

SECURITY INTERESTS OF CROPS AGAINST ENVIRONMENTAL UNCERTAINTY IN MALAYSIA

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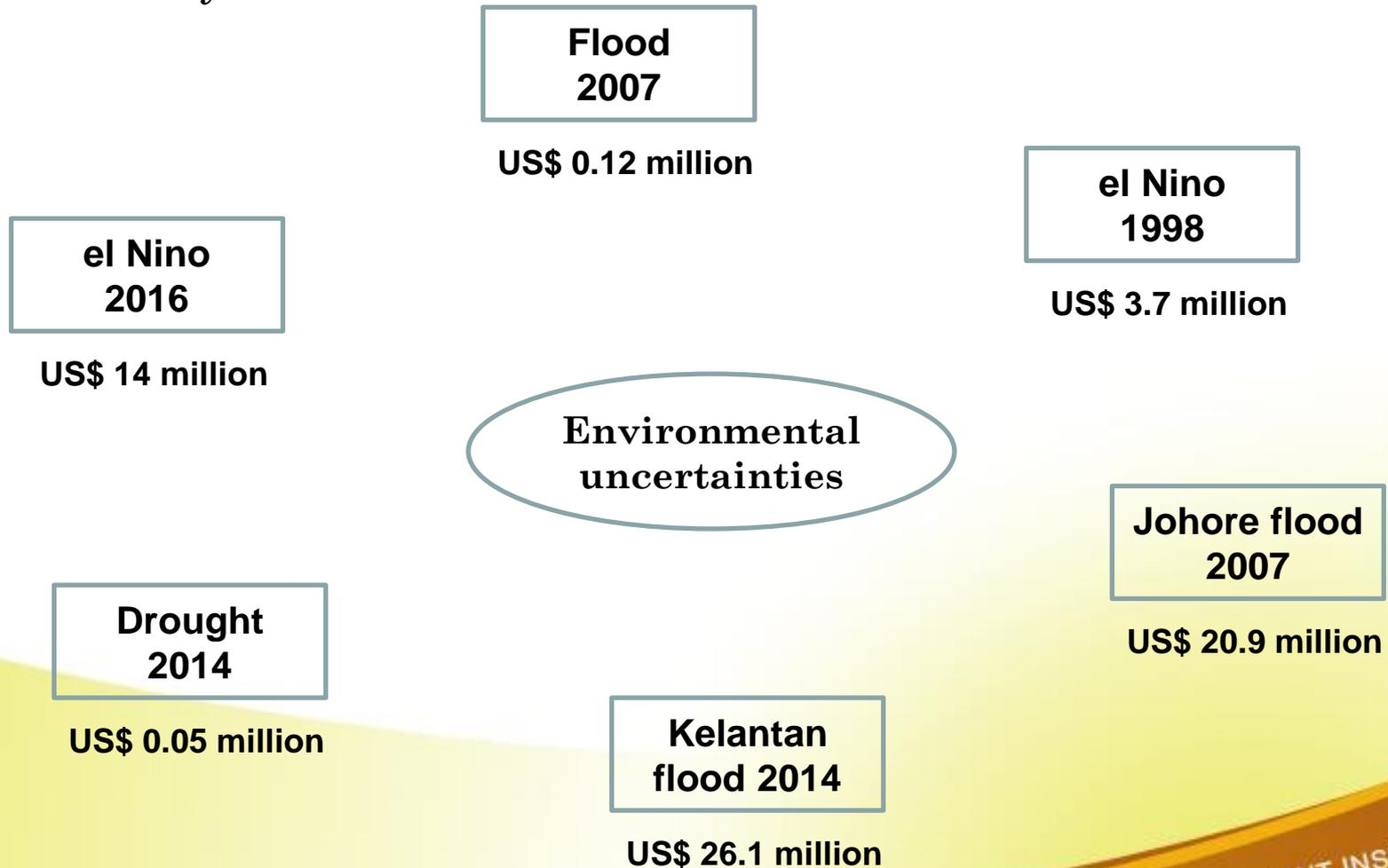


