



Lao People's Democratic Republic  
Peace Independence Democracy Unity Prosperity

# Flood Preparedness Program

## Khammouane Province



*Prepared by*  
**Province Disaster Management Committee (PDMC)**  
**2007**

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**Flood Preparedness Plan for 2007 - 2008**  
**Khammouane Province, Lao PDR**

- Based on: Disaster Risk Management Strategy of Lao PDR
- Based on: Disaster Risk Management Strategy of Khammouane Province (2006 - 2010)
- Based on: Socio-economic Development Plan of Khammouane Province (2006 - 2010)

## **1. Introduction**

### **1.1 Background**

Khammouane province is situated in the middle part of Lao PDR. It is one of the provinces affected by several disasters such as flood, drought and wind storm annually. In some years, the province was suffered by disease out break in people and animal. In addition to the natural disaster, there are man-made disasters such as fire and land mine in 6 districts (Boualapha, Nakay, Yommalath, Mahaxay, Xaybouathong and Xebangphay).

### **1.2 Experience of Previous Flood**

In the past years, Khammouane province was hit by flood annually with various degrees from sever to low impact. The most sever impact was 2004-2005 flood which affected to 26,219 households, 517 villages and 144,097 people. There were 22,991 ha of paddy field and 53,361 ha crop area damaged.

**Table: Previous flood (2000 - 2005)**

<b>No.</b>	<b>Item</b>	<b>Flooded area (ha)</b>	<b>Agriculture flooded (ha)</b>
1.	Flood 2000	19,978	48,225
2.	Flood 2001	14,440	49,397
3.	Flood 2002	11,430	52,258
4.	Flood 2003	00	50,760
5.	Flood 2004	11,850	51,474
6.	Flood 2005	22,991	53,361

## **1.3 Objectives and strategies**

### **1.3.1 Objectives**

1. To enhance basic knowledge on disaster preparedness and encourage local people to manage with disaster by themselves.
2. To build capacity of government officials in provincial and district levels on disaster management and training and convey to community.
3. To enhance capacity building in community level, improve provincial economic and reduce loss and damage from disaster sustainably.
4. To strengthen capacity on disaster resilience in community and encourage community people to cope with disaster by themselves.

### **1.3.2 Strategies**

1. From experience and lesson learned, all levels from Province governor, District governor to villagers need to know basic knowledge for disaster management to reduce and mitigate risk and effects of natural disasters.
2. Develop the mechanism and new measures for emergency relief and use as strategic plan for disaster preparedness and response.
3. Make the provincial communities safe from disaster and minimize disaster impacts to human lives, properties, economic and livelihood.
4. To ensure that affected people will receive relief and rehabilitation on time.

### **1.3.3 Expected achievement of Khammouane province for 5 years (2006 - 2010)**

1. To enhance political stability, social security, and capacity building of human resources to meet provincial demand in Khammouane province.
2. To target the year 2010 to stop deforestation for mobile plantation, career development for people in upland areas, increase economic growth to 7-8% a year, income average to US\$ 400-500 per capita per year, to alleviate poverty of people.
3. To increase compulsory education up to primary level, extend education opportunity to remote areas, raise education rate up to 95% and reduce leave school rate less than 2%.
4. To improve living status of existing poor people to 70-80%.
5. Develop the province as a strategic planning unit, the districts as work plan & budget planning unit and villages as implementing unit.

### **1.3.4 Expected achievement of macro economics for 5 years (2006 - 2010)**

Economic of Khammouane province is based on agriculture and forestry. Hence the future plan should emphasize on development of agriculture, industrial forestry and service industry. In addition, the province should be developed in term of basic structure of economic, culture, science & technology to prepare for industrialization in the year 2010. It is expected that in the year 2010, economic growth would be around 8-10%/year and GDP (Gross Domestic Production) about 3,554.29 billion kip as shown in the details below:

- Agriculture/forestry production 1,421.72 billion kip, an increase of 6-8%/year or totally 40% of GDP.
- Industry/handicraft production 1,350.63 million kip, an increase of 12-14%/year or totally 38% of GDP
- Tourism/service industry 781.94 billion kip/year, an increase of 10.2% of GDP or totally 20% of GDP
- Increase provincial population income to 10-12% of GDP/year or more.
- Investment increases up to 25-30% of GDP/year
- By the year 2010, it is expected that provincial population would increase to 381,726 persons, an increase of 2.5%/year, GDP would increase to 9,000,000-9,000,500 kip/person/year (US\$ 800-900/year/person), inflation rate would be 7% average.

### **1.3.5 Expected achievement of poverty reduction for 5 years (2006-2010)**

#### **1.3.5.1 Poverty reduction section**

Recently, Khammoune province still has 6.30% of poor households of total number poor families in the province, which can be divided into 2 groups as follow:

- **Remote area:** Two districts, Boulapha and Naguy, have poverty problem and lack of necessary infrastructure which makes it difficult for population to access to market,

information, technology and other demand. For poverty reduction in these districts, by the year 2010, it is targeted that poverty of up to 70-80% of poor family will decrease. Present goal is to increase agricultural family income by various measures such as forming village development funds, emphasizing sustainable agriculture, agro-ecosystem and livestock, to enhance self-subsistence for family and increase good production to market, introduce new technology and technology training to people to increase production (cultivation, raising animal and growing crops) and give knowledge in access to market system. Equally important is to pay attention to land use planning and land allocation to people, especially poor family, define the area for industry plantation, form the model of family, which functions as private sectors to produce agriculture-forestry for becoming agricultural industry and handicraft. This will be investment for this sector total of 26.72 billion kip in 26 projects.

