actions). • Infrastructure and institutions prepared

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Food Insecurity	Existing example programmes	Reasons	Actions by Community and Household	Action by Government with NGOs and Private Sector
		Price crash of principle commodities	• Diversify production	• Policies for price stability • Rapid food response
	Mins of home affair	Job loss (urban and landless)	• Income generation	• Food for work (natural resource rehabilitation and labour intensive infrastructure) • Income generation programme

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Food Insecurity	Existing example programmes	Reasons	Actions by Food Insecure Community	Action by Government with NGOs and Private Sector
Chronic	• Bulog : Raskin • MOA/agency for Food Security : SPFS,, PIDRA, LUEP, LDPM, Desa Mandiri Pangan	• Small or no land • holding • Poor skills • Poor market access • Poor infrastructure • Price instability • Low income	Participate in community empowerment programmes using community based participatory group development.	• provide subsidised rice to poor families • Government fund aid for farmers Group • Farmer Field Schools • Skill training for production, quality standards, and producer associations

PIDRA : Participatory Integrated Development in Rainfed Areas (IFAD loan)
SPFS : special Program for Food Security
Desa Mandiri Pangan : village food resilience

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Food Insecurity	Existing example programmes	Reasons	Actions by Food Insecure Community	Action by Government with NGOs and Private Sector
Chronic	• LDPM, PUAP, utilize home yard, Lumbung Pangan Masyarakat			• Micro-finance support to small producers and traders respectively • Research – appropriate producti
	• Mins of Finance : KKP			• Distribute credit to the farmers

LUEP: rural business unit
LDPM : Community food distribution Institution
PUAP ; Village Agribusiness Development
KKP : Food Security Credit
Lumbung Pangan Masyarakat : Community Food Storage

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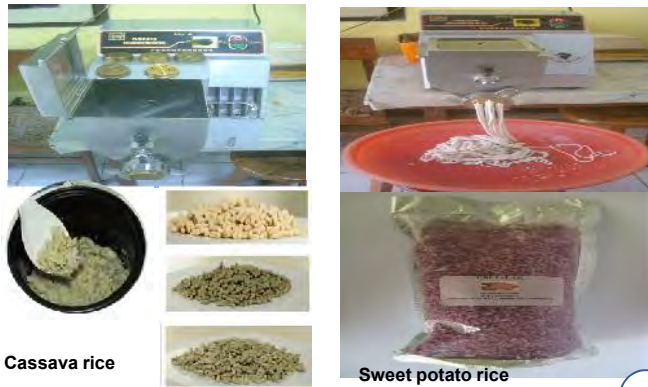
Problems on Food Diversification

- diversification of food consumption in Indonesia confirms that rice consumption (60.7 percent in urban and 63.9 percent in rural areas) is still accountably higher than the national expectation standard (50 percent for both urban and rural areas).
- consumption on food extracted from roots, vegetables, fat and meat is still under national expectation standards.

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Cooperation with local universities in making prototype of food processing machine



Cassava rice

Sweet potato rice

32

Bread fruit

Making noodle from bread fruit paste

Partnership small-micro enterprises with farmer group to produce noodle based on local resources

33

partnership local small-micro scale enterprises with private company to develop food processing machine and food industries (especially flour industry)



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DIVERSIFICATION OF FOOD INDUSTRY BASED ON LOCAL RESOURCES



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5. What are the specific actions in innovation, policy and science being used to raise food security preparedness?

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PROGRAMS ON FOOD PRODUCTION

- ❖ Increasing domestic food production by improving productivities and optimizing available resources in a sustainable manner.
- ❖ Empowering farmers to implement recommended technology on farming practices through:

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Continued.....

- Increasing efficiency in technology and information delivery
 - Research-extension-farmer linkages
 - Field school on IPM
- Improving accessibility and affordability of farm inputs
 - Subsidy on fertilizer (N, P, K), organics fertilizer, seeds (in selected area)
- ❖ Promoting better post harvest handling

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Continued.....

- ❖ Providing output price incentive, through government procurement price for rice.
 - (BULOG buys 2.0-2.5 million mtof rice annually. Procurement price is set usually higher than market price during peak harvesting season)
- ❖ This program was designed as “a movement” conducted at various level of governments and stakeholders.

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PROGRAMS ON FOOD SECURITY

- Providing main source of food from domestic production, food import is the last resort.
- Improving food distribution system to guarantee a stable food supplied and prices, and public access to selected main foods.
- To enhance the independency of province/district/ village/community in the developing and managing food stock

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Continued.....

- By 2014, every level will be have food reserves :
- 50 % provincial government have food reserves
 - 20 % district government have food reserves
 - 10 % villages have food reserves
 - 1000 community food reserves have been established
- Increasing preparedness of community through EWS (Early Warning System) to respond to the problems of food insecurity due to climate anomaly and natural disasters.

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Continued.....

- Promoting “community/village food resilience” through community empowerment program at poor villages.
- Encouraging village communities to optimize their home yard for planting vegetables and breeding livestock to fullfill daily food consumption
- Collaboration with local universities to develop a prototype local food processing industries (non rice and non wheat)

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Continued.....

- Promoting, socialization and campaign of food diversification consumption
- Enhancing people awareness to change their consumption pattern toward balanced, various, nutritious and safe food
- Increasing the stakeholders participation, especially formal and non formal administrators or NGO's, in food diversification development

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6. Examples of innovative approaches implemented nationwide to overcome food security issues.

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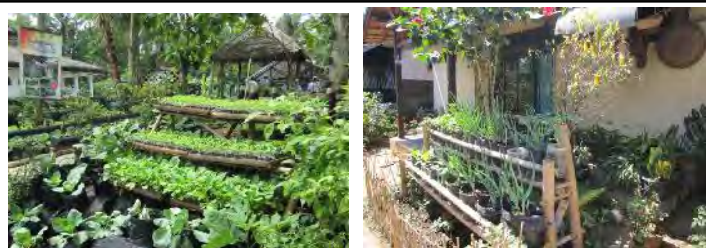
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President encourage the village communities to optimize their home yard for planting vegetables and breeding livestock



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Optimize home yard for planting vegetables and breeding livestock for a house hold food resources. Garut district, west Java



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DEVELOPING VILLAGE FOOD RESILIENCE



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Developing micro finance for village communities



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Create job opportunity in the village



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Community Food Reserve



- To enhance food availability at community level, especially for vulnerable households during the lack of production

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7. Current best practices that support Indonesian food security objectives.

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Supporting on village communities

- Micro and Small Scale Enterprise Empowerment
 - Provide micro credit (KUR) as working capital for micro and small scale economic activities
- Self-help Community Empowerment
 - Provide special funds for working capital to run their agribusiness activity → generate rural economy activities
 - Rural Agribusiness Development (PUAP)
 - “village food resilience” through community empowerment program at poor villages
 - Developed community home yard to produce food for their daily consumption

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SUPPORTING ON FOOD RESERVE

- To enhance the independency of province/district/ village/community in the developing and managing food stock
- To enhance food stock availability used for : emergencies (disaster, social conflict), price stabilization and other purposes
- To enhance food availability at community level, especially for vulnerable households during the lack of production

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- To maintain the stability of food supply and price
 - Government procurement during harvesting season when the price of paddy going down → to help the farmers
 - Government Market Operations when the price is going up → to help consumers

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CONCLUDING REMARKS

- Indonesia has already had a sound policy and program for promoting sustainable food production growth and improving food security for the poor.
- in the long run, challenge to improve food security:
 - Better land and water management
 - Improve rural and agriculture infrastructure
 - Refocus agriculture research on productivity and efficiency
 - Revitalize farmers' organization and extension services
 - Improve capacity in responding to climate change through anticipation, adaptation and mitigation capabilities

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Attachment 5.4.4. Presentation from Papua New Guinea



Asia-Pacific
Economic Cooperation



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Food Security Situation in Papua New Guinea

—

Clifton Gwabu & James Laraki

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Food security situation in Papua New Guinea

Food insecurity in PNG has been identified as a chronic problem among the majority of small-scale farmers, rural communities and urban dwellers and is recognized as a key factor contributing to low levels of human welfare and standards of living as reflected in the low Human Development Index (UNDP 2011) rankings for PNG being 153rd. It is estimated that 40% of PNG's 7 million people earn less than two dollars per day. On welfare issues, the most seriously and adversely affected being women and children. This is also reflected in low life expectancy rate in PNG (being average of 57 years), as compared to the world's highest around 80 years.

Food security situation in Papua New Guinea

- Subsistence food based – supports 85% of the population
- Staple traditional food s are Sweet Potato, Banana, Taro, Cassava and Sago.
- Much underdeveloped agricultural land
- Net importer of wheat and rice . Wheat and rice are becoming staple food
- Government set up appropriate agency (NARI, FPDA, DAL Food Security Branch)
- Challenges: Land, Drought, Prolong rain,
- National Food Security Policy Framework and other overarching government policies

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PNG food security strategies and policies

- PNG Rice Development Policy 2004 - 2014
- PNG National Food Security Policy 2000-2010.
- National Agriculture Development Plan 2007-2016.
- PNG Vision 50, 2010-2050.
- PNG Strategic Development Plan 2010-2030.
- PNG Medium Term Development Plan 2010-2030.
- Import Substitution policy
- Public Private Partnership Policy
- District Support Improvement Plan

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Institutional Arrangements and responsibilities

- National Department of Agriculture – Policy, Strategy Development
- National Agricultural Research Institute (NARI) – Research & Development
- Fresh Produce Development Agency (FPDA) – Extension & Advice
- Provincial DAL – Implementation/Extension & Advice
- PNG Land Development Task Force – Mobilisation land for large agricultural medium to large agricultural investments
- Cooperative Societies – Mobilizing of farmers into cooperative society groups for greater cooperation and stronger voice and market bargaining power.

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Stakeholder participation

- Trukai Industries Limited – Rice Packing & Distribution (99.6% imported)
- Ramu Agricultural Industry Limited – Sugar Production
- Green Fresh – Market Network
- General farmers – Growing according to demand and supplying to consumers
- PNG Women in Agriculture (PNGWiA) – organising women farmers groups
- Proposed rice project – going through intense, policy, legislative and parliamentary debates.

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Innovation, policy and science being used to raise food security preparedness

1. Improving of crop and livestock species through breeding and biotechnology tools and enhancing accessibility of these materials to farming community.
2. Improving crop production through adoption of sustainable land and soil fertility management practices (Resource Use Efficiency).
3. Developing and promoting alternative food crops such as rice, grains, and pulses
4. Developing and adaptation of feeds and feeding systems based on locally available feed resources
5. Developing and adoption of appropriate technologies - mitigation of and adaptation to climate change
6. Installing and administering ICT for efficiency in information sharing

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Innovation, policy and science being used to raise food security preparedness

7. Capacity development through enhanced farmer literacy and entrepreneurial skills
8. Improving efficiency and profitability through supply and value chain and partnership development
6. Improving knowledge, skills and business acumen of women farmers and others
7. Developing and providing information and knowledge on improved technologies, farming practices, policy inputs, and sustainability to stakeholders
9. Influencing and creating enabling environment

Examples of innovative approaches overcome food security issues.

- Rice, grain and pulse research and development
- Domestication and commercialisation of Galip nut
- Multiplication and distribution of improved crop varieties (livestock)
- Breeding crop varieties with tolerance to drought, excess moisture & salinity
- Soil fertility management in the highlands
- Promoting floriculture to improve livelihood
- Village extension worker program

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Current best practices

- Research & development initiatives
- National food germplasm maintenance
- Model Rice farmer concept
- Resource centre concept
- Local substances production system supported by research, extension and advisory work.

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Issues

- National Policies lack implementable and result-oriented plans – strategic implementation plans.
- National Food Security Policies need to be more comprehensive and not just focusing on rice – to include diversification and utilization of traditional foods both cultivated and wild.
- Institutional strengthening
- Revitalisation and/developing innovative extension services
- Capacity building in identified priority areas such as postharvest technologies
- Appropriate infrastructure development – as part of strategic implementation plan.
- **Challenge/threat:** Impact of extractive industries (e.g LNG), Land Tenure system - ILG

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End

Thank you

Attachment 5.4.5. Presentation from Viet Nam



Asia-Pacific
Economic Cooperation



Government of Malaysia



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FOOD PRODUCTION AND FOOD SECURITY IN VIET NAM

Pham Quang Huy & Vu Quoc Khanh
MARD, Viet Nam

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1. Agriculture and Food Production in Viet Nam

Agriculture development

- Agriculture plays an important role in the socio-economic development of the country with strong support from the Government (70% of the work-force, annual growth rate 3.5 - 4%, contribution of 19-20% to the GDP).
- Achievements in 2011:
 - Food production: c. 47 million tons (42.3 million tons of paddy rice, 4.6 million tons of corn, 0.4 mil tons of soybean...)
 - Industrial crops: coffee bean (1.1 mil tons), rubber (0.8 mil. tons), tea (0.9 mil tons), cashew nut (0.3 mil tons) pepper (0.1 mil tons)...
 - Livestock: cattle 8.1 million heads, pigs 27 mil heads, poultry 322 mil heads
 - Fisheries: 5.4 million tons (capture 2.5 mil tons and aquaculture 2.9 mil tons)
- Food production per capita in 2011: 534 kg/head
- Export earning of agro-forestry and fisheries products in 2011: US\$ 25.1 billion (increased from US\$ 19.5 billion in 2010)

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1. Agriculture and Food Production...

Food production of some major crops

➤ Rice

- ✓ Total paddy sown area in 2011 was 7.65 million hectares (an increase of 250,000 ha as to 2008); paddy production 42.3 million tons with average yield of 5.5 tons/ha/cropping season.
- ✓ Domestic consumption: 28 million tons of paddy rice, rice export volume: 7.2 million tons of milled rice and ending stock remained 4.582 million tons.
- ✓ Projection in 2012: rice production 42.5 million tons (13.7 million tons in the North and 28.8 million tons in the South); domestic consumption 29 million tons; paddy rice surplus 13.5 million tons or 7.3 million tons of commodity rice.
- ✓ Rice export in the first 5 months of 2012: 3 million tons with value of US\$ 1.4 billion. Total export is estimated at 6.5-7.0 million MT.

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1. Agriculture and Food Production...

Food production of some major crops

➤ Corn

- ✓ The total corn area in 2011 was about 1.1 million ha. corn production gained 4.65 million tons. In 2011 Viet Nam imported 0.9 million compared of 1.3 million tons of corn import in 2009.
- ✓ In 2012 corn production is targeted at 5 million tons for the same growing area. It is expected that Viet Nam will import 1 million tons of corn for animal feed production.



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1. Agriculture and Food Production...

Food production of some major crops

➤ Soybean

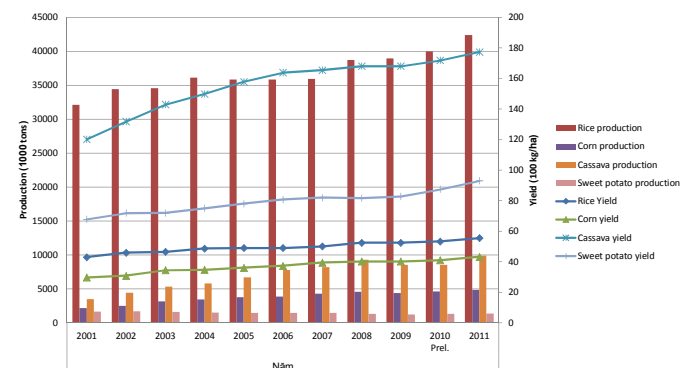
- ✓ 2011: cultivated area was 173,000 hectares, soybean production reached 254,000 tons. Imported volume was about 227,000 tons in 2010 for processing animal feed
- ✓ 2012, soybean production is expected at 350,000 tons.



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1. Agriculture and Food Production...

Production and yield of major food crops



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2. Viet Nam food security action plan

CONSUMPTION FORECAST IN 2020 TO 2030

Parameters/year	2008	2020	2030
1. Population growth (millions)	87	101,6	110,4
2. Total consumption (million tons)	29,5	35,2	37,3
3. Consumption (kg/capita)	150	110	100
4. Rice Land (million ha)	3,62	3,52	3,50

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2...

2. Viet Nam food security action plan

Challenges:

- Huge post harvest losses in wet season (200 million USD/year)
- Processing and storage system (4,0 M rice paddy storage)
- Harvest mechanization (35 %)
- Impact of climate change
- Yield gaps (1-2 tons/ha)

Goal: Ensuring sustainable food supply, meet the demand of foodstuff for domestic consumption; gradually improve meal quality of different people groups; ensure safe and balancing nutrition for a healthy life

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3. Institutional arrangements and responsibilities

The Government of Viet Nam assigns specific responsibilities to line ministries to implement the national strategy for food security: Ministry of Agriculture and Rural Development, Ministry of Natural Resources and the Environment, Ministry of Science and Technology, Ministry of Labour, Invalids and Social Affairs, Ministry of Education and Training, Ministry of Finance, Ministry of Industry and Trade, Ministry of Internal Affairs, People's Committees of provinces and cities...

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4. Stakeholder participation in food security

- Government; MARD, MOIT, Food quality inspection agencies...
- Research institutions and universities.
- Enterprises: Vinafood + provincial food companies + rice polishers + middlemen + banks
- Farmers, household stock, cooperatives, clusters.
- NGOs, mass organizations...

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5. Specific actions in innovation, policy and science being used to raise food security

Planning:

- ✓ Planning areas for food production
- ✓ Efficient use of land and water resources
- ✓ Maintaining rice production land with land use maps at household level

Infrastructure development:

- ✓ Improving irrigation systems
- ✓ Strengthening dyke systems to address sea level rise
- ✓ Building food storage facilities in rice production
- ✓ Processing food products for value addition

Science and technology:

- ✓ Selection of seeds for plants, animals and fisheries production
- ✓ Increasing research on harvest, storage and processing technologies
- ✓ Adoption of GAP and pest and disease free areas

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5. Specific actions in innovation, policy and science being used to raise food security

Capacity building:

- ✓ Training of government officers at all levels
- ✓ Training of farmers on science management and entrepreneurship
- ✓ Food security to be incorporated into the school curriculum

Support policy to farmers and food businesses:

- ✓ Making rice production to be more profitable to prevent farmers from leaving their land or converting to other uses
- ✓ Establishing value chain and supply chain system
- ✓ Social policy in support of food security: family planning, food aid to disaster affected areas...

Development of national food security database:

- ✓ Setting up early warning and response systems on natural calamities
- ✓ Improving information system and forecasting food supply in local and world markets

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5. Specific actions in innovation, policy and science being used to raise food security

Promoting regional cooperation:

- ✓ Food security is crucial issue at top agenda as important as national security and energy security
- ✓ Food security is a common interest of all nations and multilateral economic cooperation Forums, which requires a closely coordination among nations
- ✓ Increase country's food self-sufficiency, meeting 4 dimensions of food security: i) Availability; ii) Accessibility; iii) Food safety and iv) Nutritional aspects
- ✓ Public private partnership: Sharing risks, responsibility, resources and competencies

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6. Examples of innovative approaches implemented nationwide to overcome food security issues.

- Management of agriculture land (land for rice cultivation)
- Supporting to rice producers (at least 30% profits)
- Priority on investment and development of infrastructure, science and technology and industry of food processing and storage
- Encourage greater investment for agriculture modernization
- Mitigation of and adaptation to climate change impacts

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7. Current best practices that support Viet Nam food security objectives

- GoV's Decree 63-2009/ND-CP of 23/12/2009 on ensuring national food security.
- GoV's Decree 42/2012/ND-CP of 11/5/2012 on the management and use of rice land.
- MARD's Decision 2243/QD-BNN-KH approving project proposal on the development of food security database

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THANK YOU FOR YOUR ATTENTION!

