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Title of the dissertation to obtain the Master of Advanced Studies (MAS):

“How Small-holder Farmers Cope with Floods and Cyclones”

**Case study of Anlonglok Village, Prey Kuy Commune,
Kampong Thom Province, Cambodia**

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TABLE OF CONTENTS

Content	Page
ACRONYMS AND ABBREVIATIONS.....	4
ACKNOWLEDGEMENT.....	5
LIST OF TABLES, FIGURES, AND BOXES	6
EXECUTIVE SUMMARY.....	7
I- INTRODUCTION.....	11
II- PROBLEM STATEMENT.....	11
III- RESEARCH OBJECTIVES AND QUESTIONS.....	14
IV- METHODOLOGY.....	15
V- CONCEPTUAL FRAMEWORK.....	19
VI- FLOOD AND CYCLONE RISKS OF EXISTING SITUATION AND TRENDS.....	24
6.1. Geographical and administrative setting.....	24
6.2. People and community.....	28
6.3. Flood and cyclone risks.....	29
6.4. Distribution of risks.....	31
VII- PERCEPTION AND VULNERABILITY	34
7.1. The SHFs' perception on flood and cyclone risks.....	35
7.2. The SHFs' vulnerability to flood and cyclone risks.....	36
7.2.1. Lack of infrastructure and investment on livelihood programmes.....	36
7.2.2. Lack of social protection and safety nets.....	38
7.2.3. Poor health and education services.....	38
VIII- COPING STRATEGIES	39
8.1. The SHFs' plans, choices and actions.....	39
8.1.1. Using livelihood alternatives.....	40
8.1.2. Migration for seasonal wages.....	41
8.1.3. Taking out loans from MFIs and local moneylenders.....	43
8.1.4. Daily wages.....	45
8.1.5. Buying rice on credit.....	46

8.1.6. Getting supports from relatives and neighbors.....	47
8.2. Existing assistance.....	48
8.2.1. Local assistance.....	48
8.2.2. External assistance.....	49
8.3. Implication of existing coping strategies to SHFs.....	51
IX- GAPS AND NEEDS.....	52
9.1. Agriculture extension promotion.....	53
9.2. Rice bank.....	54
9.3. Saving group.....	54
9.4. Improving local infrastructure.....	55
9.5. Forming the Village Development Volunteers (VDVs).....	56
9.6. Disaster Risk Reduction Programme.....	57
X- CONCLUSION	57
XI- REFERENCES.....	59
XII- ANNEXES.....	61
1. Interview guideline for Small-holder farmers.....	62
2. Interview guideline for key informants.....	65
3. Interview guideline for focus group discussions.....	69
4. List of interviewed persons.....	70

ACRONYMS AND ABBREVIATIONS

ACIB	Annual Commune Investment Budget
AMK	Angkor Microfinance Kampuchea
CC	Commune Councils
CCDM	Commune Committee for Disaster Management
COWS	Cambodian Organisation for Women Support
CRC	Cambodian Red Cross
DRR	Disaster Risk Reduction
HOM	Help Old Age and Miserable People Organisation
IMAS	International Executive Master in Development Studies
INGOs	International Non-Governmental Organisations
LNGOs	Local Non-Governmental Organisations
MAFF	Cambodian Ministry of Agriculture, Forestry and Fisheries
MFI	Microfinance Institutions
PVA	Participatory Vulnerability Analysis
RGC	Royal Government of Cambodia
SHFs	Small-Holder Farmers
TBA	Traditional Birth Attendances
VDC	Village Development Committee
VDVs	Village Development Volunteers
UNICEF	The United Nation Children's Fund

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LIST OF TABLES, FIGURES, AND BOXES

Tables:

Table 1: Location of villagers in Anlonglok village

Table 2: Existing hazard mapping and ranking

Table 3: Flood and cyclone risks mapping

Table 4: Flood and cyclone risk ranking

Table 5: Relief support during typhoon Ketsana 2009

Figures:

Figure 1: Concepts relationship

Boxes:

Box 1: Migration as a common coping strategy

Box 2: Taking out loans as a coping strategy

Box 3: Daily wages as a coping strategy

Box 4: Buying rice on credit as a coping strategy

Box 5: Getting support from others to cope during difficult time

EXECUTIVE SUMMARY

This research is designed and conducted to fulfill the requirements of the International Executive Masters in Development Studies (IMAS) programme, which was started in the first phase of the programme in August, 2010 in Hanoi. However, the fieldwork started in Cambodia in October, 2010 after the research proposal was finalised.

This research is conducted in a selected village, Anlonglok in Kampong Thom province, central part of Cambodia, which involved 17 small-holder farmers (SHFs) (12 women and 5men), who own less than 1 hectare of farmland; 6 key informants (3 women and 3 men) as selected interviewees; and two group discussions with another 12 farmers (10 women and 2 men). These interviewees were randomly selected by using the existing data obtained from Help Old Age and Miserable Organisation (HOM) who works in Kampong Thom province since 2000.

The researched village is located along Stung Sen River¹, which exposes villagers, especially the SHFs, to floods and cyclones every year. All families interviewed in this research own less than one hectare of farmland where they can grow rainy season rice once a year. They also depend on daily fishing from the River and few lakes in the village. Beside these, they also grow vegetables during the dry season for family consumption and sometimes have some surplus for market purposes.

The first part of findings in this report shows and describes the perception of the SHFs on flood and cyclone risks, which focus on the physical and environmental risks associated with floods and cyclones. It also lists and explains the socio-economic conditions that make the SHFs vulnerable to floods and cyclones in the researched village. There are five main identified natural hazards: floods, cyclones, drought, lightening, and pest, which are threatening the livelihoods of

¹ The Stung Sen River flowing down in central Cambodia has about 16245 square kilometers drainage area, and its main stream length is around 500 kilometers long. The headstream of Stung Sen river is in the Dangrek mountains in the border of Thailand and Cambodia, and the river channel flows into Tonle Sap lake. The river meanders through the upstream and downstream with no floodplains. However, the river has about 7 kilometers wide floodplain at the point of 220 kilometers from the river mouth, and heads to river mouth. The seasonal water depth change is prominent which differs about 3 meters between dry season and rainy season near Kompong Thom city (Naoko Nagumo, Sumiko Kubo, Toshihiko Sugai, 2009, p.1).

people in the village. Amongst these five identified hazards, floods and cyclones are considered as the serious ones. The reason is that they always affect people's livelihoods and cause very serious food shortages for many families, especially the poorest and most vulnerable group. The research also finds that there are many physical and environmental risks caused by floods and cyclones, such as the damages of paddy fields, vegetable gardens, other crops, houses, roads, schools, pagodas, livestock shelters, and the lives of the people themselves. The observation and interaction with farmers and key informants find that the perception of the SHFs in the researched village exists at some level. They actually have their own simple ways and preparatory actions (e.g. they use the available local resources and skills to protect their home from damages when flash floods and cyclones occur, and their homestead land from land erosion due to the floods etc.) to cope with and resist to flood and cyclone risks. This shows that they have already perceived the flood and cyclone risks, and are taking action to cope with and resist to those risks.

In terms of socio-economic factors, the research finds that there are three main factors that make the SHFs vulnerable to floods and cyclones. Those factors are (i)- Lack of infrastructure and livelihood programmes, (ii)- Lack of social protection and safety nets, and (iii)- Poor health and education services in the researched village.

The second part of the findings shows the existing coping strategies of the SHFs to cope with the difficulties during and after floods and cyclones. The research finds that there are six main existing coping strategies that villagers, especially the SHFs, implement to cope with floods and cyclones. Those coping strategies are (i)- Using livelihood alternatives, (ii)- Migration for seasonal wages, (iii)- Taking out loans from available Microfinance Institutions (MFIs) and local moneylenders, (iv)- Daily wages, (v)- Buying rice on credit, and (vi)- Getting support from relatives and neighbors. Amongst these six strategies, the three major coping strategies are: Using livelihood alternatives, migration for seasonal wages, and taking out loans from available MFIs and local moneylenders. These three strategies are implemented by many villagers to cope with their difficulties during and after floods and cyclones. The research also looks at the reasons why people choose these three coping strategies as their main strategies. Those reasons include the traditional choice, which strongly depends on available resources in the village, the fact that

people follow each other, and the influence and encouragement from both internal and external factors.

The last part of the findings describes the existing assistance and the needs of the SHFs to enhance their existing coping strategies to cope with their difficulties during and after floods and cyclones. In terms of assistance, the research finds that it is relatively limited and only provided to the poorest families in the village during typhoon Ketsana 2009. This assistance was provided by several Local Non-Governmental Organisations (LNGOs) and International Non-Governmental Organisations (INGOs), such as HOM, Cambodian Red Cross (CRC), Cambodian Organisation for Women Support (COWS), SAMARITAN, and individual charities. Amongst these LNGOs and INGOs, HOM is considered as only the LNGO that has long term commitments and programmes in place to support and develop the socio-economic conditions of people in this village. Regarding the needs of the SHFs during and after floods and cyclones, the research finds some suggested programmes and support from both the SHFs and the key informants. These programmes and supports are (i)- Agricultural extension promotion, (ii)- Rice bank, (iii)- Saving group, (iv)- Improving local infrastructure, (v)- Forming the Village Development Volunteers (VDVs), and (vi)- Disaster Risk Reduction (DRR) Programme.

Although this research is only a small research for the IMAS programme, the findings bring us a lot of insight, understanding and learning from the people, especially the SHFs, on how they perceive floods and cyclones risks and how they cope with those risks. It also helps us to gain more knowledge regarding the support and intervention from relevant stakeholders including LNGOs, INGOs, Local Government, and individual charities who are engaged and working in the village. This research finds that the people have perceived the flood and cyclone risks and have their own strategies to cope with their difficulties during and after floods and cyclones at some level. This is shown by the ability of the SHFs to identify and prioritise their needs, and their coping strategies, which really help them to cope with their difficulties during and after floods and cyclones.

This research could provide relevant stakeholders who work on climatic risks, such as floods and cyclones, a lot of ideas, which can help us to better design and implement the development

programmes in the context of climatic risks, based on people' s needs, knowledge and experience. This knowledge and learning will contribute a lot to other development agencies who are working and implementing their development work in the context of climatic risks, in particular floods and cyclones, in the rural communities of Cambodia.

I- INTRODUCTION

This research was conducted in a flood and cyclone prone village in Kampong Thom province, central part of Cambodia that was affected by typhoon Ketsana in 2009. The main purpose of this research is to understand and assess the needs and capacity of the affected community to cope with the existing climatic risks: floods and cyclones. The specific objectives of this research are (i)- To understand the flood and cyclone risks that the SHFs are facing and the trend of increasing risks in the climate change context, (ii)- To understand the coping strategies and existing capacity of the SHFs in coping with the increased threats of floods and cyclones, and (iii)- To assess the contribution of current assistance from LNGOs, INGOs and Local Government to the SHFs' capacity to cope with floods and cyclones and identify the needs. The understanding gained from this research would help ActionAid Cambodia's local partner, HOM to develop assistance projects and programmes more effectively in addressing people's needs.

In this context, the research will contribute to building knowledge on people's perceptions and coping strategies to floods and cyclones in rural Cambodia, which will be very helpful for relevant stakeholders such as LNGO and INGO staff, students, researchers, community people, farmer networks, farmers, development workers, and other relevant governments in their development work.

II- PROBLEM STATEMENT

Mr. Mok Mareth, Cambodian Minister of Environment, stated in his speech during the Cambodia's First National Forum on Climate Change, which was held in Phnom Penh on October 19, 2009 that: "As a least developed country, Cambodia is very vulnerable to climate change as 80 percent of our people are living in the countryside and directly depending on agriculture and extraction of natural resources for a living. At the same time our ability to respond to climate change remains limited in terms of finance, expertise, technology and infrastructure" (UNDP, Press release, Tuesday, October 20, 2009) .This showed that Cambodia is recently recognised as a vulnerable country to climate change and needs more attention and programmes to cope with the issues. Moreover, the Royal Government of Cambodia (RGC)

ratified the United Nations Framework Convention on Climate Change (UNFCCC) in December 1995 and acceded to its Kyoto protocol in July 2002 (MoE, 2006) which also showed that RGC commits to invest more on adaptation action on Climate Change.

