SECURITY INTERESTS OF CROPS AGAINST ENVIRONMENTAL UNCERTAINTY IN MALAYSIA

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Introduction

- Agriculture - 10% of Malaysia GDP

- 1/3 population dependency

- Agricultural employment - 14%

- Adopt survival strategies for crops – environmental uncertainties

- 2008 until 2012, > US$30 million - compensation

- Sustain agricultural productivity and attain food security - rice
Changes in climatic factors, results in a year to year variability of crop production, physical damage, loss of harvest, and drop in productivity.
Rice & Climate Change

- Variety of risks - unpredictable climate variability, weather-related hazards of cyclone and flood, pest and diseases

- Absence of complete information - weather prediction, calamities or environmental unexpected events

- New resistant varieties development & other production technological advances

- Management tool – crop insurance
Decreasing trend of rice yield for 3 selected main granaries of Malaysia in 70 years period
The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building, and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system. The three A1 groups are distinguished by their technological emphasis: fossil intensive (A1FI), non-fossil energy sources (A1T), or a balance across all sources (A1B).

The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self-reliance and preservation of local identities. Fertility patterns across regions converge very slowly, which results in continuously increasing global population. Economic development is primarily regionally oriented and per capita economic growth and technological changes are more fragmented and slower than in other storylines.

The B1 storyline and scenario family describes a convergent world with the same global population that peaks in mid-century and declines thereafter, as in the A1 storyline, but with rapid changes in economic structures toward a service and information economy, with reductions in material intensity, and the introduction of clean and resource-efficient technologies. The emphasis is on global solutions to economic, social, and environmental sustainability, including improved equity, but without additional climate initiatives.

Security Interest of Rice Farmers

- Environmental uncertainties - inconvenience

- Security interest (insurance) - change the perception & attractive

- Improve credit assessment

- Risk transferred – production focus & facilitate investment
Self-Sufficiency Level (SSL) of Rice in Malaysia

Self Sufficiency Level (%)

Percentage (%)


Self Sufficiency Level (%)

71.6
- National Agriculture Policy (NAP1) to the latest
  - ensure sufficient supply and affordable price for the citizens
  - meet the target self-sufficiency level
  - ensure high price to rice/paddy farmers

- US$ 30 million from 2008 to 2012 to help farmers who were affected

- Crop insurance - alleviate the natural disaster risks

- What kind of crop insurance?
  - Yield?
  - Cost?
  - Production level?
## Distribution Costs by Phase of Rice Production

<table>
<thead>
<tr>
<th>Period</th>
<th>Phase</th>
<th>Allocated Cost (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planting - Rice Stalk Formation</td>
<td>50 days</td>
<td>67.2%</td>
</tr>
<tr>
<td>Stalk formation - Flowering</td>
<td>35 days</td>
<td>27.1%</td>
</tr>
<tr>
<td>Fruiting - Harvest</td>
<td>30 days</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

- Yield insurance – less difficult
- Improvement over time – original product offered
- Another risk emerged
- Fluctuating prices
- Decreasing efficiency
Risks in Rice Production

Categories of Risk Associated with Rice Production among IADA Rice Farmers

- Production risk
- Financial risk
- Social risk
- Environmental risk
- Risk sharing institutions - hardly available

- Covariance of risks & reluctance of commercial banks to offer credit and insurance to small farmers

- US$ 18.38 for every US$ 240 protection coverage per crop season, or 7.66 % of total coverage per crop season (IADA)

- Premium as part of production cost & use the crop insurance - management tools

- Malaysian rice farmers are well aware of those risks

- Current management strategies
  - Less risk and more profitable crops
  - Crops diversification
Externalities in Rice Production

- Internalizing externalities as part of the economic measurement is vital in avoidance of the total market failure

- Various functions (multi-functionality) - intangible & categorized as non-marketed goods

- Rice production integrates much more functions that beneficial to society at large

- Negative externalities - counter-balanced by the technological advancement

- Crop insurance – complement in production failure
Rice Production Multi-functionality

Agriculture Multi-functionality

Food and Fiber (marketed benefits)

Farmers/ Consumers/ Industrial users

Multi-functionality (non marketed benefits)

- Environmental Function
- Education Function
- Social Function
- Food Security Function
- Cultural Function
- Biodiversity

Society at large
Government Role in Crop Insurance Establishment

What government have done?

- Fisheries contribution - national economic, nutritional and financial goals
- Fishing vessel insurance scheme in Malaysia ceased operations due to non-participation by target group
- Personal accident insurance successful – mandatory for vessel licensing
- Need improvement - claim procedures and settlement mechanisms
Personal accident insurance impact

2012

Maximum coverage for injury or death
Conducted from May 15, 2012
Premium RM100 / year

US$ 24000 – sea death
US$12000 ground death
US$ 24/day - Wards allowance

2013

Compensation insurance will not be granted to fishermen who suffer critical illnesses other than accident

2013

Compensation of US$ 96000 will be given to the families of victims who disappeared while fishing if eligible

2014

Compensation resulting from the death at sea of US$ 24480 was given to widows of fishermen in Muar

2014
Credit related special insurance scheme failed

Scheme with a US$ 24000 maximum coverage, and an allocation of US$ 55.2 million in 2013 as an incentive for fish landing as well as payment of living allowances for the fishermen.

The 9th Malaysia Plan placed fishermen among the 70000 poor families benefiting from the Citizen Peace/Harmony/Wealth Development Scheme

No coverage of a health/life insurance’, to be deprived in terms of health insurance, and others to be non-poor

Fishery - first that received such attention from government
Government’s Current Initiative

- Demand assessment - farmers demand and government’s vision need to be aligned so the insurance initiative’s objectives can be met.

- Selection of the crops to be insured – national priority

- Big data initiative - important preparation by the government in complementary of crop insurance establishment

- Internalize the positive externality – multi-functionality from rice production

- Potential structure – leveraging private sector to embark & help the government
Conclusion

- Rice specifically is an important commodity in ensuring stability for country's economic and social development.

- Impact of environmental uncertainties – decreasing rice productivity & socio-economic level.

- Security interests among farmers - affected by unforeseen events.

- Crop insurance establishment - sustainable agriculture and rural development in Malaysia.
Thank you