

Perception of climate change and adaptation in rural area in Thailand

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Effect of climate change in rural area

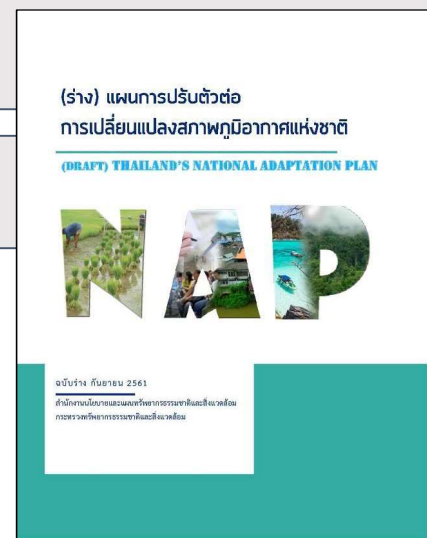
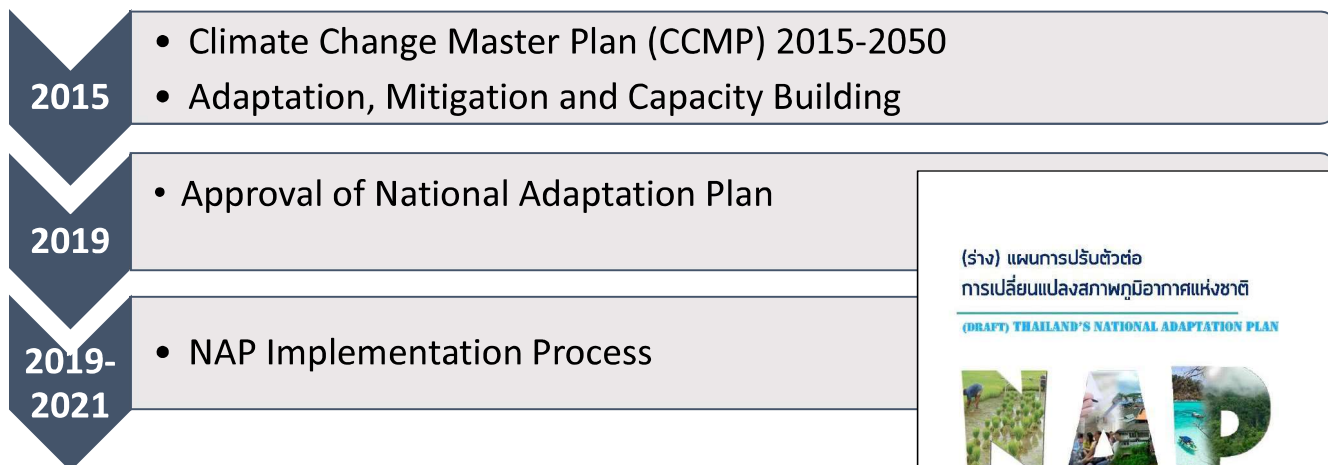
- Rural area is dependent on natural resources that are prone to be affected by climate changes.
- Especially serious effect on those who live in vulnerability areas.
- Local adaptation strategies are necessary to mitigate the impact of climate change.
- Thailand ranked number 10 of 180 nations most affected in the period from 1996 to 2015 (annual average) by “The Long-Term Climate Risk Index (CRI)” [1].
- Thailand is vulnerable to extreme weather events such as tropical storms, floods and drought.



[1] Kreft et al. (2016) “GLOBAL CLIMATE RISK INDEX 2017”

Flood of Chao Phraya River in 2011 (IMPAC-T)

Current situation in Thailand



Draft of Thailand's National Adaptation Plan (2018)

- Countermeasures to climate change is led by Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment.
- They concerning information on gaps and needs of local level is necessary, however limited [2].

