Research Design

1. Qualitative Research Design

The qualitative research design is established the same to that first KAP study by employing in-depth interview and its discussion guide with also mainly with the same groups of that KAP including policy makers, decision-makers, key influencers, and the general public. However, the number of the interviewees is reduced to just 50 and even with this reduced amount, the comparative would still be possible taking into accounts all the climate change-related projects.

Quantitative Sampling

The groups included in the interviews are detailed in the following table.

Table 1. Number of in-depth interview

Groups	*Types*	*Number*
Policy makers, decision-makers, key influencers	Governmental representatives	4
	Senators	3
	Parliamentarians	4
	Provincial governors	4
	Commune council leaders	6
	Celebrities	2
	Industry representatives	2
	Media representatives	4
	NGO representatives	6
	Tourism representatives	2
	Private sector representatives	3
The general public	Local religious leaders	4
	Village chiefs and elders	6
	Total	50

The Note Guide

The discussion note will be modified based on the second KAP's objectives. For the last objective of this KAP, some more specific questions will be added to identify the challenges and opportunities for climate change mainstreaming, participation, and access to information.

Qualitative Data Analysis

Transcriptions will be done immediately in Khmer after the interviews and they will be also coded manually. Codes are identified based on the research questions and with consultation of all research team members. So related ideas, concepts, and themes are coded. Codes are divided into two: pre-set and emerging. The pre-set codes are those deriving from research questions and consultation while the emerging codes are those identified during the coding from the transcriptions. Once the coding list is ready, researchers would go through the transcription one by one to do the coding. Then they will spot the codes and that the most frequent codes will be distinguished. From these most frequent codes will allow quotations and case studies.

Quantitative Research Design

For comparative analysis, this study will use the same design and approach including the sampling, data collection, and analytical methodologies used in first KAP study.

The same quantitative household based cross-sectional survey questionnaire, used in first KAP survey, will be used to collect information from 1,000 member of the public with some adjustments to improve the limitation from first KAP and to track changes in knowledge, attitudes, and practices of climate change. Although, sample size is reduced from 2401 respondents in first KAP study, this study sample size is still nationally representative of the target population.

Sample will be collected from all 24 provinces of Cambodia; and the target respondents will be Cambodian men and women aged 15 – 55, especially people particularly vulnerable to the effects of climate change.

Quantitative Sampling

The same multi-stage sampling, used in first KAP study, will be used. Thus, Primary sampling units (PSU) were selected using Probability Proportional to Size.

Stage 1 – Selecting Primary Sampling Unit (PSU)

A total of 100 PSUs were selected across the 24 clusters of provinces shown in the table below. From each PSU 10 households were selected. Urban and rural respondents were sample independently proportionally the same as in first KAP study. Sample villages were randomly selected from list of villages in 2008 national census by the National Institute of Statistics using STATA software.

Table 2. Sampling

Number of Participants				
Province	Urban	Rural	Total	Number of Villages
Banteay Meanchey	10	30	40	4
Battambang	20	30	50	5
Kampong Cham	40	60	100	10
Kampong Chhnang	10	30	40	4
Kampong Speu	10	30	40	4
Kampong Thom	10	30	40	4
Kampot	10	30	40	4
Kandal	20	40	60	6
Kep	10	20	30	3
Koh Kong	10	20	30	3
Kratie	10	30	40	4
Mondul Kiri	10	20	30	3
Oddar Meanchey	10	20	30	3
Pailin	10	20	30	3
Phnom Penh	40	40	80	8
Preah Vihear	10	20	30	3

Prey Veng	10	30	40	4
Pursat	10	30	40	4
Ratanak Kiri	10	20	30	3
Siemreap	20	20	40	4
Sihanoukville	10	20	30	3
Stung Treng	10	20	30	3
Svay Rieng	10	30	40	4
Takeo	10	30	40	4
Total	*330*	*670*	*1000*	*100*

Figure 1. Village sites

Stage 2 – Selecting Households in Each Village

Systematic random sampling was used to select 10 households per PSU. The same sampling interval will be used to select households in each PSU.