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Attachment 5. 4.6. Presentation from PR of China



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Food Security in China

HE Yingbin

P. R. China

Kuala Lumpur, Malaysia, June 18th, 2012

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1. Background information on food security preparedness

- In 1995, Lester Brown highly publicized a book, Who Will Feed China?, predicted that P. R. China would turn to international grain markets to meet the expanding food demands of its increasingly population
- Nevertheless, P. R. China has been surprisingly successful at meeting the basic food needs of its population of more than 1.3 billion people

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1. Background information on food security preparedness

- Making remarkable progress in increasing agricultural production, incomes and the nutritional status of its population
- Maintaining a grain self-sufficiency rate above 95% for many years
- Supporting 22% of the world's population with only 9% of the world's arable land
- Achieving goals in poverty reduction

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2. China food security action plan (strategies, policies & management)

- Sustainable food security as a crucial element of the medium- and long-term strategic and policy framework for economic development
- Technological development in addition to improved incentives, institutional reform, rural economic development, and other policies that increase food availability are also important determinants of China's food production and availability

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2. China food security action plan (strategies, policies & management)

- Deepening rural economic and institutional reforms
- Improving incentives for farmers and local governments to invest in agriculture (particularly land)
- Increasing the rate of regeneration of renewable resources
- Providing incentives to increase the multiple cropping index

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2. China food security action plan (strategies, policies & management)

- Extending applications of scientific methods to the agricultural sector
- Adjusting rural economic structures
- Optimizing agricultural production linkages
- Strengthening anti-poverty programs
- Improving the efficiency of agriculture's capital use

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2. China food security action plan (strategies, policies & management)

- Fiscal and financial policies : Both the Five-Year Plans and China's Long Term Plan advocate increased public agricultural investment, including investments in rural infrastructure and loans and credits for agricultural production. Irrigation and water control are the top priorities of future government investment.
- Food purchasing price policy: to improve food grains purchasing prices to incentive farmers' interest in agricultural production

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2. China food security action plan (strategies, policies & management)

- Food Marketing and reserve policy: to improve the efficiency of grain marketing and reserve system
- Input price policies: The central government issued a series of new measures to control cost, especially fertilizer prices in order to hinder input price increases

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2. China food security action plan (strategies, policies & management)

- Technological development policies: highlight the importance of science and technology in raising agricultural production and ensuring food security
- Approve programs to stimulate agricultural technology development and facilitate farmer's adoption of new technologies
- The policy attempted to increase research in raising productivity by encouraging applied research institutes to realize industrialization

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2. China food security action plan (strategies, policies & management)

- Anti-poverty policy: fund was used to reduce poverty by initiating the government's support projects
- Rural enterprise development policy: policy plays an important role in setting up and encouraging township and village enterprises development as well as increasing farmers' incomes, promoting rural urbanization and market development, and stimulating structural changes in the rural economy

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3. Institutional arrangements and responsibilities

- In summary, institutional arrangements and responsibilities are to foster a good environment to encourage food production and to encourage food security .
- Financial support is necessary

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4. Stakeholder participation in food security (private sectors, NGOs, etc.)

- To guide and encourage the agro-enterprises, rural specialized cooperative economic organizations to be involved in promoting agricultural technology innovation and providing actively technology services for farmers.
- To increase farmers' income through the promotion of large-scale agribusiness and the intensive and efficient uses of agricultural land

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4. Stakeholder participation in food security (private sectors, NGOs, etc.)

- Integrate interdisciplinary and international cooperation: (e.g. CAAS and CAS) collaborate with international and regional institutions with greater resource bases and skills to take advantage of technological advances, develop comparative advantages, consolidate efforts and optimize resource use
- Link with civil society, urban populations and private sectors :Involving both producers and consumers and fostering dialogue and linkages between them, will contribute to raising awareness on the relationships between producers' livelihood security and food availability.

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5. Specific actions in innovation, policy and science

- To improve government's finance support for agricultural science and technology, and to increase investments to enhance agricultural productivity and technical education
- To strengthen anti-poverty programs by raising poverty alleviation funds
- To emphasize economic as well as infrastructure development

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6. Examples of innovative approaches implemented nationwide to overcome food security issues.

- Policy for protecting cultivated land
- Governor Grain Responsibility system
- Mayor Vegetable Basket Responsibility system
- Basic self-sufficiency policy of food
- Development of commercial bases for food production
- Expansion of state reserve capacity

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7. Current best practices that support national food security objectives.

- To highlight significance of Agriculture as Basic Sector
- To further implement multi-channels cooperation concerned agriculture and food
- To scientifically guide agricultural industry development
- To implement more cooperation on the effect of climate change on agriculture

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7. Current best practices that support national food security objectives.

- China is generally capable of ensuring its food security
- China makes a great contribution to the world in related aspect
- China's is willing to implement cooperation with other economies in APEC for improving capabilities of ensuring food security

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Thank you!

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Attachment 5.4.7. Presentation from Thailand

Food Security in Thailand

Topics

Section 1

Evaluation of the situation about food security

Section 2

Analyzes the strengths, weaknesses, opportunities and threats (SWOT Analysis)

Section 3

Strategies of food security by MOAC (2013-2016)

Section 1

Evaluation of the
situation
about food security

1. The resources and
agricultural infrastructure

1. Soil

1.1 Degradation of soil

Soil is the most important factor for agricultural production and food. In the past 10 years, soil resources have been used improperly and that use tend to increase continuously. The data from Land Development Department in 2010 showed that the areas faced with the problem about soil are about 174.93 million hectares which account for 30 percent of the total soil areas in Thailand.

1.2 Utilization of lands and agricultural areas

In the past 23 years (1987-2009), paddies were decreased from 72 million hectares to 66 million hectares in 2009 or decreased in the rate of 1 percent per year. Similarly, field crop areas were decreased from 33 million hectares to 27 million hectares, which contrast to energy crop areas. In the past 5 years (2006-2010), cassava areas (6.93-7.67 million hectares) were increased in the rate of 3.26 percent; sugar cane areas (6.02-6.59 million hectares) were increased in the rate of 6.58 percent; and oil palm areas (2.95-4.20 million hectares) were increased in the rate of 9.44 percent. Moreover, rubber trees (14.35-17.32 million hectares) were increased in the rate of 5.05 percent. The decreasing of paddy areas while highly increasing energy crop areas and rubber tree areas may lead to some problems about food security in the future.

1.3 Taking over of the agricultural areas

Number of agricultural households (farm) increased from 5 million households in 1988 to 5.8 million households in 2009 while taking over agricultural areas did not change at all, causing the reduction of farm size from 4.16 acres per household in 1988 to 3.52 acres per household in 2009.

1.4 Problems of the structural areas and authority of resources

In 2009, we found that 58% of agricultural households did not have their own agricultural area. This shows the limitation of accessing the agricultural resources, including secure food.

2. Water.

2.1 Rain.

From 2001 to 2010, Thailand had average amount of rain 1,603 millimeter per year and amount of rainfall 130 days per year. In each year, the amount of rain and rainfall slightly increasing about 0.68% and 0.25% per year, respectively.

2.2 Irrigation.

Large and medium irrigation projects, which has the amount of reserved water, increased from 72,645 million cubic meters in 2006 to 74,447 million cubic meter in 2011 while small irrigation project increased from 1,673 million cubic meters in 2009 to 1,752 million cubic meters in 2012. Completed areas of irrigation increased from 27.99 million hectares to 29.32 million hectares in the same period of time.

The most important problem is water management, which usually happen due to the climate change.

2. Situation of production factors

2.1 Biodiversity genetics of plants/animals

Thailand has high biodiversity. Now biodiversity is decreased because of damaged forest areas and degradation of coastal ecosystem, building of water retention and public utilities and modern agricultural systems of planting for feeding particular.

2.2 Utilization of fertilizer and agricultural chemicals

From 2006 to 2009 the quantity of imported fertilizer was increased from 3.5 million ton (33,554 million baht) to 3.8 million ton (42,413 million baht) where as agricultural chemicals increased from 0.10 million ton (12,927 million baht) to 0.12 million ton (17,956 million baht) in 2010.

2.3 Agricultural labor

Farmers and agricultural labor tend to be decreased. The data from the Office of National and Social Development board showed that the amount of farmers is 35.85 million people or 39.14% of the total population in 2009.

3. The climate changes affecting the security

3.1 Climate changes

The temperature in Thailand tends to increase about 1.2°C while the quantity of rain fall tends to decrease.

Section 2

Analysis of the strengths, weaknesses, opportunities and threats (SWOT Analysis)

1. Strengths

- (1) The sufficient production of food crops, livestock and fisheries for domestic consumption
- (2) The promotion of the new agriculture theory in the community and the use of local knowledge in food production
- (3) The strong regional cooperation in tackling food security.
- (4) The promotion of exporting agricultural products
- (5) The research by the Ministry of Agriculture and promotion of the awareness among farmers for sustainable food production

2. Weaknesses

- (1) Many farmers lack of understanding of right farming and knowledge of resource administration.
- (2) Plant diversity has been reduced due to the needs of industry.
- (3) Many farmers do not own an actual production factor, especially the crop field which is reduced due to the the increase of population.
- (4) Many farmers cannot get access to market information and also lack of a strong cooperation among farmers.

2. Weaknesses

- (5) Most agricultural areas outside the irrigation area have high cost of transportation and delay in transportation reducing the output quality.
- (6) The inequality in educational and job opportunity results in the lack of consumer awareness and consumption of nutritious food.
- (7) The lack of food security in some groups of population due to the limitation of food.

3. Opportunities

- (1) Food and energy crisis of the world, economic expansion, population increase and global warming are the cause of increased demand for agricultural products for food and agricultural products for energy. This situation results in the limited export policy in many countries except Thailand.
- (2) Government policy gives high priority to development in the food system. This results in the awareness of society in restoring a traditional way of life and agriculture. Furthermore, free trade area establish can increase the opportunity of agricultural product and food export.
- (3) Encouragement of private sector investment in agriculture is the way to improve the production potential of Thailand.
- (4) Technology development and innovation are the opportunity to increase production efficiency of food chain in Thailand.

4. Threats

- (1) The growth of the industry results in the migration of labor from agricultural sector.
- (2) The exact demand for energy crops cannot be determined.
- (3) Changes in climate, the emergence and spread of plant diseases damage agricultural production in the broaden aspect.
- (4) The issue of food insecurity and trade protection make many countries strict on non-tariff measures (NTMs) on imports of agricultural products.
- (5) The economic growth in preserving native species results in the narrow genetic improvement of plants. The following problem is plant will have less durability and adaptability to the environment, disease and insects.

Section 3

Strategies of food security by MOAC (2013-2016)

1. Vision

All Thai people have good quality food for sufficient and sustainable consumption.

2. Purpose

- (1) To provide sufficient quality food for consumers by domestic production or import
- (2) To make the population get access to high quality and nutritious food
- (3) To take advantage from food by consuming enough and healthy food.
- (4) To make all people get access to adequate food at all time with no risk in the unexpected events of food

3. Goals

- (1) To produce enough amount of good quality and safe food for domestic consumption
- (2) To make people have enough food in the household and community, including the emergency case
- (3) To have the resources for sustainable production
- (4) To make the farmers have secure welfare and income

Strategic issues, including the four strategies.

- (1) To produce enough food for sustainable domestic consumption
- (2) To encourage all people to get access to adequate food at all times
- (3) To promote food quality production, reduce losses and utilize properly
- (4) To stabilize food production sustainably

Strategy 1 To produce enough food for sustainable domestic consumption

Principle Having enough food (Foodavailability)

Objective In order to have food in sufficient quantity and appropriate quality either from domestic production or import

Strategy 2 To encourage all people to get access to adequate food at all times

Objective

In order to let population get access to adequate resources and have the right to obtain nutritional food

Goal

To make people have enough food in the household and community, including the emergency case

Strategy 3 To promote food quality production, reduce losses and utilize properly

Principle
Utilization of food (Utilization)

Objective
In order to utilize the food consumption for people. To make people have sufficient amount of food, pure water and good health.

Goal
To produce enough amount of good quality and safe food for domestic consumption.

Strategy 4 To stabilize food production sustainably

Principle

Stability of food (Stability)

Objective

In order to make people get access to sufficient food at all time with no risk to the food access when the shortage is unexpectedly occurred or events that occur as a cycle (such as instability in season)

Goal

To make the farmers have secure welfare and income

Attachment 5.4.8. Presentation from Philippines



Asia-Pacific
Economic Cooperation



Government of Malaysia



INCORPORATED
KEMENTERIAN PERTANIAN
DAN INDUSTRI ASAS TANI

Securing the Food Requirements of the Nation

(Philippine Experience)

Joel S. Rudinas
Arnel A. Apaga

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Background

1.1 Food imports ballooned from 500,000 mt to 1.8 Million metric tons in 2008 and to 2.4 Million metric tons in 2010;

1.2 An average of 21 typhoons visit the country every year;

1.2 Philippines among the top 10 most vulnerable countries to climate change;

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2. National food security action plan

2.1 Policy of the State to secure the food requirement of the nation;

2.2 Increase productivity and income of farmers and fisherfolks;

2.3 Improve resilience of the sector to climate change;

2.4 Improve governance.

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3. Institutional arrangements and responsibilities.

3.1 The Department of Agriculture is the responsible agency to ensure food security of the country (RA 8435);

3.2 Under the DA, the National Food Authority ensures that appropriate buffer stocks are maintained by the country. It performs the function of securing the Governments share in the whole buffer stocking system;

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4. Stakeholder participation in food security (private sectors, NGOs, etc.)

- 4.1 Lately, the private sector and farmers groups had been allowed to import the requirements of the country;
- 4.2 Non Government Organizations had been engaged by the state to participate and deliver services in the field of research, extension, post-harvest, marketing and policy formulation;

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5. What are the specific actions in innovation, policy and science being used to raise food security preparedness?

- 5.1 Controlled irrigation;
- 5.2 Locally-specific technology development and dissemination;
- 5.3 Reducing government intervention in retail prices;
- 5.4 Directing public investments in public goods and key infrastructures;
- 5.5 Expanding investments in resource regeneration, conservation and management;
- 5.6 Convergence with other programs (DSWD, DPWH, DENR)

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6. Examples of innovative approaches implemented nationwide to overcome food security issues.

- 6.1 Expansion of production areas supported with irrigation;
- 6.2 Adoption of efficient water use in supporting crop growth;
- 6.3 Early planting/harvesting;
- 6.4 Expand planting during the dry season;
- 6.3 Technology dissemination (seed buffer, etc.)
- 6.4 Expanding investments on post-harvest and farm mechanization;
- 6.5 Managing demand for food (alternative staples, reducing food wastes);

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7. Current best practices that support national food security objectives.

- 7.1 Conduct of vulnerability assessment of production areas and communities;
- 7.2 Development of alternative staples;
- 7.3 Organizing the landless rural workers to perform farm activities and equipping them with the means to employ modern methods;
- 7.4 Adoption of Organic Agriculture;
- 7.5 Campaign for increased consumption of other food staples;
- 7.6 Campaign for reduced wastage, brown rice, etc;

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7. Current best practices that support national food security objectives.

- 7.7 Adjusted government policy on release price of government stocks;
- 7.8 Modernizing mills to increase milling recovery rates;
- 7.9 Restoration of mangrove hares through the integrated community based multi-species hatchery and aqisilvi farming;
- 7.8 Expand closed season coverage to more locations;
- 7.9 Utilization of remote sensing in monitoring and developing area rice yield based insurance products;

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Maraming Salamat

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Attachment 5.5.1. Presentation from WG-1

COMMONALITIES, DIFFERENCE & INNOVATION STRATEGIES IN STRENGTHENING APEC FOOD SECURITY ACTION PLAN

GROUP 1

1. Prof Kaman Nainggolan
2. Mr Mokhtarud Din Husain
3. Prof Dr. Rita bt Muhammad Awang
4. Ms Karmawaty Abu Bakar
5. Mr. Nik Mohd Haizul b. Nik Supian
6. Mr. Mohamad Nazrul Fahmi
7. Mr. Hj Muhammad Amin Chik b Ikas
8. Ms Ratna Kusuma Dewi
9. Ms Nur Diyana Datuk Yusoff
10. Mr. Ramir M Apaga
11. Mr. Sombat Tongtao
12. Mr Vu Quoc Khanh

FACT FINDING PROBLEMS

A. ACCESS TO RESOURCES

1. Land expansion
2. Rural Infrastructure
 - Irrigation
 - Rural Road
 - Clean Water
3. Credit with affordable interest rate
4. Inputs: seeds, fertilizers
5. Technology – Policies on Biotechnology
6. Post harvest facilities to increase added value and to minimize loss
7. Market access: Bulog, BERNAS, NFA

FACT FINDING PROBLEMS

- B. Diet Diversification
- C. Capacity Building
- D. Adaptation & Mitigation to Climate Change
- E. Crop Problem
- F. Stakeholders involvement

COMMONALITIES

LAND EXPANSION

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Land expansion	- Agri food park programs - Law and regulation controlling land conversion	Law to protect Agri Land		- Protect paddy land – target 3.8 million ha for paddy - Govt regulation	Utilize unused land: upland, low land & marsh land – identify suitable variety + inputs subsidy	Land renting by the government

COMMONALITIES

RURAL INFRASTRUCTURE

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Irrigation	Irrigation intensity in main granary lower in other granaries	Damage in the irrigation system	OK	OK		Import facilities for irrigation
Rural Road	OK	Problem	OK	Problem	Problem	OK
Clean water	OK	Problem	OK	Problem	Problem	OK

COMMONALITIES

CREDIT FOR FARMERS

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Credit	Loan with low interest rate	Loan with low interest rate	Loan with low interest rate		Policy for credit access to Bank	

INPUT

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Input	Subsidized input					

COMMONALITIES

TECHNOLOGY

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Biotechnology	Not much developed except China					
Breeding	Declining breeders					

POST HARVEST FACILITIES

	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Post harvest Facilities	Not much develop in the rural area except in Taiwan					

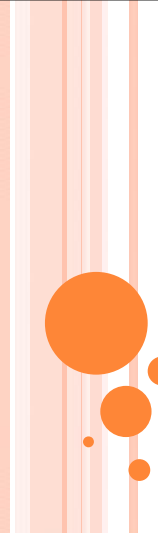
COMMONALITIES						
FOOD ACCESS						
	MALAYSIA	INDONESIA	THAILAND	VIETNAM	PHILIPPINES	BRUNAI
Food access	• Price ceiling for certain quality grade	15kg/hh/month		100kg/capita/year for the poor	Coupon	

COMMONALITIES	
<u>CAPACITY BUILDING</u>	▪ Researcher ▪ Extension worker ▪ Farmers or community in the rural area
<u>ADAPTATION & MITIGATION TO CLIMATE CHANGE</u>	• Low
<u>CROP PROTECTION</u>	• Low Effectiveness
<u>STAKEHOLDERS INVOLVEMENT</u>	• Government Driven

PROPOSED FRAMEWORK TO BE ADOPTED AS PLAN OF ACTION OF FOOD SECURITY IN APEC	
	Village food self resilience
	1 village 1 product (OTOP)
	Small land lord, large tenants
	Post harvest in rural areas
	AFERM :APEC food emergency respond mechanism-Chinese taipeh
	Major vegetable basket responsibility/governour grain responsibility system
	Counterpart scheme for post harvest programm: 85 (government) : 15 (farm organization)

PROPOSED FRAMEWORK TO BE ADOPTED AS PLAN OF ACTION OF FOOD SECURITY IN APEC	
	<u>DIET DIVERSIFICATION</u> – TO ENHANCE PROMOTION ON BALANCE DIET
	Secretariat APEC ↓ UN, FAO, WHO

Attachment 5.5.2. Presentation from WG-2



**COMMONALITIES, DIFFERENCE &
INNOVATION STRATEGIES IN
STRENGTHENING APEC FOOD
SECURITY ACTION PLAN**
Moderators : Prof. Dr, Ching-Cheng Chang
GROUP 2

COMMON ISSUES

- Natural Calamities
 - Food Diversification
 - Self Sufficiency of Food
 - Land Availability for Agriculture
- 

COMMON ISSUES

- Human Resource shortage and interest
 - Financing, promoting investment the private sector
 - Developing rural communities
 - Cost of production increase
- 

STRATEGIES

- National food reserve - e.g :stock pile for 5 month
- Exchange for stock pile between APEC economies during disaster
 - Promotion of alternative staple food for rice e.g
cassava, sweet potato, yam, bread fruit, sago, corn
- 

STRATEGIES

- Improve post harvest handling and distribution to improve accessibility and SSL
- Improve technology and productivity thru R&D

INNOVATION STRATEGIES

- Green village Programme
- Multilevel Food Stock pile system
- Exchanging of stockpile during emergency
- Emergency relief fund for natural disaster

STRATEGIES

- Promote high tech farming to improve productivity per unit area
- Capacity building
- Mechanization and Automation
- Incentives to promote private sector involvement
- Creation of job opportunities in rural areas through Agroturism & Agrobased industries and infrastructure

POLICIES

- Retain agriculture land for food production
- Encourage modernization technologies to attract young farmers
- Sharing of technology and R&D finding among APEC economies
- Govertment Incentives to encourage private sector involvement in agriculture

POLICIES

- Preserving plant germplasm among APEC economies

LESSON LEARNED

- Natural calamities – how to overcome/recover
- Energy price induce cost of agriculture inputs
- No food for fuel

PROPOSAL FOR : REGIONAL COOPERATION TO ADDRESS FOOD SECURITY

- Regional collaboration in R&D e.g IRRI, AVRDC, CGIAR
emphasis on staple food for each country
- Regional nutrition educational program to
promote food diversification and balanced diet

THANK YOU

Attachment 5.6.1. Post-harvest Technologies for Horticultural Products



POSTHARVEST TECHNOLOGIES AND INNOVATIONS FOR HORTICULTURAL PRODUCE

M.N. Latifah and M. Pauziah



Malaysian Agricultural Research and
Development Institute (MARDI),

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Contents of Presentation

- Postharvest & innovation
- Importance of postharvest to food security
 - R&D activities & achievements
 - Way forward
 - Conclusion

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Postharvest

Movements of
fresh produce
right from
harvesting until
it reaches the
consumers' tables.