The recent increased threats of climate change are likely to enhance the vulnerability of many people in rural communities of Cambodia; particularly those that are already vulnerable to geographical vulnerability as well as lack of development support. For example, in 2009, the violent storm and subsequent floods caused by typhoon Ketsana affected 14 out of 24 provinces which left 43 people dead, 67 people severely injured, and destroyed homes and livelihoods of some 49,000 families, or about 180,000 people, the equivalent of 1.4 percent of Cambodia's population (NCDM 2009). This disaster caused huge damage to the Cambodian economy. Kampong Thom experienced the greatest level of damage among the affected provinces (CWS October 14, 2009). The heavy monsoon rains and typhoon Ketsana hit three districts, 15 communes, and 89 villages in Kampong Thom province resulting in extensive flooding which destroyed a lot of local infrastructure, crops, livestock, agricultural land, people's livelihoods as well as displaced a number of people from their land/house due to a lack of proper coping mechanisms and support in place (CRC 2009).

The destruction of the agricultural land, local infrastructure, livelihoods and the lack of social protection and safety nets in the affected areas have meant the SHFs, especially the poorest and most excluded group, are not able to earn and produce enough food to support their families. As a result, many families have faced a serious food shortage almost all year round. To survive, many have migrated out of the village to seek seasonal wages and have resorted to MFIs or local moneylenders to provide loans with very high interest rates. The loan will in turn entangle them in heavy debt.

The climatic challenges are also likely to threaten many development investments and efforts which were already implemented many years ago by both government and other development agencies in the area. Although the RGC and other development agencies, including LNGOs and INGOs, have taken some significant initiatives to respond to the climatic challenges already, many of them, for instance ActionAid Cambodia's partner, HOM, which worked directly in the

area since 2005, have not yet understood people's needs, knowledge and capacity and taken those needs, experiences and capacities seriously into account to design the preparedness and intervention programmes².

ActionAid Cambodia is an international anti-poverty agency whose aim is to fight poverty worldwide. In Kampong Thom province, ActionAid Cambodia works with a long term local partner HOM in 2 districts, 3 communes and 16 villages. In 2009, 11 villages out of those 16 villages were affected by typhoon Ketsana and heavy monsoon rain. So far through this local partner, ActionAid Cambodia has provided an immediate response to the affected families in the target villages such as foods, seeds and ceramic water filters (HOM 2009). The long term strategic responses need to be considered and developed especially taking into account additional threats from climate change.

Taking into account the past experience with the huge losses from Ketsana and recognising the new threats of climate change, ActionAid Cambodia and its partner have agreed to put more effort and resources on the preparedness and intervention programmes to help the affected villages to deal with the threats of climatic challenges. The programmes and interventions should be based on people's existing capacity and needs, including people's perception, knowledge, skills, technical supports, and assets. Good and effective programmes should be people-centered programmes, because people already have their own knowledge and capacity to cope with those kinds of threats in their community. It is no point to only impose a new idea or coping strategy for them without taking into account of their needs, existing knowledge and capacity.

In 2009, HOM already conducted a Disaster Assessment in some affected villages, but that assessment was not comprehensive enough and did not mention the needs and existing capacity of people especially the SHFs. This research is designed and conducted to fill the gaps of information and understanding of people's needs, knowledge and capacity to cope with the threats of cyclones and floods in this village. In this research, we will do an in-depth analysis on

²This said is made based on the detail operational Plan & Budget 2010 of HOM.

the needs and existing capacity of the SHFs to cope with climatic risks; floods and cyclones and their coping strategies. A flood and cyclone prone village, Anlonglok, in Prey Kuy commune, Kampong Thom province is selected as the research site in this research. This selection is based on the consultation with HOM who identified this village as one of the most vulnerable village to floods and cyclones.



III. RESEARCH OBJECTIVES AND QUESTIONS

The general objective of this research is to understand the SHFs' strategies and existing capacity to cope with climatic risks, particularly floods and cyclones, and assess their needs to enhance the coping capacity. The findings will be documented and shared/exchanged with other SHFs across the country. This research will be very useful for Local Government, LNGOs, INGOs especially ActionAid Cambodia and its partners to have a better understanding of the needs and capacity of vulnerable groups in coping with climatic risks; floods and cyclones and develop more effective assistance and projects which address to people's needs.

The specific research objectives and related research questions are:

- 1.1. **Research Objective 1:** To understand the flood and cyclone risks that the SHFs are facing and the trend of increasing risks in the climate change context

Related Research Questions:

1. What are the physical and environmental risks associated with floods and cyclones in the area?
2. How SHFs perceive flood and cyclone risks?
3. What are socio-economic conditions that make the SHFs vulnerable to floods and cyclones?

- 1.2. **Research Objective 2:** To understand the coping strategies and existing capacity of the SHFs in coping with the increased threats of floods and cyclones?

Related Research Questions:

1. What are the plans and actions of the SHFs to cope with the difficult conditions after floods and cyclones happened?
2. What are the resources that the SHFs have to cope with floods and cyclones?

- 1.3. **Research Objective 3:** To assess the contribution of current assistance from LNGOs, INGOs and Local Government to the SHFs' capacity to cope with floods and cyclones and identify the needs

Related Research Questions:

1. What are the existing assistance provided by LNGOs, INGOs, and local government related to the SHFs' coping to floods and cyclones?
2. How important the assistance is in building coping capacity of the SHFs?

IV. METHODOLOGY

This research is based more on a qualitative approach of analysis, with using both secondary and primary data and information. The relevant and available information, reports and documents from related government departments, LNGOs, and INGOs at local, provincial, and national level form as the secondary sources of data and information. The findings from the selected key informants and the SHFs interview, field observation, farmer interaction and group discussions with farmers form as the primary data and information.

The selected participatory approaches and tools such as group discussion along with some selected Participatory Vulnerability Analysis (PVA) tools and guiding questions, participant observation, individual household and key informants interviews are used as the tools/methods for primary data and information collection. These approaches and tools are designed based on the conceptual frameworks, research objectives and research questions.

4.1. Secondary data collection

The secondary data is collected from various available sources such as village, commune, LNGOs, INGOs and some relevant websites. All of obtained relevant documents and existing study and research reports at various levels are analysed based on conceptual framework, research topic, research objectives and research questions.

The main findings from these secondary data are related to various relevant concepts, which are useful to build up the conceptual framework for this research. Those findings include the flood and cyclone risks, local people's capacity and strategies to cope with floods and cyclones, and the definition of the SHFs by different institutions. These finding concepts are very important to direct this research from the start till the end.

4.2. Research site selection

The research site selection was made in consultation with local partner, HOM. Based on our consultation during developing the research proposal, Anlonglok village was selected as the research site for this research. The main reason is that Anlonglok village is identified as the most affected village by typhoon Ketsana in 2009 amongst 16 villages of HOM's target villages. This village is also recognised by both HOM and local government as the most vulnerable and exposed to floods and cyclones amongst 7 villages in Prey Kuy commune due to its low land stretches to Stung Sen River. It is an urgent need for HOM to gather the information and understand the needs and existing capacity of people in this village to develop an effective programme in its target village.

4.3. Interview guidelines

The research is followed by the semi-structured interview along with the developed interview guidelines. The reason is that this type of interview allows us to have more space to dig for more information from the interviewees. There are three types of interview guidelines were developed: 1)- For interviewing the SHFs to get information regarding the SHFs perception on flood and

cyclone risks, their existing coping strategies, and their needs to enhance their coping strategies, 2)- For interviewing the key informants to get information regarding their assistance and support and also cross check the information getting from the SHFs, and 3)- For guiding the group discussions to get information regarding existing natural hazards, major flood and cyclone risks, and also cross check the obtained information from the SHFs and the key informants. These interview guidelines were developed by reflecting to the conceptual framework, research objectives and research questions in consulting with local partners, HOM and research supervisor. A pre-test interview with 2 farmers and 2 key informants in a village nearby the researched village was conducted before finalising the questions. All the interview guidelines were approved by supervisor before conducting the formal field interview with selected interviewees and group discussions with selected farmers.

4.4. Interviewee selection

The interviewee selection process was made in consultation with local partner, HOM using and reflecting to the available village profile and the obtained information. There are three main groups to be selected, interviewed and interacted in this research:

- Small-holder Farmers (SHFs): 17 SHFs, included 12 woman and 5 men, were selected as the individual household interviewees in this research. This selection was based on the poverty criteria of local partner, HOM who defined the SHFs as the poorest and most vulnerable group to flood and cyclone risks in the area. The selected SHFs are from different part of the village selected by sampling method. All the interviews were made directly at interviewees' houses using the developed and approved interview guidelines along with probing and observation method.
- Key Informants : 6 key informants, included 1 chief of the village, 1 chief of the commune, 1 Commune Committee for Disaster Management (CCDM) representative, 1 LNGO representative, 1 head of Kampong Thom CRC and 1 Community Leader in Anlonglok village are selected to participate in this research. All these key informants are selected based on their level of engagement and intervention in the researched village in the last few years. There is one stakeholder, SAMARITAN organisation missing in this

research, which is due to the fact that we cannot communicate them for interview. The interviews were made directly at their offices and homes along with question guidelines.

- **Group discussions:** The group discussions are conducted to gather more general information regarding the village's vulnerability mapping, natural hazard mapping and ranking, flood and cyclone risks ranking etc. 2 group discussions were conducted, group 1 consists of 7 SHFs (5 are female farmers) and group 2 consists of 5 SHFs, all of them are female farmers. All farmers in the group discussions were homogeneous in terms of age, education and standard of living. The first group discussion was conducted at one of the participant's house and the second group was conducted at the Community Leader's house. The first group discussion focused on flood and cyclone vulnerabilities mappings. This is regarding more on the general information about the location of the village, that's why both male and female farmers are selected to participate in the discussion. The second group focused on natural hazard mapping and flood and cyclone risks ranking, which more related to the vulnerability to flood and cyclone risks. Women are identified as one amongst the most vulnerable group, that's why this second group discussion is only conducted with women. These two group discussions were facilitated with a great support from a respective HOM Programme Officer as a co-facilitator. The discussions were followed with some PVA tools along with guiding questions.

4.5. Village and participant observation

The village and participant observation were conducted via several methods such as transit walk in the village, farmer interaction, interviewees and participant observation during the interview and the group discussion process. The general findings from the observation were transcribed to compile and cross check with other data and information obtained from other sources. The observation mostly focuses on the condition of the village, the behaviour of the villagers, and the interaction way between one to another when they respond during the interview and discussion.

4.6. Data transcription and analysis

All the information collected from interviewees both the SHFs and the key informants are properly transcribed. The analysis is done based on the transcribed data and information in reflecting to the conceptual framework. The primary and secondary data are grouped, cross checked in the data analysis for final report writing.

The obtained information from the SHFs is grouped based on similarity responses and views. It is also analysed and classified the trend of each interviewee's views to come up with the conclusion for the report writing. The secondary data are mostly used to build up the conceptual frameworks, which are the main reference and direction for the primary data analysis and cross check.

