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UNESCO CHAIR**



**มหาวิทยาลัยแม่ฟ้าหลวง
MAE FAH LUANG UNIVERSITY**

Addressing Multidimensional Gender Impacts from Climate Disasters in Chiang Rai Province Towards Sustainable Development

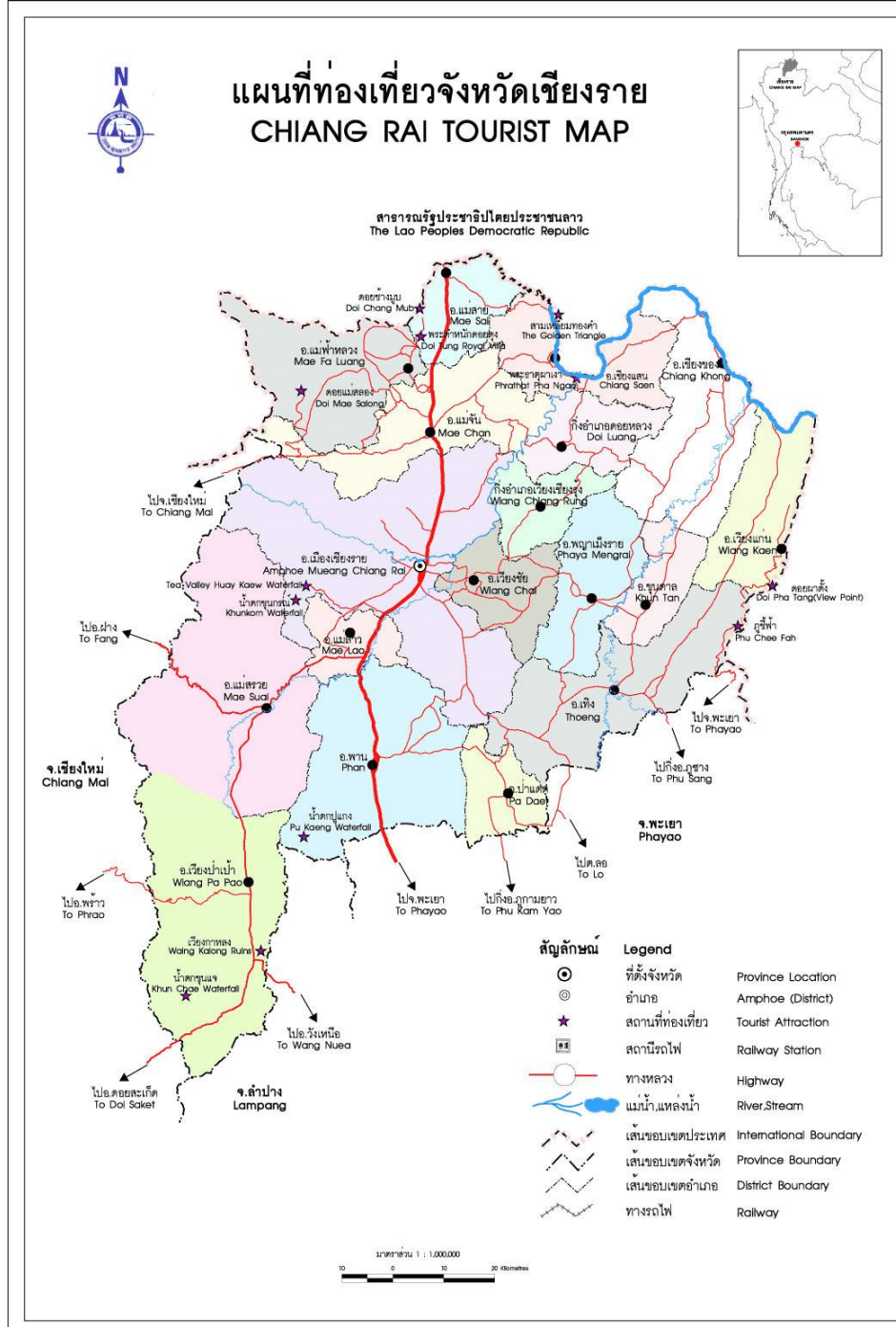
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(School of Social Innovation)



Introduction: Location



Multiple Sites

1. Phan District
(Drought Disaster)
2. Mae Chan District
(Flood Disaster)

Research Objectives and Significance

1. Analyze the specific economic, health, and social impacts of climate disasters on women in Chiang Rai.

2. Explore how gender intersects with other factors, such as socio-economic status and ethnicity, to shape the experiences and vulnerabilities of women in disaster contexts.