- **Flat area:** There are 3 poor districts which have local potentials for agriculture production, animal raising and other production and having more convenience of other infrastructures. Up to 2010, it is expected to reduce poor family about 95% in total of family number in this area. It will be focused agriculture production for food security, for becoming goods to the market, improve service and continue develop the Nakay plateau zone to become economic, service, science-technology and socio-cultural centers. For getting the achievement we have to pay attention on some components and projects prioritized as follows:
  1. Income generating promotion 27 projects, value of 13.12 billion kip;
  2. Technical improvement promotion 20 projects, value of 5.80 billion kip;
  3. Infrastructure development 22 projects, value of 137.82 billion kip;Priority projects totally 69 projects, with total value of 156.74 billion kip.

## **1.4 Institutional Mechanism and for disaster management in Khammouane Province**

### **1.4.1 Roles & responsibilities of Provincial Disaster Management Committee (PDMC)**

- **Roles & responsibilities of PDMC Chairman**
  1. To call for regular meeting and special meeting.
  2. To chair the meeting.
  3. To lead implementation of disaster in the province and report to Provincial Governor.
  4. To appoint and hand over work to Vice Chairman when engaged in other missions.
- **Roles & responsibilities of PDMC Vice Chairman**
  1. To work as assigned by PDMC Chairman.
  2. To summarize disaster situation and implementation in the province and report.
- **Roles & responsibilities of PDMC members**
  1. The Provincial Agriculture-Forestry Office, Communication, Post and Construction Office and Information and Culture Office - to follow up and announce disaster situation and early warning, advise and provide information and understanding to community;
  2. The Provincial Education Office - to organize training on disaster management to school teachers and students, and integrate disaster risk reduction into school curriculum;
  3. The Provincial Public Health Office – to form medical team for implementing disaster preparedness and response (First Aid, hygiene and environmental sanitation) in 3 periods (before, during and after disaster);

4. The Provincial Police Security Office – to set up security team to conduct search & rescue and responsible for security in the community during disaster;
5. The Provincial Armed Forces Office - to form forced team to help and evacuate community people to safety area;
6. The Provincial Finance Office, Investment and Planning Office, Lao Red Cross (LRC) and Industry and Trading Office – to seek for financial sources and support for disaster relief and recovery activities;
7. The Lao Youth Union, Lao Women Union and Lao Front National Construction - to form forced team and help in emergency response activities;
8. The Provincial Investment and Planning Office – to be responsible in main steaming disaster risk reduction into Province Development Plans;
9. The Provincial Energy and Mineral Office - to monitor safety system in the factories for protecting leakage and disposal of hazardous wastes/toxic chemicals to environment and community.

- **Roles & responsibilities of PDMC Secretariat**

1. To follow-up and coordinate with all concerned agencies in the province;
2. To compile and summarize information of hazard, vulnerability and capacity of community and report to PDMC;
3. To support PDMC;
4. To be active in cooperating with PDMC members for effective implementation;
5. To help and facilitate DDMC and VDMC in collecting data and assessing disaster situation in the villages/communities and to support disaster risk reduction planning at village level;
6. To participate in planning and summarizing implementation activities in weekly, 3 months, and annual meetings and report to PDMC regularly.
7. The PDMC Secretariat Office is set up at the Provincial Labor and Social Welfare Office.

### **1.5 Plan preparation date, validity and updating notes**

- Plan preparation                      23 August 2007
- Valid until                              May 2008
- The plan will be updated in May 2008.

## **2. Province profile**

### **2.1 Coverage**

Khammouane province comprises of 9 districts covering area of 16,315 square kilometers, 803 villages and 61,364 households with population of 337,390 including 171,825 females.

- North - Borikhamxay province (Khamkeuth and Pakkading district);
- South - Savannakhet province (Vilabouly and Xayboury district);
- East - Socialist Republic of Vietnam;
- West - Thailand (Nakhon Phanom province).

**Table: Provincial population in 2007**

Name of district	Area (km <sup>2</sup> )	Village	Population		Density (capita/km <sup>2</sup> )	River
			Total	Female		
Thakhek	918	141	83,957	42,965	91.46	Mekong, Namdon
Mahaxay	1,409	89	30,919	15,721	21.94	Xebangphay
Nongbok	321	72	41,243	20,920	128.48	Mekong, Xebangphay
Hinboune	3,011	166	62,030	31,121	20.60	Mekong, Hinboune
Yommalath	1,438	74	27,699	14,348	19.26	Namyom
Boualapha	3,166	81	25,089	13,010	7.92	Namxe, Namphanang
Nakay	4,173	65	20,245	10,253	4.85	Namtheun
Xebangphay	966	50	25,504	13,021	26.40	Xebangphay, Xenoi
Xaybouathong	913	65	20,704	10,466	22.68	Xenoi
<b>Total</b>	<b>16,315</b>	<b>803</b>	<b>337,390</b>	<b>171,825</b>	<b>20.68</b>	

## 2.2 Geography

The area is moderately high mountains from Phou Luang, in the East, sloping down to Mekong Valley in the Western side. The area is divided into 3 parts from ecological characteristics consisting of mountainous area, plateau area and flat land area, those of which have difference natural resources;

- 1. Mountainous area:** covered 35% of total area of the province including Nakay, Yommalath and Boualapha districts partially, consisting of various rivers and streams. The Western part was large plain area alternated with wave area which makes water flow easy and suitable for plantation of crops and industrial plants.
- 2. Plateau area:** covered 18.7% of total area including some parts of Nakay, Yommalath and Hinboun districts, with maintains vary from low to medium height mixed with plateau. This area is suitable for planting crops and industrial supported plants, agro-forestry, and raising poultry and livestock.
- 3. Plain area:** approximately 46.3% of the entire area of Khammouane covering Thakhek, Nongbok, Xebangphay, Xaybouathong, and some parts of Hinboune districts. The geography of the area is large plain along the Xebangphay other rivers which made the fertile land here is well suited to plantation of rice cultivation and cash crop production.