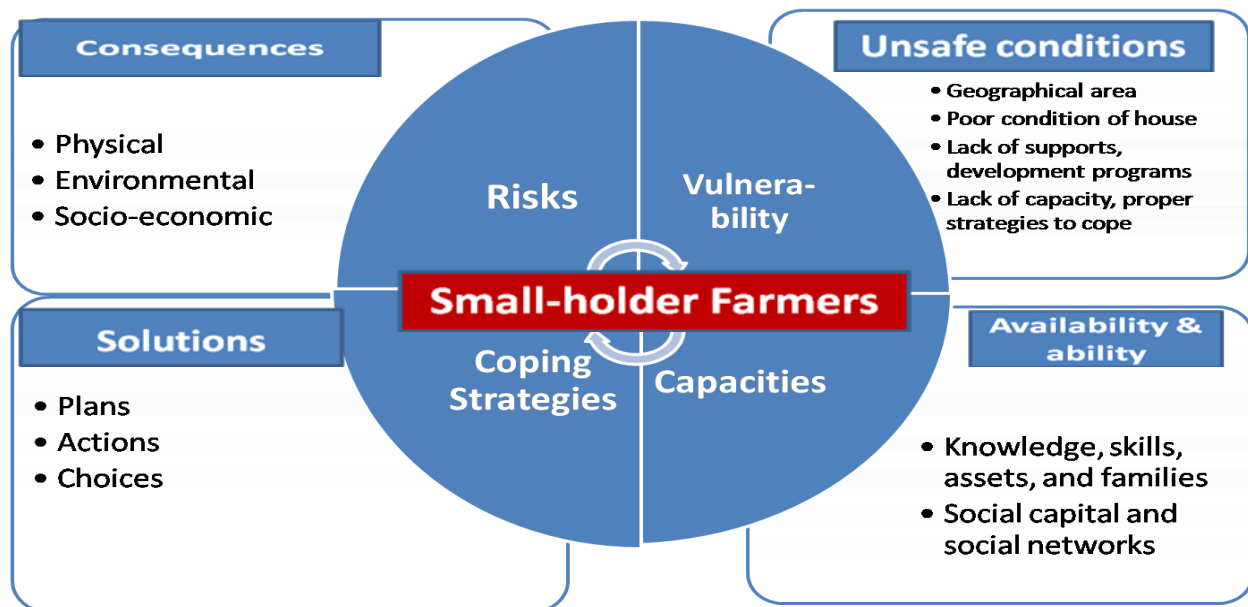
V. CONCEPTUAL FRAMEWORK

The SHFs, flood and cyclone risks, vulnerability, capacity, and coping strategies are the main concepts in this research. These five main concepts are interconnected and influence each other affecting people's livelihoods, especially the SHFs, in the area. Figure 1 shows the relationship of the concepts which also contain their key elements.

Vulnerability and risk are the most influent factors that affect people's capacity to anticipate, cope with, resist to and recover from the impact of floods and cyclones (Ben Wisner et al. 2004). The SHFs in the researched village are the most vulnerable to floods and cyclones mainly due to their socio-economic conditions, their lack of access to necessary infrastructures, and their exposure to floods and cyclones due to the geographical location of the village close to Stung Sen River, which floods easily occur after heavy rain.

The level of vulnerability and risk of the people is different from group to group depending on their conditions and capacity, even if they live in the same area. The group who is more prone to suffering from natural hazards is recognised as the vulnerable group. In the case of this research, the vulnerable group is the SHFs. This group is more at risk because of their limited capacity and coping strategies to cope with the existing difficulties compared to other groups.

Figure 1: Concepts relationship



Source: This figure was created after reading relevant concepts from different sources to show the link of each concept

The Figure 1 shows the relationship between all five relevant concepts. Risks, vulnerability, capacity and coping strategies are the key concepts to influence the SHFs' livelihoods and economic conditions.

5.1. The Small-holder Farmers (SHFs)

According to Agrifood Consulting International (ACI, 2005), the SHFs are the groups who own less than 3 hectares of farmland while the Cambodian Socio-Economic Survey (CSES, 2004) defined that the SHFs only hold less than 0.5 hectares of farmland. The Crossroads to Development (2006) defined the SHFs as the groups who own land from 0.5 to 3 hectares. However, there is no exact definition related to the SHFs definition from Cambodian Ministry of Agriculture, Forestry and Fisheries (MAFF) to verify the definitions above.

The SHFs in this research are defined differently from these definitions. We will use the category and definition of the local partner, HOM who has about 5 years experience working in this researched village. HOM defines the SHFs group as the group who owns less than 1 hectares of farmland. Its definition was based on two main criteria: 1)- Their annual production cannot feed

their family consumption for the year and 2)- They are the poorest and most vulnerable to disrupted or threatened farming due to the lack of skills and opportunity to adapt with any changes which may happen in their village³.

5. 2. Flood and cyclone risks

Because of its geographical location, Cambodia has monsoon season, or locally called rainy season, from June to September. In the interviews, the SHFs and the key informants generally stated that storms often occur along with floods, that's why it is a bit difficult for them to separate between floods and cyclones. Therefore, they can also call peak rainy season as flood and cyclone season.

Floods and cyclones are major climatic risk issues in Cambodia because they frequently occur and hit many parts of the country recently. Flood water in Cambodia usually occurs during the monsoon season along with two major watersheds, the Tonle Sap Lake and the Mekong River (ADPC, 2002). In general, people observed that cyclones usually occur in rainy season also known as monsoon season.

Flood and cyclone risks in this research mostly refer to the physical, environmental, and socio-economic *consequences* that the SHFs are facing. Their identified risks can be the loss of their livelihood sources, the damages of paddy fields and other crops, the destruction and damages of local infrastructures, the death of their family members, infection of waterborne diseases due to the frequency and intensity of floods and cyclones in the area⁴.

5. 3. Flood and cyclone vulnerabilities

Flood and cyclone vulnerabilities of the SHFs in this research refer to the presence of *unsafe conditions* which affect their life (CONCERN 2002). In the context of this research, the socio-

³ This information obtained from the interview with HOM programme officer during the fieldwork

⁴ The identified risks get from the farmers in the second group discussion of the field research

economic condition is a main factor, which makes the SHFs vulnerable to floods and cyclones. Those socio-economic factors include (i)- Infrastructures and livelihood programmes, (ii)- Health and Education services, and (iii)- social protection and safety nets⁵.

The local infrastructure (e.g. village roads and irrigation system) and the livelihood development programmes are identified as one amongst many socio-economic factors, which contribute to improving family conditions and less vulnerable to floods and cyclones for the SHFs in the research village⁶.

Health and education are recognized as a basic need for all human beings. They are considered as social services, which should be provided to the people by the state. Both health and education services are also identified as very important factors for people to increase their income, improve family economic condition and life style⁷. These two factors also play very important roles in enhancing people's capacity to reduce their vulnerabilities and cope with other difficulties, which may be happening and threatening their daily life.

According to a concept note and inventory about safety nets in Cambodia developed by three institutions including the Council for Agriculture and Rural Development (CARD), World Food Programme (WFP) and World Bank East Asia Human Development Unit (WB): "Social protection consists of a broad set of arrangements and instruments designed to assist individuals, households, and communities to better manage risk, shocks, and extreme poverty" (CARD, WFP, and WB 2009, p.3). There are two main roles that safety nets play to help poor and vulnerable people, 1)- Help households manage risks and vulnerabilities and 2)- Enable households to make better investments in their future, promoting an environment favorable to equitable and sustainable economic growth (CARD, WFP, and WB 2009). This confirms that well functioned and proper safety nets and social protection are very important and the most needed for the most vulnerable and marginalised group to help them manage risks and cope with other difficulties that they may face in their daily life. Referring to the importance of the safety-

⁵ This information is obtained from the interview with the SHFs, key informants, and farmers in the group discussions.

⁶ This information is obtained from the interview with the SHFs, key informants, and farmers in the group discussions.

⁷ knowledge and understanding gained from Economic, Social and Cultural Rights module, February, 2011, IMASS.

nets and social protection scheme, the condition and situation of the villagers in the researched village may be better if the support is accessible and available for them. They may have better capacity and strategies to minimise other existing risks that are threatening their livelihood sources and reduce their vulnerability to floods and cyclones.

5. 4. Coping strategies of local people

Coping means the managing of resources in difficult situations. It includes finding ways to solve problems, to handle stress or to develop defence mechanisms (CONCERN, 2002, p.10).

Coping strategies in this research refer to the solutions that the SHFs take to cope with flood and cyclone risks and difficulties. It mostly refers to plans, actions and choices of the SHFs to cope with difficult conditions. The local and external assistance from other institutions will also influence to people's coping strategies. For instance, if there is sufficient and on time assistance provided to people, people's coping strategies will be more strong and effective too. The SHFs usually use their local resources and skills to cope with the difficulties during and after floods and cyclones⁸.

5. 5. Coping capacities of local people

Capacities are resources, abilities and strengths, which enable communities to better cope with impacts of hazards (damage losses) (CONCERN, 2002, p.10).

Coping capacities of the local people in this research refer to their available resource and ability such as existing capacity, skills, knowledge, assets, social structure, social network, community safety nets and other resources that they have to cope with the difficulties during and after floods and cyclones. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and other disasters (UN/ISCR, 2004).

⁸ Reflection from reading various relevant concepts, people observation and interaction during fieldwork

VI-FLOOD AND CYCLONE RISKS OF EXISITNG SITUATION AND TRENDS

This chapter attempts to describe the researched village followed by 4 sub-chapters: 1)- Geographical and administrative setting: This will show the location of village, how village is divided, what are the social and economic situation of the area, 2)- People and community: This will discuss about culture, lifestyle, religion and different groups of people who are living in the village, how community is divided, any existing social structure in the village, how people help each other during crisis period etc, 3)- Flood and Cyclone Risks: This will describe the major risks that people face during floods and cyclones, how serious of those risks, what are the recent trend of the risks etc, and 4)- The distribution of the risks: What contribute to flood and cyclone risks in the village, who are the most vulnerable group, why, how the risks are likely to affect people's livelihood if the proper and effective coping mechanisms are not in place.

6.1. Geographical and administrative setting



Anlonglok is selected as the research site for this research because this village is identified as the most vulnerable and exposed to floods and cyclones among 16 villages of HOM's target villages.

Anlonglok is situated in eastern part of Kampong Thom provincial town in Prey Kuy Commune, Kampong Svay district with the 172 households in total and a population of 766 people (398 are women). The villagers in this village are farmers and traditional fisher-folks whose livelihoods depend on rice and vegetables growing and daily fishing. About 40% out of those 172 households are SHFs who own less than 1 hectare of farmland. These groups of farmers are identified and classified as poor and most vulnerable group in this village because their agriculture production cannot feed their families for the year round (HOM 2009).

Geographically, the village spreads across the low land where is surrounded by Stung Sen River, paddy fields and many village lakes. It is very hard to access the village for both dry and rainy season due to the village is flooded every year and the very bad condition of village roads especially after the declined of flooding water. In fact, the village is not too far from Kampong Thom provincial town, just about 10Km by the nearer way and about 20 – 25Km by the farer way. Due to the lack of proper road access, the village seems isolated from other main places in the district and even from other villages under the same administration of Prey Kuy commune. To reach the village in rainy season, people always use the farer way and take the boat across Stung Sen River while in dry season they can either use the farer and nearer way. The nearer way is a short cut way which connects from village to Prey Kuy commune office and Kampong Thom provincial town. In dry season, people like to travel via this way very much because they can save a lot of time and money. The farer way cut across Panha Chi commune⁹, which is bordering of Prey Kuy commune. In order to reach Anlonglok village via this farer way, people have to take boat across the Stung Sen River.

Anlonglok village seems to be clearly divided into three parts. The central part of the village contain most of the families which are recognised as fairly better off compared to those locating at both ends of the village. Their houses are bigger and stronger. This part of the village is also located on higher ground compared to the rest of the village, it therefore is less vulnerable to floods. However, their farmlands are all affected by floods like other villagers who live in the two end parts of the village because those farmlands are at the same place with the farmlands of

⁹Panha Chi is a bordering of Prey Kuy Commune. It is also located along Stung Sen Stream.

the poor people.

The village division was slowly made from generation to generation. Like other Cambodian families, the young couples in this village after married are supposed to live with bride's family for few years. After that, they are supported to construct their own house on other available piece of land belong to the family or buying from other villagers in the village. Thus, the residential areas in the village are extended. Those pieces of land are mostly a bit far from the central part of the village and more closer to Stung Sen River, paddy fields and village lakes.

The researched village is governed by a Village Development Committee (VDC) comprises of a chief of the village and two deputy village chiefs. This VDC was selected by the villagers and Prey Kuy Commune Councils (CC). The discussion with the chief of the village finds that there is lack of assistance from CC for Anlonglok village. He reported that Anlonglok village has so far not got any supports from Prey Kuy commune yet, even though the commune receives Annual Commune Investment Budget (ACIB) from national government to develop all villages under its administration. Based on the information from this chief of village, Prey Kuy Commune receives about 43 – 45 millions Riel (about 10,750 – 11,250\$) in 2010 as ACIB, which was used for road construction in other villages nearby Prey Kuy commune office. In contradictory, the chief of Prey Kuy Commune reported that in 2010, the ACIB of this commune is about 74millions Riel (about 18,500\$). Based on the discussion and observation during interviewing both the chief of the village and the chief of the commune, the information obtained from commune chief is more likely to be exact amount as this was read out from a commune official document. However, this differentiation leads us to have a big question regarding the accountability and transparency at local level.