3. Propose targeted interventions aimed at empowering women and enhancing their resilience against future climate-related risks.

The significance of this study: It helps bridge gaps between gender studies and disaster resilience frameworks.

Methodology

A mixed-methods approach.

Quantitative surveys were conducted with 100 women to measure specific factors like economic impacts, caregiving responsibilities, and access to essential resources.

Complemented by qualitative interviews and focus groups, which allowed for a deeper dive into personal experiences and coping mechanisms.

Our study focused on two districts within Chiang Rai: Phan District, which frequently experiences drought, and Mae Chan District, exposed to both drought and flood risks.



Understanding Gender and Disasters in Chiang Rai

In Chiang Rai, women from rural, low-income communities bear the brunt of climate disasters. Several factors contribute to their heightened vulnerability:

1. Women depend on climate-sensitive livelihoods,
2. Traditional gender roles ,
3. Women frequently face barriers to accessing resources, critical information, and decision-making power.



Women, Household, Caregiving

Women in both districts reported an average 35% decrease in monthly household income during disasters, with distinct variations based on disaster type.

On average, respondents spent 22.3 hours per week on caregiving.

Women in drought-affected Phan District faced slightly higher caregiving demands due to the need to secure alternative water sources for households and farming.

In contrast, women in Mae Chan District encountered intensified caregiving challenges during both flood events and subsequent recovery.

Variable	Mean	Standard Deviation	Min	Max
Age	38.2	12.1	20	65
Household Monthly Income (THB)	9,000	2,500	4,500	16,000
Average Hours of Caregiving per Week	22.3	5.4	8	38

Key Findings: Economic Impacts

Households in drought-affected Phan District reported an average monthly income reduction of THB 2,700 per unit increase in drought severity ($p < 0.001$), highlighting the vulnerability of agricultural livelihoods to water scarcity, which disrupts crop yields and productivity.

In Mae Chan District, primarily affected by floods, households saw a monthly income decrease of THB 1,800 per unit increase in flood severity ($p = 0.015$). Floods, impacting both agriculture and infrastructure, led to temporary relocation, repair costs, and equipment losses, moderately affecting income stability.

Predictor	B	SE	Beta	p-value
Disaster Type (Drought)	-2,700	600	-0.43	0.000
Disaster Type (Flood)	-1,800	700	-0.29	0.015
Household Size	-500	200	-0.27	0.02
Income Source (Agriculture)	-1,000	450	-0.34	0.03

Key Findings: Health and Well-Being

In Phan District, drought exposure was strongly correlated with mental health impacts ($r = 0.68$, $p < 0.01$). Women frequently exposed to drought reported higher anxiety and stress due to its prolonged effects on agricultural productivity, household income, and water scarcity.

In Mae Chan District, flood exposure also correlated positively with mental health impacts ($r = 0.54$, $p < 0.01$), though less strongly than in Phan. Women in Mae Chan reported stress and anxiety linked to the sudden onset of floods, temporary displacement, and property damage. While floods are sporadic, their immediate impacts, such as damage to homes and infrastructure, create acute stress.

District	Variable	Disaster Exposure	Mental Health Impact	Caregiving Hours
Phan	Disaster Exposure	1.00	0.68**	0.52**
	Mental Health Impact	0.68**	1.00	0.50*
	Caregiving Hours	0.52**	0.50*	1.00
Mae Chan	Disaster Exposure	1.00	0.54**	0.45*
	Mental Health Impact	0.54**	1.00	0.42*
	Caregiving Hours	0.45*	0.42*	1.00

Note: * $p < 0.05$; ** $p < 0.01$

Key Findings: Social and Caregiving Impacts

Caregiving hours also correlated significantly with mental health impacts ($r = 0.50$, $p < 0.05$), as increased responsibilities in sourcing water and managing household needs in water-scarce conditions added psychological strain. Many women in Phan balance caregiving with informal work to supplement income, further elevating stress levels.