Introduction

- 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

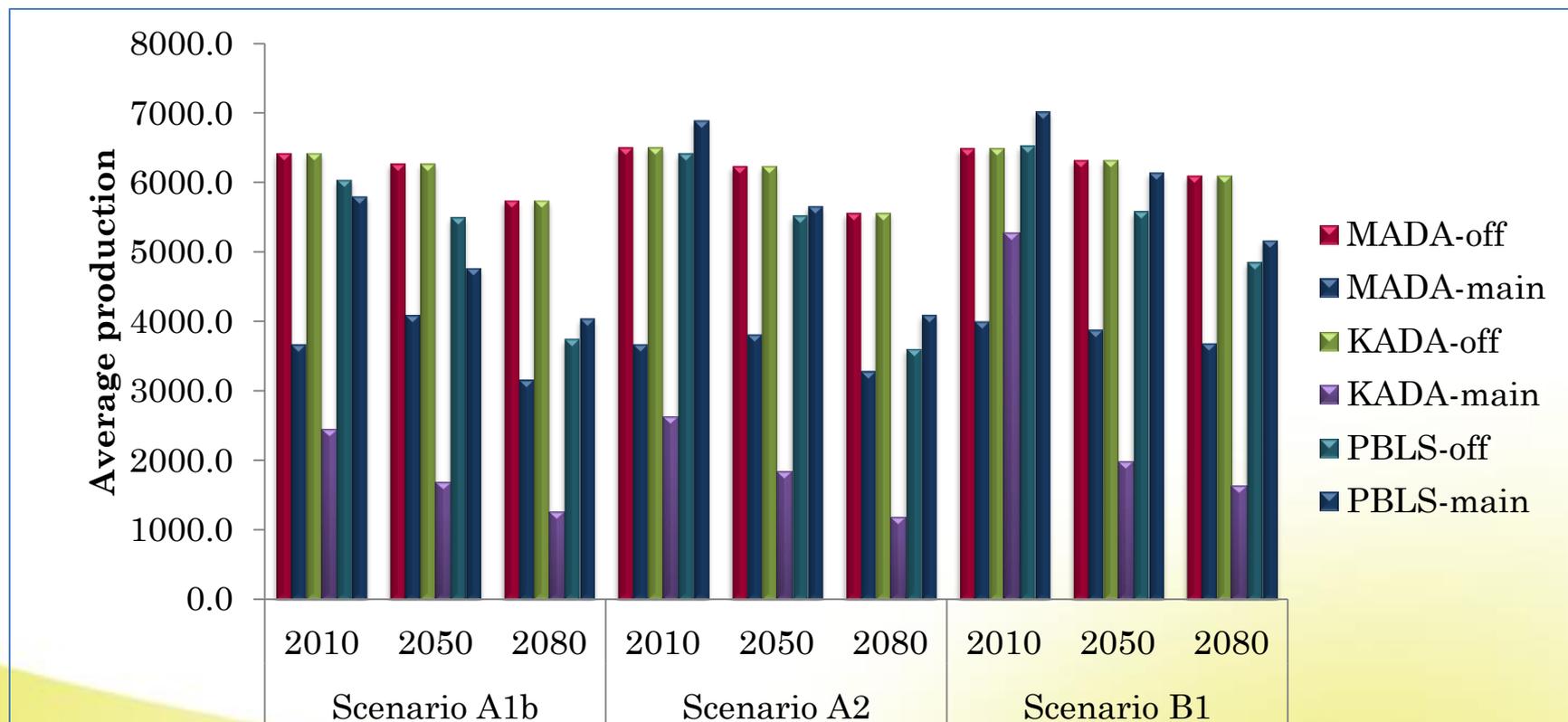


Rice & Climate Change

- 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



Average Simulated Rice Yield for Generated Weather



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.