According to the chief of the village and the chief of the commune, there are several development agencies working and supporting in Anlonglok village. Those agencies include The United Nation Children's Fund (UNICEF), HOM, SAMARITAN, CRC, COWS, and individual charities. UNICEF only had child rights programme and some saving activities in the past. HOM has holistic development programmes mostly on people's livelihood improvement. COWS used to have some development programme in the past and recently provide some dry rice season

seeds and fertilisers to some households in the village. SAMARITAN, CRC and individual charities only provided emergency relief during typhoon Ketsana in 2009. According to the interviews, HOM appears to be the only organisation that works in this village with a long term vision. It helps to set up some different groups to provide alternative livelihood options such as vegetable growing, chicken raising, revolving fund, saving group, rice bank, and farmer group etc.

Based on the obtained data and information, the social services in this village seem available without proper infrastructure and quality. There is a primary school in the village where children can get education up to grade 6¹⁰. There are only three teachers teaching in this school that are not enough for all grades. To solve with the shortage of teachers, children in grade 1 & 2 have to study together. This is also applied for children in grade 3 & 4 and 5 & 6. After finishing their primary education, children can either go to the lower secondary school in Panha Chi commune in which they have to cross the River and need to pay for the ferry fee of about 10,000 Riel (2.5\$) per month. Crossing the River to go and back from school is risky for them because the available boat ferries are small, which have no safety stuff (e.g. lighter jacket) at all. Children can also go to Prey Kuy lower secondary school but the road condition is much harder as it is mostly flooded in rainy season and muddy in dry season (after the declined of flooding water) and they generally miss class during this season.

Based on the SHFs and chief of the commune, for the public health facilities, the people from this village prefer to go to Panha Chi Commune Health Center where is about 4Km from the village and they need to cross the River. Based on the Cambodian Government Administration, Anlonglok village is under the operation of the Prey Kuy Commune Health Center, but not many people go and use the services there due to the difficult road conditions. Some SHFs shared that both commune health centers are only available and suitable for minor health problem with very limited working hours. Most of people prefer to go to the private clinics rather than those health centers because they open all time with enough health facilities. The problem for them is that they need to spend more on both transportation and health care fee for the private clinics. The

¹⁰ Education system in Cambodia divides into three levels, primary education from grade 1 to grade 6, lower secondary education from grade 7 to grade 10, and uppersecondary education from grade 11 to grade 12 (BETT 2008)

lack of sufficient public health services make the villagers, especially the SHFs more vulnerable to take out loans to cover the fee and it turn them in heavy debt. There are three traditional birth attendances (TBAs) in the village and one of them is old and do not provide the services often. These TBAs got trained from commune health centers. Women in the village use the TBAs and health center services for their healthcare including delivery.

6.2. People and community

People live in Anlonglok village are famers and traditional fisher-folks. They grow rice and vegetables and catch fishes for their own family consumption and for selling some surplus to other villagers or middlemen who come and buy their products directly in the village.



Anlonglok villagers take bath at Steng Sen stream every evening

All people in this village are Khmer, most of them are Buddhist. They live in three separate parts (a middle part and two end parts) of the village. The first end part of the village was given a sub-village name as Tapang where 21 households are living. The middle part of village is major part where 123 households are living. And the second end part is located closely to paddy fields and lakes where 28 households are living (HOM 2010) (The below Table 1 shows in details about the distribution of households in different parts of Anlonglok village). The two end parts of the

village are developed due to the extensions of families. Most of young couples in the village constructed their own houses after living with their parents for few years after marriages. The two end parts of the village are more vulnerable to floods and cyclone because they are located on very low land and stretched to Stung Sen River and paddy fields.

People in the researched village live together as a community for a long time. They have same religion, language, culture, tradition, and life style. According to the farmers in the group discussions, the interviewed SHFs and key informants, in the past, the people in this village have very strong culture and spirit of helping each other. Most of them had shared and exchanged their livelihood sources and supported each other especially during crisis period. This showed that the social capital in the village was very strong at that time. But now most of the people including key informants said that this sense of spirit and solidarity seem to have become weak, people start to only think about their own family rather than helping and sharing each other as before. For instance, in the past if any families in the village faced very serious food shortage, the villagers could mobilise other resources inside the village to help those families to cope with their difficult period.

Table 1: Distribution of households in different parts of Anlonglok village

Different part of village	Number of households	Percentage
First part	21 families	12%
Middle part	123 families	72%
End part	28 families	16%

Source: Anlonglok village profile, HOM 2010

6.3. Flood and cyclone risks

Rainy season in Cambodia starts in June and ends in October, but recently it is noticed by the people that there are a lot of changes in the rainy season months in their village. Due to this change and the low land area, which stretches by the Stung Sen River, the researched village is easily affected from the natural hazards, especially floods and cyclones.

All the SHFs interviewed in this research reported that they are not so surprised with the floods and cyclones, which occur in their village because they consider them as annual floods and cyclones. In many short periods, the village is flooded from two to three months. Each cyclone usually lasts from half an hour to an hour. All of them notice that the recent floods and cyclones become more severe from year to year, which destroy and damage their livelihoods especially crops (e.g. wet rice and vegetable), houses, roads, schools, pagodas, and livestock shelters. According to all sources of information from both primary and secondary data, no death caused by floods and cyclones has been reported in this village. However, floods and cyclones have caused huge damages to people's paddy fields and vegetable production, destroyed village's roads, and strongly affected the education of children. In sum, the severe floods and cyclones badly destroy the livelihoods of the villagers. The SHFs are the most vulnerable because they have not enough resources to be used as back up during the period of food shortage.

The severity of floods and cyclones are different from year to year. The discussion with farmers revealed that the most serious flood and cyclone which caused most damages to people's livelihoods in this village was the typhoon Ketsana. It occurred late of November and beginning of October, 2009

Despite of the huge damages after the typhoon Ketsana, there are no Disaster Risk Reduction (DRR) programmes and intervention implemented in the village except a Disaster Impact Assessment conducted by HOM. The purpose of the assessment was to assess the amount of losses and identify the needs of the villagers. However having seen the report of the assessment, we found that it is still not detailed enough because of the lack of expertise and human resource in HOM. The limited DRR programmes and intervention in the village showed that the relevant stakeholders including existing development agencies and local government are not focusing on DRR in this affected village yet.

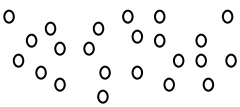
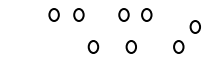
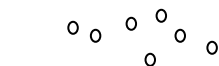
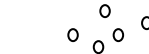
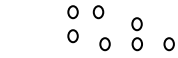
Our observation in the village, the information obtained from the chief of the village, chief of the commune, and the CCDM representative also confirm that all the villagers especially the SHFs have to face with risks associated with floods and cyclones every year. The risks include damage of houses, damage of paddy fields and other agricultural productions, waterborne diseases, death,

etc. Of which, the severely food shortage caused by the damage of rice and vegetable production is the major risk.

6.4. Distribution of risks

Based on the farmers in the group discussion, there are five main natural hazards which happen in the researched village include flood, cyclone, drought, lightening, and pest. All the people interviewed in this research including the SHFs, the key informants and the farmers in the group discussions confirmed that amongst those natural hazards, floods and cyclones are the most serious. The reason for that is they occur every year and affect the livelihoods of the villagers the most. Table 3 shows the ranking of those five hazards by farmers in the group discussions

Table 3: Hazard ranking

Hazard	Number of stones (votes)	Total stones (votes)	Priority
Flood		23	1
Cyclone		8	2
Drought		7	3
Lightening		5	4
Pest		7	3

Source: Group discussion with farmers

The data in Table 3 is the result from a group discussion with five female farmers who have similar livelihoods and all are affected by floods and cyclones every year. They identified the five main natural hazards shown in the table, of which floods and cyclones were ranked as the

most serious ones. They face a lot of difficulties and suffering from these natural hazards. Regarding health issues, they face many diseases such as diarrhea, typhoid, flu, and malaria etc. It is very difficult to access the health facilities during floods and cyclones because they are far away from the village and most of the roads are flooded and damaged. Schooling is also a big problem because the village primary school is flooded and the secondary schools are far away from the village. In terms of food security, they seriously face food shortage due to the damages of their crops including paddy field and vegetable. The burden issue is that they cannot go out to do fishing during the serious floods and cyclones period. The assistance and support from other Local Governments, INGOs and LNGOs are relatively limited. All these factors force the villagers to take out loans from other MFIs and/local moneylenders, migrate out of the village, and/buying rice on credit from local sellers.

Although not as serious as floods and cyclones, drought, lightening and pest are also identified as the hazards that the villagers are concern about. According to them, drought happens in their village every year and affects their dry season rice and vegetable production. The people also mentioned that lightening has recently increased in both frequency and level of severity. There have been two deaths caused by lightening in the nearby villages. This has mentally affected the villagers, especially when they are at the fields. Pest is also one of their concerns because it affects their income. The reason is their crop, paddy fields and vegetable gardens are often destroyed by the pest.

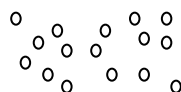

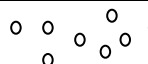
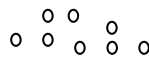

The research identified that women, elderly people and children are the most vulnerable groups to face the difficulties during floods and cyclones. This group of people usually stays at home while most of adult men in their families migrate out of the village to seek seasonal wages to cope with food shortage during and after floods and cyclones. Children are at risk to be drowned into water at any time if there is no enough caring from mothers or elderly people. They are also at risk to miss their schooling due to the flooding of school and roads. Women get more burden work in the household besides cooking, taking care children and other housework. Those burden works include collecting fire wood for household use and grass for livestock etc. Pregnant women are worse, in particular if their deliveries are due during the floods and cyclones season. It is very costly to deliver baby in flood and cyclone season as they need to spend a lot on

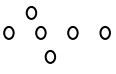
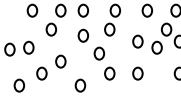
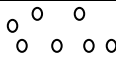
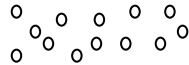
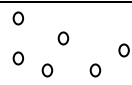
transportation and also health facilities. Elderly people have missed attending their Buddhist ceremonies which are usually organised four times per month. Sometimes, they have to go even it is very difficult for them in terms of transportation and security. Sometimes, they just stay there till flooding water decline. It is also observed that this vulnerable group faces serious problem on malnutrition because of the food shortage and lack of access to health services.

The above explanation and findings confirmed that flood and cyclone risks are the most serious risks for all villagers especially for the most vulnerable group such as women, elderly people and children. The villagers in this village will face more serious livelihood issues, especially agricultural resources if the effective and proper coping strategies are still not improved and available for them.

“All villagers in our village are depending on rice and other crop production. If all of our agricultural productions are damaged by floods, it automatically turns us into food shortage. A serious one year flood causes us poor for 3 years period!” A woman in the group discussion, 17 Nov, 2010

Table 4: Flood and cyclone risk ranking

Hazard	Risks	Number of stones (votes)	Total stones (votes)	Priority
Floods	Damage rice and other crops		16	1
	Damage houses		4	4
	Damage fruit trees		0	5
	Damage roads		8	2
	Flooding school and pagoda		8	2
	Damage livestock		8	2

	shelters			
	Death – drawn into water		6	3
Cyclones	Damage houses		24	1
	Damage fruit trees		7	3
	Death		13	2
	Damage fishing boat		6	4

Source: Group discussion with farmers

The table 4 shows and explains about the level of risks caused by floods and cyclones in Anlonglok village. The ranking of farmers in this exercise regarding cyclone risks shows a contradicting to what they discussed and the research findings. To them, from this exercise, death is a major risk, but the research finds that there is no death has been reported. However, some SHFs confirmed that they are at risk to loss of family member when cyclones happen.