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Handling steps



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Innovation in postharvest

Adding values,
reducing losses,
increase shelf life,
ensure safety, add
convenience and
enhancing market
access.



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STRATEGIC APPROACH

- Increase production, improve marketing and technology development
- Intensify the use of existing as well as prospecting and developing new technologies
- Develop postharvest handling technologies to cater both domestic and export markets

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POSTHARVEST R&D RELATED INSTITUTIONS

- Malaysian Agricultural Research and Development Institute (MARDI)
- Malaysian Nuclear Agency (ANM)
- Universiti Putra Malaysia (UPM)
- Universiti Kebangsaan Malaysia (UKM)
- Universiti Malaya (UM)
- Universiti Sains Malaysia (USM)
- Other institutions

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Postharvest R&D



To develop packaged handling technologies for horticultural produce for both domestic and export markets

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Postharvest R&D Areas

*Quality

- Maturity indices & harvesting
- Extension of storage life (Low Temperature and CA/MA)
- Minimal processing
- Pests & diseases
- Postharvest treatments

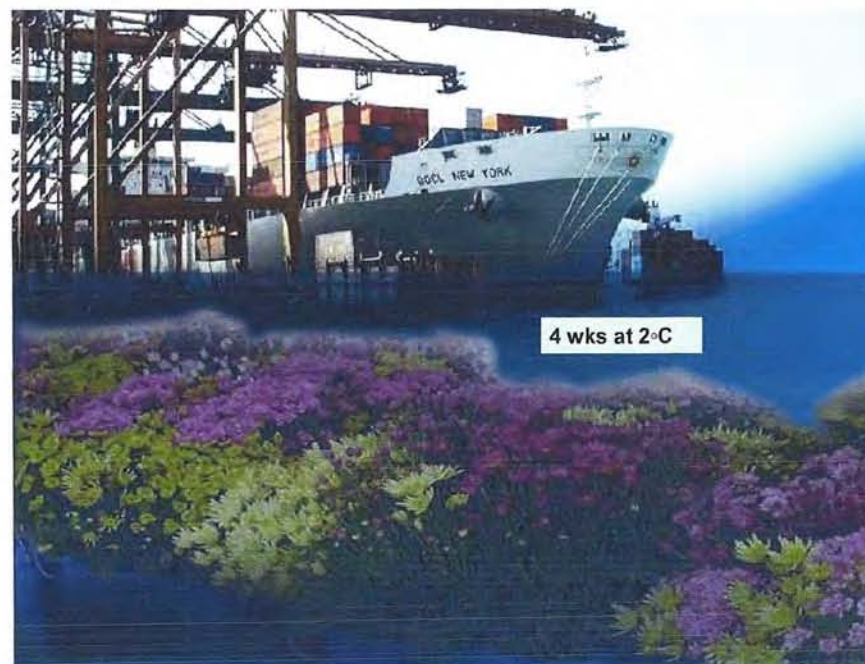
- Suitable packinghouse operations
- Handling & transportation
- Insect disinfestation and quarantine protocol
- Improvement of postharvest traits through breeding & agronomic practices

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Achievements:

**Chrysanthemum flowers for export
by sea shipment**

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Obon – July, August

Ohigan - March, Sept

New Year- Dec, Jan

Christmas - Dec



**Packing
'summer & winter'**

Improve handling operations



Brochure



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Achievements : Fruits

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Storage condition (fruits)

Fruits	Temp (°C)	RH (%)	Period
Carambola	5	85-90	5-9 wks
Papaya	10-13	85-90	2-4 wks
Ciku	13	85-90	1-3 wks
Durian	10	85-90	1-3 wks
Guava	5	85-90	3-7 wks
Pummelo	7-9	85-90	12 wks
Mango	15	85-90	2-3 wks
Banana	14	85-90	2-3 wks
Rambutan	10	90-95	1-2 wks
Watermelon	10	85-90	2-4 wks

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Handling operations for local & export markets



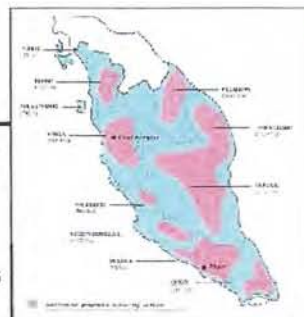
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Rambutan

- Presently grown in many ASEAN regions
- Popular variety: R162
- Malaysia – Growing areas
26,000 ha (2005)
35,000 ha (2015)
- 2011 - export value
RM 7million.

Trading: *Singapore*

» *Europe & Middle East*



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Problems : ⇒

Rapid skin browning-makes the
fruits unattractive, although the
arils remains edible



⇒ Short storage life 2-3 days at ambient



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Effective bulk packing system



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PENGENDALIAN RAMBUTAN UNTUK PASARAN EKSPORT (HANDLING OF RAMBUTAN FOR EXPORT)



» Air shipment:
(2002/2006/2011)
London & Netherlands

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CA/MA

Studies conducted

- MA on papaya, carambola,
pineapple, sapota and bananas



- Modelling and precise modified
atmosphere packaging technique

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Modified atmosphere

Enclosing fruits in sealed LDPE bags

Permeation rate: $CO_2 > O_2 > N_2$

Optimum levels:

O_2 2-5%

CO_2 5-10%

C_2H_4 <0.35 ppm

Combined with refrigeration and
ethylene absorbent for longer period

Effective for bananas cvs Mas,
Berangan, Cavendish

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Modified atmosphere



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Postharvest treatments

- Suitable wrapping materials
- Surface coating
- Temperature conditioning
- 1-methylcyclopropene (1-MCP)

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Storage life of guava is doubled by shrink-wrapping



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1-MCP on carambola



- Reduction in browning of edges
- Maintenance of colour and texture
- Effective for advanced maturity

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Pre-conditioning Pineapple



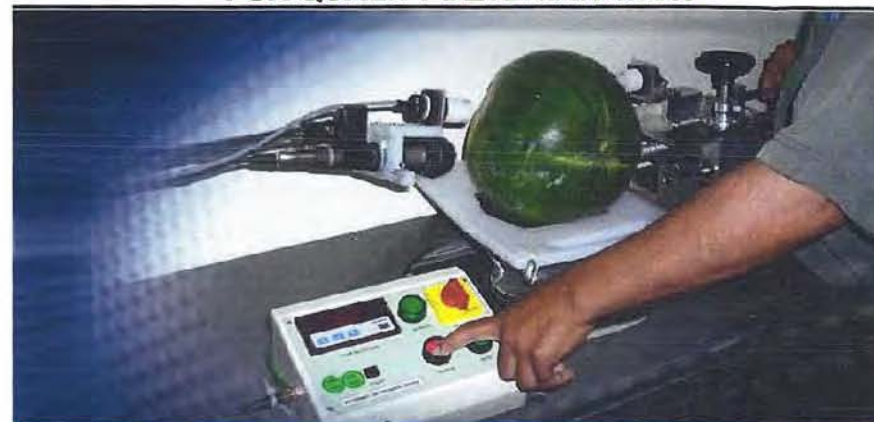
- N36 pineapples, the storage life can be prolonged from 5 weeks at 10°C to 8 weeks at 5°C with no symptom of chilling injury.
- Josapine pineapples, the storage life can be prolonged from 3 weeks at 10 °C to 5 weeks at 5°C
- MD2 -Temperature manipulation can prolong storage life of MD2 pineapple from 3 weeks at 10°C to 6 weeks at 5°C with less symptom of chilling injury and high in ascorbic acid content



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Achievements (cont.)

NON-DESTRUCTIVE TECHNIQUE (NDT) FOR QUALITY DETERMINATION



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Current and future NDT work



Fruit	Quality Parameter
Sapota	Maturity stage
Watermelon	TSS, maturity stage, hollowness, cracking
Mangosteen	Gummosis
Mango	Internal disorder
Pineapple	TSS, maturity stage, blackheart

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Storage condition (vegetables)

Vegetable	Temp (°C)	RH (%)	Period
Asparagus	0-2	95-100	2-8 wks
Mushroom	0	95	3-4 days
Chilli	5	90-95	8 wks
Ginger	13	65	6 mths
Long bean	4-7	95	7-10 days
Okra	7-10	95-100	3-4 days
Cauliflower	0	95-98	3-4 wks
Chinese cabbage	0	95-100	2-3 mths
Pumpkin	10-13	90-95	5-10 mths
Tomato	8-10	90-95	1-3 wks

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Quality and safety



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Storage of Herbs (Fresh & Dried)



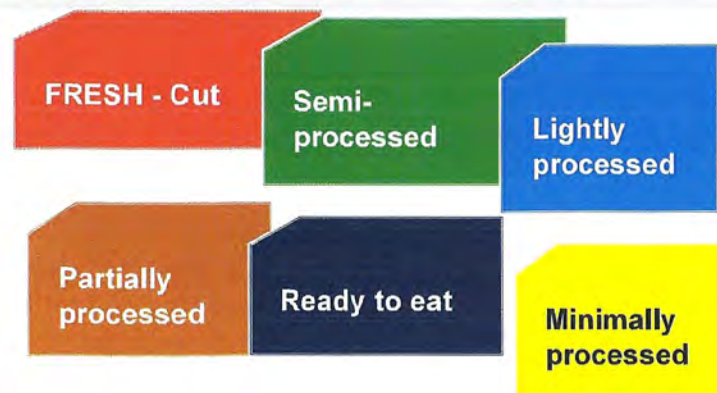
Can be stored for 2 wks at 10°C
*Chilling injury at 5°C has no
affect on antioxidant activity

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MINIMAL PROCESSING

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Minimal Processing



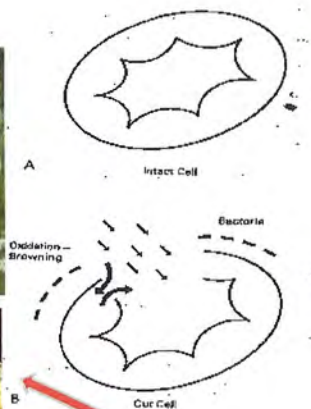
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Minimally processed fruits



- Ready to eat products
- Given minimal processing treatments
- Have the attributes of convenience
- Fresh-like quality (aroma, flavour and nutrients are retained)

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The protective layers has been removed. Thus creates the opportunity for the contamination and spoilage by pathogenic organism.

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More perishable than the intact produce-been subjected to physical stress such as peeling, cutting, slicing, etc
Tissues are still living
The preparation entails physical wounding- ↑↑
respiration, ethylene production and biochemical changes –
Causes: cellular decompartmentalization /delocalization of enzymes & substrates –leads to browning, off-flavour & texture breakdown

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Popular Malaysian Fresh-Cut Fruits:

Rambutan



Durian



Mango



Pineapple



Jackfruits



Sapota



POPULAR FRESH-CUT PROCESSING

1. Huge size
2. High price particularly early in the season
3. Difficulties in cutting
4. Risk in obtaining poor quality pulp
5. Weight reduction for transportation and avoiding plant quarantine
6. Overcome waste disposable problems at the importer ends.

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Big fruit- 5-30kg



Gummy latex with thick cuticle layers



Difficult to cut-thick skin



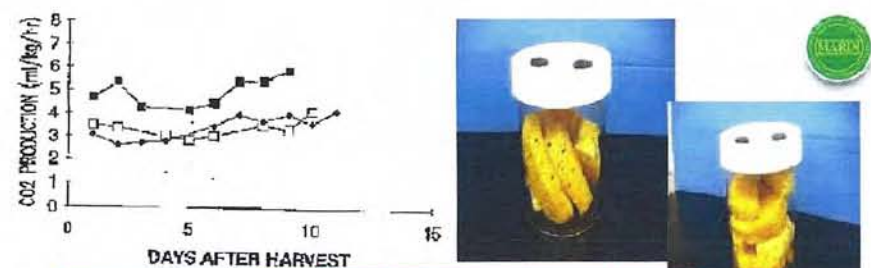
50-60% -inedible portion (waste)



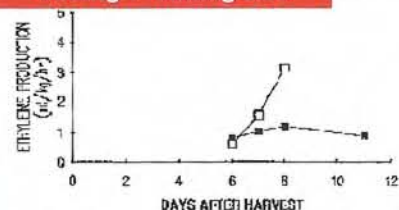
MINIMAL PROCESSING



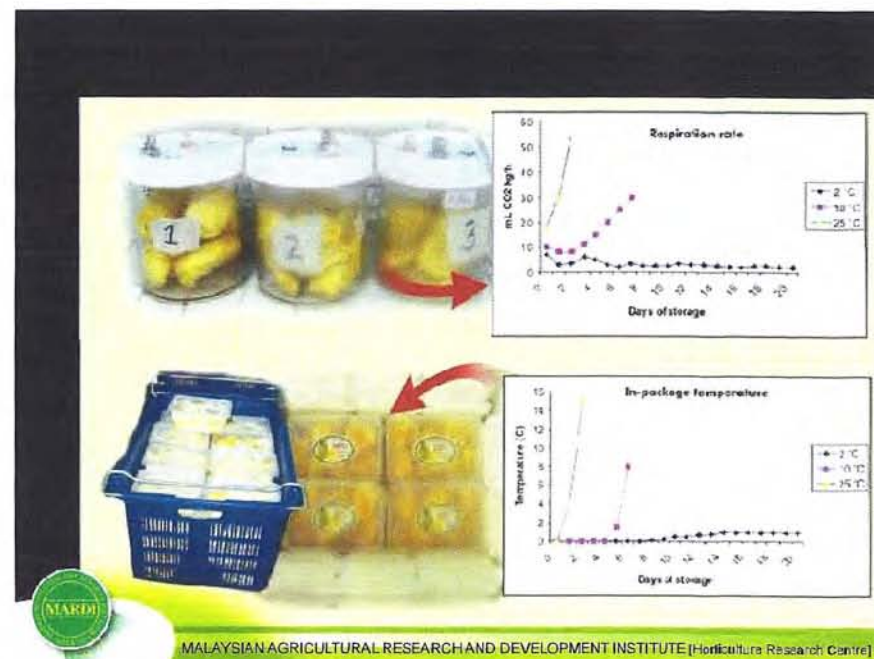
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Rate of respiration ↑ after cutting
↑ cutting size



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Air shipments:

- *Netherlands (2006)-jackfruit & pineapple
- *Dubai (2010)-jackfruit
- *Perth (2011) –pineapple

Sea shipment:

- *Hong Kong (2008)-durian

Cold truck – road transportation :

- Singapore (2009)- pineapple, jackfruit & durian

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Actively marketing :



- Domestic markets (retail shops, supermarkets, hypermarkets)
- Regional markets (Singapore)
- Distant markets (Hong Kong, Dubai, Europe)

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Packaging



cater - domestic & export markets

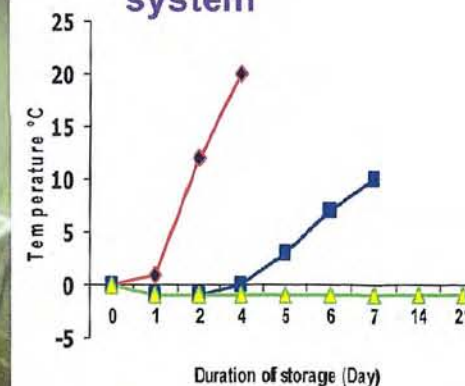
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Friendly retail packaging system



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Bulk Packing system



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Mechanization inputs



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Consumers studies – Singapore



Singapore export trial after day 10

Product	TVC (cfu/cm ²)	Total Coliform (cfu/cm ²)	TYM (cfu/cm ²)
Pineapple	<2.5 x 10 ²	<2.5 x 10 ²	<2.5 x 10 ²
Jackfruit	2.0 x 10 ²	2	<2.5 x 10 ²
Durian	3.4 x 10	2	2.8 x 10



TSS

3/07/09 D 10	Giant Hypermarket	7 °C	Jackfruit	3	30.2
			Pineapple	3	16.2
	Shop & Save Supermarket	2 °C	Jackfruit	4	29.6
			Pineapple	3	16.6
			Durian	4	-
4/07/09 D 11	Giant Hypermarket	7 °C	Jackfruit	3	30.6
			Pineapple	3	15.4
	Shop & Save Supermarket	2 °C	Jackfruit	4	30.4
			Pineapple	3	15.8
			Durian	4	-



Average score for quality
evaluation of fresh-cut fruits –
export trial to Singapore
*5- very good



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**Mechanized cutter
– ready to cook sweetcorn**

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Fresh Cut Vegetables Technologies in MARDI

In MARDI Serdang, Malaysia, fresh cut technologies for vegetables such as long bean, cabbage, cili, cucumber, garlic, onion and mushroom has been ready for commercialized in retail and bulk packaging



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HANDLING TRIALS

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Trial Shipments

Produce	Destination
Banana	Hong Kong, Japan,UAE,Denmark
Papaya	Hong Kong Saudi Arabia, UAE
Pineapple	Saudi Arabia, United Kingdom, Germany
Starfruit	Hong Kong , Belgium
Melon	Hong Kong
Ginger	United Kingdom