[2] Sakhakara (2017) "Thailand's National Adaptation Plan (NAP) Processes"

Factors affecting climate change adaptation

Study	Factors identified as adaptation strategies
Kibue et al. (2016)	Access to extension services and climate information , education, off-farm income.
Bryan et al. (2013)	Access to food aid or other assistance, weather forecast , access to irrigation, access to social safety nets (emergency food relief, food subsidies, or other farm support), access to extension services, access to electricity, and farming experience
Esham et al. (2012)	Climate changes perception and social networking
Deressa et al. (2009, 2011)	Household characteristics such as education, farm, and non-farm income, etc., extension on crop, and livestock production, access to information , access to credit and social capital
Apata et al. (2009)	Farming Experience and access to education
Hassan and Charles (2008)	Better access to market, extension, and credit services, technologies, farm assets, and information about adaptation to climate change

Amarnath et al. (2017)

People's perception in rural area in Thailand

◆ Local people's perception in northern Thailand (Sujata et al.(2015))*

- Nearly 45% of households have personally perceived climate change.
- More than 70% of households have perceived droughts and floods impacts on their livelihoods but have not completely understood their causes.

◆ Sharing of people's perception in Sukhothai province (Weerayuth et al. (2015))

- Examining the people's perception of different generations, people who are ≥ 41 years old shared almost the same people's perception, and the people who are ≤ 40 years old showed more awareness of climate change impacts.
- From an optimistic point of view, the younger generation realized potential climate change impacts.

※Climate change is defined as a change in the local climate relative to past years, which is gained through continuous exposure to the local environment.

Access to information on climate

◆ Access to information on climate in Thailand (Henry et al.(2013))*

- The most socially vulnerable with low-income, middle school graduate and below, 60 years of age or more face to difficulty to access to information on climate [5].

[5] Henry et al. (2013) "Information collection of disadvantaged populations during the 2011 Thai flood" (In Japanese)

Research aim

1. Understand local people's perception of climate change and adaptation in vulnerability rural area in Thailand.
2. Figure out climate information collection and sharing in vulnerable rural area in Thailand.