VII- PERCEPTION AND VULNERABILITY

This chapter discusses about the perception of the SHFs in the researched village on flood and cyclone risks and their vulnerabilities due to the current socio-economic condition. This chapter is divided into two main sub-chapters, 1)- Talking about the perception of the SHFs on flood and cyclone risks: This will show about the analysis of the view and perception of the SHFs on the existing flood and cyclone risks that they are facing. It will also explore and show the view about people’s perception from the selected key informants and 2)- Talking about the vulnerabilities of the SHFs to flood and cyclone risks: It will describe major factors especially socio-economic condition which make the SHFs more vulnerable to flood and cyclone risks.

7.1. The SHFs' perception on flood and cyclone risks

The discussion with farmers and interviewees in this research revealed that people in the village are aware and have perceived the flood and cyclone risks because they somehow have their own plan and action to cope with those risks. However, some interviewees stressed out that it is not clear to them whether the people in this village have well perceived about flood and cyclone risks. They would reflect that if the people have perceived well about flood and cyclone risks, they should have better plan, choices, and actions to cope with those risks. Their good perception will lead them to have better coping strategies and living standard than the current situation. To them, the good perception can be measured by the available effective actions and coping strategies taken by the people.

The findings from the SHFs in this research confirmed that the villagers are aware and have perceived flood and cyclone risks at some level. The SHFs are aware about flood and cyclone risks due to the fact that they know very well when floods and cyclone occur and how long they last for each time. Moreover, they also have their local preparatory activities to minimise those risks. All of them also mentioned that they always get information about floods and cyclones through various sources include local radio, television, chief of the village and the other villagers. This shows that besides their experience to live in the area for many years, they also access to the updated information about the flood and cyclone risks. The perception of the SHFs on flood and cyclone risks is confirmed by what they have shared and discussed regarding their understanding on the causes of floods and cyclones in their village (e.g. the low land area of the their village and stretches to Stung Sen River, no high dike to control the level of water, no forest surrounded, and lack of DDR programme etc). They can also identify very clearly the risks associated with floods and cyclones and already take some immediate action and strategies to cope with those risks.

Most of the key informants also confirmed that the villagers in Anlonglok village are aware and have perceived about the flood and cyclone risks. They all know that floods and cyclones affect their village every year and are well aware when they occur, but sometimes the floods and cyclones are too serious, which are over their capacity to cope with. For example, in 2009

typhoon Ketsana hit the village and the villagers had no enough capacity and strategies to cope with. This affects many families especially the poorest and most vulnerable families to badly face the food shortage till the following years.

Our observation and discussion with some villagers and key informants during the field work also confirmed that some villagers already have very effective and simple preparation plan and action to minimise flood and cyclone risks. For instance, some families use the local palm tree branches to make fence around their houses to protect their homeland erosion. Some farmers attach their houses with some metal string to other trees around their homes to protect them from the damages due to the flash floods and cyclones. Some others also grow trees around their houses to protect them and their homestead land from the damages and land erosion. These simple preparation plan and actions showed that they are at least perceived and know how to prepare themselves to cope with floods and cyclones at some level.

7.2. The SHFs' vulnerability to flood and cyclone risks

Observation and interaction with villagers in Anlonglok village reveals that the socio-economic conditions in the village are recognised as poor due to the fact that people have limited livelihoods, lacks of access to other necessary social services and infrastructures, which contribute to promote their family income and economy. The lack of access to social services, infrastructure and investment on livelihood programmes caused people in the village, especially the SHFs more vulnerable to natural hazard risks, in particular floods and cyclones, which are identified and considered as the major risks for all the villagers.

7.2.1. Lack of infrastructure and investment on livelihood programmes

The lack of local infrastructure (e.g. village roads and local irrigation system), livelihood programmes (e.g. agriculture extension skills and techniques, agricultural inputs and credit), and income generation activities and intervention strongly affect to the villagers' economy and livelihoods as all of them are famers who depend on rice and other crops production for their daily life.

Geographically, the village is a very potential place for agriculture especially dry season rice and vegetable production. The annual floods bring a lot of fertile soil to fill in people's farmland, which are really good for agricultural production. On the other hand, Stung Sen River can be a huge water basin to irrigate people's farmland. However, people are not able to maximise use of their land for increasing their agricultural production yield and surplus yet, in particular in dry season. The reason is due to the lack of irrigation system, agricultural inputs, agricultural credit, and agricultural techniques and skills training. It is noticed that the current agricultural activities of the villagers seem at high risk to be damaged due to the lack of irrigation and natural hazards. Some years, they can get some yield and some they get little or nothing.

The research finds that some villagers also have some inputs and capital for investing on dry rice and vegetable production and they spend a lot on other necessary inputs and modern farming equipments such as water pump machines, seeds and fertilizers. However, all of the SHFs interviewed in this research still commit to take agricultural activities as their main livelihood source even most of them are at risk to lose time and money on this investment. It is reflected that the loss in investment on dry season rice and vegetable production has turned some villagers, especially the SHFs in heavy debt and caused number of families migrate out of village to seek other seasonal wages to repay the debt and cope with the family food shortage.

In terms of promoting and initiating the development programmes in the village, based on the information obtained from chief of Prey Kuy commune, Commune Councils seems have commitment to use the Annual Commune Investment Budget (ACIB) for appropriate livelihood projects for the villagers in the researched village. However, the commitment is only commitment, it is not 100% sure yet whether the upcoming ACIB will really go for the livelihood initiatives as the discussion and decision have to be further made and agreed amongst all CC members.

"I cannot say that there is plan that commune has to help the SHFs to cope with floods and cyclones, I need to discuss it further amongst CC members and prioritise the issues. But for my own opinion, the plan should be focused on the livelihood improvement, road building, and disaster risk reduction, in particular flood and cyclone risks. The long term

project is needed. The clear assessment before designing any development projects for this village should be done. The potential livelihood sources for this village are dry season rice and vegetable production and animal raising – water pump machines are needed for dry season agricultural activities”. Chief of Prey Kuy commune, interviewed on 16 Nov, 2010.

7.2.2. Lack of social protection and safety nets

The research finds that the social protection and social safety nets scheme in the researched village are relatively poor, which cannot help villagers especially the SHFs to have strong, and effective capacity and strategies to cope with their difficulties during and after floods and cyclones. In terms of other back up and emergency support, the research finds that the support is very limited for the villagers. Everyone is responsible for their own families. However, the farmers in the group discussion, some SHFs, key informants interviewed in this research realised that some initiatives and interventions from HOM such as rice bank, saving group and farmer group are considered as their social safety nets and back up support for the people during the crisis period. Besides, some interviewed SHFs and key informants also mentioned the support provided by the monks from the village pagoda. They acknowledged that after the declined of flooding water, the monks play very important in mobilising local resources and labour to repair the village roads. All of them acknowledged these initiatives very much, but they still realise that those initiatives and support are relatively limited.

7.2.3. Poor health and education services

All people interviewed in this research cited that health and education sector in their village are relatively poor. They can access the services, but the quality and availabilities of services are limited. Regarding to health services, there are two commune health centers where the villagers can get the services, but they need to spend more money to access those services especially on transportation cost. The services are only suitable for the minor health problem. The research also finds that those services are mostly used by the poor families while the better off families use the private clinics. The reason is that the private clinics have better facilities and open all

time. Some SHFs said that they are more confident to use the private clinics than the public health center especially for birth delivery.

In terms of education service, lack of teachers in the village's primary school is a big challenge for all the children in the village. A community leader shared that the teachers are not happy to come and teach in the village's primary school because the village's road is too difficult in both dry and rainy season. All of the current teachers are from other villages, they need to spend more money on transportation to reach the village. That's why with little monthly salary they would not prefer to come and teach in this village.

The research finds that the annual floods strongly affect to the education of children as the school and roads are usually flooded. It is also observed and identified as a big obstacle for both teachers and children. Some SHFs mentioned that they are scared to send their children to school during flood season because children are easy to be drowned into water. They do not want to allow their children to take this risk. It is found that few teenagers who are from a bit better off families in the village are still able to continue their lower secondary school where are located far away from the village. However, their parents complain that floods and cyclones always make them worry about their children security when they go and back from school. This condition shows that those children are also facing with the risk of drop out of school before accessing to their upper education.

VIII- COPING STRATEGIES

This chapter will list and detail about the existing coping strategies of the SHFs to cope with their difficulties during and after floods and cyclones. It will discuss about the existing local and external assistance that the SHFs received from other internal and external stakeholders. It will also explain how the existing coping strategies implicate to the SHFs.

8.1. The SHFs' plans, choices and actions

All villagers including the SHFs in the village somehow have their own plans, choices and actions to cope with floods and cyclones risks since they experience with annual floods and cyclones in this village for decades. There are several existing ways and strategies that the people in this village take to cope with their difficulties during and after floods and cyclones. However some of their strategies may only be able to address difficulties in a very short period while some strategies may turn as more burden issues for them in the near future. The research finds that most of the existing coping strategies of the villagers are identified and chosen by the villagers themselves.

Generally, we reflected that the existing coping strategies of the SHFs to cope with floods and cyclones are weak and sometimes harmful for their security. It is noticed that some SHFs shared their experiences that they just stay at home and do nothing during serious floods and cyclones.

“During floods and cyclones, we just stay at home, when big storm happen, we don’t close the door. We will jump from the house immediately if our house is collapsed. My house is not too high, so it is not so dangerous to jump” Y.N. 32 years, interviewed on 14 November, 2010.

Based on the analysis of the obtained information from the SHFs, the key informants and the farmers in the group discussions, there are six existing coping strategies that the villagers especially the SHFs in the researched village implement to cope with their difficult conditions. The family food shortage during and after floods and cyclones is identified as the most difficult condition for them. Most of households interviewed take and implement three to four strategies at the same in order to cope with their difficult conditions.

8.1.1. Using livelihood alternatives

Fishing in Stung Sen River and some lakes in the village, dry rice and vegetable production are the main available alternative sources of income and livelihoods for the SHFs in the researched village. The villagers use these alternative livelihoods to cope with their difficulties during the period of food shortage. All the families in the researched village can access nearby Stung Sen

River and the village lakes where they can do daily fishing for family consumption and some surplus to sell to other villagers or middlemen who usually come to buy their products directly from the village for market purposes.

People in the researched village do fishing by using the traditional equipments, which are self made or bought from the market. The poorest and most vulnerable families sometimes take loans from MFIs to buy the fishing equipments from the market. However the yield getting from their fishing activities cannot repay the loans, in fact they use the money that they earn from seasonal migration of family members to repay the debt.

Usually only family who has adult men do fishing because every villager considers that fishing is the role and responsibility of men, however during the field research, there was one woman is actively doing fishing by using the traditional equipments. According to the interaction with her, we found that she does fishing everyday for family consumption because her husband always migrates out of the village. Moreover, during the fieldwork, it is also observed that there are also few other women usually follow and help their husbands at the nearby lakes and River for fishing. This showed that fishing is not only done by men, women also take part in this work to search for alternative livelihoods to feed the family.

Besides fishing, dry season rice and vegetable cultivations are also identified as the alternative livelihoods for the villagers in the researched village. These livelihoods can be considered as a major solution for all villagers to cope with the food shortage and improve their livelihood condition. Most of the SHFs and the key informants interviewed in this research acknowledged that their livelihood condition would be improved if they can get better yield from their dry rice and vegetable productions. It is noticed that there are many families in the village have home gardens where they mostly grow many kind of vegetable for domestic consumption. Most farmers cited that home gardens have helped them a lot in terms of providing vegetable for family and some additional income to support family during the crisis period.

8.1.2. Migration for seasonal wages

Rice production is main livelihoods for villagers in Anlonglok village. The discussion with the SHFs revealed that within these few years, floods and cyclones often damage their rice and other crops. The damages caused large number of family members migrate to seek seasonal wages in order to cope with food shortage. Almost all of the SHFs interviewed have their family members migrate to other different places to find income to cope with the food shortage and pay back the debt to rice sellers, MFIs and/or local moneylenders.

There is no particular type of family that migrates for seasonal wages, but it is found that the most vulnerable and marginalised families, which have adult and young family members, do migrate the most. The main destinations of their migration are Kampong Thom provincial town, Kampong Cham, Phnom Penh, Banteay Meanchey, Siem Reap and Malaysia. Their work is mostly in the construction sites, on the farm in the soybean, mung bean, cashew nuts and rubber plantation, factory work, and house servant etc.

