IN-SERVICE TRAINING NEEDS OF AGRICULTURAL EXTENSION PERSONNEL ASSOCIATED WITH CLIMATE CHANGE ADAPTATION IN MALAYSIA

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INTRODUCTION

- Global climate is getting warmer.
- Impact in lower latitudes: low agric productivity (Vaghefi et al., 2016).
- Simulation studies showed that less rainfall and higher Tº would decrease rice prod. & SSL.
- Variations in Tº would decrease rice prod. in the granaries
  - 18% in the main season and
  - 31.3% in the off-season (Vaghefi et al., 2016).

- CC resultant extreme events = more devastating effects. Drought and flooding could cause up to 80% decrease in yield (Siwar, et al., 2013).

- To adapt, need for competent extension workers performing their job effectively.

- There is an urgent need for training

- **Training needs = Standard or desired performance – Present or actual performance**

STUDY OBJECTIVES

Main Objective:

To identify and prioritize the training needs of agricultural extension personnel on competencies associated with climate change in Malaysia.

Specific Objectives:

- Describe the demographic profile of extension workers;
- Describe the perceived importance of climate change-related competencies;
- Describe the perceived proficiencies in climate change related competencies; and
- Evaluate the training needs of EAs in climate change related competencies.

METHODOLOGY

- DESIGN: Cross-sectional descriptive (Kumar, 2011). Quantitative and non-experimental in nature.

- STUDY AREA: Kelantan, Perak, Selangor, Kedah, Penang and Terengganu.

- POPULATION: Public extension workers
  - A list of 1,307 compiled

- SAMPLING: Multi-stage.
  - Raosoft employed, 298 recommended
  - 110% of 298 = 328 selected
  - States selected randomly
  - Subjects selected proportionately

- DATA COLLECTION: Structured questionnaire: Drop-off and pick-up
- ANALYTICAL TOOLS: SPSS and Microsoft Excel
- ANALYTICAL TECHNIQUES: Descriptive & BNAM