Stage 3 – Selecting the Respondent

In order to avoid the underrepresentation of women, working youth, and seniors in the sample, quota sampling is used. Quota sampling ensures that representative size are obtained from each specified population subgroup.

The same KISH grid methodology will be combined used to randomly select an eligible household member to be included in the survey. The KISH grid was used to list all household members, which was then used to identify all 15-55 year olds. One respondent was selected from each household.

This stage also exclude those who could not speak the Khmer language, and people who were not at home on the day/evening when the interview team was in the PSU.

Questionnaires

Since this is the follow-up study, the first KAP survey questionnaires will be used but they are reviewed to make sure the detail questions of each variable are what the second KAP is asking for. Objectives of the second KAP is reviewed to define the preferred variables. The second KAP variables then are compared to that of the first KAP. The comparison reveals that some variables needed in the second KAP are not covered in the first KAP. So these not-covered variables will be included in the second KAP.

Table 3. Variables comparison

OBJECTIVES	KAP 2 VARIABLES	KAP 1 VARIABLES	DETAIL KAP 1 VARIABLES	NOTE
1. Track changes in the knowledge-base of people on climate change, its causes, observed and expected effects, and local knowledge, lessons learnt, and good practices to respond to the impacts.	Knowledge	Extreme weather events		The needed variable of second KAP is covered and the detail questions are enough to track the changes on knowledge of the terminology, causes, and effects.
		Changes in the weather		
		Changes in the environment		
		Knowledge and understanding of climate change	Climate change terminology	
			Sources of information on climate change terminology	
	Causes		Understanding the causes of climate change	
			Weather change and human activity	
	Observed and expected effects		Understanding the impacts of climate change	
	Local knowledge			Identification of local knowledge
	Lessons learnt			Identification of lessons leant
	Good practices			Identification of good practices
2.Monitor changes in Cambodians'	Changes in practices	Concerns about the changing weather and	Family life, work, and agriculture	How people respond is sufficient for tracking the changes
			Livelihoods and	

experiences in responding to climate change in both policies and practices using the various baselines established by the first KAP study and how lessons learnt and good practices contribute to the process.		environment	climate change	in the practices. However, to identify the most suitable means of how information on good practices flows, one more question is added to note where they have learnt these practices from.
			Water resources and climate change	
			Health and climate change	
		Responding and adapting to climate change	How do Cambodians think they can respond?	
			What are Cambodians already doing to respond?	
			Community responses to the changing weather	
			How people would respond to the impact on their work	
			Levels of self-efficacy and collective efficacy in responding to climate change	
			Positive perceptions of capacity to respond to climate change	
			Resources needed to help people cope	
			Who is responding to climate change?	
	Changes in policies			What are the related climate change related policies before and after 2010?
	Lessons leant			How lessons learnt contribute to the change process?
	Good practices			How good practices contribute to change process?
3.Establish public access and media shifts on information regarding CC and other	Varieties sources of information and demographic changes	Source of information	Trusted information sources	From first KAP and literature review, mouth-of-word is one among the most influential information
		Media consumption		
		Media	Radio habits	
			Radio stations	

critical issues. 4.Identify demographic changes for climate change information.		combinations	Radio listening by duration and time	channel. Hence, questions related to this channel are developed. The demographic related variable will be looking at age, occupation, sex, education, and geographical area. These are from the first KAP survey so that they will be used to track the demographic changes.
			Calling in to a phone-in	
			TV habits	
			TV viewing by duration and time	
			TV channels	
			Mobile phone use	
			Mobile phone access	
			Mobile phone ownership	
			Mobile phone networks	
			Messaging	
			Print media	
			Internet use	
			DVD and VCD	
			Outreach activities	
5.Identify barriers to and opportunities for climate change mainstreaming and integration within national, provincial, and local levels of communication, education and awareness programmes and participation and access to information by the people.	Barriers			Current models of information sharing and dissemination will be identified by desk-reviews. Then the models combined with the results from both survey and interview will allow researcher to identify the barriers and opportunities and recommend the feasible ways.
	Opportunities			

Quantitative Data Analysis

Quantitative data analysis will be done using STATA software.