The research finds that the migration of households in the researched village is made based on family decision and job availabilities, both wife and/husband migrate to seek other job outside the village. In some cases, in particular for the families that have small children, husband and wife can take turn to migrate. For instance, if husband cannot get job, he will be at home take care children and take some available alternative job within the village, and wife migrate for seasonal wages. Some other cases, whole family needs to migrate from three to six months a year from the village. For this type of family, they only come back home during the wet rice production season to cultivate the rice on their farmland. It is reflected that for these types of families, children are at risk to abandon or drop out of school because they have to follow their parents. There are many families in the village that all adults including husband, wife, and children migrate for seasonal wages. Those families remain only the elderly people and children at home. Those elderly people and children mostly depend on the income from the migration of their respective family members to feed them (Box 3 confirms that many families in the researched village migrate for seasonal wages).

Box 1: Migration as a common coping strategy

“In my village, floods damage paddy field and vegetable farm of the villagers. Many people migrate to seek job outside the village to cope with the food shortage..... For my own family, flood completely damage my paddy field and vegetable garden, we seriously face food shortage.....” H.S. 34 years, female, interviewed on 14 Nov, 2010

8.1.3. Taking out loans from MFIs and local moneylenders

Microfinance sector in Cambodia is recently recognised as very active in providing loan and credit to Cambodian people across the country. Microfinance institutions started in Cambodia through the nonprofit microcredit projects of international donors, NGOs, and institutions in the early 1990s (CMA 2009). According to National Bank of Cambodia, by the end of 2009, the banking system in Cambodia consisted of 27 commercial banks, 6 specialised banks, 20 licensed MFIs, 2 licensed microfinance deposit-taking institutions, and 26 registered rural credit operators. These institutions are operating and providing the loans to the people across the country with the interest rate of more than 10% for the banks and more than 20% for the MFIs per annum (NBC 2009). This information can show that Microfinance sector is really strongly rooted in all communities across the country. The people mostly take loan from the MFIs because most of them are directly operated at village level with less procedure to the banks, but interest rate is too high for the MFIs.

Based on a household debt survey in three drought prone villages of Prey Veng province conducted by ActionAid Cambodia, 82% of the SHFs who own 0.5 – 2 hectares of farmland, are indebted. The average of debt is around USD319 per family with different interest rates from different agencies such as MFIs (3-3.50%/month), local moneylenders (5-10%/month), and other NGOs (2-3%/month). The loan is mostly used for buying fertilizers, rice, foods, paying for health care, setting up small business, and buying modern agriculture farming equipment (ActionAid Cambodia 2009).

The findings from the above household debt survey in Prey Veng province are also confirmed with the findings in this research as most of the SHFs we interviewed are indebted. They face similar risks and vulnerabilities of natural hazards like the community where ActionAid

Cambodia has conducted the debt survey. The discussion with the SHFs and the key informants in this research revealed that getting loan seems to be a common and easy coping strategy which every affected family takes to cope with the difficult condition during and after floods and cyclones. This coping strategy is identified by the SHFs as an easy and available strategy for every villager to take because the services are available directly in the village and less procedure required.

There are two active MFIs, Vision Fund¹¹ and Angkor Microfinance Kampuchea (AMK)¹² who are actively doing their business in providing loans to the people in this village. Besides, HOM also formed a saving group comprised of 35 members, which also provide some loans to the group member. This saving group also operates in the form of credit model, but the interest is not flowing out of the village, it will only remain with the household members of the group. The loans will be taken by members in voluntary basis. The interest rate is noticed as high for both MFIs and saving group – the normal rate shared by people in this village is more than 3% per month which is more than 36% per annum. Chief of the village has also cited that UNICEF has also run a credit project some years back, but all the people we interviewed have mentioned nothing about that project, it seems that project is already over.

This coping strategy seems to be the most popular strategy, which almost all SHFs take to cope with their difficulties during and after floods and cyclones. The villagers usually take loans to buy food, agricultural inputs (e.g. seeds, fertiliser and water pump machines), spend on health care and transportation for migration out of the village (Box 4 shows a case of taking loan as a coping strategy during and after floods and cyclones).

¹¹ VisionFund is a Christian Organisation, focuses its ministry on the lives of Cambodia's poorest families regardless of religious beliefs, gender or ethnic background. It is a licensed MFI with a mission to provide financial services to help the poor liberate themselves from poverty (VisionFund Annual Report 2009).

¹² AMK is a financially sound institution with the mission of "helping large numbers of poor people to improve their livelihood options through the delivery of appropriate and viable microfinance services" (Web post, Nov 11, 2009 – SIGU).

Box 2: Taking out loans as a coping strategy

“My sons and my wife go for labour work in Kampong Cham province, I do fishing at other lakes in the village. So far, we get loan from Vision Fund 2.5millions Riel (500\$) to buy fishing equipments with more than 3% interest rate per month. Every month, we need to pay about 75,000Riel (18.75\$) back as monthly interest to that institution”. H.K. 48 years, male, interviewed on 13 Nov, 2010.

8.1.4. Daily wages

Daily wages is found as one amongst the existing coping strategies that some households in the researched village take to cope with their difficulties during and after floods and cyclones. Few SHFs interviewed in this research cited that some of their family members usually accept the daily wages inside and/nearby or even in Kampong Thom provincial town to cope with the food shortage. The daily wages that they usually take are agricultural work especially for the rice production and daily construction work. They can earn from 6,000 Riel to 16,000Riel per day (1.5 – 4\$ per day).

The research finds that the daily wages is paid differently between men and women. Women usually get lower paid than men. There seems no clear reason about this, but the SHFs interviewed just stressed out that the farm and construction owners only pay them like that and it becomes normal now. Based on the obtained information, there are more women who take daily wages than men since men mostly migrate out of village. Box 5 shows a case of taking daily wages as a coping strategy.

Box 3: Daily wages as a coping strategy

Sometimes I also go with my husband for daily construction work at Kampong Thom provincial

town. The daily wage as construction worker is paid differently between man and woman, my husband earns 16,000Riel (4\$) per day and I only earn 10,000Riel (2.5\$) per day. Sometimes, I work as rice collector in the village and earn 6,000Riel (1.5\$) per day. N.R, female, 25 years interviewed on 13 Nov, 2010.

8.1.5. Buying rice on credit

Buying rice on credit is also another common strategy for the SHFs in the researched village. The research finds that some people interviewed reported that they buy rice on credit from local sellers to cope with their food shortage period. The price of rice is differently based on the conditions that the villagers buy. Approximately, 50Kg of rice cost 80,000 – 90,000 Riel (20 – 22.5\$) if the payment is made in the course of buying, 100,000 – 110,000 Riel (25 – 27.5\$) if the payment is made after one months, 120,000 – 130,000 Riel (30 – 32.5\$) for the payment made after two month, and 130,000 – 140,000 Riel (32.5 – 35\$) if the payment is made after three months¹³. The payment can be done by either cash or rice, it depends on the agreement between buyers and sellers. The SHFs in the village usually buy rice on credit for about 3months during the most of their crisis period (Box 6 shows a case from a family who takes this coping strategy). Only the poorest and vulnerable families who do not have back up supports, neighbors and relatives to temporary depend on during the crisis period take this type of coping strategy.

¹³ This data got from a phone cross check with a SHFs – Mr. Un Ath who experienced a lot in buying rice on credit from local rice sellers. It is also reflected and cross check with all related data and information obtained from SHFs interviewed in this research.

Box 4: Buying rice on credit as a coping strategy

“We had no enough rice to eat. We forced ourselves to eat porridge for few days during the flood time last year as we have no rice in our stock. Later, we bought rice on credit from others to feed the family during this period. We could not do anything, just sit and look at the water which is everywhere. But we did not stop eating. So we have to borrow. When the water goes down, we still faced difficulties because the road is still muddy and it was hard to travel. We could not sell labour or goes to find fodder for our animals.” S.R, female, 36 years, interviewed on 14 Nov, 2010.

8.1.6. Getting support from relatives and neighbors

Only few households interviewed in this research confirmed that they ask for the support from their neighbors and relatives to cope with their difficulties during floods and cyclones. The support include, borrowing rice, boat for transportation, and shelter. All of them mentioned that the supports that they can get from their relatives and neighbors are limited because most of their relatives and neighbors also have similar situation like them (Box 7 refers to a case that family take this as their coping strategy).

Box 5: Getting support from others to cope during difficult time

“When floods and cyclones occur, we don’t go to anywhere, we just stay at home. It is very difficult, we get wet even we stay at home because our house’s roof is damaged – water is both inside and outside the house. There is no food at home, we have to wait till feeling secured and go out to borrow some rice from neighbors. After floods and cyclones, it is still difficult, we lack of inputs {She refers to money} and fishing equipments to do fishing. We still borrow rice from others, but it is a bit better that we can grow some vegetable and can go out to seek some daily wages after flooding water decline”. T.Ch female, 32 years, 14 November, 2010.

8.2. Existing assistance

All people involved in this research cited that most of assistance and relief support are only provided to them when typhoon Ketsana hit their village. The existing assistance for this village so far are divided into two main sources, 1)- Local assistance: This refers to other available resources in the village and the support from Local Government both village and commune level and 2)- External assistance: This refers to all support and assistance from other relevant development agencies.

8.2.1. Local assistance

There are three main actors that are recognised as the primary local stakeholders who play major roles in providing support and assistance to the villagers in the researched village. Those actors are villagers, VDC, and CC. VDC and CC are responsible to govern the village and also ensure that the development programmes are in place to improve the living standard of every villager.

The local assistance is identified as the available resources, knowledge, skills and social capital of the people that they have to help their own family, relatives and/neighbors and share amongst others during the crisis period. According to farmers in the group discussion, the SHFs, and the key informants, the people have limited resources, which cannot support each other in the village or even in their own family. However, all the SHFs seem acknowledge that their family members are the major resource of support for their own family. The group discussions and in-depth interview find that the SHFs acknowledged that sending their family member for labour works inside and outside the village would help their family to earn more income for buying food and paying back the debt.

Local knowledge and skills are also identified as people's resources, and the major source of local assistance. This kind of resource has existed in the village for many years and it is improved from generation to generation. The findings from the SHFs revealed that the local support amongst the villagers is weak, as everyone is only concerned about the living conditions of their own family. Contradictory, the farmers in the group discussions mentioned that local

support from family to family still exists, especially during a crisis period. However, observation and discussion with some farmers in the village reflected that social capital and the spirit of cooperation in the village somehow still exists at some level.

The support and assistance from local authorities are also considered as local assistance because these institutions are based very close to people. It is their obligation to provide and fulfill people's needs. However, according to the chief of the village and the SHFs interviewed in this research, so far there is no remarkable support from CC and VDC in the village. This was claimed that CC has not yet paid enough attention to Anlonglok village as the ACIB is not allocated for the village yet, although it is identified and recognised as the most vulnerable village amongst 7 villages under the administration of Prey Kuy commune.

The chief of the commune acknowledged that there is really lack of support and assistance for Anlonglok village due to the limitation of ACIB and lack of development agencies in the village. The CC has so far used the ACIB for other prioritised projects which focus more on village road building for other villages. He claimed that CC is well aware about the needs of people in Anlonglok village since that village is the most exposed and vulnerable to floods and cyclones. That chief of the commune showed his high commitment to persuade other CC members to use the following years of ACIB to develop this village.

8.2.2. External assistance

Almost all of the SHFs in this research mentioned that within these 5 years period they only get relief support from few development agencies during the hit of typhoon Ketsana 2009. There are five institutions that provided relief support to the villagers in this village during typhoon Ketsana. Those institutions are HOM, Individual charities from Italia and Australia, SAMARITAN, CRC, and COWS. HOM and CRC seem play more active roles in providing the relief support to the SHFs during that crisis period. This is considered by the amount of the support.

The information obtained from the key informants showed that the relief support are provided to only the most poor and vulnerable families in the village. Each institution has their own criteria to select the poorest and vulnerable households to receive the support, except CRC who only follow the appointed names provided by CC. The SHFs who get the support also confirmed that they can get the relief support because they are poor and seriously meet food shortage. The table 5 shows in detail the scale of the relief support during typhoon Ketsana.