Assessment of coastal vulnerability

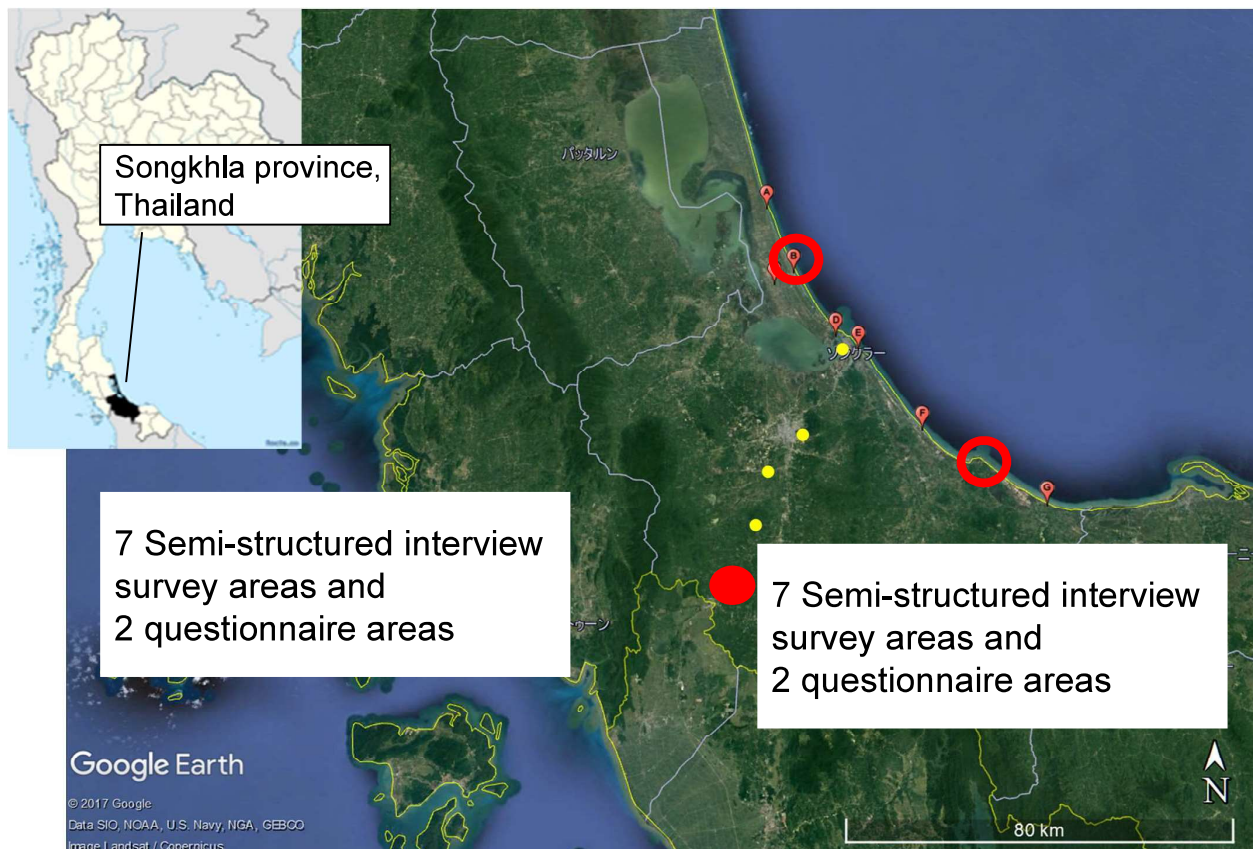


Index	Sub-index
Coastal characteristic (CC)	Erosion rate
	Coastal slope
	Coastal type
Coastal forcing (CF)	Mean significant wave
	Mean tidal range
	Sea level change
Socio-economic (SE)	Population density
	Land use
	Coastal defense structures

*Sompratana and Sarawut (2018)

- 2 areas where the level of coastal vulnerability are high are selected.

Location of study area



Coastal areas of Songkhla province

Research process

Make questions based on literature review and discussion with Thai researchers

Extract adaptations from semi-structured interview survey in 7 areas (Sep. 28-30, 2017)

Make a questionnaire

Vocabulary check by Thai researchers, Revise the questionnaire

Preliminary research in 2 areas, Songkhla province (Nov.24-25, 2017)

Revise the questionnaire

Local NPO face to face questionnaire survey in local language (Mar. 2018)

Input data and analyze with binomial logistic regression



Research outline after semi-structured interview survey

Topic	Question	Scale
Climate change	Perceive of climate change [1][2]	Multiple-choice
	Long-term view on climate change	Multiple-choice
Adaptation to climate change	Adaptation to climate change	Multiple-choice
	Behavioral intention towards adaptation	Single-choice
Climate information	Access to climate information	Single-choice
	Climate information sources [3]	Multiple-choice
	Reliability of information sources	4 scales
	Climate information sharing [4]	Single-choice
Personal attribute	Age, gender, occupation, income, educational level, religion, disaster experience, Frequency of going home of head of HH	-

[1] Zamasiya MSC et al. (2017), [2] Khanal et al. (2018), [3] Henry et al. (2013), [4] Onitsuka et al. (2015)

Collected 297 questionnaires (The response rate was 99.0%)

Attribute of questionnaire responses

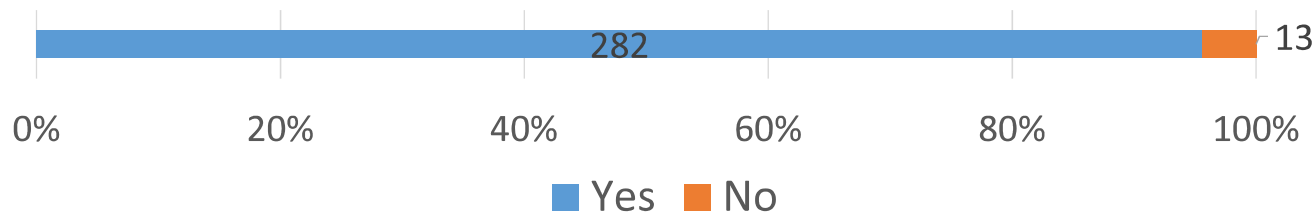
Topic	Item	Number of responses	Ratio of responses for each item
Age	Under 20 years old	2	0.7
	Twenties	7	2.4
	Thirties	35	11.9
	Forties	73	24.8
	Fifties	88	29.9
	Sixties	61	20.7
	Seventies	22	7.5
	Over 80 years old	6	2.0
Gender	Male	226	77.9
	Female	64	22.1
Religion	Buddhism	11	3.7
	Islam	286	96.3
Hometown	This village	235	79.9
	Other places	59	20.1