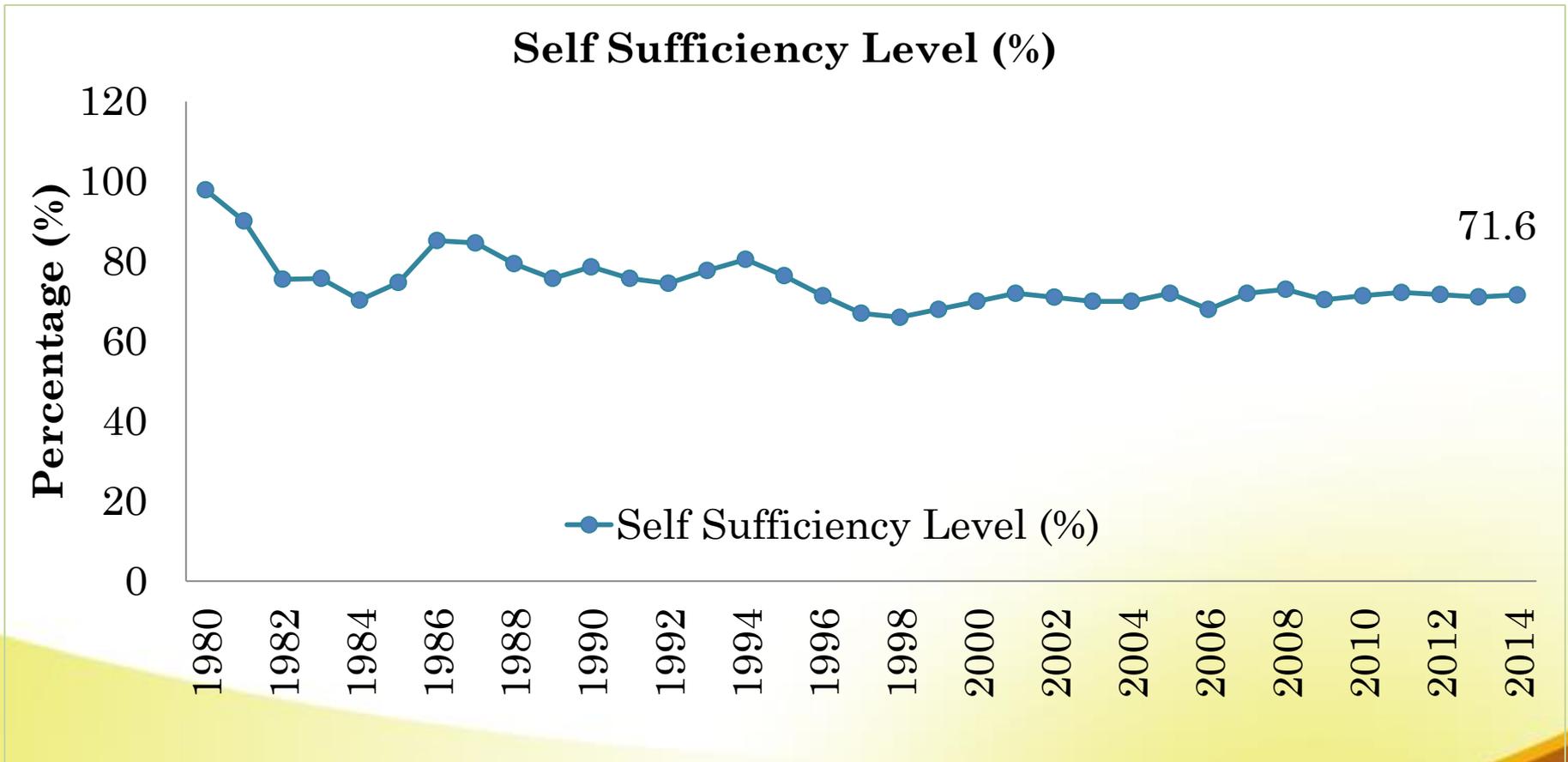


Security Interest of Rice Farmers

- 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



- 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

Period	Phase	Allocated Cost (%)
Planting - Rice Stalk Formation	50 days	67.2%
Stalk formation - Flowering	35 days	27.1%
Fruiting - Harvest	30 days	5.7%