Calculating MWDS

$$DS_{ij} = B_{ij} - A_{ij}$$

$$WDS_{ij} = DS_{ij} * \bar{A}_j$$

$$MWDS_j = \sum WDS_{ij} / N$$

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RESULTS

Figure 1: Socio-demeographic profile of EAs

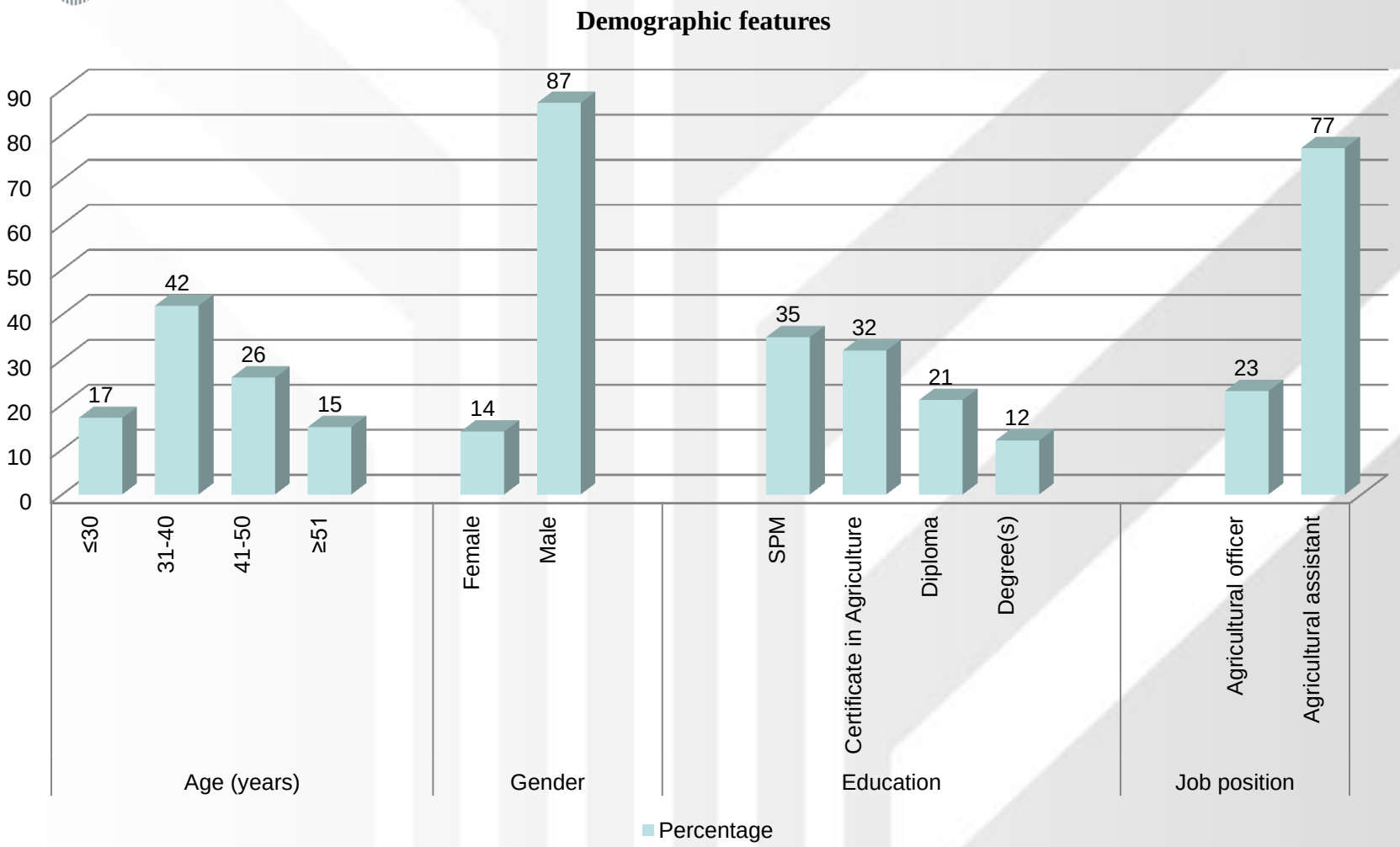

Table 1: Perceived level of importance of climate change related competencies among extension personnel

Competency	M	SD
Communicating climate information effectively	4.73	0.74
Using ICTs in climate change adaptation	4.70	0.53
Promoting eco-friendly agronomic practices and farming system	4.67	0.61
Impact of climate change on urban development	4.60	0.72
Pro-poor options for low carbon development	4.60	0.62
Promoting financial risk management/ agricultural insurance	4.50	0.63
Ability to translate climate information into practical guidance	4.47	0.63
Employing Disaster risk reduction (DRR) strategies	4.47	0.78
Understanding and communicating weather forecast	4.47	0.73
Conducting vulnerability risk assessments	4.00	0.87
Evaluating adaptation options	4.00	0.87

Table 2: Perceived level of proficiency of climate change related competencies among extension personnel

Competency	M	SD
Promoting cultivation of improved crop varieties	2.43	0.77
Planning climate resilient development	2.33	0.80
Capacity to build linkages among stakeholders	2.33	0.76
Biodiversity, ecosystems and resilience to climate change	2.30	0.79
Pro-poor options for low carbon development	2.27	0.74
Environmental, social and economic factors for improved livelihood and effective land use	2.27	0.74
Soil and water conservation	2.27	0.74
Promoting rearing of improved livestock breeds	2.27	0.69
Ability to translate climate information into practical guidance	1.97	0.32
Employing Disaster risk reduction (DRR) strategies	1.97	0.41
Understanding basic agro-meteorological parameters	1.97	0.81

Table 3: In-service training needs of extension personnel associated with climate change

Competency	MWDS	Level*	Rank
Communicating climate information effectively	12.94	1	1
Using ICTs in climate change adaptation	12.22	1	2
Promoting eco-friendly farming practices and systems	11.67	1	3
Impact of climate change on urban development	11.19	1	4
Pro-poor options for low carbon development	10.73	2	8
Promoting financial risk management/ agricultural insurance	10.65	2	9
Mobilizing resources for adaptation	10.64	2	10
Extreme events monitoring and reporting	10.42	2	11
Utilizing agricultural marketing and prices information	10.42	2	12
Understanding basic agro-meteorological parameters	10.03	2	13
Carbon emission reduction strategies in agriculture	9.75	2	14
Promoting cultivation of improved crop varieties	8.87	3	20
Carbon sequestration strategies in agriculture	8.82	3	21
Capacity to build linkages among stakeholders	7.84	3	28
Conducting risk assessments for farmers and communities	7.73	3	29

**Note: Pressing levels of needs: 1 = high level; 2 = moderate level; and 3 = low level*

CONCLUSION & RECOMMENDATION

- The BNAM is effective in TNA.

- High scores for importance, +
- Low proficiency scores
- → gap in competency
- → The need for in-service training of the personnel, update .
- This was confirmed from evaluation of the training needs using the MWDS.
- It is recommended that any training programme in the area should prioritize these competencies in the order in which they are ranked and grouped by this study to effectively enhance the capacity of the personnel as they tackle climate change in collaboration with the farmers.

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