Collected 297 questionnaires (The response rate was 99.0%)

Attribute of questionnaire responses

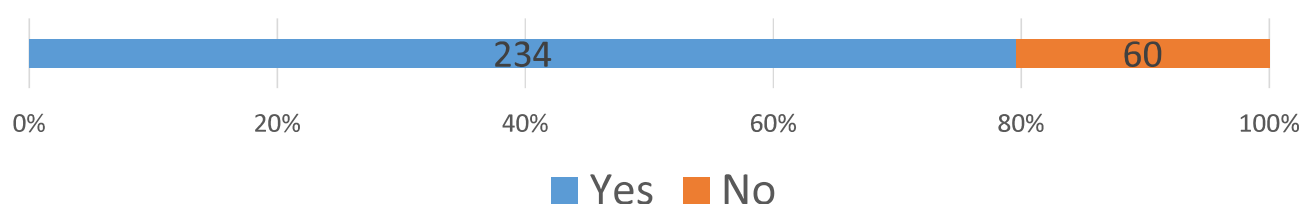
Topic	Item	Number of responses	Ratio of responses for each item
Occupation	Office worker/ organization staff	76	25.7
	Independent business	74	25.0
	Forestry	47	15.9
	Government employee	31	10.5
	NPO/NGO	29	9.8
	Fishery	21	7.1
	Agriculture	10	3.4
	Part time job	4	1.4
	Housewife	1	0.3
	Student	1	0.3
	Middle of job hunting	1	0.3
	Without occupation	1	0.3

Perceive of change of local climatic condition in the past decade (n=295)



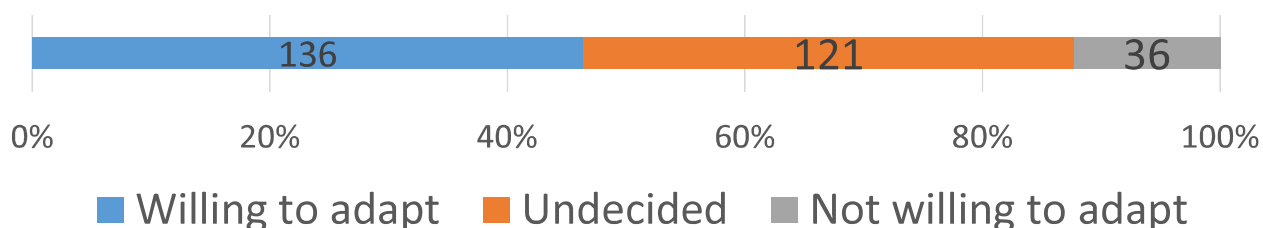
95.6% of respondents perceived local climate change.

Change of lifestyle due to climate change or natural disaster (n=294)



79.6% of respondents answered that their life styles were affected by climate change.

Willingness to implement adaptation to climate change in future (n=293)