- 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

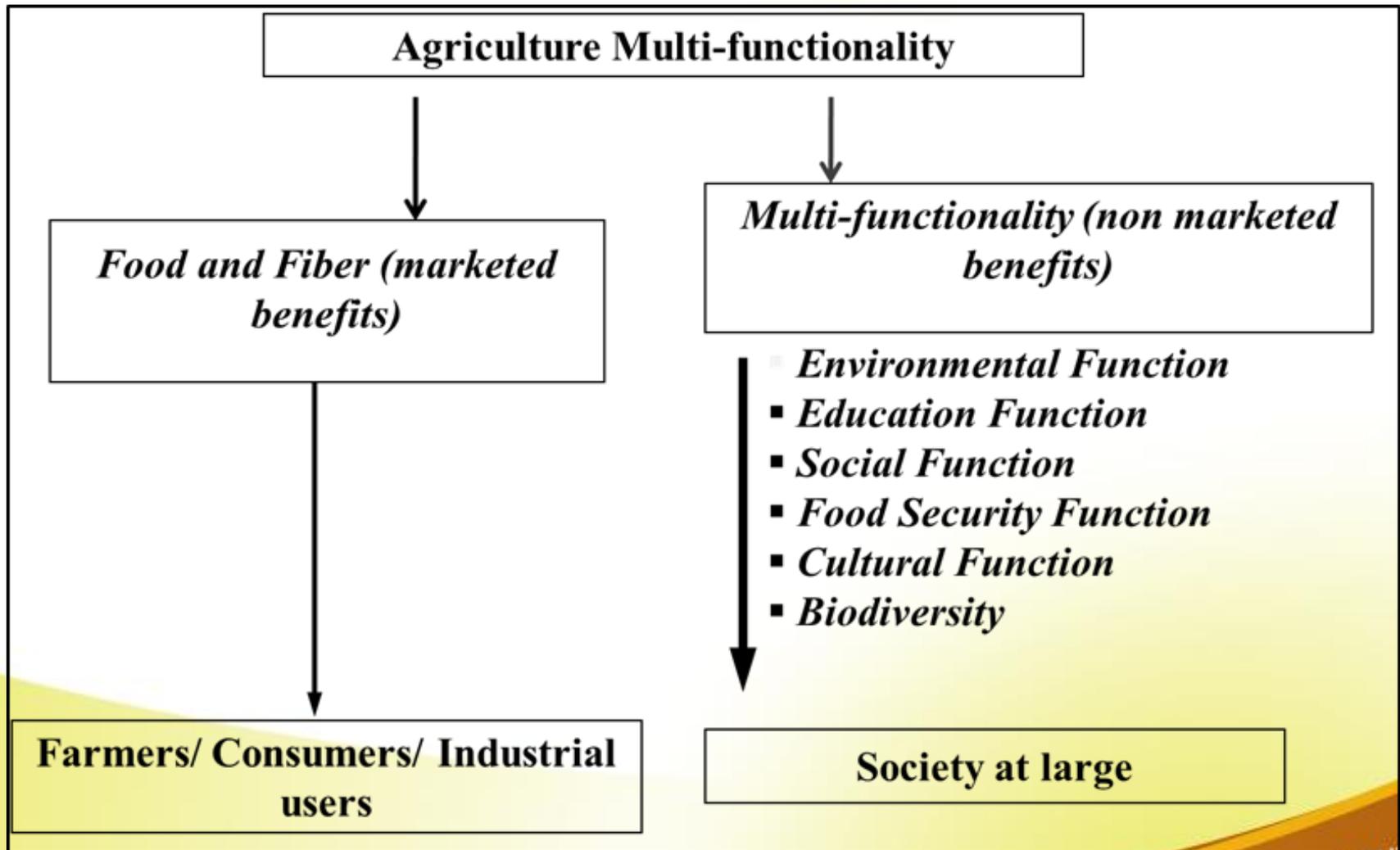


Externalities in Rice Production

- 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



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**

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

2012

**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

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