Analytical techniques include descriptive (frequencies) and bivariate statistics (t-tests, z-tests, chi-square) to describe and compare the differences in a number of key measures of knowledge, attitudes & practices regarding climate change. Chi-square test is to test levels of association between non-

parametric nominal variables. Z-test is used to detect significant differences between proportional responses of survey sample subgroups. T-test is used to detect significant differences in mean scores between discrete subgroups of the survey sample. Cross-tabulate is used to statistically identify climate change variables with demographic variables and expressing relationships between variables related to climate change KAP and specific demographic categories. Moreover, multi-variable regression will be used to identify the demographic and other variables that are most strongly related to climate change vulnerability and adoption of good practices for adapting to climate change.

In maintaining consistency and to track changes, the same groups targeted in the first KAP study will used for this study including both women and men, youths and seniors, and people who are particularly vulnerable to the effect of climate change including:

- Total sample which represent the whole country knowledge, attitudes and practices of climate change,
- Major geographic regions: 5 regions including Phnom Penh, Plain, Tonle Sap, Coastal, and Mountain area.
- Area of residence: urban or rural
- Gender: male or female
- Age breaks
- Education
- Progress out of Poverty Index categories: Poorest, Poor, Medium, and High
- Landless people and direction of change in landlessness
- Indigenous communities, and
- Occupational categories: Village chiefs and elders, Local religious leaders, Teachers, University students, Non-university students, Working youths, Senior citizens, Small medium and large business people, Farmers, Coastal fisher folk, Fresh water fisher folk, People whose livelihoods depend on non-timber forest products.

Data Collection, Entry, and Cleaning

Primary data

Adjusted questionnaire will be used to gather information from sample households within selected villages. Experienced enumerators will be hired and trained by CDRI study team for the household data collection. Fieldwork teams will be trained about the objective of the study, questionnaire, and way to conduct survey. Field testing will then be done using the approval survey questionnaire so as to ensure quality of the data to be collected. Subsequently, the survey tools will be finalized prior to the actual field survey.

16 enumerators and 4 team leaders will be hired for the data collection, data cleaning and data entry, with supervision from the CDRI study team. In total, there will be 20 fieldworkers divided into 4 teams. Since there are five zones, Phnom Penh and Coastal zones are combined as one zone. All the four teams will go to the field simultaneously. For quality assurance, CDRI study team will responsible for field supervision and quality control throughout fieldwork, including the piloting of the research instruments. It will be conducted through observation, spot checks and group meetings at the end of each working day. Team leaders will oversee field editing, questionnaire checking for accuracy, completeness, eligibility and consistency while the team was in the field.

Data cleaning will be conducted before and after data entry. Questionnaire cleaning before data entry is used to ensure the correction of data and avoid mistake. Moreover, it will help improve smoothness of data entry. After data entry cleaning using STATA software will also be conducted to ensure quality of data. Collected data will be input using CS-Pro software and can be converted to some commonly used format such as STATA, SPSS, etc. for data analysis.

For qualitative data analysis, the interviews will be conducted simultaneously with the quantitative data collection. The transcriptions will be made by the enumerators as well.

Secondary data collection

Besides the primary data collection, secondary data collection is also done by researchers to get the information on climate change related policies before and after the first KAP, ways of mainstreaming climate change into all level of communication, dissemination, participation, and access to information.

Limitation

Although survey will be conducted in all 25 provinces, because small sample size in some provinces, especially provinces with only 3 villages, provincial level analysis will not be possible.

Since there are no baseline data available, comparative analysis can only be done using simple difference, which mean we cannot identify whether the differences between baseline and follow up are statistically significant.

Moreover, because we used different PSU/ villages in this study, we cannot precisely track change from baseline to this study especially for small sample size subgroups.