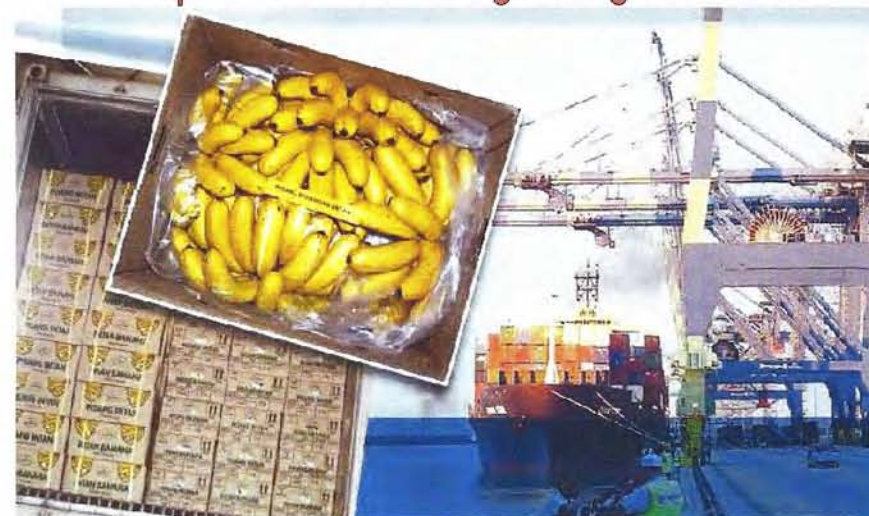


Packinghouse operations

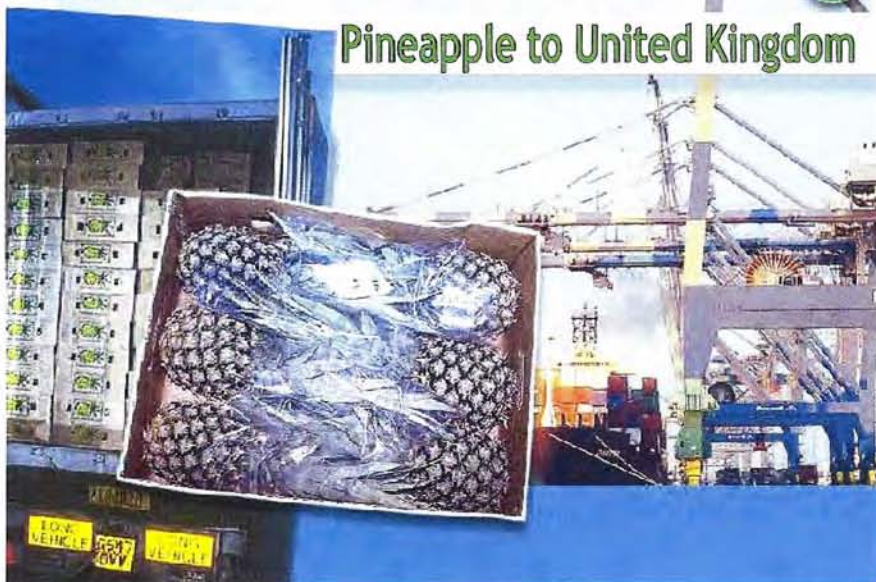


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Shipment trial of Pisang Berangan to UAE



Pineapple to United Kingdom

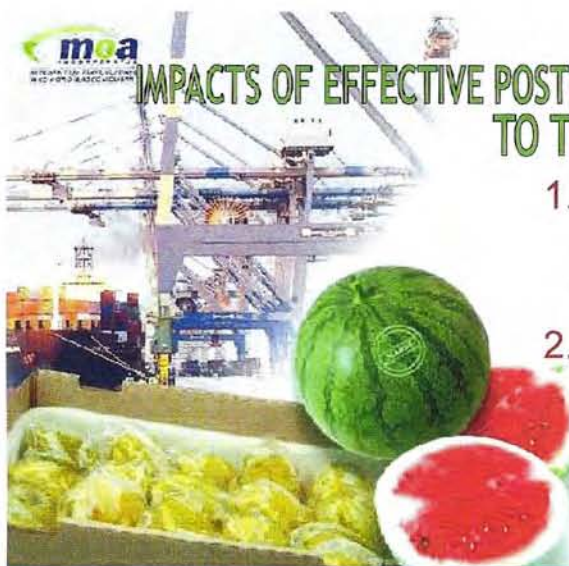


Mixed loading



- Used when not enough quantity of single commodity
- Emphasis on produce compatibility
- A mixed-load trial was conducted to Dubai

IMPACTS OF EFFECTIVE POSTHARVEST TO THE INDUSTRY



1. Improved product quality for consumers
2. Market expansion
3. Increased production

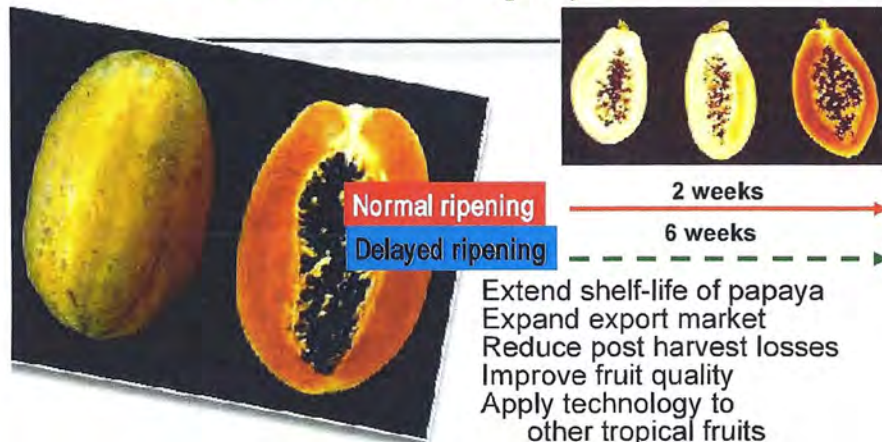
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QUALITY IMPROVEMENT THROUGH GENETIC ENGINEERING

WAY
FORWARD

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Eksotika II Papaya



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QUALITY IMPROVEMENT THROUGH AGRONOMIC PRACTICES

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Cilibangi



- Developed by UKM
- Synchronized ripening
- Potential use of mechanical harvester

Source: Ahmed Maher (2007)

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Related to low calcium level in the fruit and leaf
Recommended to plant Harumanis mango on calcareous soil
Can also be minimized by integrated approach including maintaining soil pH at 6.5, frequent irrigation and calcium spray at early stage of fruit development, late pruning and early harvesting

**Insidious
fruit rot
(IFR)**

in Harumanis mango

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Active Packaging

Indicator

Time Temperature
indicator



Freshness
indicator



Oxygen
indicator



Humidity
indicator



Shock indicator
Vibration indicator



pH indicator



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Improved product quality for consumers

- QA system as a management tool to support operation, preparation and maintenance of produce need to be developed

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Market expansion

- Increased demand from both domestic and export markets, increased opportunity for market expansion



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Increased production

- Increased demand for fresh fruits and vegetables, encouraged more production
- Attract interests from private sector and government agencies



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Production of Fruits & Vegetables (‘000 Metric Tons)

	2000	2005	2010
Fruits	1,259	1,199	3,662
Vegetables	404	771	1,133

Source: Ministry of Agriculture, Malaysia

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Collaboration
& partnership



maximize the
use of
resources

Conclusion

- Postharvest handling technology has played an important role in the development of Malaysian horticultural industry in the past, present and future.
- Further development of relevant components of postharvest handling technology for the future is needed.
- It is important to enhance cooperation and coordinate efforts among researchers and users of technology at national and regional level in order to maximize the use of resources and to ensure that whatever technology developed or generated would be beneficial to all the parties involved including growers, traders and consumers.

FIRST ANNOUNCEMENT

7th INTERNATIONAL POSTHARVEST SYMPOSIUM 2012 (IPS 2012)

Putra World Trade Centre (PWTC)
Kuala Lumpur, Malaysia
25 - 29 June 2012

Jointly organised by:



In co-operation with:



Supported by:



APEC



Main Topics

Pre-harvest Effects on Postharvest

- Breeding for specific postharvest traits
- Maturation, maturity indices and harvesting
- Cultural practices
- Pre-harvest treatments

Postharvest Physiology

- Physiological and molecular mechanisms of ripening and senescence
- Genetic control of fruit, vegetables and ornamentals quality
- Antioxidants, bioactive compounds and health promoting substances
- Physiological disorders
- Omics

Postharvest Technology

- Low temperature storage
- CA and MA technology
- Physical and chemical treatments
- * Minimal processing
- Ripening regulation
- Novel technology
- Engineering and mechanisation

Postharvest Pathology and Entomology

- Physiological and molecular aspects of plant/ microbe interactions
- Pests and diseases management
- Biological control
- Quarantine

Quality, Safety and Security

- Quality management
- Food safety and security
- Standard and regulation

Handling, Packaging and Shipping Technology

- Cold chain
- Packaging
- Storage, transportation and logistics

Consumers and Marketing

- Market accessibility
- Consumers preference
- Sensory quality
- Branding and product differentiation



Attachment 5.6.2. Presentation from WG-1

POSTHARVEST TECHNOLOGIES AND INNOVATIONS FOR HORTICULTURAL PRODUCE

GROUP 1

1. MS LATIFAH MOHD NOR
2. PROF KAMAN NAINGGOLAN
3. MR MOKHTARUD DIN HUSAIN
4. PROF DR. RITA BT MUHAMMAD AWANG
5. MS KARMAWATY ABU BAKAR
6. MR. NIK MOHD HAIZUL B. NIK SUPIAN
7. MR. MOHAMAD NAZRUL FAHMI
8. MR. HJ MUHAMMAD AMIN CHIK B IKAS
9. MS RATNA KUSUMA DEWI
10. MS NUR DIYANA DATUK YUSOFF
11. MR. RAMIR M APAGA
12. MR. SOMBAT TONGTAO
13. MR VU QUOC KHANH

THE SIGNIFICANCE POST HARVEST LOSSES TO FOOD SECURITY IN DEVELOPING ECONOMIES

Key Factor
contributing to
Postharvest losses:-

Why?



COMMON ISSUES

Good handling
Practices in Postharvest

Good quality to
fulfill market
demand

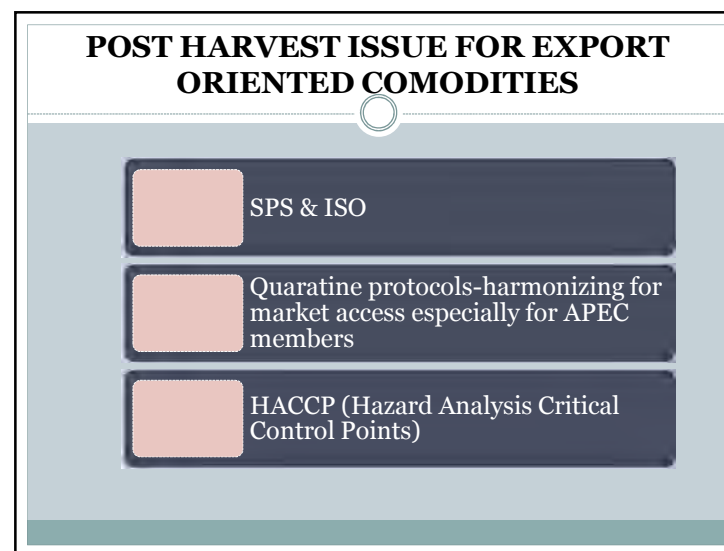
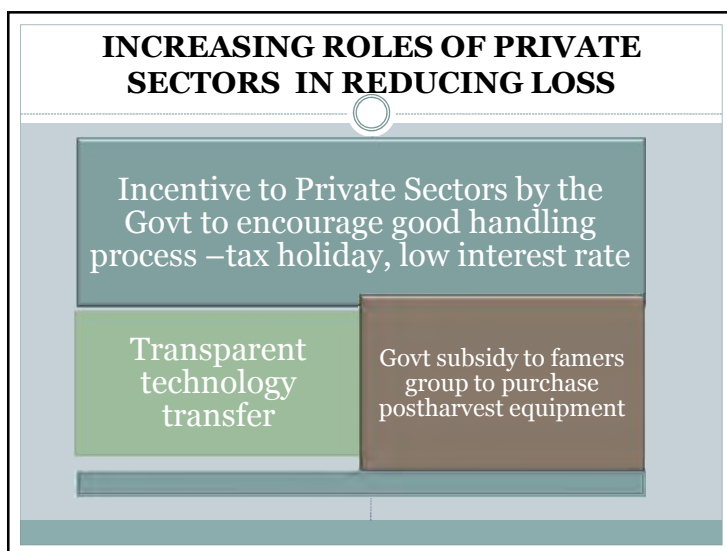
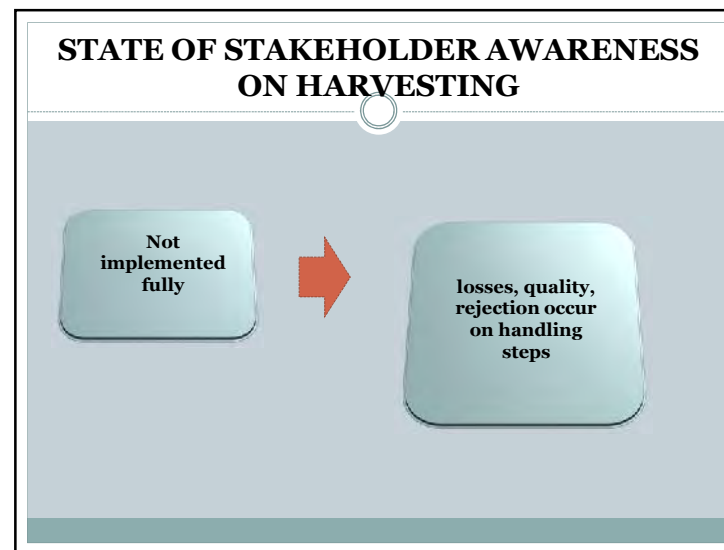
Partnership
between farmers
and private
companies

STRATEGIES & APPROACHES TO ADDRESS POSTHARVEST LOSSES

Importance of farmers' group
(organization & COOPs)

Processing equipment in rural (such
as packing, house, drier, washing
tank, cold storage, grading)

Partnership between farmers and
private companies (processing)



ROLES OF POSTHARVEST IN MONITORING QUALITY AND FOOD SAFETY

VERY IMPORTANT

Maintain:-

- Good Quality
- Physical Appearance
- Safe Products

Strong commitment of government on availability of shipments (sea+ air)

CONTRIBUTION OF PRE-HARVEST

Intervention in pre-harvest will reduce loss and increase quality

Good Agricultural Practice (GAP)
Good Manufacturing Practices (GMP)

RECOMMENDATIONS

- Partnership collaboration in research among the APEC members
- Sharing Information, technology and research result on best practices on postharvest handling within APEC members
- Enhance regional trading system within APEC members
- Capacity building on Postharvest Technology for APEC members.
 - From downstream to upstream for all stakeholders from farm to table

Attachment 5.6.3. Presentation from WG-2

POST HARVEST TECHNOLOGIES & ANNOVATION FOR HORTICULUTRE PRODUCE

GROUP 2

MODERATOR : MS. NAZIPAH

KEY FACTORS CONTRIBUTING TO POSTHARVEST

INDONESIA

- Mechanical handling
- Logistic – cold storage
- Infrastructure (road / port)

MALAYSIA

- Adoption of technology
- Infrastructures – logistic (sabah & sarawak)
- Multitier marketing before the product goes to market

PAPUA NEW
GUINEA

- Knowledge awareness
- Capability building

KEY FACTORS CONTRIBUTING TO POSTHARVEST

THAILAND

- Mechanical handling
- Infrastructure (logistic)

VIETNAM

- Mechanical Handling
- Knowledge of farmers

COMMON ISSUES OR IMPEDIMENTS TO REDUCING POSTHARVEST

MALAYSIA

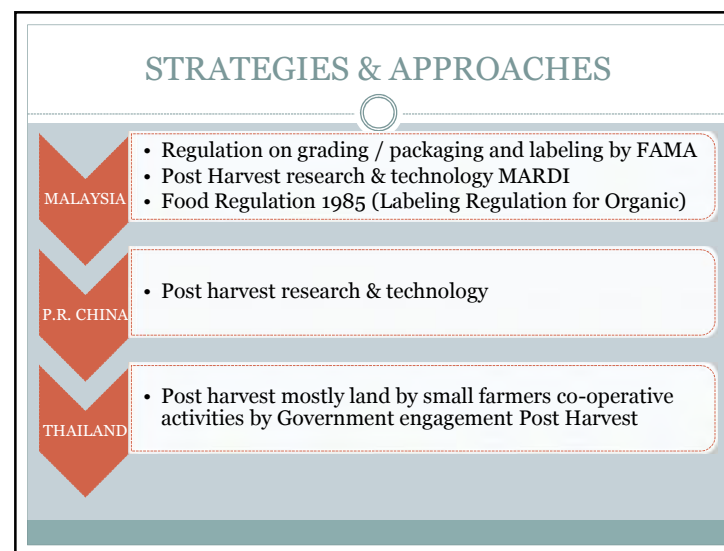
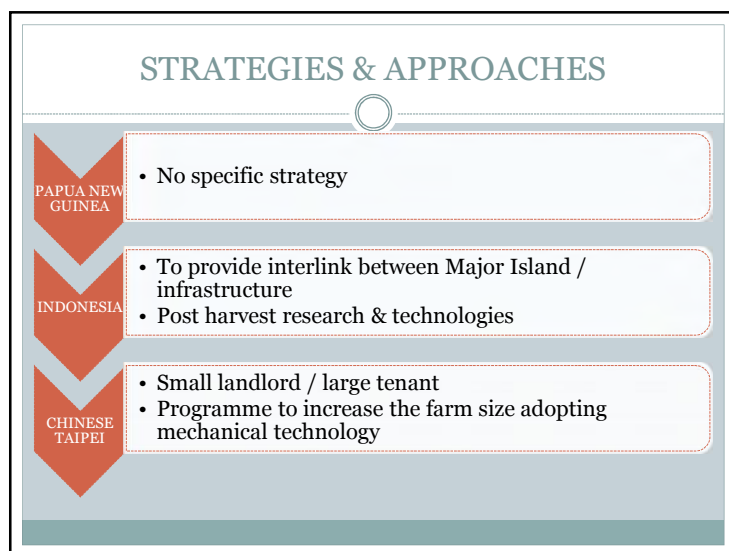
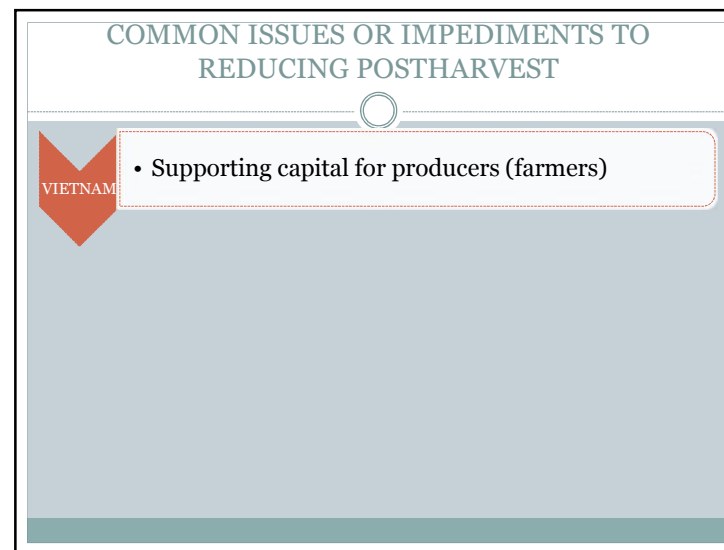
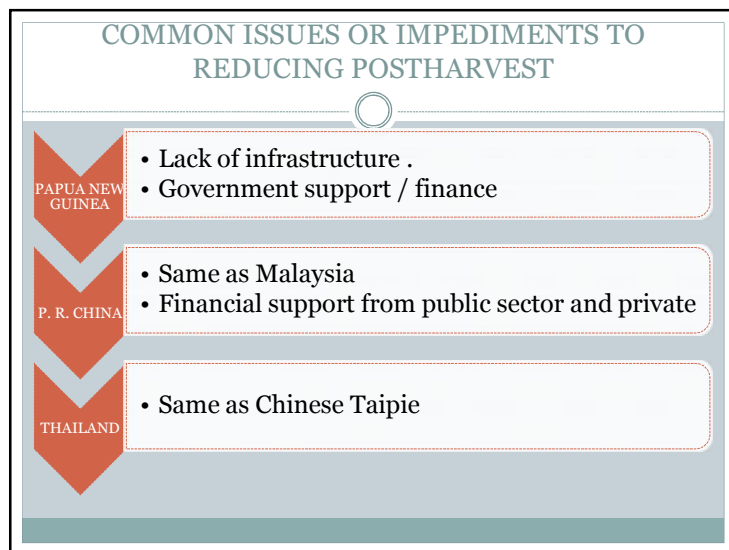
- Budget from public sector – Capacity Building
- Improper handling by small farmer – limited funding to investing machineries