### 2.2.1 Landholding pattern, land use and cropping pattern

There are various potential natural/biodiversity and cultural resources in the area:

- 1. Forestry:** There are 812,600 ha, covering 8.7% of province area which included green forests of 175,000 ha, dry forests 527,000 ha and pine forest of 46,000 ha with approximately 80 million cubic meter of wood and several precious bio-diversity and wildlife in the area.
- 2. Land/area:** Khammouane province has agricultural production areas of 67,037 ha. There are many unoccupied areas which can be reclaimed for agriculture production purpose. Considering quality, the soil can be categorized into 31 types and 13 classes which widespread in different areas. Aside from soil fertility, important factors such as weather, water sources, etc, should be taken into account. The agricultural production in the areas includes forests, long-term and short-term industrial plants, rice, cash crop, livestock, etc.
- 3. Watershed:** There are branches of Xebangphay River flow through Khammouane from the North to the South. The main rivers are suitable for electricity production and to supply agriculture production.
- 4. Minerals:** There are many kinds of minerals in the province, particularly limestone which covered 560,000 ha or more than hundred million cubic meters; Tin 800,000 tons; gypsum 500,000 tons; others are coal, Phosphate and salt.

5. **Tourism:** There are 124 tourist attractions throughout the province including 27 places of cultural and antiques tourism, 96 of natural tourism and 1 place of historical tourism. The most wonderful tourist attraction is Pafa Cave in Baan Nakangxang with 229 of Buddha images inside. Besides, the province will have more tourist attractions both in historical and natural places if the construction projects ‘Nam Teun 2 Dam’ and ‘highway no.12’ are completed, such as reservoir of Nam Teun 2 Dam, the largest reservoir similar to the sea.

### 2.3 Livelihood details

- The total population in Khammouane province is made up of 3 tribes; Lao Theung, Lao Soung and Lao Loum. Main occupation is agriculture production including crop field, in-season rice field, replanting rice field after flood, livestock, cash crop cultivation such as wheat and cassava. The major incomes to the province are from rice and livestock production.

### 2.4 Population

- Increasing in number of population is now at the rate of 2.2% per year (in 2007);
- The GDP increased by 8.7% (in 2006-2007);
- The average GDP is US\$ 488.00/capita/year or 4,935,626 kip/capita/year.

### 2.5 Basic Infrastructure

#### 2.5.1 Transportation structure

Khammouane province is situated in the central part of Lao PDR. It is the narrowest part of the country from eastern to western border. The province has national highway no. 13 of 143 km, well quality paved, from the North to the South. There are road no.12 (from Thakhek to eastern Lao-Vietnam border) and National highway no. 8B (from Khammouane province to Voung Ang port in Vietnam). The roads can facilitate to transport the goods and passengers from municipality to districts and villages in the two seasons (rainy and dry seasons). In addition, the province has ports along the Mekong River, which is 153-km long. The river transportation also links to sea ports in Bangkok of Thailand. According to the above geographical condition, the province has good potential to improve the weakness and promote goods production and economic with other provinces as well as in regional and global levels.

**Table: Total road length and road type**

No.	Name of road	Unit	Lenght (km)	Remark
1	National Highway	route	451	
2	Provincial Road	route	461	
3	District road	route	408	
4	Rural and Community road	route	1,397	
<b>Road types :</b>				
1	Concrete road	route	117	
2	Asphalt road	route	254	
3	Road paved with red soil	route	823	
4	Road constructed with normal soil	route	2,309	

## 2.5.2 Social and cultural infrastructure

No.	Items	Unit	Number	Remark
1	Primary school	school	604	
2	Lower secondary school	school	1	
3	Upper secondary school	school	23	
4	Vocation school	school	4	
5	Kindergarten	school	63	6 private schools
6	Hospital	hospital	9	
7	Health care center	center	79	
8	Clinic	clinic	24	All private
9	Pure dinking water factory	factory	15	
10	Temple/ church	place	463	20 churches

## 3. Hazards, vulnerability and capacity analysis

### 3.1 Flood Hazards

- **Flood causes**

The major cause of flood in the province is from the overflow of Mekong Rive water into agricultural area as well as high water level of the Xebangphay, Xenamnoi and other rivers. The flood damaged agricultural products and properties of people. Another cause is from heavy rain.

- **Severity of Flood**

The flood can damage 80% of agricultural products, 15% of transportation facilities and 5% of cultural and social aspects. Furthermore, it also causes disease outbreak both in human and animals, lack of food and migration of local people to the cities to find work. The flood period is from end of July to October.