Table 5: Relief support during typhoon Ketsana 2009

No	Name of institutions	Type of supports	No of family coverage	Commitment after beyond Ketsana	Remark
1	HOM	Rice, vegetable oil, soya source, vegetable seed, water filters,	25 families	Yes	
2	Individual supporters from Italia and Australia	Rice, medicines, mats, mosquito nets, fish source, pickle, iodine salt, tents, soap and sarong	28 families	No commitment	
3	SAMARITAN	Rice and 16 kinds of households utilities	13 families	No commitment	
4	CRC	Rice and 13 kinds of household utilities	25 families	Not sure	
5	COWS	Rice seed and chemical	25 families	No commitment	

		fertilisers			
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Source: HOM – Emergency support during Ketsana 2009 records

8.3. Implication of existing coping strategies to SHFs

The research finds that there are six main coping strategies (as mentioned in 8.1) that the SHFs preferably use to cope with their difficulties, in particular food shortage during and after floods and cyclones. Those strategies are *immediate* solution and means, which the SHFs are depending on, which should be considered in the main agenda for the development programmes of local governments and other relevant development agencies and institutions who are working in the area.

The findings from the interviews with the SHFs showed that three out of those six coping strategies are considered as the major strategies, which are very popular and mostly used by many families. Those strategies are: 1)- Using livelihood alternatives 2)- Migration for seasonal wages, and 3) Taking out loans from MFIs and local moneylenders.

Amongst these three major strategies, using livelihood alternatives is the first prioritised strategy, which is used by all households interviewed in this research. This strategy is considered as a primary solution for the SHFs in this village because it is easy, accessible and available for them. The second prioritised strategy for the SHFs in this village to cope with floods and cyclones is migration to seek other seasonal wages outside the village. Most of households interviewed in this research cited that their family members have to migrate for seasonal wages to cope with the food shortage and pay back the loans to MFIs and moneylenders. The research found that migration becomes a very popular coping strategy for every family who face food shortage. All the families do not hesitate to even take out loans from MFIs and moneylenders to invest on family migration because they expect that the income that they earn from migration would be enough for them to pay back the loan.

The third major coping strategy is taking out loans from MFIs and moneylenders (as mentioned in 8.1.3). Loan is directly available all the time in the village, so the villagers usually take this

strategy for their immediate needs such as buying food, spending on migration, investing on dry season rice and vegetable growing, buying fishing equipments, and health care services etc. However, all interviewed households who take this strategy realised that it is not a good choice to it because they need to pay back the loan and interest every month. The interest rate for the available loans in the village is reflected as high, which is rate from about 3% to 5% per month.

The remaining three coping strategies include daily wages, buying rice on credit, and get support from neighbors and relatives are found as supplemental strategies, which are used by only few SHFs. The daily wages inside and/nearby villages are usually available during agricultural production season, which is only few months a year. The villagers would prefer to migrate out of the village rather than waiting for this kind of dairy wages. This local daily wages are mostly carried out by women because they mostly stay at home. In terms of buying rice on credit, there are also few families that take this strategy because they would prefer to migrate out of the village and/take out loans to buy rice directly. Most of the SHFs reported that it is difficult to get support from neighbors and relatives now because they also face similar problems like them.

Amongst these six existing coping strategies, the research finds that most of the SHFs take three strategies, some take five, and few take two or one at the same, to cope with their difficult conditions during and after floods and cyclones. There are advantages and disadvantages amongst these six existing coping strategies that the SHFs take to cope with floods and cyclones in this village. These six coping strategies are somehow considered as the only available and immediate solutions, which can help the SHFs during the crisis period. However, most of them are not so effective for the long term livelihood improvement of the SHFs, instead they can turn back as burden issues and risks to the SHFs. For instance the SHFs are facing to lose their land at any time if they are not able to back the loans and many children are at risk to drop out school due to the family migration etc.

IX-GAPS AND NEEDS

This chapter will describe and discuss the in-depth analysis of the needs and suggested actions and interventions of the SHFs and the key informants in order to enhance SHFs' capacity to cope with their difficulties during and after floods and cyclones.

People have their own strategies to cope with their difficulties during and after floods and cyclones, but their existing strategies are reflected as weak and not effective enough to improve their livelihood condition after crisis period. So, the SHFs and the key informants suggested some potential actions and interventions, which can contribute to strengthen their current strategies based on their experiences in the area for many years. Those suggested actions and interventions need very strong internal and external support to be fulfilled.

The livelihood improvement programmes are recognised as the most needed for villagers, especially the SHFs in the village. The key informants and the SHFs cited that unstable livelihoods and family economic condition are the major problems for the villagers in this village, and need urgent intervention from all relevant institutions and local governments. The design of livelihood programmes need to be mainstreamed with DRR perspectives because this village is frequently affected by natural hazards, in particular floods and cyclones. Based on the findings from the SHFs, the key informants interviewed and the farmers in the group discussions, some activities and interventions are possible and able to enhance the capacity and existing coping strategies of local people to cope with their difficulties during and after floods and cyclones:

9.1. Agricultural extension promotion

Agriculture extension is the most important and needed for every villager in the researched village because all of them are depending on agricultural production to feed their family. The agricultural extension programme suggested by the SHFs and the key informants in this research are more related to technical and inputs support such as capacity building, agricultural inputs including seeds, fertilizer, water pump machines, agricultural equipments and credit. Many SHFs and key informants interviewed in this researched acknowledged that the support in terms of knowledge and skill building can last longer than material support. They would prefer to learn agricultural techniques to grow rice and vegetable well and get high yields. Most of them suggested that the development programme in the village should be focused on dry rice and vegetable productions because their village has potential for this type of agricultural production.

Dry season agricultural production in particular rice and vegetable productions are recognised as a potential income source for villagers in the researched village. This recognition is due to the better location of the village surrounded by a lot of water sources. The SHFs and the key informants confirmed that dry season agricultural productions should be the best strategy to enhance people's livelihood and economic condition in this village. To them, this would be their better solution to improve their livelihood condition, which particularly can help them to avoid and/minimise other risks from their unsecured existing coping strategies such as migration for seasonal wages, taking out loans from MIFs and moneylenders, and buying rice on credit etc.

9.2. Rice bank

Rice bank is considered as one of helpful village safety net, which the SHFs and the key informants would suggest to be included in the village development programmes. Recently, a rice bank group is already established, which initially comprised of 29 household members. This rice bank initiative is managed by a Community Leader who is also in charge of many other initiatives in the village. The group has together set up a rule and regulation at the first stage in order to ensure the smooth management process within the group. All steps in this initiative are strongly supported and regular mentored by respective HOM staff. The village rice bank initiative starts with the contribution from every member. The poorest members are the first priority to borrow the rice that can help them to reduce buying rice on credit from local sellers or taking out loans from MFIs to buy rice.

The SHFs and the key informants suggested that village rice bank would be an effective back up support mechanism for the most vulnerable and poorest families during the crisis period. This idea came out after they reflected that huge amount of money was lost every year to others such as rice sellers, MFIs, and local moneylenders. They shared that it would really good if a proper village rice bank is set up with enough rice for poorest families to borrow during crisis period. The development programme should be considered and included this initiative as a major project because it will help the people a lot.

9.3. Saving group

Some SHFs and key informants have also mentioned that saving group would be another social back up support for villagers, especially the poorest and vulnerable families during the crisis period. In this village, a community saving group was already established few years back with the supports from HOM. Till now, there are 35 household members in this saving group initiative.

Based on saving group representative and some members of the group who are the SHFs and joined in the interview for this research, the process of community saving group is very similar to MFIs who are providing loans to villagers in the village. The differentiation between this community saving group and MFIs is that in the community saving group, money will not fly out of village, and the interest earned will be shared amongst the members. The most important thing is that all the process in the community saving group will be managed and decided by the people. However, having listened and understood the community saving group process, it is doubt to us whether the current saving group system can really address the poorest families' needs because the interest rate of the group is 3% per month, which is more or less similar to the MFIs.

Considering that many families in the village are already engaged in saving and credit and most of the SHFs and the key informants interviewed in this research suggested that it would be a good back up support for people during the crisis period, it may not be outright appropriate to counter this practice and suggestion with a 360 degree opposite view. May be what we need is reflecting and repackaging this strategy since this suggestion is an important need for the SHFs in the village. Through this suggestion, it is also reflected that building community capital is also important element, which should be strongly mainstreamed first in the saving group process. This suggested action and intervention can be an effective strategy, which really helps the poorest and vulnerable families, unless we can make community saving initiative as a process to empower community, build their knowledge and skills, strengthen capital, and enhance leadership through a participatory and collection process.

9.4. Improving local infrastructure

The research finds that other necessary infrastructures in particular village roads and village irrigation system are the most needed for every villager in the researched village. Most of the SHFs interviewed in this research mentioned that if the proper roads and village irrigation system are available for them, their livelihoods will also be improved. They said like this because they know that their farmlands are potential for agricultural production for both dry and wet season. All of them acknowledged that dry rice and vegetable production are the most potential additional income for them as there are a lot of market demands during the dry season. The village roads and village irrigation systems should be together because roads will provide them facilities to transport their product directly to market and easy to be connected with outsider communities. The irrigation systems will provide them enough water sources for their agricultural productions. This suggestion should be a primary agenda and decision of the CC to use the upcoming ACIB to fulfill this need.

9.5. Forming the Village Development Volunteers (VDVs)

The key informants including, Head of Kampong Thom provincial CRC, the chief of the commune, and the CCDM representative strongly recommend to form a group of V DVs in the researched village since this village is a natural hazard prone village. Based on these key informants, V DVs will play very important role to provide awareness raising to people on related themes, in particular disaster related issues. Usually, this group of V DVs is equipped with enough capacity and skills through formal training and coaching from CRC team to ensure that they are able to provide effective awareness raising to other villagers. This group is also play a major role to report the emergency cases, which may happen in the village to the CCDM representatives in order to ensure that the support will be taken action on time.

Based on the above explanation about the importance of having V DVs in the researched village, it is need for this kind of group since the village seems now lack of awareness raising initiative in particular regarding the flood and cyclone issues. Some SHFs interviewed also cited that the awareness raising programme is needed for them as it will help to enhance their perceptions on the existing natural hazards and other existing risks. Head of Kampong Thom provincial CRC

reported that CRC will form VDV in this village in 1012 and this village will become one amongst the focused villages of Kampong Thom provincial CRC target area.

9.6. Disaster Risk Reduction (DRR) programme

Accordingly to village observation and the discussion with the SHFs and the key informants, the research finds that DRR programme and intervention in this village are relatively weak. The assumption is usually made by public that this village should have strong DRR programme since it experienced with the hit of typhoon Ketsana in 2009, but this assumption is not exactly right because till now the village is still reflected as lack of DRR programme.

The SHFs and the key informants cited during the in-depth interview that DRR programme should be one amongst other development programmes for local governments and other development agencies who are implementing and/ plan to implement their development programme in the village. The commune chief and the CCDM representative shared their opinion that they will try to negotiate and lobby other CC members to agree and approve to use ACIB for other development initiatives including livelihood development and DRR programme in this village. They will also try to mobilise other existing development agencies to focus more on DRR work in this village.

X- CONCLUSION

The research finds a lot of information and data related to floods and cyclones in Anlonglok village, Prey Kuy Commune, Kampong Thom province. After data analysis, the research looked at the perception of people on flood and cyclone risks, their existing coping strategies, external and local assistance and villagers' needs to enhance their coping strategies and capacity to cope with floods and cyclones. These findings are very important information and learning tools, which will benefit the community people in the rural communities of Cambodia, especially the communities that are vulnerable and exposed to floods and cyclones.

Regarding the perception of the SHFs on floods and cyclones, this research finds that people are aware and have perceived the flood and cyclone risks due to their experienced in these issues for many years. This conclusion is based on the fact that people in the village always observe and know very clearly when floods and cyclones happen, and when they end. They also have their own plan and action, for instance using the local resources such as palm tree branches to make a fence to protect their homestead land from land erosion during flood, attaching houses to the ground and trees to protect them from cyclones, growing trees around homestead land to protect their house and homestead land etc. Moreover, learning from the experiences when they face with floods and cyclones, they can improve their coping strategies step by step. However, the research also finds that all of those experiences and perceptions seem not effective any more due to the current trends of cyclones and floods becoming more serious in the last few years. This said, it is a positive signal that the SHFs already perceive the flood and cyclone risks even it is still limited. So, there is need for some intervention and roles of other institutions, in particular Local Government, to design and implement the development work in the village by starting from what people already have.