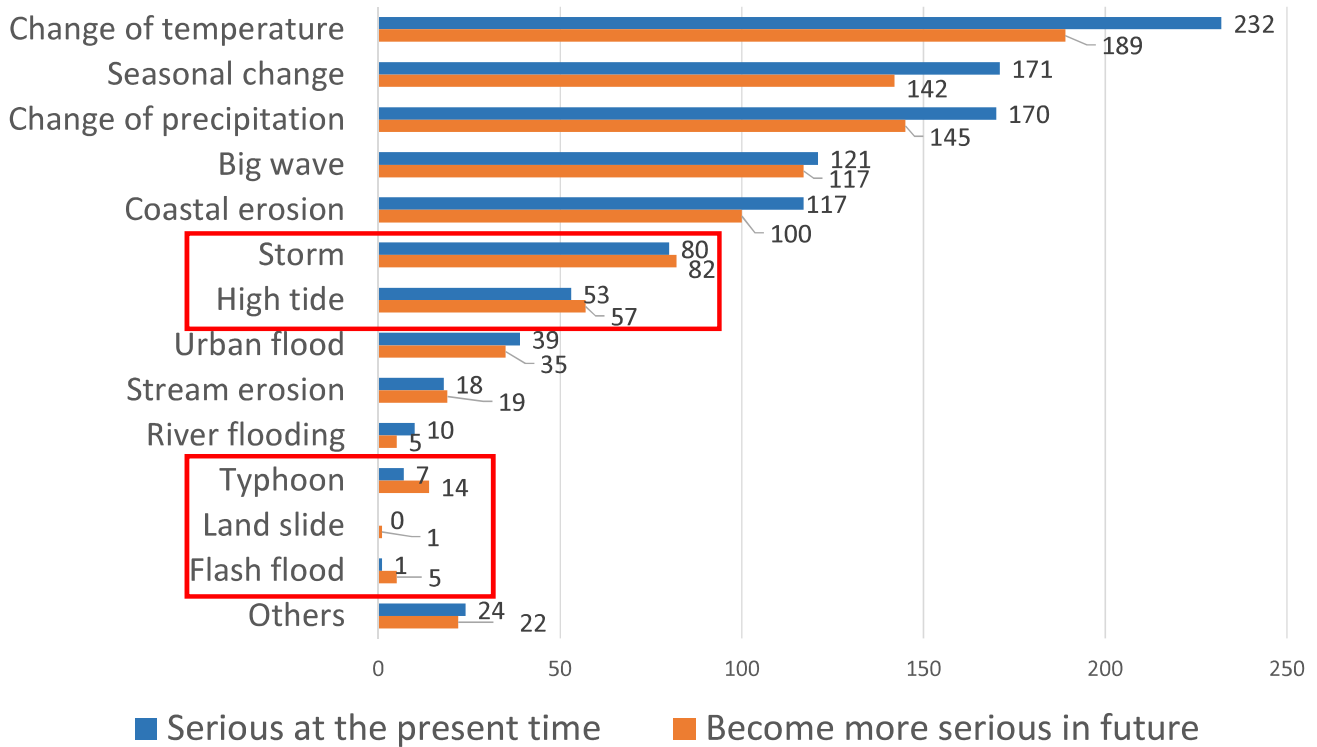


Q. If the frequency of natural disaster increased, will you adapt?

53.6% of respondents do not have willingness to adapt to climate change, and cannot decide to take adaptation measures or not from a long-term perspective.

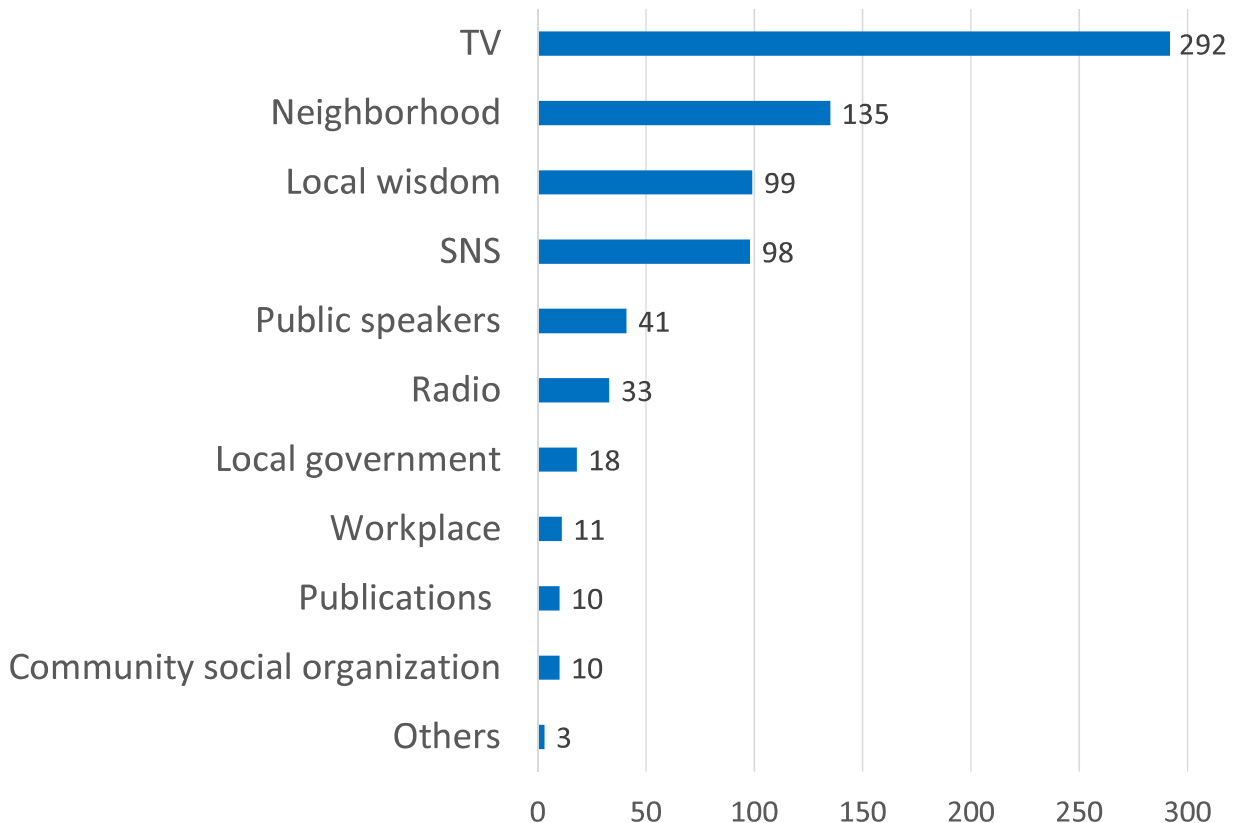
- The proportion of respondents who perceive that lifestyles have been changed by climate change or natural disaster is high.
- However, even if the frequency of natural disaster increase, those who have willingness to do adaptation is less than half of respondents.

