Climate Information and Adaptation in Rice Farming: Observations from the Philippines

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Outline

- Introduction

- Objectives

- Key Findings

- Prospects and Challenges in Mainstreaming CIS into Local Extension

Introduction

- Threat of Climate Change to Farming
  - increasing temperatures (0.01°C/yr ↑)
  - slight increase in no. of typhoons
  - reduction in rainfall in some parts during summer; increase in most areas during monsoon season
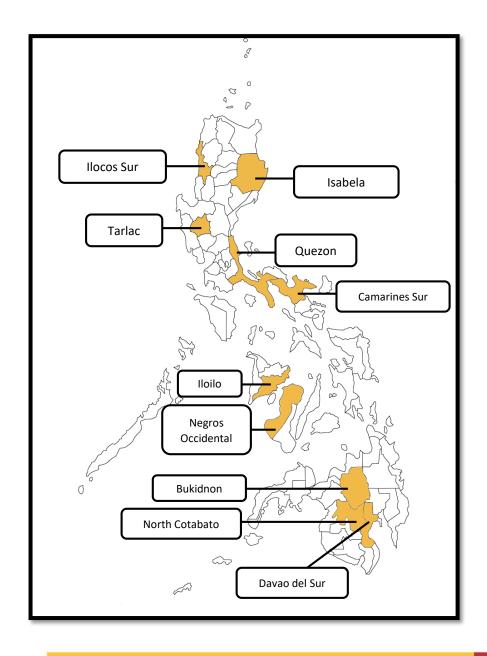 - Philippines ranked 6th among 16 countries most vulnerable to climate change

Introduction

Photo credits: Nonie Reyes / World Bank

- Threat of Climate Change to Farming
  - About 1/2 of the country's land area vulnerable to natural disasters (World Bank , 2008)

- The (Philippine) Climate Change Commission: From 1990 to 2006, US$249M in average annual value of damages to agriculture---
  - Typhoons (70.3%)
  - Drought (17.9 %)
  - Floods (5%)

Objective

- Using the data generated from an AMIA2 (DA-BAR) funded project entitled CIS Provisioning in Agriculture, this paper examines how farmers access and utilize climate information for decision-making. Further it investigates the adaptation behavior of rice farmers toward changes in the climate.

Methodology

- Three municipalities each from the ten provinces were selected based on the presence of the weather data collection instruments such as Automatic Weather Station (AWS) and Agromet station.

- A total of 405 respondents were randomly drawn from farmer lists in the most vulnerable barangay (village) as perceived by the Municipal Agriculture Office (MAO).

Map labels: Ilocos Sur, Isabela, Tarlac, Quezon, Camarines Sur, Iloilo, Negros Occidental, Bukidnon, North Cotabato, Davao del Sur

Findings: Socio Demographic Characteristics

Particulars	n	%
Age Range		
21-30	12	3.0
31-40	52	12.8
41-50	97	24.0
51-60	122	30.1
61-70	82	20.2
71-80	37	9.1
81-90	3	0.7
Total	405	100.0
Mean Age	54	
Sex		
Male	277	68.4
Female	128	31.6
Total	405	100.0

Particulars	Highest Educational attainment			
	Farmer Respondent		Spouse	
	n	%	n	%
Elem. Undergrad	50	12.3	45	13.5
Elem. Graduate	118	29.1	93	27.9
High School Undergrad	46	11.4	40	12.0
High School Graduate	111	27.4	100	30.0
College Undergrad	25	6.2	21	6.3
College Graduate	45	11.1	28	8.4
Vocational	9	2.2	4	1.2
Post Graduate	1	0.2	1	0.3
Don't Know			1	0.3
Total	405	100.0	333	100.0

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Findings: Farm Characteristics of farmer respondents

Particulars	n	%
Tenurial Status*		
Owner	**206**	**50.9**
Tenant/ Shareholder	126	31.1
Renter/Lessee	72	17.8
Mortgage Owner	11	2.7
Mean Total land area	1.4947	
Mean Total rice land	.9400	
Mean Total other land use	.3965	
Source of Water*		
None/Rainfed	**184**	**45.4**
Pump irrigation from open source, e.g., river (PISO)	110	27.2
Communal Irrigation system	65	16.0
Others	107	26.4
Number of cropping		
1	46	11.4
2	**317**	**78.3**
3	42	10.4
Total	405	100.0

*Multiple response

Prediction of the occurrence of extreme events and the basis of their predictions.