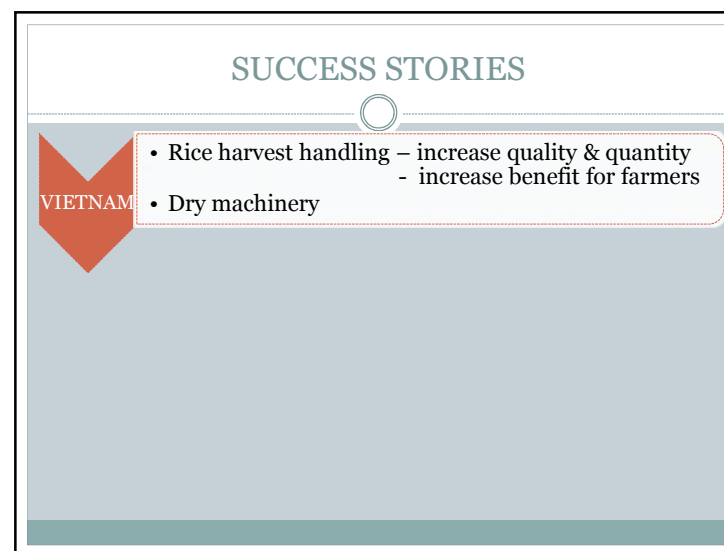
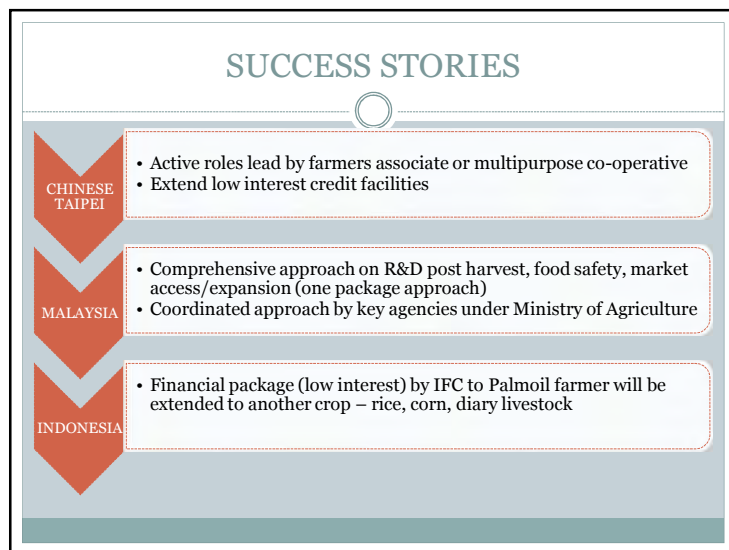
INDONESIA

- Improper handling small farmers

CHINESE
TAIPEI

- Promote private sector / co-operative
- To invest in post harvest activities





STAKEHOLDER AWARENESS & ROLE POST HARVEST TECHNOLOGY FOOD
QUALITY & SAFETY

COUNTRY	PUBLIC	INTERMEDIERIES	GOVERNMENT	PRODUCES
MALAYSIA	Moderate	Moderate	High	Low - Moderate
INDONESIA	Moderate	Moderate	High	Moderate
VIETNAM	Moderate	Low	Medium	High
THAILAND	Moderate	Moderate	Moderate	Moderate / High
P.R. CHINA	Moderate	Moderate	High	High
CHINESE TAIPEI	High	Moderate	High	Moderate
PAPUA NEW GUINEI	Low	Moderate	Low	Low

**THANK
YOU**

Attachment 5.6.4. Presentation from WG-3

SESSION 5: Postharvest Technologies and Innovations for Horticultural Produce Group 3

1. Key factors contributing to postharvest losses
 - Lack of knowledge on proper way of handling and packaging the product
 - Length of time to prepare – due to disaster
 - Lack of facilities – storage, proper process-inadequate
 - Lack of awareness or capacity building
 - Mode of transportation and storage to move the product
 - Lack of investment on R&D
 - Lack of attention to the rural communities-incentives assistance guidance

- Bridging the gap between the product and R&D funding.
 - Ways to disseminate the finding of the R&D to the farmers
2. Common issue to efforts aimed at reducing postharvest losses?
 - Lack of resources – no assistance given/incentives for small farmers
 - Farmers co-operative
 - Government should intervene at the state
 - Post harvest facilities is poor

- Private sector to provide post harvest facilities – pay the farmer for the volume
3. Strategies to addressing post harvest losses in developing economies.

Vietnam – the role of the middle person – make sure the quality and specification is consistent

Problem – the private sector controlled the price

 - using the grading system
 - interested in the product itself

(common in all countries)

Different between the ASEAN countries with the developed countries.

Private sector – in Australia (big retailer) to guide the farmers on how to harvest their product to ensure the longer shelf life.

Strong farmers, Association should fight on behalf of the farmers with the middle person – better harvest, better price

The volume that they able to get.

4. Success Stories

5. The state of stakeholder awareness in the adoption of appropriate postharvest technologies to raise food security levels.

Apparently big gap on the part of the farmer on the appropriate postharvest and technology as well as facilities including the equipment.

There's a need to bridge the two keys stake holder – government and producer/farmers.

6. Increasing the role of the private sector in addressing postharvest losses.

Sharing the facilities – to make the shelf life last longer
Should also help in pre-harvest and not only post-harvest
Public and private sector should take responsibilities and pay more attention on the production area and not the consumption area.

You can incentives for:

1. private sector to invest in big facilities along the supply chain
2. private sector to help the farmers to reduce his losses in the interest of both parties and to recover more.

7. In addressing postharvest issue, has there been undue emphasis on export-oriented commodities?

7. In addressing postharvest issue, has there been undue emphasis on export-oriented commodities?

For purpose in pursuing food security and the concept of the balance diet it should be prominently considered on issue whether food security is not equivalent to export oriented product and could be harmonized

8. The role of postharvest technology in food quality and safety

- Private sector – set up collecting centre in the rural area to avoid wastage of food and to standardize the quality

- Grading system

- 
9. For both government and private sector to attend this by explaining ways and system to do it through R&D, big infrastructure and facilities and some incentives for them to invest and expand so that both party can develop in the pre-harvest intervention.

Attachment 5.7.1. The Role and Involvement of FAMA



Role and Involvement in Agriculture Supply Chain Management – FAMA Experience

Presented by
Nazipah Jamaludin
Senior Director
Federal Agricultural Marketing Authority (FAMA)

APEC Workshop on Innovative Approaches for the Implementation of APEC Food Security Action Plan in Developing Economies
Sunway Putra Hotel, Kuala Lumpur
18 – 21st June 2012

Content of Presentation

- | | |
|-----------|-----------------------------------|
| Section 1 | Introduction |
| Section 2 | FAMA Background |
| Section 3 | Supply Chain Structure |
| Section 4 | Innovation Effort in Supply Chain |

2



Definition of Supply Chain Management



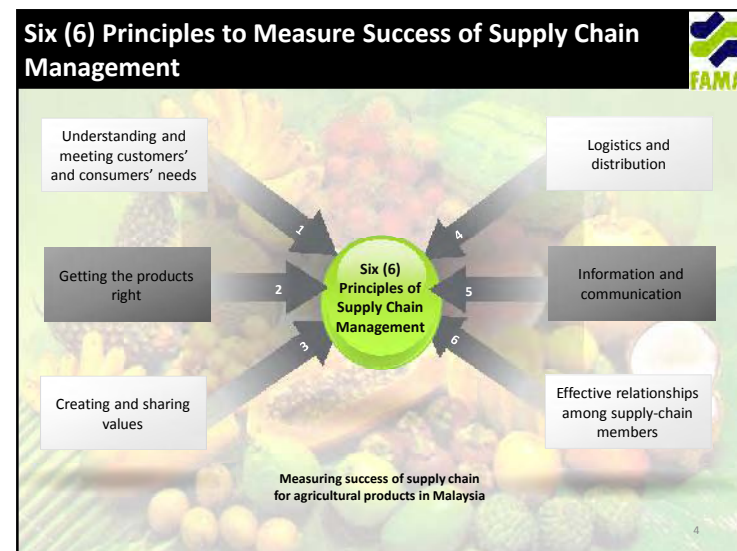
Martin Christopher, Logistics Supply Chain Management

The management of upstream and downstream relationships with suppliers and customers to deliver superior, safe and quality produce at less cost to the supply chain as a whole

Aitken J, Supply Chain Integration, Cranfield University, 1998

A network of connected and interdependent organisations mutually and cooperatively working together to control, manage and improve the flow of materials(products) and information from suppliers to end-users

3



4

Definition of Food Security

The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.

Food availability	Food access	Food use
Sufficient quantities of food available on a consistent basis	Having sufficient resources to obtain appropriate foods for a nutritious diet	Appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation

5

Definition of Innovation

Definition 1	Definition 2
The American Heritage Dictionary - The act of introducing something new	Peter Drucker - Change that creates a new dimension of performance

6

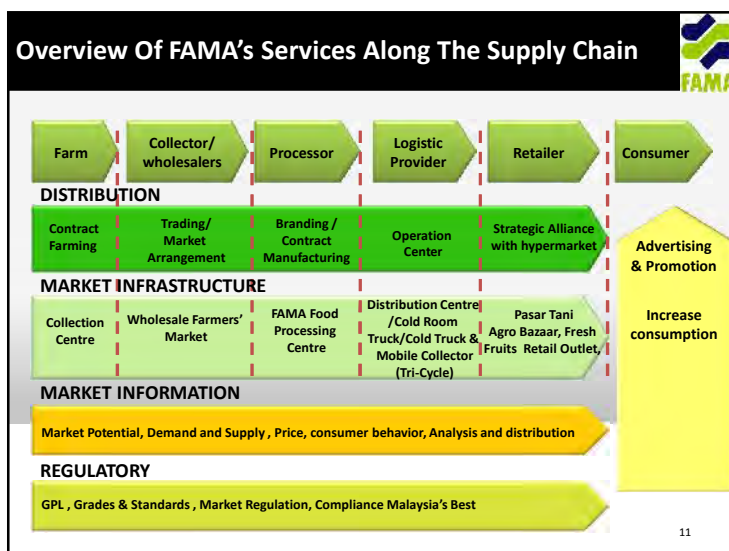
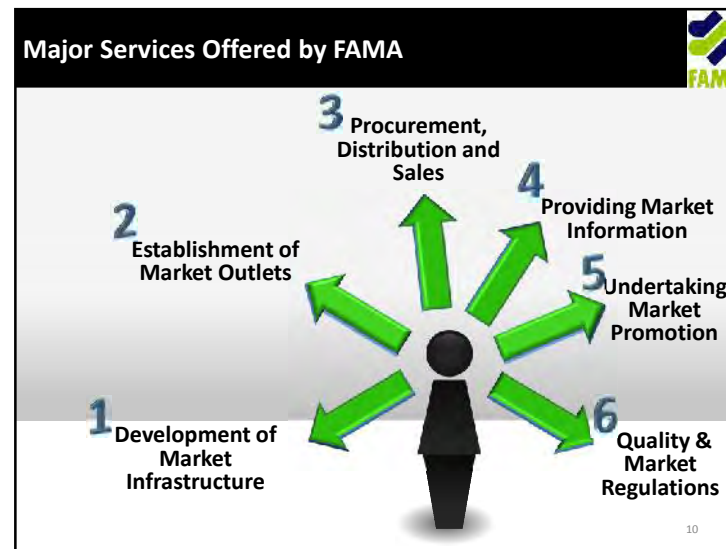
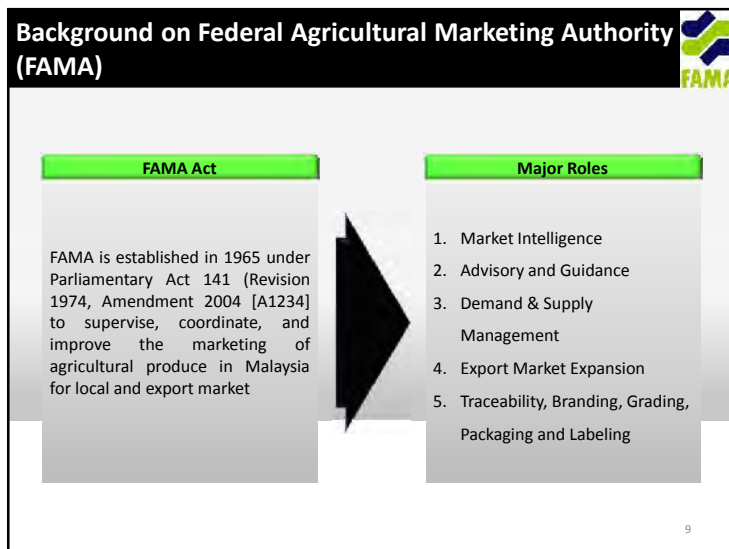
FAMA's Perspective of Innovative Approaches

7

Content of Presentation

Section 1	Introduction
Section 2	FAMA Background
Section 3	Supply Chain Structure
Section 4	Innovation Effort in Supply Chain

8



Market Promotion

Electronic Advertisement



Print Media Advertisement



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Domestic and International Market Promotion

- ✓ Trade fairs /sales mission
- ✓ 'In-store' Promotion
- ✓ Seller-buyer networking



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Brand Promotion

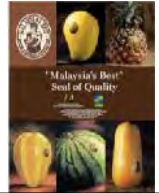


For fresh produce...





For processed agro-based products...





FAMA's in house brand for processed products...

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Market Regulation

To ensure compliance to food safety and traceability:

- Grade & standard development
- Grading, Packaging & Labeling (GPL)
 - * Grading fruits for export (Starfruit and papaya)
- Quality and post-harvest advisory services
- Licensing scheme management
- Tagging for traceability
- AP management for cabbage and coffee
- Accreditation for "Malaysia's Best"







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SPEKIFIKASI BUAH / FRUIT SPECIFICATION	SPEKIFIKASI BUAH / FRUIT SPECIFICATION
EXOTICA PAPAYA (<i>Carica Papaya</i>)	MANGO (<i>Mangifera Indica</i>)
	
VARIETY: EXOTICA / HONG KONG PACKING: 6.0 KG / BOX COUNT: 7 - 9 / BOX SIZE: 600 GM - 900 GM STORAGE TEMPERATURE: 10°C - 13°C SHELF LIFE: 2 - 3 WEEKS CARTON SIZE: 381 mm x 304 mm x 155 mm AIR SHIPMENT: 270 CTNS / LD1 / LD3 SEA SHIPMENT - 20'RF / 40'RF: 1750 CTNS / 3500 CTNS TOTAL ACRES (HA): 2428 HA TOTAL PRODUCTION (MT): 31 199 MT AREA: PERAK/JOHOR SEASON: JAN - DEC	VARIETY: CHOKANAN PACKING: 5.0 KG / BOX COUNT: 18 - 20 / BOX SIZE: 200 GM - 250 GM STORAGE TEMPERATURE: 10°C - 15°C SHELF LIFE: 1 - 2 WEEKS CARTON SIZE: 345 mm x 280 mm x 145 mm AIR SHIPMENT: 250 CTNS / LD1 / LD3 SEA SHIPMENT - 20'RF / 40'RF: 1750 CTNS / 3500 CTNS TOTAL ACRES (HA): 10 167 HA TOTAL PRODUCTION (MT): 15 274 MT AREA: KEDAH/PERAK/N.SEMBILAN/MELAKA SEASON: APRIL - NOV