**Table: Water level and Rain fall (2005)**

Items	Water level (m)		Rain fall (mm)		Critical Level	Remark
	2004	2005	2004	2005		
Mekong River (Thakhek)	13.26	13.96	2,346.3	2,606.6	13.50 m	
Xebangphay River (Xebangphay)	20.10	20.68			17.00 m	
Xebangphay River (Mahaxay)	15.13	16.60			15.00 m	

### 3.2 Drought hazards

- Drought mostly occurred during the period of scarce rainfall causing rivers and streams run out of water. It causes damage to agricultural products and lack of natural food and water for raising livestock. This has huge effect to people and their livelihood. The drought occurs occasionally from end of May to end of July.

### 3.3 Social and administrative impacts

- People in Khammouane province always affected by natural disasters including flood, drought, wind storm and fire.



**Table: Impacts to districts**

Name of district	Area (km <sup>2</sup> )	Village	Population		Name of river
			Total	Female	
Thakhek	918	141	83,957	42,965	Mekong, Namdon
Mahaxay	1.409	89	30,919	15,721	Xebangphay
Nongbok	321	72	41,243	20,920	Mekong, Xebangphay
Hinboun	3.011	166	62,030	31,121	Mekong, Hinboun
Yommalath	1.438	74	27,699	14,348	Namyom
Xaybouathong	913	65	20,704	10,466	NamXenoi

### 3.4 Impact on infrastructure

- In the Khammouane province, construction quality of transportation facilities (roads and bridges) rarely meet standard. The roads are mostly constructed by red soil or normal soil, the community bridges were built by wood that would be easily damaged during rainy season and then caused transportation problems to the community and might cut any relief and support from outside areas. The schools and hospitals will also be affected by flood.

**Table: Impact on agriculture**

No.	Items	Thakhek	Mahaxay	Nongbok	Hinboun	Yomalath	Boualapa	Nakay	Xebangpay	Xaybuathong
1	<b>Community</b>									
	Village	90	70	71	126	36	28	27	44	25
	Household	2,762	2,590	4,841	8,806	1,919	1,894	839	2,119	449
	Population	13,948	14,159	27,961	48,759	10,919	10,342	4,195	10,880	2,934
2	<b>In - season rice</b>									
	Planting area (ha)	9,530	6,520	10,008	7,920	4,560	3,500	1,443	5,580	4,300
	Flooded area (ha)	2,073	3,830	7,510	7,096	1,760	2,262	114	3,200	449
	Damaged area (ha)	829	3,568	6,574	6,336	1,397	1,190	77	2,726	294
	Value (million kip)	3,581.28	9,419.52	26,033.04	28,131.84	5,196.84	3,784.20	295.68	11,776.32	1,231.28
3	<b>Cash crop</b>									
	Planting area (ha)	420	354	648	350	202	252	123	503	142
	Damaged area (ha)	126	354	250		91	75		137	
	Value (million kip)	504.00	1,416.00	1,000.00		364.00	300.00		548.00	
4	<b>Fishery</b>									
	Fish pond (pond)	548	3	658	104	39			167	10
	Value (million kip)	14.00	3.00	658.00	780.00	45.00			18.19	10.00
5	<b>Livestock</b>									
5.1	Buffalo	17	55	5	20	3	17	2	12	
	Value (million kip)	42.50	135.00	12.50	50.00	6.00	68.00	5.00	24.00	
5.2	Cow	6	100	9	19	7	9		91	1
	Value (million kip)	6.00	250.00	10.80	19.00	10.50	13.00		136.50	1.50
5.3	Pig		300	30	100	59	6		210	8

No.	Items	Thakhek	Mahaxay	Nongbok	Hinboun	Yomalath	Boualapa	Nakay	Xebangpay	Xaybuathong
	Value (million kip)		105.00	15.00	40.00	17.50	1.50		157.50	3.20
5.4	Poultry	861	6,996	100	2,094	636	138		4,010	30
	Value (million kip)	8.61	139.92	1.50	31.41	6.36	2.76		60.15	0.60
6	<b>Irrigation</b>									
6.1	Water pump	6				2			14	
	Value (million kip)	26.60				10.00			371.00	
6.2	Water intake	10	5	3	4	1			14	
	Value (million kip)	67.60	26.30	115.00	1,136.00	3.00			45.80	
6.3	Water channel		4	13	6	2			3	
	Value (million kip)		1,605.00	639.58	413.00	10.00			620.00	
6.4	Water gate			2					5	
	Value (million kip)			639.58					16.00	
6.5	Earth dyke				2		2	7	6	
	Value (million kip)				200.00		5.00	13.78	120.00	
6.6	Dyke (rock fill net)						5			
	Value (million kip)						50.00			
6.7	Embankment				1					
	Value (million kip)				115.83					

**Table: Impact on education (2005)**  
**(Total 306.10 million kip)**

No.	Items	Thakhek	Mahaxay	Nongbok	Hinboun	Yomalath	Boualapa	Nakay	Xebangpay	Xaybuathong	Total
1	School	2	32	21	18		1		13		
2	Roof		450	150	100		250		485		1,435
	Value (million kip)		17.10	5.70	3.80		9.50		18.43		54.60
3	Timber				90				14		104
	Value (million kip)				2.25				45.80		48.05
4	Table	9	244	218	310				3		784
	Value (million kip)	0.90	12.20	10.90	15.50				0.45		39.95
5	Black board	5	58	50	51				5		169
	Value (million kip)	0.75	8.70	7.50	7.65				16.00		40.60
6	Text book	20			130				6		156
	Value (million kip)	0.40			1.30				120.00		121.70
7	Concrete floor	0.30		1							1
	Value (million kip)	0.30		0.83							1.13