Perception of climate change (Multiple-answer)



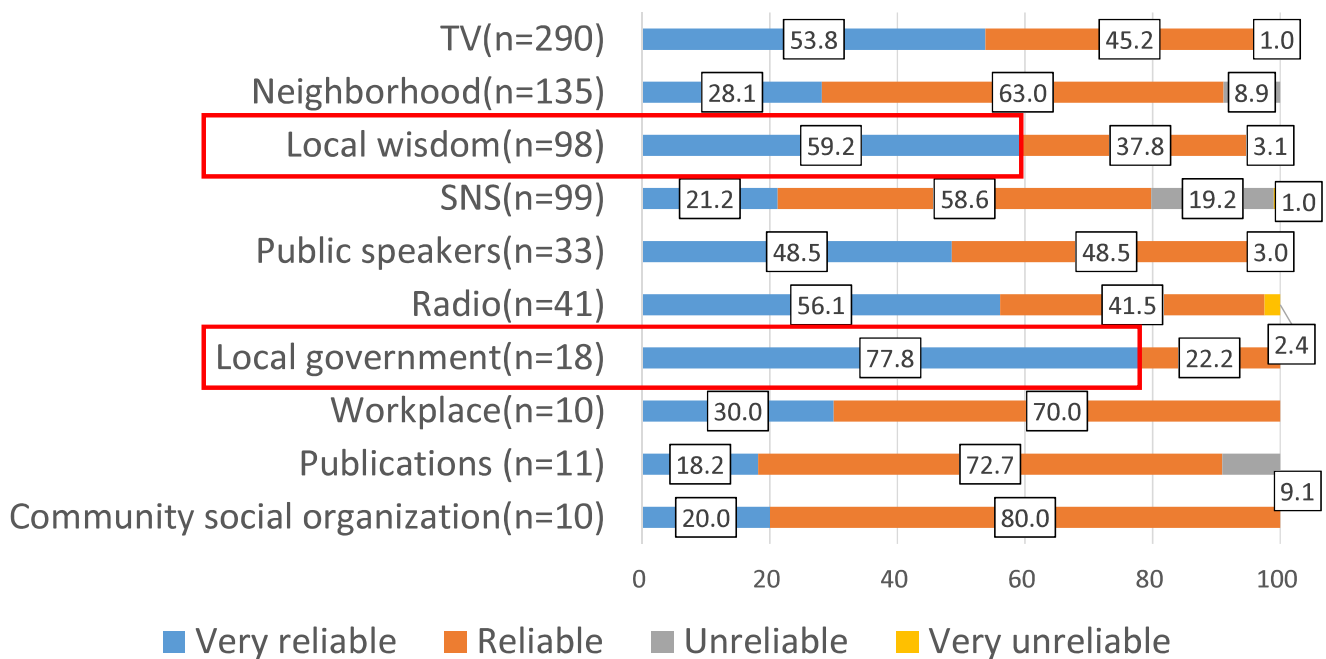
Natural disasters which link to life directly such as storm, high tide, stream erosion, typhoon, land slide, flash flood are considered to become more serious in future was found.