Particulars	Drought		Flood/Typhoon	
	n	%	n	%
Can you predict the occurrence of Extreme events				
Yes	146	36.0	146	36.0
No	259	64.0	257	63.5
No Response	0	0	2	.5
Total	405	100.0	405	100.0
Basis of prediction*				
Based on prevalent/ observed weather in the locality	49	33.6	56	38.4
Months of the year	15	10.3	9	6.2
Information from TV/Radio	11	7.5	10	6.8
Weather forecast	12	8.2	14	9.6
Observation of the environment	13	8.9	20	13.7
Others	25	8.2	29	9.6
Do you decide on farming practices based on your prediction				
Yes	118	80.8	120	82.2
No	25	17.1	26	17.8
No response	3	2.1	0	0
Total	146	100.0	146	100.0

*Multiple response

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Particulars	Drought		Flood/Typhoon	
	n	%	n	%
Insects				
Decrease	72	21.3	56	16.6
Same	100	29.6	73	21.6
Increase	122	36.1	186	55.0
Others	44	13.0	23	6.8
Total	338	100.0	338	100.0
Diseases				
Decrease	54	16.0	29	8.6
Same	113	33.4	124	36.7
Increase	135	39.9	167	49.4
Others	36	10.7	18	5.4
Total	338	100.0	338	100.0
Rodents				
Decrease	33	9.8	41	12.1
Same	162	47.9	169	50.0
Increase	66	19.5	69	20.4
Others	77	22.7	59	17.5
Total	338	100.0	338	100.0
Weeds				
Decrease	52	15.4	37	10.9
Same	101	29.9	115	34.0
Increase	136	40.2	166	49.1
Others	49	14.5	20	5.9
Total	338	100.0	338	100.0

Findings

- Perceived changes in the occurrence of pest incidence as observed

Source of knowledge used for decision making on planting practices and climate information and forecast.

Particulars*	n	%
When to plant		
Respondent's own experience	**209**	**51.6**
MAO/AT/Barangay officials	79	19.5
Other farmers	69	17
Others	91	22.5
What crop to plant		
Respondent's own experience	**205**	**50.6**
MAO/AT/Barangay officials	102	25.2
Other farmers	45	11.1
Others	87	21.5
Climate information		
Radio/TV/Newspaper	**334**	**82.5**
PAGASA	50	12.3
Others	68	16.8
Climate forecast		
Radio/TV/Newspaper	**331**	**81.7**
PAGASA	77	19
Others	47	11.6

Crop Insurance

Particulars	n	%
Do you have crop insurance?		
Yes	97	24.0
No	**308**	**76.0**
Total	405	100.0
How much loss did you incur during the recent extreme event		
41-60%	**135**	**33.3**
51-80%	84	20.7
81-100%	84	20.7
Others	102	25.9
Total	405	100.0
Did you receive pay-off?		
Yes	**55**	**56.7**
No	42	43.3
Total	97	100.0
Was this enough to cover your losses		
Yes	8	14.5
No	**47**	**85.5**
Total	55	100.0

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Knowledge on Weather Index Based Insurance Scheme

Particulars	n	%
Have you heard of WIBI?		
Yes	24	5.9
No	**381**	**94.1**
Total	405	100.0
If yes, where did you get information*		
MAO/CAO	**13**	**54.2**
Agricultural Technician	6	25.0
Others	12	50.0
Do you think WIBI will be helpful to you		
Yes	**22**	**91.7**
No	0	0
No response	2	8.3
Total	24	100.0

*Multiple response

Coping mechanisms for the effects of extreme events

Particulars*	N	%
Time of Planting		
Adjust planting date consider weather and water	**220**	**80.9**
Others	74	26.9
Harvesting dates		
Adjust harvesting dates consider having good weather	**188**	**64.2**
Advance harvesting	55	18.8
None	36	12.3
Others	18	6.1
Varieties used		
Replant using other resistant varieties	**104**	**55.6**
Replanting with the same variety	29	15.5
Drain excess water	9	4.8
None	30	16.0
Others	30	16.0

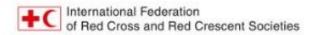*Multiple response

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Prospects and Challenges

- These findings underscore the key role of local governments in providing enabling mechanisms for farmers to make autonomous adaptation decisions to ensure sustenance and resilience of their livelihoods.

- Much progress is evident with the installation of local climate information gathering facilities in critical areas around the country.

- Continued strengthening of local capacities to utilize local climate information for improved extension advisories.

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