**Table: Impact on public health (2005)**  
(Total 940 million kip)

No.	Items	Thakhek	Mahaxay	Nongbok	Hinboun	Yomalath	Boualapa	Nakay	Xebangpay	Xaybuathong	Total
1	Health care center			5							5
	Value (million kip)			23.00							23.00
2	Medicine Cupboard		23								23
	Value (million kip)		4.00								4.00
3	Pump well			913							913
	Value (million kip)			913.00							913.00
4	Disease										0
	Influenza	1,141	7		75	129			569		1,921
	Diarrhea	75	3	10	30	26			117		261
	Skin disease	11	135	10					1,085		1,241
	Foot disease	2,053	100		3	8			2,142		4,306
	Dengue fever	215		21	1				2		239
	Lung disease		2		46				78		126
	Eye Conjunctivitis	11			34						45
	Malaria	11	3			22			69		105
	Smallpox	65							2		67
	Leptospirosis	75							1		76
	Others	97	6			19			118		240

**Table: Impact on transportation system (2005)**

No.	Name of district	Bridge		Water pipe		Road	
		Place	Million kip	Place	Million kip	km	Million kip
1	Thakhek	2	444.00	96	68.52	5.40	317.67
2	Mahaxay		153.20			9.80	174.19
3	Nongbok	2	99.31			6.19	485.00
4	Hinboun					15.46	695.66
5	Yommalath	2	300.71	41	100.00	13.35	715.11
6	Boualapha						2,348.85
7	Nakay						50.39
8	Xebangphay					49.79	760.94
9	Xatbouathong						499.51
		<b>6</b>	<b>997.22</b>	<b>137</b>	<b>168.52</b>	<b>99.99</b>	<b>6,047.32</b>

### 3.5 Resources and capacities

#### 3.5.1 List of material/equipment for evacuating to safety areas

No.	Items	Unit	Number		Remark
			Existing	Demand	
1	Tent		00	100	
2	Wooden boat		5,650	00	
3	Landing craft boat		00	150	
4	Bus		86	00	
5	Pick up car		75	00	
6	Telephone		01	02	
7	Walky talky		00	5	
8	Life preserver		00	65	
9	Megaphone		00	50	

#### 3.5.2 Flood control equipment, medical facilities and human resources

No.	Items	Unit	Number		Remark
			Existing	Demand	
1	Water pump	unit	00	18	
2	Sand bag	bag	00	800,000	
3	Hospital	hospital	09	01	
4	Doctor/nurse	person	450	00	
5	Ambulance	unit	02	07	
6	Search & rescue team	team	00	09	
7	Flood response team	team	00	09	
8	Volunteer	person	00	100	

### 4. Institutional mechanism for disaster management

#### 4.1 Province Disaster Management Committee (PDMC)

##### A. PDMC members

1.	Mr. Odai Soutdaphon	Deputy Provincial Governor	Chairman
2.	Mr. Sengthong Phakhoun	Head, Labor & Social Welfare	Vice-chairman
3.	Mr. Siphon Xaliboun	Head, Lao Front National Construction	Member
4.	Mr. Inpon Sengmany	Head, Information and Culture Office	Member
5.	Mr. Khampheuang Thephachanh	Deputy, Agriculture & Forestry Office	Member
6.	Mr. Khamphong Vongsoulath	Deputy, Education Office	Member
7.	Mr. Dr Ketsana Latthachak	Deputy, Public Health Office	Member
8.	Mr. Bounmai Chanhthavongzay	Deputy, Police Security Office	Member
9.	Mr. Nou Vongphouthon	Deputy, Transportation, Post & Construction	Member
10.	Mr. Khamla Phomvilay	Deputy, Investment and Planning Office	Member
11.	Mrs. Viengmany Chanhthanasinh	Deputy, Lao Women Union	Member
12.	Mr. Bounleng Koun a vong	Deputy, Finance Office	Member
13.	Mr. Khamhoung Keobounmy	Deputy, Lao Youth Union	Member
14.	Mr. Bounhom Moukdasak	Deputy, Industry & trading Office	Member
15.	Mr. Boutdy Bounthavong	Deputy, Energy and Mineral Office	Member
16.	Mrs. Sathit Chanhxy	Deputy, Provincial Administration	Member
17.	Mr. Dalavong Vongsavanhthong	Head, Lao Red Cross	Member
18.	Mr. Somkhen	Head, Armed Forces Administration	Member

## B. PDMC Secretariat members

1.	Mr. Bounthavon Sisouphanthong	Coordinator, Labor & Social Welfare	Head
2.	Mr. Somvang Souvanthong	Officer, Lao Women Union	Vice Head
3.	Mr. Khamphon Sikoumphon	Deputy, Police Security Office	Member
4.	Mr. Bounmy Sibounheuang	Officer, Agriculture & Forestry Office	Member
5.	Mrs. Oulayvan Sengsouvanouhak	Officer, Education Office	Member
6.	Mrs. Chomchan Phetphouthon	Financial Officer, Labor & Social Welfare	Member