In terms of existing coping strategies, the research finds that there are six main coping strategies that the SHFs currently have to cope with their difficulties during floods and cyclones. All of those coping strategies are reflected as not effective enough to cope with the very serious floods and cyclones. It is also found that three amongst those six strategies, using available alternative sources, migration for seasonal wages, and taking out loans from MFIs and local moneylenders, are mostly implemented by many SHFs. Thus, these three strategies are considered as the major available coping strategies that people have and need more attention and intervention from relevant stakeholders to further strengthen and ensure their effectiveness.

Regarding the assistance and support from internal and external institutions, the research finds that the relief support and assistance is mostly provided to the SHFs in this village only during the crisis. It is reflected that there is lack of long term livelihood programmes, which is the crucial need of the SHFs to improve their livelihood condition. It is also observed that there are no development agencies, including local government, that have development programmes on DRR related work in this village. This is a lack of proper intervention while this village is vulnerable and exposed to floods and cyclones every year.

Based on the findings in the research, we can conclude that improving livelihood programmes with the integration of DRR perspectives and the socio-economic condition are the crucial requirement in order to enhance the SHFs's capacity and coping strategies to cope with floods and cyclones in the researched village. The programmes should be designed and implemented starting from what the people have in place, and based on people's needs. It is also very important to take into account people's suggestions on actions and intervention as mentioned in chapter 9 if the development programme for this village is designed and implemented.

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XII- ANNEXES

Annex 1. Interview guidelines for SHFs

I- Physical and environmental risks associated with floods and cyclones in the areas:

- How often is the village flooded?
- What are the sources of this flooding?
- How long does the flooding last?
- When does the flood come and when it recedes?
- How often is the village affected by cyclone?
- What are the sources of this cyclone?
- How long does the cyclone last?
- When does the cyclone come and when it recedes?
- Does your family receive any news related to floods and cyclones in advance?
If yes, how?

II- Perception of the SHFs on flood and cyclone risks:

- What do you think about recent changes of floods and cyclones in your village?
- What do you think about recent impact of floods and cyclones in your village?
- If compare the flood and cyclone risks with other existing risks in your village, which one is the most serious? Why?

III- The socio-economic conditions that make SHFs vulnerable to floods and cyclones:

- What are your main income sources?

- What are your main expenditures?
- Does your income and production meet your family needs? If not, how many months, from which month to which month that your family face food shortage? How do you cope with during the season of shortage?
- Are there any types of social networks that exist in your community? What type, what and how does this network be useful to you during your difficult time?
- Where does your family go when floods and cyclones happened? Any public space to escape?
- Any available social services in the village which your family can access when floods and cyclones happened? How are those services?

IV-The plans and actions of the SHFs to cope with the difficult conditions after cyclones and floods happened:

- What are your difficult conditions during and after cyclones and floods?
- What did your family do to cope with those difficult conditions?
- What are your family's plan and action to cope with those difficulties?

V- The existing resources of SHFs to cope with cyclones and floods:

- Does your have any resources (Assets, skills and knowledge) to cope with cyclones and floods? What are those resources? Where do you get them? How useful they are?

VI-The existing assistance provided by LNGOs, INGOs, and local government related to SHFs' coping to floods and cyclones:

- During and after floods and cyclones, what are the assistance that your family receive? Receive from which institutions?
- Do you have any comments or suggestions on the assistance? Why?

- Do you have any suggestion for the future assistance, if they are available in the future?

VII- The conditions and factors, which can contribute to enhancing SHFs' coping capacity:

- What should be the main conditions and factors which can help to enhancing your family coping strategy to floods and cyclones?
- Do you have any more suggestion or questions?

Annex 2. Interview guidelines for key informants

a)- Chief of Prey Kuy Commune:

- Have people in Anlonglok village perceived about flood and cyclone risks? How?
- How often does commune council visit Anglonlok village per year? Why and for what purpose of each visit?
- In 2009, KETSANA strongly hit Anglonlok village, so far are there any assistance, disaster programme that commune councils provided to that village? How?
- Have your institutions monitored and evaluated the effectiveness of the provided assistance? How?
- As Anlonglok is located isolated from other village, which health center that people access especially during floods and cyclones season? How far from village to those health centers? Does commune have any assistance to help SHFs to access to health facilities?
- What is commune plan to help SHFs to cope with difficult conditions during floods and cyclones?
- Does commune council have plan to use the annual commune investment budget to help people in Anglonlok village to cope with cyclones? Why and why not?
- Any ideas about the future assistance from commune council itself and other development agencies working in Anglonlok village to really address to people's difficulties from floods and cyclones? How?

b)- Chief of Anglonlok village

- How long have you been the chief of Anglonlok village? How you are selected?
- How many NGOs working in your village? What are their focuses?
- Are people in Anglonlok village aware about flood and cyclone risks? How?

- How often you attend commune council meeting? Have you regularly update about the flood and cyclone risks?
- Are there any types of social networks established in the village? How those networks help people to cope with floods and cyclones?
- Have you organised SHFs to make plan around coping with floods and cyclones and submitted to commune council for consideration? Why?
- How much per year that your village is able to get from annual commune investment budget to develop your village? Are you informed how that budget is allocated?
- Any ideas about the future assistance from commune council itself and other development agencies working in Anglonlok village to really address people's difficulties from floods and cyclones? How?

c)- Chief of Prey Kuy Commune Committee for Disaster Management

- Have people in Anlonglok village perceived about flood and cyclone risks? How?
- How many people in your committee? How it is formed? What is your committee role and responsibility?
- How often your committee visit Anglonlok village? Mostly when and for what purpose?
- Have your committee taken any actions in responding to the difficult conditions of floods and cyclones in Anglonlok village? Why?
- How linkages between National Disaster Management Committee, Provincial Disaster Management Committee, District Disaster Management Committee? How those committee can help during and after the difficult conditions in particular floods and cyclones?
- Does your committee have plan to help SHFs in Anglonlok village to cope with floods and cyclones? What and how?
- Any ideas about the future assistance from commune council itself and other development agencies working in Anglonlok village to really address to people's difficulties from floods and cyclones? How?

d)- Leader of revolving fund in Anlonglok village

- How long have you been the revolving fund group leader? How?
- How many members in your group? How they are selected?
- What is the main purpose of group? How it is functioned?
- What are the main activities in the group?
- So far, any remarkable supports that group provided to SHFs to cope with floods and cyclones?
- Does the group have plan to support members and other SHFs to cope with floods and cyclones? How?
- Any ideas about the future assistance from commune council and other development agencies working in Anglonlok village to really address to people's difficulties from floods and cyclones? How?

e)- HOM Programme officer in charge of Anlonglok village

- Have people in Anlonglok village perceived about flood and cyclone risks? How?
- How often do you visit Anglonlok village per year? Why and for what purpose of each visit?
- In 2009, KETSANA strongly hit Anglonlok village, so far are there any assistance, disaster programme that HOM provided to that village? How?
- Have HOM monitored and evaluated the effectiveness of those provided assistances? How?
- What is HOM plan to SHFs to cope with difficult conditions during floods and cyclones?
- Does HOM have plan to use the annual budget to help people in Anglonlok village to cope with cyclones? Why and why not? How?
- Any ideas about the future assistance from HOM itself and other development agencies working in Anglonlok village to really address to people's difficulties from floods and cyclones? How?

d)- Head of Kampong Thom provincial Cambodian Red Cross (CRC)

- Have people in Anlonglok village perceived about the flood and cyclone risks?
- How SHFs in this village cope with floods and cyclones? What are their resources to cope?
- How often does CRC help this village in this 5 years? WHY and how?
- In 2009, KETSANA strongly hit this village, so far are there any assistance and disaster programmes that CRC provided to that village? How? What are the lessons learned from KETSANA that have been built into the new assistance?
- Has CRC monitored or evaluated the effectiveness of those provided assistances? How?
- As this village is isolated from other villages, what is CRC plan to help SHFs to cope with difficult conditions during and after floods and cyclones?
- Any ideas about the future assistance from CRC itself and other development agencies working in Anlonglok village to really address people's difficulties from floods and cyclones?

Annex 3. Guiding question for focus group discussion

Vulnerability mapping (for focus group 1) :

1. Where are the key livelihood assets located?
2. Which locations are at risk from floods and cyclones? Why?
3. How do people in the village currently cope with floods and cyclones?
4. Who in the village are the most risk from floods and cyclones? why?
5. Are there places in the village that are safe where people can go during floods and cyclones? How are those places used to protect people and assets during floods and cyclones?

Hazard mapping and ranking (for focus group 2):

1. What are the main hazards in the village?
2. Which hazards are the most serious for people in the village?
3. Ranking method using

Flood and cyclone risks ranking (for focus group 2):

1. What are the flood and cyclones risks that people are facing? Why?
2. Ranking method using

Coping strategies mapping (for focus group 2):

1. What assets do they have and control?
2. What strategies do people use to cope with the difficulties?
3. What are their long term livelihood strategies?

Annex 4. List of interviewed persons

N o	Name of interviewee	Sex	Occupation	Date of interview	Method of the interview	Remarks
1	Nhil Ry	F	Farmer	13 Nov, 2010	In-depth interview	
2	Hon Ke	M	Farmer	13 Nov, 2010	In-depth interview	
3	Heng Som	F	Farmer	13 Nov, 2010	In-depth interview	
4	Mom Hort	F	Farmer	13 Nov, 2010	In-depth interview	
5	Kan Hun	F	Farmer	13 Nov, 2010	In-depth interview	
6	Pun Lun	M	Farmer	13 Nov, 2010	In-depth interview	
7	Iv Orn	F	Farmer	13 Nov, 2010	In-depth interview	
8	Our Khun	M	Farmer	13 Nov, 2010	In-depth interview	
9	Hi Moth	F	Farmer	13 Nov, 2010	In-depth interview	
10	Neth Mala	F	Farmer	13 Nov, 2010	In-depth interview	
11	Seung Rim	F	Farmer	14 Nov, 2010	In-depth interview	
12	Sok Yeung	F	Farmer	14 Nov, 2010	In-depth interview	
13	Hong Hout	M	Farmer	14 Nov, 2010	In-depth interview	
14	Thy Mao	F	Farmer	14 Nov, 2010	In-depth interview	
15	Soth Pek	M	Farmer	14 Nov, 2010	In-depth interview	
16	Thy Chandy	F	Farmer	14 Nov, 2010	In-depth interview	
17	Yok Nin	F	Farmer	14 Nov, 2010	In-depth interview	
18	Cheun Sokhun	M	Prey Kuy commune	16 Nov, 2010	In-depth interview	

			chief			
19	Le Heang	M	Representative of Prey Kuy Commune Committee for Disaster Management	16 Nov, 2010	In-depth interview	
20	Say Vanney	M	Anlonglok chief village	16 Nov, 2010	In-depth interview	
21	Say Kong	F	Chief of poor community in Anlonglok village	16 Nov, 2010	In-depth interview	
22	Dok Sichea	F	Chief of Kampong Thom provincial Cambodian Red Cross	18 Nov, 2010	In-depth interview	
23	Chin Sinan	F	Programme Office of HOM	18 Nov, 2010	In-depth interview	
24	Then Ok	M	Farmer	17 Nov, 2010	Focus Group Discussion (Group1)	
25	Mom Heak	F	Farmer			
26	Veng Saly	F	Farmer			
27	Mom Vorn	M	Farmer			

28	So Reun	F	Farmer			
29	Pech Sreang	F	Farmer			
30	Hea Neath	F	Farmer			
31	Kan Orn	F	Farmer	17 Nov, 2010	Focus Group Discussion (Group2)	
32	Sorn Chit	F	Farmer			
33	Our Mom	F	Farmer			
34	Heng Neang	F	Farmer			
35	Sok Nhim	F	Farmer			