Crop management practices and coping strategies of rice farmers in typhoon prone Eastern Visayas, Philippines

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Introduction

The Philippines ranks among the world's most typhoon-affected regions, with climate change intensifying their frequency and strength (Figure 1).

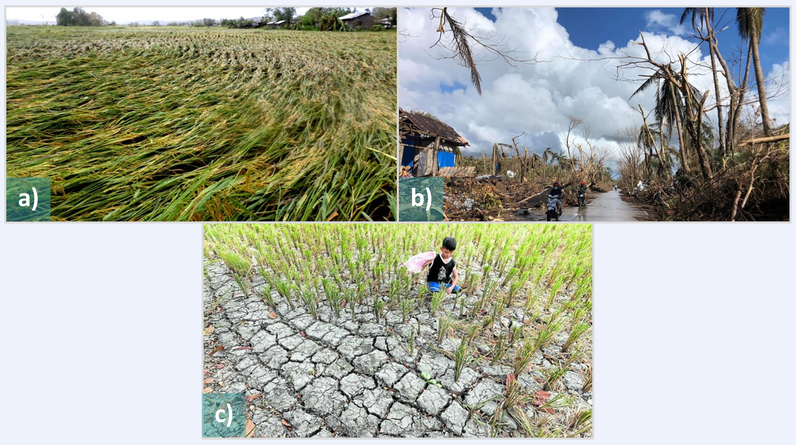

Figure 1. a) Damaged rice crops due to typhoon Ompong (2018) in Kalinga, Apayao Philippines (*cdrc-phil.com*) b) Damaged coconuts and properties due to typhoon Odette (2021) (*edition.cnn.com*) and c) Impact of drought on rice crops Cavite, Philippines (2024) (*cebudailynews.inquirer.net*)

In the recent decades, typhoon occurrences have surged from 15 to 20 annually, particularly impacting Samar and Leyte islands in the Eastern Visayas region (Figure 2). These typhoons heavily affect the crop management practices of farmers in the region. Hence, the study aimed to look at how farmers cope with the impacts of these typhoons.

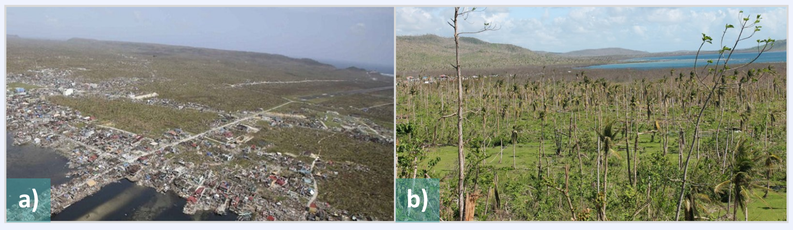

Figure 2. The devastation of typhoon Haiyan (Yolanda) in Leyte and Samar Philippines a) Aerial view in Guiuan, Eastern Samar (*dailymail.co.uk)* and b) denuded mountains with fallen coconut crops in Leyte, Philippines.

Methodology

Figure 3. Photos of rice and sweetpotato farmers interviewed in Borongan, Eastern Samar.

- Forty (40) lowland rice farmers in Borongan, San Julian, and Dolores Eastern Samar were interviewed to assess the impact of climate change on farming practices and identify coping mechanisms of farmers in typhoon-affected areas (Figure 3).
- Data was synthesized in Excel to identify common themes from the interviews.

References

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Results

Table 1. Effects on farming and coping strategies of research interviewees

Shock/Stress	Effects on Farming	Coping Strategy
Temperature Increase	1. Water-related issues (e.g., absence of rainfall) 2. Growth and production challenges (e.g., stunted growth) 3. Pest and disease problems	• Problem-focused strategies (e.g., establishing dikes, planting other crops, applying inorganic fertilizers and a mix of pesticides) • Emotion-focused (e.g., waiting for rain, planting other crops) (Fig. 4)
Limited Water	1. Growth and production issues 2. Plant color changes (e.g. Rice turns yellowish to reddish to golden brown)	• Problem-focused (e.g., plant sweet potato and other crops to cope with limited water and limited soil moisture, irrigate water using a sprinkling can) (Fig. 5) • Emotion-focused (e.g., waiting for rain)
Changing Rainfall Patterns	1. Growth and production issues (e.g., rice production is possible only from October to December)	• Emotion-focused (e.g., avoidance by not planting or leaving land idle until rain comes) (Fig. 6)
Flooding	1. Growth and production issues (e.g., submerged crops, low production; crop lodging and produce unfilled grains; damaged groups from floods) 2. Pest and disease problems	• Problem-focused (e.g., planting again to replace damaged crops, early harvesting before natural disaster, asking help from local officials) • Emotion-focused (e.g., resignation or thinking nothing can be done, no coping strategy)
Landslide Erosion	1. Growth and production issues (e.g., crops covered with eroded soil)	• Emotion-focused (e.g., no coping)

Figure 4. Young rice plants planted in a rainfed rice farm affected by drought.

Figure 5. Farmers plant a) traditional sweetpotato (Kapungko or Kasapad) instead of rice to adapt to limited water. They use b) mound planting and c) some practice furrow planting.

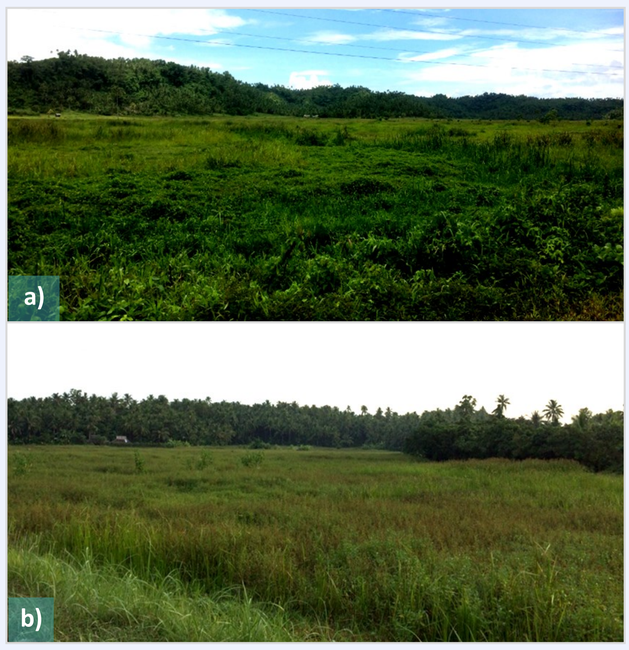

Figure 6. Large tracts of rice land left idle due to lack of irrigation in a) Can-avid and b) San Julian (the rice granary of Eastern Samar)

Conclusion

- Farmers practice emotion-focused and problem-focused coping strategies.
- Emotion-focused coping strategies practiced by farmers are maladaptive actions, such as applying inorganic fertilizer to address stunted growth during limited water.
- Farmers' common crop production practice after typhoons is to switch to other crops, like planting sweet potatoes, cultivating the land once, and leaving the land idle during no-rain periods.

Implication

- There is a need for government support and a need for farmers to access support.
- Farmers are more prone to maladaptive strategies because they lack access to government support services and support from fellow farmers.

Acknowledgment: The authors would like to thank Visayas State University for funding the project and the forty (40) farmers who participated in the interview conducted by the primary researcher. They would also like to extend heartfelt gratitude to Mr. Quimson R. Canete for the layout of the poster.