Export Development Activities

Samples of Packaging for Export



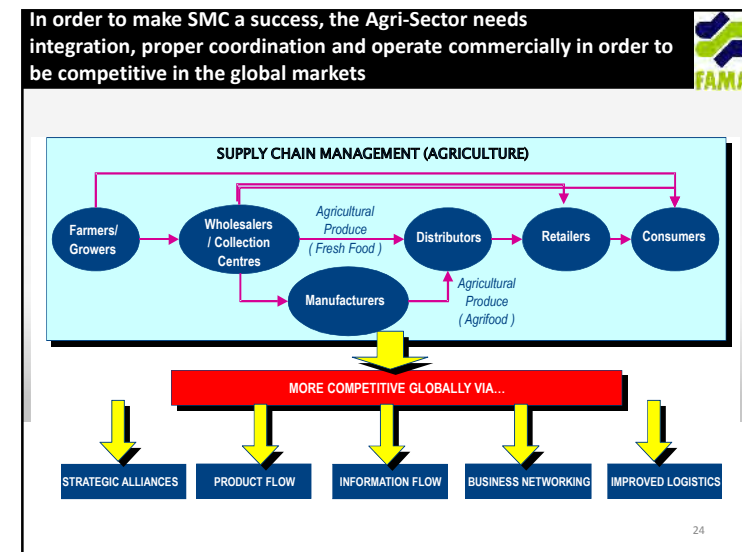
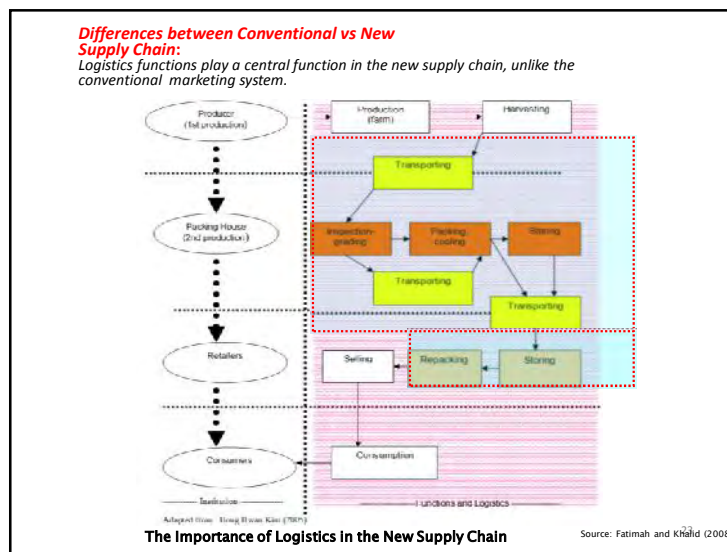
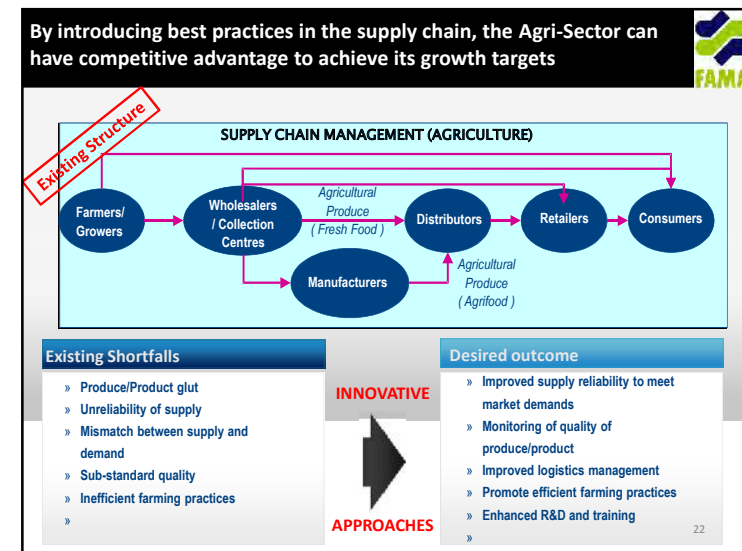
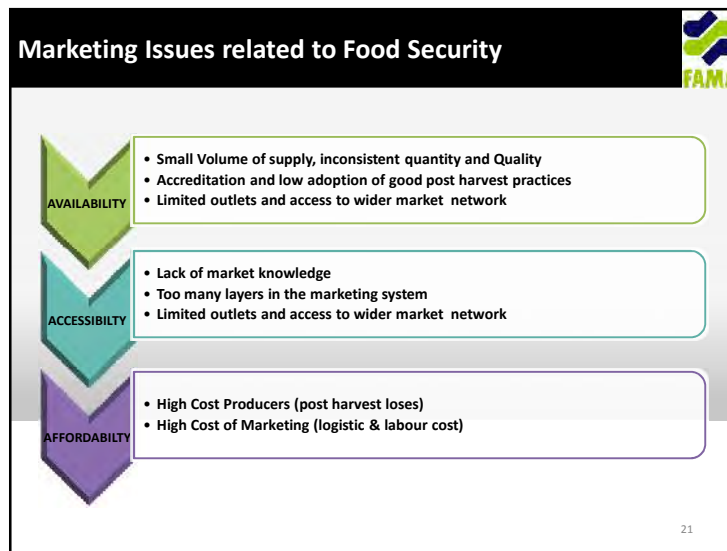
Star fruit **Mango (Harumanis)**

Export Development Activities (Trial Shipment for Market Access of Harumanis to Japan)



Content of Presentation

- Section 1 Introduction
- Section 2 FAMA Background
- Section 3 Supply Chain Structure**
- Section 4 Innovation Effort in Supply Chain



Content of Presentation

- Section 1 Introduction
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- Section 4 Innovation Effort in Supply Chain**

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Innovation Effort in Supply Chain Management



Supply Chain Management Flow... Our Approach



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Supply Chain Management Flow – Contract Farm



Objectives:

- To ensure consistent supply in Pasar Tani
- To increase farmer's income



Current Status:

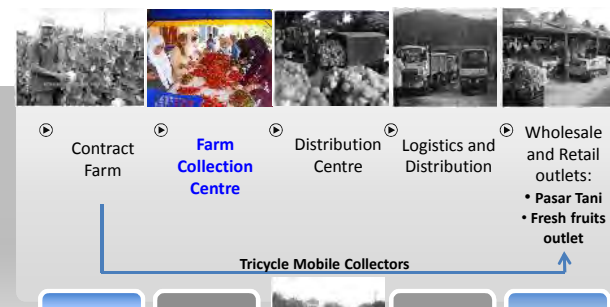
Particulars	2009			2010			2011		
	Target	Achievement	%	Target	Achievement	%	Target	Achievement	%
Areas (ha)	7,860	8,213	104.5	7,857	9,582	122.0	7,200	9,142	127.0
Participants	6,589	3,874	58.8	6,824	6,993	102.5	4,450	5,078	114.1
Production (mt)	334,274	386,142	115.5	342,878	408,396	119.1	306,524	386,746	126.2
Value (RM)	58,615,500	61,043,400	118.3	601,545,500	816,792,780	135.8	547,498,000	694,134,600	126.8

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Innovation Effort in Supply Chain Management



Supply Chain Management Flow... Our Approach



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Supply Chain Management Flow – Farm Collection Centre (FCC)

Major activities at FCC:

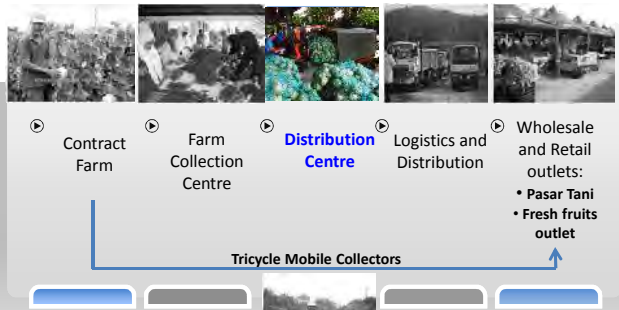
- Post harvest treatment to reduce post-harvest losses
- Sorting and Grading
- Packaging and labeling




29

Innovation Effort in Supply Chain Management

Supply Chain Management Flow... Our Approach



Contract Farm → Farm Collection Centre → **Distribution Centre** → Logistics and Distribution → Wholesale and Retail outlets:

- Pasar Tani
- Fresh fruits outlet

Tricycle Mobile Collectors

30

Supply Chain Management Flow – Distribution Centre (DC)

Major activities at DC:

- Collect and distribute products to retailers and market intermediaries
- Offer product variety
- Located in consumption areas
- For processed food and fresh products

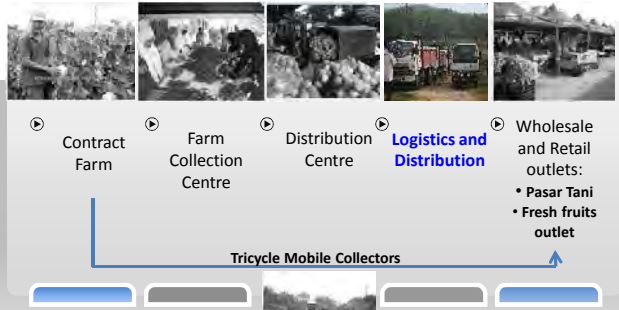




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Innovation Effort in Supply Chain Management

Supply Chain Management Flow... Our Approach



Contract Farm → Farm Collection Centre → Distribution Centre → **Logistics and Distribution** → Wholesale and Retail outlets:

- Pasar Tani
- Fresh fruits outlet

Tricycle Mobile Collectors

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Supply Chain Management Flow – Logistics and Distribution



- Transport and cold room facilities:



Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



Project Summary

This project was initiated after durians experienced a series of price downfall at farm level which resulted in farmers having to suffer losses for their harvest.

This issue became a hot topic at the parliament and FAMA was to find a solution to overcome it in order to help farmers.

The value creation Frozen Durian Project can be divided into two categories that is durians which are of high quality from selected clones of D 197 (Maosan King) and D24 are processed into frozen form for export market while the non clones with normal quality are turned into durian paste or puree to be used as ingredients in local signature dishes or traditional cakes or confectioneries.

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Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



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Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



Cold trucks transporting fresh durians from farm to FAMA Processing Centre at Batu Kurau



Receiving and Weighing

36

Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



Cleaning the fruits at receiving area before processing

37

Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



Splitting of whole durian and assembling pulps into trays before the blast freezing process



Loading fruit trays into blast freezer

38

Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian)



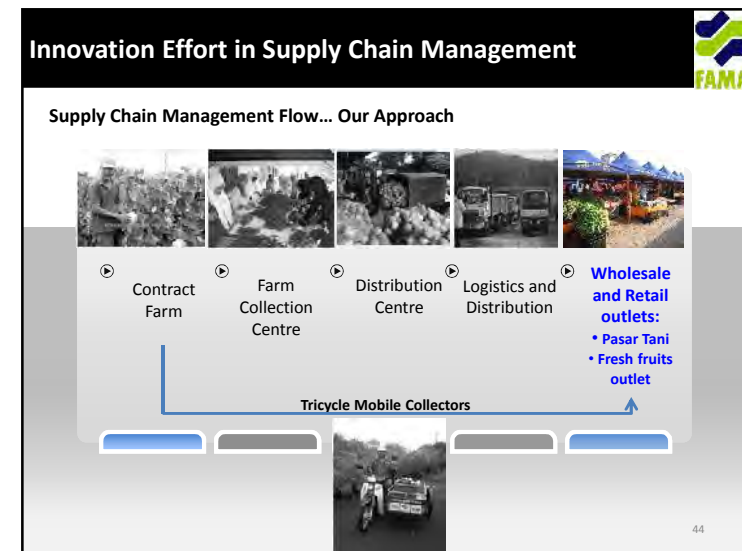
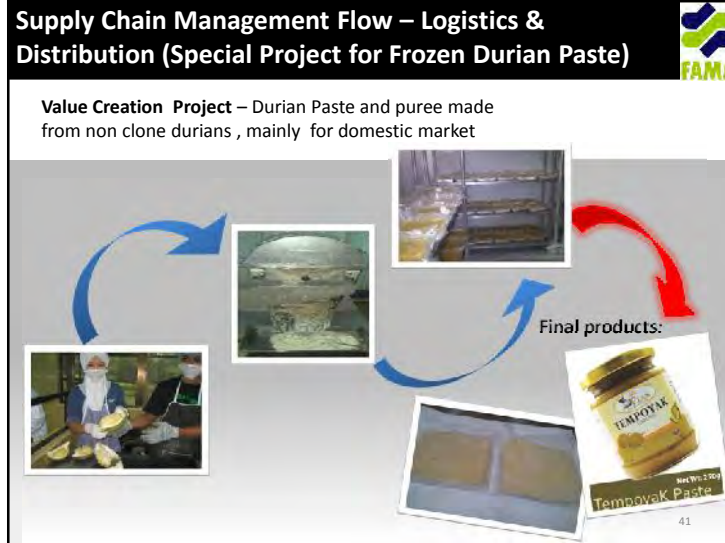
Packaging process

Supply Chain Management Flow – Logistics & Distribution (Special Project for Frozen Durian Paste)

Traditionally prepared Durian Paste for domestic market



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Supply Chain Management Flow – Wholesale and Retail Outlet



- Outlets created for producers to sell farm produce or processed agro-based products direct to consumers
- Semi-permanent, permanent and mobile infrastructures




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Supply Chain Management Flow – Wholesale and Retail Outlet



Categories of outlets:-

1. Pasar Tani (Daily/Weekly)
2. Wholesale Pasar Tani
3. Permanent Pasar Tani
4. Caravan Pasar Tani
5. Fresh Fruit Stalls (GBBS)
6. Agro Bazaar K Shoppe



Supply Chain Management – Pasar Tani, Evolution from 1986 - 2005




1986 1987 1988 2005 1999 1990

Supply Chain Management Flow – 'Pasar Tani' (Daily/Weekly)




Putrajaya

Pasar Tani Daily/Weekly

Supply Chain Management Flow – Wholesale and Retail Outlet

e-pasartani

To facilitate data profiling of project participants using MyKad

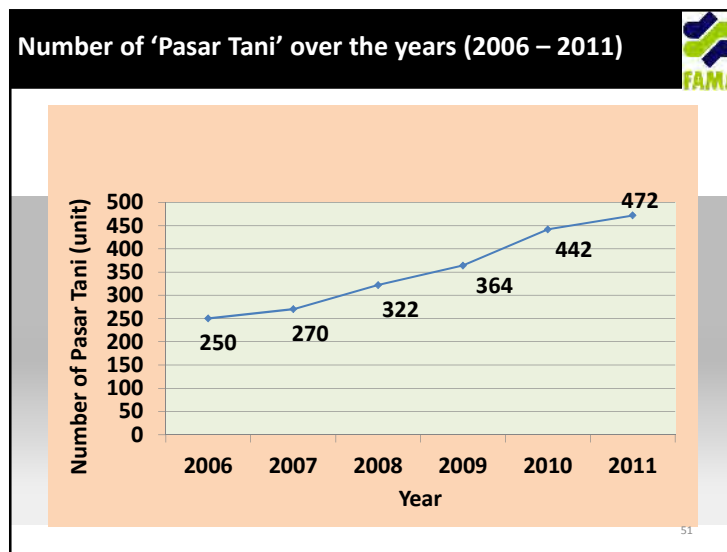


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Supply Chain Management – Wholesale and Retail Outlet (Permanent Pasar Tani)

GUAR CHEMPEDAK, KEDAH

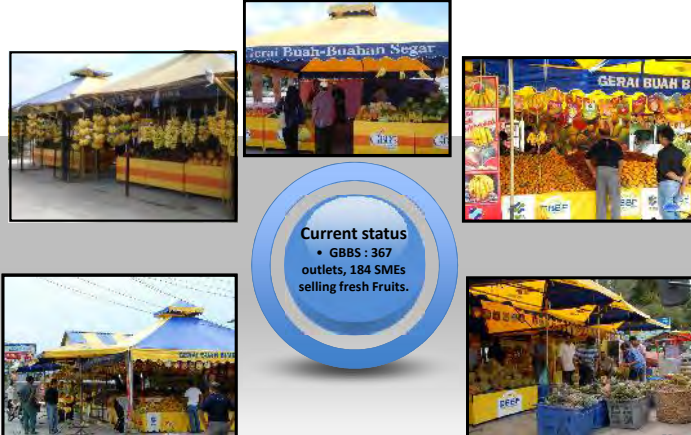
JERANTUT, PAHANG

Supply Chain Management Flow - Fresh Fruit Retail Outlet (GBBS)

Current status

- GBBS : 367 outlets, 184 SMEs selling fresh Fruits.



Supply Chain Management Flow - Fresh Fruit Retail Outlet (GBBS)

Project Initiated In Year 2008 – Pineapples Variety N 36 and Josapine

Production area : 135 acres
Project participants : 135
Location of Project : Kg. Cenderawasih, Sg. Miang, Pekan Pahang

Marketing channel : Private Collectors (Kuantan, Muadzam Shah, Jerantut & Terengganu), Local retailers, FAMA Pahang for distribution to other states (National distribution)

Others agencies involved : DOA Pekan, MPIB

Project in 2010

2008

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Innovation Effort in Supply Chain Management

Supply Chain Management Flow... Our Approach

Contract Farm

Farm Collection Centre

Distribution Centre

Logistics and Distribution

Wholesale and Retail outlets:

- Pasar Tani
- Fresh fruits outlet

Tricycle Mobile Collectors

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Supply Chain Management Flow-Tricycle Mobile Collectors (initiated in year 2010)

Small-time farmers in rural areas

Contract Farms

Tricycle Mobile Collector

Farm Collection Centre

Distribution Centre

Agro Bazaar

Pasar Tani

GBBS

Farm

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THANK YOU

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Attachment 5.7.2. Strategic Approaches and Roles of BERNAS



BERNAS ROLE IN SUPPORTING NATION FOOD SECURITY AGENDA

by
ZAINUDIN HASHIM
PADIBERAS NASIONAL BERHAD

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BRIEF INDUSTRY FACTS & FIGURES 2011

SUPPLY MILLS/ WAREHOUSES WHOLESALERS RETAILERS CONSUMERS	• 144,958 registered active farmers¹ • Cultivation area 529,878ha² • Traded paddy volume 1.80 mil mt • Imported rice received 1.0 mil mt	• Land / Man ratio 2:1 • Production per farmer 15 mt / year
	• 228 license rice mills ✓ 32 KBB 5 PC³ 14 JV Group ✓ 177 Private • National Stockpile : 239,00 mt (policy 292,000)	• Paddy Market Share - KBB : (24%) JV GROUP : (17%) - Private : (59%)
	• Active license wholesaler: 1,681⁴ • BERNAS Group Sales : 1.41 mil mt	• Miller / Wholesaler - 1:7 ✓ BERNAS Group Market Share - 45-50%
	• License retailers : 44,637⁴	• Wholesaler / Retailer - 1:27
	• Rice demand : 2.34 mil mt⁵ • Population : 29.46 m⁵	• Retailer / Consumer - 1:661

Note: 1. Farmer count only represent the active farmers registered with the paddy price subsidy scheme.
2. Representing cultivation area per year
3. PC: Purchasing Centre
4. Source: MOA, Bahagian Kawalselia Padiberas (2010)
5. Rice consumption 79.6kg/year/person

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PRESENTATION SYNOPSIS

1	Overview of Malaysian Rice Industry Structure
2	1972/73 Food Crisis (Rice) – Policy Response & Impact to Industry
3	BERNAS Roles & Duties
4	2007/08 Food Crisis (Rice) – Policy Response & Impact to Industry
5	Case Study - NKEA – EPP10
6	Challenges & Way Forward

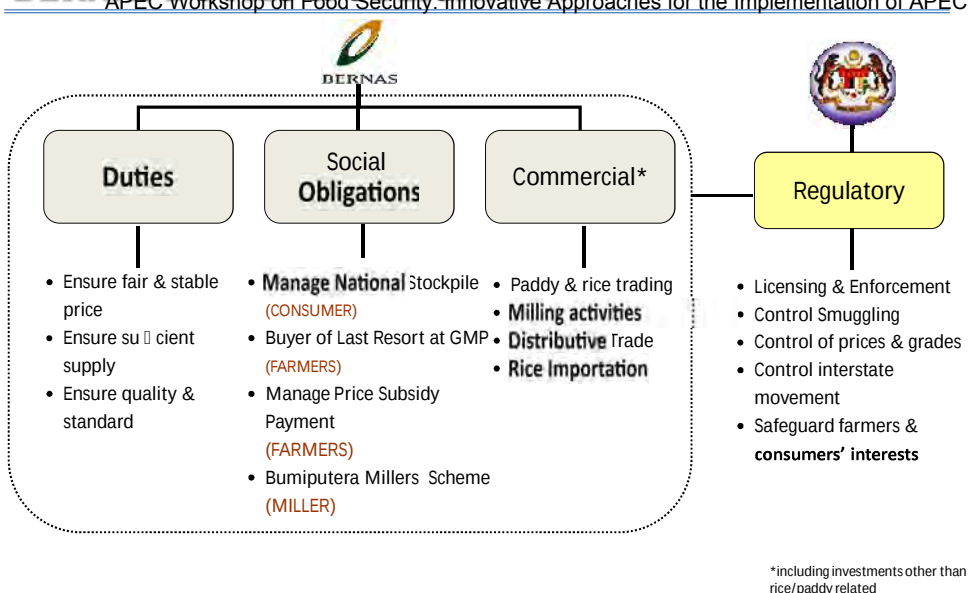
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BACKGROUND OF BERNAS

- 1971** Lembaga Padi dan Beras Negara (LPN) was established under LPN Act 1971. LPN was formed from the merger of 2 government agencies – Supplies Division of MITI and Paddy and Rice Marketing Board of FAMA
- 1974** Introduced “**Single Gate Keeping**” or Single Rice Importer Policy after 1972/73 food crisis to stabilize the nation rice supply and price >> Food Security. This policy (apart from subsidy policies) is to balance the Government “conflicting” objectives: - (a) to increase farmer’s income (i.e. higher paddy price) and (b) maintain fair rice price to consumers
- 1996** BERNAS was privatized. LPN entrusted role is now vested to BERNAS, however the regulator and enforcement role remains with the Government. In consideration to perform social obligations at no cost to the Government and to stabilize the nation rice supply and price, BERNAS was granted right to import rice

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BERNAS DUTIES & OBLIGATION



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PRESENTATION SYNOPSIS

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- 5 Case Study - NKEA – EPP10
- 6 Challenges & Way Forward

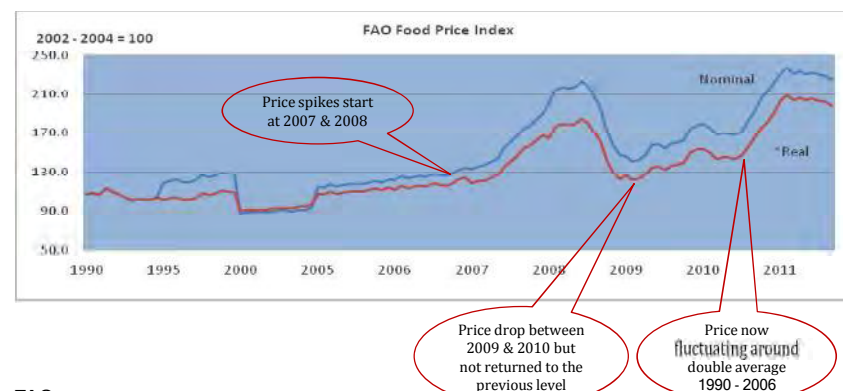
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BENEFIT TO FARMERS

- Single Gate Keeper**
- To ensure that local rice is given **priority in the market**
- Stable Paddy Price**
- Farmers have confidence to plant paddy as they know that they would be able to sell their paddy within the expected price. In the era of food price volatility, the stability of paddy price is of **great benefits to farmers**
 - Paddy price has doubled from RM550 – 600/MT in 2001 to **RM1,050- 1,250/MT** in 2011. Cambodia (RM750), Vietnam (RM700), Myanmar (RM750), Pakistan (RM660) and Thailand (RM1,500 if purchased by Government and RM1,000 if purchased by private miller)*.
- Buyer of Last Resort at GMP**
- Paddy is the only agricultural produce where the **market and minimum price are guaranteed**. This guarantee is **underwritten by BERNAS** (as buyer of last resort) at no cost to the Government
 - It cost BERNAS about **RM40m p.a.** in order to sustainably **support the increasing paddy price** and to act as a **buyer of last resort** to farmers
- Price Subsidy & Incentive**
- BERNAS **manage paddy price subsidy** and **yield enhancing incentive** to farmers
- * Thailand paddy price is higher than Malaysia due to a populous policy introduced by new Government to support paddy price at 15,000 Baht, which the sustainability of it is questionable

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WHAT happened to world food prices ?



