



# **Agricultural Extension Services for agriculture risk management through ICTs in Malaysia**

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# INTRODUCTION



## Introduction

- Agricultural extension services are facing more challenges in the current scenario when climate changes are affecting farms and farmers.
- The dilemma is that the service providers are not yet fully sensitized and equipped with techniques which can offer quick solutions with minimum cost.
- Most of the services have been focused on agriculture technology transfer but less has been emphasized on risk management by the application of Information and Communication Technologies (ICTs) side.



## Introduction

- As day by day farmers have to face different problems dissimilar to the past so, there is a need to opt digital options for quick solutions and making this sector sustainable.
- Extension services providers can motivate the farming community to use available digital options for minimizing the risks associated with agriculture sector. These risks can be related with production, price, market, technology, legal, health, and personal (Baharuddin, 2012).



## Introduction

- According to Baharuddin (2007), apart from blessed natural landscape with numerous resources in Malaysia, natural disasters like floods, droughts and land sliding are creating adverse effects on the agriculture sector.
- In Malaysia, the flood prone area is nearly 9% of the land area (2.97 million ha). In fact, agriculture sector needs more attention of public, private, NGOs and development sector as more problems are emerging with the passage of time. In this regard, extension as a central player has to accelerate the pace for addressing issues for the farmers and with the farmers as also highlighted by Baig and Aldosari (2013) in Asian countries context.



- In this era of digital technologies, not only extension personnel but also farmers are naturally getting interest and attention to use ICTs in the agriculture sector.
- It is due to the fact that they are already using for social interaction. However, farmers are not well informed and equipped with the benefits hidden in the ICTs which can be harnessed for keeping them more informed about weather forecasts, agricultural best practices, innovations in agriculture sector and many more. Moreover, digital based agriculture sector is less focused due to lack of awareness and knowledge about its potential role in the management of agriculture risks.



- Baig & Aldosari (2013) along with other authors (APO, 2002; FAO, 2004; Anandajayasekeram *et al.*, 2008) have pointed out that existing extension methods (traditional) like individual, group and mass contact methods need to be grafted with ICTs for making the information available to all players in an efficient, quick and effective manner (FAO, 2004). Ultimately, it would give boost to the traditional extension system.



# Research Methodology

# DATA COLLECTION

- **Location**

Kedah, Johor, Pahang and Terengganu

- **Type of Study**

Survey approach through questionnaire

- **Sampling Method**

Stratified random sampling technique

- **Sampling size**

360 Farmers





# Results and Discussion



## Sources of Information about Weather Forecast

- Farmers use single or various sources regarding weather forecasts for appropriate management of agriculture risks.
- According to Demiryurek *et al.* (2008) one of the important factors in agriculture is information which helps the farmer in the better management of agriculture and also facilitate in the better decision process when provided by extension service providers, research, academia and agricultural organizations.



# Sources of Information about Weather Forecast

Sources	Frequency	Percentage	Rank
Radio	134	37.2	5
Television	286	79.4	1
Department of Fisheries	05	1.4	13
Department of Veterinary Sciences	15	4.2	9
Fellow farmers	220	61.1	2
Opinion leaders	146	40.6	4
Newspapers	127	35.3	6
Department of Meteorology	39	10.8	7
Telecommunication Company	07	1.9	11
Department of Agriculture	38	10.6	8
Self-judgment	187	51.9	3
State authority	08	2.2	10
No information	05	1.4	14
Any other	07	1.9	12

- The results are consistent with Ngathou *et al.* (2006) who conducted research in North Alabama to explore sources of information by limited resource farmers and found that information received by face to face contact and through television programmes are most useful methods.
- Mittal and Mehar (2013) conducted a survey in Indo-Gangetic plains of India to assess the agricultural information networks and needs of farmers along with risk management strategies and found that farmers had multiple sources of information and did not rely on single source but, on the basis of information accessibility, precision and Trustworthiness.



## Frequency of Agriculture Extension Staff Visits

- Extension workers in their areas of jurisdiction play a vital role in the agricultural development. They meet farmers face to face or contact indirectly in order to sort out best fit actions need to be taken by farmers. In this regard, their frequency of meeting with farmers differs from country to country and even within country area to area. FAO (2005) highlighted that extension officers are important frontline workers as they visit farm of the farmers for links establishment, motivation, and detections of problems being faced.



# Frequency of Agriculture Extension Staff Visits

Frequency of visits	Frequency	Percentage
Weekly	14	3.9
Fortnightly	11	3.1
Monthly	38	10.6
Bi annually	103	28.6
Annually	108	30.9
Never	86	23.9
<b>Total</b>	<b>360</b>	<b>100.00</b>



## Support by Extension Officers

- Farming community needs help of the extension experts most of the time in the agriculture sector. They not only inform farmers to adopt new technologies but also support in grafting of new ideas into their existence agricultural practices. Kristin *et al.*, (2014) pointed out that there is a need to change the existing traditional role of extension into new dimensions of support services which must help in variety of emerging challenges like malnutrition, risk and disaster preparation, adaptation to climate variations and resilience of farmers.

# Support by Extension Officers

Support	Frequency	Percentage
No support	81	22.5
Minimal support	68	18.9
Some support	43	11.9
Adequate support	130	36.1
Very supportive	38	10.6
<b>Total</b>	<b>360</b>	<b>100.00</b>



## Information about Use of ICTs from Officers

- Farmers try to receive as much as information especially in the risk management field. Indeed, it is a common perception that extension staff is well trained and better informed in the variety of issues in agriculture sector.



# Information about Use of ICTs from Officers

Items	Frequency	Percentage
Use of ICT for market prices	83	23.1
ICT for disasters information	120	33.3
ICT for relocation in case of emergency	55	15.3
ICT for well preparedness in any disaster	98	27.2
ICT for pre and post recovery	80	22.2
Any other	139	38.6



## Extension Staff Knowledge

- The intensity of risk may be even higher when service providers either do not help farmers at appropriate time or lack ability to transfer innovative risk management techniques in the agriculture sector. Extension staff knowledge does count when transferring innovative and ICT based risk management technologies to the farmers.

## Extension Staff Knowledge

Extension Staff Knowledge	Frequency	Percentage
Needs improvement	139	38.6
Weak	41	11.4
Fair	44	12.2
Good	97	26.9
Excellent	39	10.8
<b>Total</b>	<b>360</b>	<b>100.00</b>



## Conclusion

- Agricultural extension services need to be overhauled on urgent basis with continual up gradation.
- All the stakeholders must pay attention and sensitize their field staff regarding agriculture risk management and ICTs.
- Frequent visits, skills and knowledge up gradation through training programmes on regular basis, farmer friendly support and policy particularly at the time of disasters and help for resource poor farmers are required in Malaysia generally and disaster prone areas particularly.



## Recommendations

- In order to reach majority of disaster prone farmers, extension service providers need to be fully aware, equipped and empowered themselves in all aspects so that they can easily help the farmers in resilience.
- Moreover, the services should be triggered for poor resilient farmers and must not be ignored.
- There is a need to establish separate section in the public and private extension system, allocate more financial resources in the disaster prone areas, develop methods and strategies to integrate ICTs with the help of farmers by involving all the game players.



## Recommendations

- Extension service providers' role and duties should be redefined according to the challenges, risk management and ICTs related skills should also be grafted and link among extension, research, academia and farmers must be strengthened.



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