The correlation between caregiving hours and mental health impacts was slightly lower in Mae Chan ($r = 0.42$, $p < 0.05$), indicating that while caregiving during floods is stressful, it may be less sustained than during droughts. In Mae Chan, caregiving efforts typically focus on evacuation, cleanup, and recovery, which are intensive but shorter in duration compared to the continuous demands of managing drought.

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	Mental Health Impact	0.68**	1.00	0.50*
	Caregiving Hours	0.52**	0.50*	1.00
Mae Chan	Disaster Exposure	1.00	0.54**	0.45*
	Mental Health Impact	0.54**	1.00	0.42*
	Caregiving Hours	0.45*	0.42*	1.00

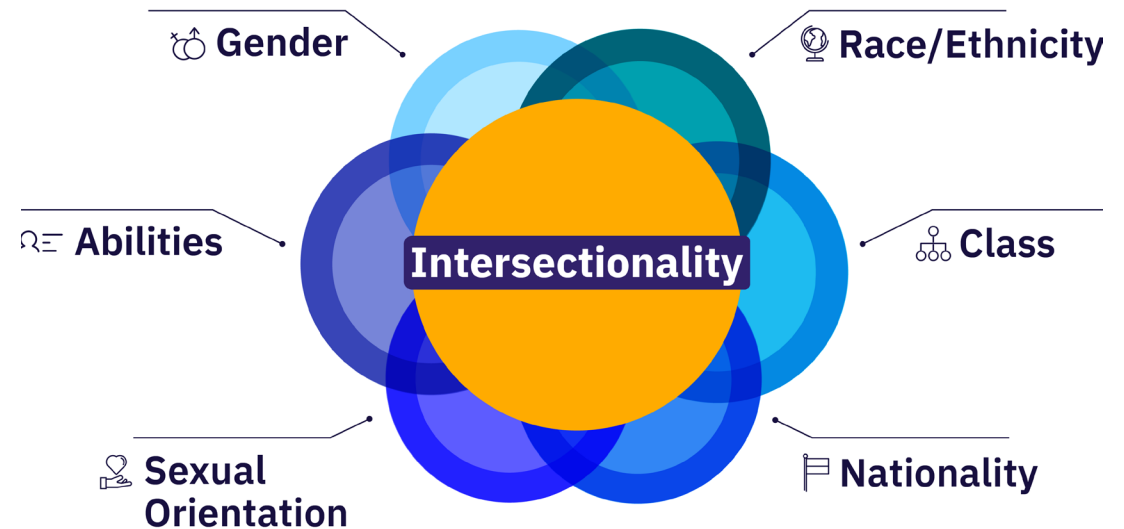
Note: * $p < 0.05$; ** $p < 0.01$

Discussion: Applying Intersectionality

Crenshaw's intersectionality theory (1989) explains how multiple overlapping marginalizations amplify vulnerabilities.

Women in Phan District face a compounded vulnerability due to economic dependence on agriculture and increased caregiving demands during droughts.

Meanwhile, women in Mae Chan experience acute stress from flood-related displacement and the responsibilities that follow.



Recommendations Towards Gender-Responsive Disaster Management

A gender-responsive approach to disaster risk reduction.

- Integrate gender considerations into every stage of disaster management,
- Provide equitable access to resources and services,
- Promote women's empowerment (supporting women-led initiatives in climate adaptation)



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Conclusion



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QUALITY
EDUCATION



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GENDER
EQUALITY



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SUSTAINABLE CITIES
AND COMMUNITIES



13

CLIMATE
ACTION



Climate disasters have far-reaching and multidimensional impacts on women in Chiang Rai Province.

Addressing these challenges requires a gender-responsive and intersectional approach to disaster management that empowers women and addresses their unique vulnerabilities.

Only by recognizing these complexities can we build a more equitable and resilient society capable of facing the impacts of climate change