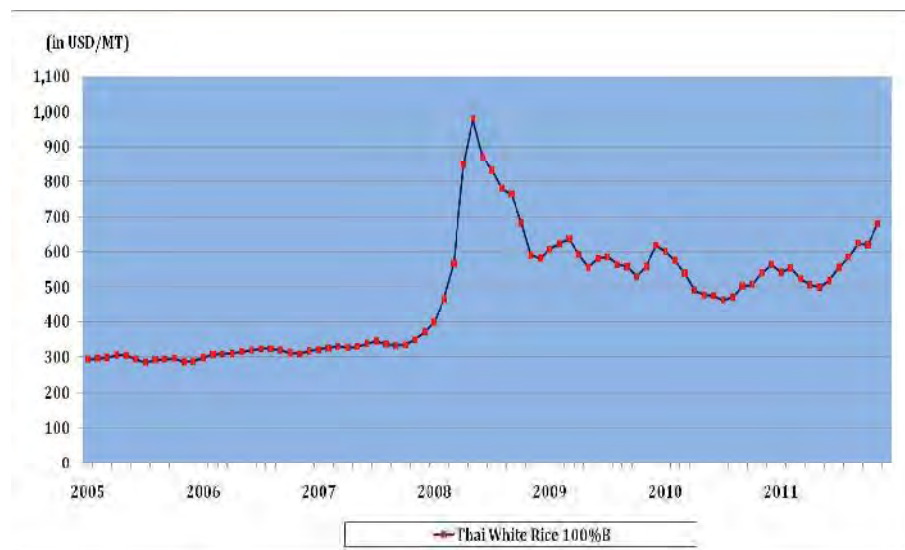
FAO:

- Price index rose 7% (2006) to 27% (2007) and persisted in the first half 2008.

MUV (Manufactures Unit Value Index):

- Real prices have shown a steady long-run downward trend punctuated by typically short-lived price spikes.

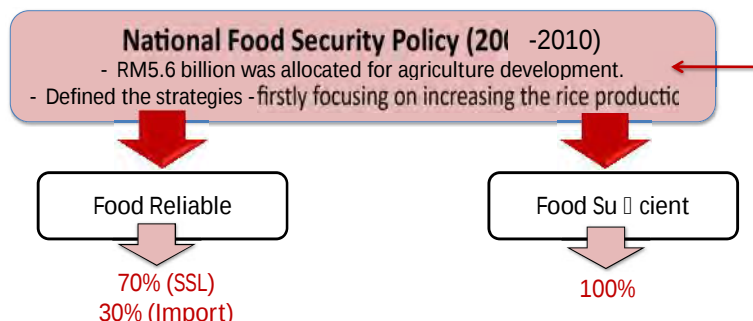
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NATIONAL AGRICULTURAL POLICY

Period	During
1984-1991	1 st National Agricultural Policy (NAP1)
1992-1997	2 nd National Agricultural Policy (NAP2)
1998-2010	3 rd National Agricultural Policy (NAP3)
2011-2020	National Agro-Food Policy

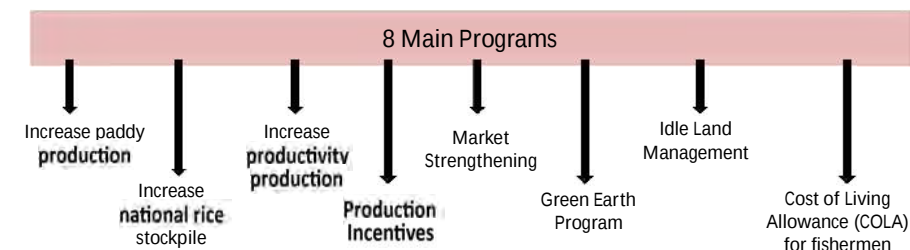


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NATIONAL FOOD SECURITY POLICY (2008 – 2010)

Objectives

- To enhance food security.
- To increase productivity and competitiveness.
- To deepen linkages with other sectors.
- To create new sources of growth for the sector.
- To conserve and utilize natural resources on a sustainable basis



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POLICY RESPONSE TO 2007 / 08 CRISIS

- Increase **national stockpile level** from 92,000 to **292,000 MT**, which is equivalent to 45 days national consumption and 125 days imported rice sales.
- Industry Transformation** (EPU&MOA is undertaking the study) to ensure food security.
- Market Intervention** – subsidize the Consumers via. Government Subsidized Rice (safety net)
- Increase **Self Sufficiency Level (SSL)** via Economic Transformation Program (ETP – i.e. EPP 10 – MADA. BERNAS & MADA signed MOU on 8th March 2011.
- Regional Cooperation (ASEAN+3 – China, Japan and South Korea) – establishment of **East Asia Emergency Rice Reserve (EAERR)** – **787,000 MT** rice was earmarked. The Agreement to be signed in October.
- Food Agriculture Organization (FAO) initiative to establish **Rice Future Market** with objective to increase confidence and transparency in rice trading. FAO concluded that the better option to address food security is to allow rice trade to flourish

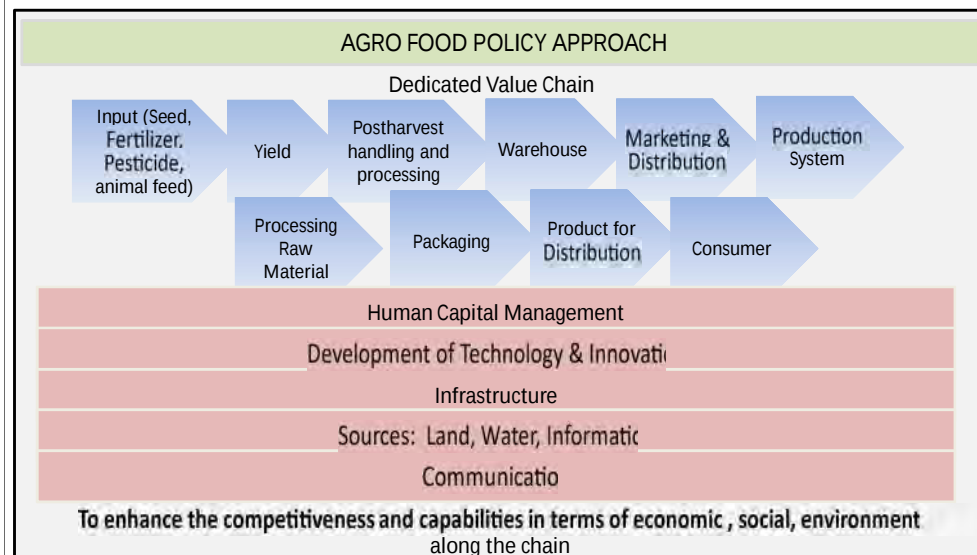
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OBJECTIVES;

- To ensure sufficient food and safety
- To create a competitive agro food industry
- To increase farmers income level

Self Sufficiency Level (SSL)

SSL Target	During
65%	3 rd National Agricultural Policy (1998-2010)
86%	Mid-Term Review of the 9 th Malaysian Plan (2006-2010)
70%	10 th Malaysian Plan
70%	National Agro-Food Policy (2011-2020)



MALAYSIAN RICE MARKET – Current State of “Stability”



PRESENTATION SYNOPSIS

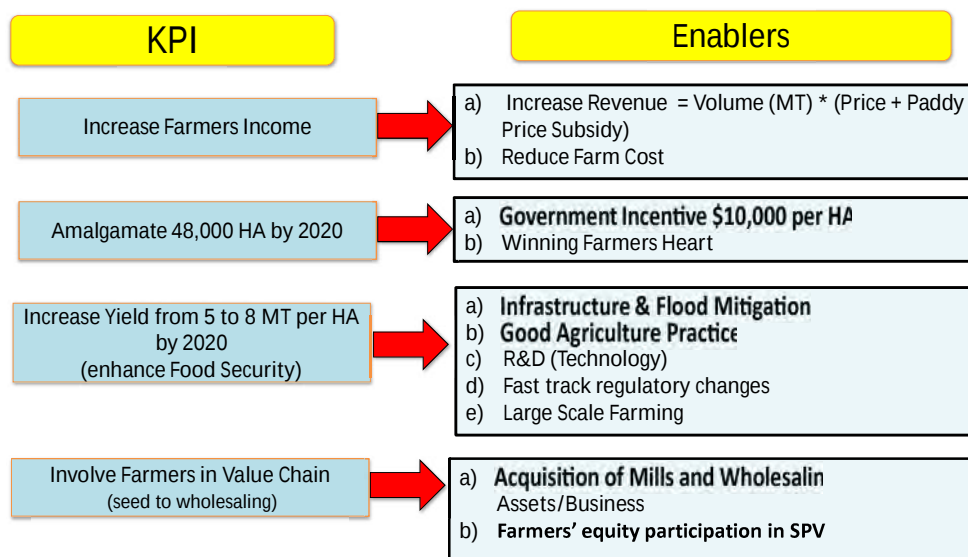
- 1 Overview of Malaysian Rice Industry Structure
- 2 1972/73 Food Crisis (Rice) – Policy Response & Impact to Industry
- 3 BERNAS Roles & Duties
- 4 2007/08 Food Crisis (Rice) – Policy Response & Impact to Industry
- 5 Case Study - NKEA – EPP10
- 6 Challenges & Way Forward

GUIDING PRINCIPLES OF ETP (ECONOMIC TRANSFORMATION PROGRAM)

- ETP seek to **transform** Agriculture into **Agribusiness**, market driven, economies of scale and value chain integration.
 - Funding requirement for the next 10 years is RM22B for the NKEA Agriculture with 62% to come from private sector.
 - Public funding will be primarily for irrigation and infrastructure
- The **Government Promises** to Private Sector in ETP:-
 - Ensure the private sector owns EPPs whenever possible
 - Facilitate by fast-track amending regulation and removing barrier
 - Avoid crowding out private sector investment (direct competition)
- To **run SPV on commercial basis** it has to be led by private sector that not only bring capital (take risk of losing its capital), provide guarantee to bankers, bring know-how and entrepreneurship.

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SPV MANDATE



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NKEA EPP 10 OBJECTIVES



Increase Farmers Income
(to address the bottom 40% of households with monthly mean income about RM1,500 p.m.)



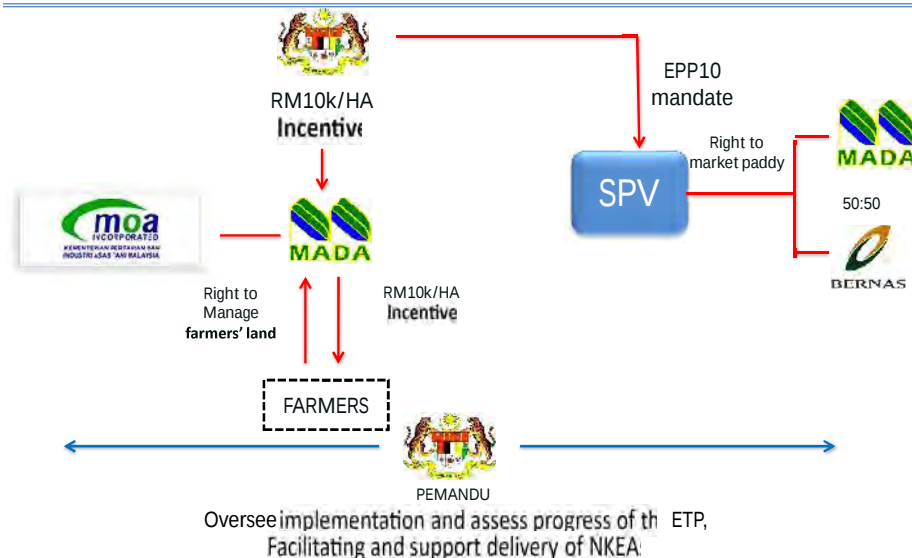
Food Security
Increase rice SSL via large scale contract farming and intensification of infrastructure (in view of ageing farmers + smallholders >> threaten paddy industry)



Involve Farmers throughout supply chain
(from seed till wholesaling) [now just "taukey paddy"]

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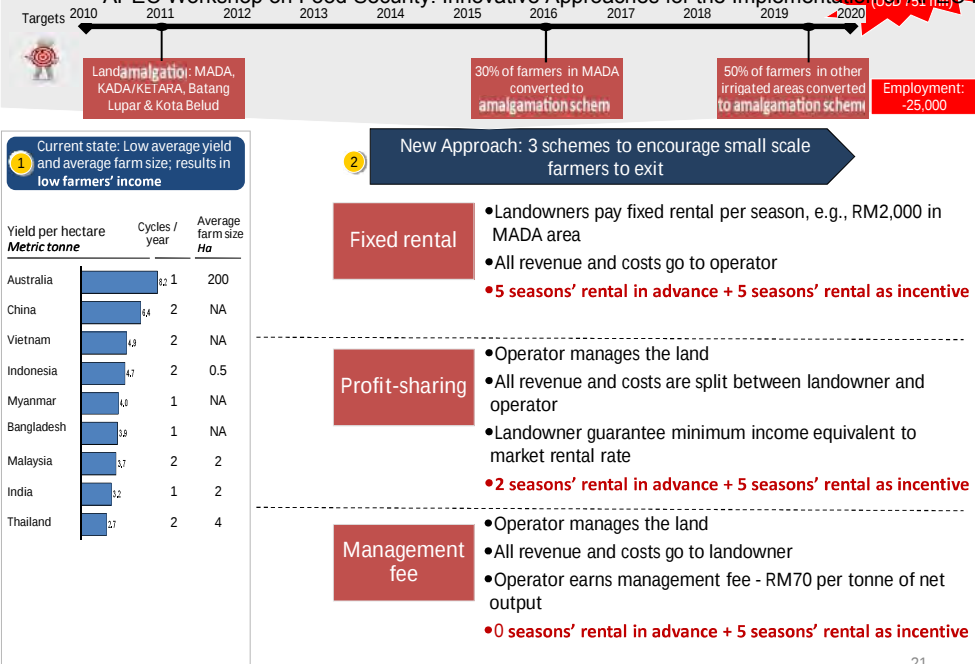
EPP 10 STAKEHOLDERS



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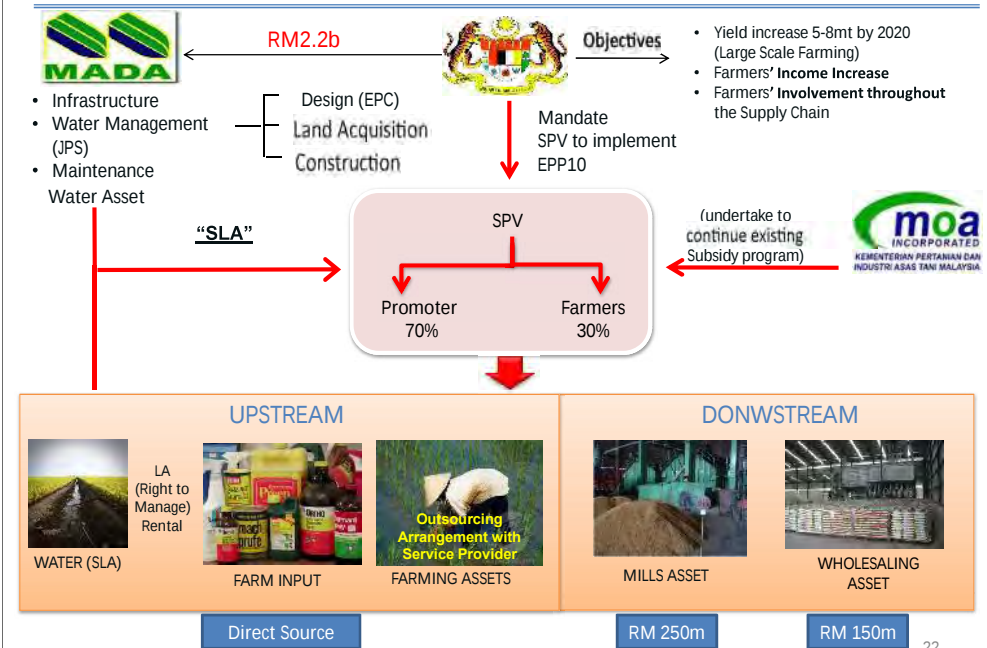
Paddy: Scaling up and strengthening productivity of paddy farming

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NKEA EPP 10 BIG RESULTS!!!