Sources of climate information (Multiple-answer)



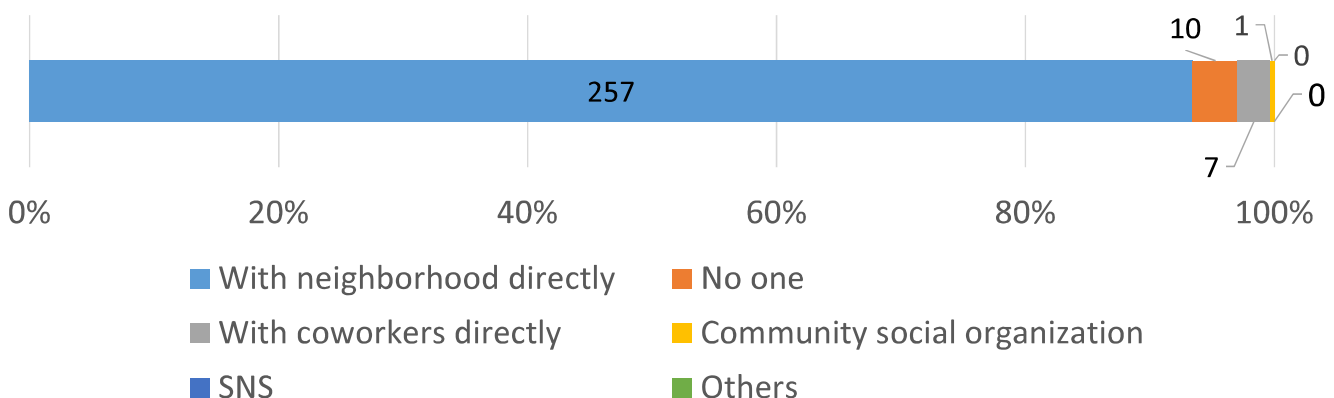
Local wisdom namely their own experiences such as observation changes of cloud, moon, sky and ocean.

Reliability of each information sources



- ✓ The highest percentage of “very reliable” information source is local government. Next to local government, the percentage of respondents are high in the order of local wisdom, radio and TV.
- ✓ It is necessary to spread information from various sources, especially **local government and local wisdom have higher reliability.**

Climate information sharing (n=275)



93.5% of respondents share the climate information with neighborhood directly.

Conclusion

1. Understand local people's perception of climate change and adaptation in vulnerable rural area in Thailand.

- Natural disasters which link to life directly are considered to become more serious in future.
- The proportion of respondents who perceive their lifestyle have been changed by climate change is high, however, raising awareness of implementation of adaptation to climate change is still necessary.

2. Figure out climate information collection and sharing in vulnerable rural area in Thailand.

- It is recommended that to make climate information spread from various sources, especially local government that have high reliability .
- It is also to be noted that "local wisdom" also has high reliability. Therefore, it is worthwhile to dispatch adaptation information incorporating local wisdom.
- The system to share information among the community residents is effective.

Thank you for your attention

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ADAP-T



Advancing Co-Design of Integrated Strategies with Adaptation to Climate Change in Thailand

Perception of climate change (Multiple-answer)

Increase-decrease rate

	Serious at the present time	Become more serious in future	Increase-decrease rate
Land slide	0	1	Infinity
Flash flood	1	5	400.0
Typhoon	7	14	100.0
High tide	53	57	7.5
Stream erosion	18	19	5.6
Storm	80	82	2.5
Big wave	121	117	-3.3
Others	24	22	-8.3
Urban flood	39	35	-10.3
Coastal erosion	117	100	-14.5
Change of precipitation	170	145	-14.7
Seasonal change	171	142	-17.0
Change of temperature	232	189	-18.5
River flooding	10	5	-50.0