Assessment of Adaptative Capacity to Climate Change for Sustainable Development by Fishery Related Households in Thua Thien Hue Province, Vietnam

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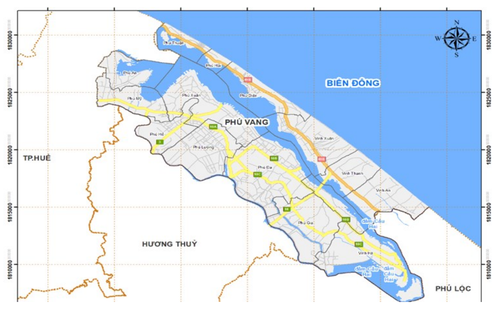
INTRODUCTION AND OBJECTIVE

Vietnam, with over 3,200 km of coastline, is highly vulnerable to climate change impacts, including rising temperatures, sea-level rise, and extreme weather. These shifts significantly threaten coastal communities and sectors, particularly fisheries and aquaculture, which are vital to local livelihoods and the national economy. The aim of this study is to evaluate the adaptative capacity of fishing households to climate change in Thua Thien Hue, focusing on adaptive strategies to enhance resilience and safeguard livelihoods in these at-risk communities.

METHODOLOGY

Description of the study area

The Phu Vang district, located within the Thua Thien Hue Province, like many others along Vietnam's coast, faces recurrent threats from climate-induced phenomena such as floods, droughts, and extreme weather events (Vo et al., 2021). Given its vulnerability to climate change within Thua Thien Hue Province (Bonstra, 2015), the Phu Vang coastal district was chosen as the survey location. Phu Thuan and Phu An Commune are the coastal communes in Phu Vang District, Thua Thien Hue province. With a bay area of 2973 ha and total population of 116.920 people (Phu Vang, 2021), 75% of the households are engaged in fishery activities (aquaculture and capture fishing).



Map 1. Phu Vang district and its communes (Phu Vang, 2023)

Data Collection and Analysis

This study utilized both quantitative and qualitative methods for data collection. The qualitative phase involved reviewing local government documents to understand ecological and socioeconomic contexts, followed by group discussions with 12 fishing households in Phu Thuan and Phu An to assess adaptation capacity across six components, including income and education. Finally, we interviewed community leaders and experienced fishermen on livelihood challenges and sustainability. The quantitative phase surveyed 105 fishing and aquaculture households using simple random sampling to gather demographic and social-economic data. Adaptive capacity was analyzed quantitatively, normalizing indicators on a 0-1 scale through min-max standardization, semi-quantitative weights, and binary scoring, calculating the adaptive capacity index for households and communes .

Photos 1, 2, 3: Images of in depth interview, focus group and field trip to collect data (2023)

RESULTS AND DISCUSSION

Demographics and Socioeconomic Characteristics: 68.9% of respondents were men, 31.1% were women, with an average age of 54 years. 30.1% were 60 years or older. All members in 60% of households engage in fisheries and aquaculture, and most households have at least three high school graduates. Aquaculture is linked to 51% of livelihoods, followed by fishing (36.1% in Phu An, 32.2% in Phu Thuan)

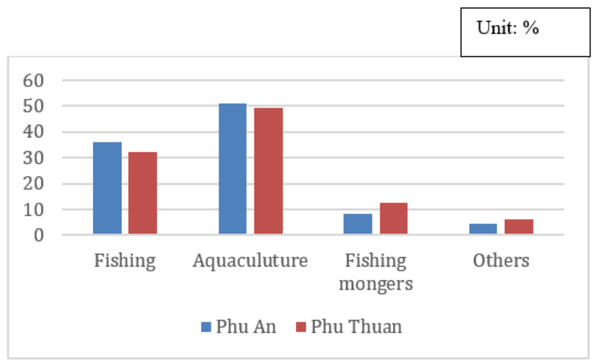


Figure 1. Livelihood of fishery households in Phu Vang District

Adaptive Capacity: Phu Vang shows strong adaptive capacity in assessing climate information, infrastructure quality, and household dependency. However, education, climate perception, and insurance are weaker. Phu An scores higher in adaptive capacity (0.54) compared to Phu Thuan (0.50). Key strengths include wealth, education, skills, social participation, municipal services, governance, and community competence, with Phu An generally outperforming Phu Thuan except in community competence where Phu Thuan scores higher.

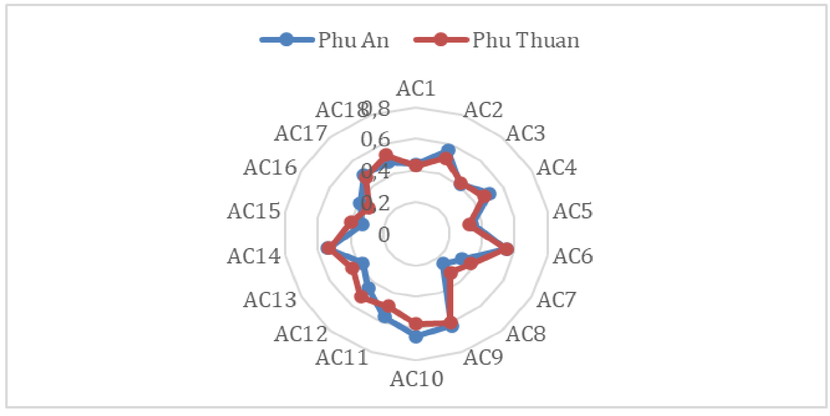


Figure 2. The pattern of adaptive capacity variables of household in Phu Thuan and Phu An district

Phu Vang district, adaptive capacity varies between Phu An and Phu Thuan. Wealth significantly influences household conditions, while education levels are high, with Phu An leading (72.1%) over Phu Thuan (61.4%). Social capital is stronger in Phu An due to higher participation in associations and training.

Table 1: Major component contributions of adaptive capacity of fishery households

	Economy	Human	Social	Infrastructure	Governance	Community Competency	Adaptive Capacity
Phu An	0.45	0.56	0.59	0.60	0.62	0.43	0.54
Phu Thuan	0.44	0.58	0.55	0.57	0.59	0.45	0.50

Both areas score well in municipal services, with Phu An slightly ahead.

Governance is better in Phu An, with superior early warning and external support systems. However, Phu Thuan excels in community competence, reflecting stronger collective action and decision-making.

CONCLUSION

Climate change presents significant challenges to 105 surveyed households in Phu An and Phu Thuan, Phu Vang district, impacting them with storms, floods, and more. The study reveals low education levels and limited climate awareness. Phu An shows slightly higher adaptive capacity (0.54) than Phu Thuan (0.50). Key recommendations include improving infrastructure, raising climate awareness, and diversifying livelihoods. Implementing early warning systems and providing flexible credit options are essential to enhance long-term resilience and adaptive capacity.

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