22

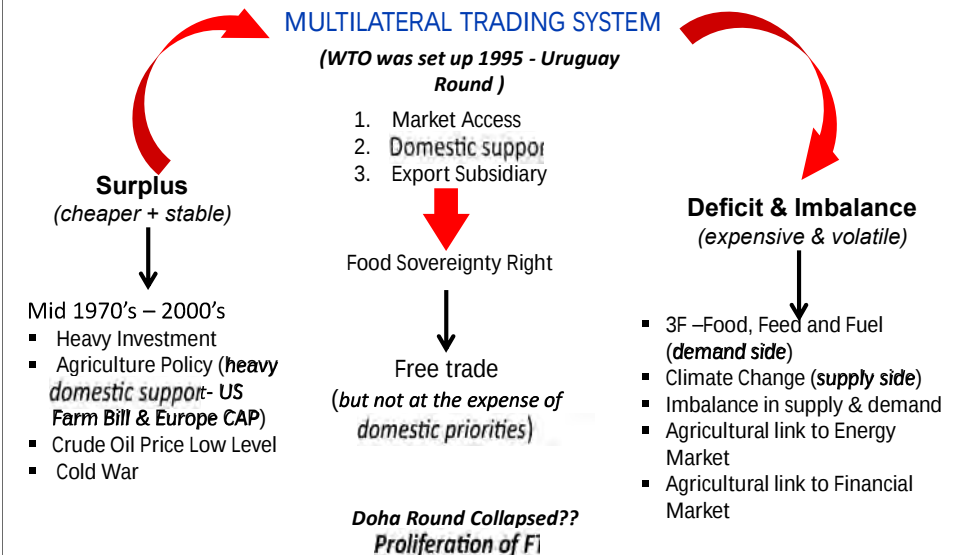
PRESENTATION SYNOPSIS

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FOOD STRUCTURAL CHANGES

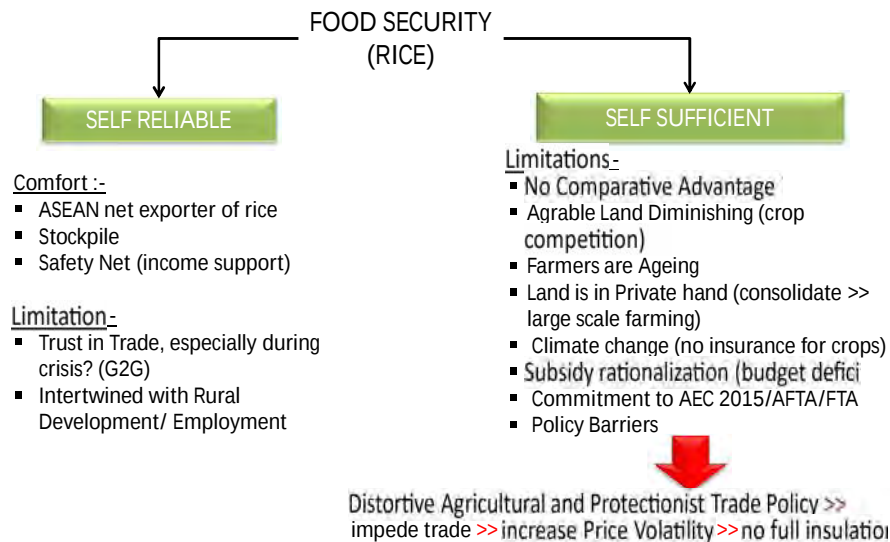


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NATION STRATEGIC APPROACH ???

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BARRIERS FOR PRIVATE INVESTMENT

1. Agriculture - Market intervention (subsidy, price control, export restriction) is pervasive especially in RICE (*"Political Crop"*)
2. Market Intervention should be guided by –no distortion to market behavior, reach targeted group and minimum enforcement.
3. Large Scale Farming (>6 acres) not entitle for subsidy >> viability??
4. Lack of framework for Responsible Agri investment (Land grab, Displace smallholders)
5. Lack of mutual trust, respect, transparency and accountability between Private & Public Sector (greater engagement with private sector on policy formulation)

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SAMSUNG ECONOMIC RESEARCH INSTITUTE – NEW FOOD SECURITY STRATEGIES IN THE AGE OF GLOBAL FOOD CRISIS (April 2011)

1. International Grain Trade is subject to oligopoly – ADM (Archer Daniels Midland), Bunge, Cargill and LDC (Louis Dreyfus Commodities)
2. Integrate agriculture and financial services.
3. Massive capabilities >> agricultural trade/market and government policy



The Nation must have homegrown International Grain Trader

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THANK YOU



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Attachment 5. 7.3. NES Financial Scheme for Sustainable Palm-oil Development in Indonesia

Nucleus Estate Smallholder (NES) Financial Scheme for sustainable Palm Oil Development

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Harry Hanawi
Vice Chairman Permanent Committee of Food Security
Indonesia Chamber of Commerce and Industry.

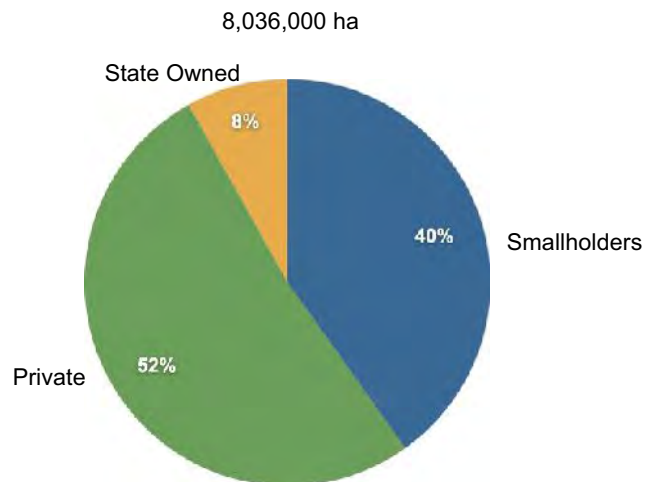


1



2

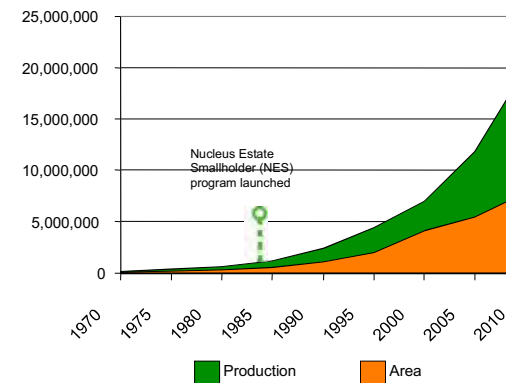
CURRENT SITUATION OF INDONESIA PALM OIL



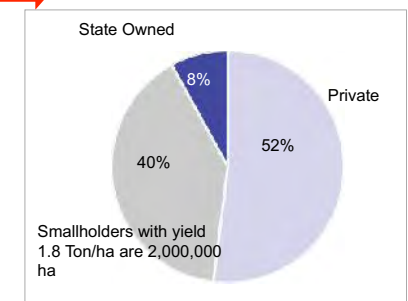
Source: RI Ministry of Agriculture 2010

3

Palm oil growth in Indonesia for the past 40 years

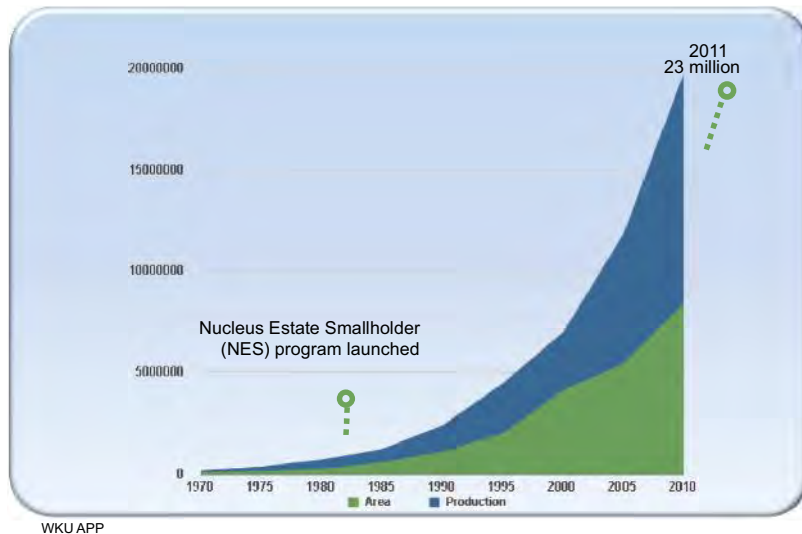


8,036,000 ha, consist of :

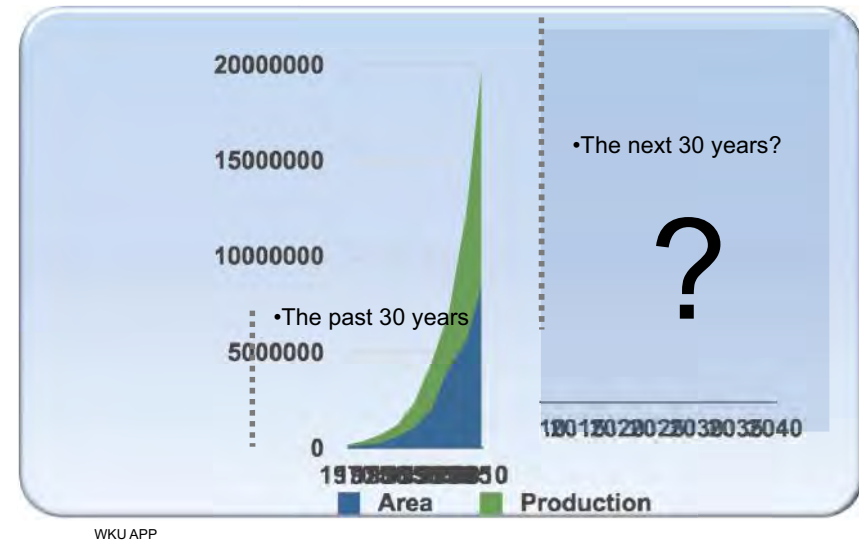


Source: RI Ministry of Agriculture 2010

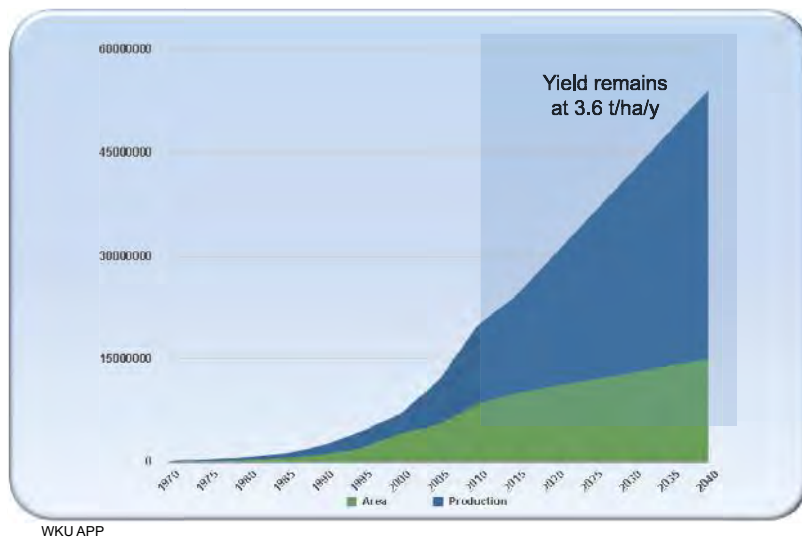
Palm Oil Growth in Indonesia for the past 40 years



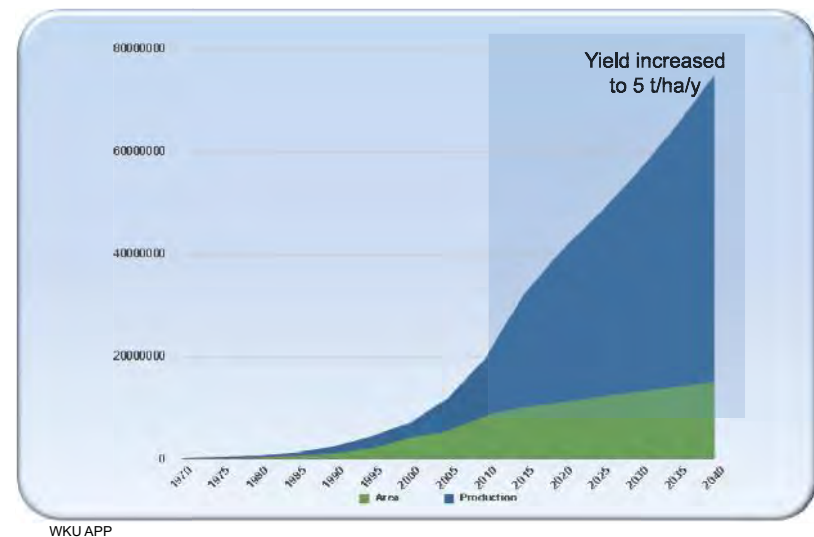
How about the next 30 years ?



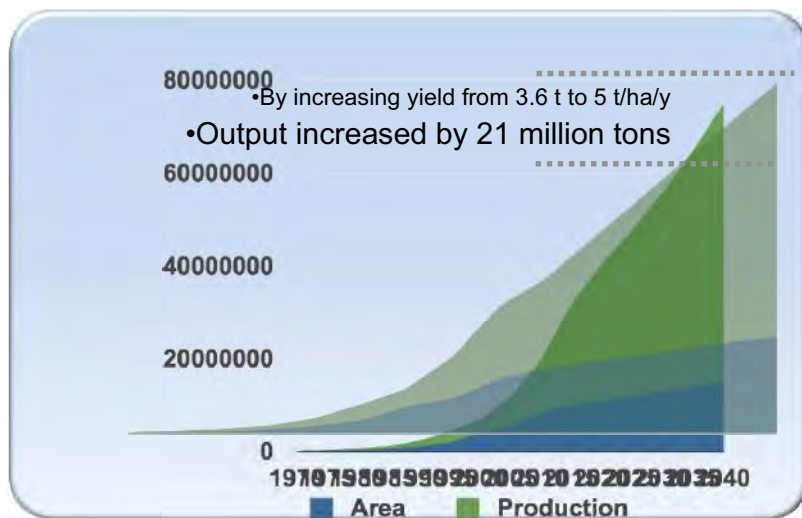
Business as usual



Sustainable Scenario



Realizing The New Vision for Sustainable Agriculture



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THE MAIN PROBLEMS

1. Many plantations owned by farmers are old.
2. The yield is low, need to be replanted.
3. Farmers are afraid of not being able to earn income during the replanting period .
4. Financial unavailability, ranging for nursery, planting, harvesting and post harvest.
5. Often facing liquidity problems because farmers are not bankable assets and limited loan guarantee (collateral).

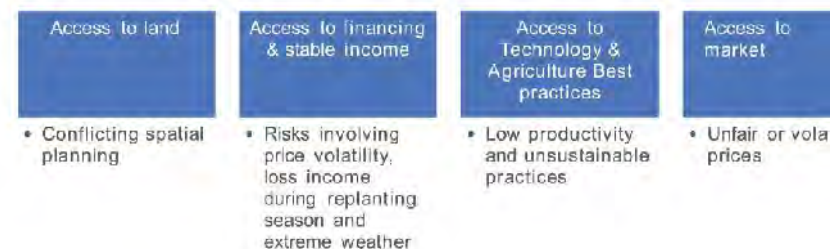
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ASSUMPTION OF BENEFIT CALCULATION

	Current (Base)	5 t/ha Assumption	6 t/ha Assumption	7 t/ha Assumption
Average Price (USD/t)	\$1,000			
Yield (t/ha)	2.0	5.0	6.0	7.0
Cultivated Area (ha)	2,000,000	2,000,000	2,000,000	2,000,000
Expected income per annum	\$4,000,000,000	\$10,000,000,000	\$12,000,000,000	\$14,000,000,000
Development stage (years)	3			
Production Lifecycle (years)	22			
Total income for one lifecycle	\$88,000,000,000	\$220,000,000,000	\$264,000,000,000	\$308,000,000,000
Total additional income	\$0	\$132,000,000,000	\$176,000,000,000	\$220,000,000,000

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CHALLENGES TO ACHIEVE THE TARGETS



Solutions



11

A New Vision for Sustainable Agriculture



Source: World Economic Forum

12

PISAgr (Partnership for Indonesia Sustainable Agriculture)

Goals

20% yield increase

- Improve yield through :
 - ✓ Enhance farmers' knowledge in best practice management.
 - ✓ Leverage private, public, and international experts.
 - ✓ Reduce harvest failures.
 - ✓ Provide access to technology.
 - Ensure self-sufficiency.

20% CO2 emission reduction

- Reduce transportation emissions (lower import).
- Improve land use to reduce deforestation and peatland degradation.
- Develop sustainable farming practices, i.e, crop complements.
- Improve use of renewable energy, i.e biomass.

20% poverty reduction

- Reduce poverty levels by targeting local communities.
- Transfer of knowledge and technology.
- Introduce new, more resilient crop types.
- Standardize contracting to ensure off take and prices.
- Establish financing schemes.

Source: World Economic Forum

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Thank You

The Chamber of Commerce and Industry
have launched a program namely :
Feed Indonesia Feed theWorld
on Feb 2012

For Ipad User : Pls goto Apps Store - News - type "Feed the World"

For Android Users : Pls go to Market and type "Feedtheworld"

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Attachment 6. Workshop Summary



Asia-Pacific
Economic Cooperation



Government of Malaysia



moa
INCORPORATED
KEMENTERIAN PERTANIAN
DAN INDUSTRI ASAS TANI

Workshop Summary & Looking Forward

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Food Security Definition

“When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for active and healthy life”

Food and Agriculture Organization (FAO)

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Background

- Shared goals of the Niigata Declaration on Food Security
- Niigata Action Plan on Food Security
- Kazan declaration this 31st May, which seeks to strengthen Niigata Declaration and urges economies to implement activities

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Four Pillars

1. Increasing **AVAILABILITY** of food
2. Improving **ACCESS** to food
3. Improving food utilization and **NUTRITIONAL ADEQUACY** of food intake
4. Ensuring **STABILITY** in providing food at all times including times of emergencies

Food security issues in developing economies

Low levels of self-sufficiency
 Rural infrastructure e.g. available land for agriculture, irrigation facilities, etc
 Resources – Farm inputs & Technology
 Credit, investment, subsidies
 Postharvest facilities
 Enabling policies
 Access to markets
 Over-reliance on staple - case for diversification
 Human capacity
 Climate change resilience
 Crop production issues
 Stakeholder awareness

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Commonalities in food security actions in developing economies?

- Varying degrees of food sufficiency
- Food security councils
- Domestic food security policies/action plans
- Importation
- Food distribution system
- Food reserve management
- Increase production & productivity

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Innovations/ interventions shared by developing economies?

- Support rural infrastructure development – source of food production for many developing economies
- Village-level food self-reliance (*home-yard production*) and resilience (*stockpiles*)
- Rural enterprise development for income generation to support better access of rural folk to food (*Relationship between producers livelihood security & food security; 1 village 1 product system*)

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Contd..

- Postharvest facilities close to production source (*potential for creating new rural industries*)
- Transforming agriculture – (*small landlord large tenants; permanent agricultural parks*)
- Strengthening of agric. extension system
- Multi-level food production responsibilities
- Regional approach to preparedness to food emergency situations

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Contd..

- Diet diversification (*brown rice*)
- Microfinance
- Biosecurity – robust quarantine system
- Biotechnology (*hybrids*)
- Raising food safety levels
- Food coupons for poor
- Climate change resilience (*short maturity*)

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WORKSHOP RECOMMENDATIONS

- Economies actively participate and contribute towards APIP
- Share best practices and experiences for crop production and productivity, through establishment of more formal forum for exchange, in support of Kazan declaration
- Encourage developing economies to test innovations shared by participating economies at this Workshop
- APEC initiate and support capacity building in pre-harvest and in-field stages of food production
- Actively address food insecurity among disadvantaged and vulnerable groups within the population
- Enhance investment climate to harness support for food security development activities
- Support regional approach to food emergency response, e.g. stockpiling, distribution, building on ASEAN initiatives

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Thank You

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