## 4.2 Roles & responsibilities of PDMC and its Secretariat

### 4.2.1 Roles & responsibilities of PDMC

Before	During	After
<ul style="list-style-type: none"> <li>Organize consultative meeting for planning</li> <li>Prepare crop seed, food and necessary materials for emergency relief</li> <li>Hand over the responsibilities to all concerned parties to follow-up in each period</li> </ul>	<ul style="list-style-type: none"> <li>Appoint the technical teams to collect damage data and report to Provincial Governor</li> <li>Field visit to follow-up and assess impact</li> <li>Seek support from private sectors, NGOs and other organizations</li> </ul>	<ul style="list-style-type: none"> <li>Organize PDMC meeting to assess disaster impact after flood</li> <li>Conclude damage data and prepare plan to present to Governor/ concerned agencies for seeking budget and material support for affected people</li> <li>Visit affected people for moral support</li> <li>Mobilize budget/ materials from other parties for relief and rehabilitation</li> </ul>

### 4.2.1 Roles & responsibilities of PDMC Secretariat

Before	During	After
<ul style="list-style-type: none"> <li>Support PDMC for summarizing damaged information and preparing documents for meetings</li> <li>Cooperate with all concerned parties and private sectors</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up and collect impact data of disaster occurred during the period</li> <li>Summarize damage information and report to PDMC and other concerned agencies</li> </ul>	<ul style="list-style-type: none"> <li>Coordinate with DDMC to compiling damage data</li> <li>Prepare document, impact data for meeting with all concerned parties for relief and rehabilitation planning after flood</li> </ul>

## 4.2 Roles & responsibilities of each office

### 4.2.1 Provincial Agriculture & Forestry Office (PAFO)

Before	During	After
<ul style="list-style-type: none"> <li>Cooperate among PDMC members</li> <li>Organize meetings at provincial and district levels to assign roles &amp; responsibilities of each level</li> </ul>	<ul style="list-style-type: none"> <li>Visit to districts and villages to advise on cultivation and animal raising</li> <li>Visit to districts and villages affected from disaster</li> </ul>	<ul style="list-style-type: none"> <li>Continue taking lead and advise to people for suitable cultivation and animal raising</li> <li>Assess for the implementation</li> </ul>

<ul style="list-style-type: none"> <li>• Prepare crop seed and fertilizer</li> <li>• Prepare animal breeding, insecticide and veterinary equipment</li> <li>• Follow-up and update meteorology data and announce to community</li> </ul>	<ul style="list-style-type: none"> <li>• Inform the weather forecast and early warning to community and all concerned parties on time</li> </ul>	
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#### 4.2.2 Provincial Labor & Social Welfare Office (LSW)

Before	During	After
<ul style="list-style-type: none"> <li>• Coordinate with all concerned parties in PDMC</li> <li>• Make plan and look for human resource</li> <li>• Make the disaster preparedness plan and propose for the budget support</li> <li>• Summary disaster data and present to PDMC</li> <li>• Coordinate with other concerned parties for financial mobilization</li> </ul>	<ul style="list-style-type: none"> <li>• Inform disaster situation to all concerned agencies</li> <li>• Collect disaster data</li> <li>• Encourage all concerned agencies to help affected people</li> <li>• Provide daily necessities to the victims</li> <li>• Report the disaster situation to PDMC regularly</li> </ul>	<ul style="list-style-type: none"> <li>• Assess disaster impact and report to PDMC</li> <li>• Make plan and seek for financial/material support on relief and rehabilitation</li> <li>• Disseminate necessary materials/equipments to victims.</li> </ul>

#### 4.2.3 Provincial Finance Office

Before	During	After
<ul style="list-style-type: none"> <li>• Prepare budget to response to expected situation</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitation and provide budget support to all sectors for immediate action</li> </ul>	<ul style="list-style-type: none"> <li>• Report to PDMC</li> <li>• Encourage all concerned agencies as well as private sectors, NGOs for financial mobilization on recovery and rehabilitation</li> </ul>

#### 4.2.4 Lao Red Cross (LRC)

Before	During	After
<ul style="list-style-type: none"> <li>• Organize meeting for planning</li> <li>• Provide training to Volunteers</li> <li>• Look for budget, food and necessary materials and equipments</li> <li>• Update and inform disaster situation to community people in the risk area</li> </ul>	<ul style="list-style-type: none"> <li>• Moving people/animal to safety area</li> <li>• Set-up temporary shelters</li> <li>• Distribute food and necessary materials and equipments</li> <li>• Provide first aid and health care</li> <li>• Take care of evacuees</li> <li>• Provide sanitation knowledge</li> <li>• Follow-up disaster situation and report</li> </ul>	<ul style="list-style-type: none"> <li>• Provide sanitation knowledge</li> <li>• Seek for financial support</li> <li>• Collect data and report to all concerned agencies</li> </ul>

#### 4.2.5 Information and Culture Office

Before	During	After
<ul style="list-style-type: none"> <li>Update information from all concerned agencies for early warning to villagers to know for preparing to fight and collect property/human lives to safety</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up the disaster situation in the area and update to community people</li> <li>Report disaster situation to PDMC and outsiders to get support</li> </ul>	<ul style="list-style-type: none"> <li>Announce on recovery and rehabilitation support</li> </ul>

#### 4.2.6 Education Office

Before	During	After
<ul style="list-style-type: none"> <li>Assign each party's tasks for fighting with disasters</li> </ul>	<ul style="list-style-type: none"> <li>Encourage manpower for helping affected villagers</li> </ul>	<ul style="list-style-type: none"> <li>Assess disaster impacts on lives and property</li> </ul>

#### 4.2.7 Industry and Trading Office

Before	During	After
<ul style="list-style-type: none"> <li>Make plan to fight with disaster</li> <li>Update pollution control standard in all areas especially for industries</li> <li>Update goods price and stock to avoid the effect to people</li> </ul>	<ul style="list-style-type: none"> <li>Set up goods management committee to control the goods price</li> <li>Control suitable amount of good</li> <li>Control chemical leakage and provide management measures</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate to import seeds and necessary materials for recovery and rehabilitation</li> <li>Monitor and evaluate the industries for pollution control to meet the standard</li> </ul>

#### 4.2.8 Investment and Planning Office

Before	During	After
<ul style="list-style-type: none"> <li>Develop Provincial Socio-economic Development Plan and link with Disaster Preparedness Plan</li> <li>Master plan (20, 5, 1 year)</li> <li>Invest in the soil erosion of embankment /river bank and channel</li> </ul>	<ul style="list-style-type: none"> <li>Develop Emergency Development Plan to present and look for budget support from private sectors and international agencies</li> <li>Cooperate with various sectors to look for the financial support</li> </ul>	<ul style="list-style-type: none"> <li>Coordinate with all concerned agencies for survey and damage assessment for preparing the rehabilitation plan</li> </ul>

#### 4.2.9 Transportation, Post and Construction Office

Before	During	After
<ul style="list-style-type: none"> <li>Announce/ inform early warning through suitable telecommunication system</li> </ul>	<ul style="list-style-type: none"> <li>Focus on helping/moving people to safe area quickly</li> <li>Provide vehicles for evacuating people and their belongings to safety area</li> </ul>	<ul style="list-style-type: none"> <li>Provide transportation service for moving people and their property to safety area</li> </ul>

#### 4.2.10 Province Armed Forces Office

Before	During	After
<ul style="list-style-type: none"> <li>• Prepare action teams for disaster response</li> <li>• Prepare the human resource with vehicles and equipments</li> </ul>	<ul style="list-style-type: none"> <li>• Take lead on search &amp; rescue</li> <li>• Transfer victims and their property to safety area</li> </ul>	<ul style="list-style-type: none"> <li>• Take lead on recovery and rehabilitation</li> </ul>

#### 4.2.11 Lao Women Union (LWU) and Lao Youth Union (LYU)

Before	During	After
<ul style="list-style-type: none"> <li>• Organize the meeting to make Disaster preparedness plan</li> <li>• Inform the disaster situation to LWM members to know and prepare for action</li> </ul>	<ul style="list-style-type: none"> <li>• Help and support affected people and advise villagers how to avoid damage and impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Visit affected people/ victims for moral support</li> <li>• Advise and support to rehabilitation</li> </ul>

#### 4.2.12 Provincial Police Security Office

Before	During	After
<ul style="list-style-type: none"> <li>• Inform all concerned agencies to make disaster preparedness plan</li> <li>• Look for the safe areas</li> </ul>	<ul style="list-style-type: none"> <li>• Take lead on search &amp; rescue the victim</li> <li>• Provide transportation service</li> <li>• Evacuate the victims and their property to safety places</li> </ul>	<ul style="list-style-type: none"> <li>• Take lead on recovery and rehabilitation</li> <li>• Summary and report to PDMC and concerned parties</li> </ul>

#### 4.3 Province Flood Control Office

Provincial Flood Control Office is a center for coordinating with concerned agencies in flood preparedness and response as well as control and budget planning before, during and after the flood.

##### A. Province Flood Control Office members

1.	Mr. Bounthavon Sisouphanthong	Coordinator, Labor & Social Welfare	Head
2.	Mr. Somvang Souvanthong	Lao Youth Union	Vice Head
3.	Mr. Khamphon Sikoumphon	Deputy, Police Security Office	Member
4.	Mr. Bounmy Sibounheuang	Officer, Agriculture & Forestry Office	Member
5.	Mrs. Oulayvan Sengsouvanouhak	Officer, Education Office	Member
6.	Mrs. Chomchan Phetphouthon	Financial Officer, Labor & Social Welfare	Member



## B. List of necessary material/equipments

No.	Items	Unit	Number	Remark
1.	Office	building	1	
2.	Pick-up car	unit	2	
3.	Motorcycle	unit	5	
4.	Computer desktop	unit	3	
5.	Computer note book	unit	2	
6.	Photocopy machine	unit	1	
7.	Cell-phone	unit	3	
8.	Telephone	unit	2	
9.	Megaphone	unit	2	
10.	White board	unit	2	
11.	LCD projector	unit	1	
12.	VDO camera	unit	2	
13.	Digital camera	unit	2	

## 5. Flooding preparedness measures

### 5.1 Preparedness activities

1. Enhancing public awareness raising on disaster risk management in community;
2. Installation of weather forecast and early warning systems;
3. Planning for evacuation of community members, animal and property to safety areas;
4. Preparing vehicles and necessities (trucks, boats, tents and necessary material/equipment).

## 6. Response operation

### 6.1 Preparedness for response

1. Evacuation strategy (boats, other vehicles and action teams);
2. Security of safe areas (tents, sanitation, security, drinking water, etc);
3. Communication preparation (setting up system, responsible persons);
4. Transportation preparation (land and water);
5. Preparation of emergency health care, medicine and necessary equipment;
6. Preparation and repair of embankment in vulnerable areas for protecting flood.

### 6.2 Response operation

1. Following up disaster situation and its risk through monitoring stations and medias;
2. Operating search & rescue;
3. Evacuating people, animal and property to safe areas;
4. Safe area security protection (tents, security, water and sanitation);
5. Medical and health care services;
6. Update information and report disaster situation, its impacts, operation actions and needs;
7. Emergency relief operation;
8. Weather forecast and early warning to people in time;
9. Efficient coordination/cooperation with all concerned agencies.

## 7. Recovery and rehabilitation

### 7.1 Recovery and rehabilitation activities

1. To estimate damage and loss value from previous disaster and needs for current impact;
2. To plan for rehabilitation and recovery based on existing market value and necessity;

3. To link recovery and rehabilitation actions to District and Provincial Development Plans; and
4. To implement recovery and rehabilitation activities.

## **8. Mitigation measures (short-, medium- and long-term measures)**

### **8.1 Structural mitigation**

1. Construction of embankment, dam, water canal in safe area, community and others;
2. Prevention of flood risk by constructing safer houses/buildings and facilities' structure in flooded area, raising building structure's level in risk area, etc.

### **8.2 Non-structural preparedness**

1. Public awareness raising for community people/ information dissemination;
2. Setting up organizations/societies (cooperation among beneficiaries, networks in the province and link with out sources);
3. Study and training (school curriculum, etc);
4. Capacity building (public awareness raising, swimming course, emergency child care center and gender issue, etc);
5. Installation of early warning system;
6. Land use planning (crop cultivation, etc);
7. Developing flood and risk maps.

## **9. Important contact numbers**

### **A. PDMC members**

<b>No.</b>	<b>Name</b>	<b>Position</b>	<b>Contact number</b>
1.	Mr. Odai Soudaphon	Deputy Provincial Governor	020 9950003
2.	Mr. Sengthong phakhounthong	Director, Labor & Social Welfare	020 5756621
3.	Mr. Khampheuang Thephakan	Deputy, Agriculture & Forestry	020 5755650
4.	Mr. Si nguan Inthalath	Deputy, Investment & Planning	020 5223315
5.	Ketsana Latsachak	Deputy, Public Health	020 5650200

### **B. PDMC Secretariat members**

<b>No.</b>	<b>Name and surname</b>	<b>Position</b>	<b>Contact number</b>
1.	Mr. Bounmy Sibounheuang	Officer, Agriculture & Forestry	020 5663210
2.	Mrs. Oulaivanh Sengsouvanouhak	Officer, Education	020 2325689

## 10. Financial allocation and other resources needs

**Table: 5 years work plan (2006-2010) of Khammouane Province**

<b>Activity</b>	<b>Location</b>	<b>Responsible by</b>	<b>Time</b>	<b>Budget (Million Kip)</b>
PDMC, DDMC workshop to enhance Disaster knowledge	province 9 District	PDMC	2006-2010	90.00
Form VDMC and provide training	9 District 50 have risk	PDMC, DDMC	2006-2010	60.00
Compile past disaster information and develop plan	9 District	PDMC, DDMC	2006-2010	200.00
Set up monitoring and impact assessment systems	9 District 50 villages	LSW, Agriculture and Forestry Office	2006-2010	100.00
Set up Information network	9 District 50 villages	PDMC Cultural Office	2006-2010	150.00
Prepare and purchase necessary material/equipment for disaster response	9 District Province	PDMC, DDMC	2006-2010	250.00
Public awareness raising on disaster preparedness	9 District	Cultural Office PDMC, DDMC	2006-2010	50.00
Set up Medical Unit and responsible for rescue	9 District, Province	Health Office	2006-2010	100.00
Form Search & Rescue Team	9 District	Lao Red Cross, Police and Armed Forces Offices	2006-2010	70.00
Prepare safe areas	9 District Province	Finance Office	2006-2010	90.00
Integrate disaster risk management into school curriculum	9 District 100 places	Education Office	2006-2010	100.00
Provide training for vulnerable groups	9 District 150 villages	PDMC, DDMC	2006-2010	50.00
Provide relief and rehabilitation support	Flood Areas 9 District	Cultural Office PDMC, DDMC	2006-2010	350.00
Meetings with nearby provinces on trans-boundary disaster	KM Province 2 time/year	PDMC	2006-2010	50.00
Store food and necessary equipment and identify safe areas or shelters	Province	LSW	2006-2010	1,000.00
Village Development Funds	9 District	Women Union, Agriculture Office	2006-2010	500.00
<b>Total</b>				<b>3,210.00</b>

**Table: Annual work plan (2007-2008) of Khammouane province**

<b>Activity</b>	<b>Location</b>	<b>Responsible by</b>	<b>Time</b>	<b>Budget (Million Kip)</b>
PDMC, DDMC workshop to enhance Disaster knowledge	Province 3 District	PDMC	2007-2008	10.00
Form VDMC and provide training	4 District 25 villages	DDMC	2007-2008	6.00
Set up monitoring and impact assessment systems	3 District 10 villages	LSW, Agriculture and Forestry Office	2007-2008	20.00
Public awareness raising on disaster preparedness	3 District	Cultural PDMC, DDMC	2007-2008	15.00
Compile past disaster information and develop plan	3 districts	PDMC, DDMC	2007-2008	50.00
Set up Information network	3 District 5 villages	PDMC Cultural Office	2007-2008	30.00
Set up Medical Unit and responsible for rescue	3 District Province	Health Office	2007-2008	20.00
Form Search & Rescue Team	3 District	Lao Red Cross, Police, Armed Forces	2007-2008	10.00
Integrate disaster risk management into school curriculum	3 District 20 places	Education Office	2007-2008	40.00
<b>Total</b>				<b>210.00</b>